

I understand that BWRR has submitted its application to the Maryland Department of the Environment (MDE) asking for a Water Quality Certification (WQC) approval for a Tier II antidegradation water quality permit.

I also understand that the role of the state of Maryland is to certify that the proposed SCMaglev project will not harm our state's waterways. The certification process requires a net zero negative impact on our waterways. BWRR has admitted that it cannot meet that requirement and has included its required social and economic justification in its proposed certification.

I am writing to indicate my position that the MDE should not certify this project because it will harm our waterways. I am opposed to this project because the most fundamental data establishing the need and feasibility has not been provided to the public, and, in some cases, the data that has been provided and its validity has been obscured by BWRR.

I have been following this project since 2018, when I learned that the SCMaglev would pass through two communities for which I care deeply, the Kingwood neighborhood in Lanham MD and Greenbelt, MD. I have owned my family home in Lanham for over forty years and co-own a second property in Greenbelt where my son lives. The first encounter I had with my search for information was at a meeting of the Citizens Against The SCMaglev (CATS). Representatives from BWRR showed up wishing to speak. At this meeting, I asked David Henley, vice-president of BWRR, what he would do if he found out that this megatrain could be passing through his communities and under his house. He told me he would do exactly what I was doing, find out everything I could about the project. That is what I have done for the last five years.

It did not take much research to realize that this project is deeply illogical. It employs one of the most expensive transportation options (tunneled maglev), and a proprietary version that has yet to establish a performance track record as a fully operational, profitable system. I was skeptical that the segment between Washington, DC and Baltimore, MD would obtain the ridership that BWRR is touting, or that it could ever be financially self-sufficient.

I would like to say that I have learned much over my five years of research. Sadly, though, on the most relevant points, we, the public, have learned very little, and that is because the project sponsor seems determined to obscure the true facts of this project. The most fundamental categories of analysis have not been completed satisfactorily. These include 1) a clearly written, transparent ridership study whose results can be reproduced by objective transit experts and 2) cost estimate with itemized costs spelled out that includes the cost of the trains themselves.

From 2018- January 2021, when the Draft Environmental Impact Study (DEIS) was released by the Federal Railroad Administration (FRA), I attended, along with other concerned citizens, many public meetings. At almost every meeting, citizens inquired about the possible release of a ridership study that would substantiate the claims of number of cars that would be removed from our roadways with travelers that would ride the SCMaglev. Instead, BWRR always demurred from releasing a study, mentioning various reasons why that was not possible. Ridership studies were cited in the DEIS but not provided. Greenbelt attorneys requested the ridership studies

cited, but the documents provided were heavily redacted. For a year, Maryland Coalition for Responsible Transit (MCRT) pursued through the Freedom of Information Act (FOIA) the release of an unredacted ridership study. The FRA finally agreed to lift many of the redactions, but critical information concerning the methodology used was either missing or garbled. Among the information that remains under redaction is the identity of the peer reviewers.

Throughout the DEIS commenting period in early 2021, even with the redactions, the ridership study was challenged by several commenters who did write clearly and explained their methods. Those studies are available from the MCRT website *mcrct.org*.

Fundamentally, if MDE does not have a clearly written, verifiable ridership analysis in your hands at the time that you make a determination on the benefits of this project, that is a sign that one does not exist, and, thus this project's ability to meet a compelling need and to be financially self-sustaining is questionable. In determining the social and economic benefits that may be derived from the SCMaglev project, MDE should not accept BWRR's ridership claims without further clarification and analysis, including consideration of the alternative studies challenging BWRR's numbers.

After an accurate ridership assessment, the next most important set of project data is that related to cost. When the DEIS was released, project cost was cited as a range between \$10 billion and \$15 billion. However, that range is low, and a revised larger figure should be used to assess cost versus benefits of this project. Adjusted for inflation, with an inflation rate of 23% between 2021- 2023, the cost range becomes approximately \$12.5 - \$18 billion.

Comments submitted to the FRA by the city of Greenbelt point out that cost estimates do not include the cost of the SCMaglev trains. That fact has since been corroborated by a publication in Japan available at <https://english.kyodonews.net/news/2023/03/01ad60a9f0aa-japan-led-maglev-project-in-us-east-faces-cost-regulatory-hurdles.html>. Since the cost of the trains is proprietary to the developer in Japan, the only implementer of the SCMaglev technology thus far, it is hard to say how much more that item would add to the total cost for project implementation. However, in a recently published book *How Big Things Get Done*, author Bent Flyvbjerg discusses problems with cost estimates for megaprojects. He provides extensive data that shows that "The biggest errors were in rail projects which ran, on average, 45 percent over estimated costs." (p. 6). Accounting for that, a more realistic cost estimate for the SCMaglev project would be \$18 billion - \$26 billion.

Additionally, I believe there are other major cost categories that have not been included in the current projected costs. These include the following:

- Cost of mitigating the extensive negative impacts to environments and communities along the SCMaglev path
- Costs of soil storage and ultimate disposition of removed soil and spoils, plans for which still have not been fully developed

- Costs of meeting U.S. safety standards

I know that the moderators at the Water Quality Certification hearings requested that comments be limited to those related to water quality. If the SCMaglev project's sponsor had previously submitted reliable ridership and cost analysis, the need to question the numbers put forth by the project sponsor would not be necessary. I hope that in assessing this project's benefits versus the significant negative impacts it will cause, MDE is able to formulate a more realistic set of ridership and cost data, and that these comments might help in that process.

Additionally, I would encourage MDE to consider the DEIS comments compiled by the city of Greenbelt. There is much discussion of the deficiencies I have identified, as well as an extensive section on Water Quality deficiencies and concerns. I have attached a copy of those comments. Based on all the shortcomings of the information provided by BWRR thus far, MDE should not certify this project.

Sincerely,

Victoria Reynolds



**Baltimore-Washington Superconducting Maglev Project Draft Environmental Impact
Statement and Department of Transportation Act Section 4(f) Evaluation**

**Comments by the City of Greenbelt
Comments also adopted by the City of College Park and the Town of Landover Hills**

MAY 24, 2021

I. INTRODUCTION

The City of Greenbelt (Greenbelt) was created in 1937 by the federal government as the first of three New Deal “greenbelt towns” which pictured a union of city and country life as an attempt to solve social and economic problems confronting the nation. The city’s design integrated natural and built elements in a “unified plan for complete community life.”¹ In the historic core of Greenbelt, homes are arranged in superblocks with the fronts of houses facing internal parks, gardens, and wooded areas designed to be the focus for the families living in the community. Internal walks lead residents from their homes through these parks and down to the community’s center, instead of routing pedestrians along streets.

While the “belts of green between neighborhoods . . . offer easy contact with nature,” another of the defining features in the original design of the city is the belt of green surrounding the core and protecting it from encroaching development.² In literature produced at the time, the U.S. Resettlement Administration noted:

Around the town’s edge is the greenbelt, the distinctive feature of all the Resettlement Administration’s suburban communities. This girdle of permanent open space is intended to protect the town forever from overcrowding and undesirable building on neighboring land. In addition, it offers special opportunities for both recreation and gardening. Part of the area is reserved for parks and playgrounds. Other tracts are set aside as gardens Still other sections are allotted to full-time farmers.³

The Resettlement Administration intended that once construction was finished, the federal government would withdraw, “except for insisting on competent management to protect its

¹ *Greenbelt: History of a New Town, 1937-1987*, at 31 (Mary Lou Williamson ed., 1997).

² Greenbelt City Link, *History of Greenbelt, Maryland, “A National Historic Landmark”*, <https://www.greenbeltmd.gov/home/showdocument?id=2656>, visited April 28, 2021.

³ United States Resettlement Administration, *Greenbelt Towns*, Washington, D.C. 1936. Additionally, in siting the greenbelt towns, the Resettlement Administration chose locations close to urban centers, but far from main thoroughfares. They write, “To protect it from the danger and annoyance of heavy traffic, the town has been located, where possible, a considerable distance from all arterial highways.”

investment and interests . . . and [that] care will be taken that the towns will be permanently administered as planned communities.”⁴

Greenbelt has retained large portions of its original green belt, although the city has grown beyond its historic core, with the surrounding farmland of the 1930s being bisected by highways and divided into privately owned parcels and developed. It has been stated that the Greenbelt of today looks “a bit like some of Europe’s medieval towns that have been recently surrounded by new modern neighborhoods.”⁵ Greenbelt East and Greenbelt West are comprised of detached housing subdivisions, small and large apartment communities, regional shopping centers and office parks, as well as many community assets including recreation centers and parks that reflect Greenbelt’s focus on community and the natural environment. Although they differ in design, the older and newer portions of Greenbelt are tied together through human institutions, civic spirit, and excellent community facilities. The federally planned and constructed portion of Greenbelt, the Greenbelt Historic District, is now designated as a National Historic Landmark.

As is evident from the map below, *see* Figure I.1, the proposed Baltimore-Washington Superconducting Maglev Project (SCMAGLEV or Project) would alter and divide the city with no integrating or unifying features proposed in mitigation. This Project would have serious and substantial impacts on Greenbelt, without providing any benefits to the city or its residents. On the contrary, the Project would harm human health and the environment, destroy parkland, and reduce residents’ quality of life and property values. The SCMAGLEV would also cost billions of dollars, likely to be subsidized by the public, but provide benefits to only a small minority of people who are wealthy enough to afford the high fares and fortunate enough to live near one of its stations, of which there are only three, none of which is in Greenbelt. Making matters worse, the SCMAGLEV would negatively impact the true public transit options that serve the area, and the communities such as Greenbelt that rely on them. Furthermore, the negative impacts from the SCMAGLEV would disproportionately fall on environmental justice communities along the proposed routes.

⁴ *Id.*

⁵ *Greenbelt: History of a New Town, 1937-1987*, at 12 (Mary Lou Williamson ed., 1997).

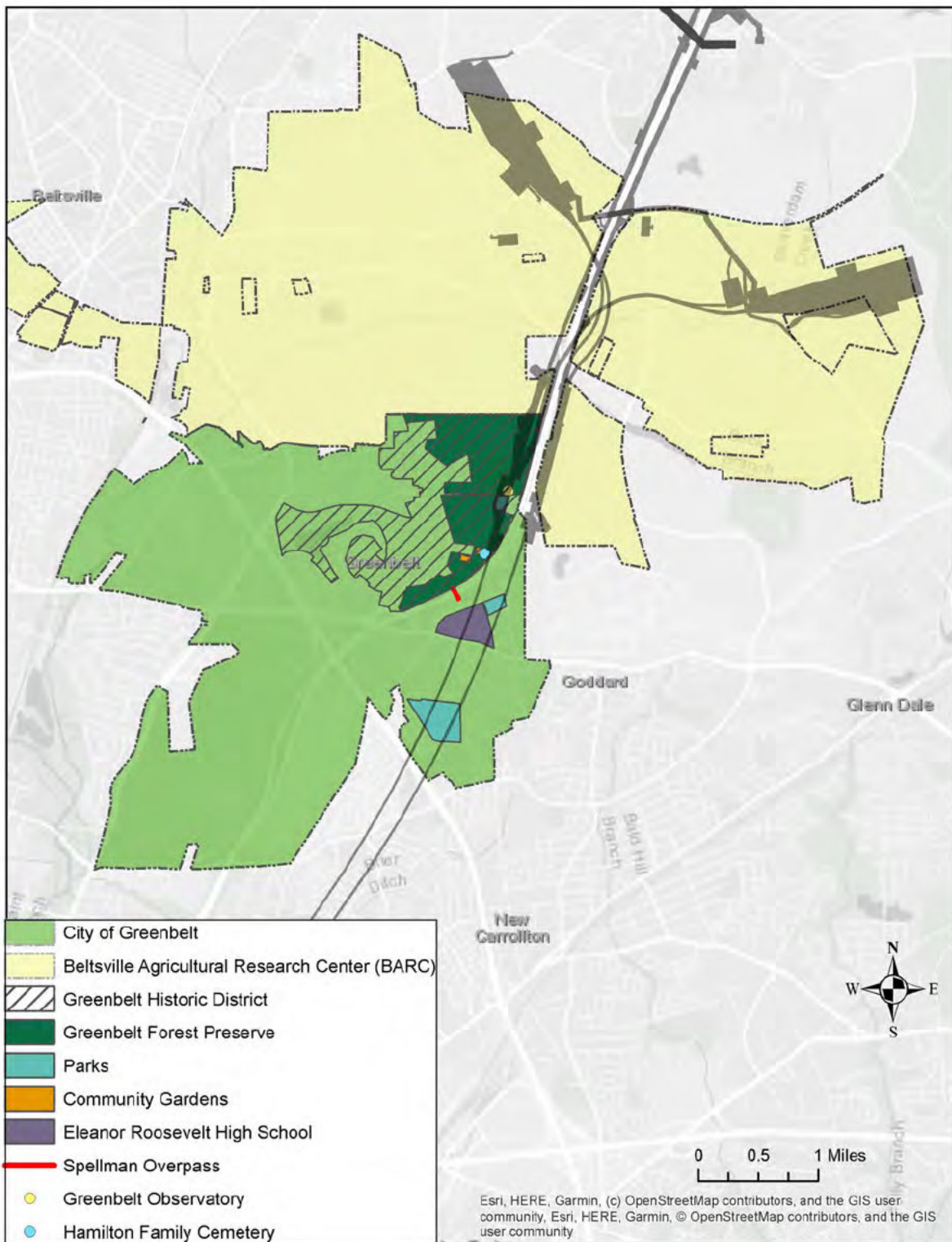


Figure I.1: SCMAGLEV Build Alternatives within the City of Greenbelt and BARC

More generally, the draft environmental impact statement (DEIS) prepared by the Federal Railroad Administration (FRA) violates every law that applies to it, namely, the National Environmental Protection Act (NEPA), the National Historic Preservation Act (NHPA), the Department of Transportation Act (DOTA), and laws and policies implementing principles of environmental justice. As discussed in more detail below:

- The DEIS is inadequate from the start. It does not evaluate all reasonable alternatives to the Project, largely because the FRA adopted a purpose and need that would first and foremost advance the Project Sponsor's interests. The DEIS also improperly limits its evaluation of the environmental impacts of the Project to only the Washington, D.C. to Baltimore segment, even though Baltimore Washington Rapid Rail (BWRR), the Project Sponsor, has made clear that it plans to build the SCMAGLEV all the way to New York.
- The DEIS presents artificially inflated economic benefits and at the same time it obscures the costs of the Project and who will bear those costs, including jobs lost from cuts to other public transit. Of particular concern, the DEIS relies on undisclosed methodologies to predict wildly inflated ridership figures and savings in travel time. Based on reasonable ridership assumptions, it is unlikely the SCMAGLEV would be profitable. The DEIS also does not present a reasonable estimate of construction costs, nor address who would pay for them.
- Although the DEIS acknowledges that the Project would have massive impacts to waterways, wetlands, and floodplains, it does not describe the resource degradation that would occur. The DEIS largely ignores how tunnel construction and operation could impact groundwater, including aquifers that are sources of public drinking water. The FRA also has not provided information on how the Project will comply with important water and wetland permit requirements or the Maryland Chesapeake Bay Critical Area requirements, and the floodplain analysis that is provided fails to meet federal standards.
- The DEIS does not sufficiently identify impacted wildlife species, including rare, threatened, and endangered species, forest interior dwelling species, migratory birds, and wetland species. Additionally, the DEIS does not adequately evaluate the impacts the Project would have on these species' habitat.
- The DEIS recognizes the massive energy resources that would be needed for construction and operation of the SCMAGLEV but largely ignores the greenhouse gases and other harmful air emissions that would increase if the Project were built. Information in the DEIS appendices shows that the Project Sponsor's claims regarding air quality benefits are false, but the presentation of this information in the DEIS obscures this fact.
- For the Project to be properly designed, the length of the proposed tunnels, the complexity of the geology within the region, and the high-water tables present along the proposed alignments would all need to be taken into account. The DEIS nevertheless fails to provide site-specific geological and geotechnical analyses and supporting data that would explain the FRA's selection of the two Project alignments and fails to assess the impact of existing soil strata on the tunneling design and construction plans. The

DEIS also fails to provide site-specific geological and geotechnical data and analyses to support the construction and operation decisions documented within the DEIS. The DEIS inappropriately postpones further geotechnical review until later in the design phase, which would not occur until after completion of the NEPA process.

- The DEIS does not address important issues pertaining to Project safety, such as maintenance of way activities during operating hours, breakdowns, malfunctions, power losses, switches, and crashworthiness. The DEIS is therefore insufficient under NEPA and also is premature because the safety requirements for the Project have not yet been established. Although the Project Sponsor suggests that it will begin construction before the FRA decides whether and how the SCMAGLEV could operate safely, the FRA must make clear that it is unacceptable to proceed in this fashion, which would preclude conducting a full NEPA analysis and would likely result in billions of wasted taxpayer dollars.
- The DEIS does not adequately evaluate the Project's impacts on property along the proposed routes. For example, the DEIS does not sufficiently analyze how construction and operation noise would impact the natural and built environment, including historic buildings and residential buildings sited near transition portals. None of the noise receptors monitoring existing noise levels are located within Greenbelt. In addition, many Greenbelt residences could be impacted by vibrations extending from the SCMAGLEV tunnel to the ground surface, and scenic views of parkland would be replaced by concrete viaducts and speeding trains.
- The DEIS does not meaningfully evaluate the traffic impacts that construction and operation of the Project would have near construction sites and the proposed trainset maintenance facilities (TMFs). The potential increased traffic would include hundreds of heavy trucks per day during construction, and vehicles would very likely cut through Greenbelt during construction closures.
- The DEIS does not meaningfully evaluate the cumulative traffic, water, air, greenspace, utilities, and other impacts of the SCMAGLEV when combined with other reasonably foreseeable projects, such as the Beltway expansion, the move of the Bureau of Engraving and Printing facility to the Beltsville Agricultural Research Center (BARC), and the extension of the SCMAGLEV to New York.
- The DEIS recognizes that the majority of the negative impacts from the Project would fall on environmental justice (minority and/or low income) communities along the route, yet those communities would get little or no benefit from the Project. The FRA did not complete the required environmental justice analysis, which, if performed, would obligate the agency to choose the "No Build" or a different alternative.
- The Project would impact significant historic and recreational areas, such as the Greenbelt Historic District and the Greenbelt Forest Preserve. The FRA has not yet complied with the requirements that would allow it to disturb these sites, including choosing the least harmful alternative and obtaining review and approvals from the appropriate agencies charged with protecting them.

- The FRA has not provided the public with much of the information that underlies significant findings in the DEIS. It is also unclear whether the FRA reviewed and verified this information or just accepted the Project Sponsor's claims that it was true.

The information that the FRA has provided to date, as inadequate as it is, already indicates that the Project's benefits have been overstated and that it would come at an enormous cost, both financial and environmental. Greenbelt therefore staunchly opposes the SCMAGLEV and endorses the "No Build" option. If the FRA nevertheless continues its deliberations on the Project despite all the existing information against it, the FRA will need to issue a new DEIS based on adequate information in order to fulfill its obligations under NEPA and the other authorities discussed in these comments. If the FRA does so, we are confident it will realize that the "No Build" alternative is the only reasonable decision it could make.

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II. THE DEIS DOES NOT COMPLY WITH NEPA

A. The DEIS Does Not Satisfy NEPA’s Basic Requirements to Consider All Significant Impacts, Provide and Evaluate Accurate Information, and Consider All Reasonable Alternatives, as is Reflected in the FRA’s Unreasonably Narrow Purpose and Need Statement

1. NEPA Standards in General

An Environmental Impact Statement (EIS) has “twin functions”: preparation of the EIS is designed to require agencies to take a hard look at the consequences of their proposed actions, and distribution of the EIS is designed to provide important information about the proposed action to the public for notice and comment. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349, 356 (1989). An EIS therefore must “detail the environmental and economic effects of proposed federal action ‘to enable those who did not have a part in its compilation to understand and consider meaningfully the factors involved,’ and to compel the decisionmaker to give serious weight to environmental factors in making discretionary choices.” *Sierra Club v. Morton*, 510 F.2d 813, 819 (5th Cir. 1975) (citations omitted).

An EIS must “provide full and fair discussion of significant environmental impacts” arising from the proposed action and describe reasonable alternatives “that would avoid or minimize adverse impacts or enhance the quality of the human environment.” 40 C.F.R. § 1502.1 (2019).⁶ Agencies must “[r]igorously explore and objectively evaluate all reasonable alternatives[.]” *Id.* § 1502.14(a) (2019). Agencies must consider the direct, indirect, and cumulative impacts of proposed actions, including health impacts. *Id.* § 1508.8 (2019); *see also id.* § 1508.7 (2019). General statements about possible effects and risks do not constitute the hard look required by NEPA without a justification for why the agency could not supply more definitive information. *Or. Nat. Desert Ass’n v. Rose*, 921 F.3d 1185, 1191 (9th Cir. 2019). Conclusory statements that the effects will be minimal or are inevitable are also insufficient under NEPA. *Del. Riverkeeper Network v. FERC*, 753 F.3d 1304, 1313 (D.C. Cir. 2014); *Defs. of Wildlife v. N. C. Dep’t of Transp.*, 762 F.3d 374, 394 (4th Cir. 2014); *N.C. Wildlife Fed’n v. N.C. Dep’t of Transp.*, 677 F.3d 596, 602 (4th Cir. 2012). Moreover, “an agency may not rely on incorrect assumptions or data in an EIS.” *Native Ecosystems Council v. U.S. Forest Serv.*, 418 F.3d 953, 964 (9th Cir. 2005).

⁶ Throughout these comments, Greenbelt cites to the Council on Environmental Quality’s NEPA regulations in effect at the time FRA announced its intent to prepare an EIS and during most of the time the draft EIS was being prepared. *See* 81 Fed. Reg. 85,319 (Nov. 25, 2016). Although new regulations were finalized on July 16, 2020, 85 Fed. Reg. 43,304, the regulations have been identified by the White House as an agency action that will be reviewed. Fact Sheet: List of Agency Actions for Review, <https://www.whitehouse.gov/briefingroom/statements-releases/2021/01/20/fact-sheet-list-of-agency-actions-for-review/>; *see also* Executive Order No. 13,990, 86 Fed. Reg. 7037 (Jan. 25, 2021). There are also currently five cases in four federal district courts challenging the new regulations. At all events, Greenbelt’s comments on, and flaws identified in, the DEIS apply no matter which CEQ regulations are considered.

An EIS must contain a detailed discussion of possible mitigation measures. *Protect Our Communities Found. v. Jewell*, 825 F.3d 571, 581-82 (9th Cir. 2016). “Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects.” *Methow Valley Citizens Council*, 490 U.S. at 352.

Because the need to engage in reasonable forecasting and speculation is implicit in NEPA, agencies may not shirk their responsibilities by labeling discussions of future environmental effects as “crystal ball” inquiries. *Del. Riverkeeper Network*, 753 F.3d at 1310; *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1079 (9th Cir. 2011). Agencies also may not “postpone analysis of an environmental consequence to the last possible moment”; they must consider impacts “as soon as it can reasonably be done.” *Kern v. BLM*, 284 F.3d 1062, 1072 (9th Cir. 2002). Importantly, NEPA requires consideration of the potential impacts of an action *before* the action takes place. *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1380 (9th Cir. 1998).

An adequate EIS is essential to the informed agency decision-making and informed public participation required by NEPA. *S. Fork Band Council of W. Shoshone Of Nev. v. U.S. Dep’t of Interior*, 588 F.3d 718, 725 (9th Cir. 2009). To implement the latter requirement, any referenced material must be made available within the time allowed for comment. *Sierra Club, Inc. v. U.S. Forest Serv.*, 897 F.3d 582, 598 (4th Cir. 2018) (citing 40 C.F.R. §§ 1502.9(a), 1502.21). When the information in the initial EIS is so incomplete or misleading that the decisionmaker and the public cannot make an informed comparison of the alternatives, revision of an EIS may be necessary to provide “a reasonable, good faith, and objective presentation of the subjects required by NEPA.” *Animal Def. Council v. Hodel*, 840 F.2d 1432, 1439 (9th Cir. 1988), *amended*, 867 F.2d 1244 (9th Cir. 1989); 40 C.F.R. § 1502.9(a), (c).

The Draft EIS (DEIS) prepared for the SCMAGLEV Project fails to meet the requirements set forth above, as explained in more detail in these comments, and therefore the FRA may not move ahead with the Project. At a minimum, the FRA must prepare a revised DEIS to correct these omissions; that way both the agency and the public would have a meaningful opportunity to review and consider the Project’s impacts before any decision is made.

2. The DEIS Defines the Purpose and Need in Unreasonably Narrow Terms by Limiting the Scope to Reflect the Project Sponsor’s Private Interests

Agencies may not define a project’s objectives in unreasonably narrow terms. *City of Carmel-By-The-Sea v. U.S. Dept. of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997). A purpose and need statement must allow an EIS to be more than a “foreordained formality.” *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 195-96 (D.C. Cir. 1991). Although an agency must take an applicant’s objectives into account—in this case, the objectives of Baltimore Washington Rapid Rail (BWRR), the Project Sponsor—when developing the purpose and need statement, it is the agency’s duty to “defin[e] the objectives of an action.” *Colo. Env’t Coal. v. Dombeck*, 185 F.3d 1162, 1175 (10th Cir. 1999). An agency “may not circumvent the proscription” against defining its objectives in unreasonably narrow terms “by adopting private interests to draft a narrow purpose and need statement that excludes alternatives that fail to meet specific private objectives.” *Nat’l Parks Conservation Ass’n v. Bureau of Land Mgmt.*, 606 F.3d 1058, 1072 (9th Cir. 2010).

The November 16, 2016 Notice of Intent to prepare an Environmental Impact Statement states: “The purpose of BWRR’s Proposed Action is to increase capacity, reduce travel time, and improve both reliability and mobility options between Baltimore and Washington.” 81 Fed. Reg. 85,319, 85,320. This purpose is reasonable and allows for meaningful analysis and review of alternatives.

However, without explanation, the purpose of the Project was later changed as follows:

The purpose of the SCMAGLEV Project is to evaluate, and ultimately construct and operate, a safe, revenue-producing, high-speed ground transportation system that achieves the optimum operating speed of the SCMAGLEV technology to significantly reduce travel time to meet the capacity and ridership needs of the Baltimore-Washington region.

DEIS at ES-6, 2-1 (emphasis added). This revision makes the purpose unreasonably narrow. The SCMAGLEV’s optimum operating speed, as described by the DEIS, is 311 miles per hour. DEIS at 3-37. There is no other ground transportation system that can achieve this speed. In fact, there is no commercially operating Maglev system that can achieve this speed; even the fastest commercially operating Maglev system, the Shanghai Maglev Train, would not meet this requirement.

On the other hand, a 275 mile per hour Maglev or even one of the numerous 200-plus mile per hour conventional high-speed trains, which would result in only three more minutes of travel time between Washington, D.C. and Baltimore than the SCMAGLEV’s fastest estimated speed stated in the DEIS, would plainly meet the original purpose of the project, as well as the rest of the purpose and need stated in the DEIS (described below). More realistically, a combination of improvements to current rail infrastructure could produce a safe, revenue-producing, high-speed ground transportation system that significantly reduces travel time and meets the capacity and ridership needs of the Baltimore-Washington region. By stating such a narrow purpose, the FRA has allowed consideration only of the Project Sponsor’s specific SCMAGLEV technology, thereby excluding many viable alternatives in favor of BWRR’s (and its parent and partner corporations’) private interests. *See* DEIS at ES-7 (“FRA considered the No Build Alternative and Build Alternatives that focus on implementation of a SCMAGLEV system. FRA did not include the evaluation of other transportation modes for the Build Alternatives because modes other than SCMAGLEV technology would not achieve the SCMAGLEV Project Purpose and Need.”). At a minimum, the FRA should start the NEPA process over with a reasonable purpose that allows a true evaluation of alternatives to take place.

The FRA cannot rely on the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) to support its narrow purpose. It is true that the Act authorized funding assistance for the capital costs of a Maglev project. Pub. L. No. 109-59, §1307(b), 119 Stat. 1144 (2005). But it did not mandate the construction of a Maglev, nor did it override NEPA’s prohibition against the formulation of an unreasonably narrow purpose and need or NEPA’s requirement to consider all reasonable alternatives based on a proper purpose and need. Second, SAFETEA-LU authorized funding assistance for “transportation systems employing magnetic levitation that would be capable of safe use by the public at a speed in excess of 240 miles per hour.” *Id.* § 1307(a)(1)(3). Even if the FRA were constrained by the Act to only consider

Maglevs, which it is not, by narrowing the purpose of the project to systems achieving 311 miles per hour the FRA excluded all Maglev alternatives except those using Superconducting Maglev (SCMAGLEV) technologies, with no basis for doing so. In fact, by defining the purpose so that it requires the use of the Project Sponsor's technology, which has not even been demonstrated to be safe in real-life operation, the FRA repudiated Congress's intent as stated in SAFETEA-LU. *See Citizens Against Burlington, Inc.*, 938 F.2d at 196.

3. The DEIS's Purpose and Need is Based on Outdated Information

In addition to being too narrow, the DEIS's purpose and need statement violates NEPA because it is premised on false or inaccurate information. *See Sierra Club v. U.S. Army Corps of Eng'rs*, 701 F.2d 1011, 1030 (2d Cir. 1983). The DEIS claims that the Project is needed to address issues and challenges from: 1) increasing population and employment in the Baltimore-Washington region; 2) growing demands on the existing transportation network; and 3) inadequate capacity of the existing transportation network. The DEIS points to various items as support for its claim of need, such as Congestion Assessment Maps from January 2015, DEIS at 2-2 n.3, a Mobility Report from December 2015, *id.* at 2-3 & n.4, and a 2010 Northeast Corridor Infrastructure Master Plan, *id.* at 2-7 to 2-8. But the DEIS fails to confirm that these items, which are up to eleven years old, remain reliable and accurate, and that the need for the Project remains.

Although the DEIS relies on the December 2016 Northeast Corridor FUTURE Tier 1 Final Environmental Impact Statement as demonstrating need, *see* DEIS at 2-2 to 2-3, 2-8, the DEIS ignores the infrastructure improvements selected in the corresponding Record of Decision that are designed to address the very same needs, such as chokepoint relief, new track, tunnel replacement, and station expansion along the northeast corridor. The DEIS also ignores the nearly \$1.5 billion of funding committed to improvements to MARC service under the Baltimore Metropolitan Council and the Metropolitan Washington Council of Governments Constrained Long Range Plans. DEIS at 3-9. Surely those actions have and will continue to lessen the claimed need for the SCMAGLEV. Further, although the DEIS recognizes that COVID-19 has impacted the project need and at least some of those impacts are anticipated to continue indefinitely, the DEIS does nothing to evaluate those impacts, stating merely that "there is not yet a consensus regarding those long-term impacts." *Id.* at 2-8, 2-10. COVID-19 has led to an increase in remote work and a decrease in public transit use, which is expected to continue. The Acela, the closest comparison to the proposed SCMAGLEV, has had its ridership decrease from 1,479,600 in February 2020 to 166,000 in March 2021.⁷ Although there may not be consensus on the long-term impacts of COVID-19 on travel in the corridor, that does not excuse the FRA from engaging in reasonable

⁷ Amtrak, Monthly Performance Report YTD March FY 2021 at 7 (April 30, 2021), <https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/monthlyperformancereports/2021/Amtrak-Monthly-Performance-Report-March-2021.pdf>; Amtrak Monthly Performance Report February FY 2020, at 7 (Mar. 25, 2020), <https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/monthlyperformancereports/2020/Amtrak-Monthly-Performance-Report-February-2020.pdf>. The FRA must also evaluate COVID-19's impact on the SCMAGLEV's ability to be revenue-producing and meet the project purpose, which the DEIS failed to do.

forecasting, as NEPA requires, and evaluating that impact, particularly to determine whether the project purpose and need remain the same based on accurate up-to-date information.

Given already completed and planned infrastructure improvements in the corridor, as well as changes spurred by the COVID-19 pandemic, the claimed need for the Project is premised on outdated information. The FRA may not go forward with such a significant project, costing tens of billions of dollars and causing significant environmental harms as detailed below, based on a premise that is no longer true.

4. The DEIS Fails to Evaluate All Reasonable Alternatives That Would Meet the Stated Purpose and Need or a Proper Purpose and Need

NEPA requires that an agency “[r]igorously explore and objectively evaluate all reasonable alternatives” to the proposed action. 40 C.F.R. § 1502.14(a) (2019) (emphasis added). An agency must consider a range of alternatives “sufficient to permit a reasoned choice among the options.” *Wyoming v. U.S. Dep’t of Agric.*, 661 F.3d 1209, 1243 (10th Cir. 2011) (quoting *Ass’n Working for Aurora’s Residential Env’t v. Colo. Dep’t of Transp.*, 153 F.3d 1122, 1130 (10th Cir. 1998)). An agency cannot reject alternatives that standing alone do not achieve the project’s goals or that do not offer a complete solution to the purpose and need. *Nat. Res. Def. Council v. Morton*, 458 F.2d 827, 836 (D.C. Cir. 1972). An agency shall “include reasonable alternatives not within the jurisdiction of the lead agency,” 40 C.F.R. § 1502.14(c) (2019), including those in which funding is not clear, *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 814 (9th Cir. 1999); *see also* Council on Environmental Quality, Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations, at 2b (1986) (“Alternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA’s goals and policies.”).

Here, the FRA ignored numerous reasonable alternatives that would have had different environmental and economic impacts. By doing so, the FRA foreclosed the more thorough evaluation of project impacts that is required under NEPA.

For example, the DEIS fails to consider a completely underground (tunneled) SCMAGLEV route. The FRA previously stated that BWRR did not develop a fully tunneled alternative because:

The additional billions of cost from tunneling to go beyond minimization of impact to complete avoidance of impact along the BWP [Baltimore Washington Parkway] is a substantial amount of capital expenditure that would severely jeopardize the financial viability of the project.

Final Alternatives Report at 63. The FRA also stated that the DEIS would include a full tunnel option(s) for comparison, *id.* and agreed to provide the financial feasibility analysis that the Project Sponsor based its cost assertion on, DEIS App. F Draft Section 4(f) Evaluation Attachment B – Coordination & Correspondence, Response to Comment at PDF p. 36. However, the DEIS does not do so. Instead, the public is left to evaluate unverified assertions that the J1 Build Alternatives, which are 86% tunneled and cost tens of billions of unaccounted for dollars, are financially viable

but a 100% tunneled alternative would jeopardize that viability. DEIS at 4.8-17. As explained below in Section II.B.3, the DEIS does not present the public with an estimated capital cost for the evaluated Build Alternatives, nor does it present an estimated cost of a fully tunneled alternative. The DEIS also does not provide any information about the expected source of funding, except to say there is no federal funding appropriated for construction. Therefore, it is impossible for the public to meaningfully comment on any claims that a full tunnel would not be financially viable, and the DEIS has not justified excluding a fully tunneled alternative from consideration or provided the financial analysis promised throughout the NEPA process.

The FRA also says:

In addition, some extent of above-ground operation is needed to demonstrate the feasibility of Maglev technology to the public, other than riders, consistent with the Maglev Deployment Program as authorized in TEA-21 and to provide riders the experience of above-ground travel.

Final Alternatives Report at 63. But the TEA-21 and the Maglev Deployment Program do not require above-ground operation to demonstrate the feasibility of Maglev technology to the public. It is arbitrary and capricious for the FRA to eliminate consideration of fully tunneled alternatives based on the unsupported assertion that the public would not believe in the feasibility of Maglev technology unless it was seen above ground, where it would be most environmentally harmful. Moreover, the purpose and need statement does not require above-ground operation or a demonstration of feasibility to the public. And regardless, the FRA may not reject evaluation of the fully tunneled option just because, standing alone, it would not achieve all of the project's goals or offer a complete solution to the purpose and need.

Similarly, the DEIS fails to consider a route that, even if not fully tunneled, would tunnel for a greater distance, particularly north of Greenbelt and BARC, which would cause far less environmental impact. The FRA does not explain anywhere in the DEIS or Alternative Reports its failure to evaluate a longer tunnel. A DEIS appendix suggests that the Project Sponsor decided a longer tunnel was not feasible because of grade requirements of TMF ramps, DEIS App. F at F-39, but the FRA cannot rely on the Project Sponsor's unsupported claims, *see* Sections II.A.1, IV.C.2, and V. Those claims are also incorrect, at the very least with respect to Build Alternatives that use the MD 198 TMF, which is significantly further from the tunnel portal and could not possibly be limited by the same grade distance requirements as the BARC TMFs.

The DEIS also fails to evaluate 12-car trainsets, or other smaller-sized trainsets, which would cause less disturbance at stations and TMF locations, less energy use and associated air emissions, and fewer overall environmental impacts. The NEPA process was based on a 12-car trainset until the release of the DEIS. The FRA did not explain why this trainset size and its smaller TMF needs was eliminated but merely states the Project Sponsor applied newly adopted design criteria provided by Japanese designers and operators:

Increased train size from 12-car to 16-car trains to accommodate U.S. standards for larger seats, restrooms, luggage storage, and Americans with Disabilities Act requirements, and the same passenger capacity.

DEIS App. C at C-26. This statement leaves it to the public to hypothesize about the true reason for the change, since there is no suggestion that 12-car alternatives could not meet the purpose and need, and they could certainly be designed to comply with U.S. standards for seats, restrooms, luggage storage, and Americans with Disabilities Act requirements, particularly when these are the SCMAGLEV trainsets that the FRA had been evaluating and presenting to the public for years. Moreover, it is not clear if the FRA independently evaluated the claimed justification for this change, as required under NEPA, or just accepted the Project Sponsor's representations as true.

The FRA previously suggested that the train car length and corresponding station and TMF sizes could be adjusted based on the ridership assessment studied during preparation of the DEIS. Final Alternatives Report App. B at PDF p. 86. The FRA does not mention let alone present any of this analysis in the DEIS. To the extent the FRA considered ridership in eliminating reasonable alternatives with a smaller environmental footprint, the FRA must provide the public with that analysis for review and comment and must pause its consideration of the Project in the meantime. Based on the errors in the ridership information contained in the DEIS, *see* Section II.B, it is likely that the FRA improperly eliminated smaller trainset alternatives from consideration based on similarly incorrect information.

The DEIS fails to consider other Maglev technologies, despite recognizing that the German Transrapid Maglev can travel above 260 miles per hour and operates at less than half the energy intensity per mile as the SCMAGLEV, *see* DEIS at 4.19-8, which would cause significantly less energy consumption, air emissions, capital and operating and maintenance costs, and other impacts.

The DEIS fails to consider high speed rail options, other rail improvements in the corridor, and other public transit improvements in the corridor. Various conventional high speed rail options can safely transport passengers above 200 miles per hour with significantly less negative environmental and economic impacts than the SCMAGLEV Build Alternatives. The Acela already takes only about 30 minutes between Baltimore and Washington, D.C., before any improvements to it are considered. Another alternative, either alone or in combination with others, is to run express MARC trains that would take 35 minutes between Baltimore and Washington, D.C. That the SAFETEA-LU authorizes (but does not actually appropriate) funds for Maglev deployment does not excuse the FRA from evaluating a full range of reasonable alternatives to address a proper purpose and need under NEPA.

5. The DEIS Unlawfully Evaluates Only a Segment of the SCMAGLEV Project

Agencies are required to consider connected actions in the same EIS. 40 C.F.R. § 1508.25(a)(1) (2019). This requirement prevents agencies from engaging in segmentation, that is, circumventing NEPA by not studying the full impacts of a project. "This rule against segmentation was developed to prevent the piecemeal environmental analysis of interrelated projects, which could give an inaccurate impression of overall environmental effects." *N.C. All. for Transp. Reform v. DOT*, 151 F. Supp. 2d 661, 680 (M.D.N.C. 2001). Courts consider three factors to determine if separate project segments are in fact cumulative actions that, based on the Council of Environmental Quality (CEQ) regulations, should be discussed in the same impact statement: (1) whether they are part of a single project; (2) whether they were announced

simultaneously; and (3) whether construction of both (or in the case of the Project all three) portions was reasonably foreseeable. *N.C. All. for Transp. Reform*, 151 F. Supp. 2d at 684-85 (citing *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1214-15 (9th Cir. 1998)).

The DEIS unlawfully segments the SCMAGLEV Project and analyzes only the segment from Washington, D.C. to Baltimore, instead of evaluating impacts from the entire Washington, D.C., to New York City route. Throughout the NEPA process, the Project Sponsor has made clear that Washington, D.C. to Baltimore is just one segment of the longer route to New York City, which is the real goal it is pursuing.⁸ A Project Sponsor's Report presented with the DEIS also makes this clear: "This is the first leg of an envisioned route from Washington, D.C. to New York City." DEIS App. G13 at PDF p. 85. The Project Sponsor and the FRA also apparently based design alternatives on "[c]onsideration . . . of planned future service to New York City," Final Alternatives Report at 36, although none of the information related to these considerations is revealed in the DEIS or Alternative Reports. Perhaps most important, the Project Sponsor and its financiers have stated that only when the rest of the line between Baltimore and New York "is done can the route expect to be profitable."⁹ Yet, the only time New York City is even mentioned in the DEIS is with a vague suggestion that an extension would improve the SCMAGLEV's energy efficiency. No environmental impacts of that segment are considered.

⁸ Final Preliminary Alternatives Screening Report at 1 n.2 ("BWRR's 'Response to the NOFA' [Notice of Funding Availability and Solicitation of Applications for Magnetic Levitation Projects], dated April 17, 2015, states 'The Project involves the Baltimore, MD – Washington, DC segment of the New York, NY – Washington, DC federally designated high-speed ground transportation corridor.'"); BWRR, Frequently Asked Questions, <https://bwrapidrail.com/facts/>, visited Apr. 27, 2021 ("Ultimately, the system will be extended to New York City. . . .The eventual extension to New York will provide access to over four million jobs in less than an hour commute."); Northeast Maglev, Newsroom Making News, <https://northeastmaglev.com/news-room/>, visited Apr. 27, 2021 (same); Andrew Zaleski, *Crazy Train: Is the Proposed 300-Mile-Per-Hour Maglev Train Baltimore's Future? Or Fantasy?*, Baltimore Magazine (Sept. 2019), <https://www.baltimoremagazine.com/section/businessdevelopment/proposed-300-mile-per-hour-maglev-train-baltimores-future-or-fantasy-public-transport-technology/> (quoting BWRR and Northeast Maglev Chairman and CEO Wayne Rogers saying "The real goal is shrinking geography between Washington and New York so that we bring 50 million people within one hour of transportation.").

⁹ Michael Fitzpatrick, *A Long Road for High-Speed Maglev Trains in the U.S.*, Fortune (Feb. 6, 2014), <https://fortune.com/2014/02/06/a-long-road-for-high-speed-maglev-trains-in-the-u-s/>; see also Mike Valerio, *A 311 MPH Floating Train Could Link DC & Baltimore – Neighbors, the NSA & a Nation in Gridlock Take Notice*, (Nov. 21, 2019), <https://www.wusa9.com/article/news/local/dc/what-could-dc-to-baltimore-bullet-train-look-like-we-went-to-japan-to-find-out-scmaglev/65-e5852fe0-fa8a-4a56-a962-96b4d44c6529> ("'If the SCMaglev system is built between Washington, D.C., and New York, infrastructure building costs aside, the system would be profitable,' said Yoshiyuki Kasai, chairman emeritus of the Japanese [sic] maglev operator, JR Central.").

Clearly the Washington, D.C. to Baltimore and Baltimore to New York segments of the SCMAGLEV are part of a single project, were announced simultaneously, and construction of the New York segment is reasonably foreseeable. Given the limited ridership and lack of profitability for the Washington, D.C. to Baltimore route, it does not have independent utility and would not be a reasonable expenditure even if no other transportation improvements were being made along the Northeast Corridor.¹⁰ Moreover, given the massive capital costs and the unique track and operation requirements of the SCMAGLEV, the building of this segment would restrict any further transportation improvements in the corridor.

B. The DEIS Presents Misleading Estimates of the Project’s Economic Costs and Benefits Based on Flawed and Impossible Ridership Predictions, in Violation of NEPA’s Requirements for Accuracy and Transparency¹¹

1. Executive Summary

- The DEIS fails to completely disclose the ridership modeling reports developed for the Project. The FRA falsely claims that they are “confidential business information that was not relied on to prepare the Draft Environmental Impact Statement (DEIS).” Faris Mohammed email to Ian Fisher, March 26, 2021 (in Email chain between Ian Fisher, Brandon Bratcher, and Faris Mohammed, “Access to SCMaglev DEIS Referenced Reports”) (attached). These reports are the foundation for much of the information in the DEIS. The FRA’s failure to review these reports is a failure to take the required “hard look” at Project impacts.
- The DEIS either hides or does not address who will pay for the huge cost of constructing the SCMAGLEV.

¹⁰ Beyond the Project Sponsor’s statements, correcting the glaring errors and biases in the DEIS’s ridership study and cost-benefit analysis would also show that this segment is not financially viable. *See* 23 C.F.R. § 771.111(f); Section II.B.

¹¹ This subsection is based primarily on the review of Norman Marshall, President, Smart Mobility, Inc. Mr. Marshall received a B.S. in Mathematics from Worcester Polytechnic Institute (1977) and an M.S. in Engineering Sciences from Dartmouth College (1982). Mr. Marshall’s studies at Dartmouth College included graduate courses in transportation modeling. Mr. Marshall has 33 years of professional experience in transportation modeling and transportation planning including 14 years at RSG Inc. (1987-2001) and nearly 20 years at Smart Mobility Inc. (2001-now). Mr. Marshall’s primary professional focus is regional travel demand modeling and related transportation planning. Mr. Marshall is a nationally known expert in this field and has completed projects in over 30 states including work for the U.S. government, state Departments of Transportation, Metropolitan Planning Organizations, cities, and non-profit organizations. One of his particularly notable projects is a \$250,000 project with the California Air Resources Board where he led a team including the University of California in reviewing the state’s regional travel demand models. Mr. Marshall has many peer-reviewed publications and conference presentations, including presentations at national Transportation Research Board conferences in 2017, 2018, and 2019. Mr. Marshall is an Associate Member of the Transportation Research Board.

- The DEIS does not demonstrate that operating and maintenance (O&M) costs will be offset by revenues. This leads to huge unanswered questions regarding the financial viability of the Project and the possible need for subsidies if revenues fail to offset O&M costs.
- The DEIS inflates ridership by a) failing to screen out unrealistic zone-to-zone trips, and b) applying unrealistically high SCMAGLEV mode shares to overly large catchment areas.
- The DEIS fails to disclose critical information about the stated preference survey that one of the redacted reports states “forms the basis of the ridership forecasts.”
- The DEIS overestimates travel time savings per rider by a factor of five or more and also significantly overestimates reliability benefits per rider.
- The DEIS overestimates auto mode parking and toll costs and ignores SCMAGLEV parking costs.
- The SCMAGLEV would undermine MARC, Amtrak, and bus service and have negative impacts on minority and low-income populations. Very few would be able or willing to pay the proposed \$70-79 peak and \$59-\$69 off-peak one-way ticket prices to use the SCMAGLEV.
- The DEIS overestimates induced travel.
- The DEIS fails to present a ridership range that reflects the great uncertainty in the Project. In a more realistic range of ridership outcomes, the median estimate is only a third of the DEIS forecast.
- The Project Sponsor is misrepresenting construction and permanent SCMAGLEV jobs including using a permanent jobs number of 14,600 vs. the DEIS estimate of 390 to 440. The DEIS ignores the jobs that will be lost from business interruptions and cuts to other public transit options and also ignores that the estimated job benefits from the SCMAGLEV would occur from investment in other more affordable transit options.
- Seventy-three percent of the purported economic benefits of SCMAGLEV are travel time benefits and these are overestimated by a factor of 15 or more. Even with the inflated travel time and reliability benefits assumed, the DEIS shows that these benefits are not large enough to cover additional out-of-pocket costs. When more realistic travel time and reliability benefits are assumed, riders would pay an average of \$30 more than the value of the benefits received.
- The other two significant benefits claimed in the DEIS—safety and reduced congestion—rest on inflated ridership numbers and rely on simplistic and unreliable vehicle miles traveled (VMT) multipliers.
- The supposed congestion relief for non-SCMAGLEV travelers will not materialize. Instead, construction of the SCMAGLEV will create a two-tier system with a fast ride for the affluent and negative consequences for everyone else.

2. Critical DEIS Documents Have Not Been Provided to the Public

The DEIS refers to Baltimore Washington Rapid Rail, LLC (BWRR) as the “Project Sponsor.” The DEIS extensively references ridership and revenue studies done by the Project Sponsor’s consultants but fails to provide public access to these studies despite specific requests for them. Only on April 9, 2021, almost three months after the release of the DEIS, were two heavily redacted reports from a larger set of requested documents released. An FRA email claims that the redactions are to “protect sensitive business information from disclosure.” Faris Mohammed email to Ian Fisher, March 26, 2021 (in Email chain between Ian Fisher, Brandon Bratcher, and Faris Mohammed, “Access to SCMaglev DEIS Referenced Reports”) (attached). This is a mischaracterization of most of the redactions, and many critical questions are left unanswered. One of the two redacted documents, Ridership Supplement 2018-12-10 Rev0 Redacted.pdf, is useless because it includes only summary numbers, as the DEIS does, and those numbers often do not even match the DEIS numbers. The other document includes some information that is not in the DEIS but is heavily redacted, as shown in this example:

Figure II.B.1: Redaction Example from the Executive Summary of the Final Ridership Report¹²

- An intercity passenger forecasting model for the corridor was developed. (b) (4)

[Redacted text block]

In the example copied above, the Project Sponsor is unwilling to provide even the most basic information about the model. There is no possibility that the missing text is “sensitive business information.” This problem is present throughout the redacted document.

Models are complicated, rest on assumptions and have limitations. No one should blindly accept the outputs of a “model” without knowing how the model was constructed and validated. The FRA email describes the missing reports as “confidential business information that was not relied on to prepare the Draft Environmental Impact Statement (DEIS).” Faris Mohammed email to Ian Fisher, March 26, 2021 (in Email chain between Ian Fisher, Brandon Bratcher, and Faris Mohammed, “Access to SCMaglev DEIS Referenced Reports”) (attached). The DEIS does rely on these documents because they are the foundation for many of the critical numbers in the DEIS. The FRA should have taken a hard look at these documents and made them available to the public.

Three other heavily redacted documents were released on April 23, 2021. Again, very little new information was provided. A redacted Louis Berger memorandum concerning “SCMAGLEV Ridership Report Revenue and Operations Estimates Addendum” provides no unredacted revenue or operations estimates. The other two documents, scmaglev-ridership-data_request_part 1.pdf and scmaglev-ridership-data_request_part 2.pdf, include numbers provided elsewhere along with many redactions.

¹² Travel Demand Final 2018-11-16_Redacted.pdf, Louis Berger, at 2.

3. There are Huge Unanswered Questions About Possible Subsidies

The BWRR website, under the heading “Clearing Up Misconceptions,” states:

Independent ridership and revenue studies validate the financial feasibility of the project, which substantiated that operating and maintenance costs are projected to be completely offset by revenues. These assumptions will be validated in the Environmental Impact Statement (EIS) process.

BWRR, Frequently Asked Questions, <https://bwrapidrail.com/facts/>, visited March 23, 2021.

Questions about the financial viability of SCMAGLEV are not “misconceptions” and they have not been “cleared up.” The DEIS is silent about who would pay for the huge capital cost of the Project including the cost of utility relocations. The DEIS does not even present or attempt to verify the Project Sponsor’s estimated capital cost, \$13.8 to \$16.8 billion, but forces the reader to calculate the cost using a table presenting purported job benefits. DEIS at 4.6-16. And that cost apparently does not include the cost of the SCMAGLEV vehicles, which will be manufactured outside the Washington-Baltimore-Arlington CSA, and other capital costs. DEIS App. D.4 at D-20. Incredibly, the Executive Summary of the DEIS, which is the section most expected to reach the public, presents a “qualitative summary of the impacts from the Build Alternatives” in a table that shows “Project Construction Cost” ranging from \$10.6 to \$12.9 billion. DEIS at ES-14, ES-20 Table ES4.3-2. There are no caveats that this cost excludes the “professional services” costs of construction or other significant costs such as traincars.

The FRA’s presentation is false and misleads the public. *See, e.g.,* Jeremy Cox, *High-Speed Train Could Go Through ‘Irreplaceable’ Land in Maryland*, the Chesapeake Bay Journal (March 2, 2021), https://www.bayjournal.com/news/growth_conservation/high-speed-train-could-go-through-irreplaceable-land-in-maryland/article_73ce9f30-7856-11eb-a581-ab45e0fb1552.html (repeating the FRA’s misrepresentation of total cost of construction as \$10.6 billion to \$12.9 billion). It therefore violates 40 C.F.R. §1502.12 (2019), which requires that the summary adequately and accurately summarize the statement.¹³ Additionally, during May 6, 2021 testimony seeking funding from Congress for the Project, the Project Sponsor’s CEO stated that BWRR estimates “the civil capital costs to be around \$9 billion.” Testimony of Wayne L. Rogers, Chairman & CEO The Northeast Maglev LLC before the U.S. House Committee on Transportation

¹³ JR Central, the owner of the Project’s technology, recently confirmed that construction costs have increased by about \$13.7 billion to \$64.35 billion for the SCMAGLEV being constructed in Japan and not set to open until 2027. Kevin Smith, *Chuo Maglev Costs Soar*, International Railway Journal (May 4, 2021), <https://www.railjournal.com/passenger/high-speed/chuo-maglev-costs-soar/>. JR Central claimed the increased costs were caused by challenging construction work in areas limited by existing structures, enhanced earthquake countermeasures, the need to secure sites for spoil from tunnels, which has proven difficult, and increased costs from transporting spoils. *Id.* The costs may even increase more over the next six or more years. This significant increase, caused by issues that the SCMAGLEV Project being reviewed could experience, underscores the need for full public disclosure of the costs and funding sources of the Project to evaluate its economic impacts, as required by NEPA.

and Infrastructure Subcommittee on Railroads and Pipelines and Hazardous Materials, at 5 (May 6, 2021), <https://transportation.house.gov/imo/media/doc/Rogers%20Testimony.pdf>. This estimate does not match up with any of costs gleaned from the DEIS.

The actual capital cost of the Project is important for the FRA and the public to meaningfully evaluate the Project. The funding source of that significant capital cost is also important, particularly where, as is the case here, the Project Sponsor has indicated it intends to rely on government support, and the FRA and the public must evaluate the use of funds for this Project versus numerous other rail or public transit options. Given that the Project Sponsor is seeking funding for the Project from Congress, the FRA should not allow the Project Sponsor to mislead Congress as to how much funding will be needed by providing an estimate that is likely half the total cost.

The DEIS does not validate the assumption that “operating and maintenance costs are projected to be completely offset by revenues.” Estimated Annual O&M Costs of \$60 to \$67 million per year in 2018 dollars are buried in an Appendix. DEIS App. D.4 at D-32. The text accompanying these numbers states:

This analysis assumes that funding for O&M would be provided through private funds and a mix of government funds and project-generated funds, such as fares and potentially advertising revenues.

Id. This statement lists “project-generated funds” as only one of three sources of O&M funding and explicitly lists “government funds” as an O&M funding source, contradicting the statement that the costs “are projected to be completely offset by revenues.” Similarly, it does not demonstrate that the project will be “revenue-producing,” as specified in the Project purpose and need. Most critically, it contains no discussion about what would happen if SCMAGLEV revenues fail to cover O&M costs. Would the SCMAGLEV cease operation? If not, how would the revenue gap be closed?

4. The DEIS Overestimates SCMAGLEV Ridership

The ridership estimates are fundamental to demonstrating that the proposed SCMAGLEV will meet the Project’s purpose and need and will not burden the public with endless subsidies. However, the ridership reports produced by BWRR’s consultant were not provided with the DEIS and when they were requested they were withheld as proprietary and confidential. The lack of this essential information has hindered Greenbelt’s review and forced Greenbelt to try to ascertain what was done based on the limited and sometimes contradictory information provided. Nevertheless, Greenbelt has concluded that there are significant problems in the ridership forecasts.

At multiple points in this process, unjustifiable modeling choices have been made that push the SCMAGLEV ridership higher, as described below. These unjustifiable choices inflate ridership in a compounding way, which in turn raises questions about whether the modeling is biased to achieve a high ridership estimate, i.e., to satisfy the Project Sponsor, and whether the FRA independently verified the modeling. Whatever the reasons, this inflated modeling does not satisfy NEPA’s requirement to take a hard look at the Project’s impacts.

There is a standard ridership estimation process. It is a bottom-up process that includes several steps:

- 1) Estimate total travel in the corridor in a detailed trip table between small area zones, segmented by business vs. non-business;
- 2) Estimate door-to-door travel times for every zone-to-zone trip for every mode including different possible access modes to stations (walk, transit, auto),
- 3) Estimate costs for every zone-to-zone trip for every mode including fares, parking costs, and auto operating costs and tolls when appropriate;
- 4) Screen out implausible zone-to-zone trips where there would be a large generalized cost penalty (cost difference + monetarized time difference);
- 5) Estimate mode shares for every zone-to-zone trip (business and non-business) including access mode based on the comparative times and costs; and
- 6) Sum up the trips by mode to get aggregate totals.

This bottom-up process generally appears to have followed in the DEIS, although some choices were made that make the model less accurate. For example, rather than using the small Transportation Analysis Zones from the Baltimore and Washington, D.C. regional models, much larger zones were used with a total of only 207 zones across 27 counties (compared to the thousands from the Baltimore and Washington, D.C. regional models), as summarized in the Zonal System Comparison table below.

SCMAGLEV Zones vs. Baltimore Metropolitan Council (BMC) and Metropolitan Washington Council of Governments (MWCOG) Zones¹⁴

TABLE 2-1 ZONAL SYSTEM COMPARISON

County	Maglev Studies		MPO	
	SCMAGLEV	2003 DEIS	BMC	MWCOG
Alexandria, VA	2	0	0	65
Anne Arundel, MD	15	16	256	98
Arlington + Alexandria	7	29	0	206
Arlington, VA	5	0	0	141
Baltimore City, MD	20	22	300	0
Baltimore, MD	25	19	410	0
Calvert, MD	2	2	0	47
Carroll, MD	5	5	99	58
Charles, MD	8	3	0	113
Clarke + Jefferson	2	2	0	22
Clarke, VA	1	0	0	9
District of Columbia, DC	16	31	35	393
Fairfax, VA	17	24	0	540
Falls Church, VA	1	0	0	9
Fauquier, VA	3	2	0	50
Frederick, MD	7	5	35	130
Fredericksburg, VA	1	0	0	14
Harford, MD	6	3	155	0
Howard, MD	9	13	167	68
Jefferson, WV	1	0	0	13
King George, VA	1	1	0	25
Loudoun, VA	5	9	0	282
Manassas, VA	1	0	0	13
Montgomery, MD	20	23	115	376
Prince George's, MD	23	25	195	635
Prince William, VA	4	6	0	363
Spotsylvania, VA	3	1	0	62
St. Mary's, MD	2	2	0	75
Stafford, VA	4	2	0	90
TOTAL	207	245	1,767	3,669

Also as shown in the Zonal System Comparison table above, the MWCOG model has 393 TAZs in the District of Columbia, and this model could have been used to calculate accurate travel times by auto and transit to the Washington, D.C. SCMAGLEV station. In the SCMAGLEV model, there are only 16 zones for the District of Columbia and these travel times will necessarily be less accurate, especially where transit access time varies considerably over a distance as small as a

¹⁴ Travel Demand Final 2018-11-16_Redacted.pdf, Louis Berger, Table 2-1, at 14.

single block. With the computer capability available today, there is no significant advantage to having a smaller number of zones, so this is a poor choice.

a. The DEIS Uses Overly Large Catchment Areas

The DEIS defines 25-mile catchment areas around each SCMAGLEV station. It states:

To establish reasonable limits for the market area for intercity travel to be served by the SCMAGLEV stations, a 25-mile catchment area was established around each of the three stations.

DEIS App. D.2 at C-106. As shown in Figure II.B.2, these “catchment areas” are unrealistic. The most obvious problem with the 25-mile catchment areas is that there are areas that are fewer than 25 miles from both the Washington, D.C. and Baltimore stations, as shown in the darker shaded area. This area is highlighted in Figure II.B.3. Most of Greenbelt is in the overlap catchment area, i.e., within 25 miles of both stations in both the Cherry Hill and Camden Yard alternatives. BWI Marshall Airport is as well. Clearly, no one would use SCMAGLEV to travel to and from this overlap area.

Figure II.B.2: DEIS “Catchment Area” for the Washington, D.C. and Baltimore Stations Mapped for Camden Yards Alternative

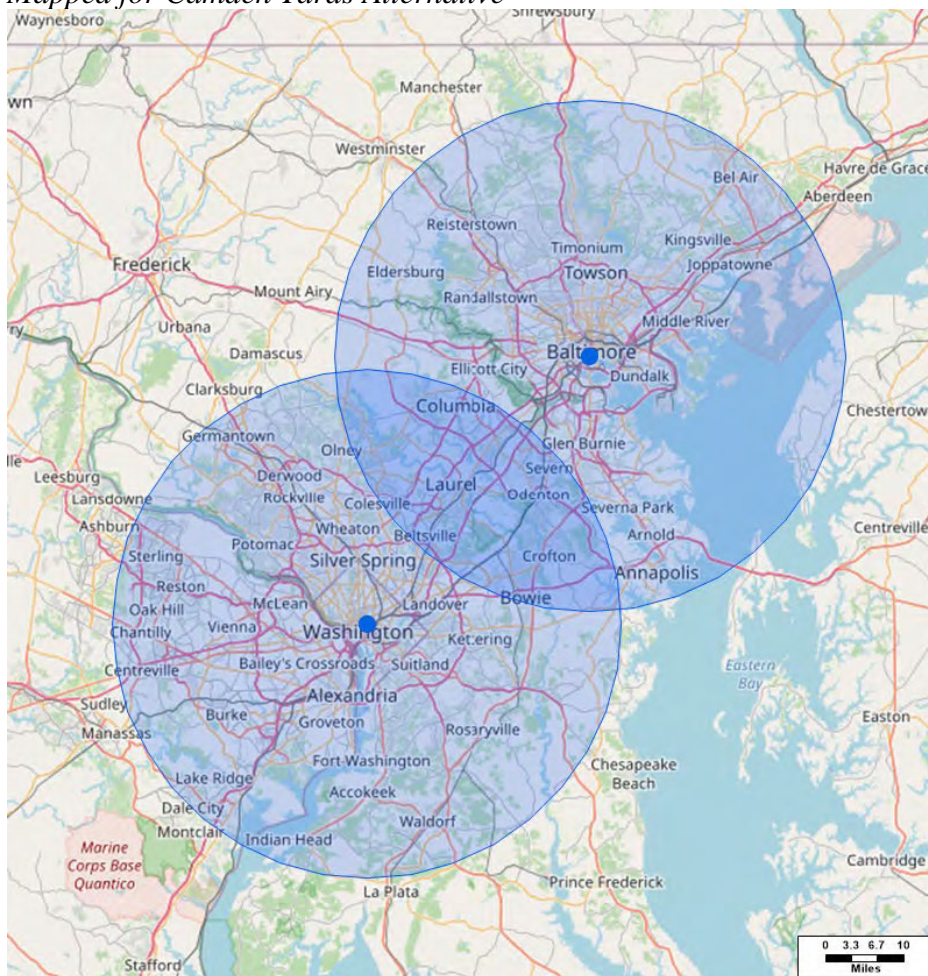
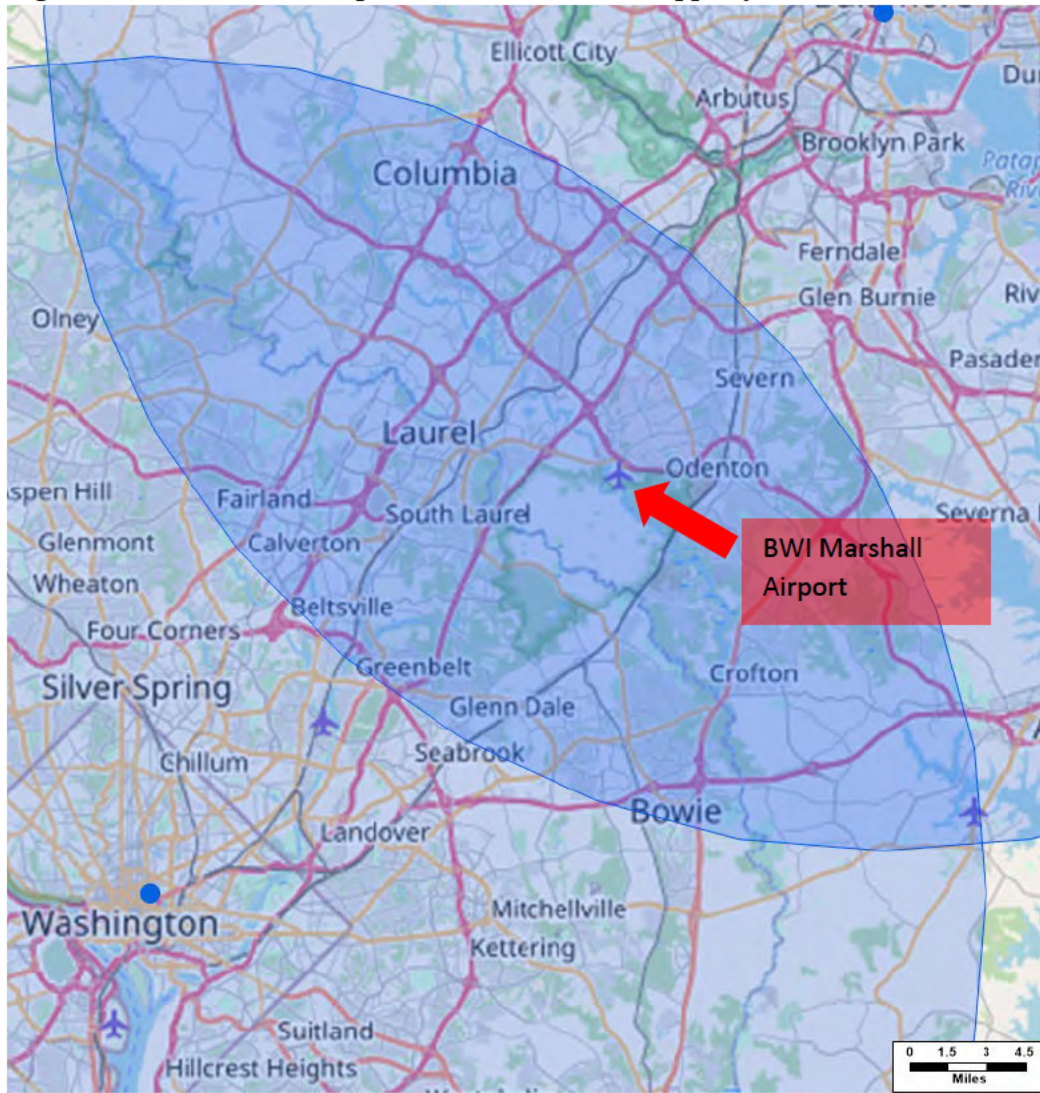


Figure II.B.3: DEIS Overlap “Catchment Area” Mapped for Camden Yards Alternative



b. The DEIS Failed to Screen Out Unrealistic Trips

It is necessary to screen out unrealistic origin-destination pairs because even a small share of many unrealistic potential trips can add up to a large number. The DEIS applied some screening. It states:

Within the Baltimore/Washington region, the 25-mile zone was further refined to reflect what was considered a reasonable catchment area for short distance trips within those respective larger areas.

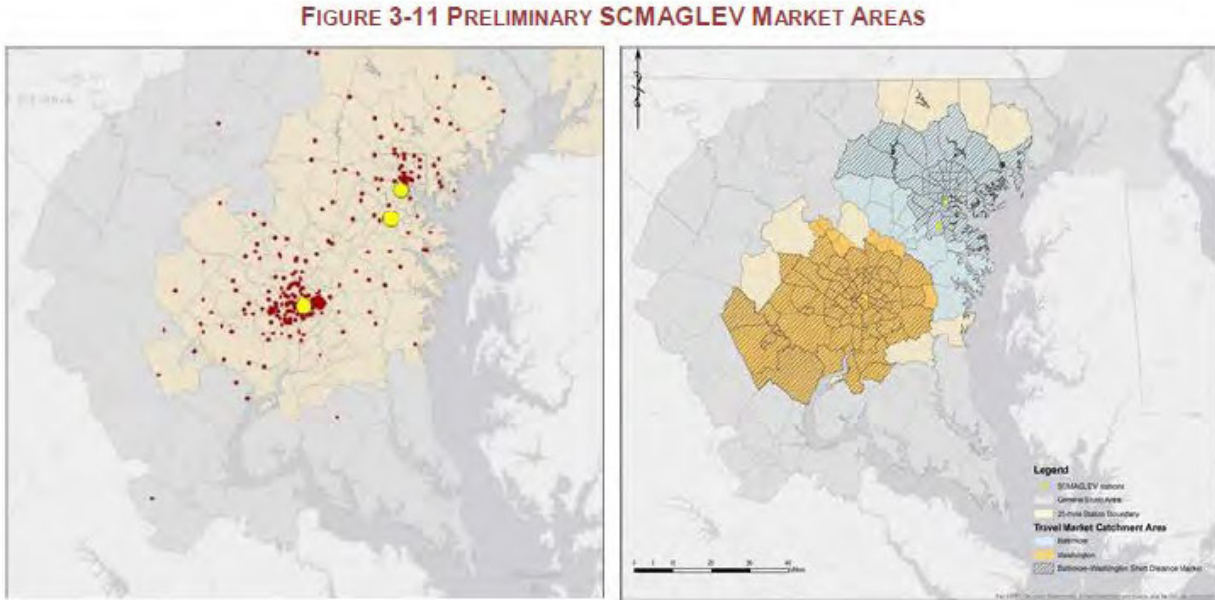
DEIS App. D.2 at C-106. One of the redacted reports provides additional information about this screening process:

The 25-mile zone was further refined to reflect what was considered a reasonable catchment area for short distance trips. The first part of the refinement was defining zones with centroids that were within a 30-40 minute drive of the proposed

SCMAGLEV stations (the blue and orange shaded regions in the right portion of Figure 3-11 that demarcate the Baltimore and Washington regions respectively). These delineated areas were further revised to exclude short cross-jurisdictional movements between the Baltimore and Washington regions, and are depicted by the cross-hatched area in right portion of Figure 3-11.

Travel Demand Final 2018-11-16_Redacted.pdf, Louis Berger, at 35 Table 2-1.

Figure II.B.4: Louis Berger Figure 3-11 Preliminary SCMAGLEV Market Areas¹⁵



The figure on the left shows that limiting the catchment area to a 30-40-minute drive is little different than the 25-mile catchment area, so this step accomplishes very little. The figure on the right is barely legible in the redacted pdf document, but it appears that this screen is removing potential trips within the Washington, D.C. area (orange) and within the Baltimore area (darker blue). These trips certainly should be screened out, but this screen does not remove many other implausible trips. In the model, residents of Greenbelt still could travel to either Washington, D.C. or to Baltimore, and then take SCMAGLEV to the other city or to BWI Marshall Airport. The model also would allow trips perpendicular to the SCMAGLEV route, e.g., between Rockville and Annapolis. Screening should be done based on door-to-door generalized cost (cost plus monetarized value of time). A threshold should be set for a maximum additional cost that could be paid for SCMAGLEV and all origin-destination pairs that exceed this penalty should be screened out. It does not appear that this was done in the DEIS modeling.

¹⁵ Travel Demand Final 2018-11-16_Redacted.pdf, Louis Berger, at 35.

c. Geographic Markets with Significant SCMAGLEV Time Savings Are Very Limited

Both the screening process and the subsequent mode share calculations require accurate auto travel times. One of the redacted reports states:

Auto travel time and distance data feeding the model was obtained through Google Maps Directions API. This is a service that calculates directions and travel times, by mode of travel, between specified locations based on actual travel times experienced in the real-world under conditions. Google API data was collected for a typical Tuesday in April for the four time of day periods included in the model.

Travel Demand Final 2018-11-16_Redacted.pdf, Louis Berger, at 60. This is an appropriate way to calculate auto travel times. Owen Kelley used a very similar method to calculate auto travel times using the Bing Maps Route API. Owen Kelley, The Proposed Baltimore-Washington Maglev Would Serve a Small Geographic Area, GreenbeltOnline (March 25, 2021), <https://www.greenbeltonline.org/wp-content/uploads/2021/03/maglevRegion.pdf>. He found that very few origin-to-destination travel times would have significant time savings with SCMAGLEV. The DEIS states:

These two urban areas (Baltimore and DC) are approximately 40 miles apart. The anticipated SCMAGLEV services are estimated to reduce travel times by 8 to 27 minutes of travel time savings depending on the trip purpose and length under each of the Build Alternatives.

DEIS App. D.4 at C-6. Kelley used these time thresholds to map plausible SCMAGLEV trips. In these maps, Kelley makes an important point that it is unrealistic to have long access time on both ends of a SCMAGLEV trip. In his Figure 2 (reproduced as Figure II.B.5) he shows that for trips to large portion of Washington, D.C., there is a relatively small area in Baltimore City and Baltimore County from which there would be significant time savings. In his Figure 3 (reproduced as Figure II.B.6), he shows that for trips to a very small area in Washington, D.C. around the station, there is a larger catchment area. In neither of these maps do the travel sheds extend to the 25-mile catchment areas used in the DEIS.

Figure II.B.5: Owen Kelley Figure 2 Maps Realistic SCMAGLEV Catchment Area for Trips to Washington, D.C.

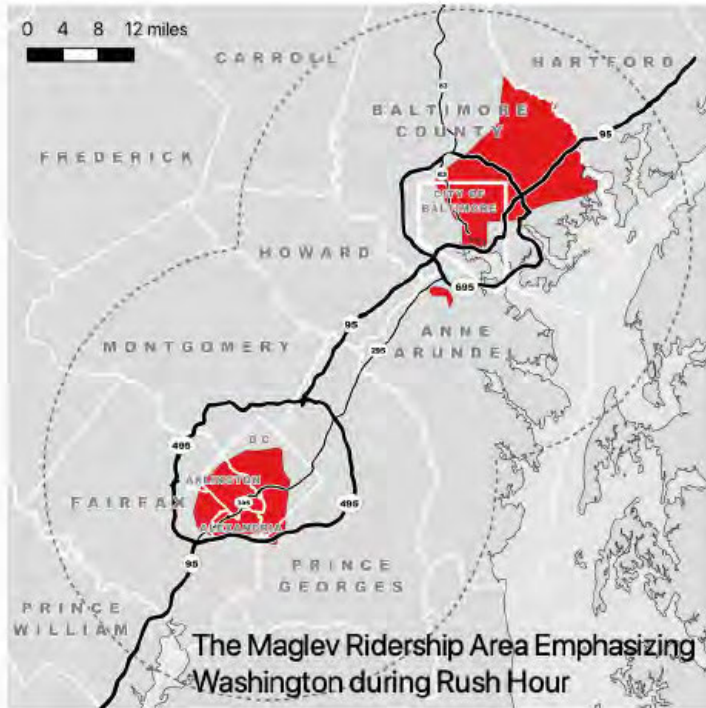


Figure 2. During rush hour, the maglev ridership area (shown in red). This area is optimized to reach many locations at the Washington end of the trip. The ridership area is reduced at the Baltimore end of the trip so that the goal can still be realized of the maglev trip saving the traveler at least 8 to 27 minutes of travel-time relative to the time that would otherwise be spent driving directly to the destination.

Figure II.B.6: Owen Kelley Figure 3 Maps Realistic SCMAGLEV Catchment Area for Trips to Immediate Station Area in Washington, D.C.

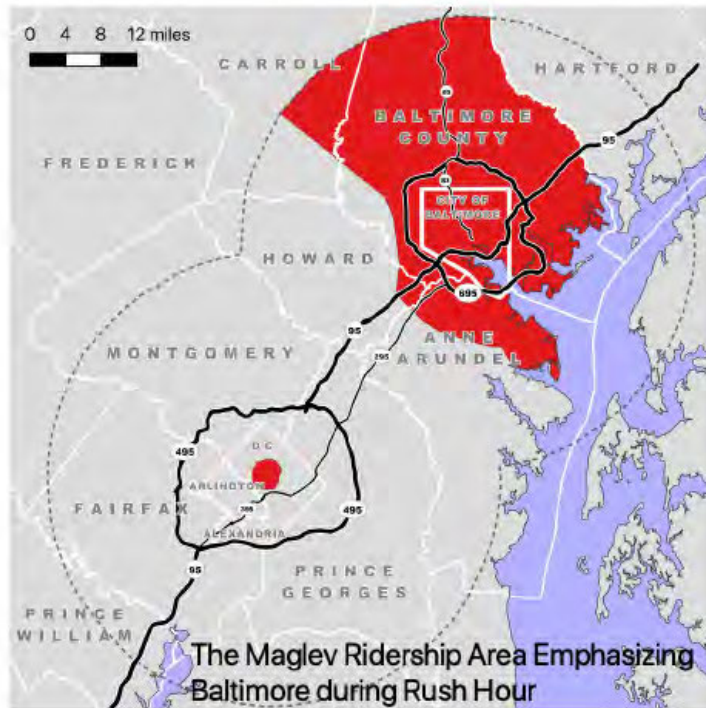


Figure 3. The same as Figure 2 except that the maglev ridership area (shown in red) is optimized to reach more locations at the Baltimore end of the trip during rush hour. Simultaneously, locations reachable at the Washington end of the trip are reduced so that the goal can still be realized of the maglev trip saving the traveler least 8 to 27 minutes of travel time relative to the time to drive directly to the destination. Few people would make use of the maglev under these circumstances because few locations can be reached in Washington.

Even for the limited set of origin-destination pairs where SCMAGLEV could be competitive in travel time, many travelers will require the special convenience of cars. The 2017 National Household Travel Survey estimates total travel in the U.S. The survey included 1254 households in the Baltimore and Washington regions. The survey data are organized in several ways including as “tours.” A home-to-work tour could be a direct trip with no stops, but it also could have one or more stops. These intermediate stops often preclude transit being a viable alternative for a particular tour. For example, if there is a day care stop, auto mode likely is required.

Only 5.7% of the Baltimore and Washington tours are 35 miles in length or greater. A tour between the SCMAGLEV stations would fall into this group, as Google Maps shows the shortest driving distance from Camden Yards to the Mount Vernon Square is 37 miles. Of tours exceeding 35 miles in length, almost half (47%) included one or more stops. Therefore, only 3.0% of all tours are 35 miles or greater in length and have no intermediate stops.

In addition to trips with intermediate stops, SCMAGLEV also would compete poorly with auto in multiple other trip categories including:

- Trips including bulky shopping purchases;
- Trips where door-to-door service is highly preferable including many medical trips; and
- Family trips where paying multiple SCMAGLEV fares would be prohibitive.

d. The Claimed DEIS SCMAGLEV Mode Shares Are Ridiculously High

The DEIS states:

The ridership report assumes that about 70.0 percent of business travelers in the defined catchment area and 67.0 percent of non-business travelers, which includes those making personal trips as well as commuters, between Baltimore and Washington, D.C., would choose the SCMAGLEV service if it were available.

DEIS at 4.6-3 (PDF p. 255).¹⁶ This is clearly not a realistic assumption. The 70.0 percent and 67.0 percent numbers are likely too high even for travel limited to walking distance of both the Washington, D.C. and Baltimore stations because many people will want access to their cars for one or more of the reasons mentioned above, and/or because they will be unable or unwilling to pay the additional cost. Applying these inflated “assumed” SCMAGLEV mode shares to these large catchment areas – as is implied in the excerpt - is ridiculous. It also is contrary to the bottom-up modeling procedure described above where every zone-to-zone market has different SCMAGLEV mode shares. It is unclear how these numbers were applied, or even if they really were applied.

¹⁶ The DEIS’s pagination is not always correct. For example, in the Economic Resources chapter, after page 4.6-9, the pagination starts over at 4.6-1 and repeats the pages until 4.6-9. Where helpful, Greenbelt cites to the PDF page number as well.

The DEIS continues its misleading “catchment area” framing when it presents commute flows between the Washington, D.C. Metropolitan Statistical Area (MSA), and the Baltimore MSA:

- Baltimore MSA to Washington, D.C. MSA: 192,270.
- Washington, D.C. MSA to Baltimore MSA: 168,995.

DEIS App. D.4 at D-80 Figures D.4-9 and D.4-10. While the DEIS suggests the SCMAGLEV would increase these numbers, these numbers are already much larger than the commute market for SCMAGLEV. For example, the Washington, D.C. MSA to Baltimore MSA number includes commutes by Montgomery County, Maryland residents to Baltimore and these commuters would not use the SCMAGLEV because it would require opposite direction travel into congested Washington, D.C. Focusing on commutes to Baltimore City and Baltimore County from the Washington, D.C. MSA, there are 20,000 from Montgomery County and 10,000 from Prince George’s County, Maryland vs. 13,000 from the District of Columbia and all of Virginia combined.

e. Stated Preference Survey Issues

The source of the “70.0 percent and 67.0 percent” numbers is a stated preference survey where travelers are asked whether they would choose the SCMAGLEV when presented with hypothetical times and costs for different modes. This is a standard method. Figure II.B.7 shows an example from Great Britain.

Figure II.B.7: High-Speed Rail Stated Preference Survey Example from Great Britain¹⁷

If the following options were available, which would you choose for your journey between Stockport and Paddington?

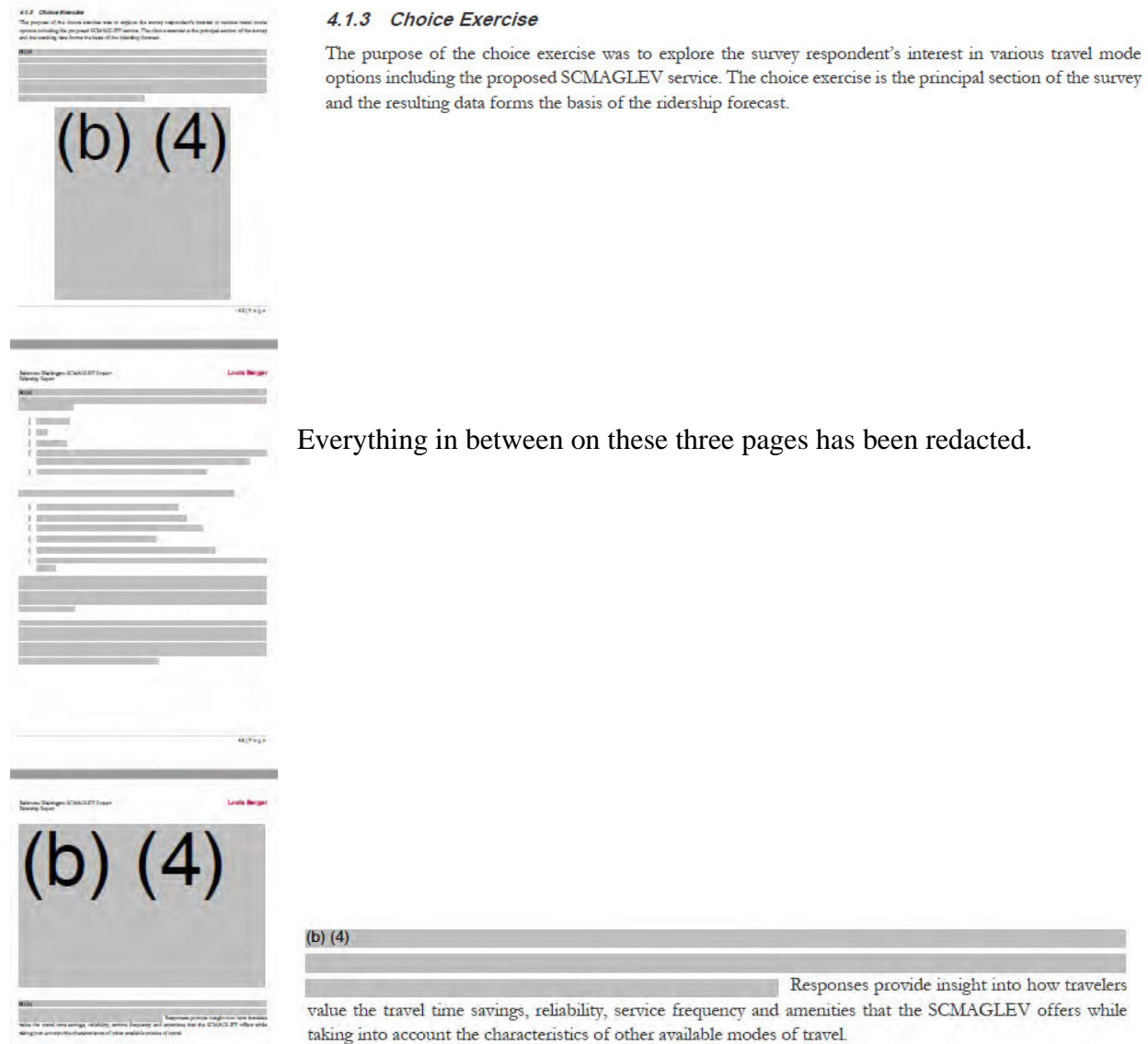
	Car	Air	Existing rail	High speed rail
Expected travel times:				
Time to get to train station / airport		15 mins	5 mins	15 mins
Waiting time at airport		1 hour		
Time spent in car / train / airplane	3 hours 30 mins	1 hour	2 hours 30 mins	1 hour 10 mins
Time to get from train station / airport		30 mins	5 mins	10 mins
Total Travel time	3 hours 30 mins	2 hours 45 mins	2 hours 40 mins	1 hour 36 mins
Percentage of trips "on time" (arrive within 10 mins of expected arrival time)	90% on time	90% on time	85% on time	99% on time
Service frequency		One flight every 2 hours	One train every 20 mins	One train every 30 mins
Interchanges			Need to make 1 interchange	Need to make 2 interchanges
Total travel cost and crowding	£37 return	£113 return All seats will be taken	Standard class: £88 return You will have a seat, but others will be standing around you First class: £164 return 3 in every 6 seats will be taken	Standard class: £130 return 4 in every 6 seats will be taken First class: £227 return 4 in every 6 seats will be taken
Which would you use for your journey?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Standard <input type="checkbox"/> First	<input type="checkbox"/> Standard <input type="checkbox"/> First
Or do not make journey	<input type="checkbox"/>			

¹⁷ Peter Burge, et al., Modelling Demand for Long-Distance Travel in Great Britain: Stated Preference Surveys to Support the Modelling of Demand for High-Speed Rail, RAND

As shown in Figure II.B.7, stated preference survey questions provide a lot of information for respondents to process. Typically, each respondent is shown a series of these experiments with different service characteristics to estimate how the respondents trade off travel time and cost and other service factors. The exact framing of the questions and the sequence of experiments can have a significant impact on the survey results. In addition, there is a large research literature about how people often overstate how much they would be willing to pay in these surveys. John B. Loomis, *2013 WAEA Keynote Address: Strategies for Overcoming Hypothetical Bias in Stated Preference Surveys*, 39 *Journal of Agricultural and Resource Economics* 34-46 (2014). Given the well-known potential pitfalls in stated preference surveys, it particularly important to take a hard look at how the survey was conducted. However, this information has been almost completely redacted as shown in Figure II.B.8.

Corporation, at xv (2011),
https://www.rand.org/content/dam/rand/pubs/technical_reports/2011/RAND_TR899.pdf.

Figure II.B.8: Redacted Material on Stated Preference Survey (three pages of redacted report shown on left in reduced form and unredacted material on those pages shown on right)¹⁸



The unredacted text states:

The choice exercise is the principal section of the survey and the resulting data forms the basis of the ridership forecast.

As stated in the documents: “the stated preference data forms the basis of the ridership forecasts.” Not only is this data not shared, but even the way the questions were asked has been hidden. It is impossible to take a hard look at the ridership forecasts without this information.¹⁹ Additionally,

¹⁸ Travel Demand Final 2018-11-16_Redacted.pdf, Louis Berger, at 43-45 Table 2-1.

¹⁹ The FRA even redacted the 70.0 percent and 67.0 percent results on page 48 of the ridership report, which is the source cited for this assumption. It is clearly impossible for the FRA to know

the “stated preference data” that forms the basis of the ridership forecasts does not consider changing mode preferences and work situations spurred by the COVID-19 pandemic.

5. The DEIS Overestimates Travel Time Savings and Reliability Benefits

The primary case made for SCMAGLEV ridership is that a 15-minute onboard travel time between Washington, D.C. and Baltimore will result in very large aggregate travel savings. In the standard ridership estimation process outlined above, time savings are aggregated from the estimated time savings for each TAZ-to-TAZ trip. This does not appear to have been done in the DEIS modeling. It is not known what was done, but whatever was done resulted in large overestimates of travel time savings.

For any transit trip, including SCMAGLEV, door-to-door travel time includes access time to the station, wait time at the station, the in-vehicle time, and egress time to the final destination which can include one or more additional transit segments including access time, wait time, and egress time. The DEIS states that the travel time savings:

[R]eflects the “door-to-door” time, and therefore includes transfer and wait times out-of-vehicle as well as in-vehicle time.

DEIS App. D.4 at D-36. Except for the Google Maps API auto travel times mentioned in the redacted report and discussed above, the DEIS fails to explain how door-to-door travel times for each mode (auto, bus, MARC, Amtrak and SCMAGLEV) were computed, and does not present any summaries of these times by mode. Instead, it jumps all the way to aggregate time savings, and provides no information about how these numbers were calculated. DEIS Table D.4-18 below shows purported annual travel time savings (in hours) from riding SCMAGLEV. DEIS App. D.4 at D-35.

Table D.4-18: Annual Travel Time Savings by Year (in hours)

Commute Pair	Cherry Hill		Camden Yards	
	2030	2045	2030	2045
Washington, D.C.-Baltimore	21,003,586	27,606,825	23,613,732	31,133,083
Washington, D.C.-BWI Marshall Airport	1,758,358	2,741,589	1,976,872	3,091,776
Baltimore-BWI Marshall Airport	2,707,478	3,589,649	3,043,940	4,048,160
Total	25,469,422	33,938,062	28,634,545	38,273,018

Source: SCMAGLEV Ridership Data Request, July 27, 2020; Table 7, SCMAGLEV Ridership Supplement, December 10, 2018

The DEIS presents no information about the average time savings per rider. Greenbelt calculated these averages by dividing annual time savings by annual diverted ridership (excluding

the ridership report made this assumption without reviewing that information in unredacted form in the ridership report.

induced trips where travel time savings are not applicable). DEIS Table D.4-25 below shows annual diverted ridership by station pair. DEIS App. D.4 at D-42.

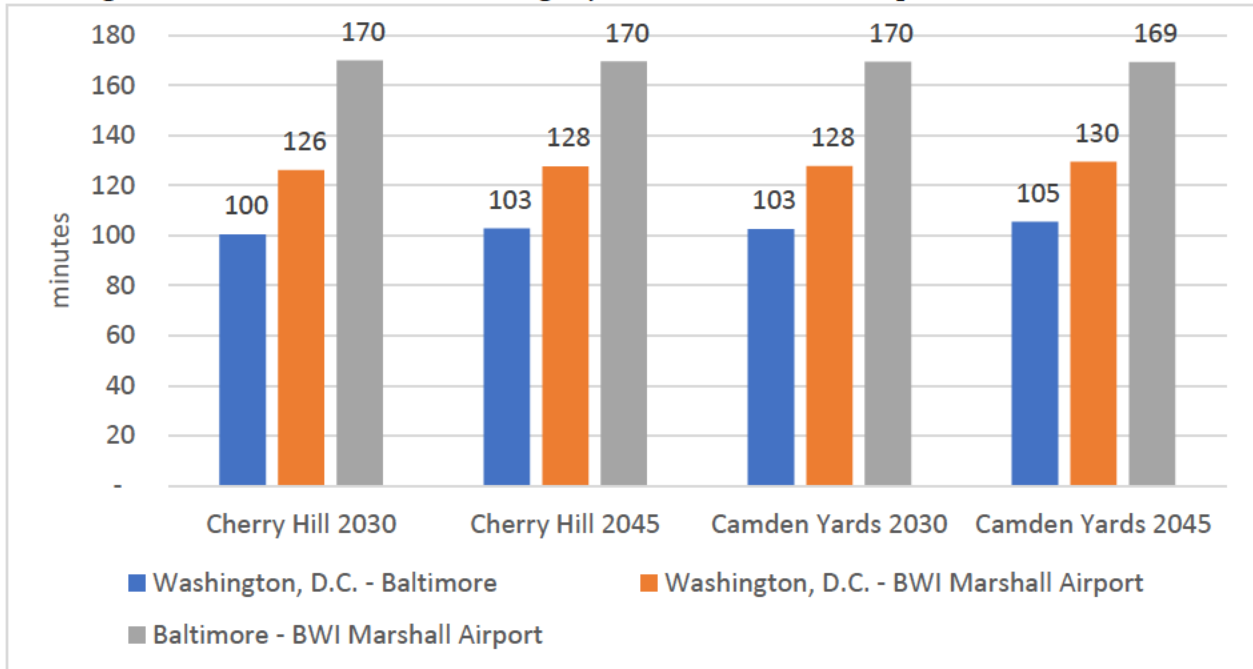
Table D.4-25: Annual Diversions to SCMAGLEV by Mode

Segment	Auto	Rail	Bus	Taxi/TNC
Cherry Hill Station				
2030				
Washington, D.C. – Baltimore	10,486,098	1,879,084	182,355	0
BWI Marshall Airport – Baltimore	444,677	99,752	16,356	394,013
Washington, D.C. – BWI Marshal Airport	449,692	143,915	54,395	188,204
2045				
Washington, D.C. – Baltimore	13,621,026	2,268,291	209,921	0
BWI Marshall Airport – Baltimore	575,457	126,581	19,957	547,496
Washington, D.C. – BWI Marshal Airport	680,798	215,333	79,855	313,055
Camden Yards Station				
2030				
Washington, D.C. – Baltimore	11,618,545	2,001,528	189,648	0
BWI Marshall Airport – Baltimore	492,700	106,252	17,010	461,525
Washington, D.C. – BWI Marshal Airport	498,256	153,292	56,571	220,451
2045				
Washington, D.C. – Baltimore	15,088,769	2,406,176	216,883	0
BWI Marshall Airport – Baltimore	637,465	134,275	20,619	642,121
Washington, D.C. – BWI Marshal Airport	754,158	228,422	82,503	367,161

Sources: SCMAGLEV Ridership Data Request, July 27, 2020; Tables 8 and 9, SCMAGLEV Ridership Supplement, December 10, 2018.

Dividing annual time savings by annual diverted ridership results in an average time savings per one-way trip. These averages are shown in Figure II.B.9.

Figure II.B.9: Average SCMAGLEV Time Savings Per One-Way Trip (Minutes) Calculated by Dividing DEIS Annual Travel Time Savings by DEIS Annual Ridership



The travel time savings shown in Figure II.B.9 are impossible. The almost 3-hour average time savings for trips between BWI and Baltimore is particularly ridiculous given that the light rail from Camden Station to the BWI Terminal takes 26 minutes. However, none of the numbers makes sense.

As shown in DEIS Table D.4-25 reproduced above, the DEIS forecasts that most diversion will be from auto. Driving the longest station-to-station distance today, Washington, D.C. to Camden Yards, takes less than an hour during off peak times and about an hour during peak times. The DEIS gives an auto travel time between Washington, D.C. and Baltimore of 55 minutes. DEIS App. D.4 at D-82 Table D.4-59.

Therefore, with a SCMAGLEV travel time of 15 minutes, the actual average time savings for those diverting from auto could be no more than 45 minutes – even if all travelers were traveling directly to and from the station areas. Most potential SCMAGLEV riders will need to access both the origin and destination station by auto or by transit. Generally, this access and egress time will exceed the 15-minute SCMAGLEV travel time by a wide margin and cut into any potential time savings.

This excerpt from the Economic Impact Analysis Technical Report gives a more accurate indication of SCMAGLEV time savings:

These two urban areas (Baltimore and DC) are approximately 40 miles apart. The anticipated SCMAGLEV services are estimated to reduce travel times by 8 to 27 minutes of travel time savings depending on the trip purpose and length under each of the Build Alternatives.

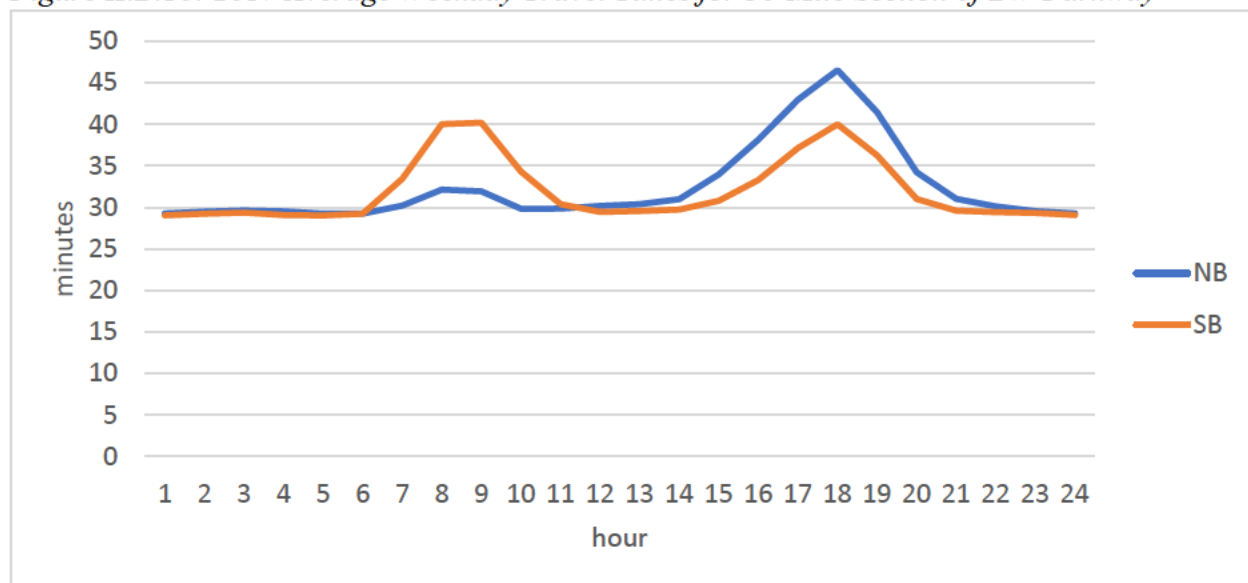
DEIS App. D.4 at C-6. This excerpt suggests that the travel time savings shown in DEIS Table D.4-18, reproduced above, are 5 to 10 times as great as the real time savings. As discussed below, these inflated travel times are also converted in the DEIS to inflated economic savings.

There is no justification for such large errors in a critically important metric. Greenbelt can think of two possible sources of error, although even together they are insufficient to explain the errors:

- 1) The DEIS may have falsely assumed that peak period road delays are applicable to all SCMAGLEV travel.
- 2) The DEIS may be relying on unrealistic future travel times from the regional travel demand models.

Peak hour travel times affect only a small portion of daily travel. Maryland DOT has published an online map of real-time speed data from cell phones and other electronic devices for 2017 (pre-pandemic) showing average travel time by hour for major roads. Figure II.B.10 summarizes these data for the 30-mile section of the Baltimore Washington Parkway (BW Parkway) from the District of Columbia line to a point where the data ends in the approach to the City of Baltimore. This 30-mile section includes most of the distance between the two stations, and the diurnal delay pattern is likely to be similar at missing sections in Washington, D.C. and Baltimore. The blue line shows northbound travel and the orange line shows southbound travel.

Figure II.B.10: 2017 Average Weekday Travel Times for 30-Mile Section of BW Parkway



Source: Maryland DOT TravelTimeIndex/ TravelTimeIndex_Maryland_MDOTSHA (MapServer)

As shown in Figure II.B.10 the travel time during much of the day is 30 minutes, i.e., an average speed of 60 m.p.h. There are average southbound delays of about 10 minutes during the morning and afternoon peak periods, a short delay in the northbound morning peak period, and a longer up to an approximately 15-minute delay in the northbound afternoon peak period. The peak

travel time is only 45 minutes, and this only is present for a single afternoon hour in one direction (northbound).

DEIS Table D.2-1, DEIS App. D.2 at A-2, reproduced below, indicates that the SCMAGLEV will operate for 18 hours a day and most service will operate at times when there is little or no delay on the BW Parkway. Because the SCMAGLEV will operate not only during peak hours but also during significant portions of the day when car travel within the corridor experiences little or no delay, it would be incorrect to consistently apply the peak auto delay to estimate time savings enjoyed by those travelling on the SCMAGLEV. It can reasonably be anticipated that travel time savings in these off-peak hours will be much lower than they would be during the peak period. However, it is possible that the DEIS assumes that all car travel within the corridor—even car travel during off-peak hours—is delayed to the maximum extent experienced at any point in the day, and thus overestimates time savings.

Table D.2-1: SCMAGLEV Trains Per Hour and Hourly Capacity, by Direction

Hour of Day	Baltimore To Washington		Washington to Baltimore	
	SCMAGLEV Trains per Hour	Total Capacity per Hour (Number of Seats per Hour)	SCMAGLEV Trains per Hour	Total Capacity per Hour (Number of Seats per Hour)
5 AM – 6 AM	4	3,048	4	3,048
6 AM – 7 AM	6	4,572	6	4,572
7 AM – 8 AM	8	6,096	8	6,096
8 AM – 9 AM	8	6,096	8	6,096
9 AM – 10 AM	8	6,096	8	6,096
10 AM – 11 AM	6	4,572	6	4,572
11 AM – 12 PM	4	3,048	4	3,048
12 PM – 1 PM	4	3,048	4	3,048
1 PM – 2 PM	4	3,048	4	3,048
2 PM – 3 PM	4	3,048	4	3,048
3 PM – 4 PM	6	4,572	6	4,572
4 PM – 5 PM	8	6,096	8	6,096
5 PM – 6 PM	8	6,096	8	6,096
6 PM – 7 PM	8	6,096	8	6,096
7 PM – 8 PM	6	4,572	6	4,572
8 PM – 9 PM	4	3,048	4	3,048
9 PM – 10 PM	4	3,048	4	3,048
10 PM – 11 PM	4	3,048	4	3,048

Source: Baltimore-Washington SCMAGLEV Project Operations Plan, BWRR, 5-6-20

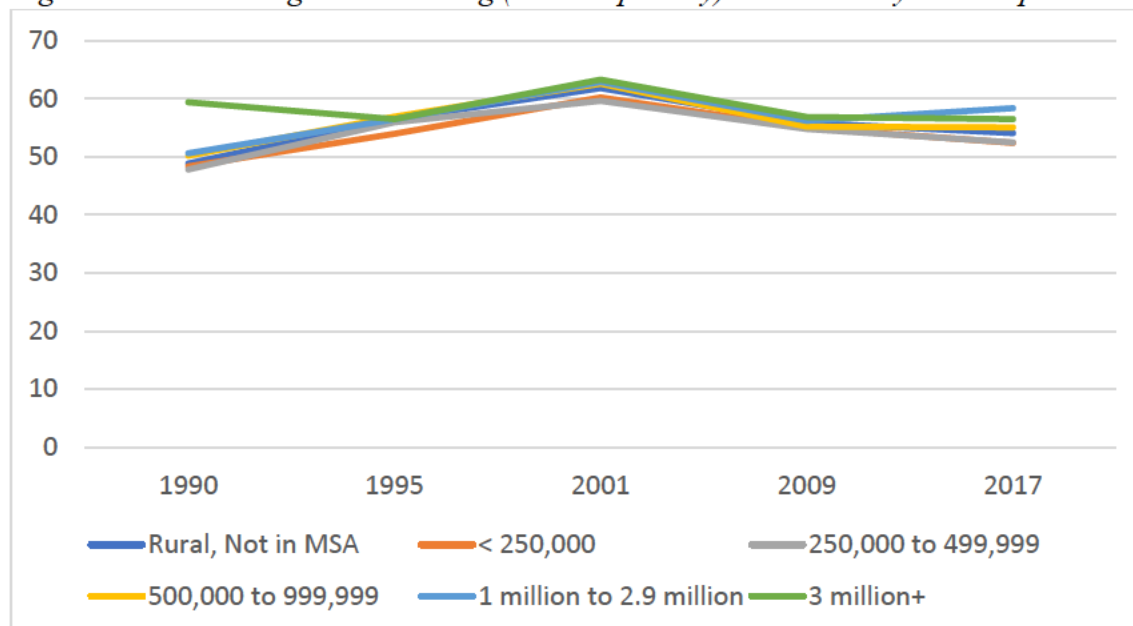
The average auto travel time for potential SCMAGLEV riders across the entire day is much closer to free-flow travel times than peak travel times, even when the greater number of travelers during peak periods is factored in. Here is a mathematical illustration where it is assumed that hourly SCMAGLEV ridership is proportional to train capacity (i.e., that the number of riders on each train is consistent throughout the day) and that, during peak periods, 75% of travelers in the corridor will be going to Washington, D.C. in the morning and back to Baltimore in the afternoon,

while 25% of travelers will traveling in the opposite direction. With this temporal and directional distribution, the average travel time for competing auto mode for this 30-mile section of the BW Parkway is 35 minutes, i.e., an average delay of 5 minutes. The actual temporal and directional distribution could be different, but this illustration shows why it is wrong to apply the peak delay (45-minute travel time) to all travel.

Future auto travel times will not be significantly greater than travel times today. Both the MWCOG and BMC regional models rely on a 40-year-old static assignment algorithm that does not constrain traffic volumes to roadway capacity, and instead assumes that traffic will grow beyond capacity and slow to unrealistically low speeds. The models consistently exaggerate future travel times as is documented in my peer-reviewed journal article: *Forecasting the impossible: The status quo of estimating traffic flows with static traffic assignment and the future of dynamic traffic assignment*. Norman Marshall, *Forecasting the Impossible: The Status Quo of Estimating Traffic Flows With Static Traffic Assignment and the Future of Dynamic Traffic Assignment*, 29 Research in Transportation Business & Management, 85-90 (2018), <https://www.sciencedirect.com/science/article/pii/S2210539517301232?via%3Dihub>.

The MWCOG and BMC long-range transportation plans issued every five years always show large increases in future travel time per person. While certain roads may become somewhat more congested during portions of the day, the forecasted systemic travel time increases are never realized. People operate with a “travel time budget” and respond to increasing congestion by changing their behavior including changing departure time, mode, and in some cases, destinations. Figure II.B.11 below shows data from the National Household Travel Survey (NHTS) showing that the “average time spent driving a private vehicle in a typical day” has stayed remarkably constant over time. There was an increase during the 1990s, a time when many women were joining the labor force, but since 2000 there has been little change. Time spent driving also is very similar across differently sized regions. If the DEIS is assuming large increases in travel time, it is wrong.

Figure II.B.11: Average Time Driving (minutes per day) 1990-2017 by MSA Population (NHTS)



After greatly exaggerating travel time savings, the DEIS adds on an additional 5 minutes of travel time savings per diverted trip under the separate category “reliability” based on a concept called “buffer time.” The DEIS states:

Buffer time is the additional time allocated by travelers during their trip planning to compensate for delays caused by events. For auto and bus travelers the primary events impacting buffer time are traffic jams caused by accidents or congestion, highway maintenance and construction, or difficulty parking. . . . The amount of buffer time travelers allocate is a personal decision dependent upon the perceived reliability of the transportation mode and the importance of reaching the planned destination when scheduled.

...

Given the uncertainties, the analysis assumes a corridor wide buffer time reduction of five minutes per trip soon after the SCMAGLEV system starts operating. This is a conservative estimated [sic] of the amount of time SCMAGLEV rider [sic] would reduce their buffer time once the SCMAGLEV system is established as a highly reliable transportation mode.

DEIS App. D.4 at D-37 to 38. This assumption is arbitrary and is not conservative. One of the buffer time components, parking, could be more problematic at the SCMAGLEV station than at the final destination. Congestion around the stations could also be more variable than congestion along the direct route.

6. The DEIS Overestimates Parking and Toll Costs for Auto Commuters and Ignores SCMAGLEV Parking Costs

The DEIS states:

Parking fees are assumed to be an average of \$30 per round-trip and are applied to all auto trips between Washington, D.C. and Baltimore because the major employment centers have parking garages that require daily payment either by the hour or as a portion of the employee’s paycheck.

DEIS App. D.4 at D-40.²⁰ Focusing on the more prevalent Baltimore to Washington trip, a typical auto commuter would not pay for parking in Baltimore. Therefore, Greenbelt assumes that the DEIS excerpt is not implying that parking is charged on both ends of an auto trip (\$15 in D.C. and

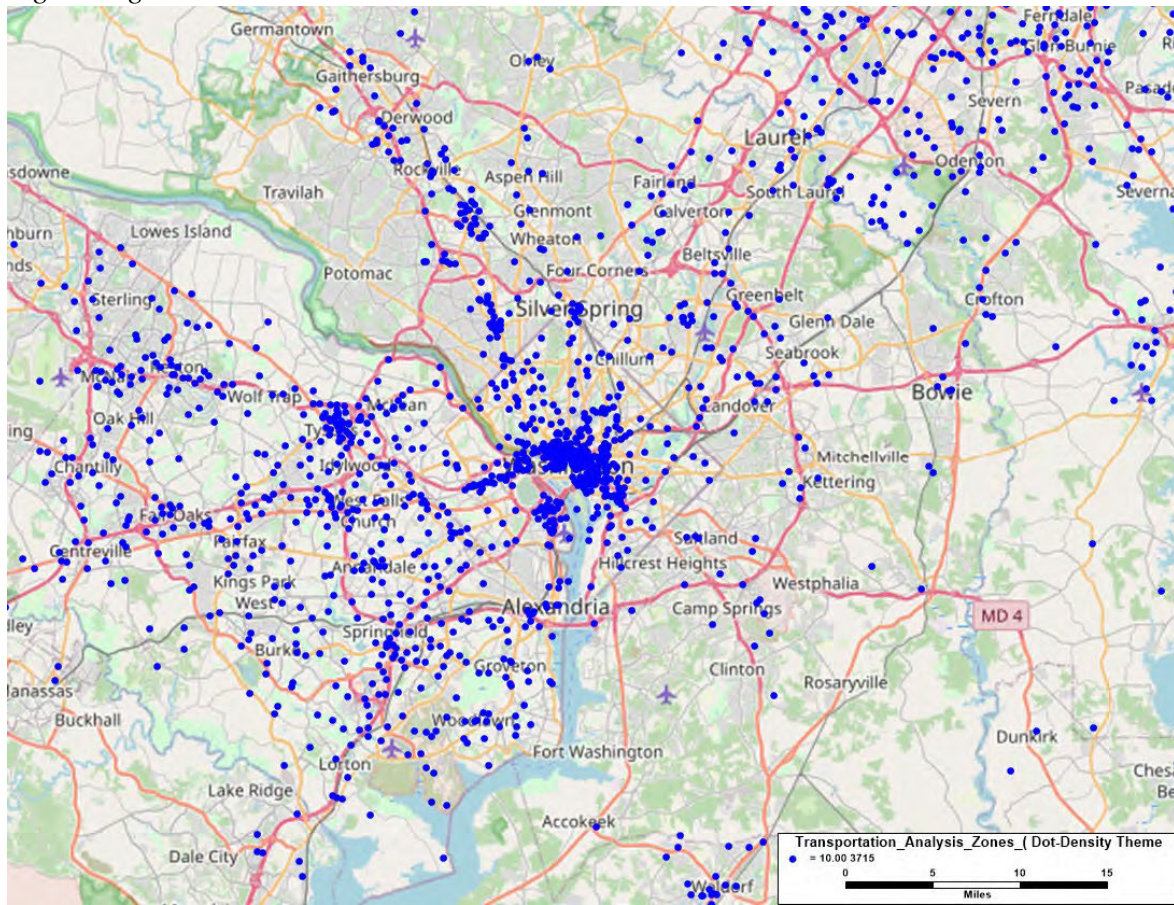
²⁰ The DEIS cites “2050 SCMAGLEV By Market Segment. Baltimore-Washington SCMAGLEV Project Draft Final Ridership Report, June 29, 2018” as the source of this assumption. However, the FRA did not provide this Report with the DEIS, and then refused to produce it after the City requested, claiming “this record was not relied on for the Draft Environmental Impact Statement (DEIS) and was erroneously included in the list of references.” This information is also not found in the unredacted portions of the other produced reports. The FRA’s claim is clearly false; how does the FRA know what parking fees were assumed and the basis for that assumption? The FRA’s withholding of this information hinders meaningful review and violates NEPA.

\$15 in Baltimore for a total of \$30 round-trip), but instead is charged on only one end of the trip (i.e., \$30 in either D.C. or Baltimore), and that this amount has been divided between the two segments of the trip for the purposes of modeling.

The \$30 assumed is much higher than what regular commuters to Washington, D.C. are paying. For example, the Department of Energy charges \$55.80/month for the Forrestal Building garage located just south of the Smithsonian Castle. Department of Energy Office of Management, Parking and Garage, (Jan. 21, 2021), <https://www.energy.gov/management/office-management/employee-services/parking-and-garage#Rates>. If an employee commutes an average of 20 days per month, the cost is only \$2.79 per day, i.e., less than one tenth of what is assumed in the DEIS. It is likely that many other federal employees have similarly low parking rates. The District of Columbia charges some employees \$65 a month and other employees \$140 a month. Office of the District of Columbia Auditor. The District's Worksite Parking Program treats Employees Inequitably and Could Increase Revenue (Aug. 2, 2018), <https://dcauditor.org/report/the-districts-worksite-parking-program-treats-employees-inequitably-and-could-increase-revenue/>. The price of private parking lots and garages varies by location and amenities and "can range from \$60 to upward of \$300." MonthlyParking.org, Monthly Parking Washington DC Guide (Oct. 30, 2017), <https://monthlyparking.org/washington-dc-monthly-parking/>. Applying an average of 20 commutes per month, this is a range of \$3 to \$15 per day, with the top end being only half of what is assumed in the DEIS. In addition, thousands of commuters to Washington, D.C. park at one of the 44 Metro lots with prices of \$45-\$65 a month or at a day rate of about \$5, much cheaper than assumed in the DEIS.

However, even these lower parking prices overstate the average parking cost that could be avoided with SCMAGLEV because many trips will be to areas with free parking. The DEIS states that: "SCMAGLEV rider origin and destinations by Traffic Analysis Zone [were] based on the two regional models (MWCOC and BMC)." DEIS App. D.2 at E-116. The two regional model areas are overlapping. In the MWCOC model, the BW Parkway extends north to I-895. Figure II.B.12 maps the origins of trips on the northern end of the BW Parkway in the 2040 MWCOC model during the weekday afternoon peak period (3-7 p.m.), i.e., the period when most commuters would be heading home.

Figure II.B.12: Origins of 2040 p.m. peak period BW Parkway northbound traffic at the MWCOG region edge



Source: MWCOG model files created for 2020 Maryland I-495 & I-270 Managed Lanes Project DEIS (auto person trips)

Figure II.B.12 is focused on the afternoon peak period because it is most congested, and it is focused on northbound travel to Baltimore because that is the predominant pattern during the afternoon peak period. In Figure II.B.12, less than one quarter of all the trips on the northern end of the BW Parkway originate in the District of Columbia, and the other origins are primarily in areas with free parking.

On the other hand, if a SCMAGLEV rider needed to drive to the Baltimore station, they would likely need to pay for parking. The Camden Yards alternative assumes construction of a new seven-story 5,000 space parking garage, DEIS at 4.2-21, and the Cherry Hill alternative includes construction of a new four-story parking garage. It will be necessary to charge for parking in these garages. The DEIS does not say that these parking costs are considered. If not, the SCMAGLEV costs to riders are underestimated.

The DEIS also overestimates average auto toll costs stating:

Toll fees are assumed to be an average of \$8 per trip. The study assumes that 24.0 percent of auto drivers would use toll lanes.

DEIS App. D.4 at D-41. This does not make any sense. The fastest route between the Washington, D.C. and Baltimore stations generally is the BW Parkway which includes no tolls. The current I-95 Express Lanes peak E-Z toll is only \$1.54, and the toll is even less outside the peak periods. I-95 Express Toll Lanes Toll Rate Schedule, Maryland Transportation Authority https://mdta.maryland.gov/ETL/Toll_Rate_Schedule.html, visited May 6, 2021.

7. SCMAGLEV Would Undermine MARC and Amtrak Service and Have Negative Impacts on Minority and Low-Income Populations

The DEIS presents a rail fare between Baltimore and Washington of \$10 as a “weighted average based on 2017 ridership of Amtrak Acela, Amtrak regional rail and MARC commuter rail fares.” DEIS at D-43. If average fares are used in the modeling this is problematic because travelers do not pay average fares; they pay specific fares, and the market should be segmented. The DEIS shows 88% of total rail ridership in the corridor today being on MARC. DEIS App. D.4 at D-53 Table D.4-45. The actual MARC fare between Baltimore and Washington is \$8 and a monthly pass is \$216. With 20 round trips per month, this brings the fare down to \$5.40. In sharp contrast, the DEIS assumes SCMAGLEV fares between Baltimore and Washington of \$70-79 peak and \$59-\$69 off-peak. DEIS App. D.2 at D-108 Table D.2-35. For commuters this represents a difference of \$70 per trip or \$140 per day.

The different station locations for MARC, Amtrak and SCMAGLEV would make some options more attractive for certain origins and destinations. In the standard estimation process, these differences would be considered in each TAZ-to-TAZ market. The DEIS modeling does not appear to have considered these differences.

MARC travel time is about one hour vs. 15 minutes for SCMAGLEV, a difference of 45 minutes. In addition, the SCMAGLEV train is planned to run more frequently than MARC so it would involve less waiting time, bringing the total time savings to about an hour. An hour time savings is certainly valuable but only worth the cost to those with a value of time of \$70 an hour or more. If the ridership modeling is done correctly, diversion from MARC to SCMAGLEV should mostly be limited to those with values of time of over \$70 per hour.

The DEIS gives a range of numbers for values of time. In the Economic Analysis Impact Technical Report, values of time of \$15.20 per hour for personal travel (including commuting) and \$27.10 per hour for business travel (2018 \$) were used in calculating benefits. DEIS App. D.4 at D-35. This same report also uses a different value of \$16.60 for all travel. DEIS App. D.4 at D-38.

The redacted ridership report gives higher values for “intercity travel” including especially high numbers for “air or high speed rail.” Travel Demand Final 2018-11-16_Redacted.pdf, Louis Berger, at 53. It is not known if these higher values of time were used in the DEIS modeling but they should not have been. The U.S. Department of Transportation reference cited in this report applies these rail values of time to “connecting large urban areas up to 500 miles apart with 2-3 hour travel time and speeds between 125 and 250 mph.” U.S. Department of Transportation, *Revised Departmental Guidance on Valuation of travel Time in Economic Analysis* (July 9, 2014). These higher values of time for longer trips are related to the cost of overnight stays and/or avoiding the cost of overnight stays through faster travel. They are not applicable to the proposed SCMAGLEV which will not serve “intercity trips.”

The redacted ridership report also states: “The U.S. DOT guidelines on the value-of-time indicate that these estimates should keep pace with the rate of real growth in projected household income.” This is a reference to a previous 2014 Guidelines, U.S. Department of Transportation, *Revised Departmental Guidance on Valuation of travel Time in Economic Analysis*, at 7 (Sept. 27, 2016), and this approach is not included in the newer 2016 Guidelines. In my experience, this is not standard accepted practice and certainly is not a conservative assumption. The redacted report says that real income is assumed to increase by 1.35 percent per year. Over the period 2018 to 2045, this represents real income growth of 44%. It is not known whether this growth factor was applied in the DEIS modeling. If it was, this inflates ridership.

It appears that the ridership modeling used different values of time for four different income groups, but the values are not provided for evaluation and comment; it’s not clear if the FRA reviewed and verified this information. DEIS App. D.2 at D-107.

The U.S. Department of Transportation recommends estimating value of time as 50% of hourly median household income for personal travel including commuting. U.S. Department of Transportation, *Revised Departmental Guidance on Valuation of travel Time in Economic Analysis*, at 4 (Sept. 27, 2016). Following this guidance, a value of time of \$70 is only appropriate for those with household incomes of \$291,000 or above. This is not typical of MARC riders. The Maryland Transportation Administration reports that 72.7% of MARC riders have household incomes of below \$150,000 with 46.6% having household incomes of less than \$100,000. Maryland Transportation Administration, 2020-2023 Title VI Implementation Program, at 105 (May 2020).

Nevertheless, the DEIS shows that up to 2/3 of all MARC ridership would divert to SCMAGLEV. DEIS App. D.4 at D-56 to 61 Tables D.4-48 and D.4-49. This is unrealistic.

The DEIS states: “The regional CLRPs [Constrained Long-Range Plans] show nearly \$1.5 Billion of funding committed to improvements on MARC service.” DEIS at 3-9. DEIS Table 4.2-4 shows planned MARC service improvements. DEIS App. D.2 at 4.2-10.

Table 4.2-4: Future MARC No Build Alternative Peak Period Service Frequencies

MARC Line/Direction	Current Peak Period Service Frequency	Future Peak Period Service Frequency
Penn Line – Baltimore to Washington	15-30 Minutes	15 – 20 minutes
Penn Line – Washington to Baltimore	30 minutes	20 minutes
Camden Line – Baltimore to Washington	30 minutes	20 minutes
Camden Line – Washington to Baltimore	30 minutes	20 minutes

Source: MWCOC Regional Forecasting Model – Future Network

The DEIS states:

[T]hese significant forecasted trip diversions would likely require a lowering of MARC service levels to account for a decline in forecasted ridership demand as well as a likely decline in fare revenue.

Forecasted changes in ridership demand and lower levels of service would also likely require modifications to MARC's long-range expansion plans and other capital investments.

DEIS at 4.2-10. As discussed above, the DEIS greatly overestimates how much MARC ridership would divert to SCMAGLEV. However, any diversion will undermine funding for the planned improvements and instead threaten MARC service cutbacks. The DEIS also projects around a \$30 million annual loss to MARC and Amtrak caused by the SCMAGLEV which will necessitate service reductions. DEIS App. D.4 at D-56. Instead of analyzing this impact, the DEIS merely suggests MARC and Amtrak's newfound additional capacity might entice new riders. Elsewhere, the DEIS even projects significant decreases in energy consumption from bus and rail travel in the region, both cut by more than half when compared to the No Build projection in 2045, presumably requiring significant cuts to route, frequency, and stations served. DEIS at 4.19-11.

The DEIS glosses over the impacts that significantly decreased bus and train public transit services would have on people throughout the region who rely on those modes of travel, including Environmental Justice communities. Based on these projections, if you cannot afford the SCMAGLEV or if the SCMAGLEV's routes and stations do not get you where you need to go, you will have fewer alternative options and it will take longer to travel throughout the region. Current MARC ridership includes many minority and low-income persons. Almost half of current MARC ridership (45.6%) identify as other than white non-Hispanic. 17.8% of MARC riders are from households with less than \$50,000 annual income. These riders would be adversely affected by any MARC cutbacks.

If the SCMAGLEV is constructed and fails to generate sufficient revenue to cover operations, there would be great pressure to shift transit money to subsidize it because it will be a case of "too much invested to quit." There also would be pressure to limit competition by MARC and Amtrak, which could lead to MARC and Amtrak cutbacks and/or fare increases.

A 2002 review of Maglev vs. conventional high-speed rail (HSR), *An Evaluation of Maglev Technology and Its Comparison with High Speed Rail*, concluded:

The analysis reaches the following conclusions on the three most important system characteristics. First, recent developments of HSR have reduced the advantage of Maglev in higher speeds, so that the differences in travel times on typical interstation spacings would be small. Second, high speed rail has a huge advantage over Maglev due to HSR's compatibility with existing rail networks. Third, high speed rail involves a lower investment cost, while operating costs on Maglev are still uncertain. Energy consumption is estimated to be lower for high speed rail. All other features, like riding comfort, system image, grade climbing ability, noise, etc., are not significant enough to make one mode superior to the other. Thus the benefits

of high speed rail strongly outweigh Maglev's small travel time advantage. Based on this conclusion, the soundness and direction of US federal policy of investing in Maglev systems while neglecting high speed rail and Amtrak is questioned.

Vukan R. Vuchic and Jeffrey Michael Casello, *An Evaluation of Maglev Technology and Its Comparison with High Speed Rail*. University of Pennsylvania Scholarly Commons (2002). This report also highlights a fundamental problem with the proposed Project. The distance traveled is too short to justify such a large investment to increase speed:

[T]he optimal domain for high speed ground transportation systems is on long interstation lengths, such as 100 km [62 miles]. On shorter distances, the gains in travel time are so small that it is difficult to justify the high investment. For example, very important and functional lines between center cities and airports (Frankfurt, Zürich, and London-Heathrow are outstanding examples) may not be candidates for HSGT (as proposed for Pittsburgh, Baltimore, Munich, and Shanghai), because they require much higher costs and bring very little additional benefit, regardless of technology.

Id. at 36.

In 2019, a team at George Mason University did a systems engineering evaluation of possible rail improvements from Washington, D.C. to New York City comparing Maglev, a new conventional high-speed rail system, and a new Acela fleet, comparing capacity, travel time, safety, technical aspects, environmental impacts, and economic aspects, among others. Natalee Coffman, et al., *Northeast Corridor Mass Transportation System Analysis* (May 9, 2019), <https://catsr.vse.gmu.edu/pubs/HighSpeedRailFinalReportMay2019.pdf>. The “team has recommended the new Acela fleet for the Northeast Corridor.” Natalee Coffman, et al., *Northeast Corridor Mass Transportation Systems Analysis*, (2019), https://catsr.vse.gmu.edu/pubs/HSR_IEEE_Final_2019.pdf.

Based on the results of this study, Professor George Donohue writes:

In my opinion, this study [the Baltimore-Washington SCMaglev DEIS] is a red herring study of a loss-leading advertisement for a public-private-sector project (Washington to Baltimore) of a much larger Washington to New York City purchase. As such is [sic] could be compared to a Trojan Horse. It will not be a commercial success.

George Donohue, *Maglev Line is a Trojan Horse. Just Fix the Current Train System*, Capital Gazette (Feb. 20, 2021), <https://www.capitalgazette.com/opinion/columns/ac-ce-column-george-donohue-2021221-20210220-3awl4hbsrngsdly67lm3uw6ozq-story.html>.

The table below,²¹ showing the top Amtrak Washington, D.C. city pairs by revenue, demonstrates why Donohue describes the proposed SCMAGLEV between Washington, D.C. and

²¹ Rail Passenger Association, *Amtrak Service in Washington, DC* (2020), <https://www.railpassengers.org/site/assets/files/2607/was.pdf>, 2020.

Baltimore as a “Trojan Horse” and as a step towards Washington, D.C. to New York City. Washington, D.C. – Baltimore only ranks tenth in revenue.

Top city pairs by revenue, 2019	
1. New York, NY	226 mi
2. Philadelphia, PA	135 mi
3. Newark, NJ	216 mi
4. Metropark, NJ	202 mi
5. Wilmington, DE	110 mi
6. Stamford, CT	262 mi
7. Trenton, NJ	168 mi
8. Chicago, IL*	921 mi
9. New Haven, CT	301 mi
10. Baltimore, MD	41 mi

The top nine city pairs by revenue are all trips greater than 100 miles. The Washington, D.C. – Baltimore market is not critical to Amtrak but extending SCMAGLEV farther north could cripple it. Donohue describes how the SCMAGLEV would undermine public investments that already are being made in the Acela system:

Amtrak has already signed with the French company Alstom to receive 28 trainsets of a new design known as the Avelia Liberty. These trains are assembled in the US and the first are already being delivered. This order will replace and expand the current Acela fleet of 20 trainsets. The new trainsets are scheduled for complete delivery by the end of 2022 and will offer increased speed, capacity, and operational frequency along the route.

George Donohue, *Maglev Line is a Trojan Horse. Just Fix the Current Train System*, Capital Gazette (Feb. 20, 2021), <https://www.capitalgazette.com/opinion/columns/ac-ce-column-george-donohue-2021221-20210220-3awl4hbsrngsdly67lm3uw6ozq-story.html>.

8. The DEIS Overestimates Induced Travel

The DEIS states:

[T]he travel demand model estimated that 15-17 percent of the total ridership between the Washington, D.C. and Baltimore market pair, and 34-41 percent of the total ridership between the Washington, D.C. and BWI Marshall Airport market pair are induced riders, or those that would not otherwise take the trip.

DEIS Tables D.4-25 (diverted ridership) and D.4-29 (induced ridership) together comprise total forecasted SCMAGLEV ridership by station pair. It is hard to understand what the large induced travel between Washington, D.C. and BWI Marshall Airport means. Does it mean that people are making air trips they would not otherwise have made? It seems highly unlikely that there would

be many such trips.²² It is more plausible that the SCMAGLEV airport link could lead to changes in airport choice from National Reagan and Dulles Airports, but this likely would also require changes in air service and a full analysis of these complex dynamics does not seem to have been done. Without such an analysis, this claim is invalid.

The DEIS presents contradictory information about BWI ridership. In one place in the DEIS, 45-50% of total SCMAGLEV ridership begins or ends at BWI.²³ Elsewhere in the DEIS, only about 15% of total SCMAGLEV ridership begins or ends at BWI.²⁴ The DEIS also shows much higher Washington, D.C. – BWI ridership in the Camden Yards alternative vs. the Cherry Hill alternative as illustrated in Table D.4-29 (reproduced below) for induced travel, but also true for diverted travel. DEIS App. D.4 at D-45 Table D.4-29. The location of the Baltimore station should have no effect on Washington, D.C. – BWI ridership. The combination of these discrepancies plus the unexplained large BWI induced travel share indicate that much better modeling of BWI travel is needed.

Table D.4-29: Induced Ridership by Year

Item	Cherry Hill		Camden Yards	
	2030	2045	2030	2045
Total Induced Ridership	2,718,370	3,709,469	3,144,844	4,360,099
Baltimore – Washington, D.C.	2,156,069	3,036,581	2,494,326	3,569,188
Washington, D.C. – BWI Marshall Airport	562,301	672,888	650,518	790,911

Note: The DEIS forecasts no induced ridership between Baltimore and BWI Marshall Airport.

The 15-17% induced travel share between Washington, D.C. and Baltimore is much smaller but is an overestimate. The combination of high SCMAGLEV fares and only 8 to 27 minutes time savings will attract few additional trips in the corridor.

9. Ridership is Highly Uncertain

The DEIS presents ridership forecasts as point estimates with many significant digits. Forecasting SCMAGLEV ridership is extremely complex and necessarily rests on a set of assumptions that are highly uncertain. It would be more honest for the DEIS to present ranges of possible SCMAGLEV ridership rather than a single forecast. This has been done for the California

²² If the DEIS is basing positive ridership impacts on such trips, the FRA also must estimate the increased air emissions associated with these increased air trips.

²³ Calculated from DEIS Appendix D.2 Transportation Technical Report, at A-3 Table D.2-2, assuming that there are the same number of SCMAGLEV trips in each direction for each station pair.

²⁴ Calculated from DEIS Appendix D.4 Economics Impact Analysis Technical Report, at D-42 Table D.4-25 (diverted ridership) and D-45 Table D.4-29 (induced ridership).

High-Speed Rail Authority as shown in the table below.²⁵ This is highly relevant because the California project is the only high-speed rail project under construction in the United States today.

Table ES.1 Range of Annual Ridership by Implementation Step^a (Millions)

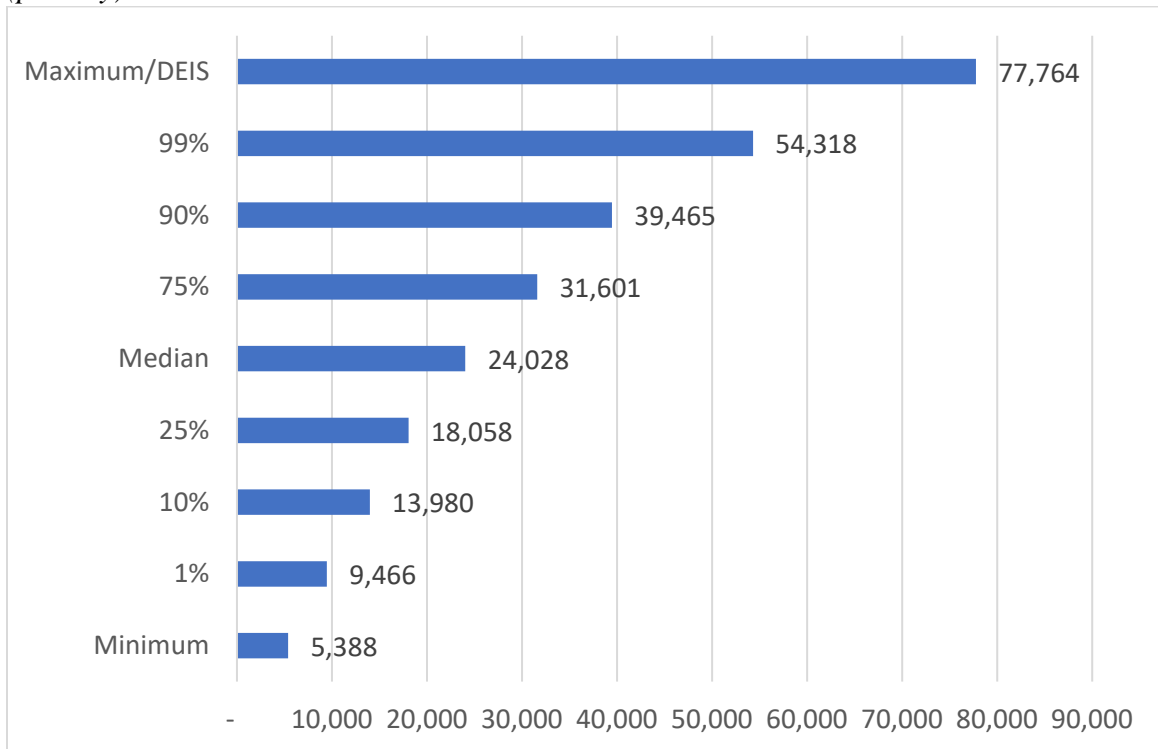
Confidence Level That Ridership Will Be Less Than Stated Value	Implementation Step— Silicon Valley to Central Valley line 2029	Implementation Step—Phase 1 2033	Implementation Step—Phase 1 2040
Minimum	3.7	8.6	8.9
1%	6.5	14.6	15.2
10%	9.6	21.1	22.2
25%	12.4	27.0	28.3
Median	16.5	35.6	37.4
75%	21.7	46.1	48.5
90%	27.1	56.8	60.6
99%	37.3	76.0	80.9
Maximum	53.4	109.8	118.1
Base Run	16.2	35.6	38.6

The data for the third column, “Implementation Step – Phase 1 2040,” is for a system that runs all the way from San Francisco to Los Angeles and Anaheim. This is a more realistic corridor for high-speed rail that better conforms to the station spacing of 100 km (62 miles) and 2-3 hour travel time high-speed rail descriptions in other reports referenced above. The minimum ridership forecast is less than a tenth as high as the maximum forecast. Limiting the range to the 80% most likely outcomes (from 10% to 90%), the 10% forecast is only about a third of the 90% forecast.

The failure of the SCMAGLEV ridership estimates to present a range is not because the uncertainty is low; it is because the uncertainty is so high that presenting a realistic range would call the Project into question. Greenbelt has not constructed its own SCMAGLEV model or even been able to examine the DEIS model, as this information has not been made public, despite requests. Nevertheless, Greenbelt is confident that it is more realistic to treat the DEIS ridership forecast like the maximum in the California modeling example and use the California ridership distribution as estimates for other ridership outcomes. The highest DEIS ridership is for 2045 with the Camden Yards alternative, 77,764 trips per day in Table D.2-2. DEIS App. D.2 at A-3. In Figure II.B.13, this number is set as the maximum and the other numbers are scaled in proportion to the California numbers.

²⁵ Cambridge Systematics, *California High-Speed Rail 2020 Business Plan Ridership and Revenue Forecasting Technical Supporting Document*, at ES-2, Prepared for DB Engineering & Consulting USA Inc. for the California High-Speed Rail Authority (Jan. 2020).

Figure II.B.13: Realistic Range for SCMAGLEV 2045 Ridership in Camden Yards Alternative (per day)



Even the numbers in Figure II.B.13 may overstate ridership because the DEIS assumes very frequent train service, which is essential to achieving high ridership. If ridership is significantly lower, service will need to be cut back. General modeling assumptions include: a) wait time is half of the headway between departures, and b) wait time is weighted as twice as onerous as in-vehicle time. Therefore, a shift from departures every 15 minutes to every 30 minutes (off-peak) would increase average wait time from 7 ½ minutes to 15 minutes and this 7 ½ minute increase would be equivalent to 15 minutes of in-vehicle time in the competition with other modes (especially auto). Then lower ridership could require further service cutbacks, a common vicious circle with transit in the U.S.

10. DEIS Overstates Economic Benefits

The DEIS Executive Summary lists three bullets under “Economic Impacts.” The first two bullets relate to 1) construction impacts and 2) operations and maintenance jobs and annual spending. These bullets mostly say that spending a huge amount of money creates jobs. Any other project, including other more beneficial public transit spending, would result in similar jobs multipliers in the Regional Input-Output Modeling System (RIMS II) model cited in the DEIS. DEIS at 4.6-2 (PDF p. 245). Moreover, the DEIS is assuming 100 percent of funding comes from outside the region and therefore the maximum construction impact, while ignoring the lost jobs and displaced revenue from business interruptions, including permanent closures, and other public transit options. DEIS App. D.4 at D-20, 30.

The DEIS estimates that construction would create 166,000 to 191,000 job-years, i.e., 1 job-year = 1 job for one year. DEIS App. D.4 at D-25 Table D.4-10. With the planned 7-year

construction period, this represents an average of 24,000 to 27,000 jobs during the construction period. The Project Sponsor is stating a much higher and incorrect value in website communications: “205,000 jobs nationwide from construction.” BWRR, *Project Benefits*, <https://bwrapidrail.com/project/benefits/> visited May 5, 2021; Northeast Maglev, *Economic Benefits*, <https://northeastmaglev.com/economic-benefits/>, visited May 5, 2021. This is 8 times the actual average value.

The Project Sponsor also misrepresents permanent jobs, using 14,600 in website communications. *Id.* The DEIS states:

The annual economic impacts from operation and maintenance of the SCMAGLEV Project for the Washington-Baltimore-Arlington CSA would result in between 390 and 440 total jobs annually, and between \$24.3 and \$27.4 million in earnings (2018 dollars) for all Build Alternatives.

DEIS at 4.6-8 (PDF p. 251). This is only about 3% of the number the Project Sponsor is using. There is no justification for putting out such misinformation.

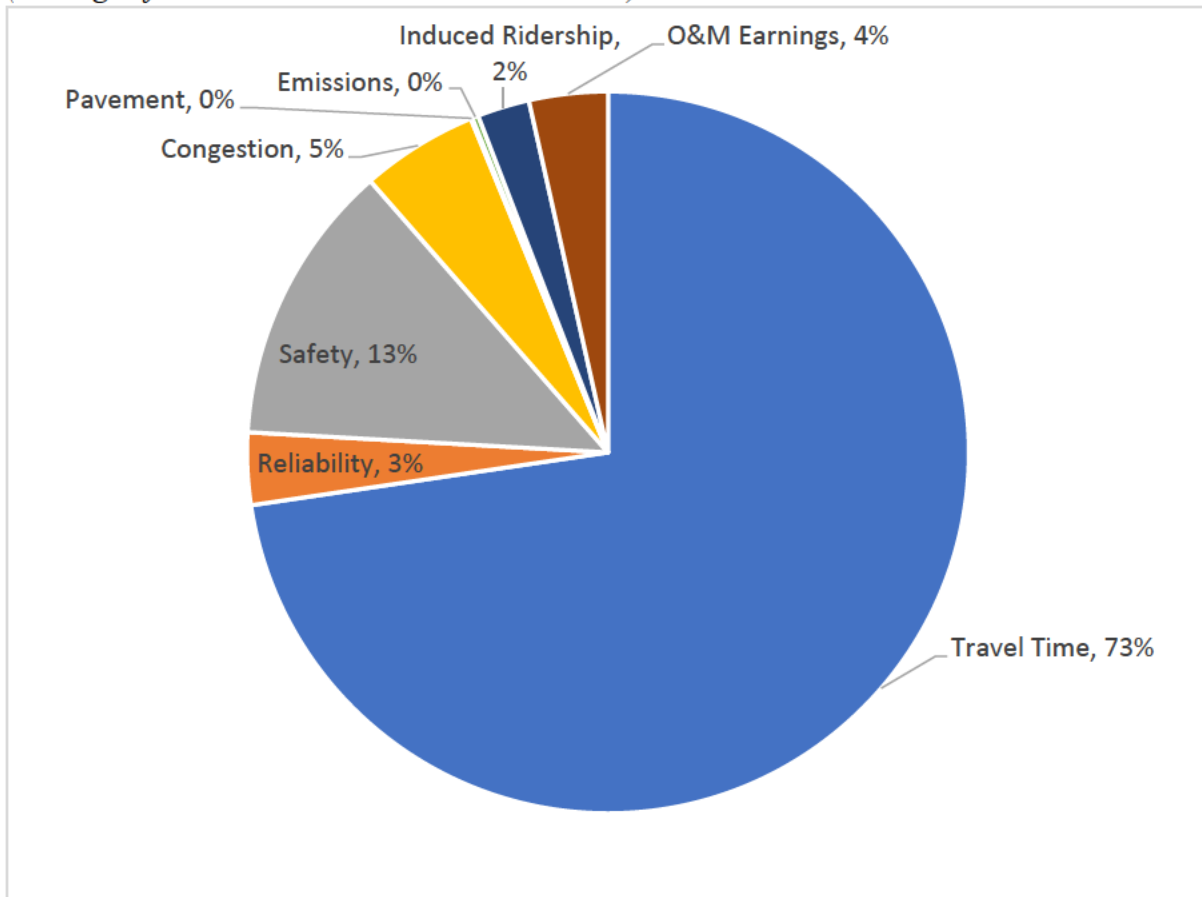
A redacted Louis Berger memorandum released on April 23 concerning “SCMAGLEV Ridership Report Revenue and Operations Estimates Addendum” gives total employment impacts of 1,350 – 2,080. However, most of these jobs are indirect jobs calculated in the IMPLAN model rather than direct jobs associated with the Project. Even with the indirect jobs included, the estimate is only about a tenth of the number used in the Project Sponsor website communications.

The third bullet states:

The availability of the SCMAGLEV service option would change the travel patterns in the Combined Statistical Area (CSA). These changes include the net change in user benefits, increased reliability relative to other modes, increased safety, induced ridership, avoidance of congestion, pavement savings, reduced emissions as drivers divert to SCMAGLEV, and reduced revenue for publicly provided regional commuter rail service as riders on these modes divert to SCMAGLEV.

DEIS at ES-15. Figure II.B.14 shows the relative magnitude of these annual benefits as reported in the DEIS.

Figure II.B.14: Percentage of Total Annual SCMAGLEV Economic Benefits Reported in DEIS (Average of the Two Alternatives and Two Years)²⁶

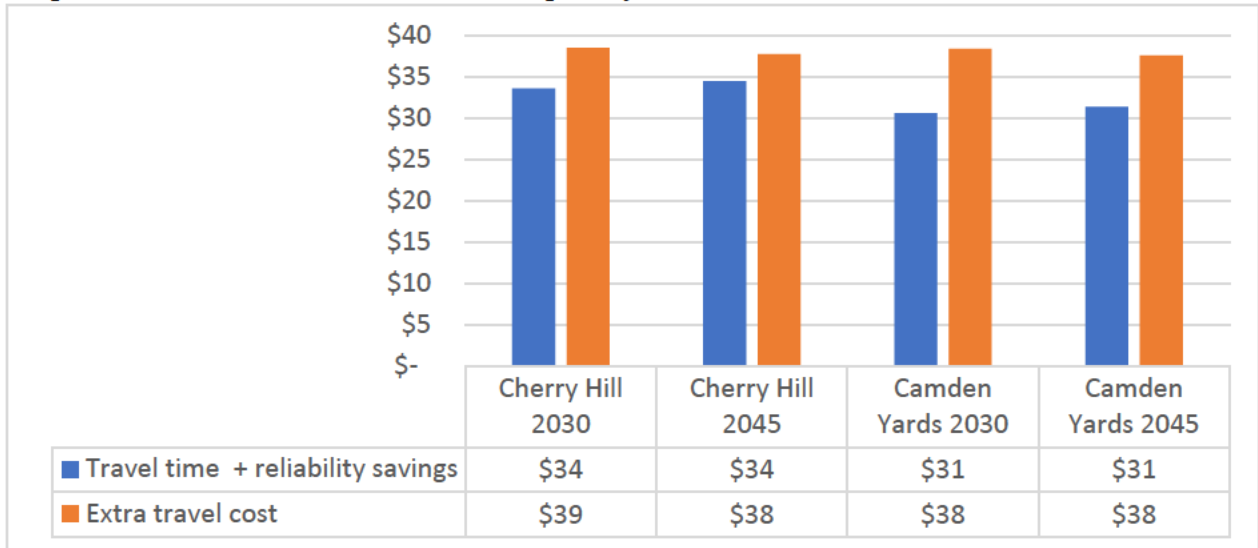


The ridership estimate errors discussed above all translate directly to errors in calculations of economic benefits because the latter all are proportional to ridership. However, in some cases the errors in economic benefit calculations are even greater. For example, the economic benefits of travel time savings are the product of SCMAGLEV ridership multiplied by average time savings per rider. If ridership is overestimated by a factor of three as suggested in Figure II.B.13 and travel time savings are overestimated by a factor of five or more as discussed above, then the economic benefits of the travel time savings are overestimated by a factor of fifteen or more. DEIS Table D.4-20 shows annual travel time savings of \$696.6 million in 2045 for the Camden Yards alternative. DEIS App. D.4 at D-36 Table D.4-20. A fifteenth of that is only \$46.4 million.

As shown in Figure II.B.14, three quarters of the benefits claimed in the DEIS are direct benefits to the riders – travel time savings and reliability. Even with the inflated travel costs savings, the DEIS numbers show that SCMAGLEV is a bad deal. The DEIS estimates of the value of travel time savings plus reliability are less than the additional out-of-pocket cost to the riders (SCMAGLEV trip cost minus avoided cost from another mode). Figure II.B.15 shows these numbers on an average cost per rider basis.

²⁶ Calculated from values in DEIS App. D.4 at D-19 Table D.4-7.

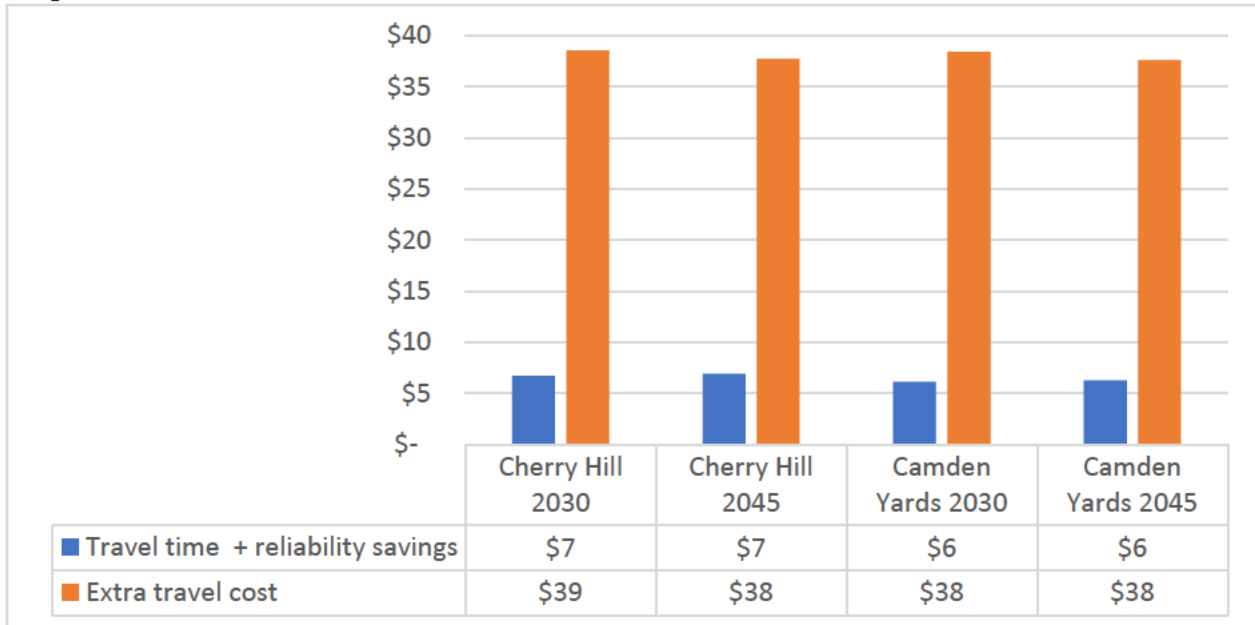
Figure II.B.15: Average Purported Travel Time and Reliability Per Rider Compared to Average Purported Additional Cost Per Rider Computed from DEIS Tables²⁷



As documented above, the travel time savings and reliability estimates are likely significantly inflated. Figure II.B.16 shows the additional out-of-pocket cost per SCMAGLEV rider compared to more user benefits where the DEIS estimates are divided by five.

²⁷ Travel cost savings and reliability from DEIS App. D.4 at D-19 Table D.4-7 divided by total diverted trips from DEIS at 4.2-7 Table D.4.2-3.

Figure II.B.16: More Realistic Travel Time and Reliability Per Rider Compared to Average Purported Additional Cost Per Rider²⁸



With more realistic cost and reliability savings, the average rider would be paying about \$30 more than they would be getting back in benefits.

The other economic benefits claimed in the DEIS are similarly unreasonable. The next largest benefit is safety – ranging from \$75 million to \$115 million per year depending on the alternative and year. DEIS App. D.4 at D-19 Table D.4-7. As with all the economic benefits number, these estimates are inflated due to inflated ridership estimates. However, the analysis also is overly simplistic as it assumes that reductions in vehicle miles traveled (VMT) translate proportionally into accident reductions. This has not happened during the pandemic. The *Washington Post* wrote:

Traffic fatalities increased nationally and in the Washington region last year despite a significant drop in traffic because of the coronavirus pandemic. . .

Excessive speeding was cited as a leading contributor to the carnage. . .

Traffic deaths last year were up from 2019, when 249 people were killed in the District and its closer suburbs. . .

The Washington region’s numbers mirror a national trend. . .

While Americans drove less because of stay-at-home orders and increased telecommuting, the fatality rate per mile driven rose 24 percent last year, according

²⁸ Same as Figure II.B.15 except travel time and reliability savings divided by a factor of five.

to the [National Safety] Council’s analysis. Meanwhile, the number of miles driven nationwide decreased by 15 percent.

Luz Lazo, *Traffic Counts Fell During the Coronavirus Pandemic, But Road Fatalities Still Increased*, Washington Post, (Feb. 12, 2021), https://www.washingtonpost.com/local/trafficandcommuting/traffic-deaths-coronavirus/2021/02/11/cc411e50-6707-11eb-886d-5264d4ceb46d_story.html. In the DEIS accident benefits calculations, an estimated reduction in fatalities from 3 to 5 per year (depending on alternative and year) represents about 40% of the total benefits because each life saved is valued at about \$10 million. As shown in the pandemic experience, these calculations are unreasonable because there is no direct connection between VMT and fatalities. There also is no certainty that the SCMAGLEV will be as safe as assumed in the DEIS as the SCMAGLEV technology is significantly different than the reference technology discussed in the DEIS. DEIS App. D.4 at D-47. One significant SCMAGLEV accident could offset many years of the purported fatality reductions.²⁹

The other accident benefit calculations (injuries and property damage) are similarly unrealistic.

The next largest benefits category in the DEIS is congestion. Again, the estimates are arbitrary. First, since it is based on the inflated diverted ridership estimates, this number starts out as unrealistically inflated. Then, like with the safety calculations, the congestion calculations assume that there is a direct relationship between VMT reduction and travel time savings for others. It relies on a congestion cost per VMT multiplier from an obscure outdated 2000 report. DEIS App. D.4 at D-45.

It is likely that this report has not been updated because the underlying premise is wrong. In 1992 Anthony Downs coined the term “triple convergence” to describe how peak period traffic congestion is inevitable because drivers will compensate for capacity increases by (a) shifting routes, (b) shifting time of travel, and (c) shifting travel mode. Anthony Downs, *Stuck in Traffic: Coping with Peak-Hour Traffic Congestion*, Brookings Institution Press (1992). After capacity expansion, the new equilibrium will be just as congested as the old equilibrium.

The term “induced travel” has been used to include the three triple convergence effects plus other shifts in destinations, and longer-term shifts in land use. A review of the induced travel research by Handy and Boarnet concluded that induced travel is real and that the magnitude is sufficient to prevent capacity expansion from reducing congestion: “Thus, the best estimate for the long-run effect of highway capacity on VMT [vehicle miles traveled] is an elasticity close to 1.0, implying that in congested metropolitan areas, adding new capacity to the existing system of

²⁹ It is arbitrary for the DEIS to assume nearly zero probability of an SCMAGLEV train collision or derailment with no basis and to discount the Maglev train collision in Germany that killed 23 people and injured 10 more just because that Maglev used a different technology. See DEIS App. D.4 at D-47.

limited-access highways is unlikely to reduce congestion or associated GHG [greenhouse gas] in the long-run.”³⁰

Just as adding freeway capacity has no significant impact on peak period freeway congestion, adding parallel transit capacity has no significant impact on peak period freeway congestion.

Last, as Section II.F explains, the Project’s purported emissions benefits, presented in the DEIS as \$1.8 to \$2.3 million per year, are shockingly wrong. Had the FRA attempted to present a good-faith unbiased quantified estimate of the net costs and benefits from air emissions, it would have shown that the SCMAGLEV would cause a net cost of tens of millions of dollars per year from the climate impacts, premature deaths, increased hospitalizations, and lost productivity stemming from the increased air emissions.

11. The SCMAGLEV Would Serve a Small Affluent Portion of the Population and Have Little or No Benefit to the Rest

As documented above, the high SCMAGLEV fares would only be attractive for those MARC travelers with household incomes exceeding \$291,000. This also generally would be true for those that use autos, given that the DEIS states that the time savings from Baltimore to Washington would be 8 to 27 minutes. DEIS App. D.4 at C-6. Following U.S. Department of Transportation Guidance, the value of time for a traveler with \$200,000 household income is \$48/hour or 80 cents a minute. They would be willing to pay an extra \$6.40 to save 8 minutes (much less than the additional SCMAGLEV cost) or \$21.60 to save 27 minutes (also less than the additional cost of SCMAGLEV in most cases).

As discussed above, the supposed congestion relief for non-SCMAGLEV travelers will not materialize. Instead, construction of the SCMAGLEV will create a two-tier system with a fast ride for the affluent and likely negative consequences for everyone else.

C. The Waterways, Wetlands, and Floodplains Impact Analyses in the DEIS Lack Foundation, are Incomplete, and Fail to Consider Alternatives that Would Minimize Impacts to these Resources

1. The DEIS Lacks the Information Needed to Analyze Stormwater Impacts from the SCMAGLEV

Polluted stormwater running off the SCMAGLEV and its associated facilities will have substantial adverse impacts on receiving waterways. Typically, stormwater collects pollutants on its way to stormwater management facilities and eventually into municipal separate storm sewer systems (MS4s) and receiving waterways. Where there are no nearby MS4s, stormwater collects

³⁰ Susan Handy and Marlon G. Boarnet, *Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions: Policy Brief*, prepared for California Air Resources Board, at 4 (Sept. 30, 2014), https://ww2.arb.ca.gov/sites/default/files/2020-06/Impact_of_Highway_Capacity_and_Induced_Travel_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf (emphasis added).

pollutants and then flows directly into nearby waterways. Both routes for stormwater discharges can negatively impact the chemical, physical, and biological conditions of the receiving waterways.

Eight watersheds (identified by Maryland 8-digit codes), comprised of many sub-watersheds (identified by Maryland 12-digit codes), would be affected by the SCMAGLEV:

- D.C. and Maryland – Anacostia River
- Maryland – Patuxent River Upper, Little Patuxent River, Severn River, Patapsco River Lower North Branch, Baltimore Harbor, Gwynns Falls, and Jones Falls

See DEIS App. D.7 at D.7-36 (Table D.7-9). Each of these watersheds is impaired by one or more pollutants for one or more designated uses, meaning that the waterways in these watersheds already do not meet water quality standards. See DEIS App. D.7 Att. D Table D-2. The Anacostia River, the watershed in which Greenbelt and BARC are located, is impaired for nutrients, sediment, fecal coliform bacteria, impacts to biological communities, polychlorinated biphenyls (PCBs), and trash and debris.³¹

As required by the Clean Water Act (CWA), MDE developed total maximum daily loads (TMDLs) for these watersheds to address impairments caused by violations of water quality standards for fecal coliform bacteria (*Enterococcus spp.*), PCBs, biochemical oxygen demand (BOD), total nitrogen, total phosphorus, sediment, and trash. U.S. EPA developed an overall TMDL for the Chesapeake Bay watershed, which includes the Anacostia River watershed, for nitrogen, phosphorus, and sediment. *Id.* Each TMDL sets wasteload allocations (WLAs) for each receiving water body consistent with federal requirements (see 33 U.S.C. § 1342(p)(3)(B)(iii) and 40 C.F.R. § 122.44(k)(2)-(3), which set collective numeric WLA attainment milestones established under state and local MS4 permits). The District of Columbia, Prince George's County, BARC, and the Maryland Transit Association have their own MS4 permits and associated WLAs.

The SCMAGLEV would create between 712 and 826 acres of new impervious surfaces depending on the alignment alternative selected. DEIS App. D.7 at D.7-55 (Table D.7-10). The amount of new impervious surfaces is so large because all system infrastructure would be newly constructed and would require new elevated viaducts, ancillary facilities (fresh air and emergency egress (FA/EE) facilities sited every 3-4 miles along the tunnel section, two maintenance of way (MOW) facilities, and one trainset maintenance facility (TMF)), power substations, roads and driveways, employee and customer parking lots, and construction laydown areas. Many of these impervious surfaces would be built within the Anacostia River watershed; in fact, the DEIS states that 820-1,067 acres of the watershed are within the Project Affected Environment, which would amount to a significant impact if this represents the total acres harmed given that the overall

³¹ Prince George's County, Maryland Department of the Environment Stormwater Management Division, Restoration Plan for the Anacostia River Watershed in Prince George's County, at 6, (2015), <http://pgcdoe.net/pgcountyfactsheet/Areas/Factsheet/Documents/Plans/Restoration%20Plan%20Anacostia%2020151228-combined.pdf>.

watershed is comprised of only 116,511 acres. DEIS App. D.7 at D.7-36 Table D.7-9. Despite the significant amount of new impervious surfaces to be added under each of the Build Alternatives, the DEIS fails to quantify the stormwater loads the Project will generate and relies on unsubstantiated statements to describe resulting impacts to water quality. By failing to provide accurate information regarding stormwater emanating from the Project, consider the Project's significant impacts, and avoid conclusory statements, the DEIS violates the NEPA requirements explained above.

a. The DEIS Fails to Identify Stormwater Volumes and Pollutant Loads

DEIS Section 4.10 (Water Resources) provides an overview of how stormwater can negatively impact waterways generally. It identifies the acreage of impervious surfaces that would be created by each Build Alternative but provides no estimate of the volumes of stormwater or pollutant loads that may be created. DEIS at 4.10-16. Instead, the DEIS punts this analysis to the final design stage of the Project, which will not happen until after the NEPA process has ended. *Id.* at 4.10-17 (“During final design, the Project Sponsor would produce final calculations of new impervious surfaces per location within each county, Baltimore City, and Washington, D.C. to comply with applicable stormwater management and Critical Area laws.”). It seems likely nevertheless that the FRA has already conducted some stormwater volume calculations, since this information would have been necessary for the FRA to identify the location, size, and type of stormwater management facilities that it proposed. For example, there is a large stormwater management retention basin shown near the south tunnel portal on renderings of Alignment J and J1, indicating that a substantial volume of water is anticipated to come from the portal and viaduct proposed to be located within Greenbelt or BARC, depending on the alignment chosen. The FRA should provide the public with the stormwater volume estimates and the calculations relied upon to derive them so that the public may meaningfully analyze and comment on the proposed facilities. *See Id.* at 4.9-9 (Figures 4.9-3 and 4.9-4).

Moreover, although these stormwater facilities are not discussed in any detail in the DEIS, the Build Alternative maps show large stormwater treatment facilities and associated limits of disturbance, indicating there will be on-site facilities. *E.g., compare* DEIS at 3-39 (Table 3.4-8), *with* DEIS App. G Part D, drawing PP-14a (showing a large stormwater treatment facility limit of disturbance for the J1 Alignment sited within Greenbelt's Hamilton and North Woods, and BARC, and two limits of disturbance for another large stormwater facility and stormwater diversion in the area). Again, although the FRA has provided no estimates of the stormwater volumes or pollutant loads anticipated for each alternative alignment, it must have at least some of these calculations given that it is proposing to site stormwater treatment facilities along the proposed alignment corridor.

b. The DEIS Fails to Take a Hard Look at How Increased Stormwater Will Affect Receiving Waterways

The DEIS acknowledges that the SCMAGLEV would cause “degradation of water quality” but fails to provide data quantifying this degradation and to identify the type of stormwater management facilities to be used to mitigate the increase in stormwater runoff. DEIS at 4.12-11. The FRA states that it conducted field visits, gathered publicly available information, and “assessed the potential for direct and indirect impacts as well as temporary and permanent impacts to water resources,” DEIS App. D.7 at D.7-35, but does not provide or cite this data. Additionally, the FRA states that it “considered a qualitative analysis of watersheds, water quality and groundwater,” *id.*, but even its qualitative description is inadequate. For example, the DEIS discusses the current conditions of the Anacostia River Watershed and Beaverdam Creek in a general fashion but does not discuss the other watersheds affected by the Project. *See* DEIS at 4.10-3 to 4 (“Anacostia River Watershed has the most significant acreage of proposed SCMaglev Project”); DEIS App. D.7 at D.7-38. Similarly, Table 4.10-1 provides the general location, land use, overall watershed size, and acres of watershed within the Project-affected area for the eight watersheds but does not break down this information by sub-watershed (despite the misleading column heading on the table). DEIS at 4.10-5.³² It thus lacks sufficient detail about where these impacts will occur and so deprives the public of the opportunity to review these impacts. The DEIS

Table 4.10-1: Existing Watersheds within the SCMAGLEV Project Affected Environment

Sub-Watershed Name	Geographic/Land Use Description	Watershed 8-digit Hydrologic Unit Code	MDNR Watershed Name	MDNR Watershed 6-digit Code	Overall Watershed Size (acres)	Watershed Area within SCMAGLEV Project Affected Environment* (acres)
Anacostia River	Urbanized developed areas in Washington, D.C. to rural or undeveloped areas in Prince George's County	02140205	Middle Potomac	021402	116,511	820-1,067
Patuxent River Upper	Forested, urban, and agricultural development. Within Anne Arundel County and Prince George's County	02131104	Patuxent	021311	56,446	114-157
Little Patuxent River	Forested, industrial/ commercial, and residential, and drains much of the urbanized areas of Howard County	02131105	Patuxent	021311	66,214	82-421
Severn River	Single family residential and forest being the most prevalent land use	02131002	Lower Western Shore	021310	51,744	10
Patapsco River Lower North Branch	Densely populated and urbanized watersheds within and surrounding Baltimore County and Baltimore City	02130906	Patapsco Back River	021309	75,755	231-346
Baltimore Harbor	Densely populated and urbanized watersheds within and surrounding Baltimore County and Baltimore City	2130903	Patapsco/ Back River	021309	74,899	117-125
Gwynns Falls	Densely populated and urbanized watersheds within and surrounding Baltimore County and Baltimore City	2130905	Patapsco/ Back River	021309	41,711	23-45
Jones Falls	Densely populated and urbanized watersheds within and surrounding Baltimore County and Baltimore City	2130904	Patapsco/ Back River	021309	37,282	0-7

Source: University of Maryland Center for Environmental Science. Eco Health Report Cards. <https://ecoreportcard.org/report-cards/chesapeake-bay/regions/patuxent-river/>
 *Acreage within the SCMAGLEV Project Affected Environment is presented as a range for some watersheds based upon the varying Build Alternatives located in the watershed.

³² The table also does not define the “Project Affected Environment.” This ambiguous term is used in several of the watershed and stormwater impact tables. Although the DEIS states that this term includes the “limits of operational/physical disturbance, as well as the construction related impact area, which includes additional areas of temporary disturbance required for construction activities” it is unclear if this means the Project Affected Environment includes the Limit of Disturbance (LOD) only, the LOD plus a 30-foot buffer, or something else. DEIS App. D.7 at D.7-35. The FRA should clarify what this term means.

also provides an overview of the regulatory framework for preventing water pollution but does not provide any details as to how regulation might control impacts from the large increases in stormwater coming from the Project. In large part, the DEIS merely catalogues existing water quality impairment, based on the FRA's " cursory review" of Maryland Biological Stream Survey data and listed impaired waters under CWA § 303(d). Appendix D.7, the Natural Environment Technical Report, which is referenced in the DEIS, repeats the same type of information. *See* DEIS App. D.7 at D.7-32 to 40. Appendix D.7 identifies the Anacostia River and the Patuxent River as Maryland scenic rivers and states that these corridors "provide important wildlife habitat and protect water quality and are the reason the rivers are considered scenic," *id.* at D.7-47, but it does not discuss how these attributes will be impacted by the Project.

Tables D.7-9 and D.7-10 provide additional examples of the superficial analysis of stormwater impacts on waters affected by the Project. Table D.7-9 lists the "Watershed Area within SCMAGLEV Project Affected Environment (acres)" for the eight large watersheds. DEIS App. D.7 at D.7-36. Table D.7-10 (reproduced below) lists the acres of new impervious surfaces created per Build Alternative. *Id.* at D.7-55. Yet neither of these tables provides supporting data nor do they provide information on a sub-watershed or local waterway level. These tables also lack any detail regarding where these acres of impervious surfaces and ambiguous "Affected Environment" are located within each watershed, or which waterways would receive the stormwater runoff from the vast amount of new hard surfaces. For example, the Anacostia River watershed is composed of fifteen sub-watersheds (Briers Mill Run, Fort Dupont Tributary, Hickey Run, Indian Creek, Little Paint Branch, Lower Beaverdam Creek, NEB, NWB, Paint Branch, Pope Branch, Sligo Creek, Still Creek, Beaverdam Creek, Watts Branch, and the tidal river),³³ but no information is provided for these sub-watersheds. The FRA should identify the acreage of impervious surfaces, volume of stormwater, and anticipated impact on water quality at the sub-watershed level; as it is now, the data in the DEIS cannot be used to identify how much stormwater is anticipated to impact waterways within Greenbelt and BARC, or any other localized impacts, and thus precludes meaningful public comment.

³³ Restoration Plan for the Anacostia River Watershed in Prince George's County, at 11.

Table D.7-10: New Impervious Surface per Build Alternatives

Acres of New Impervious Surface by Alignment, Station, and TMF								
Build Alternative	Alignment	Stations			TMF			Build Alternatives Total Permanent Acres of Impact
		BWI Marshall Airport	Cherry Hill	Camden Yards	BARC Airstrip	BARC West	MD 198	
J-01	554	2	74	-	-	-	177	808
J-02	557	2	74	-	193	-	-	826
J-03	558	2	74	-	-	187	-	822
J-04	552	2	-	14	-	-	177	745
J-05	555	2	-	14	193	-	-	764
J-06	556	2	-	14	-	187	-	760
J1-01	505	2	74	-	-	-	198	780
J1-02	511	2	74	-	188	-	-	776
J1-03	507	2	74	-	-	190	-	774
J1-04	503	2	-	14	-	-	198	718
J1-05	510	2	-	14	188	-	-	714
J1-06	506	2	-	14	-	190	-	712

DEIS App. D.7 at D.7-55.

Appendix D also makes numerous conclusory statements regarding adverse impacts to water quality caused by the SCMAGLEV, including the following representative examples:

- “Build Alternatives J-01 and J-04 would have a water resources impact to the Little Patuxent River Watershed, [and] river. . . . Due to proposed viaduct piers, SCMAGLEV systems, and TMF located within two locations of this resource, these Build Alternatives would directly affect floodplain functions, riparian habitat, NTWSSC [Nontidal Wetlands of Special State Concern], water quality [. . .].” DEIS App. D.7 at D.7-50 to 51.
- “Build Alternatives J-01 through J-06 would largely impact greater water resources than Build Alternatives J1-01 through J1-06, such as watershed acreage, floodplain, surface waters, and groundwater, due to its greater proposed elevated alignment.” DEIS App. D.7 at D.7-51.
- “All Build Alternatives would introduce new impervious surfaces to the landscape, result in clearing of vegetation, and have the potential for downstream impacts within the watershed, specifically to water quality.” DEIS App. D.7 at D.7-54.
- “Indirect impacts include degradation of water quality [. . .].” DEIS App. D.7. at D.7-122.

There is no information cited to support these conclusions nor to indicate the extent to which water quality will be impacted by polluted runoff. For example, Table D-2, reproduced below, provides what is entitled a “Water Quality Summary” table. This table lists the eight impacted watersheds, provides basic identifying information, indicates if the watershed is a Tier II (high quality) watershed or a stronghold watershed (watersheds with the highest numbers of rare, threatened, or endangered species of fish, amphibians, reptiles, or mussels), and lists the current impaired listing and ranking for the watershed. This table thus simply provides existing conditions for the eight large watersheds, but fails to provide any information on how the

SCMAGLEV would affect the water quality in these watersheds. Additionally, the sub-watersheds are listed only by code and not by name, which makes the table difficult to read or understand without looking up the 12-digit watershed code in Maryland’s database. The names of the 12-digit watersheds should be provided to make it easier for the public to review this table.

Table D-2: Water Quality Summary

Watershed Name 8-digit	12-Digit Watershed Code	Designated ¹ Use Class	Tier II Watershed	Stronghold Watershed	Watershed Code 8-digit	303(d) Listed Waters			Current TMDL Plans
						Cause	Priority Ranking for TMDL Development	Targeted for TMDL within 2 Years	
Anacostia River	021402050807	UNK (DC)	UNK (DC)	UNK (DC)	02140205	Dissolved Oxygen	Medium	No	Bacteria; Organics and Metals; Oil and Grease; PCBs; Sediment; Nutrients; Trash
	021402050808	I & II	No	No		Sulfates	Low	No	
	021402050822	I	No	No		Chlorides	Low	No	
	021402050823	I	Yes	No		Heptachlor Epoxide	Low	No	
Patuxent River Upper	021311040938	I	Yes	No	02131104	Sulfates	Low	No	Bacteria; Sediments
	021311040940	I	Yes	No		Chlorides	Low	No	
Little Patuxent River	021311050948	I-P	No	Yes	02131105	Chlorides	High	Yes	Sediments
	021311050949	I	No	No		Unknown	Low	No	
	021311050952	I-P	No	Yes		Sulfates	Low	No	
Severn River	021310021002	IV	No	No	02131002	Chlorides	High	Yes	Bacteria
Patapsco River Lower North Branch	021309061011	I	No	No	02130906	Sulfates	Low	No	Phosphorus; Sediments
	021309061012	I & II	No	No		Total Suspended Solids	High	Yes	
	021309061013	I	No	No		Chlorides	Low	No	
Baltimore Harbor	021309031008	I	No	No	02130903	Chlorides	High	Yes	Nutrients; Chlordane; PCBs; Trash/Debris
	021309031010	I & II	No	No		PCB in Fish Tissue	Low	Low	
Gwynns Falls	021309051043	II	No	No	02130905	Sulfates	Low	Low	Nontidal Bacteria; Sediments
Jones Falls	021309041032	I & II	No	No	02130904	Chlorides	High	Yes	Nontidal Bacteria; Sediments

Although designated Use Classes show Use IV within the watersheds, these are not present within the Affected Environment.

DEIS App. D.7 Att. C & D at PDF p. 205.

The DEIS is also silent on how the significant volumes of stormwater that would be created by the SCMAGLEV would impact water quality. The FRA fails to discuss the existing chemical and physical conditions of each impacted watershed, information that is readily available. No analysis is provided of the effect the most common contaminants in construction stormwater runoff would have on the watersheds at issue, let alone information on the types of pollutants that would be found in runoff that contacts SCMAGLEV cars, viaducts, portals, or ancillary facilities. Moreover, the eight watersheds identified in the DEIS encompass thousands of acres of land but the information in the DEIS fails to indicate where within these large watersheds the identified impacts will occur.

Despite the lack of localized impact information provided in Tables D.7-10 and 4.10-1, these tables make clear that the SCMAGLEV would significantly impact a large number of water bodies located throughout the alignment corridor, including a large number located on federal, state, and local parklands, which currently are some of the highest quality green and open spaces in the region. The hundreds of acres of green and open space that will be converted to impervious surfaces by the Project would create significant new volumes of stormwater runoff, which will degrade local and regional watersheds. Both the J and J1 alignments would degrade waterways important to Greenbelt. Greenbelt and BARC are both located within the Anacostia River watershed, but none of the information provided in the DEIS, including in the tables reproduced and discussed above, indicates how stormwater runoff from the elevated viaduct, support facilities, and TMF facilities being considered would impact the water quality of Beaverdam Creek, a tributary of Beaverdam Creek that runs through the North Woods and Hamilton Woods

(Greenbelt), Goddard Branch, and its tributaries that run through the North Woods (Greenbelt) and provide an important natural stormwater management feature for the Greenbelt Historic District, and Beck Branch (BARC). This omission makes it difficult for Greenbelt or other entities like BARC and the Patuxent Research Refuge to fully identify and review how the SCMAGLEV would degrade waterways important to their communities.

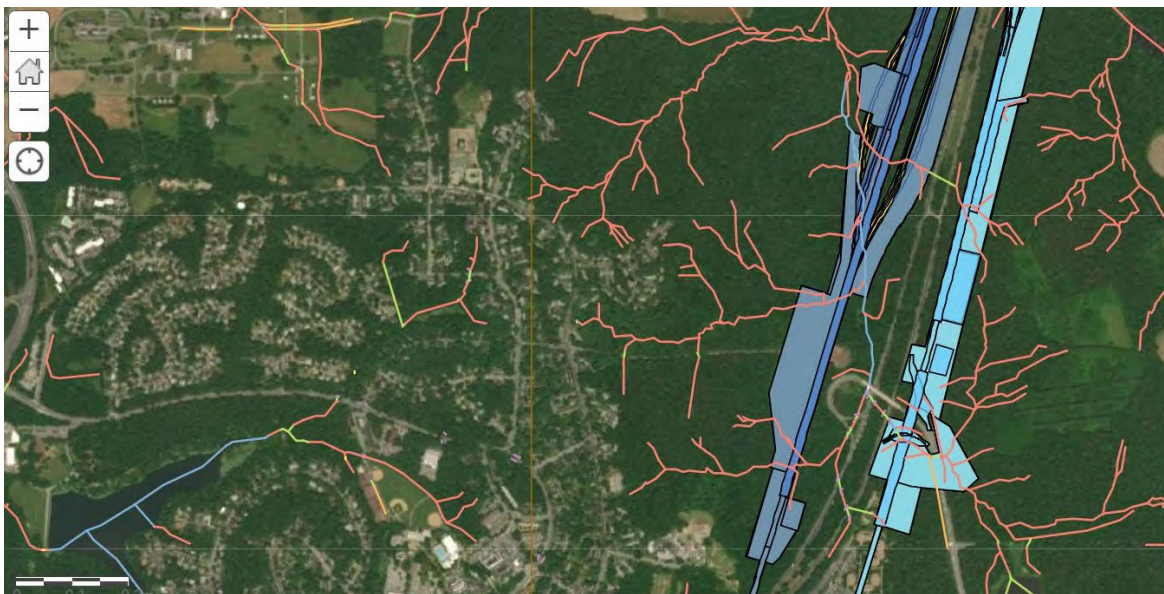


Figure II.C.1: Map prepared by Greenbelt to show the network of streams and tributaries that might be impacted by the J1 and J alignment within the City and BARC³⁴

The DEIS estimates that the proposed TMF BARC West and Airstrip facilities would significantly alter and degrade the Anacostia River and Little Patuxent River watersheds, including Beaverdam Creek and its headwaters, given that the TMF would replace natural areas and open space with hundreds of acres of new impervious surfaces. DEIS App. D.7 at D.7-53, D.7-57, D.7-62. Specifically, BARC Airstrip TMF would cause approximately 193 to 200 acres of permanent watershed impacts, BARC West TMF would cause approximately 192 to 194 acres of impact, and the MD 198 TMF would cause 194 to 216 acres of impact. DEIS at 4.10-15. If the MD 198 TMF facility is chosen, it is estimated it would alter the watershed function of the Little Patuxent River by converting 200 acres of high-quality forest and other natural areas to impervious surfaces. *Id.*

The FRA states that BWRR, the Project Sponsor, will meet all required stormwater permitting requirements, including the CWA anti-degradation requirements, but fails to provide any detailed discussion or rationale supporting this statement. *See, e.g.*, DEIS App. D.7 at D.7-70, D.7-72. Instead, the FRA skips this analysis and jumps to a conclusion that the “Project Sponsor will adhere to Maryland’s Antidegradation Policy which states that if the water quality is better than the minimum requirements specified by water quality standards, then that water quality shall

³⁴ This figure was created using a Prince George's County Planning Department GIS data set that is open source (<https://gisdata.pgplanning.org/metadata/#HydroLine2017Line>), and the SCMaglev alignment map layer made available to the public.

be maintained (Tier II waters).” DEIS App. D.7 at D.7-70; *see also, e.g., id.* at D.7-139 (“Project Sponsor will approach design and development of TMFs, stations, and ancillary facilities ... to incorporate beneficial ESD [Environmental Site Design] to meet (and exceed where feasible) water quality-related requirements.”).

The FRA must identify to what extent the large acres of impervious surfaces proposed to be added within these watersheds will increase stormwater flow and pollutant loads. The FRA should model the anticipated stormwater runoff to identify and characterize the quantity and quality of runoff, including identifying estimated total volumes, peak discharge, and velocity. This discussion should include an itemized calculation of stormwater from each drainage area for each proposed alternative and a model of how this stormwater would impact the ability of the receiving waterway to meet existing effluent limitations. There are models readily available to the FRA that would allow it to provide meaningful information about the risk of adverse effects of runoff on receiving waterways, which could then be used to inform a determination of the degree and nature of the impact, the need for mitigation measures, and the potential effectiveness of such management measures for reducing these risks. *See, e.g.,* Storm Water Management Model (SWMM), EPA, <https://www.epa.gov/water-research/storm-water-management-model-swmm>. Greenbelt also requests that the FRA provide the volume of stormwater anticipated to impact Beaverdam Creek (BARC), Goddard Branch (Greenbelt), and Beck Branch (BARC), detailed information on the stormwater management facilities (including the facility to be sited at the Northway Fields, the large facility to be sited at the northern extreme of the North Woods (within the Greenbelt Forest Preserve) and large stormwater diversions and related areas to be disrupted by stormwater) and an explanation of how the FRA anticipates this stormwater will impact nearby waterways. Similarly, Greenbelt requests that the FRA provide the same information for the facility proposed near the portal that would daylight just north of NASA Goddard Space Flight Center and within BARC under alignment J, and the stormwater diversions to be located near the Greenbriar Condominiums. The FRA must also quantify how stormwater runoff from construction sites, which often contains increased amounts of sediment and industrial pollutants used during construction, will impact receiving waterways. If the FRA intends to continue to consider the Project, Greenbelt requests that the FRA provide this analysis for public review.

Additionally, the DEIS fails to identify the type of stormwater management facilities to be used to mitigate the increase in stormwater runoff. The DEIS states that several types of stormwater management facilities have been considered, including vegetated swales, ditches, piped drainage, and holding basins. DEIS at 3-38. However, no list or description of such facilities is provided. Various maps outline areas marked as “Stormwater Treatment Facility LOD [Limit of Disturbance]” and “Stormwater Diversion LOD” but no meaningful information is provided regarding the facility size, type, or functionality. *See, e.g.,* DEIS App. G2 DEIS Drawings (Facilities/Systems J1 Alignment)), at PDF p. 16. Without this information, the public is unable to review how the facilities would impact the environment.

For example, various maps indicate that large stormwater management facilities are proposed to be sited within Hamilton Woods and North Woods under Alignment J1, as discussed above, but no information is provided as to how this facility will impact land use there (it appears that acres of these forested areas would be destroyed to build the facility), or how it would impact stormwater coming from the nearby portal and viaduct. DEIS App. G, Part B (G.01 Facility Parcel Impact Submittal (Attachment 2)), at PDF pp. 25 to 27. Importantly, the DEIS fails to look at

whether and how these facilities will address the degradation caused by the stormwater on receiving water quality. DEIS at 3-38 to 3-39 (Table 3.4-8). Instead of providing this information in the DEIS, the FRA relies on future permitting processes to claim that these facilities are appropriate and will prevent harm to nearby waterways.

The DEIS states that, “Stormwater management ESD practices and BMPs [best management practices] would reduce these potential impacts from runoff, and ensure there is no discharge into adjacent waterways,” but once again provides no information to support this conclusion. DEIS at 4.10-17. Instead, the FRA assumes that BWRR will adhere to federal and state laws to “prevent the discharge of any unpermitted pollution” and “to reduce the potential for water quality impacts and ensure that all required ESC [Erosion and Sedimentation Control Plan] practices are put in place to prevent sediment loading.” DEIS App. D.7 at D.7-68. The DEIS further asserts, again without support, that Project designs would:

treat runoff from new impervious surfaces and implement MDNR recommendations to manage stormwater in a way that mimics natural infiltration. BMPs would help to attenuate and infiltrate runoff, filter pollutants, and trap sediments. Such measures would reduce water quality impacts due to additional impervious surfaces in the watersheds. . . . As necessary the Project Sponsor will submit an application to the MDE for any plans to discharge into a Tier II waterway.

DEIS App. D.7 at D.7-70.

The FRA may not rely on future permitting processes to fulfill NEPA requirements. Instead, the FRA must provide information on the facilities being proposed (siting, location, size, type, functionality), how they will address stormwater impacts, and to what extent they will mitigate degradation of water quality.

2. The DEIS Provides Insufficient and Outdated Information on Applicable Water Quality Permit Requirements
 - a. The DEIS Provides No Project-Specific Information on the NPDES Permits that May be Required

The CWA prohibits point source discharges of pollutants to waters of the United States without a permit. 33 U.S.C. §§ 1311, 1342. The FRA states that the Project will meet all required permitting for stormwater runoff, which could include NPDES permits for at least some of the stormwater discharges, but the FRA fails to discuss whether and where they would be required. The DEIS also fails to address how increased stormwater runoff and the associated increase in pollutant loads to receiving waterways will meet established effluent limitations, such as the TMDLs and WLAs discussed above. The type, quantity, and contents of a discharge determine the limitations the permit must impose on the discharger and should be carefully considered in the DEIS.

- b. The DEIS Fails to Account for MS4 Permitting Requirements

The Clean Water Act prohibits stormwater discharges into MS4s when the discharges would prevent a receiving water body from meeting water quality standards. 40 C.F.R. Part 122;

Md. Code Regs. §§ 26.08.01, 26.17.01, 26.17.02. The FRA therefore should explain how the SCMAGLEV will meet these standards (the WLAs set for each receiving water body). Instead, the DEIS is silent on how the stormwater management facilities that have been proposed will impact Maryland and District of Columbia Stormwater Management Program and MS4 permitting requirements. Although the DEIS mentions NPDES permits generally, it neglects to discuss how the SCMAGLEV will meet Maryland and local MS4 program requirements. These MS4 programs and permits are a key part of Maryland's Chesapeake Bay Restoration Plan and prohibit new stormwater runoff loads from creating exceedances of the Chesapeake Bay TMDLs. The SCMAGLEV will create significant new stormwater runoff loads within watersheds that already fail to meet existing MS4 requirements. The DEIS also fails to mention whether the new stormwater loads will be accounted for within the state, local, or Maryland Department of Transportation MS4 permits.

c. The DEIS Fails to Provide Updated Information Regarding the Status of the CWA § 404 Permit

The CWA prohibition against unpermitted discharges to waters of the United States extends to discharges of dredged and fill material. 33 U.S.C. § 1344. CWA § 404 permits are required for any such discharges. *Id.*; 33 C.F.R. § 323.3. For proposed impacts to tidal waters and wetlands within Maryland, the U.S. Army Corps of Engineers ("Corps") and the MDE must conduct their review of § 404 permit applications in accordance with EPA § 404(b)(1) Guidelines, 40 C.F.R. Part 230; the Corps' implementing regulations, 33 C.F.R. Part 325, Appendix B; and MDE's wetland regulations, Md. Code Regs. §§ 26.17.01.01 *et. seq.*; Md. Code Regs. §§ 26.23.01.01 *et. seq.* Maryland also has its own mitigation ratios that must be used depending on the type of wetland impacted and the type of mitigation approved. Md. Code Regs. §§ 26.23.04.03, 26.24.05.01. Similarly, for proposed impacts to tidal waters and wetlands within Washington, D.C., the Corps must review the CWA § 404 permit application in accordance with applicable guidelines, public interest review, and alternatives analysis. Additionally, when an individual CWA § 404 permit is required, the Corps and FRA must more closely coordinate the permit process with the NEPA process.

The SCMAGLEV would require between 37,000 and 43,000 linear feet of waterway crossings, but no CWA § 404 permit information is provided. DEIS at 4.11-6. The DEIS states that, "[c]oordination with the regulatory agencies for submission of a Joint Federal/State Application for the Alteration of Any Floodplain, Waterway, Tidal or Nontidal Wetland in Maryland (JPA), is currently ongoing and anticipated to coincide with release of this document [the DEIS]." *Id.* at 4.11-7. This statement is clearly incorrect, given that the JPA application was not released for public review concurrently with the DEIS. Additionally, the DEIS does not indicate whether the SCMAGLEV would require a CWA § 404 permit for impacts to tidal waters and wetlands within the District of Columbia. The City of Greenbelt requests that FRA disclose whether a Corps CWA § 404 permit is anticipated for impacts to Washington, D.C. tidal waterways or wetlands, and also provide an update on the status of the Corps and Maryland JPA permit.

d. The DEIS Fails to Provide Information Regarding the Status of the Rivers and Harbors Act Section 10 and Section 14 Authorization

The Rivers and Harbors Act of 1899 (RHA) is the nation's oldest environmental law. The statute prohibits a number of activities that impair ports, channels and other navigable waters. The RHA applies to "navigable" waters, defined as waters subject to the ebb and flow of the tides, or waters that are "presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce." 33 C.F.R. § 329.4. Section 10 of the RHA, among other things, makes it unlawful "to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of" any navigable water without a permit from the Corps. 33 U.S.C. § 403. Tunneling under a navigable water requires a Section 10 permit from the Corps, even without any discharge into navigable waters. 33 C.F.R. § 322.3(a). Section 10 requirements may be fulfilled by a CWA § 404 permit.

Section 14 of the RHA, known as "Section 408," makes it unlawful to "build upon, alter, deface, destroy, move, injure, obstruct by fastening vessels thereto or otherwise, or in any manner whatever impair the usefulness of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States" without a permit from the Corps. 33 U.S.C. § 408. Prior to issuance of a Section 408 permit, the Corps must determine that the use or occupation will not be injurious to the public interest and will not impair the usefulness of SCMAGLEV. *Id.* § 408(a). Section 408 permits require approval separate from a CWA § 404 permit.

The DEIS states that, "[c]oordination with the USACE has also been initiated in accordance with Section 10 of the Rivers and Harbors Act for bridging over or tunneling under navigable waters and Section 408 review under Section 14 of the Rivers and Harbors Act for the proposed tunneling under the Anacostia River Federal Navigation Channel and levee system located in the area of the Bladensburg Waterfront Park." DEIS at 4.11-7. The DEIS also states that the Corps has accepted FRA's invitation to be a Cooperating Agency within the NEPA process given that the Corps is responsible for reviewing the SCMAGLEV's CWA § 404 and RHA §§ 10 and 14 authorization requests. However, the DEIS fails to indicate the status of this review. The City of Greenbelt requests that FRA provide information on the status of the RHA §§ 10 and 14 applications and approvals.

e. The DEIS Fails to Provide Information Regarding the Status of the CWA § 401 Certification Process

The DEIS also fails to discuss the status of the Maryland and District of Columbia water quality certifications that are required before any CWA § 404 permit is authorized, unless the certification is waived. 33 U.S.C. § 1341(a)(1); 40 C.F.R. Part 121. The DEIS simply indicates that a Section 401 Water Quality Certificate is required from both Maryland and the District of Columbia. DEIS at 4.10-2. Greenbelt requests that the FRA provide an update on the status of the certification process.

f. The DEIS Fails to Support Claims that the SCMAGLEV Can Meet CWA § 404, RHA § 10, RHA § 14, and CWA § 401 Requirements

Although the DEIS states that the FRA will comply with CWA § 404, RHA §§ 10 and 14, and CWA § 401, it fails to provide information as to how the FRA actually plans to comply with these requirements. The FRA may rely on consultation with the appropriate agencies to achieve compliance, but it still must provide information to the public as to what that compliance will entail, including indicating the status of compliance to date. These permitting requirements have the potential to affect FRA's choice of alternatives and their impacts, making it imperative that the FRA provide permit compliance information in the DEIS so that the various choices may be properly assessed.

3. The Floodplain Impact Analysis is Incomplete and Fails to Consider Alternatives to Avoid Development in the Floodplain

The DEIS states that, "FRA considered a...quantitative analysis of floodplain...within each watershed in the SCMAGLEV Project Affected Environment." DEIS at 4-10-3. Federal agencies, including the FRA, must "avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and [to] avoid direct or indirect support of floodplain development wherever there is a practicable alternative." Executive Order 11,988, Floodplain Management, 42 Fed. Reg. 26,951 (May 24, 1977), *amended by* Executive Order 12148, 44 Fed. Reg. 43,239 (July 20, 1979); USDOT Order 5650.2, Floodplain Management and Protection (April 23, 1979), <https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/Floodplain.pdf>. If a project would impact a 100-year floodplain, a detailed analysis is required, including discussion of flood risk, which in turn includes a discussion of the impacts the SCMAGLEV may have on floodplain capacity values, the degree to which the Project provides direct or indirect support for development within the floodplain, and mitigation measures to reduce and restore the beneficial floodplain values affected by the SCMAGLEV. *Id.*, Section 2. If the FRA proposes to conduct, support, or allow an action to be located in a floodplain, it must consider alternatives to avoid adverse effects and incompatible development in the floodplain. *Id.*, Section 2(a)(2). If the preferred alternative involves significant encroachment of the floodplain the final EIS must include: (1) a finding that the proposed action is the only practicable alternative; and (2) supporting documentation reflecting consideration of alternatives to avoid or reduce adverse impacts on the floodplain.

a. The DEIS's Floodplain Impact Analysis is Incomplete

The DEIS fails to analyze how increased volumes of stormwater may increase flood risks by changing the hydraulic function of floodplains.³⁵ It is well recognized that impervious surfaces

³⁵ Erica Gies, *Expanding Paved Areas Has an Outsize Effect on Urban Flooding*, Scientific American (May 15, 2020) ("[E]very time a city expands roads, sidewalks or parking lots by one percentage point, the annual flood magnitude in nearby waterways increases by 3.3 percent."), <https://www.scientificamerican.com/article/expanding-paved-areas-has-an-outsize-effect-onurban-flooding1/>; Annalise G. Blum, Paul J. Ferraro, Stacey A. Archfield, Karen R. Ryberg, *Causal Effect of Impervious Cover on Annual Flood Magnitude for the United States*, Geophysical

increase flooding. The DEIS acknowledges that the land adjoining many of the waterbodies affected by the SCMAGLEV consists of floodplains:

Within the SCMAGLEV Project Affected Environment, areas of 100-year floodplain are associated with several surface waters and waterbodies within the previously identified watersheds: the Anacostia River and tributaries, an unnamed tributary to Brier Ditch, Beck Branch, Beaverdam Creek and tributaries, Patuxent River and tributaries, Little Patuxent River and tributaries, Stony Run and tributaries, Dorsey Run, Patapsco River and tributaries, Middle Branch Patapsco River, and Gwynn Falls.

DEIS at 4.10-11. However, the DEIS provides no data indicating to what extent this increased stormwater runoff will impact water quality or flood risks.

The DEIS also acknowledges that the FRA has not yet conducted a hydraulic and hydrology analysis to estimate the total impacts of the proposed structures on floodplain elevations and functions. As in several other instances, the FRA postpones this analysis until after the NEPA process has been completed, stating that “hydraulic and hydrology analysis would be required as part of permitting and final design to estimate the total impacts of the proposed structures on floodplain elevations and functions. If these studies find that flood elevation would change, floodplain storage mitigation would be proposed.” DEIS at 4.10-22. By postponing this analysis, the FRA avoids the task of weighing alternatives that may reduce floodplain impacts and also prevents meaningful public input. This issue is discussed in more detail in Section II.C.2.c (The DEIS Fails to Provide Updated Information Regarding the Status of the CWA § 404 Permit).

Moreover, the DEIS incorrectly implies that the proposed TMF facilities will not impact any waterways. Although the proposed TMF locations would not impact the Anacostia or Patuxent Rivers directly, the proposed BARC TMF facilities (west and east) would be sited within BARC just next to Beaverdam Creek and its associated floodplains. The DEIS must analyze how the proposed TMF facilities would impact the Beaverdam Creek and Beck Branch floodplains. *See* DEIS App. D.7, at D.7-64. Furthermore, although the FRA apparently conducted a floodplain impact analysis, the DEIS provides only high-level conclusions from that analysis, such as Table D-3, Acres of Floodplain Impact by Build Alternative, which provides a total number of acres of floodplain to be “impacted” by the viaduct, stations, and TMF facilities but fails to break down that information in more detail, such as how ancillary facilities like the FA/EE will impact floodplains. *See* DEIS App. D.7, Att. D, at PDF 206 (Table D-3).

b. The DEIS Fails to Consider Alternatives to Avoid Adverse Effects to the Floodplain and Incompatible Development

Executive Order 11988, 42 Fed. Reg. 26,951 (May 24, 1977), amended by Executive Order 12148, 44 Fed. Reg. 43,239 (July 20, 1979), requires the FRA to consider practicable alternatives that would not require siting the SCMAGLEV in a floodplain. The DEIS concludes that Build

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Alternatives J-01 and J-04 “would directly affect floodplain functions” and both proposed stations in Baltimore (Camden Yards and Cherry Hill) “would result in permanent impacts within the . . . floodplain of the Patapsco River located near the Inner Harbor.” DEIS at 4.10-13. The DEIS states that the SCMAGLEV would require construction within the floodplain, including fill within the floodplain, and would remove natural features within the floodplain. *Id.* at 4.10-14 to 15. All proposed Build Alternatives will permanently impact floodplains along the SCMAGLEV corridor. *Id.* at 4.10-22. The FRA acknowledges that sections of the viaduct, transition portals, TMFs, and other ancillary facilities would be built within the floodplain, including “increased potential for runoff from the overhead viaduct to the waters below affecting water quality.” DEIS App. D.7 at D.7-60, D.7-63. Despite acknowledging that the SCMAGLEV will occur in a floodplain, FRA fails to consider the alternative of an all-underground route which would avoid any development of the floodplain. This omission is discussed in more detail in Section II.C.9 (The DEIS Fails to Consider Alternatives That Would Avoid or Minimize Adverse Impacts to Waterways, Wetlands, Floodplains, and Other Natural Resources) of this comment document.

4. The DEIS Fails to Take a Hard Look at Impacts to Waterways and Wetlands

As discussed above in Section II.A.1, preparation of an EIS is designed to require agencies to take a hard look at the consequences of their proposed actions, and general statements about possible effects and risks do not constitute the hard look required by NEPA. Although the DEIS provides estimates of the acreage of waterways and wetlands that would be impacted by the Project and summarizes the existing conditions of these resources, it fails to predict how the identified resources would be altered as a result of the SCMAGLEV or explain why the FRA is unable to provide this information. The FRA claims that it conducted a “qualitative analysis of resources within the SCMAGLEV Project Affected Environment, identifying the presence of wetlands and waterways.” DEIS at 4.11-2. The DEIS states that the FRA identified both potential direct and indirect effects from the SCMAGLEV to these resources, but there is no explanation of how the FRA identified these impacts, which impacts are direct or indirect, or the extent of these impacts. *Id.* at 4.11-2. The DEIS indicates what it considers would be “short-term” construction impacts related to forest and habitat, *see* Section II.D (the DEIS considers impacts to mature forests and habitat that may last 75-100 years to be no more than a “short-term construction effect,” *see, e.g.*, DEIS at 4.7-21), but no similar explanation can be located relating to impacts to wetlands and waterways.

According to the DEIS, depending on the alternative selected, the SCMAGLEV would affect between 61 to 89 acres of wetlands, and the FRA estimates that between 7 to 30 acres are Maryland Nontidal Wetlands of Special State Concern. DEIS at 4.11-4. The FRA also estimates that between 37,371 to 42,837 linear feet of waterways would be affected, depending on the alternative selected. *Id.*; *see* Table 4.11-1, DEIS at 4.11-4, reproduced below.

Table 4.11-1: Affected Environment Wetlands and Waterways Summary

Build Alternative	Wetlands* (acres)	Wetlands designated as NTWSSC** (acres)	Waterways* (linear feet)
J-01	83	12	37,371
J-02	69	30	41,859
J-03	62	19	40,910
J-04	82	12	38,348
J-05	68	30	42,837
J-06	61	19	41,887
J1-01	89	7	38,363
J1-02	67	23	40,077
J1-03	58	9	39,256
J1-04	89	7	39,341
J1-05	66	23	41,054
J1-06	57	9	40,234

* All Build Alternative alignments include the long-term laydown area near MD 200 and I-95, which accounts for over 21 acres of wetlands and 10,500 linear feet of waterways, as identified through published data. No vegetated tidal wetlands are present within the Affected Environment. Waterways represent all systems, both tidal and nontidal crossed by the SCMAGLEV Project.

**NTWSSC acreages are not in addition to the wetland acreage presented, but are a separate analysis of impacts based on state-published boundaries, not field-delineated boundaries.

a. The Wetlands Analysis in the DEIS is Insufficient and Lacks Supporting Documentation

DEIS Section 4.11, Wetlands and Waterways, provides the numbers of acres of wetlands that would be affected by the SCMAGLEV and categorizes the identified wetlands into four major nontidal palustrine types: PEM – palustrine emergent; PSS – palustrine scrub-shrub; PFO – palustrine forested; and PUB – palustrine unconsolidated bottom (pond-like). DEIS at 4.11-1 to 7; *see also* DEIS App. D.7 at D.7-87 to 92. The FRA states that it anticipates that most of the wetlands identified are subject to CWA requirements. However, the DEIS does not identify which wetlands will be subject to CWA § 404 permitting requirements. Nontidal Wetlands of Special State Concern (NTWSSC) (wetlands that are designated by Maryland regulation as having exceptional ecological or educational value of statewide significance) located along Beaverdam Creek, Goddard Branch, Beck Branch, and the Patuxent River will be impacted by the SCMAGLEV. Impacts to the NTWSSC located in the Greenbelt Forest Preserve along Goddard Branch are of particular concern to Greenbelt, and Greenbelt requests that the FRA specifically assess and provide information on these potential impacts. The DEIS calls out impacts to the NTWSSC associated with Beaverdam Creek but does not discuss the impact to the Goddard Branch NTWSSC. Although the FRA identifies several “notable wetland systems” that would likely require special protection, the DEIS fails to indicate how these important wetland systems would be impacted. This lack of analysis violates NEPA’s requirement to consider potential impacts in enough detail to allow the agency to make an informed decision and provide a meaningful opportunity for public participation.

The FRA specifies the wetland acreage that would be affected by each Build Alternative, as shown in Table D.7-15. According to Table D.7-20, Alignment J1 would impact 7 to 8 acres in Greenbelt. DEIS App. D.7 at D.7-91. Table D.7-21, reproduced below indicates the J1 alignment

would impact 3 to 4 acres of NTWSSC within the Greenbelt. Note that the WSSC column refers to “Washington Suburban Sanitary Commission” property. However, Table D.7-21 does not appear to quantify how much wetland buffer (25 ft. for nontidal and 100 ft. for NTWSSC) would be impacted. Greenbelt requests that the FRA assess how much wetland buffer would be impacted within the city.

Table D.7-21: NTWSSC Impact Summary on Local Properties (Acres)

Build Alternative	City of Greenbelt	WSSC
J-01	0	2
J-02	0	2
J-03	0	2
J-04	0	2
J-05	0	2
J-06	0	2
J1-01	3	0
J1-02	4	0
J1-03	3	0
J1-04	3	0
J1-05	4	0
J1-06	3	0

DEIS App. D.7 at D.7-92

The DEIS also fails to provide a detailed analysis of what these impacts would entail, other than their anticipated geographic scope. Instead, the DEIS provides three or four examples of the types of impacts that would be likely. DEIS at 4.11-7. For example, the DEIS states, “[w]etland and waterway impacts as a result of the SCMaglev Project would include the following types of resource disturbance:

- Complete or partial fill of a wetland system and disconnection and/or fill within a waterway as a result of placement of permanent structures such as viaduct piers or other standing structures including maintenance of way (MOW) facilities, fresh air/emergency egress (FA/EE) facilities, TMFs, or stations.
- Conversion of wetland type (e.g. removal of vegetation from a PFO wetland resulting in a PEM wetland due to disturbance during construction and/or the systems location under elevated viaduct).
- Relocation of waterways or creation of culverted systems, while maintaining hydrologic connection.”

DEIS at 4.11-8.

The DEIS also provides examples of the environmental impairment caused by changes to or a loss of wetland functionality, but again, these examples deal only in generalities and are not site-specific or even regionally specific. Thus, the DEIS states:

Removal or fill within wetlands would result in an immediate and permanent removal of habitat, potential hydrologic disconnection, and alter the functions and values of the systems. The functions and values that may be altered include:

- A direct removal or change in habitat which may indirectly affect the species relying on the wetland for food, water, protection, and breeding.
- A direct removal or change in hydrologic functions may include a reduction in water storage capacity which may indirectly affect both surface water hydrology downstream and groundwater recharge and supply. This may also affect flooding patterns, and the ability to slow down flow velocities.
- A direct removal or fill within wetlands can directly affect the landscape's capacity to trap and filter sediments and pollutants, which may indirectly affect water quality.

DEIS at 4.11-10.

Direct removal or change in habitat may indirectly affect native vertebrates relying on the wetland and associated riparian habitat for food, water, protection, and breeding, including mammal, avian, reptile, amphibian, and fish species and their interdependent community structure. Native aquatic and riparian invertebrates, including insects and mollusks, are often keystone species in wetland food webs. Removal of or change to their habitat has the potential to disrupt entire micro-habitat communities. Removal of habitat may also affect botanical species and their community structure. For example, the Bald Eagle, *Haliaeetus leucocephalus*, is listed as a Maryland species of concern (code S3S4) known to nest in BARC and is dependent on wetlands for food and riparian habitat for survival. The Bald eagle is a top-tier predator in the aquatic foodweb. In other words, although the species consumes large fish, those fish are sustained by consuming smaller fish, which feed on aquatic insects and other aquatic invertebrates. Many aquatic invertebrate species at their larval stage require high quality freshwater habitat. Changes in turbidity, velocity, nutrient-load, and introduction of other pollutants can extirpate these species. When the bottom of the foodweb is destroyed, the entire system collapses, leaving the Bald Eagle with no food source. Without a local food source, the species cannot nest successfully. This is just one example of the complications that may arise from a project that destroys local wetlands, such as the SCMAGLEV.

The statements quoted above also do not indicate how the FRA will differentiate between wetland impacts when selecting an alternative. Although the DEIS provides an estimated number and acreage of wetlands likely to be impacted, these descriptions do not include discussions of impacts to wetland functionality. See DEIS at 4.11-11 to 4.11-12. Not all degradation is created equally; certain impacts can be more detrimental to wetland functioning than others, but this distinction is not accounted for in the DEIS. Without this information, neither the agency nor the public can make an informed comparison of the alternatives.

The DEIS lacks site-specific and comprehensive analyses of how each set of wetlands will be impacted and does not explain why such analyses cannot be conducted. The DEIS combines

the impact analysis for wetlands and waterways and provides only the most superficial discussion of impacts. *See* DEIS at 4.11-7 to 8. The DEIS itself acknowledges that “[a]ll impacts to wetlands and waterways should be considered estimates as they use a combination of published information and field investigations subject to further review and jurisdictional determination by the regulatory agencies.” *Id.* at 4.11-7. The field investigation documents referenced here are not provided within the DEIS documents. Although the DEIS provides general field delineation maps, there are no field data sheets or field reports provided to verify this information. This information should have been provided within the DEIS because the FRA apparently relied upon it to identify the wetlands and waterways at issue and discuss, although in limited fashion, the likely impacts. Instead, the FRA has provided only vague estimates of impacts and has delayed further analysis until the end of the NEPA process, thus violating NEPA’s requirement to take a hard look at all the effects of a proposed action and its prohibition against postponing analysis of such effects to the last possible moment.

Moreover, the FRA states that “a determination on temporary impacts will have to be finalized through further agency coordination and final design.” DEIS at 4.11-7. We assume the FRA means that it has not finalized its assessment of temporary impacts to waterways but plans to do so during the Clean Water Act permitting process, the status of which has not been provided to the public. The FRA has not yet conducted field delineation of the wetland and water impacts associated with the laydown area near MD 200 and I-95. *Id.* at 4.11-3. It also appears that the FRA has failed to conduct field delineation of the wetland and water impacts to occur within the Greenbelt Forest Preserve. Greenbelt requests that the FRA conduct this assessment and provide this information to the public. The DEIS indicates that the FRA has relied on aerial imagery to identify wetlands and waterways, yet no citation is provided. The FRA should cite these materials so that the public can review and verify their contents, including their credibility and recentness (many publicly available sources of this data are glaringly out-of-date). It is unclear whether the information the FRA is currently relying on to estimate impacts to this area is accurate, since it is not included in the DEIS. The FRA also acknowledges that the estimates of impacts to NTWSSC areas have not yet been verified through field studies. These estimates should be field-verified and the FRA should consider the resulting information. Additionally, the DEIS fails to identify the Least Environmentally Damaging Practicable Alternative, as required by CWA § 404(b)(1). All of this information should be provided to the public so that meaningful analysis and public review and comment can take place.

b. The Waterways Analysis in the DEIS is Insufficient and Lacks Supporting Documentation

As with the wetlands impact analysis, the DEIS provides estimates of the linear feet of waterways that would be impacted by the SCMAGLEV but fails to look at how the identified resources would be altered as a result of the SCMAGLEV. DEIS at 4.11-6 to 8; *see also* DEIS App. D.7 at D.7-93 to 99. The DEIS identifies tidal and nontidal waterways within the SCMAGLEV Affected Environment and classifies these waterways as perennial, intermittent, or ephemeral, a distinction that impacts how the waterway is regulated, *id.*, but one not considered by the FRA.

Table D.7-23 provides a summary of direct permanent nontidal waterway impacts by waterway classification associated with each Build Alternative. *Id.* The DEIS states that no tidal

waterways would be impacted at the surface, although they will be crossed underneath by proposed deep tunnels. *Id.* The DEIS then goes on to provide a summary of these underground waterway crossings in a table entitled, “Tidal Waterway Impact Summary,” reproduced below.

Table D.7-22: Acres of Permanent and Temporary Impacts on Nontidal Waterways

Build Alternative	Alignment		Stations		TMF						Build Alternatives Total Permanent Linear Feet of Impact
			Cherry Hill		BARC Airstrip		BARC WEST		MD 198		
	P	T	P	T	P	T	P	T	P	T	
J-01	7,623	3,076	315	241					2,324	24	10,261
J-02	7,721	3,127	315	241	4,589	1,160					12,624
J-03	7,799	3,156	315	241			4,782	229			12,896
J-04	7,569	3,076							2,378	24	9,947
J-05	7,721	3,127			4,589	1,160					12,310
J-06	7,799	3,156					4,782	229			12,582
J1-01	6,981	1,314	315	241					4,714	231	12,009
J1-02	7,375	2,147	315	241	4,419	1,448					12,108
J1-03	7,323	1,728	315	241			5,021	371			12,659
J1-04	6,981	1,314							4,714	231	11,694
J1-05	7,375	2,147			4,419	1,448					11,794
J1-06	7,323	1,728					5,021	371			12,344

Table D.7-24: Tidal Waterway Impact Summary

Summary of LOD Crossings Under Tidal Portions of Anacostia River, Unnamed Tributary to the Anacostia River, Gwynns Falls, and Middle Branch Patapsco River						
Build Alternative	Alignment*		Camden Station*		Total*	
	LF	SF	LF	SF	LF	SF
J-01	146	15,251	0	0	146	15,251
J-02	146	15,251	0	0	146	15,251
J-03	146	15,251	0	0	146	15,251
J-04	146	15,251	1,105	50,839	1,251	66,090
J-05	146	15,251	1,105	50,839	1,251	66,090
J-06	146	15,251	1,105	50,839	1,251	66,090
J1-01	142	15,406	0	0	142	15,406
J1-02	142	15,406	0	0	142	15,406
J1-03	142	15,406	0	0	142	15,406
J1-04	142	15,406	1,105	50,839	1,247	66,245
J1-05	142	15,406	1,105	50,839	1,247	66,245
J1-06	142	15,406	1,105	50,839	1,247	66,245

DEIS App. D.7 at D.7-95.

The SCMAGLEV would permanently impact between 9,947 to 12,896 liner feet of nontidal waterways, depending on the Build Alternative chosen. DEIS App. D.7 at D.7-94 Table D.7-22. It would be helpful if these impacts were also tallied in a total column.

The DEIS also provides a breakdown of how many linear feet of waterways would be degraded on federal (Table D.7-25), state, county, and local land (Table D.7-26). DEIS App. D.7 at D.7-96. According to Table D.7-25, between 1,018 and 3,925 linear feet of waterways located on BARC would be impacted, and between 0 and 2,029 linear feet of waterways in the City of Greenbelt would be impacted depending on the alternative selected. Importantly, the DEIS states that there would be no impacts to Greenbelt waterways if alignment J is selected, while alternative J1 would impact between 1,533 and 2,029 linear feet of waterways in Greenbelt depending on which ancillary facilities are chosen. *Id.*

Table D.7-26: Waterway Impacts on Local Properties (Linear Feet)

Build Alternative	Anne Arundel County	City of Greenbelt	WSSC
J-01	271	0	634
J-02	0	0	634
J-03	0	0	634
J-04	271	0	634
J-05	0	0	634
J-06	0	0	634
J1-01	1,518	1,742	262
J1-02	1,235	2,029	337
J1-03	1,235	1,533	337
J1-04	1,518	1,742	262
J1-05	1,235	2,029	337
J1-06	1,235	1,533	337

DEIS App. D.7 at D.7-96.

Much like the insufficient wetland impact analysis, the DEIS fails to provide a detailed analysis of how these thousands of feet of waterways will be degraded. The DEIS identifies the anticipated geographic scale of the impacts but does not examine what will happen to the physical, chemical, and biological aspects of these waterways. Instead, the DEIS provides merely a general narrative description of how waterway relocations, culverting, or fill to be discharged into these waterways may degrade waterways.

The FRA assumes the following as a result of surface disturbance:

- The FRA recognizes that waterway channel formations are variable, depending on changes in flow and underlying geology. The addition of SCMaglev Project runoff from structures into waterway channels could cause direct impacts to the channel with additional changes in flow, bank or in-channel erosion, sand and gravel bar creation and shifting, and scouring.
- Waterway relocations will be a direct temporary impact with potential for long-term effects noted above. Waterway relocation design would attempt to mimic the appropriate waterway dimensions, materials, and volume capacity. Additional factors such as waterway length, soils, and surrounding land uses could affect the success of a given relocation.

- The FRA would consider construction of culverts to maintain hydrologic connections in locations of proposed permanent surface disturbance where fill would be required. This loss of natural substrate for the waterway would affect the temperature and composition of species able to function with these new conditions.

DEIS App. D.7 at D.7-97. This discussion falls far short of NEPA requirements to describe the impacts of a proposed action in sufficient detail so the agency may take a hard look at its consequences, nor does it provide full and accurate information to the public for review and comment.

The DEIS combines the impact analysis for wetlands and waterways and provides only the most superficial discussion of impacts. *See* DEIS at 4.11-7. The FRA simply estimates the linear feet of waterways that would be affected by each Build Alternative. DEIS App. D.7 at D.7-94 to 99. This summary enables a comparison to be made of the linear feet to be impacted by the alignment alternatives, station alternatives, and TMFs, but provides no additional information on how the anticipated degradation of these waterways will change their health and their ability to meet effluent limitation standards. *See id.* The DEIS lacks site-specific and comprehensive analyses of how waterway functionality will be changed, contrary to the FRA's obligations under NEPA. NEPA requires the FRA to consider potential impacts in enough detail to allow the agency to make an informed decision and to provide these analyses to the public for review.

5. The DEIS Fails to Take a Hard Look at Waterways and Wetlands Mitigation

The DEIS fails to look at how effective the proposed mitigation categories would be and which would be best suited for individual waterways or wetlands. Although the SCMAGLEV requires a Mitigation Plan to comply with CWA § 404(b)(1), no mitigation plan is included within the DEIS. Instead, the DEIS provides a summary of the types of mitigation strategies "that would be considered during final design and construction planning." DEIS App. D.7 at D.7-104. The FRA acknowledges that no mitigation plan has been provided and assures the public that additional mitigation information will be made available in the Final Environmental Impact Statement (FEIS):

The Project Sponsor is currently pursuing possible mitigation strategies to satisfy anticipated compensatory mitigation that will be required for potentially significant impacts to wetland and waterways. Coordination with the USACE and MDE and corroborating agencies and stakeholders is ongoing, and additional detail on mitigation proposed is anticipated prior to completion of a Final Environmental Impact Statement.

DEIS App. D.7 at D.7-103.

Conclusory statements promising that the effects of a project will be minimal or minimized are insufficient under NEPA, as discussed in Section II.A.1. A mitigation plan for unavoidable wetland and waterway impacts should have been included within the DEIS. This plan can be refined later during the permitting process, but a plan is needed to allow the agency and the public to adequately consider the impacts to waterways and wetlands. The mitigation plan should identify the amount of mitigation necessary to replace the loss of wetland and identify mitigation

opportunities that the FRA will implement to offset adverse impacts. The mitigation plan should also provide detailed information on the proposed maintenance plan, performance standards, mitigation work plan, monitoring requirements, long-term management plan, adaptive management plan, and, if relevant, financial assurances to be made. All of this information is missing from the DEIS and is required for meaningful analysis and public review and comment to take place. Greenbelt believes mitigation of the loss of rare wetlands and high-quality streams and their tributaries, particularly those located within Greenbelt and BARC, cannot be effectively mitigated. Off-site mitigation provides no local mitigation to the impacted resource and even on-site mitigation has been shown to consistently fail to fully restore these resources to pre-impact conditions. The current state of restoration practices cannot restore high quality water systems. Therefore, Greenbelt strongly opposes any proposed degradation of Greenbelt or BARC water resources, regardless of whether current water laws allow for degradation to occur when traded for mitigation measures.

6. The Chesapeake Bay Critical Area Impact Analysis in the DEIS is Insufficient and Fails to Show How the SCMAGLEV Will Meet Critical Area Requirements

The Chesapeake Bay Critical Area (referred to throughout the DEIS as the “Critical Area”) consists of the 1,000 feet surrounding tidal waters, their tidal tributaries, any adjacent tidal wetlands, and lands underneath these waterways. Md. Code Regs. §§ 27.01.09.01 to 27.01.09.01-7. Critical Area is categorized as Intensely Developed Areas (IDAs), Limited Development Areas (LDAs), and Resource Conservation Areas (RCAs), depending on the land use that existed at the time the Critical Area Act was created in 1984 and the corresponding stringency of mitigation measures for less developed areas. The first 100 feet from the mean high-water line, the edge of each bank of a tributary stream, and the upland boundary of a tidal wetland is the Critical Area Buffer. § 27.01.09.01(E)(3). The Buffer expands to include contiguous sensitive features, including to the upland limit of nontidal wetlands, to the edge of hydric (consistently wet) or highly erodible soils or to 300 feet, whichever is less, and for steep slopes of 15% or greater based on a formula of 4 feet for every 1% of steep slope. Md. Code Regs. § 27.01.09.01(E)(7). Local jurisdictions may modify these buffer requirements in accordance with Md. Code Regs. § 27.01.09.01-8, and the FRA should follow the requirements of each local jurisdiction. The Buffer is a minimum of 200 feet for all new subdivisions or site plans proposed in an RCA.

The Critical Area Act also protects Habitat Protection Areas (HPAs), which by definition protect more categories of species than the Endangered Species Act. Habitat Protection Areas include:

- the 100-foot buffer;
- habitats of threatened and endangered species and species in need of conservation;
- nesting sites of colonial water birds; historic waterfowl staging and concentration areas;

- riparian forests (forested areas of 300 feet in width along protected waterways);
- habitat of forest interior-dwelling species (100 acres or more);
- natural heritage areas; and
- anadromous fish propagation waters.

Md. Code Regs. § 27.01.09.

HPAs are protected from development and the Maryland DNR Wildlife Heritage Service should be consulted to identify how best to protect these resources. Any proposed development that would be sited within the 100-foot Buffer or expanded Buffer is subject to development standards, including mitigation required per square footage of disturbance plus additional mitigation for square footage of canopy coverage removal. Md. Code Regs. § 27.01.09. Very little development or redevelopment is permitted within the Buffer. Md. Code Regs. § 27.01.09.01(E)(1). Unless the proposed development is water-dependent, which this Project likely is not, most proposed changes to the Buffer would require a local variance. Md. Code Regs. § 27.01.09.01(E)(8).

The Critical Area Act restricts development within all critical areas and all land within the Critical Area is regulated by Maryland law and local Critical Area Programs. Md. Code Regs. §§ 27.02.02 to 27.02.04; *see, e.g.*, Prince George's County, MD Code, Subtitle 5B. Impacts to the Buffer and Expanded Buffer must be mitigated at the designated ratio, which depends on the type of activity. Md. Code Regs. § 27.01.09.01-2. For example, the mitigation ratio for most impacts is higher for permanent disturbances. *Id.*

Table 4.10-2: Critical Area Impact Summary

Build Alternative	RCA			IDA			Total Critical Area Boundary Impact			Total Critical Area Buffer Impacts*		
	P	T	Total	P	T	Total	P	T	Total	P	T	Total
J-01	2	0	2	124	2	126	126	2	128	9	<1	9
J-02	2	0	2	124	2	126	126	2	128	9	<1	9
J-03	2	0	2	124	2	126	126	2	128	9	<1	9
J-04	1	1	2	57	27	83	57	27	85	3	6	9
J-05	1	1	2	57	27	83	57	27	85	3	6	9
J-06	1	1	2	57	27	83	57	27	85	3	6	9
J1-01	2	0	2	124	2	126	126	2	128	9	<1	9
J1-02	2	0	2	124	2	126	126	2	128	9	<1	9
J1-03	2	0	2	124	2	126	126	2	128	9	<1	9
J1-04	1	1	2	57	27	83	57	27	85	3	6	9
J1-05	1	1	2	57	27	83	57	27	85	3	6	9
J1-06	1	1	2	57	27	83	57	27	85	3	6	9

*Buffer impacts are included within the total boundary impact.

DEIS at 4.10-26.

According to the DEIS, the SCMAGLEV would impact 85 to 128 acres of Critical Area Boundary and 3 to 9 acres of Buffer depending on the alternative. FRA states that, “[m]any of these areas already have considerable impervious surface present, as they are situated within developed areas.” DEIS at 4-10-25; *see also* Table 4.10-2, reproduced above. The DEIS states that “[b]oth the Camden Yards Station and Cherry Hill Station would result in permanent impacts within the Critical Area Buffer and floodplain of the Patapsco River located near the Inner Harbor.” *Id.* at 4.10-13. The DEIS also states that, “[t]he Project Sponsor will mitigate the impact of short-term construction effects and it is not anticipated that construction activities would be in conflict with regulations.” *Id.* at 4.10-29. The DEIS provides impact acreage for the alignment and other ancillary facilities (FA/EE, TMF) in narrative format. DEIS App. D.7 at D.7-65.

However, the DEIS fails to identify to what extent the SCMAGLEV would impact HPAs other than the Critical Area Buffer. The only references in the DEIS to HPAs are made when stating that the definition of Sensitive Species Project Review Areas includes HPAs. *See* DEIS at 4.12-10 (“SSPRAs are state and locally significant habitat areas including RTE species and their habitats, Natural Heritage areas, . . . habitat protection areas, areas subject to Critical Area review, and geographic areas of concern.”). Although this definition is accurate, it does not identify impacts to HPAs. Moreover, not all SSPRAs are HPAs and some HPAs may not be SSPRAs. For this reason, the DEIS should separately identify how the SCMAGLEV would impact HPAs, in addition to analyzing impacts to SSPRAs.

The DEIS states that the FRA has not yet conducted an Expanded Buffer analysis. *See* DEIS at 4.10-25. FRA should identify the Expanded Buffer and the impact analysis should address it. Additionally, Table 4.10-2 should be updated to indicate the total amount of Buffer impacted, including the Expanded Buffer. Moreover, given the significant impacts the

SCMAGLEV would have on Critical Areas and also because the Project would be a major development, the Critical Area Commission must review and approve, deny, or request modifications to the proposed Project based on an assessment of its effects on Critical Areas. Md. Code Regs. §§ 27.02.02 to 27.02.07. Further, public notice is required for all major development projects. Md. Code Regs. § 27.03.01.03. The FRA should already be coordinating with the Critical Area Commission. The DEIS indicates that the FRA has initiated some coordination with the Maryland Department of Natural Resources, but there is no indication that the FRA has begun discussing proposed impacts to Critical Areas with the Commission.

Although the FRA lists general mitigation measures that may be used to minimize the impacts to Critical Areas, the DEIS fails to look at how SCMAGLEV might avoid these impacts. *See* DEIS at 4.10-31. Moreover, the identification of specific mitigation measures for each impacted site is left to be conducted at some future undesignated time. The FRA may not shirk its responsibility to identify how the Project would harm Critical Areas by postponing this analysis to the end of the NEPA process. Doing so prevents the agency from considering all the environmental consequences of its proposed action and prevents the informed public participation required by NEPA.

7. The DEIS Fails to take a Hard Look at Impacts to Groundwater

The DEIS acknowledges that all Build Alternatives, particularly J1-01 through J1-06, may have impacts to groundwater due to tunnel construction that would occur within the Patapsco and Patuxent aquifers, both of which serve as water supplies to Maryland residents (Anne Arundel and Prince George's County prospectively). DEIS at 4.4-9. As the FRA did with water resource impacts, it conducted a qualitative analysis of impacts to groundwater that focused on reviewing existing regional groundwater studies to look at groundwater conditions. *Id.* at 4.10-8. The SCMAGLEV proposed Build Alternatives would be constructed in a region with shallow ground water tables and complex hydrology. *Id.* at 4.10-8 to 9. The DEIS indicates that the depth to groundwater ranges from approximately 10 – 15 feet below ground level, and local variations are expected. *Id.* at 4.10-9. The FRA should also take into account changes to groundwater levels given that USGS information indicates that groundwater levels in the region have increased over the past five years. *See* Groundwater Levels at the End of March 2019 in Maryland Counties (2019), https://md.water.usgs.gov/groundwater/web_wells/current/water_table/counties/. Despite the acknowledgment that important groundwater areas would be impacted, the FRA failed to conduct any site-specific analysis of impacts other than to use existing literature to make general assumptions regarding possible impacts.

Tunnel construction may also impact Wellhead Protection Areas (WHPA) and access to public drinking water may be disrupted if underground public water piping needs to be re-routed or temporarily shut-off during construction. DEIS at 4.4-9. A WHPA area is defined under the Safe Drinking Water Act as the surface and subsurface area surrounding a water well or wellfield, supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield. The FRA also generally acknowledged the potential for the tunnel structure to create changes to the water table and water pressure affecting aquifers and creating the potential for loss of groundwater recharge to WHPAs. *Id.* at 4.10-20.

The FRA focuses much of its groundwater impact discussion on the WHPAs, but largely ignores how the increase in impervious surface-associated stormwater runoff from the Project (from the viaducts, TMFs, MOWs, and ancillary system facilities along the alignment), tunnel construction dewatering, and changes to hydrology from alterations made to surface and groundwater may impact groundwater and regional hydrology. *Id.* at 4.10-19 to 21, 4.10-28, 4.15-10, 4.21-3, 4.21-7, 4.23-9, 4.23-16. The DEIS makes note of these potential impacts in various sections, but only in the most superficial way, and it provides no detailed assessment of these impacts. Instead, the FRA postpones this analysis to a future unspecified time. The FRA states:

As groundwater is the most significant source of fresh drinking water in Maryland's Coastal Plain, continued ground investigations and agency coordination will be critical to ensuring the SCMAGLEV Project does not adversely affect drinking water quantity and quality. The Project Sponsor will coordinate with the MDE Water Supply Program, part of the Water and Science Administration, appropriate local governments, water suppliers, and other agencies that developed the WHPAs and wells to further assess the potential for impacts and develop appropriate measures to avoid or minimize impacts, as needed.

DEIS at 4.10-20.

The FRA goes on to say that more analysis will be conducted as the project design advances and that the Project Sponsor will be required to:

provide effective groundwater control through construction techniques such as either pumping the groundwater out to control flow and pressure or using barriers to keep the groundwater out of tunneling operations. The construction contractor would need to comply with USEPA's dewatering requirements, as well as state requirements for treatment and metering of pumped groundwater. Through approval from the MDE, DOEE, and USEPA, disposal of clean water from the dewatering operations can be directed into a stable channel, such as a storm drain or an existing swale.

DEIS at 4.10-28.

The FRA also states that the Project Sponsor will conduct:

groundwater modeling during final design and permitting to quantify potential effects. Modeling may demonstrate that nearby supply wells that obtain groundwater from deeper depths than the proposed Build Alternatives, obtain groundwater beneath confining layers, or are not hydraulically connected to the area of impact, have no predicted loss of recharge.

DEIS at 4.10-30.

As discussed above, the FRA may not rely on future actions by the Project Sponsor to meet its own regulatory requirements. Furthermore, the FRA has provided no information to support its assumption that groundwater modeling may demonstrate that the Project will not cause loss to aquifer recharge zones. It is misleading to suggest such an outcome without first having conducted

the modeling at issue. The FRA should have already initiated consultation with the appropriate water resource district hydrologist. The FRA also must provide the public with sufficient information regarding the status of these assessments and regulatory compliance plans and provide sufficiently detailed information to indicate how the agency plans to comply with all groundwater protection laws and monitoring program requirements. Water modeling and site-specific investigations of hydrology need to be conducted prior to the design phase to meet NEPA requirements. These studies should include investigations looking at the possible long-term impacts and disruptions to public water supplies during construction and operation.

The FRA should consider the regional aquifers as a geological resource in the DEIS; failing to do so minimizes the significance of these aquifers and the water they provide the region for drinking as well as non-potable uses. DEIS at 4.13-2 (the FRA considers mines, paleontological resources, and unique geological features to be “geological resources” but doesn’t consider aquifers one of these resources). Tunnel construction may create new openings or otherwise encourage the exchange of water between separate currently confined areas of these aquifer systems. Such an exchange of water flow can change water chemistry, which in turn could cause issues when using water from the impacted aquifers for consumption or other purposes. The FRA needs to closely assess how tunnel construction may impact existing water chemistry within regional aquifers. Omitting an assessment of the impacts to the aquifers and failure to consider these aquifers as geological resources downplays the impact SCMAGLEV may have on these critical geologic resources.

The FRA indicates that a water level monitoring program will be necessary to “evaluate the health of the aquifers and determine greater detail and potential impacts to aquifers” but provides no detailed information regarding how the FRA will implement this program and what it will entail. DEIS at 4.10-20. The FRA should take all possible steps to avoid disruption of water service to Maryland residences and ensure no long-term impact to aquifer levels. It is also concerning that the FRA has provided very little information indicating safety measures to be put in place to prevent tunneling chemicals and construction fluids (including, but not limited to, the cleaned bentonite slurry and condition foam to be used by the TBM during tunneling) from potentially entering groundwater from frac-out or other unplanned leaching events. The FRA should provide a safety plan to indicate what precautions and cleanup measures would be taken if such events may occur.

Additionally, it is unclear what amount of dewatering can be expected during tunnel construction and operation. Although the FRA acknowledges that some amount of dewatering may occur, it provides contradictory information regarding when dewatering may occur during the construction process and no analysis on how much dewatering can be expected or how it may impact surface and groundwater resources, other than to state that dewatering “could affect groundwater quantity and flows” and “may affect the groundwater ability to support sustained hydrology to adjacent wetlands.” *See* DEIS at D7-66, D.7-68, D.7-86, D.7-100. The DEIS also fails to indicate the duration of any intentional dewatering, other than stating that “[t]emporary groundwater pumping would be required” for certain route alignment areas. DEIS App. G13 at PDF pp. 108-10. If it is necessary to dewater the tunnels during construction or operation, the FRA should provide information regarding where along the tunnel alignment it will occur, how much dewatering will occur, and how this may impact localized surface and groundwater. While the FRA ensures the public that the construction contractor will comply with applicable dewatering

requirements, no assessment of the impacts from dewatering is provided. This is particularly concerning given that the Japanese Maglev project may cause a nearby river to lose up to two tons of water per second.³⁶ NEPA requires more analysis given the length of the tunnels, complexity of the Project, proposed location of the tunnels near important surface and groundwater resources, and health and safety concerns. Dewatering can also cause settlement of nearby built infrastructure, including roads, utilities, and buildings. Possible settling or subsidence from dewatering is of particular concern to Greenbelt given the type of soil strata that appears to be present in Greenbelt and BARC. The FRA states that additional assessment of dewatering will be conducted during the “next phase of ground investigations and geotechnical surveys . . . [t]his will provide site specific information regarding water supplies.” DEIS at D7-68. However, this information needs to be provided prior to the completion of the NEPA review process.

As is discussed further in Section II.G, the FRA fails to provide site-specific geotechnical data that would aid the FRA and the public in understanding the geology and hydrology of this region. Without this information it is unclear how the FRA has narrowed the alternative alignment options down to J and J1. This lack of information also prevents the FRA and the public from being able to fully assess the suitability of the Build Alternatives.

Based on the limited information provided in the DEIS, it also appears that the shallow groundwater tables may impact the stability of the TMF and MOW facility options proposed within BARC. The table below (reproduced from the DEIS) provides a summary of the water table information from borings.

Station #	Boring	~ Ground Surface		~ Water Level Elevation		~ Depth to Water	
		(ft)	(m)	(ft)	(m)	(ft)	(m)
~ 114+700	BWP-21	157.5	48	105	32	52.5	16
~ 115+700	BWP-6A	128	39	95	29	33	10
~ 117+100	BWP-6	226.4	69	167	51	59.4	18

Of the three aquifers identified in the DEIS, as shown in Appendix A of Appendix G13, the alignments of the guideways and the TMF/MOW facilities lie within the upper most boundary of the Patuxent aquifer system.

The TMF and MOW facilities proposed for BARC would lie within the uppermost boundary of the Patuxent aquifer system. However, the limited soil borings presented in the DEIS within this region indicate that the water levels at these boring locations differ by almost 30 feet, likely indicating the complexity of the groundwater system in this area. Although DEIS Appendix G13, Section 3.4 provides generic information about groundwater regionally, there is no detailed

³⁶ The Japan Times, *Japan’s Maglev Project Derailed by Pandemic and Environmental Fears* (Aug. 13, 2020) (“construction of a tunnel through the Southern Alps would result in the nearby Oi River losing up to 2 tons of water per second . . . [JR Central] later admitted that a loss of a certain amount cannot be avoided during construction.”)

discussion or assessment of how these shallow groundwater conditions may impact the stability of the proposed TMF and MOW facilities.

Furthermore, it is unclear why the FRA would not have conducted additional groundwater investigations to determine whether there may be a benefit to selecting a tunnel design and alignment that would avoid or minimize the extent the Project would transition through groundwater. Specifically, it is unclear why the FRA did not take this into account when deciding to transition the underground tunnel from deeper tunnel into elevated viaduct near Greenbelt and BARC, as it appears the tunnel will necessarily transverse groundwater in that area which may have significant impacts on localized hydrology. Although it is understandable that some uncertainty may exist when designing this Project, its complexity and uniqueness should be all the more reason to take these hydrological and geotechnical issues into consideration. It appears that the FRA was willing to simply adopt the Project Sponsor's preferred alignment and address impacts to water and geological resources later, regardless of whether another alignment alternative may have reduced or minimized these impacts. Figure II.C.2 (reproduced from the DEIS), below, shows the approximate location of groundwater within Greenbelt. DEIS App. G13 Appendix A at PDF pp. 113-15 (also showing groundwater maps for the Lower Patapsco and Upper Patapsco aquifers). This map indicates that Greenbelt is within in an area where groundwater is at or near the surface.

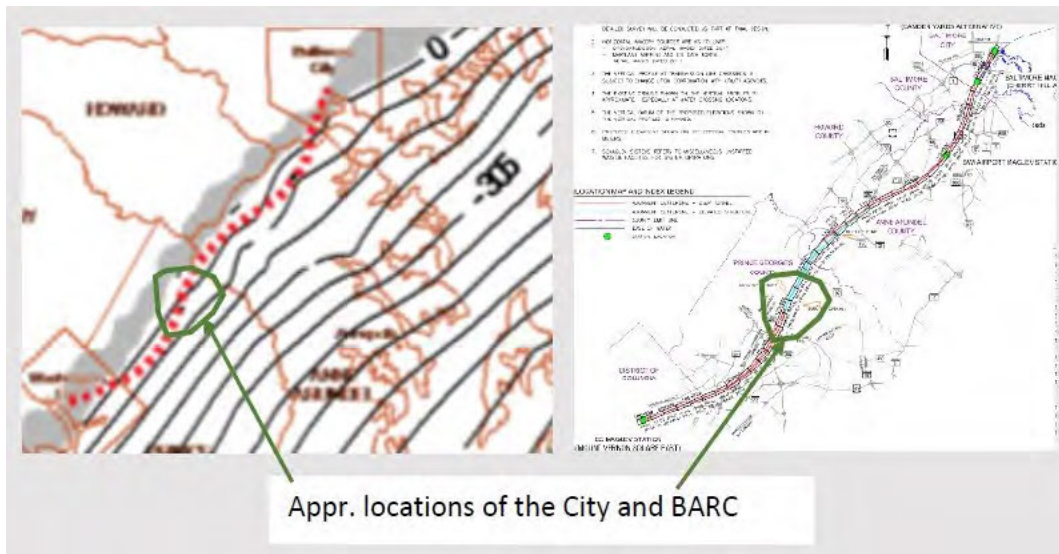


Figure II.C.2. Approximate Groundwater Level in Greenbelt

Figure II.C.2 was modified from a map provided in the DEIS. This figure indicates that proposed alignments further to the east may encounter less groundwater. FRA should explain why of the original 14 alignments considered the J1 and J alignments were selected, especially since impacts to hydrology may have been lessened by a more eastern alignment.

8. The DEIS Fails to Consider How Cumulative Impacts from Other Actions Would Impact Waterways, Wetlands, and Floodplains

As discussed further in Section II.K, the FRA’s cumulative impacts assessment must identify other actions—past, present, proposed, and reasonably foreseeable—that have had or are expected to have impacts in the same areas as the impacts or expected impacts from the Project. The cumulative impacts assessment also must consider the overall impact to each area that can be expected if the individual impacts are allowed to accumulate. Instead, the DEIS merely restates the impacts expected from the SCMAGLEV and then lists examples of other actions that are “Reasonably Foreseeable Future Actions” in Table 4.23-1. DEIS at 4.23-6 to 7. The DEIS provides only three paragraphs explaining that other projects within the SCMAGLEV project area may take place and may be built simultaneously. *Id.* at 4.23-10. The DEIS is silent on how these actions combined with the proposed SCMAGLEV may impact waterways, wetlands, and floodplains, which are the impacts addressed in this section of Greenbelt’s comments. The DEIS simply concludes that “[o]ther reasonably foreseeable actions listed in Table 4.23-1, particularly those that expand existing roadways and develop new land uses (such as the proposed U.S. Department of the Treasury Currency Production Facility at BARC), would further reduce natural areas and their functions by creating new impervious surfaces and potentially impacting water and ecological resources.” *Id.* at 4.23-17.

The “other reasonably foreseeable actions” that are of particular concern to Greenbelt due to their potential cumulative impacts on waterways, wetlands, groundwater, and floodplains in the area include the following:

1. U.S. Department of the Treasury Construction and Operation of a Currency Production Facility at the BARC, and associated roadway modifications (which would add 340,000 square feet of impervious surface to local roads);
2. Possible relocation of the Federal Bureau of Investigation (FBI) Headquarters from Pennsylvania Avenue, Washington D.C. to Prince George’s County. Greenbelt is one of the proposed sites under consideration. The proposed project design includes remodeling and expansion of the Greenbelt Metrorail Station and includes impacts to wetlands in the Indian Creek Watershed;
3. Widening of Kenilworth Avenue/MD 201 to accommodate increased traffic from this Project and others (such as the Treasury currency facility proposed to be relocated to the BARC);
4. Sunnyside Avenue Bridge Replacement Capital Improvement Program (CIP) Project between Edmonston Road (MD 201) and the CSX railroad;
5. I-495 & I-270 Toll Lane Expansion;³⁷

³⁷ The Federal Highway Administration and MDOT recently recommended a preferred alternative for the I-495 Beltway expansion, Alternative 9: Phase 1 South, that builds a new American Legion Bridge, expands I-270 to I-370, but expands I-495 only between the American Legion Bridge and I-270 and not farther east as was proposed. Fact Sheet, New Recommended Preferred Alternative

6. Expansion of US 1 (Baltimore Ave) College Ave/Regents Dr to MD 193 (University Blvd); and
7. Purple Line Construction and Operation.

The FRA must consider how these projects in combination with the SCMAGLEV would impact water resources, including regional aquifers. Methodologies that allow for consideration of cumulative impacts to water quality are readily available. For example, using an Integrated Watershed and Receiving Water Modeling Approach scaled to a resolution appropriate for simulation of local conditions within watersheds (identified by Maryland 8-digit codes) and sub-watersheds (identified by Maryland 12-digit codes) would allow the FRA to estimate pollutant loadings from all known and proposed pollutant sources, including projects like those listed above, to a waterbody, thereby determining the likely response of the water body, and would allow for a more accurate identification of how the SCMAGLEV would impact water quality.³⁸ SWMM is an example of a model commonly used at this scale. However, the quality of the model's output is extremely sensitive to the quality of the input data, particularly with reference to the source data for calculating precipitation trends, including intensity, duration, and frequency (IDF curves). The FRA must conduct a detailed analysis of how these and other actions in combination with the SCMAGLEV would impact waterways, wetlands, and floodplains. The model used needs to be transparent with regard to (1) all model components, including definition(s) of constants and variables included in each; (2) all input data including data sources, dates for the original collection of raw data, and links to full tables of each set of input data; and all outputs generated. The scenarios run need to include both present conditions (atmospheric, hydrological, and hydraulic) and future conditions (anticipated conditions in 10, 25, and 50 years) reflecting best estimates of anticipated climate changes (IDF curves for all areas and sea-level rise for tidal areas) and anticipated land-use changes. A cumulative analysis also needs to be conducted to identify regional effects to impacted aquifers and regional hydrology during construction and operation, including looking at how dewatering may affect aquifer recharge and water flow to streams and wetlands. This information needs to be available to the public so that replication of the results can be tested and an understanding of the quality of the outputs can be determined.

to Deliver Phase 1 South: American Legion Bridge I-270 to I-370 (May 12, 2021), <https://495-270-p3.com/wp-content/uploads/2021/05/New-Recommended-Preferred-Alternative-Fact-Sheet.pdf>. The recommended preferred alternative does not, however, suggest that widening will not occur on the rest of I-495 in the future, but simply recommends that consideration of that widening would advance separately. The widening of the I-495 Beltway, both within the recommended preferred alternative phase and outside that phase, remains a reasonably foreseeable future action that is not merely speculative and its effects must be evaluated along with the Project's impacts and other past, present, and future actions.

³⁸ American Association of State Highway and Transportation Officials, *Water Quality Analyses for NEPA Documents: Selecting Appropriate Methodologies* (July 2008), [http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25\(35\)_FR.pdf](http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25(35)_FR.pdf).

9. The DEIS Fails to Consider Alternatives That Would Avoid or Minimize Adverse Impacts to Waterways, Wetlands, Floodplains, and Other Resources

The impacts to wetlands and waterways summarized in the DEIS Executive Summary at Table ES4.3-1 (reproduced below) show that all proposed Build Alternatives would have significant impacts to waterways, wetlands, floodplains, and other resources.

Table ES4.3-1: Build Alternatives Environmental Resource Impacts

Resource	Build Alternative											
	J-01	J-02	J-03	J-04	J-05	J-06	J1-01	J1-02	J1-03	J1-04	J1-05	J1-06
Permanent Property Impacts to Recreational Facilities and Parklands (Acres)	109	93	88	109	96	88	141	102	105	132	102	105
Total Acres of Permanent Floodplain Impact	74	59	46	53	38	26	76	52	40	56	32	20
Total Acres of Permanent Wetland Impact	45	26	22	45	25	22	51	27	23	51	27	23
Total Wetland Impact (acres) Classified as NTWSSC	6	19	9	6	19	9	4	14	5	4	14	5
Total Impact to Waterways (linear feet)	10,261	12,624	12,896	9,946	12,310	12,581	12,009	12,108	12,659	11,694	11,794	12,344
Total Acres of Permanent Forest Impact	420	381	451	402	363	432	388	324	392	370	306	374
Total Permanent Forest Interior Dwelling Species (FIDS) Habitat Impact (Acres)	404	354	437	404	354	437	330	268	352	330	268	352
Total Permanent Sensitive Species Project Review Area (SSPRA) Impact (Acres)	173	218	272	175	220	275	197	227	282	200	229	284
Total Critical Area Boundary Impacts (Acres)	128	128	128	85	85	85	128	128	128	85	85	85

Notes: Total Permanent Acres of Wetland Impact and Total Impact by Waterway: All Build Alternatives impacts exclude published wetland data associated with the long-term construction laydown area near MD 200 and I-95; Total Wetland Impact Classified as NTWSSC: acreage is calculated separately from the total acreage, based on state-published boundaries, not field-delineated boundaries.

DEIS at ES-19.

These significant impacts are discussed in varying degrees of detail in the DEIS. *See, e.g.*, DEIS at 4.11-4, 4.11-9, 4.11-13; DEIS App. D.7, Section D.7D. Both alternatives considered for the train alignment (J and J1) include a long section of elevated viaduct. *See id.* The DEIS acknowledges this fact in Section 3.3.2 (Build Alternatives):

Each Build Alternative follows the same common alignment in deep tunnel from the Washington, D.C. Station to just west of the Anacostia River. The alignments then split and follow along either the east or west side of the BWP in a combination of deep tunnel and elevated viaduct. The alignments re-converge just north of MD 175 near Fort George G. Meade. The alignments then continue in deep tunnel north through the BWI Marshall Airport tunnel and ultimately terminate at the Cherry Hill Station or Camden Yards Station.

DEIS at 3-11. Elevated viaducts would likely significantly impact water resources and floodplains, yet the FRA does not consider an alignment or Build Alternative that would avoid them. Although an all-underground alignment may be more costly, the FRA must still consider this alternative to determine whether the monetary costs would be outweighed by the reduced environmental and

other costs. Given that many if not the majority of impacts to waterways and wetlands would result from the construction and siting of the elevated viaducts and the associated tunnel portals, it is likely that if the SCMAGLEV were completely underground, impacts to waterways and wetlands could be avoided or minimized. The FRA's failure to even consider an all-underground option indicates that the FRA made a predetermined decision against this option, without any analysis taking place. Although the FRA can certainly consider cost in its analysis, such predetermined outcomes are prohibited under NEPA. The FRA was required to analyze to what extent an all-underground corridor would have avoided or reduced temporary and permanent impacts to waterways and wetlands, or at a minimum discuss why such an alternative was not considered in more detail.

D. The DEIS Fails to Adequately Identify and Analyze Impacts on Wildlife

The Project's Build Alternatives would result in significant harm to habitat for Forest Interior Dwelling Species (FIDS), aquatic species, and wetland species and communities, such as colonial nesting wading birds. The Build Alternatives may also harm federal and state rare, threatened, or endangered (RTE) species and habitat, including the northern long-eared bat, a species that is already federally listed as threatened and is likely to soon be listed as endangered. These impacts are largely overlooked in the DEIS, and the scant analysis provided is clearly inadequate.

The Endangered Species Act (ESA) establishes a process for identifying and protecting plant and animal species that are "threatened" or "endangered." 16 U.S.C. §§ 1533-1544. Section 7 of the ESA requires federal agencies to consult with the U.S. Fish and Wildlife Services (FWS) and National Marine Fisheries Service (NMFS) to make sure that any proposed federal agency action is "not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [the species' critical] habitat" 16 U.S.C. § 1536(a)(2). If the FWS or NMFS advises the agency that the proposed action area includes neither a listed species nor its critical habitat, then there is no need for further consultation. 50 C.F.R. § 402.12(d)(1). However, if either the FWS or NMFS determines that the action is likely to adversely affect a listed species or its critical habitat, then the agency (in this case the FRA) must engage in formal consultation, which would require the FRA to prepare a "biological assessment" of the action and the FWS or NMFS to issue a "biological opinion" as to whether the action is likely to "jeopardize the continued existence of any listed species or destroy or adversely modify" critical habitat. 50 C.F.R. § 402.14(h).

In addition, the agency proposing a federal action may need to reopen the consultation process when "new information reveals effects of the action that may affect listed species or critical habitat." 50 C.F.R. § 402.16(b). If the biological opinion finds jeopardy of species or destruction or adverse modification of critical habitat, the FWS or NMFS must suggest "reasonable and prudent alternatives" to the proposed activity that would not violate the ESA. 16 U.S.C. § 1536(b)(4). The agency proposing the action would have to agree to a reasonable and prudent alternative approved by FWS or NMFS and receive an incidental take statement from FWS or NMFS before the proposed action can move forward. *Id.*

The Maryland Nongame Endangered Species Conservation Act regulates activities in a similar fashion but applies to impacts on plants and wildlife, including their habitats, that are listed on the Maryland Threatened and Endangered Species list. Md. Code Ann., Nat. Res., § 10-2A-01

to 10-2A-09. The Maryland Threatened and Endangered Species list is more expansive than the federal list and also requires protections for animals that are deemed in “Need of Conservation.”

1. The DEIS Fails to Adequately Identify or Consider Impacts on Federal Rare, Threatened, or Endangered Species and Habitat

Although the DEIS identifies known RTE species and Globally Rare wetland and forest ecosystem types which would be impacted by the Project, the DEIS fails to identify how the FRA plans to meet ESA requirements. *See* DEIS App. D.7 at D.7-117. The FRA fails to provide the status of the consultation process for these RTE species or identify whether biological assessments have been conducted to determine whether the Build Alternatives will cause “jeopardy or adverse modification,” a process that must occur prior to the conclusion of the NEPA process. U.S. Fish and Wildlife Services, Consultation Frequently Asked Questions (“Formal consultation should be initiated prior to or at the time of release of the DEIS or EA. At the time the Final EIS is issued, section 7 consultation should be completed.”), <https://www.fws.gov/endangered/what-we-do/faq.html#10>. Furthermore, the DEIS should provide more details regarding the exact areas of the RTE species and globally rare habitats, including where they are in relation to the proposed Build Alternative alignments and facilities. The DEIS provides a one-page summary of possible impacts to RTE species that fails to provide any detailed impact information. *See* DEIS App. D.7 at D.7-133 to 134. Instead, the FRA states that impacts will be avoided and leaves any analysis to the Project Sponsor to conduct at a future unspecified time, contrary to ESA requirements and FWS guidance. *Id.* at D.7-119 (“the Project Sponsor will coordinate with MDNR and USFWS to identify areas for more detailed surveys for RTE and sensitive species habitats”); *see also id.* at D.7-134.

One glaring example of the lack of RTE analysis is the discussion in the DEIS of impacts to the Northern long-eared bat. The DEIS explains that the Northern long-eared bat (*Myotis septentrionalis*) is a federally listed threatened species that requires live and standing dead hardwood trees for summer roosting habitat, and states that roosting areas “may be directly or indirectly affected through immediate loss of forest or the presence of adjacent temporary construction disruption or new structures.” DEIS at 4.12-8; DEIS App. D.7 at D.7-133. In Maryland, Northern long-eared bats are listed as species of greatest conservation need and are ranked as threatened and highly state rare (S1). Once common in the northeastern and mid-Atlantic states as well as in eastern Canada, the bat has suffered close to a 99% decline in its range. The DEIS recognizes:

Northern long-eared bat: Depending on the proximity of SCMAGLEV Project forest removal activities, locations of summer roosting areas may be directly or indirectly affected through immediate loss of forest or the presence of adjacent temporary construction disruption or new structures.

DEIS at 4.12-18. The DEIS says little more beyond this statement.

In January 2020, a court overturned the FWS’s decision to list the species as threatened rather than endangered, finding that the Service had failed both to explain why the species was not endangered after suffering catastrophic declines in the core of its range as a result of white-nose syndrome and to consider the cumulative effects of habitat destruction. *Center for Biological*

Diversity v. Everson, No. 15-477 (EGS) (D.D.C. Jan. 28, 2020). The Service is currently working on a “Special Status Assessment” for the Bat and anticipates completing it by May 2021; the court ordered the FWS to issue a new listing determination within eighteen months (presumably December 2022) of the Assessment. *Center for Biological Diversity v. Everson*, No. 15-477 (EGS) (D.D.C. Mar. 1, 2021). The DEIS fails to address this re-evaluation and the likely endangered listing, along with the prohibition against any “take” of the species that such a listing would bring. At all events, the FRA must perform more analysis with respect to the Northern long-eared bat and other declining bat species in the vicinity of the SCMAGLEV and assure that there would be no harm to these species. The FRA also should perform more comprehensive bat surveys for the Northern long-eared bat and all other declining bat species. In addition to impacts to the species in the Patuxent Research Refuge, the Northern long-eared bat is likely within BARC and the Greenbelt Forest Preserve. See *Demolition of 22 Buildings at the Henry A. Wallace Beltsville Agricultural Research Center Beltsville, Maryland*, at 3-13 (Jan. 2020), https://www.ars.usda.gov/ARSUserFiles/80000000/Draft%20Environmental%20Assessment%202020/USDA-ARS_BARC_22_Building_Demo_EA_2020JAN22.pdf.

The FRA must conduct formal ESA § 7 consultation for all federal RTE species, which requires the FRA to perform biological assessments and the FWS to issue biological opinions pursuant to 50 C.F.R. § 402.14(h). Although it appears consultations have begun, the DEIS does not provide the status of these consultations. The biological assessments along with the FWS determinations as to whether the Build Alternatives would cause “jeopardy or adverse modification” must be completed prior to the conclusion of the NEPA process. Furthermore, if the FWS determines that the species may be jeopardized, destroyed, or adversely modified, then the Project must incorporate the alternative actions suggested by the FWS. Finally, any impacts to RTE wetland or aquatic species must be considered by the U.S. Corps of Engineers during the Clean Water Act § 404 permitting process, discussed further in Section II.C.2.c.

2. The DEIS’s Discussion of Impacts on Forest Interior Dwelling Species and their Habitat, As Well As Migratory Birds, is Insufficient

The Project’s Build Alternatives would result in significant harm to habitat for FIDS, and the DEIS’s evaluation of these impacts is inadequate. The DEIS says:

[T]he Build Alternatives would permanently impact forests, ecologically sensitive areas, and water resources, including wetlands, streams, and floodplains. Forest clearing, grading, and land development associated with the Build Alternatives would directly impact these resources, most notably along the surface components of each Build Alternative. Natural resource impacts occur primarily where Build Alternative elements would be on undeveloped land on the following properties: National Park Service (NPS) Property, Beltsville Agricultural Research Center (BARC), the Patuxent Research Refuge (PRR), and Fort George G. Meade. Degradation of resource quality, fragmentation, and/or loss of these natural resources as a result of the impacts is irreversible.

DEIS at 4.24-1. The DEIS estimates hundreds of acres of permanent impact to forests, FIDS habitat, and other sensitive species areas. *Id.* at ES-19 Table ES4.3-1.

Twenty-five species of FIDS potentially breed in the Chesapeake Bay Critical Area. Impacts to the Chesapeake Bay Critical Area are discussed in more detail in Section II.C.6. The area that would be affected by the J1 Build Alternatives, including the Greenbelt Forest Preserve, provides habitat for all twenty-five FIDS. Twenty-three breed in the area, including:

Red-shouldered Hawk, *Buteo lineatus*
Broad-winged Hawk, *Buteo platypterus*
Barred Owl, *Strix varia*
Eastern Whip-poor-will, *Caprimulgus vociferus*
Hairy Woodpecker, *Picoides villosus*
Pileated Woodpecker, *Dryocopus pileatus*
Acadian Flycatcher, *Empidonax virescens*
*Brown Creeper, *Certhia americana*
Veery, *Catharus fuscescens*
Wood Thrush, *Hylocichla mustelina*
Yellow-throated Vireo, *Vireo flavifrons*
Red-eyed Vireo, *Vireo olivaceus*
Northern Parula, *Parula americana*
*Cerulean Warbler, *Dendroica cerulea*
*Black-and-white Warbler, *Mniotilta varia*
American Redstart, *Setophaga ruticilla*
Prothonotary Warbler, *Protonotaria citrea*
Worm-eating Warbler, *Helmitheros vermivorus*
Ovenbird, *Seiurus aurocapillus*
Louisiana Waterthrush, *Seiurus motacilla*
Kentucky Warbler, *Oporornis formosus*
Hooded Warbler, *Wilsonia citrina*
Scarlet Tanager, *Piranga olivacea*³⁹

**indicates the species also is a Maryland Rare, Threatened, or Endangered Species*

The other two species, Black-throated Green Warbler, *Dendroica virens waynei*, and Swainson's Warbler, *Limnothlypis swainsonii*, use the area as a stop-over during migration.⁴⁰ Additionally, three of these species (Brown Creeper, *Certhia americana*; Cerulean Warbler, *Dendroica cerulea*; Black-and-white Warbler, *Mniotilta varia*) are Maryland RTE Species and as such are protected by the Maryland Nongame and Endangered Species Conservation Act. Md. Code Ann., Nat. Res., § 10-2A-01 to 10-2A-09; *see also* Maryland Wildlife and Heritage Service Natural Heritage Program, List of Rare, Threatened, and Endangered Animals of Maryland (2016), https://dnr.maryland.gov/wildlife/Documents/rte_Animal_List.pdf.

³⁹ Atlas of the Breeding Birds of Maryland and the District of Columbia (Chandler S. Robbins et al., eds. 1997); Second Atlas of the Breeding Birds of Maryland and the District of Columbia (Walter Ellison 2011).

⁴⁰ Based on personal observation of Dr. V. Beth Kuser Olsen.

The majority of FIDS are small songbirds such as warblers, vireos, and flycatchers, but they also include the Barred Owl, Whip-poor-will and several hawk and woodpecker species. Claudia Jones, et al., *A Guide to the Conservation of Forest Interior Dwelling Birds in the Chesapeake Bay Critical Area*, Critical Area Commission for the Chesapeake and Atlantic Coastal Bays, at 9 (June 2000), https://dnr.maryland.gov/education/Documents/tweetyjune_2000.pdf. All of the species require relatively large, unfragmented forest blocks located within heavily forested landscapes or regions to successfully breed and maintain viable populations. *Id.* Thirteen are highly area-sensitive and so are the most vulnerable to forest loss, fragmentation, and habitat degradation. *Id.* Twenty of the twenty-five species are neotropical migrants that nest in temperate North America in the spring and summer and winter in Central and South America and so are also protected under the Migratory Bird Treaty Act. 16 U.S.C. §§ 703-712; 50 C.F.R. § 10.13(c).

The Migratory Bird Treaty Act prohibits the taking (including killing, capturing, selling, trading, or transporting a migratory bird, nest, or egg) of protected migratory bird species without prior authorization by the FWS. The Act has been interpreted by the federal court of relevance here (the Fourth Circuit) to include incidental misdemeanor takings, that is, takings caused by activities that harm or kill migratory birds by proximate cause or without intent to harm or kill the impacted bird. *United States v. Chandler*, 753 F.2d 360, 363 (4th Cir. 1985) (violating Migratory Bird Treaty Act regulation by shooting over baited area requires no proof of a connection of offender with the bait). *See generally, United States v. FMC Corp.*, 572 F.2d 902 (2d Cir. 1978) (where corporation was not aware of the lethal-to-birds quality of water in its pond but was aware of the danger of carbofuran to humans, strict criminal liability would be imposed on corporation which was properly found in violation of the Migratory Bird Treaty Act).

The DEIS acknowledges that the SCMAGLEV may impact migratory birds, including bald eagles, DEIS at 4.12-7, known to be in the Project-affected area, but fails to provide any detailed information regarding how the FRA will comply with the requirements of the Migratory Bird Treaty Act. Instead, the DEIS merely says:

FRA ... will also coordinate with the Migratory Bird Permit Office regarding the potential for bald eagle nesting sites and the need for an eagle conservation plan prior to the FEIS. To reduce the likelihood of an eagle take, additional consideration for implementation of carrion removal protocol will be addressed, as train strikes are a known source of mortality for bald eagles. Eagles tend to be struck when attempting to feed on remains of carrion.

DEIS at 4.12-22. The DEIS is silent on whether train strikes would impact other migratory birds and fails to explain how extensive these takings might be, other than to acknowledge that train strikes are known to kill birds. DEIS at 4.12-21; 4.12-24. Based on the information provided in the DEIS, it appears that the FRA has initiated consultation with the FWS, as noted above, and may at some unspecified future time seek review by the Migratory Bird Conservation Commission, as is required by the Migratory Bird Treaty Act, but no additional information regarding requirements, compliance, and mitigation plans is provided. *See* DEIS at 4.12-2, 4.12-7, 4.12-22. Additionally, the FRA fails to provide any detailed description or analysis of how the Project would otherwise harm migratory birds.

The DEIS describes the total acreage of FIDS that would be affected and acknowledges that there would be some areas of fragmentation. However, necessary details are missing. FIDS require large areas of contiguous mature-growth forest. Breeding territories for each species must meet the minimum size as described in the literature. Most species are unable to successfully breed near edges of the mature forest. Therefore, to understand the Project's impact, appropriate buffers need to be delineated and identified in the DEIS as unsuitable FIDS breeding habitat, both with and without the Project. Mature, contiguous forest is required; fragmented forest acres cannot be grouped together and claimed to represent remaining FIDS breeding habitat. Claudia Jones, et al., *A Guide to the Conservation of Forest Interior Dwelling Birds in the Chesapeake Bay Critical Area*, Critical Area Commission for the Chesapeake and Atlantic Coastal Bays (June 2000), https://dnr.maryland.gov/education/Documents/tweetyjune_2000.pdf.

Greenbelt believes that impact to forested areas and FIDS habitat should be avoided; however, if the Project moves forward, at the least its footprint should be minimized. No FIDS habitat should be impacted for construction staging and/or laydown areas, stormwater management facilities should be designed to avoid forests and FIDS, and areas that would be impacted by construction, permanent train infrastructure, and buildings should be reduced to the maximum extent practicable in areas of FIDS habitat. Furthermore, simply planting trees elsewhere is not an effective mitigation strategy. FIDS habitat mitigation must provide long-term FIDS habitat. While avoidance of impacts to FIDS habitat is preferable, if the Project moves forward with proposed impacts to FIDS habitat, the guidelines provided within *A Guide to the Conservation of Forest Interior Dwelling Birds in the Chesapeake Bay Critical Area* should be used to mitigate the loss of and impact to habitat, and mitigation area(s) should be encumbered in perpetual easement and remain undeveloped and forested in perpetuity. If impact to FIDS habitat will occur, FRA should provide information to demonstrate that loss of or impact to FIDS habitat can be fully mitigated in accordance with this *Guide*.

The following are examples of possible effects from the Project on specific FIDS that are not adequately evaluated in the DEIS:

- The Pileated Woodpecker, *Dryocopus pileatus*, is a breeding species and year-round resident in the Northwoods section of the Greenbelt Forest Preserve.⁴¹ Pileated Woodpeckers are monogamous and hold large territories; it is rare to see more than two birds together at a time. When one member of a pair dies, the other often gains a new mate, and this is one of the main ways that new individuals get a chance to breed and hold a territory. Pileated Woodpeckers rely on large, standing dead trees and fallen logs. It is important to maintain these elements both for the insect food they provide and for the many species of birds and mammals that use tree cavities. The Cornell Lab, *All About Birds, Pileated Woodpecker Life History*, https://www.allaboutbirds.org/guide/Pileated_Woodpecker/lifehistory, visited April 30, 2021. A great variety of other animals (including gray squirrels, red squirrels, and many species of birds) utilize abandoned pileated woodpecker tree cavities for nest sites and for

⁴¹ Atlas of the Breeding Birds of Maryland and the District of Columbia (Chandler S. Robbins et al., eds. 1997); Second Atlas of the Breeding Birds of Maryland and the District of Columbia (Walter Ellison 2011); and based on personal observation.

winter hibernacula and year-round refugia. The Pileated Woodpecker prefers nest sites located high in old trees located near streams. The selection of a home range and the size of that range, which varies from 43 to 450 hectares (106 – 1,112 acres), are determined primarily by the abundance and quality of the food supply. Old growth forests are preferred primarily because of the probable abundance of insect infested trees and logs. The Pennsylvania State University, *The Virtual Nature Trail at Penn State New Kensington Species Pages, Dryocopus Pileatus*, (2002), <https://www.dept.psu.edu/nkbiology/naturetrail/speciespages/pileatedwoodpecker.htm>. The DEIS fails to consider the Project’s impacts on the Pileated Woodpecker’s range and nesting sites.

- The Ovenbird, *Seiurus aurocapillus*, is a breeding species in the Northwoods section of the Greenbelt Forest Preserve.⁴² The Ovenbird is a ground-nesting FIDS that has difficulty successfully nesting on the edges of forests due to predation by feral cats and parasitism by the Brown-headed Cowbird. The Cornell Lab, *All About Birds, Brown-headed Cowbird*, https://www.allaboutbirds.org/guide/Brown-headed_Cowbird/lifehistory, visited April 30, 2021. In one study, “[n]inety percent of cowbird locations were within 150–350 m [492–1,148 feet] of forest edge, despite the overall availability of forest at greater distances from edge (as far as 500–1450 m) both within cowbird home ranges and the entire forested landscape.” Christine A. Howell, et al., *Landscape Context and Selection for Forest Edge by Breeding Brown-Headed Cowbirds*, 22 *Landscape Ecol.*, 273-84 (2007), <https://doi.org/10.1007/s10980-006-9022-1>. That study also found that “[i]n a highly fragmented forest cowbirds utilized the entire forest and likely viewed it as ‘all edge.’” *Id.* Forest fragmentation increases Ovenbirds’ vulnerability to nest parasitism. The Cornell Lab, *All About Birds, Ovenbird*, <https://www.allaboutbirds.org/guide/Ovenbird/lifehistory>, visited April 30, 2021. The Ovenbird is a neotropical migrant, spending winters in the Caribbean from southern Florida to Panama. The species migrates with storm fronts on their spring and fall migration routes. Large numbers are sometimes killed as they collide with towers and tall buildings along the paths of these fronts. The Cornell Lab, *All About Birds, Ovenbird*, <https://www.allaboutbirds.org/guide/Ovenbird/lifehistory>, visited April 30, 2021.

The DEIS fails to consider the Project’s impact on Ovenbird habitat and nesting sites. In addition to the threat of potential habitat loss caused by the SCMAGLEV, there is potential for heavy losses during migration due to collisions with the elevated viaduct sections of the Build Alternatives, which also is not considered in the DEIS.

The DEIS also fails to provide detailed information on how the FRA plans to avoid, and if necessary mitigate, any harm to FIDS. All proposed mitigation measures should be included in NEPA documents to provide the public with information regarding how the Agencies plan to avoid impacts to these species during any proposed construction and operation of the SCMAGLEV. If the Project moves forward with the J1 alignment, Greenbelt requests the southern tunnel portal be

⁴² Atlas of the Breeding Birds of Maryland and the District of Columbia (Chandler S. Robbins et al., eds. 1997); Second Atlas of the Breeding Birds of Maryland and the District of Columbia (Walter Ellison 2011); and based on the personal observation of Dr. V. Beth Kuser Olsen.

moved north to avoid impacts to the Greenbelt Forest Preserve and prevent taking mature forest. Greenbelt also requests that any transition from portal to elevated viaduct be made as quickly as possible to minimize at-grade impacts.

3. The DEIS's Discussion of the Project's Impacts on the Habitat of Wetland Species & Communities is Insufficient

The Build Alternatives would result in significant harm to the habitat of wetland species and communities, and the DEIS's evaluation of these impacts is inadequate. The DEIS states:

Removal or fill within wetlands would result in an immediate and permanent removal of habitat, potential hydrologic disconnection, and alter the functions and values of the systems. The functions and values that may be altered include:

- A direct removal or change in habitat which may indirectly affect the species relying on the wetland for food, water, protection, and breeding.

DEIS at 4.11-10. The DEIS further explains that:

Additional, construction-related impacts to natural resources related to staging and work areas used temporarily by construction crews could be irretrievable. Construction work areas at waterway crossings and ancillary facilities would be larger in size than the footprint of the permanent structures.

Id. at 4.24-2. The impacts to wetlands and waterways summarized in Table ES 4.3-1 (reproduced below) show that all Build Alternatives would have significant permanent impacts to waterways, wetlands, floodplains, and other resources. Impacts to waterways, wetlands, and floodplains is discussed in more detail in Section II.C.

Table ES4.3-1: Build Alternatives Environmental Resource Impacts

Resource	Build Alternative											
	J-01	J-02	J-03	J-04	J-05	J-06	J1-01	J1-02	J1-03	J1-04	J1-05	J1-06
Permanent Property Impacts to Recreational Facilities and Parklands (Acres)	109	93	88	109	96	88	141	102	105	132	102	105
Total Acres of Permanent Floodplain Impact	74	59	46	53	38	26	76	52	40	56	32	20
Total Acres of Permanent Wetland Impact	45	26	22	45	25	22	51	27	23	51	27	23
Total Wetland Impact (acres) Classified as NTWSSC	6	19	9	6	19	9	4	14	5	4	14	5
Total Impact to Waterways (linear feet)	10,261	12,624	12,896	9,946	12,310	12,581	12,009	12,108	12,659	11,694	11,794	12,344
Total Acres of Permanent Forest Impact	420	381	451	402	363	432	388	324	392	370	306	374
Total Permanent Forest Interior Dwelling Species (FIDS) Habitat Impact (Acres)	404	354	437	404	354	437	330	268	352	330	268	352
Total Permanent Sensitive Species Project Review Area (SSPRA) Impact (Acres)	173	218	272	175	220	275	197	227	282	200	229	284
Total Critical Area Boundary Impacts (Acres)	128	128	128	85	85	85	128	128	128	85	85	85

Notes: Total Permanent Acres of Wetland Impact and Total Impact by Waterway: All Build Alternatives impacts exclude published wetland data associated with the long-term construction laydown area near MD 200 and I-95; Total Wetland Impact Classified as NTWSSC: acreage is calculated separately from the total acreage, based on state-published boundaries, not field-delineated boundaries.

The FRA states that it conducted a “qualitative analysis of resources within the SCMAGLEV Project Affected Environment, identifying the presence of wetlands and waterways.” DEIS at 4.11-2. The DEIS states that the FRA identified both potential direct and indirect effects from the SCMAGLEV to these resources, but there is no explanation provided as to how the FRA identified these impacts; which impacts are direct or indirect; or the extent of these impacts. According to the DEIS, depending on the alternative selected, the SCMAGLEV would affect between 57 to 89 acres of wetlands, and the FRA estimates that between 7 to 30 acres are Maryland Nontidal Wetlands of Special State Concern, which would include impacts to the NTWSSC within the Greenbelt Forest Preserve. DEIS at 4.11-4.

All proposed TMF facilities would directly and permanently impact wetland systems located within Tier II and Stronghold Watersheds. These locations are the places where RTE species of fish, amphibians, reptiles or mussels have the highest numbers. Despite the extent of these impacts, the DEIS lacks the specifics needed to evaluate the Project’s impacts on wetland species and their associated communities. Furthermore, there is no reasonable explanation provided to support locating all TMF options on public lands that would result in “direct loss of these wetlands and would permanently alter the existing natural environment and valuable functions provided by wetlands as noted previously.” DEIS 4.11 at 4.11-12.

The DEIS refers to mapping of Beaverdam Creek, Beck Branch, and the Patuxent River but the DEIS fails to indicate whether wetland delineations have been conducted for these areas, nor does it identify the specific locations of NTWSSC known to be located in these watersheds. The DEIS states, “[i]n coordination with MDNR, FRA determined that these NTWSSCs provide habitat for RTE odonate (a dragonfly or damselfly), fish, and plant species.” DEIS 4.11 at 4.11-5. The FRA must provide information on how these RTE species will be impacted; simply stating

that they exist is insufficient to meet ESA or NEPA requirements. As is common throughout the DEIS, the FRA identifies NTWSSCs and aquatic species that exist within the impacted wetlands and waterways, but fails to provide information on how the SCMAGLEV would impact the species beyond providing total figures of affected areas and superficial impact descriptions. Likewise, the FRA relies heavily on future compliance actions that it claims the Project Sponsor will complete. DEIS 4.11 at 4.11-7 (“Additionally, the SCMAGLEV Project Sponsor must submit a Statement of Findings per DO 77-1 and DO 77-2 to the NPS for impacts to any wetland and floodplain located on NPS property.”).

The DEIS acknowledges that “[i]n the area of the BARC West TMF, MDNR has identified two RTE plant species, white fringed orchid (*Platanthera blephariglottis* var. *blephariglottis*) and northern pitcher-plant (*Sarracenia purpurea*), both associated with high quality wetlands. This area also supports the American brook lamprey and three RTE odonate species.” DEIS 4.12 at 4.12-9. Additionally, the FRA states that “[a] highly globally rare/imperiled woodland community (pine barrens pine-oak woodland) occurs east and west of the [Baltimore Washington Parkway].” DEIS 4.12 at 4.12-9. This likely refers to the rare Gravely Fall Line Magnolia Bogs’ even more rare subset of bogs that includes pitch pines driven south during the last glaciation and that have persisted to this day; these bogs are a globally rare community of bog ecosystem known to exist only in this region. Although it is understandable that the FRA would not provide detailed location information for this rare ecosystem, the DEIS should indicate if this is the ecosystem being discussed and describe how the Project would impact it, in addition to any actions that would be taken to avoid harm to this critically important ecosystem. Moreover, “[t]he area of the BARC Airstrip TMF also falls within the drainage area of another NTWSSC near Telegraph Road, which supports three RTE odonate [dragonfly or damselfly aquatic larva] species.”⁴³ Additionally, “RTE species observations on BARC property within one mile of the SCMAGLEV Project Affected Environment include a state-listed endangered odonate species and nine other RTE plant species.”⁴⁴ DEIS 4.12 at 4.12-9. The DEIS fails to provide information indicating where these species are located.

⁴³ *Celithemis martha* Martha’s Pennant (Highly Rare); *Nehalennia integricollis* Southern Sprite (Highly Rare); *Rhionaeschna mutata* Spring Blue Darner (Endangered). DEIS App. D.7 Attachments A & B at PDF 95 – 100 (MDNR WHS letter (Oct. 22, 2020)).

⁴⁴ *Lethenteron appendix* American Brook Lamprey (Threatened); *Somatochlora provocans* Treetop Emerald (Endangered); *Betula populifolia* Gray Birch (Highly Rare); *Cyperus lancastris* Lancaster’s Cyperus (Rare); *Dichantherium aciculare* Needle-leaf Witchgrass (Rare); *Dichantherium leucothrix* Roughish Witchgrass (Uncertain); *Gaylussacia Dumosa* Dwarf Huckleberry (Endangered); *Krigia dandelion* Potato Dandelion (Rare); *Linum intercursum* Sandplain Flax (Threatened); *Lupinus perennis* Sundial Lupine (Threatened); *Platanthera blephariglottis* var. *blephariglottis*, White Fringed Orchid (Threatened); *Platanthera flava* Pale Green Orchid (Rare); *Rhynchospora microcephala* Small-headed Beakrush (Rare); *Sarracenia purpurea* Northern Pitcherplant (Threatened); *Smilax pseudochina* Long-stalk Greenbrier (Threatened). DEIS App. D.7 Attachments A & B at PDF pp. 95-100. (MDNR WHS letter (Oct. 22, 2020)).

Furthermore, the proposed BARC Airstrip TMF will completely cover the headwaters of Beaverdam Creek, the highest quality watershed in the greater Anacostia River Watershed, which is used as an ecological reference condition by MDNR, the Metropolitan Washington Council of Governments, and the Interstate Commission on the Potomac River Basin. That is, Beaverdam Creek is used by these state and regional regulatory agencies to calibrate the fisheries, aquatic invertebrates, and habitat conditions for their regular field bioassessment efforts throughout the coastal plain ecoregion of the Anacostia River Watershed. A reference condition is considered the best watershed quality attainable locally by which all other assessments are compared. The BARC Airstrip TMF “would result in 13 to 14 acres of permanent wetland impacts, which includes the most permanent NTWSSC impacts (11 to 12 acres). BARC West would result in 10 acres of permanent wetland impact, which includes two to three acres of permanent NTWSSC impacts.” DEIS 4.11 at 4.11-12.

Despite what the DEIS implies, the Beaverdam Creek headwaters provide habitat for fisheries, including areas in the Potomac River Basin that would be impacted by the Project and are protected and overseen by the Interstate Commission.⁴⁵ Species identified here include, but are not limited to, State S1 RTE Atlantic Brook Lamprey species.⁴⁶ The DEIS states that “FRA anticipates that stream relocations and/or creation of large culverts would be required for these streams, including the headwaters;” however, this minimizes the fact that building the 180-acre TMF facility would require the facility footprint to be built on top of the headwaters of Beaverdam, and that the impacted streams would be confined to thousands of linear feet of underground pipes to allow the train yard facilities to be constructed overhead. DEIS App. D.7 at D.7-57. The DEIS states that, “[w]ith direct and permanent impacts to its headwaters proposed there is the potential that the health of this waterway would decline, potentially resulting in inclusion on the 303(d) listed waters.” *Id.* at D.7-57. A “decline” in health “potentially resulting in inclusion on 303(d) listed waters” means that Beaverdam Creek would be go from being rated as having the highest quality waters and ecosystem to being impaired and listed on the state’s Clean Water Act 303(d) due to having such degraded water quality. This should be unacceptable for many reasons, including ending the presence of a S1 RTE species from the Anacostia Watershed.

Greenbelt opposes any proposed impacts to the Beaverdam Creek headwaters, which could degrade this watershed sufficiently to result in its being included in the list of impaired waters. Such degradation would be unacceptable given the important ecosystems and species this watershed supports. If the Project does move forward, Greenbelt requests that the FRA clearly map rare ecosystems and identify areas that would be less impacted by the proposed facilities, so that SCMAGLEV infrastructure can be redesigned and relocated to avoid rare ecosystems within Greenbelt and BARC. The FRA should not select the TMF alternative that would cover the

⁴⁵ “Build Alternatives largely avoid fisheries resources and migration paths associated with major stream systems and/or high-quality Tier II Waters (Anacostia, Patuxent, and Patapsco Rivers, Beaverdam Creek, Baltimore Harbor and tributaries) by tunneling below or spanning over the systems.” DEIS at 4.12-22.

⁴⁶ Based on the personal observation of Dr. Peter I. May.

headwaters of Beaverdam Creek, and further, the FRA should entirely avoid building any SCMAGLEV infrastructure within the Beaverdam Creek watershed entirely.

4. The DEIS's Discussion of the Project's Impacts on the Habitat of Colonial Nesting Wading Birds is Insufficient

Colonial Nesting Wading Birds include Snowy Egrets, Cattle Egrets, Little Blue Herons, Tricolored Herons, Great Egrets, Black-crowned Night-herons, and Glossy Ibis. These species are present in many areas that would be affected by the Project, and they suffer from human disturbance, erosion, and sea level rise. Maryland Coastal Bays Colonial Waterbird and Islands Report, Audubon Maryland-DC (2019), http://md.audubon.org/sites/default/files/colonial_nesting_birds_2019_final.pdf. Great Blue Heron (*Ardea herodias*), Great Egret (*Ardea alba*), Yellow-Crowned Night-Heron (*Nyctanassa violacea*), and Glossy Ibis (*Plegadis falcinellus*) show increases in population growth in the general area, while declines have been recorded for Snowy Egret (*Egretta thula*), Cattle Egret (*Bubulcus ibis*), and Black-crowned Night-Heron (*Nycticorax nycticorax*). Bill Williams, et al., *The Status of Colonial Nesting Wading Bird Populations within the Chesapeake Bay and Atlantic Barrier Island-Lagoon System*, 30 *Waterbirds: The International Journal of Waterbird Biology*, 82-92 (2007), <http://www.jstor.org/stable/25148278>.

The Greenbelt Forest Preserve and nearby land provide nesting habitat and feeding territory for the Great Blue Heron, Great Egret, and Yellow-Crowned Night-Heron. The DEIS must describe specifically how each of these species' breeding colonies would be protected during the construction phase of the Project, as well as when the SCMAGLEV is in operation.

E. The Evaluation of Energy Impacts in the DEIS Does Not Satisfy NEPA's Requirement for a Full and Accurate Discussion of the Effects of a Proposed Federal Action

1. Operation

The DEIS estimates that the SCMAGLEV requires four trillion Btus per year of electricity for its operations. DEIS at 4.19-7. Even after subtractions for energy saved—which are inaccurate and overstated, as explained below—the DEIS estimates a net addition of about three trillion Btus per year, or 1,261,509 MWh/year, of electricity, enough to power around 88,900 homes. *Id.* at 4.19-10; App. D.4 at D-52. This staggering increase in energy consumption in and of itself warrants selecting the No Build option.

The DEIS attempts to “contextualize” these high numbers, comparing energy intensity per passenger mile and per usable distance to other forms of transportation. *Id.* at 4.19-7. But the DEIS does not provide sufficient information for the public to evaluate this contextualization; the DEIS says the calculation is per the methodology of Fritz et al. (2018) but provides no explanation of what this methodology is or how FRA calculated these numbers, and we were unable to locate an explanation in the cited document. The public must be able to rely on the EIS as a comprehensive and accurate guide to the environmental and economic issues presented by the proposed activity, and it is unreasonable to make the public guess how FRA estimated this critical information.

Instead of informing, the contextualization actually misleads the public. The DEIS provides a table comparing energy intensity per passenger mile traveled of auto, bus, rail, and SCMAGLEV in the 2045 Build Alternatives and claims the SCMAGLEV compares favorably with auto travel but unfavorably with existing bus and rail transportation modes. DEIS at 4.19-10. The methodology and data used to estimate the numbers that make up these comparisons, particularly the SCMAGLEV passenger miles traveled, is not explained. Tellingly, the DEIS notes that the figure for SCMAGLEV passenger miles traveled was calculated using estimates of the maximum number of passengers in 2045. *Id.* There is no justification for comparing energy intensity using estimates of only the maximum number of passengers of the SCMAGLEV. Nor is there justification for providing this estimate for 2045 only and not for any earlier years, when ridership, maximum or otherwise, is likely to be lower. Moreover, as the comparison relies on ridership estimates, the flaws in those estimates identified above in Section II.B are also present here; once they are corrected the SCMAGLEV's efficiency will likely be revealed as significantly lower.

Regardless, the energy estimates in the DEIS show that the Project should not move forward: even these flawed estimates show that the SCMAGLEV would increase transportation-related energy consumption in the region by 39 percent, that is, the roughly three trillion Btus referenced above. DEIS at 4.19-10. These estimates also show that in 2045, the SCMAGLEV under the least energy-intensive Build Alternative (Camden Yards) will be “37 and 20 percent less efficient than existing bus and passenger rail, respectively.” DEIS at 4.19-10. Compared to the Cherry Hill alternative, which is the Project Sponsor's preferred alternative, these estimates would show the SCMAGLEV to be around 52% less efficient than bus travel and 34% less efficient than rail travel. *See* DEIS at 4.19-10 Table 4.19-6. At a time when the region, state, and country need to be decreasing their energy consumption, the FRA should not be using federal tax dollars, or providing any other support, for such an inefficient project that would lead to such a massive increase in energy use. If anything, the DEIS shows the need to expand investment in bus and more efficient types of passenger rail and discontinue plans for the SCMAGLEV.

Additionally, the DEIS projects an increase in energy consumption of *only* three trillion Btus in part because the DEIS also projects significant decreases in energy consumption from the “diversion” of bus and rail travel in the region, presumably due to cuts in bus and rail service, both projected to decrease by more than half in 2045 when compared to the no-build projection. DEIS at 4.19-11. A reduction in public transit options is contrary to basic transportation policy. Moreover, the DEIS does not explain the basis for the energy consumption numbers for bus and rail travel under the No Build Alternative, beyond saying “FRA calculation,” which is plainly insufficient for the public to meaningfully evaluate and comment. *Id.* The DEIS also fails to explain the basis for projecting these decreases in energy usage under the Build Alternatives.⁴⁷ The

⁴⁷ The DEIS's Economics Impact Analysis Appendix seemingly contradicts this projected energy reduction. That Appendix states: “Despite diversions from rail, the number of commuter and intercity trains is not projected to decrease once the SCMAGLEV is operational; therefore, the analysis assumes no changes in emissions for trains.” DEIS App. D.4 at D-49. If the number of commuter and intercity trains is not projected to decrease, how will the 2045 Rail Travel energy consumption decrease from 244,025 MMBtu to 116,104 MMBtu under the Cherry Hill Build Alternatives or to 107,350 MMBtu under the Camden Yards Build Alternatives? *See* DEIS

only way energy consumption could decrease to the extent claimed would be if bus and rail travel options are reduced significantly from what they would otherwise be without the SCMAGLEV, including routes, frequency, and stations served. Which routes and stations does the FRA expect would be cut? This is the type of information both the FRA and the public need to properly evaluate the Project.

Finally, with respect to energy use, the DEIS disregards significant concerns about the capacity of the regional transmission organization, PJM, to meet the Project's increased energy needs and the impacts this additional demand would have on reliability and consumer prices. The DEIS recognizes that the capacity of the current transmission infrastructure to handle the power demands of the SCMAGLEV is a "more critical constraint," and that the Washington, D.C.-Baltimore corridor is among the most congested in PJM. DEIS at 4.19-12. Congestion occurs when available, least-cost energy cannot be delivered to all loads because transmission facilities are not adequate to deliver that energy to one or more areas, and higher cost units in the constrained area(s) must be dispatched to meet the load. The DEIS presents a graphic showing the average day-ahead congestion costs during the first three months of 2020 in the region as one of the highest in PJM, at \$2 million dollars (which included a decrease caused by milder weather and demand reductions due to COVID-19). *Id.* Yet the DEIS postpones any analysis of this issue, including the necessary studies to determine whether sufficient transmission capability exists and an examination of necessary upgrades, cost responsibilities, and price impacts, as well as consideration of adverse impacts and their mitigation, until some future time, presumably after a final EIS is released and a decision is made on the Project. DEIS at 4.19-13 to 14. This strategy violates the requirement under NEPA for the DEIS to provide a full and fair discussion of all significant impacts from a proposed federal action.

2. Construction

The DEIS estimates that construction of the Project will consume six trillion Btus for the completion of "tunnel boring, worker transportation, and construction trucking", along with some unknown amount of additional energy consumption to "operate equipment, power lighting and cool working areas, among other uses" that the DEIS omits, claiming that the data is not available. DEIS at 4.19-14. Based on the estimate used in the DEIS for energy consumption from operations, this amount of energy would be enough to power 177,800 homes, an energy expenditure significant enough in itself to support the no-build option.

It is also unclear if the DEIS means construction will consume six trillion Btus of electricity total or per year; the written text suggests the figure is a total amount but the tables suggest that it is an annual number, possible for up to eight years or longer. DEIS at 4.19-14 to 15, Table 4.19-8 (estimating "Total Annual Energy Consumption" for boring machines at 4,915,327 million Btus), Table 4.19-9 (estimating "Total Annual Energy Consumption" for worker transportation at 319,537 million Btus), Table 4.19-10 (estimating "Total Annual Energy Consumption" for construction trucking at 798,912 million Btus); DEIS App. G7 at PDF pgs. 63-64 (Construction Planning Memorandum describing construction duration of just under eight years). Either the text

at 4.19-11. An EIS should not present a contradictory and inaccurate evaluation of a project's impacts.

or the tables are incorrect or misleading, which violates NEPA. Six trillion Btus in total is already significant; six trillion Btus per year for eight years is overwhelming.

The DEIS also ignores how the regional transmission organization, PJM, will be able to meet construction energy needs, as well as the impacts this additional burden on the system would have on reliability and consumer prices. As explained above, it is unlawful for FRA to postpone this analysis with respect to the operational energy needs of the Project. For the same reasons, it is unlawful for the FRA to postpone this analysis with respect to the construction energy needs of the Project, which might be even higher. The DEIS states that “[m]uch of the construction-related energy needs will be met with gas or diesel rather than electricity from the grid.” DEIS at 4.19-15. But this vague statement does not satisfy NEPA’s requirement to provide a hard look at all the effects of a proposed action, and it violates the prohibition against postponing analysis of such effects to the last possible moment. The DEIS has quantified dollar value benefits from much of the Project, DEIS at 4.6-1 to 2 (PDF pp. 253-54), and it must also do so with respect to the impacts of the increased energy demanded from the grid.⁴⁸

F. The Evaluation in the DEIS of Air Quality Impacts is Vague, Contradictory, and Omits Significant Sources of Emissions

Washington, D.C., Prince George’s County, Montgomery County, Anne Arundel County, Baltimore County, and Baltimore City are all in moderate or marginal attainment of the 2008 and 2015 8-hour Ozone National Ambient Air Quality Standards (NAAQS). Additionally, all the areas are in maintenance status for the revoked 1997 PM_{2.5} NAAQS. Further, Anne Arundel and Baltimore Counties are in nonattainment for the 2010 Sulfur Dioxide NAAQS. Citizens in these areas are already breathing in unsafe levels of pollution and it is therefore even more essential to properly evaluate any project that would increase regional air emissions. Similarly, citizens throughout the region and the world are already suffering from the impacts of climate change. Federal courts consistently have held that NEPA requires agencies to disclose and consider climate impacts in their reviews. *See, e.g., Ctr. for Biological Diversity v. Nat’l Highway Traffic Safety Admin.*, 538 F.3d 1172 (9th Cir. 2008); *WildEarth Guardians v. BLM*, 8 F. Supp. 3d 17 (D.D.C. 2014). The discussion of air quality impacts in the DEIS fails to meet FRA’s NEPA obligations. The DEIS and its appendices present contradictory and unclear information about what air quality impacts were considered and ignore significant sources of emissions altogether. When these impacts are more closely examined, it becomes quite clear that the SCMAGLEV would exacerbate poor regional air quality and climate change, causing significant human health and environmental harms, and should not move forward.

⁴⁸ In addition, the assertion that construction-related energy needs will be met with gas or diesel is contradicted elsewhere in the DEIS, which says that for tunnel boring machines (TBMs), which are probably the most significant energy consumers during construction, standby generators are anticipated to be used *only* under power outage conditions. DEIS at 4-16.6.

1. The Project Would Increase Greenhouse Gas Emissions Yet the DEIS Contains False and Misleading Statements Regarding This Impact

First, the DEIS suggests that the only GHG emissions analysis the FRA performed was a Project-level mesoscale analysis for mobile sources in the roadway network within a quarter mile of the Project. DEIS at 4.16-11; DEIS App. D.9 at D.9-22. The DEIS finds these emissions would increase, but only by a small percent. Without explanation, the DEIS states that the reduction in regional vehicle miles traveled resulting from the SCMAGLEV would likely result in GHG emission reductions on a regional scale, and it also states that because the SCMAGLEV would operate entirely on electricity, it would not increase GHG emissions. *Id.* Immediately afterwards, however, the DEIS states that the SCMAGLEV would result in an increase in power consumption in the region and acknowledges that an increase in GHG emissions from power plants would likely occur. *Id.* The entirety of the GHG discussion in the DEIS seems designed to confuse the public.⁴⁹

The Air Quality Technical Report only furthers this confusion:

The indirect emissions as a result of the Proposed Action could be associated with energy consumptions related in production of grid power, material production and maintenance; and vehicle operations within the SMAGLEV [sic] Project Affected Environment within the Project Study Area as depicted in Figure 2.1-3. Given the uncertainty of fuel and facility source model types, the emissions associated with energy producing from indirect sources cannot be practicably estimated at this early planning stage. Moreover, because of above air permitting regulations such as PSD applicable to major source GHG emissions, these indirect GHG emissions and their impacts to climate change would be regulated under separate air regulations such as NSR and/or PSD program applicable to specific major stationary sources as discussed above. Therefore, per the CEQ guidance, FRA determined that the energy consumption related indirect GHG emissions from various potential affected stationary facilities such as power plants cannot be practicably estimated and included in the EIS. Nonetheless they would be quantified in future through more rigorous air permitting programs applicable to the affected facilities as warranted.

DEIS App. D.9 at D.9-21 to 22. This discussion clearly does not meet the NEPA requirements to describe the impacts of a proposed action so that the agency may take a hard look at its consequences, nor does this discussion provide full and accurate information to the public for its review and comment. For this reason alone, the DEIS and the accompanying Air Quality Technical Report must be redone.

There are in addition many other flaws in the FRA's GHG analysis. For example:

⁴⁹ Further, the Socioeconomic Environment Technical Report flips back the other way and states: "In addition, the reduction of overall regional vehicle miles traveled (VMT) as compared to the No Build Alternative, FRA concluded that the SCMAGLEV Project would likely result in GHG emissions reduction on a regional scale with no negative effects on climate change." DEIS App. D.3 at D-95.

- As discussed below, in the Economic Impact Analysis Appendix, the FRA estimates some of the GHG emissions that would result from the generation of electricity needed to power the SCMAGLEV. Although flaws in that analysis lead to an undercounting of GHG emissions, it nevertheless clearly shows that the SCMAGLEV would increase GHG emissions. The DEIS and accompanying Air Quality Technical Report should not have hidden this conclusion from the public by suggesting there is too much uncertainty or that future permitting will quantify these emissions. *See* DEIS App. D.9 at D.9-21 to 22. Nor should the Socioeconomic Environmental Technical Report appendix have baselessly contradicted this conclusion.
- The statements in the DEIS that the SCMAGLEV would not result in an increase in GHG emissions are plainly incorrect, both from a commonsense perspective and based on the GHG analysis hidden in the Economic Impact Analysis Appendix. Nevertheless, BWRR, the Project Sponsor, has been telling the public that the Project “produces no emissions” and will result in a decrease of two million tons of GHG emissions from the reduction of car travel, even after average air emission factors for electricity generation in Maryland from fossil fuel sources are taken into account.⁵⁰ The Maryland Department of Transportation (MDOT), a Joint Lead Agency for this Project, and Maryland Department of the Environment, a participating agency for this Project, also recently made suggestions similar to those made by BWRR in a final Greenhouse Gas Reduction Plan required by Maryland Law.⁵¹ The DEIS is not fulfilling either of its fundamental purposes, namely, allowing the FRA to accurately examine the impacts of the Project and providing the public with accurate information for its consideration and comment, when it hides the true impacts of the Project and allows the Project Sponsor, Joint Lead Agency, and Participating Agency to publicly misrepresent those impacts.
- It is improper for the DEIS to rely on flawed CEQ Draft Guidance to justify its failure to quantify GHG emissions. DEIS at 4.16-2, App. D.9 at D.9-20 to 22. The Draft Guidance, dated June 26, 2019, was proposed but never finalized and has since been withdrawn.⁵² That withdrawal directs agencies to “consider all available tools and resources in assessing GHG emissions and climate change effects of their proposed actions, including, as

⁵⁰ Northeast Maglev, Project Facts (2021), <https://northeastmaglev.com/environmental-benefits/#1527779921966-69b2b5e1-beed>; *see also* Direct Testimony of Wayne L. Rogers, Chairman and CEO of Northeast Maglev and BWRR, before the Public Service Commission of Maryland, In re Application of Baltimore Washington Rapid Rail, LLC for Transfer of Abandoned Railroad Franchise, No. 9363, at 19 (“The Project is estimated to reduce greenhouse gas emissions by more than 2 million short tons.”).

⁵¹ Maryland Department of the Environment, Greenhouse Gas Emissions Reduction Act 2030 GGRA Plan, at 99 & App. J at 20 (Feb. 19, 2021) (listing GHG reductions from High-Speed Rail/SCMAGLEV).

⁵² National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions, 86 Fed. Reg. 10,252 (Feb. 19, 2021).

appropriate and relevant, the 2016 GHG Guidance.”⁵³ FRA must use all appropriate and relevant guidance, including the 2016 Guidance, to analyze and quantify the GHG emissions from the SCMAGLEV.

- It is also improper for the FRA to rely on future air permits to quantify GHG emissions, rather than performing that analysis in the DEIS for the Project. As made clear by court decisions, “the existence of permit requirements overseen by another federal agency or state permitting authority cannot substitute for a proper NEPA analysis.” *Sierra Club v. FERC*, 867 F.3d 1357, 1375 (D.C. Cir. 2017). “A non-NEPA document . . . cannot satisfy a federal agency’s obligations under NEPA.” *S. Fork Band Council of W. Shoshone of Nev.*, 588 F.3d at 726.

2. The DEIS Presents a Blatantly Misleading Cost Benefit Analysis for the Project by Ignoring and Downplaying Likely Increases in Harmful Air Emissions

While the DEIS Air Quality chapter and appendix disclaim the ability to quantify air emissions, the Economic Resources chapter in fact presents a cost-benefit analysis of the likely air emissions from the Project:

Net emissions savings would amount to \$1.8 million in 2030 and \$2.0 million in 2045 if Cherry Hill Station is selected; or, \$2.1 million in 2030 and \$2.3 million in 2045 if Camden Yards Station is selected. This calculation compares the emissions associated with production of electricity to run the SCMAGLEV and the emissions created by vehicles that are removed from corridors roads when travelers divert to SCMAGLEV.

DEIS at 4.6-4 (PDF p. 256) (emphasis added). It is surprising that this analysis states a benefit in the form of an emissions savings from the SCMAGLEV, given the substantial energy needs discussed above. Upon further review, however, it becomes clear that this calculation is incorrect and skewed towards finding benefits and minimizing costs.

Other than the sentence quoted above, the DEIS does not explain the basis for these estimates either within the Economic Resources chapter or the Air Quality chapter. As a result, there is no way for the public to understand them and judge their accuracy without digging through numerous appendices, which are not even referenced in the DEIS in connection with this statement. This opaqueness further suggests that the DEIS was written to hide information from the public, in direct contradiction of the FRA’s NEPA obligations. “When the public reviews an EIS to assess the environmental harms a project will cause and weighs them against the benefits of that project, the public should not be required to parse the agency’s statements to determine how an area will be impacted, and particularly to determine which portions of the agency’s analysis

⁵³ *Id.* (citing Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews, 81 Fed. Reg. 51,866 (Aug. 5, 2016)).

rely on accurate and up-to-date information, and which portions are no longer relevant.” *League of Wilderness Defs./Blue Mountains Biodiversity Project*, 752 F.3d at 761.

Moreover, delving into the Economics Impact Analysis Appendix reveals that the estimates are not adequately explained even there, but instead are fundamentally flawed and biased in favor of the Project. To arrive at an emissions benefit, the Appendix subtracts SCMAGLEV emission costs from auto and bus emissions savings (based on projected decreases in auto and bus ridership). DEIS App. D.4 at D-53. The Appendix first considers the auto and bus emission savings from reduced CO, NO_x, PM_{2.5}, VOC, and CO₂ emissions based on an estimated reduction in vehicle miles traveled, but as explained above these estimates are significantly flawed. Without explanation, the Appendix uses emissions rates from U.S. EPA’s Motor Vehicle Emission Simulator (MOVES) 2010a and cites to August 2013 Federal Transit Administration Guidance, yet there have been multiple updates to the MOVES model since 2010a that account for increases in fuel efficiency and electric vehicles. DEIS App. D.4 at D-49. The DEIS itself uses the MOVES2014b model to estimate emission factors for criteria pollutants and GHGs at the mesoscale level.⁵⁴ DEIS at 4.16-5, 4.16-9. Reliance on this outdated information results in higher estimates of auto and bus emissions and therefore higher emission savings from the SCMAGLEV.

The Economics Impact Analysis Appendix considers the SCMAGLEV air emissions but its analysis contains significant flaws and unexplained assumptions. The Appendix excludes air emissions from construction, which as discussed above will be significant (the emissions associated with six trillion Btus from the grid or diesel generators, construction trucks, and more, likely for eight years). The Appendix also looks at emission rates only for electricity generated within Washington, D.C. and Maryland, DEIS App. D.4 at D-51, even though the DEIS recognizes that interstate flows account for 69% and 17% of D.C.’s and Maryland’s electricity consumption, DEIS at 4.19-5, and therefore emission rates should include nearby states in the PJM regional transmission organization. The Appendix also ignores the emissions from the production, transport, and storage of the fossil fuels to generate the electricity, including the significant methane emissions associated with natural gas, which makes up a significant portion of D.C.’s and Maryland’s electricity fuel source.

The analysis also considers air emissions costs from SCMAGLEV GHG emissions only, and ignores CO, NO_x, PM_{2.5}, VOC, SO₂, and other emissions that, in stark contrast, were calculated and monetized when the FRA analyzed the Project’s benefits.⁵⁵ It is improper for an

⁵⁴ The FRA recently used MOVES 2014b emission factors to estimate emissions avoided from car travel with a high-speed rail project. Dallas to Houston High-Speed Rail EIS – Appendix E, Air Quality Technical Memorandum and Construction Emissions Air Quality Analysis, at 53-54.

⁵⁵ The FRA cannot claim that it is too uncertain to estimate emissions from criteria pollutants generated by the power needed to run the SCMaglev. The FRA recently used emission factors based on the power grid’s blend of generation sources to estimate emissions from a proposed high-speed electric train operational power consumption in Texas for NO_x, SO₂, VOC, CO, and PM₁₀. Dallas to Houston High-Speed Rail EIS – Appendix E, Air Quality Technical Memorandum and Construction Emissions Air Quality Analysis, at 44-50 (May 2020). The FRA participated in a DEIS that did the same for criteria pollutant emissions (VOC, CO, NO_x, SO₂, PM₁₀, and PM_{2.5}) from proposed high-speed electric rail operation in California. San Francisco to San Jose Project

agency to place its thumb on the scale by inflating the benefits of a proposed action while minimizing its impacts. *See, e.g., WildEarth Guardians v. Zinke*, No. CV 17-80-BLG-SPW-TJC, 2019 WL 2404860, at *11 (D. Mont. Feb. 11, 2019) (“Because OSM quantified the benefits of the proposed action, it must also quantify the associated costs or offer non-arbitrary reasons for its decision not to.”), *report and recommendation adopted sub nom. WildEarth Guardians v. Bernhardt*, No. CV 17-80-BLG-SPW, 2021 WL 363955 (D. Mont. Feb. 3, 2021).

In quantifying the cost of the *only* SCMAGLEV air pollutant considered (CO₂), the Economics Impact Analysis Appendix also arbitrarily uses an extremely low emissions cost of \$1 per metric ton of CO₂ in 2030 and \$2 per metric ton in 2045, thus minimizing the emissions costs of the SCMAGLEV. The Appendix cites to a January 2020 Benefit-Cost Analysis Guidance for Discretionary Grant Programs, which notes that these values were constructed by considering only the domestic damages caused by carbon’s contribution to climate change, using a 7% discount rate. DEIS App. D.4 at D-50, Table D.4-39. That Guidance is based on a now rescinded interim cost of carbon developed during the Trump administration. The Appendix does not explain its choice of \$1 and \$2 per metric ton and there does not appear to be any viable justification for it. The Appendix does not address the Interagency Working Group’s (IWG’s)⁵⁶ 2016 Social Cost of Carbon, which explained that the social cost of carbon per metric ton using a 3% discount rate is \$50 in 2030 and \$64 in 2045 in 2007 dollars.⁵⁷ The IWG’s work “represents the best available science on this issue” and “[f]ederal agencies have relied on the IWG’s valuation of the impacts of greenhouse gas emissions in rulemaking since 2009, and courts have upheld this approach.” *California v. Bernhardt*, 472 F. Supp. 3d 573, 609 (N.D. Cal. 2020) (citing *Zero Zone, Inc. v. U.S. Dep’t of Energy*, 832 F.3d 654, 678-79 (7th Cir. 2016)).

A court has already found the Trump administration’s interim cost of methane, which relies on the same domestic and discount rate methodology as the interim cost of carbon used by the FRA, to be “riddled with flaws,” including that it underestimated the domestic effects, making it unlawful even if it were permissible to consider only domestic impacts. *California*, 472 F. Supp. 3d at 613. Moreover, the court explained that “focusing solely on domestic effects has been soundly rejected by economists as improper and unsupported by science.” *Id.*; *cf. Ctr. for*

Section, Draft Environmental Impact Report/Environmental Impact Statement, at 3.3-19, Appendix 3.3-A: Air Quality and Greenhouse Gases Technical Report, at 6-3, 7-5 (July 2020). Unlike the SCMaglev, the quantifications for these other high-speed electric rail projects show overall air emission benefits, even after accounting for the electricity emissions.

⁵⁶ The IWG was founded under the Administration of George W. Bush and was comprised of members from the Council of Economic Advisors, Council on Environmental Quality, Department of Agriculture, Department of Commerce, Department of Energy, Department of the Interior, Department of Transportation, Department of Treasury, Environmental Protection Agency, National Economic Council, Office of Management and Budget, and the Office of Science and Technology Policy.

⁵⁷ Technical Support Document: -Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis -Under Executive Order 12866, IWG, at 4 (Aug. 2016), https://www.epa.gov/sites/production/files/2016-12/documents/sc_co2_tsd_august_2016.pdf.

Biological Diversity v. Nat'l Highway Traffic Safety Admin., 538 F.3d 1172, 1200 (9th Cir. 2008). The FRA should not have utilized such an unjustifiably low cost of carbon, nor should it have hidden it in an Appendix.

Further, the IWG recently issued an updated interim estimate of the social cost of carbon which uses values drawn from three discount rates (2.5 percent, 3 percent, and 5 percent), all below 7%. Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990 (Feb. 2021), at 4-5.

Table ES-1: Social Cost of CO₂, 2020 – 2050 (in 2020 dollars per metric ton of CO₂)³

Emissions Year	Discount Rate and Statistic			
	5% Average	3% Average	2.5% Average	3% 95 th Percentile
2020	14	51	76	152
2025	17	56	83	169
2030	19	62	89	187
2035	22	67	96	206
2040	25	73	103	225
2045	28	79	110	242
2050	32	85	116	260

Moreover, the U.S. Department of Transportation has revised its Benefit-Cost Analysis Guidance Discretionary Grant Programs, and now recommends using a 3% discount rate and thus a value of \$61 per metric ton of CO₂ in 2030 and \$78 per metric ton in 2045, in 2019 dollars. Benefit-Cost Analysis Guidance for Discretionary Grant Programs, U.S. Dep't of Transp., at 34 (Feb. 2021). At a minimum, if the FRA decides to go forward with a consideration of the Project, it should use these or other updated values that are scientifically justifiable and provide a new analysis to the public for comment.⁵⁸ If the FRA does so, its analysis will reveal that, even ignoring the many other flaws discussed above, the cost of GHG emissions from only the generation of electricity needed to power the SCMAGLEV would be around \$28 million in 2030 and \$36 million in 2045. Those values are well above the estimated adjusted benefits of around \$10 to \$16 million, without even accounting for the cost of non-GHG pollutants.

To provide a somewhat less misleading picture, one could add the costs of just the PM_{2.5} emissions using an emission factor such as .0481 lb/MWh.⁵⁹ The SCMAGLEV's energy consumption would cause 30.3 short tons of PM_{2.5} emissions per year. Using the incorrect monetized values in the Economics Impact Analysis Appendix D.4, \$387,300 per short ton, that results in an additional yearly cost of almost \$12 million. Using the updated Benefit-Cost Analysis Guidance Discretionary Grant Programs value (\$852,700 per metric ton), that results in over

⁵⁸ The FRA must also use the updated values for the other pollutants. *Id.*

⁵⁹ EPA Draft White Paper, Estimating Particulate Matter Emissions for eGRID, at 8 (July 2020), https://www.epa.gov/sites/production/files/2020-07/documents/draft_egrid_pm_white_paper_7-20-20.pdf.

\$23 million in additional yearly costs.⁶⁰ These are significant costs that, along with others, represent increased human health harms and mortality, and they were completely ignored in the DEIS in a manner that hid the omission from the public.

3. The Remaining Air Quality Discussions in the DEIS are Insufficient Under the Clean Air Act and NEPA

Another issue is raised by the Air Quality Technical Report, which presents mesoscale operational emissions of VOC, NO_x, and SO₂ for 2027 and 2045, finding they are below the general conformity rule de minimis threshold. DEIS App. D.9 at D.9-52 Table D.9-12. It is not clear what these emissions are based on; they are not from the electricity needed to power the SCMAGLEV.⁶¹ The Technical Report lists the source as “AECOM, July 2020” but that document has not been provided with the DEIS, precluding meaningful comment.

Also, the DEIS largely ignores the air emissions from construction. The DEIS merely states that “The proposed construction activities are not anticipated to occur at an individual local site over five years and, therefore, potential air quality impacts from construction activities are considered temporary and a quantitative air quality hot spot analysis is not warranted.” DEIS at 4.16-12. The DEIS bases this assumption on the Project Sponsor’s construction schedule. *Id.* at 4.16-5. The FRA should not, however, uncritically rely on the Project Sponsor but must independently verify information. According to the Construction Planning Memorandum, the Camden Yards station requires demolishing: Federal Reserve Bank (partial), Old Otterbein Church (historic), Convention Center (partial), Bank of America (full), US Courthouse (full), along with construction of an underground station that does not match the existing street grid. DEIS App. G7 at PDF pp. 102-03. It is unrealistic that all this work will be completed within five years. That same memo shows station and TMF construction lasting longer than five years, including two of the three proposed TMF locations in BARC, next to Greenbelt. *Id.* at PDF p. 63. During the construction period, moreover, trucks transporting heavy materials will be constantly coming and going to those sites, following the same routes. Although the DEIS claims that construction activities at a TMF will likely not have measurable continuing impacts to a specific neighborhood for more than five years, no independent support is provided for this claim. On the contrary, it appears that a hot spot analysis is needed.

Regardless of whether a hot spot analysis is required, NEPA still requires the FRA to take a hard look at the environmental impacts of the Project, which include the air emissions associated with construction. But the FRA excludes from its construction analysis the emissions from the estimated 6 trillion Btus (total or per year) discussed above. It is clear that even short-term exposure to air pollution harms human health. *See, e.g., Xu Gao, et al., Short-Term Air Pollution, Cognitive Performance and Nonsteroidal Anti-Inflammatory Drug Use in the Veterans Affairs*

⁶⁰ Note that for a like comparison, the value from the PM_{2.5} emissions reduced estimate would also be adjusted.

⁶¹ Using just the Maryland state output emission rate from eGRID2018 and the Cherry Hill Station, more than 289 tons of SO₂ will be emitted from that electric power generation, compared to the .07 tons estimated in the table.

Normative Aging Study, 1 Nature Aging 430-37 (2021), <https://www.nature.com/articles/s43587-021-00060-4>. These emissions and their associated health and environmental effects are reasonably foreseeable environmental impacts of the Project and must be considered. As discussed above, there are simple and reliable ways to estimate air emissions and their costs. With respect to the mesoscale impact from construction manpower and equipment activities, moreover, the “FRA predicted construction period nonattainment pollutant emissions associated with each project component and then evenly distributed them over the respective construction schedule on an annual basis.” DEIS at 4.16-12. That methodology does not reflect reality and contradicts the FRA’s claim that the impacts will not last over the course of the construction schedule, a claim made, incidentally, in order to avoid the need to perform a hot spot analysis.

The FRA also failed to consider the air impacts, and in particular the GHG impacts, associated with the manufacture, transport, and use of the concrete and other energy-intensive materials needed to construct the SCMAGLEV. The FRA has reasonable estimates of the quantities of materials needed and emission factors are available to quantify air quality impacts from the use of these materials. Similarly, the DEIS says that the Build Alternatives will use metal coils but provides no further discussion of this issue. In order to achieve the required superconductive properties, the Project Sponsor will need to use rare earth metals (such as niobium-titanium alloy). The DEIS does not address the environmental impacts, including air quality impacts, from the mining, processing, and transport of the necessary metals.

Lastly, the DEIS fails to evaluate the dust (including PM_{2.5}) that will be emitted by construction activities, transportation of equipment and spoils, and the high-speed travel of the SCMAGLEV which will spread settled dust during the Project’s operation. These are particularly concerning to Greenbelt given the proximity of the construction, haul routes, and tunnel portal to the City.

G. The DEIS Fails to Take a Hard Look at How Geotechnical and Geological Aspects of the Project and the Surrounding Area Will Impact Design, Construction, and Safety

1. SCMAGLEV Project Infrastructure Background

The FRA proposes the construction and operation of the SCMAGLEV, a high-speed train system capable of traveling at speeds of over 300 miles per hour that runs on a fixed guideway powered by magnetic forces.⁶² Once the SCMAGLEV is in operation, it is stated that the trains will be in service 365 days per year between the hours of 5:00 a.m. and 11:00 p.m. The construction of such a system from Washington, D.C. to Baltimore is anticipated to take seven years.

The DEIS outlines two possible routes (referred to as alignments) for the SCMAGLEV system, shown in the introduction to these comments (Section I):

⁶² The SCMAGLEV would not run along a traditional railway but instead on a designated pathway that would consist of underground tunnels and elevated viaducts.

- J alignment: This proposed alignment is reported to consist of 25% viaducts and 75% tunnels.
- J1 alignment: This proposed alignment is reported to contain 14% viaducts and 86% tunnels.

Within the Greenbelt city limits, the Project appears to be a combination of what is referred to as deep tunnels (defined in the DEIS as having a separation between the top of the tunnel and the ground surface of more than 50 feet) and the transition zone, where the separation between ground surface and the tunnel becomes shallower. Within the limits of BARC, there is transition zone and then the majority of the Project appears to proceed through elevated viaducts. Within Greenbelt and BARC, both the J and J1 alignments are very close to each other and at times run parallel to each other.

The DEIS indicates that along the proposed alignments, maintenance and repair facilities associated with the train systems and the elevated viaducts, or guideways, would also need to be constructed (referred to as Trainset Maintenance Facilities/TMFs and Maintenance of Way facilities/MOW facilities, respectively). Each Build Alternative includes one TMF, which could be one of three locations adjacent to the alignment. The SCMAGLEV Project would include up to two MOW facilities depending on the Build Alternative. DEIS at 3-23. An MOW facility is associated with each TMF. The location of the MOW facility is determined by the TMF selected. DEIS 3-11. The three alternative locations for the TMF and associated MOW facility are:

- BARC West alternative (located within BARC's Central Farm, west of the Baltimore-Washington Parkway);
- BARC Airstrip alternative (located within BARC's East Farm, along the decommissioned airstrip within BARC); and
- MD 198 alternative (located outside of BARC and Greenbelt).

BWRR, the Project Sponsor, would design, construct, and operate the SCMAGLEV. The preferred configuration of the train system by the Project Sponsor is described in the DEIS as:

- J alignment;
- BARC West alternative for the TMF and associated MOW facility; and
- Termination of the train system at Cherry Hill south of I-95 close to Baltimore.

The DEIS explains that the Project Sponsor prefers this alternative because it would require shorter construction time, increase the ability to avoid and mitigate impacts, and lower construction and operating costs. DEIS at 3-40. Although BWRR's preferred alternative is discussed in the DEIS, the DEIS includes information regarding both J and J1 alignments. FRA does not indicate its preferred alternative in the DEIS.

The DEIS includes five chapters and seven appendices, and sub-appendices within appendices, that entail thousands of pages. Although the DEIS provides many details that would be expected from a comprehensive study of the Project, the FRA provides only superficial and incomplete geotechnical and geological information, fails to take a hard look at how site-specific geology and soil conditions would impact site design, construction, and safety, and fails to explain

how the proposed J1 and J alignments would be better than the other alignments previously considered if geotechnical risks are taken into account.

2. The DEIS Fails to Take a Hard Look at How Geotechnical and Geological Aspects of the Project Will Impact Design, Construction, and Safety

The DEIS contains the following sections related to geology and geotechnical engineering:

- Chapter 4, Section 4.13, Topography and geology;
- Chapter 4, Section 4.14, Soils and farmlands; and
- Appendix G13, Preliminary geotechnical engineering assessment report.

These sections include depictions of site-specific subsurface investigations (borings) at 23 locations along the roughly 40 miles of the Project; interpretation of continuous longitudinal subsurface sections along the profile where borings were performed (created by two different firms); general summaries of some laboratory index tests of soil samples obtained from the subsurface; literature review of the regional geology; and generic information regarding possible construction methods.

As discussed further below, the DEIS contains the following findings relating to the overall geology of the Project site for the entire distance between Washington D.C. and Baltimore:

- Index property tests indicate presence of at least three different soil types in the region and presence of bedrock. Literature review discussed in the DEIS indicates that the properties of these soils and bedrock as they relate to possible engineering properties may vary greatly from each other within the region;
- Water levels observed from the subsurface investigations confirm that most of the tunnel will be constructed in zones below groundwater;
- Geology, in terms of aquifer systems and consistency of the soil units throughout the region, is complex and may vary from one location to another; and
- Some soils in the region are susceptible to slope instabilities (landslides), erosion, and swelling and also may contain electrochemical and chemical properties that may pose a risk of corroding or otherwise weakening concrete and steel (materials likely to be used in construction of the Project).

Although the DEIS provides these general descriptions of the geology of the Project site, it fails to provide sufficient site-specific geotechnical data to support the proposed design, construction, and operation of the SCMAGLEV. Additionally, the DEIS does not explain how the proposed alignments and associated facilities have been evaluated in terms of the geological and geotechnical impacts that may create a risk for the infrastructure itself, humans, and the environment.

Every tunnel construction project involves some risk, however and the most important mitigation of risk is achieved by selecting the most suitable alignment. Since tunnels are underground structures, understanding the local geology where each alignment is located is of utmost importance. However, the DEIS fails to provide the geological and geotechnical

information pertaining to each alignment under consideration in sufficient detail to be able to compare the alternatives to each other, and indeed the FRA fails to provide any such evaluation. The FRA has also failed to provide sufficient geotechnical information to support the elimination of the other alignments that were considered in the Final Alternatives Report. As a result, the FRA is precluded from verifying and the public from commenting on the assumptions underlying the proposed tunnel and viaduct siting, alignment, design, and construction plans.

a. The DEIS Fails to Analyze the Geotechnical and Geological Risks Associated with Each Alignment Alternative

The FRA fails to explain or provide information to support the elimination of 14 different alignment alternatives and the consideration of only two nearly identical alignments (from a geological perspective). It is not clear how or even whether the FRA evaluated the geotechnical and geological risks for each of the 14 previously considered alignments during the evaluation of the alternatives.

The Final Alternative Report outlines these alternatives as follows:

Screening Level 1 began with FRA, MDOT and BWRR identifying 14 initial build alignments (Alignments A, B, C, D, E, E1, F, G, G1, H, I, I1, J, and J1) and 10 station zones (five in Baltimore: Harbor East, Inner Harbor, Port Covington, Westport-Cherry Hill, Penn Station; one at BWI Marshall Airport, and four in Washington, DC: Washington Union Station, NoMa-Gallaudet, Farragut Square, and Mount Vernon Square). All alignments included a connection with the BWI Marshall Airport. FRA and MDOT considered reasonable alignments that are practical or feasible from the technical, environmental, and constructability standpoint. Adverse environmental impacts of reasonable alignments can potentially be avoided or mitigated in the DEIS.

Final Alternatives Report at 7.

The Final Alternatives Report also provides the following reasons why some of these alignments were eliminated:

During the screening level 1 of alignments, FRA and MDOT dismissed alignments A, B, C, D, E, F, and I, as they did not meet the minimum radius for highest practical speed operation. FRA and MDOT advanced seven preliminary alignments, E1, G, G1, H, I1, J, and J1, to Screening Level 2. FRA and MDOT subsequently dismissed alignments E1, G, G1, H and I1 in Screening Level 2 based on a desktop level analysis for potential environmental impacts, human factors, and a construction feasibility analysis. FRA and MDOT retained alignments J and J1 (plus the No Build) for continued analysis in this Alternatives Report.

Final Alternatives Report at 7.

Although the FRA contends that proposed alignments A, B, C, D, E, F, and I were not viable due to their geometry, the FRA fails to explain why these alternatives could not have been adapted to make them viable. The FRA provides virtually no explanation or data to support the elimination of the other alignments; it simply makes the very general statement that they were dismissed due to “potential environmental impacts, human factors, and a construction feasibility analysis.” As for the remaining J and J1 alignments, the two are very similar. BWRR prefers the J alignment, explaining as follows:

BWRR has identified its preferred configuration; Build Alternative J, BARC West TMF, and Cherry Hill as the north terminus station (Build Alternatives J-03). BWRR favors this alternative for its shorter construction, ability to avoid and mitigate impacts, and lower construction and operating costs. BWRR believes Build Alternative J-03 will be the least impact and lowest cost to construct, operate, and maintain while also providing the earliest start to revenue service.

DEIS Executive Summary at ES-26 (emphasis added). However, no details are provided in the DEIS as to how alignment J (which includes Build Alternative J-03) would in fact “avoid and mitigate impacts” and result in “least impact” compared to the other alignments. The selection of an alignment should be based at least in part on geotechnical and geological information regarding the suitability of the alignment for tunneling, for the reasons explained above, yet the DEIS ignores these considerations in its discussion of the alternatives, including the two alignments identified for final consideration in the DEIS.

The information presented in the DEIS indicates that some of the eliminated alignments were located in areas with shallower depth to bedrock and would have allowed tunnels to be constructed through bedrock layers more easily. *See generally* DEIS 4.13-3 to 4.13-5; 4.13-8, 4.21-4, 4.21-8; DEIS Appx. G13 at PDF pp. 89-90, 93-94, 96, 98, 101, 104, 105, 135-159. Comparing the depths and locations in bedrock of various alignments would have allowed consideration of surface settlements, facing stability issues during tunneling, earthquakes, and similar factors when choosing between alternatives. Unfortunately, such discussions and evaluations are not provided in the DEIS, even though they are essential to minimizing adverse effects and risks associated with complex tunneling projects. Since the major risk factors, especially in the tunnel and tunnel portals and high fill areas proposed for BARC, are related to geological and geotechnical factors, it is not clear how the FRA could have narrowed down the Project to the two proposed alignments. Moreover, this analysis cannot be postponed until the design process, as indicated in the DEIS, because the design process will be conducted after the NEPA process has concluded, when consideration of different alternatives is no longer possible. The FRA must at a minimum provide a reasoned explanation for narrowing the alignments to the two considered in the DEIS and provide supporting data to explain how it came to this conclusion. It would violate NEPA for the FRA simply to adopt BWRR’s preferred alternative as its own without such an evaluation and explanation.

Moreover, despite the lack of geotechnical data in the DEIS in general, including the lack of local geological information and geotechnical properties, the generic geotechnical and geological information provided for the J and J1 alignments indicates that there is little difference

between the two. In terms of geology and geotechnical conditions, these two alignments do not appear to be sufficiently different from each other to be considered as true alternative alignments.

b. The DEIS Fails to Take a Hard Look at How Site-Specific Geological and Geotechnical Factors Support the Suitability of Project Alignments J and J1

Considering that (i) the proposed maglev technology would be the first to be constructed in the U.S., (ii) the extent of the tunneling in this Project appears to be longer than any past tunnel project in the U.S., and (iii) the geology within the region is complex and includes the presence of high groundwater elevations, it was all the more important for the DEIS to provide enough site-specific geotechnical and geological details to help the FRA and the public assess the suitability of the two proposed alignments and the proposed locations of the TMFs and MOW facilities.⁶³ Site-specific geotechnical and geological assessments are critical to assess safety concerns, such as those associated with the location and construction of the tunnels, unintended frac-outs during construction, differential settlements during construction or operation, slope instabilities, and long-term potential effects of vibration within the tunnels. The DEIS provides generic information on these issues, primarily based on a review of the literature, but that is all. Even the information provided regarding the findings from the 23 soil borings is based on very simple and limited index soil laboratory tests (and not even the SPT blow counts are included in the DEIS).

Even when some site-specific information exists, such as from the subsurface investigations that were conducted along the J and J1 alignments, there are gaps in the information provided in the DEIS regarding geological and geotechnical factors. Out of the 23 soil borings discussed in the DEIS, no borings were taken on BARC, and only one was taken within Greenbelt city limits (along Route 193), with another two taken nearby. All three of these borings are to the south (before the tunnel would daylight at ground level).⁶⁴ Based on the limited information provided by this preliminary geotechnical assessment, there is a layer of low plastic clay and silt zones near the area where the tunnel will daylight. Additionally, in all three of these areas, the groundwater is not far from the surface of the ground. No boring logs from the subsurface exploration were provided. Without such data, it is not possible to confirm the accuracy of the

⁶³ The term “site-specific” is used here to mean an assessment of the actual conditions of the local geology, in particular regarding the engineering properties of the soil and rock units as well as groundwater conditions in the field, along with the location of the proposed alignment and associated infrastructures and how such an assessment would affect the selection of various Project alternatives.

⁶⁴ Appendix G2 shows soil borings in locations different from the locations indicated in Appendix G13, Figure 1. Compare DEIS App. G2 at PP-07, 13, 18, 21, 26, 29, 37, and DEIS App. G13, Figure 1 (“Plan view of boreholes from the Preliminary Ground Investigation Program”). It is unclear why the boring locations in Appendix G2 are inconsistent with the locations indicated in Appendix G13, Figure 1. For example, G2 shows BWP-10 as being located next to the Eleanor Roosevelt High School but in G13, Figure 1, BWP-10 is shown as being located near the Patuxent Research Refuge. The FRA should resolve these location inconsistencies.

longitudinal sections provided in the DEIS (especially considering the limited number and extent of the laboratory tests of the subsurface strata within the project alignment).

The DEIS fails to address how site-specific geological and geotechnical factors might impact the Project itself and the surrounding built and natural environment if the Project is constructed along either of the two proposed alignments. As a result, there is no adequate explanation in the DEIS as to why the FRA has proposed the J and J1 alignments and certain Build Alternatives, and why it eliminated other possible alignments from consideration. The DEIS therefore also fails to present all reasonable alternatives to the public and fails to provide sufficient information to the public to enable meaningful public comment. We provide a non-exhaustive list of examples below:

1) The DEIS does not explain the decision to daylight the tunnel at the specific locations depicted in the DEIS. The DEIS also fails to provide an assessment of how the proposed tunnels might impact nearby residential areas. For example, the southern tunnel portal on the J alignment would be located approximately 75 feet from the northernmost residential buildings in Greenbelt's Greenbriar Condominiums (a 754-unit garden-style condominium community built in the early 1970s). The plans contained in Appendix G2 show the tunnel travelling under Greenbriar's residential buildings as close as 14 meters underground before daylighting on the community's property.⁶⁵ The DEIS notes that "residents would experience impacts due to vibration, as well as changes in visual quality with views of the portal and viaduct. In addition, portions of property that are currently a community garden and open space, would be required from the Greenbriar Condominium community to construct the tunnel portal." DEIS App. D.3 at D-96 to 97. It is unclear how or whether subsurface conditions were taken into account when the FRA proposed to daylight the tunnel in this area, and there is also no analysis in the DEIS of how the proposed J alignment tunnel would impact this residential community. Similarly, the DEIS fails to explain how either tunnel may impact this and nearby communities, some of which were built with central utilities that include significant lengths of underground piping maintained by individual homeowners' associations. Many of the communities within Greenbelt East and surrounding areas are constructed on unstable soils that are highly susceptible to ground movement. Excessive moisture, dryness, and vibrations can cause movements to the buildings, foundations, and underground piping and utility services. These movements have created many structural and underground service issues for the buildings in at least two Greenbelt East communities under which the tunnels would be built (Greenbriar Condominiums and Hunting Ridge) for years. Both communities already experience significant foundation and settling issues caused by ground movement and resulting in significant repair costs to fix broken utility pipes, impacted water infiltration systems, and cracking and bowing of structural walls, and geotechnical and geological analyses would be essential to determine the individual and cumulative impacts of tunneling under and daylighting the Project tunnel near these properties.

⁶⁵ Appendix G2 indicates that the unit of measure is "meters" (and therefore the tunnel would be located 14 *meters* under Greenbriar Condominium's northern-most building), but the text of the DEIS states: "The tunnel would be as close as 14 *feet* underground beneath buildings, and residents would experience impacts due to vibration, as well as changes in visual quality with views of the portal and viaduct." DEIS App D.3 at D-97. The FRA should address this discrepancy.

2) No geotechnical and geological evidence was used to assess how potential vibrations from SCMAGLEV train operations in the tunnel might influence soil properties in the long term. The information provided in the DEIS related to vibration is limited. As presented in Table D.10-7 of the DEIS, the FRA predicted corridor-wide vibration impact counts from train operations for the J alignment to be 359 and for J1 alignment to be 340. DEIS App. D at 10-17. The DEIS does not indicate whether these numbers apply to the elevated viaduct or tunnel portion of the alignments, or both. Table D.10-6 (Baseline Noise Monitoring Results) from Appendix D is provided in the DEIS to show the impacted locations along the tunnel even though the impact listed in Table D.10-7 is stated to be valid for both the tunnel and viaduct. DEIS App. D at 10-14. However, in section D.10.4.2.3, it is stated that “Most ground-borne vibration impacts are along tunnel sections of the alignment.” DEIS App. D at 10.4-20.

The DEIS states that a short-term construction effect analysis was conducted that found “maximum construction vibration levels that range from 0.012 in/sec PPV for FA/EE facilities excavation up to 0.121 in/sec for viaduct construction. Based on this preliminary assessment of potential vibration damage, the FRA predicted no exceedances of FRA Category I damage threshold (0.5 in/sec for typical timber structures) or the Category II damage threshold (0.5 in/sec for masonry buildings) for any of the Build Alternatives.” DEIS App. D at 10.4-23. For long term effects, the DEIS does not provide peak particle velocity (PPV) information but says further investigations need to be conducted to find a “suitable solution” since limited information is available regarding “the use of maglev or SCMAGLEV train service around the world.” DEIS App. D at 10.5-25.

The DEIS provides no details regarding how the impact study will be conducted to determine long-term effects. For the short-term, during construction it is stated in the DEIS that “FRA used the peak particle velocity (or PPV) vibration level to assess the potential for damage at residences and other sensitive receptors using the FTA vibration criteria.” DEIS App. D at 10-9. Considering that the FRA acknowledges that future research and investigation will be necessary to determine long-term effects, it is not clear whether or how these considerations affected the selection of the J and J1 alignments nor why the tunnel alignment is proposed to be in the soil and not within the bedrock. It is also possible that long-term vibrations could arise due not only to the movement of the train on the magnets but also to the acoustic waves, which could create vibrations inside the tunnel. Such aerodynamic vibrations could occur in the tunnel because of limited air volume and the high speed of the train. The DEIS does not address these concerns either, nor how such vibrations might affect the safety of the structures at the ground surface, and it may be too late to address them once construction begins.

Indeed, a recent 2020 peer-reviewed research article written by Niu et al., which focuses on the aerodynamics of railway train/tunnel systems, indicates that when there is pressure on the train there is also pressure on the tunnel liner.⁶⁶ As a result, there could be frequently applied vibrations on the tunnel liner and hence in the surrounding soil. These vibrations may cause additional porewater pressures in the soil surrounding the tunnel and may cause softening of the

⁶⁶ Niu J., Sui Y., Yu Q., Cao X., Yuan Y. (2020) “Aerodynamics of railway train/tunnel system: A review of recent research” *Journal of Energy and Built Environment*, Volume 1, pp. 351-75 (2020), doi.org/10.1016/j.enbenv.2020.03.003.

clays and loosening of the silts and sands, eventually causing long term settlements at ground level. If an alignment is selected without considering such details, future risks may become inevitable. Moreover, if the engineering soil properties are not known, as discussed above, a vibration analysis cannot be conducted. The FRA does not seem to have taken any of these details into account.

The DEIS mentions the so-called micro-pressure waves at the location where the train leaves the tunnel. The DEIS also mentions mitigation measures that may be used, including using flared tunnel portals shaped similarly to trumpets and perforated portal hoods to reduce aerodynamic effects, and installing specially designed noise mitigation hoods. DEIS at 4.17-11, 4.17-13, 4.17-18, 4.17-19, 4.21-8. Niu et al. (2020) describe the micro-pressure wave at the exit of the tunnel in more detail, as follows:

When pressure waves in tunnels reach the tunnel exit, one part of the compression wave is reflected back to the tunnel as an expansion wave or expansive wave, and the other part forms an impulse noise to scatter out of the tunnel, which is usually called a micro-pressure wave. The intensity of the impulse noise caused by the initial compression wave is the largest. The strength of the micro-pressure wave increases with train speed; the influence of speed on the micro-pressure wave is not obvious when the train speed is not high enough. But with the increasing speed, the effect of the micro-pressure wave began to be significant; it was first discovered in the full-scale online test of the 300 series Shinkansen train in the 1960s. Research has allowed to reduce this by constructing oblique tunnel portals, particularly the hat oblique tunnel portal combined with a buffer structure with top holes.

(emphasis added).

The portal design components mentioned in the DEIS may scatter the impulse noise created by the micro-pressure wave coming out of the tunnel, but the DEIS does not discuss whether these components will also address the compression wave reflected back to the tunnel as an expansion wave, which creates additional vibrations in the tunnel and surrounding soil. The DEIS also does not discuss the effects of the vibrations that can potentially develop within the tunnel (not just at the exit of the tunnel), as discussed in the article by Niu et al. (2020), and how these vibrations may affect the behavior of the surrounding soil. Since the surrounding soils will be either sand or clay, these vibrations may increase the porewater pressure, which may reduce the effective stresses, which may have severe adverse effects on the stability of the ground and consequences for the infrastructure on the ground surface. Once again, the FRA does not appear to have conducted analyses considering such probabilities and consequences before proposing a tunnel alignment that travels through soil rather than within bedrock.

The DEIS proposes an instrumentation plan that would be used to monitor soil displacements that might occur on the surface and within the tunnel structure due to settlement and vibration. The DEIS states that:

A surface settlement monitoring program will be implemented during construction and tunneling operations. A pre-construction survey of sensitive structures for existing cracks and damages will be conducted. Tolerance levels are established based on thresholds for buildings, roads, and other sensitive structures to ensure no

damage. This includes an Alert Notification System that notifies the responsible personnel when tolerances are exceeded. Instrumentation will likely include Borehole Extensometers, Inclometers, Tunneling Diameter Measure Device, Structure Monitoring Points, Ground Monitoring points, Utility Monitoring Points, Grid Crack Gauges, Tiltmeters, and Survey Instruments.

DEIS App. G7 at PDF p. 68.

The DEIS provides appropriate information regarding the monitoring program, but just because monitoring will be conducted after the fact does not mean the selection of the proposed alignments was reasonable. In fact, the DEIS states that:

Vibration control measures for the SCMAGLEV Project would require further research and investigation to find a suitable solution. Based on the limited information available on the use of maglev or SCMAGLEV train service around the world, experience with source-specific vibration control measures is very limited.

DEIS at 4.17-19. This statement acknowledges the need for further investigation. The DEIS claims that the proposed J and J1 alternatives are the best options for mitigation and avoiding problems, but no supporting data is provided related to vibration and settlement concerns to support this claim.

The high profile of this Project makes it all the more important for the FRA to conduct a careful and thorough consideration of all aspects of its construction and its overall impact on the communities in its path. As far as we know, no other project has been undertaken in the U.S. with such long tunnels within soil strata and below groundwater and densely occupied residential areas, and there is currently no SCMAGLEV system in commercial use for regional commuting anywhere in the world. At a minimum, if the FRA intends to continue with this Project it must address in a new DEIS all the concerns discussed in detail above, including an analysis of whether the Project is indeed feasible from a design, construction, and safety perspective and whether, if so and in light of these concerns and analyses, the appropriate alignment alternatives were selected.

3) No data from the site-specific subsurface explorations were presented in the DEIS to confirm the density or stiffness of the soil layers. It is not clear whether or how the density or stiffness of subsurface conditions was assessed and whether such information was considered when deciding on the locations for the proposed alignments. For example, as noted above, only three boreholes were drilled in or near Greenbelt and BARC. These boreholes are designated as BWP-21, BWP-06a, and BWP-06.⁶⁷ None are within the footprints of the proposed TMF and MOW facility locations. Appendix G13 of the DEIS provides two sets of longitudinal sections where the subsurface geology has been interpreted. One set was created by Gall Zeidler Consultants (GZC) and provided in Appendix C of Appendix G13 and the other set was created by Louis Berger (LB) and provided in Appendix D of Appendix G13.

⁶⁷ *Supra* note 64.

The two sets are compared below in Figure II.G.1. These sections show areas within Greenbelt and BARC (roughly Station 113+500 to Station 123+000).⁶⁸ Borings are shown between Stations 114+500 and 117+500.

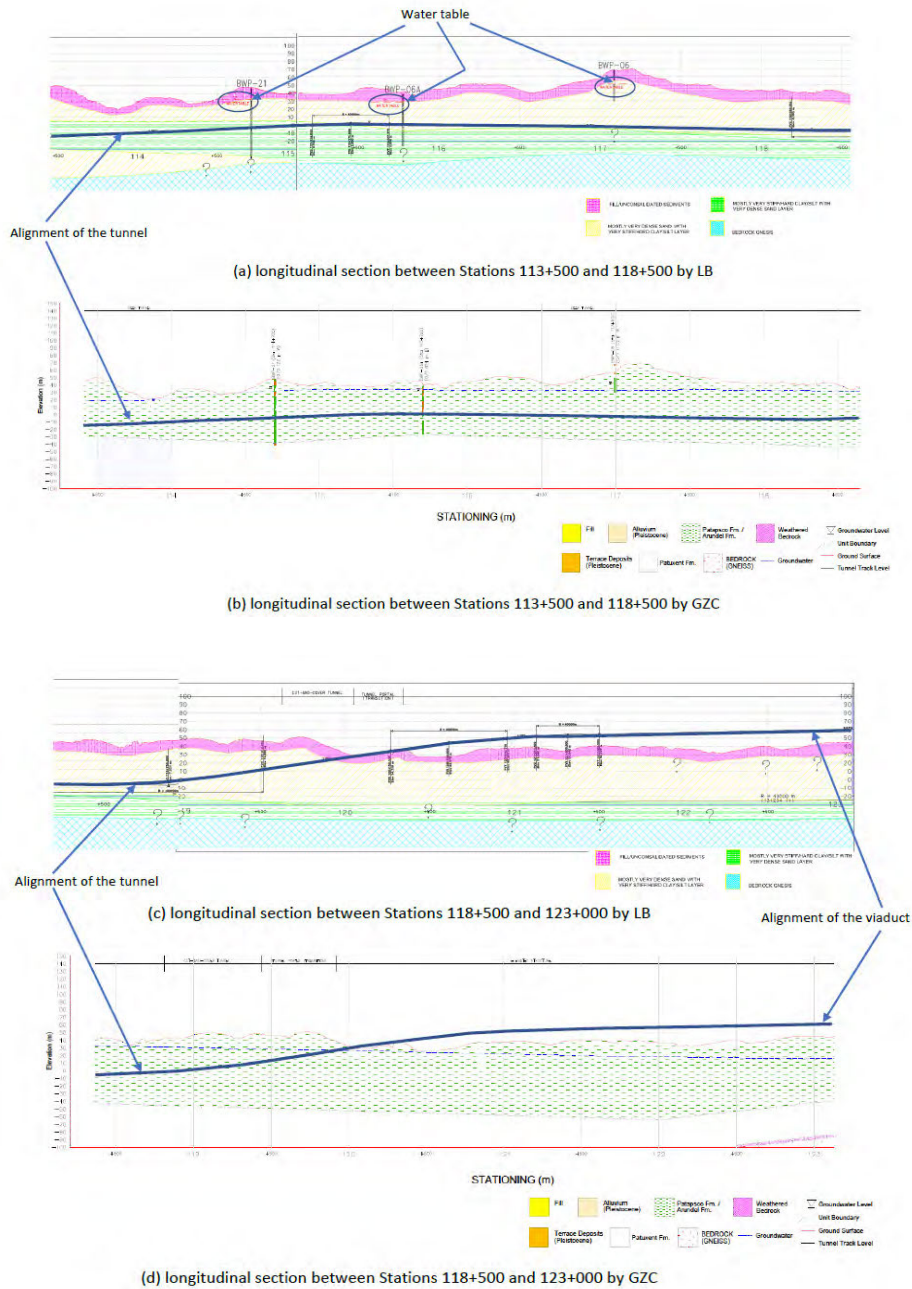


Figure II.G.1: Comparison of Longitudinal Sections by LB and GZC Along the Limits of the City and BARC

⁶⁸ In construction planning, “stationing” is used to measure linear projects, such as roads or rail lines. The term “Stations” is used in DEIS Appendix G to refer to certain locations along the alignments within the Project site (not to be confused with the term used to refer to train stations such as DC, Baltimore, etc.).

In the case of LB sections, the strata are divided from the ground surface downward as: (i) fill/unconsolidated sediments, (ii) mostly very dense sand with very stiff/hard clay/silt layer, and (iii) mostly very stiff/hard clay/silt with very dense sand layer. Such strata could presumably be observed from the BWP-21 and BWP-06a borings but the BWP-06 boring is not deep enough to confirm the entirety of the strata. Also, none of the three borings was deep enough to confirm the location of the bedrock, hence the GZC sections correctly do not show the presence of bedrock. Similarly, in the GZC sections, the information shown between Stations 117+500 and 123+000 is not confirmed by any nearby subsurface investigation presented in the DEIS.

In its preliminary design considerations, the DEIS describes the geology in the region near the J alignment at Station 112+950 through 119+450 (the proposed area along the J alignment from the FA/EE in Martins Woods to the southern tunnel portal) as follows:

The geology consists of unconsolidated fill and Cretaceous Potomac Group sediments. The Potomac group sediments are typically very stiff/hard clays/silts w/very stiff sands for the upper deposits (Patapsco Fm.) and very dense sands with very stiff/hard clay/silt layers of the Patuxent Fm. Tunneling will proceed through dense sands and silty sands of the Patapsco Fm. and Patuxent Fm., with the majority of the run within a clay-rich zone of the Patapsco Fm. The southern end of the run will be through a mixed face of the Patapsco Fm. and Patuxent Fm. sands/silty sands and fully within the Patapsco Fm., with hard to very hard lean clays (CL) and fat clays (CH) with lenses of sandy silts (ML), until reaching the portal. Both alignment alternatives will excavate within the groundwater table.

DEIS App. G13 at PDF p. 97.

This description may be accurate regarding the general characteristics of these types of sediments, but the conclusions regarding the precise soil characteristics in the area near the alignment are not supported by any information in the DEIS. Based on the information in the DEIS, it is not possible to confirm the density and stiffness of these soil layers. Also, the limited laboratory test results do not confirm the presence of fat clays (CH) in this area. Either there is additional information that has not been shared in the DEIS or the information provided in the above quote is very generic and based on information from existing literature, meaning that site-specific geological and geotechnical assessments were not conducted before selecting these alignments.

Further, in preliminary evaluations of cut and cover tunnel and portal foundation, the DEIS describes the geology of the region near the J alignment at Station 118+810 through 119+441 (the proposed area of the J alignment cut-and-cover tunnel) as follows:

The subgrade would consist of alternating layer of dense, very dense sand and very stiff-hard clay. A mat foundation would support the portal foundation. A mat can be designed using an allowable bearing capacity of 2.5 tsf (tons per square foot) and a coefficient of subgrade reaction of 130 pci (pounds cubic inch, using 12 in. by 12. plate) at or below El. +37 m (el. +120 ft). There would be a long-term settlement of less than 13 mm (0.5 in.). Groundwater would be encountered at the

foundation bottom elevation. Temporary groundwater pumping would be required. Long-term resistance to uplift forces is not likely required as the head would be about 9 m as the deadweight of the structure would resist uplift forces.

DEIS App. G13 at PDF p. 108.

Considering that no subsurface data was obtained from the borings within these Stations (which corresponds to the tunnel transition zone), it is impossible to confirm the information provided above. With no consolidation test result presented in the DEIS from the field samples, it is at best unclear how the FRA can make conclusions regarding a settlement estimate. Also, if temporary groundwater pumping would be required, from which geological strata would this water be pumped and how will the pumping of water not potentially cause settlement of more than 13 mm (0.5 in.)? No settlement calculations were provided in the DEIS to support this conclusion. The FRA should provide a complete set of calculations to support this finding, including relevant soil conditions, elastic consolidation data, and secondary settlement calculations. Additionally, no information is provided regarding the timeline for the proposed temporary groundwater pumping. The DEIS acknowledges that this area is very close to an existing residential area. However, the DEIS fails to assess and provide site-specific geotechnical and geological information to determine the subsurface conditions and the potential major implications of the J alignment on this residential area.

Also in the preliminary evaluations of cut and cover tunnel and portal foundation, the DEIS describes the geology of the region near the J alignment at Station 119+441 through 119+950 (the proposed area of the J alignment tunnel portal) as:

Similar subgrade to [the section covered by Stations 118+810 thru 119+441] but is less dense. The subgrade would need to be over-excavated 1.0 m, and exposed surface as well as excavated soils would be re-placed in maximum 0.2 m lifts and each lift be compacted to 95 percent of the soils modified proctor density as observed in ASTM D 1557. A mat foundation can be designed using an allowable bearing capacity of 1.5 tsf and a coefficient of subgrade reaction of 100 pci (using 12 in. by 12 in. plate) at or below El. +46 m (El. +150 ft).

DEIS App. G13 at PDF p. 108.

The DEIS indicates that no boreholes were taken within these Stations, and it is unclear how foundation design considerations were determined for this specific area. Either there is information available that was not provided in the DEIS or the above information is drawn entirely from general literature reviews and may not relate to this Project or this location. Finally, no description of the geological condition is provided for the area from Station 119+950 through 123+000 for the J alignment. This area is proposed to be the location for the foundations of elevated viaducts, yet the DEIS fails to explain whether or how the FRA assessed the suitability of this area, in terms of geological and geotechnical factors, for this structural purpose. Additionally, no geotechnical or geological details are provided regarding how the drilled shaft capacity analyses for the viaducts were performed and in what specific locations along the alignment these analyses are valid.

Similar issues exist with the geological information provided in the DEIS for alignment J1. *See, e.g.*, DEIS App. G13 at PDF pp. 98 to 101, 107, 109 to 110.

4) No engineering property evaluations (for example, pertaining to consolidation, shear strength, hydraulic conductivity, and pore pressure dissipation) from site specific samples of the soil and rock were provided in the DEIS. It is not clear how alignments could have been selected without such site-specific evaluations, especially considering that assessments of stability, settlement, and other effects from tunneling, including earthquakes, would require them.

5) No site-specific assessments of porewater pressure build-up and dissipation under the ground and of consolidation coefficient values (vertical and horizontal directions) are provided in the DEIS. Lack of such information limits the validity of any assessments as to whether tunneling activities will impact the foundations of existing above-ground structures. The DEIS refers to long-term settlement, bearing capacity, and coefficient of subgrade reaction values, but it does not explain how such information can be presented without providing or relying on soil boring test results that assess the engineering properties of the soils along the proposed alignments. In addition, no assessment could have been made of the suitability of geological conditions for the portion of the proposed alignment traveling through Greenbelt and BARC without information on the consistency and density of subsurface soils. Once again, either the FRA is relying on data not provided in the DEIS or it is relying on unverified and unsupported assumptions and conclusions provided by the Project Sponsor based on the superficial data presented in the DEIS and/or on the general literature, which may not accurately reflect site-specific conditions.

6) Although the water table observed during boring operations was noted in the DEIS, the remainder of the water table information and description of the groundwater regime does not appear to be supported by field investigations. Furthermore, the DEIS identifies the potential risks associated with high groundwater conditions, which appear to be present along the alignment, *see* Figure II.G.2 below, but does not discuss how the depths of the tunnels, locations of the tunnel portals, and other proposed infrastructure have been chosen for the Project in light of these conditions.

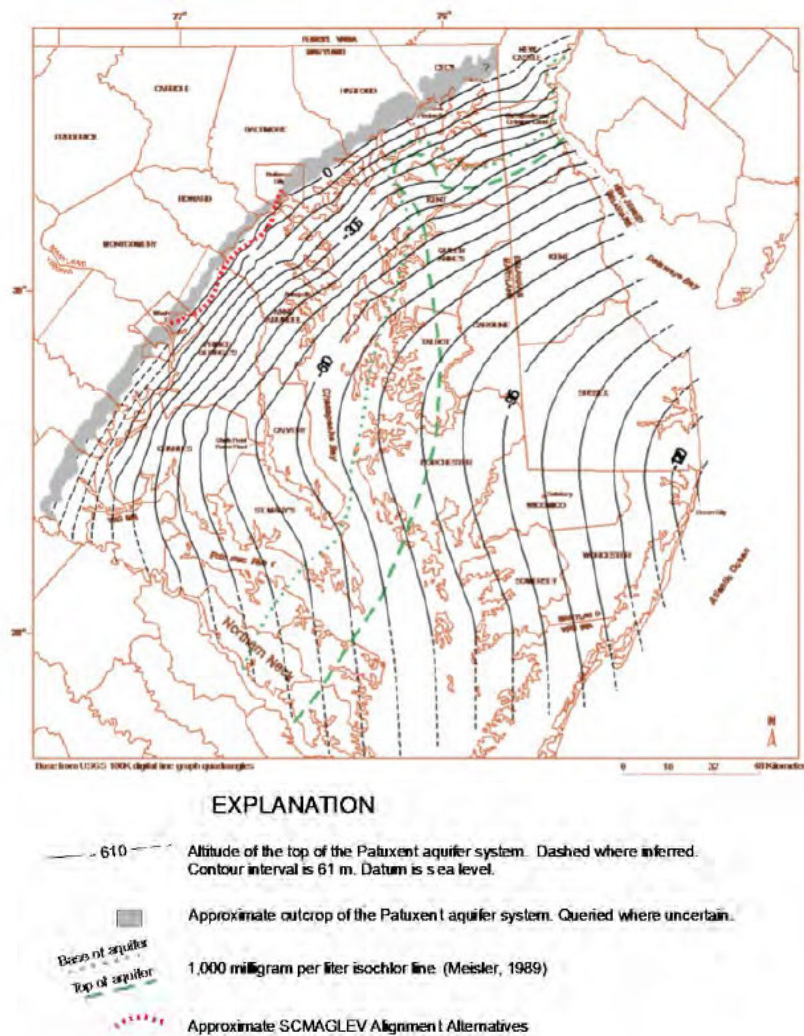


Figure II.G.2: Patuxent Aquifer system and SCMAGLEV Alignment

Considering that shallow groundwater conditions could impact the stability of the tunnel, TMFs, and MOW facilities, it also is not clear why the location of the alignments was not adjusted to be in zones where the groundwater is much deeper so that the tunnel and the transition portals could be constructed above groundwater level. Such an adjustment could eliminate some of the concerns regarding stability. The groundwater contours in Figure II.G.2 show that groundwater gets shallower within Greenbelt and BARC and also moving northward (outside BARC) along the approximate SCMAGLEV alignments.

DEIS Appendix G13 states:

This Geotechnical Synopsis Report (GSR) summarizes the anticipated subsurface conditions during construction of the underground stations in Washington, D.C. and BWI Airport, the bored tunnels and cross-passages (if required), cut-and-cover

tunnels, ventilation shafts, portal structures, viaduct structures, and the above-ground Baltimore Station. This report is intended to provide a general overview of soil/site conditions with the limited information collected during the preliminary ground investigation program. . . . The next phase of ground investigation, which will be far more extensive, will provide the testing data required for detailed design by the Design-Build (DB) contractors.

DEIS App. G13 at PDF p. 84.

This statement indicates that the majority of the geotechnical and geological assessments provided in the DEIS rely solely on the existing literature, instead of on site-specific investigations. Considering the magnitude of the Project and its potential impact on a densely populated region, it was especially incumbent on the FRA to ensure that groundwater levels were explored sufficiently to determine the best alignment alternatives. It is already recognized that the area has high groundwater and complex geology. The FRA therefore should have required a much more detailed investigation to assess the suitability of the proposed alignments and their associated facilities. Instead, the FRA postpones this investigation to some later, undefined, date and indeed abnegates its responsibility entirely by placing the burden on BWRR to address what are likely to be complex and perhaps insoluble problems when they arise, which they are bound to do:

Impacts to groundwater resources could occur during construction from dewatering during excavations for tunnels... [and] could affect groundwater quantity and flows. Due to the regionally high-water table, activities such as tunneling, and underground station construction would take place just above or within the identified aquifers. Dewatering could result in a depression of the cone of groundwater and possibly result in a loss of aquifer recharge capacity to nearby WHPA supply wells and surface water bodies. Nearby supply wells located at similar depths as the construction would be especially vulnerable. . . . FRA would identify more precisely if supply wells would be at similar depths as proposed tunnel and underground stations. The Project Sponsor will need to provide effective groundwater control through construction techniques such as either pumping the groundwater out to control flow and pressure or using barriers to keep the groundwater out of tunneling operations. The construction contractor would need to comply with USEPA's dewatering requirements, as well as state requirements for treatment and metering of pumped groundwater. . . . The Project Sponsor will develop a Waste Management Plan and/or Spill Prevention Plan that addresses measures to avoid and minimize, and mitigate if necessary, the threat of contamination.

DEIS App. D.7 at D.7-66 to 67.

The FRA has failed to provide enough information to explain how the alignments were narrowed down to J and J1 in light of these groundwater considerations. The DEIS does not provide this information and puts the responsibility for what are likely to be future problems involving groundwater on the Project Sponsor. The DEIS also does not explain why the FRA did not choose alignment locations where the groundwater might be much deeper.

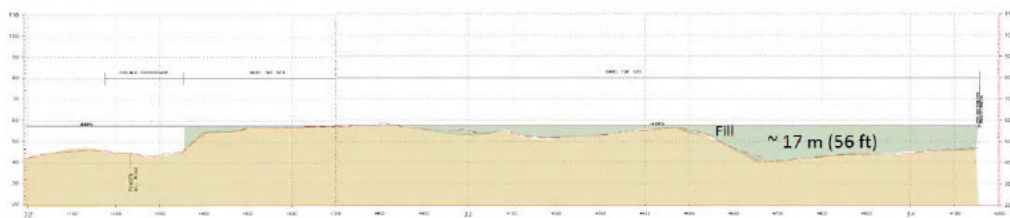
7) The DEIS indicates that the proposed alignments are in an area where the bedrock is deep in the ground. No data in the vicinity of Greenbelt and BARC are provided to confirm the depth to bedrock (competent ground), and no comparison of a tunnel constructed within the bedrock to one within soil strata was presented. Considering that the shallower the depth of the tunnel, the more likely the impact to the ground surface, geotechnical and geological assessments should have been considered in determining the depth of the tunnels. No design information or technical discussions are provided in the DEIS to explain why the FRA decided to construct the proposed tunnel within soil strata as opposed to bedrock. The FRA should provide information to support this decision. For example, if it would be faster, cheaper, or easier to tunnel within the soil strata instead of bedrock, and if that was the reason for proposing to tunnel in the soil strata, this information should be presented in the DEIS and contrasted with the safety risks and other concerns discussed above.

8) No geotechnical or geological discussions were provided to explain why the TMFs and MOW facilities must be constructed above ground (and why an alternative could not be considered at an underground location). There are areas within the proposed footprints of the TMF alternatives where it appears that relatively high fill may be placed. It is not clear whether stability analyses were considered to confirm the suitability of these high fills in these potentially high-risk landslide areas, according to the DEIS at 4.13-7 (All TMF options “have the potential to encounter landslide prone soils and acid producing soils.”). If these fill areas will be constructed with side slopes, it is not clear how much of the area would be impacted by the extent of these slopes. Therefore, it should be clarified in the DEIS whether these factors were considered in determining the outlined LOD to avoid the potential for any additional loss of or impact to environmental features and habitat.

The DEIS includes detailed information regarding the proposed footprint of the TMF and MOW facilities. Most of the facilities will be constructed on a horizontal platform, by filling the ground, but the plans that are provided show only the upper surfaces of the platform. However, the slopes that may become necessary at the perimeter of the outlined area have not been discussed in the DEIS. If slopes will be used, a much larger area will need to be utilized. If instead of slopes, retaining structures will be used at the ends of the fills, a discussion is needed as to how such retaining structures will influence the stability of the slopes, and that is not provided in the DEIS. Details of geotechnical or geological assessments to confirm the suitability of the proposed TMF and MOW facility locations also are not provided in the DEIS. No site-specific geotechnical and geological data are presented to confirm the long-term stability of the area within the limits of these proposed facilities. *See* Figures II.G.3. and II.G.4. below.



*Figure II.G.3: Layout of BARC West TMF Option
(TMF Option 1 proposed in DEIS as Part of Alternatives J-03, J-06, J1-03, and J1-06)*



*Figure II.G.4: Drawing showing longitudinal section of the MOW facility and
TMF at BARC West alternative*

As an example, Figure II.G.4 shows the longitudinal section drawing for the BARC West TMF alternative (as it relates to Figure II.G.3). Shades have been added to this figure to provide clarity. The green shaded areas show the proposed fill over the surface ground and yellow shaded areas show the existing ground. Areas above the yellow shaded zone but below the red dash line indicate removal of ground surface. Figure II.G.4 indicates that the area designated for the BARC West

TMF option will be filled approximately 17 m (56 ft). However, there are no systematic cross-sections provided for the TMF in BARC West, so at some locations much higher fill may be needed. Also, no information could be found describing the extent of the cut or fill within the footprint of MOW facility alternatives. The access to BARC West would also require ramps over the BW Parkway under the J alternatives (J-03 and J-06). Under these alternatives, viaduct piers along the BW Parkway are proposed to be constructed within the median of the roadway.

9) It is unclear why the J alignment transition from deep tunnel to shallower tunnel was selected to occur close to a well-established residential area and how such consideration was justified based on geotechnical and geological information. See Figure II.G.5 and II.G.6 below (reproduced from the DEIS).

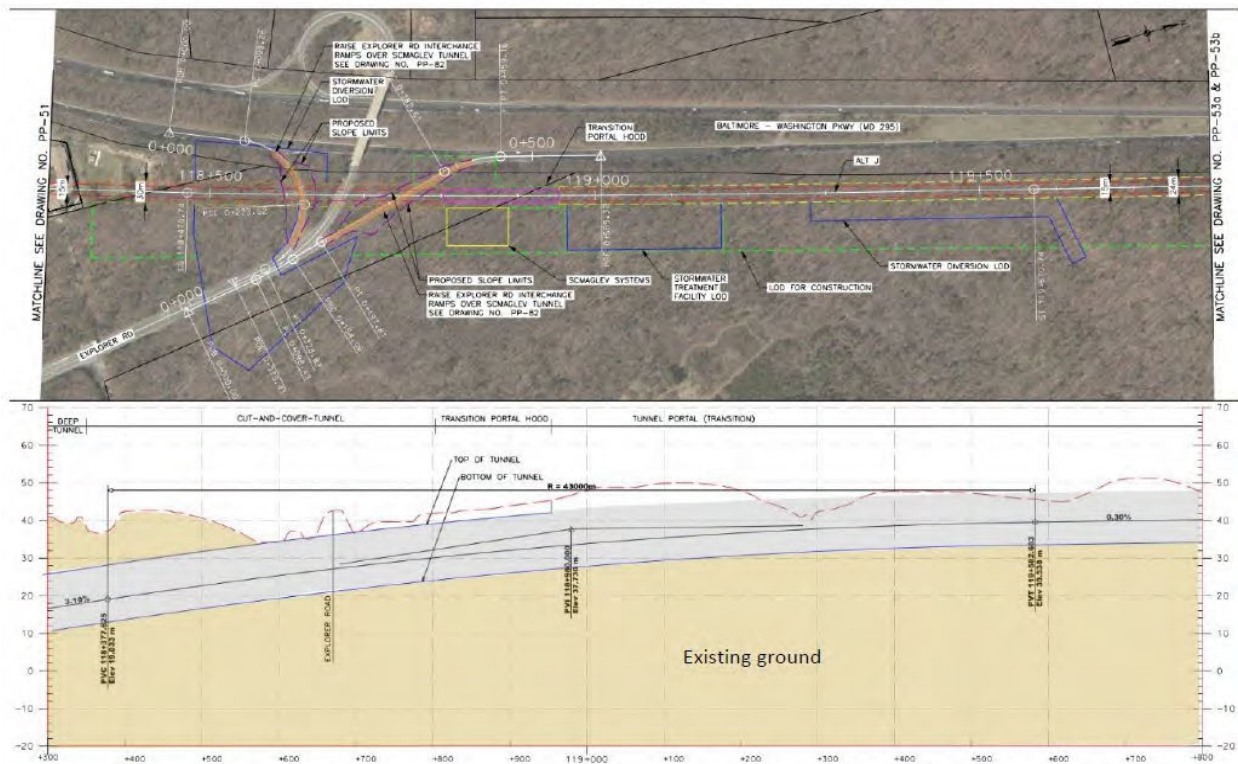


Figure II.G.5: J Tunnel alignment: longitudinal section 118+300 through 119+800

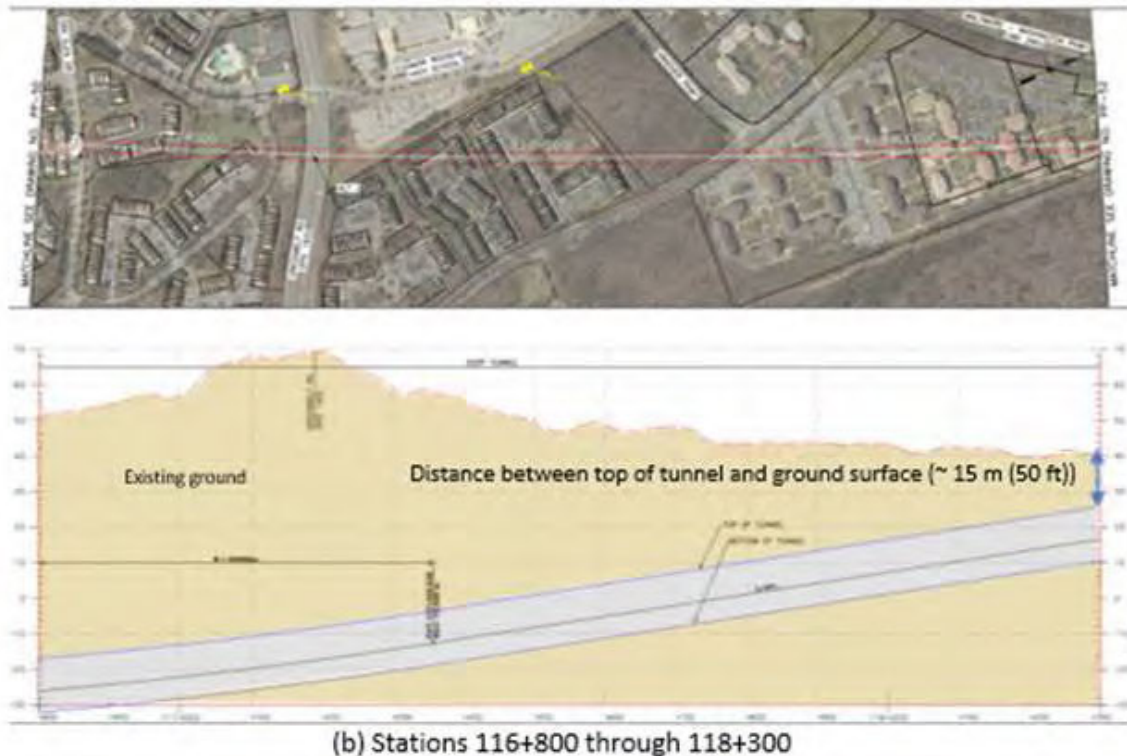


Figure II.G.6: J Tunnel alignment: longitudinal Stations 115+000 through 118+300

10) The J1 alignment tunnel construction details between Stations 118+200 through 119+800 are not clear. Although typical structural sections and details are provided in Appendix G2 for the cut-and-cover tunnel, open cut portal, tunnel portal before the abutment, abutment, etc., *see, e.g.*, DEIS App. G2, TY-04 to TY-08, the profile sheets provided in the DEIS do not cross-reference these details or otherwise specify whether and where along the alignment alternatives these details will be implemented. The information provided makes it clear that the SCMAGLEV will transition from deep tunnel to elevated viaduct, but the manner in which it is proposed to transition is unclear. It is unclear how the tunnel portal and transition will be constructed, where the guideways will transition from below-grade to above, and from above-grade retaining wall to a possible abutment (referenced in details but not shown on profiles) and the elevated viaducts. The DEIS also fails to provide this information for the TMF ramps (also called “TMF connections”) that would lead to either of the BARC TMF alternatives, which are located in the tunnel portal transition area. *See, e.g.*, DEIS App. G2, PP-13 to PP-14a to PP-15b.

11) No site-specific geotechnical and geological assessment is provided within the zones of transition from the tunnels to the viaduct system, including within the limits of Greenbelt, but this information is essential for evaluating risks associated with frac-outs. A frac-out is a term used to describe the release through a weakness in the local geology toward the surface of pressurized slurry used during tunnel boring.

12) No geotechnical or geological analyses have been provided as to the potential impacts to the safety of the proposed structures (tunnels in soil strata and maintenance and repair facilities in landslide-prone areas) due to seismic activities that may occur in the region. On the contrary, the DEIS virtually dismisses the fact that an earthquake could occur at a magnitude that would be problematic for facilities constructed underground and on potentially unstable ground surface. The DEIS states:

Based on a review of 2018 United States Geological Survey (USGS) National Seismic Hazard Maps (Peterson et al., 2018) and Earthquake Hazard Maps for Maryland (Reger, 1999), the study area is located in an area of the United States with a low probability of seismic activity. The USGS identifies the eastern United States as a “Stable Continental Region” (SCR) because of its location in the center of a tectonic plate. Based on this geologic setting, the potential for seismic hazards has been deemed as low. Maryland has experienced a number of earthquakes since 1990, all with magnitudes <3.0 which classify as minor (Maryland Geological Survey, 2010). This does not include earthquake epicenters located in surrounding states, which achieve magnitudes up to 5.8 (2011 Mineral, VA earthquake). The latest recorded earthquake in Maryland was recorded on November 11, 2017 and was classified as magnitude 1.5 (Intensity I).

DEIS App. G13 at PDF p. 92.

Although the DEIS briefly mentions the 2011 Virginia earthquake, it underestimates the risk it posed by stating that this earthquake took place not in Maryland but in a surrounding state. The fact that there was an earthquake of magnitude 5.8 in the near vicinity is an important fact that the FRA should have considered in connection with the Project. Although the epicenter of the 2011 Virginia earthquake was 100 miles from Washington, D.C., several buildings including the Washington Monument and the National Cathedral were severely shaken by it and the National Cathedral in particular sustained significant damage. Considering that Greenbelt is only about 20 miles from the D.C. area, this earthquake was much closer to the Project site than acknowledged in the DEIS. Detailed discussion of how such an earthquake could impact the SCMAGLEV during and after construction should have been included in the DEIS. The tectonic system that created the 2011 Virginia earthquake extends into the region where the SCMAGLEV is proposed, as the tectonic regime in the eastern U.S. involves compression of the Atlantic Coast region, presumably due to ridge-push from the Mid-Atlantic Ridge and/or the formation of the Appalachian Mountains.

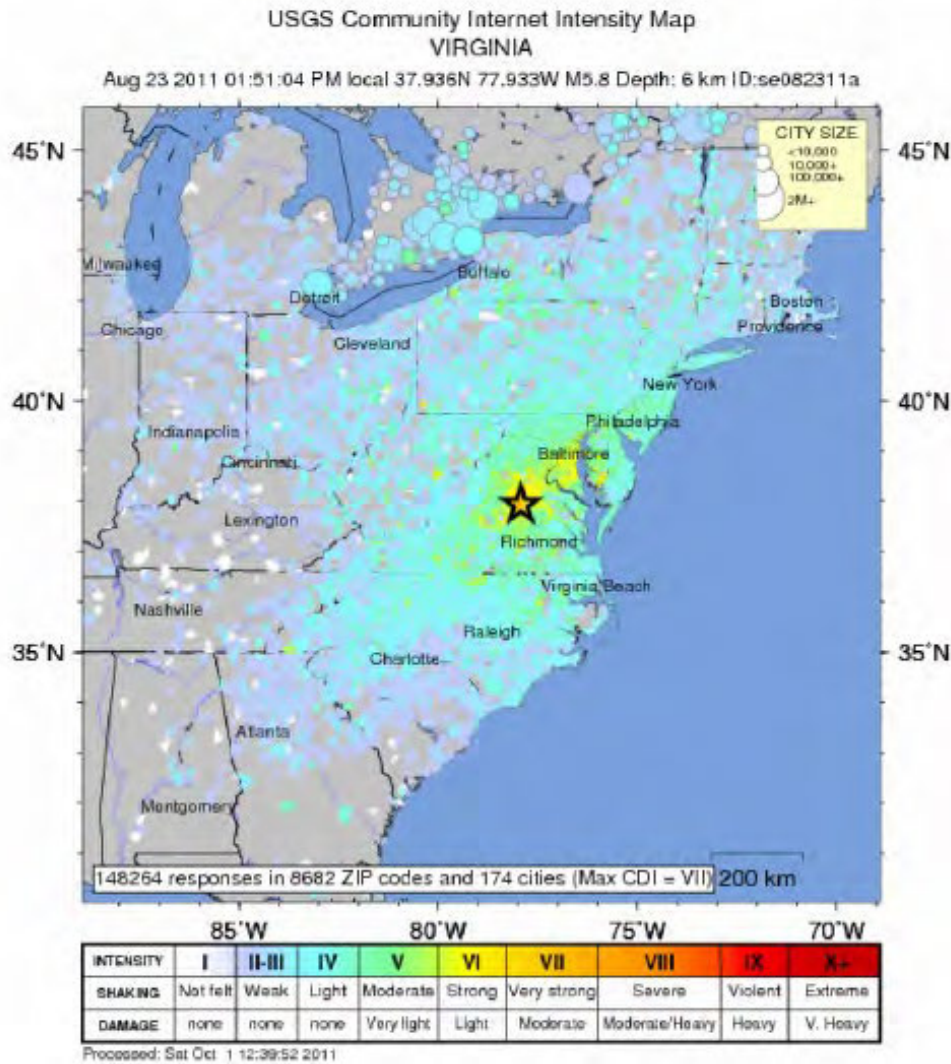


Figure II.G.7: Intensity Map Showing Affected Region of the 2011 Virginia

Another critical issue related to earthquakes is that the current guideway alignment passes through soil layers. In the presence of an earthquake, the soil layers could amplify the earthquake waves coming from the bedrock. From this perspective, the proposed alignment appears to be in an unfavorable location. As reflected in the literature, high frequency surface waves generated at the basin edge are of great interest in the field of engineering seismology. The Northridge earthquake (1994) and Kobe earthquake (1995) are recent reminders that soft sediments and basin edge have significant effects on surface wave generation and ground motion amplification.⁶⁹ A similar ground motion amplification could also be expected at the Project site, and since no site-specific information regarding the stiffness of the ground was provided in the DEIS based on in-

⁶⁹ Narayan J. P. “Study of Basin-edge Effects on the Ground Motion Characteristics Using 2.5-D Modelling” *Pure and Applied Geophysics*, 162(2):273-289 (February 2005), DOI: 10.1007/s00024-004-2600-8.

situ or laboratory results, there is nothing indicating otherwise. One of the reasons to consider such a possibility is the presence of bedrock underneath the proposed tunnel alignment. As can be seen from the bedrock map provided in DEIS Appendix G13 at PDF p. 89, there is bedrock underneath the soil strata and the elevation of the bedrock is shallower towards the west. Therefore, with the appropriate seismic activity, there is a chance for seismic waves to reflect from the bedrock and coincide with the seismic waves approaching from the soil strata, thereby increasing the magnitude of the damage significantly.

Based on what was observed in 2011, a severe soil amplification in the Coastal Plain sediments is a realistic risk but it is not addressed in any detail in the DEIS. The risk of earthquakes must be analyzed with a site-specific earthquake study. Such a study should at a minimum consider the local geology in terms of the potential both to create earthquakes and to amplify earthquake waves. Selecting an alignment without considering these risks, and expecting the Project designers to solve such problems in the undetermined future, is not the best choice.

13) No in-situ field assessments are provided around the BARC West option to confirm the suitability of the layout in regard to the abandoned mines in the area. Section 4.13 of the DEIS states:

Mines - Nine mining locations, identified as “past producers” are present within 300 feet of the SCMAGLEV Project LOD. The locations listed are locations where sand, gravel, and iron ore have historically been mined, including six iron ore and three sand/gravel mines. One mine located near the tunnel laydown area for the Camden Station also mined heavy metals. These mines are currently inactive, and the potential for modern mining of resources in these areas is limited due to land development and economic feasibility. Because details such as the extent and type of backfill at the former open quarries and the extent of mine reclamation activities is not available, additional coordination with state sources is necessary. Although sand and gravel mines in this area are typically mined from the surface, the type of iron ore mine can vary depending on the type of iron being mined. The acquisition and reclamation of abandoned mines may require coordination under the Maryland SMCRA.

DEIS at 4.13-5.

MDNR has a map that outlines the historic mines within Prince George’s County. An overlay of this information along the guideway and TMF options is provided below as Figure II.G.8.

Based on what is outlined by MDNR, there are several former iron ore operations in the vicinity of the TMF Option 1 (BARC West) along with abandoned or inactive sand and gravel, clay, sand ocher or marl operation. Similarly large abandoned or inactive sand and gravel, clay, sand ocher or marl mines (some of which have been reclaimed) exist along the J and J1 alignments.

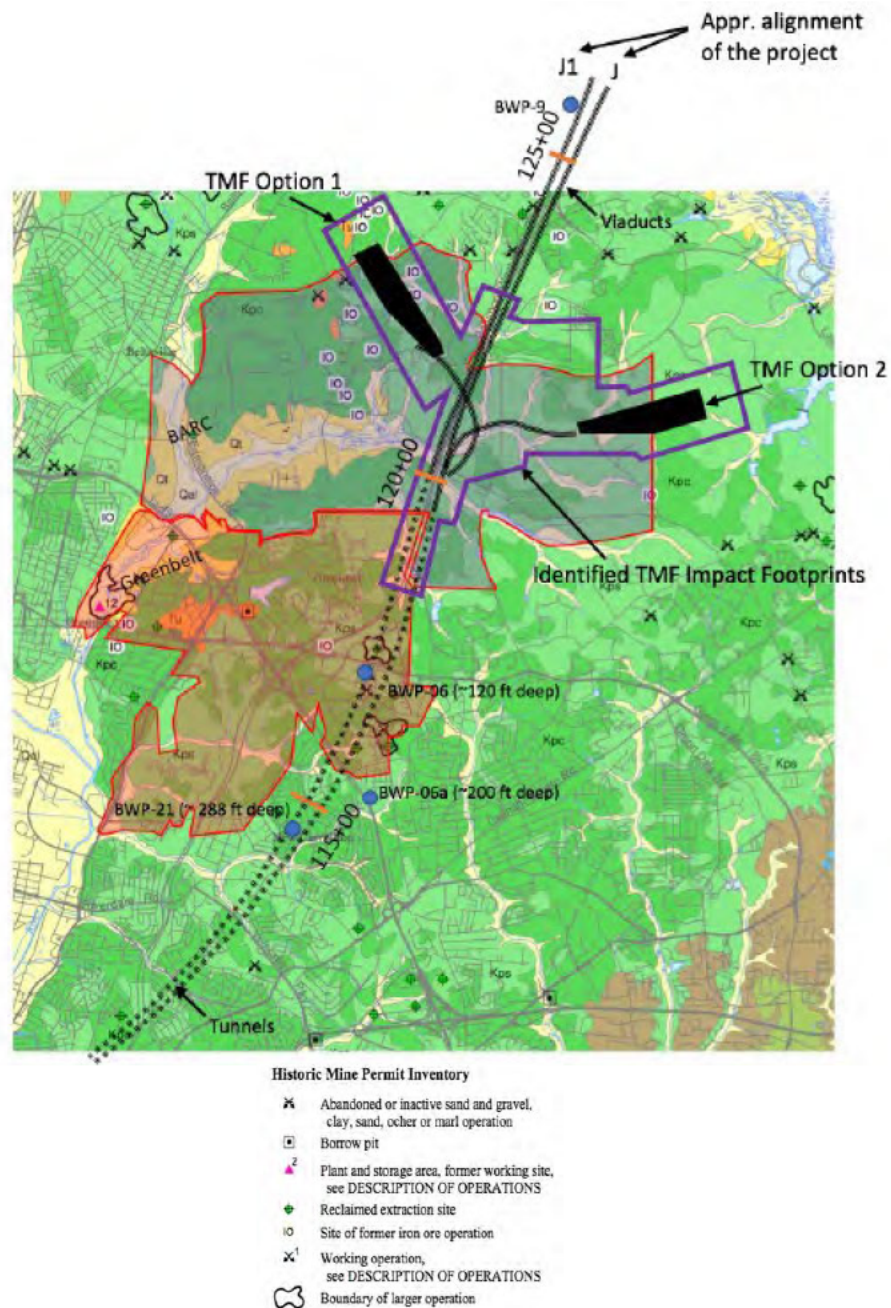


Figure II.G.8: Overlay of Historic Mining Along the Vicinity of the TMF and Alignments

An important aspect of the iron ore operation description by MDNR is the fact that the mining was done by open pit, gouging, and tunneling. However, based on the DEIS it does not

appear that, when selecting the J and J1 tunnel alignments and TMF BARC West and BARC Airstrip, an evaluation was conducted to confirm the method of the historic iron mining that took place nearby. The presence of old mines increases the likelihood of there being abandoned galleys, shafts, and similar cavities. As the tunnel construction advances, it may disturb the stability of such cavities and cause them to collapse. Similarly, due to the loads created by the fill used to construct the TMFs and MOW facilities, the possibility of a collapse may exist there as well. Additionally, if these abandoned mines were filled, the type of fill could be cause for concern as to differential settlements. However, the DEIS does not address the presence of these mines nor indicate that they were taken into account when the locations of the BARC TMF options were selected.

H. The DEIS Does Not Sufficiently Evaluate Impacts from Hazardous Materials and Solid Waste Used and Generated by the Project and Therefore Fails to Sufficiently Discuss Steps That Could be Taken to Mitigate These Impacts

The DEIS recognizes that the Project would involve the use of hazardous materials during construction and operation and would result in the generation of hazardous waste and other solid waste, including from construction, demolition, and land clearing activities. DEIS at 4.15-6. Nevertheless, the DEIS merely describes possible impacts from these activities in a qualitative fashion and fails to quantitatively evaluate these impacts. It is essential to have sufficient information about these impacts to understand the Project's environmental consequences and properly compare the Build Alternatives, the No Build Alternative, and the other unevaluated reasonable alternatives, and it runs directly counter to NEPA for the FRA to state that wastes will be generated, and that some will present a known risk to human health and the environment, yet provide no further information. *See id.*

In order to evaluate the environmental impacts of the Project, the FRA and the public must know what the Project Sponsor plans to do with the spoils that would be generated from tunneling and cutting through land. Greenbelt already knows that it would be harmed by the currently proposed haul routes. *See* Section II.J.2. However, the DEIS merely states it "would be disposed of pursuant to a coordinated plan developed during final design," and that the Project Sponsor will provide additional detail regarding estimated volumes and final transportation routes of spoil during continuing design. DEIS at 4.15-6. This is not the "hard look" required under NEPA. There would be 23+ million yards of spoils generated by the Project. DEIS at ES-16. There is no reason this impact cannot be meaningfully evaluated in the DEIS by the FRA at this point nor any reason why the FRA's evaluation of that impact cannot be provided to the public for review and comment. As explained in Section II.A.1, the need to engage in reasonable forecasting is implicit in NEPA in order to fulfill the Act's requirements to evaluate alternatives and provide an opportunity for public input.

The FRA also fails to evaluate information that already exists characterizing and addressing some of the hazardous materials issues likely to arise from the Build Alternatives; instead, it limits itself primarily to data from Environmental Data Resources, LLC (EDR) reports. With respect to the already identified hazardous waste sites that would be impacted, the DEIS states:

Although detailed information was available for sites on Federal properties listed in the EDR report (Fort Meade, PRR, and BARC), most of the site information used

in this analysis relied on EDR data and did not include more in-depth review of available file material. The EDR reports do not describe site conditions, only the regulatory status.

DEIS at 4.15-10. The FRA concedes that more information on environmental impacts is readily available, yet for some unexplained reason the agency did not evaluate this information or provide the results of its consideration to the public for comment. Although the FRA recommends that more detailed information be considered moving forward, *id.*, and Greenbelt agrees this is necessary, the FRA should have already performed this analysis and provided it to the public for comment with the DEIS.

The DEIS entirely ignores the landfill that exists under the Northway Fields, which was used up until the late 1960s/early 1970s. The DEIS also ignores the portions of the Northway Fields in Greenbelt that the Greenbelt Public Works Department uses as a storage area for bulk unconsolidated construction and landscape materials such as soil, asphalt millings, tree stumps and other debris. Greenbelt Public Works also uses these areas to compost mixed yard waste, which is freely available to community members for their collection and use. The J1 Build Alternatives would permanently disturb these areas, including with the proposed above ground but not yet elevated guideway and a proposed stormwater management facility, yet the DEIS does not consider any impacts from these disturbances.

The DEIS also does not evaluate the Project's impacts on the contaminated site TC Harmans Road LLC (Formerly: Kop-Flex Incorporated) in Hanover, Maryland. That site could be disturbed by a proposed nearby FA/EE site and all the Build Alternatives would tunnel under it. Sampling and analysis in 1996 and 1997 identified volatile organic compounds (VOCs) in the soil and groundwater at that site, including in the deep aquifer zone, attributed to the historic use of degreasing solvents and the on-site discharge of wastewater. The following VOCs were detected in this area at concentrations that exceed MCLs: 1,1,1-TCA, 1,1,2-TCA, PCE, TCE, 1,2-DCA, 1,1-DCE and vinyl chloride. VOCs were also detected nearby. Significant work has been performed to date and an Administrative Order on Consent entered September 30, 2016 requires the compliance with and maintenance of land and groundwater use restrictions, extraction and treatment of onsite groundwater, and long-term groundwater monitoring.⁷⁰ Several shallow and deep zone wells have been abandoned on- and off-site. Detailed information about this site is available online,⁷¹ yet the DEIS says nothing about the Project's impacts on the site and fails to consider how the contaminated site could impact the Project.

⁷⁰ Administrative Order on Consent, *In re Emersub 16, LLC*, No. RCRA-03-2016-0170 CA (Sept. 30, 2016), https://www.epa.gov/sites/production/files/2017-01/documents/kop-flex_adminorderonconsent.pdf.

I. ⁷¹ U.S. EPA, Hazardous Waste Cleanup: TC Harmans Road LLC (Formerly: Kop-Flex Incorporated) in Hanover, Maryland (Apr. 14, 2021), <https://www.epa.gov/hwcorrectiveaction/hazardous-waste-cleanup-kop-flex-inc-hanover-md>; WSP Emerson, Former Kop-Flex, Inc. Hanover, MD <http://www.formerkopflexhanovermd.com/> (visited May 16, 2021).

The DEIS also assumes that only sources of hazardous wastes within a quarter mile of the limits of disturbance need to be considered. *See* DEIS at 4.15-2.⁷² No reason is provided for the quarter mile cut off. There is virtually no attention paid to potential plumes of hazardous waste extending beyond the LOD, which could still be disturbed by the significant construction activities nearby (tunneling, viaduct, or otherwise) or could migrate within the LOD after a torrential rain event, which the region is experiencing more and more often with climate change; for example, there was a 6” plus rain event on Sept. 10, 2020, centered on Hyattsville.⁷³ Even pollutants not particularly soluble in water can migrate through soils during such events. The FRA should analyze hazardous material sites beyond a quarter mile of the LOD.

Beyond the inadequate identification and evaluation of solid and hazardous waste impacts in the DEIS, the FRA also fails to sufficiently consider mitigation. In the Public Health and Safety Section, the DEIS claims: “With the implementation of all appropriate hazardous material and waste management plans (e.g., Construction Contingency Plan and Hazardous Materials and Solid Waste Management Plan) and mitigation actions documented in Section 4.15 Hazardous Materials and Solid Waste, substantial impacts to workers and public health and safety from hazardous materials during construction activities or operations would be avoided.” DEIS at 4.21-7. Yet none of these plans are documented in Section 4.15. Instead, Section 4.15 states generally:

Prior to construction the Project Sponsor will prepare a Construction Management Plan which includes a Waste Management Plan (WMP) to address sampling analysis, characterization, handling, storing, transporting and disposing of hazardous waste and construction and demolition waste generated during construction and operation activities. The Waste Management Plan would specify that where practicable, uncontaminated construction and demolition waste would be diverted from landfills by reuse or recycling. The structures to be demolished as part of the SCMAGLEV Project would be inspected for the presence of asbestos-containing materials, PCBs or lead-based paint, and other hazardous building materials. This coordination would take place during preliminary engineering.

DEIS at 4.15-9. There is no way for the FRA to know at this point whether substantial impacts to workers and public health and safety would be avoided given that these plans and mitigation actions have not even been developed. The FRA should not mislead the public and play musical

⁷² It is not clear if the FRA even analyzed sites out to the quarter-mile buffer from the LOD or further narrowed the scope of its analysis to only those impacting vulnerable locations within a 500-foot radius of the LOD, which the next sentence suggests. *See* DEIS at 4.15-2. The FRA should clarify this question. To the extent the analysis was so constrained, it was all the more arbitrary and insufficient under NEPA.

⁷³ Jason Samenow and David Streit, *Torrential Rain Triggers Widespread Flooding in D.C. Area, Inundating Roads, Stranding Motorists, Up to 6 Inches of Rain Fell*, Washington Post (Sept. 10, 2020), <https://www.washingtonpost.com/weather/2020/09/10/dc-area-forecast-tropical-downpours-today-could-produce-areas-flooding/>.

chairs with information about safety and mitigation for potentially harmful solid and hazardous waste impacts of the Project.

Finally, the FRA's evaluation is insufficient even with respect to the sites that are identified in the DEIS. For the BARC 32 groundwater plume, for example, the DEIS merely says:

Coordination with USDA on the status of remedial investigations and remedial actions at BARC sites would be necessary to better understand the risks posed and liabilities that may be incurred by the SCMAGLEV Project. In particular, the consequences of siting facilities over the groundwater plume from BARC 32.

DEIS at 4.15-5. Similarly, with respect to the North Tract of the Patuxent Research Refuge, the DEIS merely states, “[f]urther coordination and survey of the UXO area would be required within this area prior to final design and implementation and plans for avoiding UXO within the areas of disturbance.” *Id.* The FRA cannot leave understanding and evaluation of mitigation actions to some future time or merely state that they will be considered by the Project Sponsor. Mitigation measures are essential to the understanding a project's environmental impact and perfunctory descriptions or mere lists of potential mitigation measures are insufficient under NEPA.

I. The DEIS's Safety Discussion is Insufficient and Misleading

The DEIS should not have been released prior to the Project Sponsor's submission for a Rule of Particular Applicability (RPA). The FRA is responsible for ensuring the safety of intercity railroads, including requirements addressing equipment, track, operating practices, and human factors. The FRA recognizes that its current safety regulations do not address SCMAGLEV train operations, DEIS at ES-2, and that for a standalone system like the SCMAGLEV, the safety standards should be addressed comprehensively through an RPA or other specific regulatory action, *see* 85 Fed. Reg. 14,036, 14,037 (Mar. 10, 2020). The FRA should also make clear that, as a result, the Project Sponsor must submit a petition for an RPA or other regulatory action before an FEIS or Record of Decision is released. The FRA's issuance of an RPA or substitute regulatory action is itself a major federal action subject to NEPA. Moreover, the FRA's decisions regarding the safety of SCMAGLEV operations might change the environmental impacts of the Project, rendering the current DEIS and NEPA process invalid.

At the outset, the FRA must make clear that no construction can occur unless the FRA determines that the Project is safe. This is a basic requirement of NEPA, 40 C.F.R. §§ 1502(f), 1506.1, not to mention a matter of common sense. Yet the FRA published a Project Sponsor memo suggesting otherwise: “BWRR expects that a Rule of Particular Applicability (RPA) will be required for the operation of the system. The rulemaking process will likely proceed in parallel with the EIS process. Construction can proceed prior to completion of the RPA, but operations cannot commence without it.” DEIS App G7 at PDF p. 61 (emphasis added). The FRA should have disavowed this statement and made clear in the DEIS that construction could not proceed without an RPA and other necessary actions to ensure the Project could operate safely. Instead, throughout the DEIS, the FRA makes only vague statements of actions it might take to ensure the Project is operated safely. *See, e.g.*, DEIS at ES-1, 4.22-1. If the FRA truly intends to authorize construction costing billions of dollars of taxpayer money and causing significant and extensive environmental harm before deciding whether and how the SCMAGLEV could operate safely, then

the FRA should not hide this information in a Project Sponsor memo. Once construction begins, issuing an RPA or other regulatory safety actions and proceeding with their NEPA reviews would be disingenuous. The FRA would already be boxed into continuing with whatever alternative it had already chosen based on incomplete information, since otherwise it would face the prospect of wasting billions of dollars in construction costs.

To the extent that the DEIS includes a discussion of operational safety, it presents a misleading picture. It compares highway, railway, and air travel fatalities per passenger mile. DEIS at 4.22-6 to 7. Yet for the SCMAGLEV, the DEIS says:

No comparable fatality data is available as SCMAGLEV technology does not yet operate in the United States. Internationally, SCMAGLEV technology made its first successful test run in 1972 and has been operating for over 50 years on multiple test track facilities in Japan. In 1980, the Miyazaki test track was modified from a reverse T-shaped guideway to a U-shaped guideway which will be utilized for this project, as shown in **Figure 4.22-1**. The combination of the U--shape design and electromagnetic suspension makes it difficult for a vehicle to derail, and as a result no crashes have been recorded.

DEIS at 4.22-7. However, there is no basis for looking only at SCMAGLEV fatality data, which are not in any event available, and ignoring the German Maglev crash (in that case, with a maintenance vehicle on the track) that killed 23 out of 31 passengers and injured the rest, along with two workers in the maintenance vehicle.⁷⁴ The SCMAGLEV's U-shape design, electromagnetic suspension, and claimed derailment benefits would not prevent a crash of this type. Moreover, the DEIS makes no mention of the SCMAGLEV traincar that caught fire and was completely destroyed on its first day of operation (and likely would have killed or injured passengers had they been riding at the time).⁷⁵

Although the DEIS itself ignores the German Maglev crash, the Economic Impact Analysis Appendix briefly mentions it:

There is only one record of a MAGLEV train collision in September 2006 in Germany, killing 23 people and injuring 10 people. It is important to mention that the MAGLEV train that crashed was a different technology than the SCMAGLEV proposed between Washington, D.C. and Baltimore. Therefore, this analysis

⁷⁴ *Deadly Crash on German Monorail*, BBC News (Sept. 22, 2006), <http://news.bbc.co.uk/2/hi/europe/5370564.stm>; *Transrapid Collision in Germany Kills 23*, (Sept. 22, 2006), https://en.wikinews.org/wiki/Transrapid_collision_in_Germany_kills_23.

⁷⁵ Eisuke Masade, *Development of Maglev Transportation in Japan: Present State and Future Prospects*, Argonne National Laboratory, at 3 (May 1993), available at https://inis.iaea.org/collection/NCLCollectionStore/_Public/25/016/25016872.pdf. The Shanghai Maglev also caught fire in 2006 during operation, requiring the evacuation of passengers. *Flawed Battery Likely Cause of Shanghai Maglev Fire*, China Daily (Aug. 21, 2006), http://www.chinadaily.com.cn/china/2006-08/21/content_669554.htm.

assumes very small zero (i.e. nearly zero) probability of a SCMAGLEV train collision or derailments.

DEIS App. D.4 at D-47 (citation omitted).⁷⁶ First, this crash should have been discussed in the main document, not buried in an appendix generally unrelated to safety. Second, aside from putting a thumb on the scale in favor of the Project, it is not clear why it is important to mention that the SCMAGLEV employs a different technology from the German maglev; as explained above, the difference in technology does not render the comparison to another high-speed train moot, as it does not foreclose the possibility that the same type of crash could occur with SCMAGLEV technology. At the very least the German maglev crash should be considered in the DEIS and the DEIS's cost-benefit analysis should not just assume perfect safety for the SCMAGLEV.

The DEIS also points to the guideway design as a reason to ignore safety concerns:

Train derailments are not an issue for the SCMAGLEV system as they are with other fixed guideway systems. The U-shaped SCMAGLEV guideway has a concrete base slab with sidewalls that envelop the vehicles and prevent derailments for both tunnel and viaduct segments.

DEIS at 4.22-13. However, there are potential safety drawbacks to this aspect of the SCMAGLEV design that the DEIS conveniently overlooks: the SCMAGLEV trainset will be confined within the sidewalls, and in any collision the SCMAGLEV train itself will absorb the full energy of the collision and/or will be sent in a vertical direction. The ability of a conventional train to jackknife sideways can help absorb collision energy. The German Maglev train crash that the DEIS ignores was caused by a collision, not a derailment, and likely would have caused more fatalities had it been a longer trainset with more passengers as is proposed for the Project.

The DEIS states:

Common weather events, such as snow and ice, may pose a risk to passengers and operations on a more regular basis. In areas of the SCMAGLEV system that are at the surface or exposed to weather, daily maintenance will occur to minimize risks to passengers, including snow and ice removal. During overnight hours, crews will conduct inspections for any foreign objects or situations that may affect operations. Maintenance, such as deicing and debris clearance, will occur as needed to continue safe operations.

⁷⁶ In the Economic Resources section, the DEIS says: "The likelihood of crashes and associated deaths, injuries, and property damage is reduced because SCMAGLEV is a safer mode than auto and bus." DEIS at 4.6-4. The DEIS claims: "Additional details are provided in the SCMAGLEV Socio-Economic Technical Report, available on the project website." *Id.* n.11. That report is 140 pages long, and Greenbelt could not find any additional details in it on the likelihood of crashes between the various modes of transportation. The FRA must provide the bases and metrics it used to reach its conclusions on the safety of SCMAGLEV and other transportation modes in a transparent and accessible manner.

DEIS at 4.22-12. This analysis is plainly insufficient. How much of a risk do common weather events pose? How does the Project Sponsor intend to address common weather events that occur during service hours? Will the Project Sponsor allow maintenance of way activities during operating hours? *Contra* DEIS at 4.22-14 to 14. It also does not appear that the FRA considered the increasing frequency of extreme weather events because of climate change. Moreover, this discussion ignores the impacts of animals or other debris landing on the exposed guideway, which is acknowledged elsewhere in the DEIS, in the Ecological Resources section:

To eliminate or greatly reduce the impacts to birds due to direct strikes with moving rail cars, FRA examined mitigation techniques such as a form of shroud or hood over the guideway to prevent birds from accessing the vicinity of the moving train. Similarly, techniques such as bat gates can be considered at tunnel openings to prevent bats from entering.

DEIS at 4.12-25. But the DEIS says nothing more. What was the result of the FRA's examination? Will the FRA require a shroud or hood over the exposed guideway? It appears that the FRA is withholding information that is essential to evaluate the Project's safety. Given the safety issues from bird strikes, weather, and other debris, Greenbelt believes the entire guideway above ground should have a shroud. Importantly, this would lead to other environmental impacts, including different visual impacts, which must be properly evaluated, further demonstrating the need to stop this DEIS process until a petition for an RPA can be evaluated.

The DEIS repeats the Project Sponsor's claims that extraordinary efforts will be made to avoid accidental collisions through a state-of-the-art control system and the prohibition of all maintenance of way activities during operating hours. DEIS at 4.22-13. It appears the Project Sponsor and/or the FRA are suggesting that the SCMAGLEV would avoid a catastrophic collision, such as the one in Germany, by prohibiting maintenance of way activities, such as inspection, maintenance, and repair operations along the guideways, during operating hours. First, it is not clear if the FRA evaluated these claims and endorses them as its own. Second, the idea that the SCMAGLEV could operate 365 days a year, in rain, snow, sleet, and ice, through an area with numerous bird and bat habitats, and only need maintenance of way between the hours of 11:00 PM and 5:00 AM is not realistic. The fact is that the guideway will become obstructed during operating hours, whether that be from weather, windblown debris, animals, or something else, and the DEIS does not address this issue. Moreover, the DEIS does not address what would happen when mechanical breakdowns or malfunctions inevitably occur during operating hours throughout the guideway and a train will either need to be repaired or retrieved. It is not plausible that the Project Sponsor will prohibit all maintenance of way activities during operating hours.

Relatedly, the DEIS entirely fails to evaluate safety concerns that could arise from breakdowns or malfunctions. The DEIS does not discuss the need to keep the superconducting magnets super cooled to an extremely low temperature using large quantities of liquid helium. The DEIS does not address safety issues related to power outages, which are guaranteed to occur at some point during the Project's operation. Nor does the DEIS address rubber tire failures, including the ability of tires to withstand use at the SCMAGLEV's full speed in the event of a power failure. Indeed, it was a tire issue that caused the SCMAGLEV test traincar to go up in

flames on the Japanese test track in 1991, which is also entirely ignored in the DEIS.⁷⁷ In discussing emergency evacuation procedures from tunnel sections in between FA/EE locations, the DEIS suggests that “optimum walk time” to reach the surface is estimated at approximately 30 minutes, based on a 1.5 mile distance, DEIS at 4.22-17, but the DEIS does not evaluate how evacuation procedures would need to be modified for people who cannot walk or who cannot walk as fast. There is also no information in the DEIS on the safety of switches even though a small misalignment could cause a catastrophic crash. And there is no information in the DEIS regarding the crashworthiness of an SCMAGLEV train and its structural ability to protect passengers, although these attributes are essential to understanding the safety of the Project.

The DEIS also does not address safety issues for those traveling under an SCMAGLEV viaduct crossing, including when debris, dust, snow, or ice gets knocked off the guideway onto the road below. Nor does the DEIS sufficiently address bridge design: bridges and viaducts should be designed based on the weight of the vehicles they must support, which in turn depends on vehicle strength and crashworthiness requirements.

What is more, the DEIS does not sufficiently evaluate the safety of the SCMAGLEV from cyber-attacks. The recent attack on the Colonial Pipeline underscores this possibility,⁷⁸ and highlights the need for robust standards to prevent a similar but perhaps deadly occurrence with the SCMAGLEV. The DEIS’s mere passing statement that the Project Sponsor will incorporate measures that monitor and protect from cyber threats and that more detailed planning will occur in the future, DEIS at 4.22-10, is plainly insufficient under NEPA.

The DEIS also misleads the public in stating that “[t]he Japanese SCMAGLEV technology is a more current technology [than the German Maglev], and its use has been successfully demonstrated in multiple places in the world.” DEIS at 1-4. The DEIS also misleadingly implies that the SCMAGLEV has been operating for over 50 years. *See, e.g.*, DEIS at 4.22-13. Further, the DEIS points to operating experience in Japan involving traditional high speed Japanese rail in order to bolster the safety of the SCMAGLEV. *See, e.g.*, DEIS at 4.6-3. What makes the SCMAGLEV a “more current technology”? How does the FRA define “successfully demonstrated” and what are these “multiple places in the world” where the SCMAGLEV has been successfully demonstrated? Although a few Maglev trains are operating daily revenue passenger service throughout the world, the SCMAGLEV has been operated only on test tracks in Japan. Most of the past 50 years have involved single train tests traveling on relatively short, single track test tracks.⁷⁹ Even today, there is no full SCMAGLEV commercial operation with high-frequency

⁷⁷ J L He, et al., *Survey of Foreign Maglev Systems* Argonne National Lab., at 56 (July 1, 1992), <https://www.osti.gov/servlets/purl/10134413>.

⁷⁸ Sue Halpern, *The Colonial Pipeline Ransomware Attack and the Perils of Privately Owned Infrastructure*, (May 19, 2021), <https://www.newyorker.com/news/daily-comment/the-colonial-pipeline-ransomware-attack-and-the-perils-of-privately-owned-infrastructure>.

⁷⁹ The Review SUPERCONDUCTING MAGLEV (SCMAGLEV), Central Japan Railway Company, https://global.jr-central.co.jp/en/company/_pdf/superconducting_maglev.pdf, visited May 19, 2021.

service, and there are no plans for such service to exist until at least 2027 if not later. Utilizing data from test runs is acceptable, but the FRA must do so with the recognition that there is no real-world experience with anywhere near the same number of runs, amount of power or cooling demand, number of people moved, and demand for continuous operation in various weather conditions, as BWRR seeks to undertake with the SCMAGLEV. Japan's success with traditional high-speed trains also does not automatically transfer to the SCMAGLEV; in fact, it even suggests that the FRA should evaluate that type of train instead. The FRA must present the public with and make its decision based on accurate information, and repeating Project Sponsor marketing material is not the requisite "hard look" required under NEPA.

A consistent theme of the DEIS's discussion on safety is its failure to fully evaluate safety-related impacts and its reliance on future to-be-determined actions the Project Sponsor may take. The DEIS includes as an attachment a nine-page "Safety and Security Technical Memorandum" provided by the Project Sponsor, which does not provide any further detail and misleadingly applies the Japanese traditional high speed rail safety record to a new SCMAGLEV, as if they were the same. DEIS App. G6 at PDF pp. 41, 43. Some of the text on safety measures in the DEIS is word for word a copy and paste from this memorandum. *Compare id.* at PDF p. 43, *with* DEIS at 4.22-13 to 14.

The DEIS states that public safety may be at risk during construction of the Project, including through increased construction traffic, equipment, construction methods, and changes in traffic patterns that could affect first responder routes or access to critical safety infrastructure, among other risks. DEIS at 4.21-6. Yet the DEIS does not evaluate the nature of these risks. Instead, the DEIS merely says:

The Project Sponsor would develop and implement a Public Safety Plan as part of the SCMAGLEV Project Construction Plan. The Public Safety Plan would include safety practices such as protective fencing around work areas and designated ingress/egress, strategies to adhere to Federal, state, and local government standards, and specific design/construction techniques to protect public safety. The Project Sponsor would use the Public Safety Plan to ensure that potential risks to public safety are considered and addressed through the construction planning and implementation processes. As part of the SCMAGLEV Project Construction Plan, the Public Safety Plan will incorporate, implement, and manage commitments made in the forthcoming Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) for the SCMAGLEV Project to avoid or minimize potential impacts to public safety.

DEIS at 4.21-9. Given that this public safety plan has not been developed, it is not clear how the FRA can be assured that potential public safety risks will be addressed. Without seeing these "forthcoming" commitments to be made in the FEIS, ROD, or Public Safety Plan, Greenbelt and the public have no way of meaningfully evaluating and commenting on the public safety impacts of the Project. The DEIS repeats that "[t]he Project Sponsor will have to demonstrate that temporary closures or rerouting will not significantly impact emergency response times," and that the Project Sponsor has stated they will be conducting the necessary coordination as part of the FEIS. DEIS at 4.22-18 to 19. The DEIS does not explain what impact to emergency response times

would be considered insignificant and allowed. There is no explanation for why the Project Sponsor could not have already provided its plans and completed its coordination.

The FRA appears to accept that various to-be-determined plans that the Project Sponsor says it will develop at various unspecified points in the future will be sufficient to mitigate potential safety impacts. For example, the FRA states in the DEIS:

- “The Project Sponsor will commit to and submit an SSP [System Safety Program] Plan to FRA for review and approval, prior to operation of the SCMAGLEV system. The purpose of the SSP Plan is to systematically evaluate safety hazards and manage risks through on-going preventative and corrective actions, including a risk-based hazard management program and hazard analysis.” DEIS at 4.22-20.
- “The Project Sponsor will make a commitment to establish a risk-based hazard management program and conduct hazard analyses. This hazard management program will establish the process used to identify and analyze hazards; methods for determining frequency, severity, and corresponding risk of identified hazards; procedures for identifying hazard controls or mitigating actions; and risk management roles and responsibilities within the organization.” *Id.* at 4.22-21.
- “Although specific testing and maintenance requirements for the SCMAGLEV Project are still under development, the Project Sponsor will make a commitment to develop a system inspection, testing and maintenance program, based on best practices developed through operation of Central Japan Railway Company’s SCMAGLEV test track.” *Id.*

See also id. at 4.22-14. There is no justification for BWRR not having developed these plans for the FRA and the public to evaluate. The FRA cannot possibly understand either the safety concerns or the associated environmental and other impacts of the Project without knowing how the Project Sponsor would handle safety risks. For example, the DEIS states that the Project Sponsor’s to-be-developed Emergency Preparedness Plan “will specify the conditions under which service will be suspended, such as during or in preparation for extreme weather events.” DEIS at 4.22-13. This plan not only impacts the safety of the riders and nearby communities, but also impacts the Project’s ridership forecasts, economic analysis, air quality impacts, and energy use.

Finally, regarding electromagnetic fields and electromagnetic interference (EMF/EMI) that would be created by the SCMAGLEV, the DEIS says: “FRA did not conduct EMF/EMI calculations or simulations of the SCMAGLEV system as part of the DEIS.” DEIS at 4.18-2. Instead, the DEIS leaves it up to the Project Sponsor to coordinate with self-identified receptors to conduct appropriate analyses. *Id.* However, the DEIS does not explain why this evaluation could not be performed now. Moreover, EMF/EMI represent a significant new category of impacts that, under NEPA, the FRA must ensure are quantitatively evaluated to the extent possible.

The DEIS generally focuses on comparing the SCMAGLEV EMF exposure levels to those established in guidelines by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) in 1998. DEIS at 4.18-1; DEIS App. D.11 at 11. Given their age, the FRA must determine whether these limits remain protective based on the best available current information.

The DEIS also generally dismisses EMF/EMI concerns by stating that, based on the Project Sponsor's reported information, exposure levels within and outside the Japanese SCMAGLEV trainsets are below ICNIRP guidelines and the potential for exposure is expected to be similar for this SCMAGLEV. DEIS at 4.18-3; DEIS App. D.11 at 12. The EMF/EMI analysis states that it is based on information reported by the Project Sponsor's partner. DEIS at 4.18-3. It is not clear, however, if the FRA has verified this information or merely accepted it as accurate. As the information cited appears to be from a 2014 report written in Japanese, it is not clear if the FRA reviewed it or reviewed a translated and/or summarized version. Either way, the FRA has not provided this information to the public for review and comment. Moreover, it is not clear if the FRA considered whether that information remains applicable; for example, was the design for those measurements based on the same 16 traincar set that the SCMAGLEV would use? It appears that different trainsets were used, DEIS App. D.11 at 12, which the DEIS simply glosses over, DEIS at 4.18-3. And it appears that the Japanese SCMAGLEV also measured levels higher than the ICNIRP limit around 25 feet from the train. DEIS App. D.11 at 11. These measurements are not mentioned in the DEIS, even though the public could come within this distance near the tunnel portals, such as those proposed to be located in Greenbelt. The DEIS also does not discuss possible EMF/EMI impacts to wildlife and birds, which are likely to come much closer to the viaducts than 25 feet. Finally, the FRA does not seem to have evaluated EMF/EMI impacts from moving high voltage power lines.

J. The DEIS Presents Incomplete Information and Analyses Regarding the Impacts of Project Construction and Operation on Public and Private Property in Greenbelt

1. The DEIS Presents an Incomplete Evaluation of The Project's Impacts on Property Values, Particularly in Greenbelt and Other Communities Along the Proposed Route

The DEIS presents a glaringly incomplete picture of the Project's impacts on property values. The DEIS generally discusses an indirect increase in property values around the proposed SCMAGLEV stations, based on development and investment spurred by the Project. *See, e.g.*, DEIS at ES-14, 4.4-9, 4.5-18, 4.6-3 (PDF p. 246), 4.6-5 (PDF p. 257). However, the DEIS avoids discussing potential adverse impacts to properties in Greenbelt and other communities along the proposed Project route.

To begin with, the DEIS does not provide sufficient information to support the assertion that the Project will increase property values by \$1.13 to \$1.36 billion within half a mile of the proposed stations. *See* DEIS at 4.6-5 (PDF p. 257). The DEIS merely states that the source of this estimate is "AECOM analysis" but does not present the data or calculations that went into that analysis, hindering meaningful public review.

Appendix D.4 provides slightly more information regarding these estimates, stating that they are based on a multiplier of property values from a December 2010 report of an intercity passenger train service between Baton Rouge and New Orleans, but it does not provide the actual data and calculations.⁸⁰ DEIS App. D.4 at D-58. The Appendix links to the Baton Rouge - New

⁸⁰ It is not clear what the multiplier in the Baton Rouge to New Orleans report is based on. It also appears to be an estimate for a proposed project that may or may not have been constructed, and

Orleans report but that link is broken and Greenbelt was unable to find a copy of the report. The FRA must make this report publicly available for review and comment, along with all the details of the “AECOM analysis.”

Moreover, a property value increase projected for an intercity train between Baton Rouge and New Orleans cannot just be translated over to the SCMAGLEV. Estimated property value increases in Washington, D.C. and Baltimore must be based on valid ridership projections and an assessment of the particular areas at issue. It does not appear the FRA evaluated whether the same percent property value increases were applicable for the Cherry Hill, Mount Vernon Square, and Camden Yards stations: Washington, D.C. and Baltimore property values in 2021 (or 2028, “in anticipation of opening,” DEIS App. D.4 at D-59), are significantly different from those in Louisiana between Baton Rouge and New Orleans in 2010. The applicability of the Louisiana report is further questionable given that the Baton Rouge to New Orleans intercity train proposed seven stops, providing greater connectivity between the cities, compared to the three stops proposed for the SCMAGLEV.

By applying percentages based on the Louisiana report, the Appendix estimates an increase in property values totaling \$1.12 billion within a half-mile of the Washington, D.C. station, only \$13.6 million around the Cherry Hill station (the Project Sponsor’s preferred Build Alternative), and \$243.0 million around the Camden Yards station. DEIS App. D.4 at D-61 (citing “AECOM analysis”). Of the \$1.12 billion increase estimated around the Washington, D.C. station, less than a fifth of that is residential, the rest being labeled commercial and “other.” *Id.* This information demonstrates that the distribution of benefits from increased property values would be split inequitably between Washington, D.C. and Baltimore. Additionally, this information indicates that no meaningful increase in property values would be recognized by communities elsewhere along the alignment. The Washington, D.C. estimate makes up the vast majority of the DEIS’s estimated property value increase for all Build Alternatives because the property values around the Washington, D.C. station are already extremely high. It is troubling that the FRA published the DEIS with these estimates given the implausibility of a \$1.15 billion increase in property values near Mount Vernon Square due to the addition of the SCMAGLEV to Baltimore. It is even more troubling that the FRA buried the inequitable results of this flawed analysis in an appendix and presented only the combined estimated Washington, D.C. and Baltimore property value increase in the DEIS itself, making it seem like the estimated increase was evenly divided between the two cities. *Compare* DEIS at 4.6-5 (PDF p. 257), *with* DEIS App. D.4 at D-61. If the FRA wants to estimate increased property values, it must do so based on sound methodology that is provided to the public for review and comment and must clearly indicate who will realize the estimated benefits.

Similarly, the DEIS describes a “minimal” property value decrease for areas surrounding a TMF but does not provide the information necessary to understand or review this estimate. DEIS at 4.6-5 to 6 (PDF p. 257-58). The DEIS merely states that noise and vibrations present at the TMF would have a negative impact on the values of surrounding properties with conflicting land uses. *Id.* at 4.6-5 (PDF p. 257). Again, Appendix D.4 provides slightly more description, stating the

that may or may not have realized those property value increases because of the project or other factors.

quantification of this decrease was based on the assumption of a -1% property value change on properties within half a mile of the facility. DEIS App. D.4 at D-62. But as with the station estimate, the data underlying this estimate are not provided and there is no explanation why -1% was picked, nor an explanation for why half a mile was picked. Particularly for the TMF proposed at BARC West, which directly abuts residential properties and even requires the partial acquisition of two residential properties, DEIS at ES-18, it is implausible that property values will only decrease by 1%.

Significantly, the DEIS improperly ignores the impacts to property values along the Project's proposed routes, particularly in Greenbelt, even though property value impacts would not be limited to the stations and TMF locations. The DEIS and these comments describe impacts near the tunnel, tunnel portal, and viaduct sections of the Build Alternatives, including noise, vibration, visual impairment, and traffic impacts, as well as acquisitions of and harms to recreational, residential, and forested buffer land. The DEIS recognizes that with the J Build Alternatives, "[m]ultiple residential properties above the tunnel portions of the alignment within and near the Woodlawn, New Carrollton, Greenbelt, and South Laurel neighborhoods would experience vibration impacts." DEIS at 4.4-10. The DEIS further states:

A portal location (transition from tunnel to viaduct) would be located approximately 75 feet from the northern most condominium buildings in the Greenbriar Condominiums community in Greenbelt. The tunnel would be as close as 14 feet underground beneath buildings, and residents would experience impacts due to vibration, as well as changes in visual quality with views of the portal and viaduct. In addition, property acquisition from the community would remove portions of a community garden and open space. The removal of the garden and open space would impact views and impact community cohesion as there would be fewer opportunities for community members to gather and use these areas as well as less green space to view.

Id. Yet the DEIS is silent about these impacts when evaluating changes in property values.

Surely the FRA does not believe that creating vibrations, destroying a garden and open space, and adding a tunnel portal 75 feet from a condominium building would not impact property values. Even where the Project would not take a specific property, property values would be impacted by the removal of trees that previously provided a buffer from the Baltimore-Washington Parkway. Property values would also be impacted by the Project's impact to the Greenbelt Forest Preserve and other protected land.⁸¹ There would also be impacts near the tunnel, tunnel portal, and viaduct sections and the surrounding communities during construction. The DEIS entirely ignores these and other impacts in its quantification of changes to property values. It is improper for the FRA to place its thumb on the scale by quantifying inflated benefits of a proposed action while failing to quantify and ignoring its negative impacts.

⁸¹ See Laura O. Taylor et al., *Amenity Values of Proximity to National Wildlife Refuges* Final Report to U.S. Fish and Wildlife Service (Apr. 2, 2012) (finding that being in close proximity to a National Wildlife Refuge increases home property values from 3% to 9%).

With respect to the “minimal” property value decreases the DEIS recognizes near the TMF location, the DEIS suggests:

[T]here are a number of mitigation measures that Anne Arundel County or Prince George’s County would need to undertake to lessen the negative property premium impacts related to the TMF and the reduction of the tax base due to parcel acquisitions. These mitigations could include sound walls and landscaping to buffer the neighborhood from the visual and noise impacts, controlling access to minimize traffic impacts on the surrounding area, and selection of a physical design that minimizes the footprint and its proximity to affected parcels. The Project Sponsor would coordinate with the affected jurisdictions to reduce the negative impacts.

DEIS at 4.6-24. Although this discussion acknowledges adverse impacts to property near the TMFs, and resulting decreases in local tax revenues, it again fails to address additional impacts to properties along the SCMAGLEV routes. Moreover, the DEIS appears to suggest that the Counties rather than the Project Sponsor will be responsible for mitigating such impacts. The FRA must properly evaluate the harms caused by the Project and should be clear that it is the Project Sponsor’s responsibility to fully mitigate all the harms caused.

With respect to long-term operational and development impacts, the DEIS states that no negative impacts on the regional and local economy have been identified and therefore no mitigation would be required. DEIS at 4.6-23 to 24. Greenbelt disagrees. This statement ignores numerous negative impacts the Project would have on the local and regional economy that are discussed throughout these comments, including but not limited to negative impacts from increased energy demands and from decreased public transit services in the corridor that the DEIS predicts the SCMAGLEV would cause. The DEIS must evaluate these consequences of going forward with the Project.

Finally, the DEIS does not sufficiently evaluate and present the public with information on the Project’s taking, either in full or in part, of residential properties. This failure is magnified by the Project Sponsor publicly asserting that its preferred Build Alternative will take no residential properties.⁸² At scattered points, the DEIS contradicts the Project Sponsor and acknowledges that residential properties will be taken, either by agreement or by force, under all Build Alternatives, including the Project Sponsor’s preferred Build Alternative. Unfortunately, this information is not

⁸² Northeast Maglev, Common Questions, Construction and Route, <https://northeastmaglev.com/faq/#Construction>, visited May 13, 2021 (“The current alignment preferred by project developer, Baltimore-Washington Rapid Rail, involves no taking of houses, churches, schools or historical sites.”); Northeast Maglev, Facts, <https://northeastmaglev.com/facts/>, visited May 13, 2021 (“Routes under consideration do not take private homes and are primarily in very deep underground tunnels – imperceptible at ground level. . . . Both alignments currently under consideration would not require the taking of any homes.”); Luz Lazo, *Federal Panel Sows Doubts About High-Speed D.C.-to-Baltimore Maglev Train*, Washington Post (May 7, 2021), <https://www.washingtonpost.com/transportation/2021/05/07/dc-baltimore-maglev-train/> (A spokeswoman for the Project Sponsor said, “We made it our mission not to take a single home for this project”).

clearly accessible and is sometimes even buried in footnotes. It is also undermined by vague and occasionally contradictory statements. For example, DEIS at 4.6-7 note 17 (PDF p. 259) says: “Under the six options of Build Alternative J, there would be between 15 to 20 residential parcel [sic] impacted . . . Under the six options of Build Alternative J1, there would be between 18 and 31 residential parcels impacted.” Elsewhere, however, the DEIS states that with the J Build Alternatives, “[an] FA/EE north of MD 410 near the Woodlawn neighborhood would require four partial residential property acquisitions.” *Id.* at 4.4-10. “One residential property in the Severn neighborhood of Anne Arundel County would be displaced under all of the Build Alternatives. However, many residential properties are in close proximity to Project elements or are partially located within the LOD, and partial acquisition may be required.” *Id.* at 4.4-8. The DEIS also suggests that “additional properties may warrant a full permanent acquisition.” *Id.* at 4.3-12. And the DEIS merely hints that “Residents may require relocation to accommodate the Project,” and the government’s power of eminent domain may be used to overcome any objections. *Id.* at 4.6-9 to 10.

Taking peoples’ homes is a significant action which the FRA must analyze, and it also must make clear to the public which properties would be taken by the Project Sponsor for the Build Alternatives. Without knowing which homes would be impacted, or which residents would need to be relocated, the FRA cannot meaningfully evaluate, and the public cannot comment on, the Build Alternatives. Further, the NEPA process is undermined when the public is given incorrect or misleading information, particularly by the Project Sponsor. And it is unacceptable for the information and analysis that would correct the Project Sponsor’s misleading public statements on the topic to be so spread out through the DEIS and presented in so disjointed a fashion that the public is unlikely to find the related pieces and put them together. The FRA’s presentation of impacts to property values must be redone.

2. The DEIS Does Not Sufficiently Evaluate the Negative Traffic Impacts to Greenbelt and Other Communities Along the Project’s Route

The DEIS documents significant negative construction impacts. These impacts are not fully analyzed in the DEIS but include those from hundreds of trucks per day traveling to and from multiple Project locations for seven years. For example, it is expected that construction of a TMF will require 100 trucks a day or more over the seven-year construction period. This is of particular concern to Greenbelt, as two of the three TMF options are near Greenbelt on BARC. There would also be significant traffic impacts in and around Greenbelt from construction of the southern portal and southern viaduct. Construction trucks will not be permitted on the BW Parkway and instead would be routed onto local roads, some of which already are severely congested. There also would be many temporary road closures in the area. More information about these impacts and mitigation should have been included in the DEIS.

Regarding mitigation of construction impacts, the Transportation Technical Report repeats this text 20 times:

Completion of a detailed traffic impact study by the Project Sponsor in order to fully understand the implications of truck arrivals and departures on traffic operations during each phase of construction and during different times of the day.

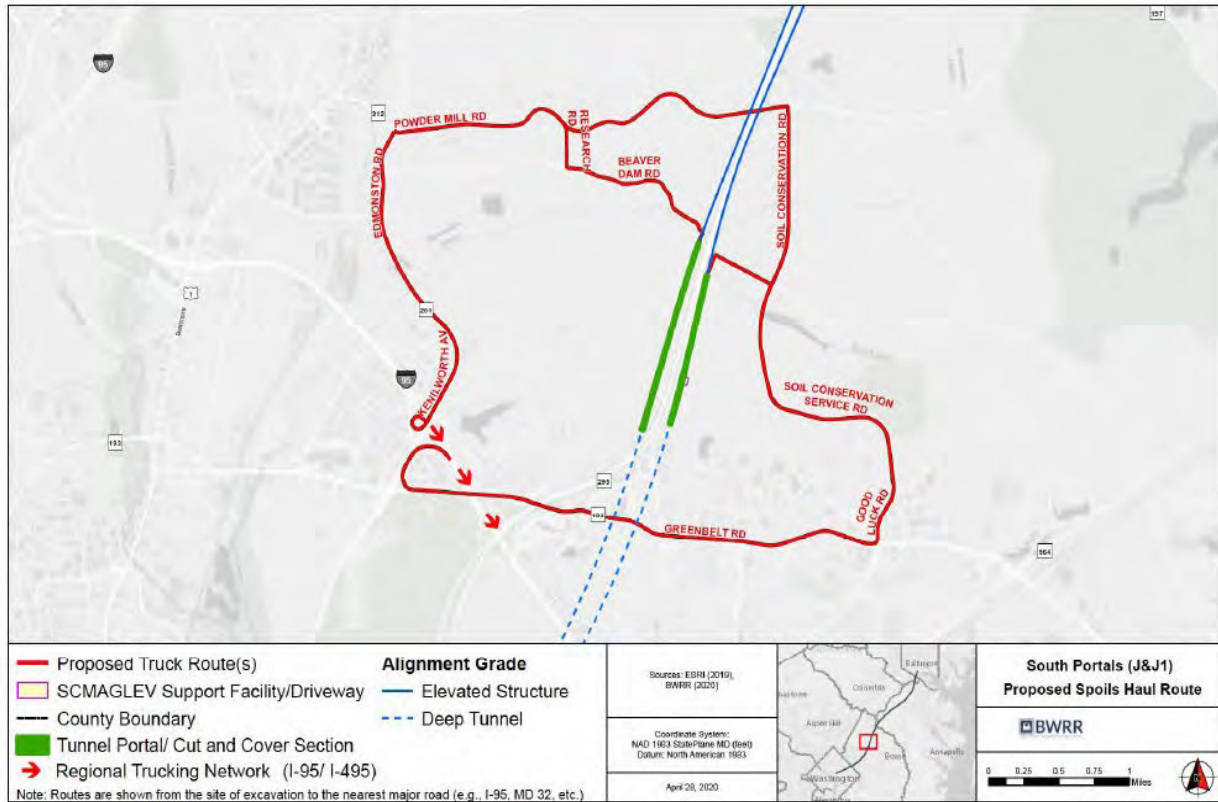
Data used to complete the analysis presented in the DEIS is not yet at this level of detail.

E.g., DEIS App. D.2 at A-63, 64, 66 to 67. This information, along with mitigation plans, is information that the public needs to evaluate the Project and should have been part of the DEIS to allow for public comments.

The DEIS does contain enough information to demonstrate that the magnitude of the impacts would be great and would extend over a 7-year construction period. The Transportation Technical Appendix Table D.2-33 presents estimated truck and auto trips by work site. One of the eight pages in this table is reproduced below. As shown in the table, it is expected that whichever of the three TMF alternatives is ultimately selected, its construction would require 100 trucks a day or more for seven years.

These truck trips would have a major impact on local roads in and around Greenbelt because, as the DEIS states: “No commercial or construction vehicles/trucks will be allowed on the BW Parkway.” DEIS App. G7 at PDF p. 95. Circuitous routing required for construction of the southern portal is shown in Figure II.J.1.

Figure II.J.1: Construction Planning Memorandum Figure 26, Proposed Haul Route for South Portal (Alignment Alternative J & J1)⁸³



⁸³ DEIS App. G7 at PDF p.136.

As shown in Figure II.J.1, the routing includes running north of the City through BARC, to the east of the City on Soil Conservation Road, and directly through the City on Edmonston/Kenilworth Road and Greenbelt Road. The DEIS estimates that trucks would be moving excavated materials along this route 24 hours a day for 27 months, with 145 estimated truck trip per day for Alternative J and 240 truck trips per day for Alternative J1. DEIS App. G7 at PDF p. 108 Tables 22 and 23.

Estimated Truck and Auto Trips by Work Site During SCMAGLEV Construction (1 page of 8)⁸⁴

Work Site Location	Alignment Alternative	Approx. Alignment Stationing	Work Element	Duration (Months)	Construction Time Period	Workday Length	Roadways Impacted (see current conditions)	Truck Trips per Day	Worker Vehicle Arrivals Per Day
Camden Yards Station	J, J1	207+300	Camden Yards Station Civil Construction	48	Years 2 to 7	7AM - 4 PM	Interstate 395, Conway Street, Pratt Street, Howard Street, Lombard Street	200-250	150
			Camden Yards Station Architectural Construction	24	Years 2 to 7	7AM - 4 PM	Interstate 395, Conway Street, Pratt Street, Howard Street, Lombard Street	100	100
BARC West TMF Site (materials delivery from Powder Mill Road in vicinity of Research Road) - Prince George's County	n/a		BARC West TMF Site Construction	78	Years 1 to 7	7AM - 4 PM	Powder Mill Road	100	150
			BARC West TMF Site Substations (2 substations)	24	Years 2 to 6	7AM - 4 PM	Powder Mill Road	6	100
			MOW Facility Construction	24	Years 2 to 6	7AM - 4 PM	Powder Mill Road	6	100
BARC Airstrip TMF Site (materials delivery from Springfield Road) - Prince George's County	n/a		BARC Airstrip TMF Site Construction	78	Years 1 to 7	7AM - 4 PM	Springfield Road	100	150
			BARC Airstrip TMF Site Substations (2 substations)	24	Years 2 to 6	7AM - 4 PM	Springfield Road	6	100
			MOW Facility Construction	24	Years 2 to 6	7AM - 4 PM	Powder Mill Road	6	100
BARC 198 TMF Site (materials delivery from Old Portland Road via MD 198)	n/a		MD 198 TMF Site Construction	90	Years 1 to 7	7AM - 4 PM	Old Portland Road Extended	100	150
			BARC Airstrip/MD 198 TMF Site Substations (2 substations)	24	Years 2 to 6	7AM - 4 PM	Old Portland Road Extended	6	100

Source: BWRR Construction Reports

⁸⁴ DEIS App. D.2 at A-91.

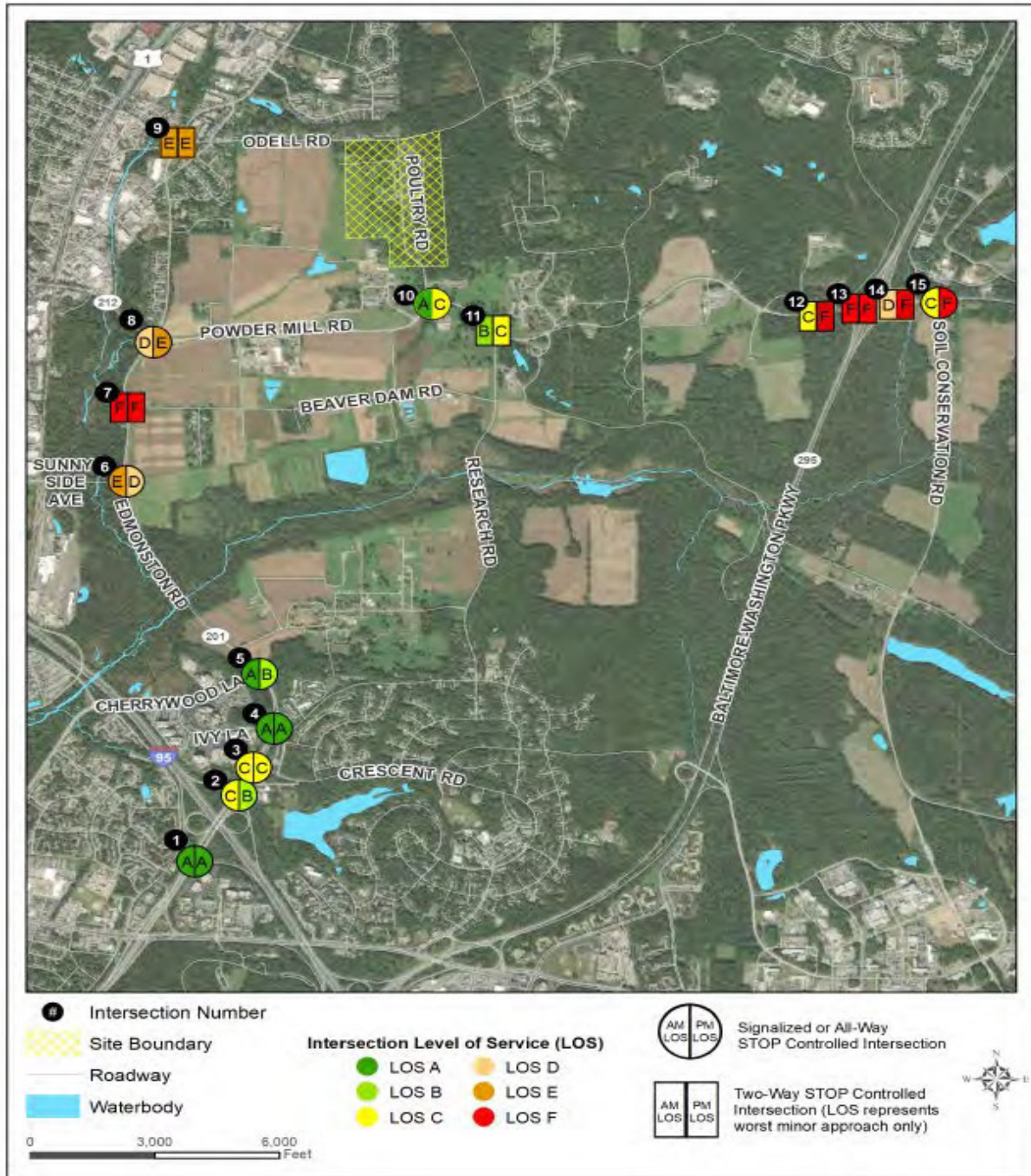
In addition to the construction of the TMF and tunnel portal, there would be many temporary closures and detours, which would inconvenience residents and increase congestion. The following road segments in the Greenbelt area would be subject to traffic impacts due to southern viaduct construction, DEIS App. G7 at PDF p. 93 Tables 13 and 14, and possibly BARC TMF ramp construction, DEIS App. G7 at PDF p. 94-95 Tables 15 and 15 at 94-95, as shown in DEIS Appendix G Part I:

- Traffic from NB Baltimore-Washington Parkway/MD 295 to Explorer Road will be detoured via Greenbelt Road/MD 193 and Goddard Road. (p. 13).
- Traffic from Explorer Road to the Baltimore-Washington Parkway/MD 295 will be detoured via Goddard Road and Greenbelt Road /MD 193 (p. 13).
- Traffic from NB Baltimore-Washington Parkway/MD 295 will be detoured via the Capital Beltway, Edmonston Road/MD 201, and Powder Mill Road (p. 14-15).
- Traffic from Greenbelt Road/MD 193 will be detoured via Edmonston Road/MD 201 and Powder Mill Road (p. 14-15).
- Traffic from SB Baltimore-Washington Parkway/MD 295 will be detoured via Power Mill Road, Edmonston Road/MD 201, and the Capital Beltway. (p. 16-17).
- Beaver Dam Road closure between Research Road and Soil Conservation Road. Beaver Dam Road traffic will be detoured via Research Road, Power Mill Road and Soil Conservation Road (p. 18-21).
- Soil Conservation Road closure between Power Mill Road and Beaver Dam Road. Soil Conservation Road will be detoured via Power Mill Road, Research Road, and Beaver Dam Road (p. 22).
- Springfield Rd. closure between Power Mill Road and Beaver Dam Road. Springfield Road traffic will be detoured via Powder Mill Road, Soil Conservation Road, and Beaver Dam Road (p. 23)
- Springfield Road closure between Powder Mill Road and Odell Road. Springfield Road traffic will be detoured via Power Mill Road, Poultry Road, and Odell Road (p. 24). This does not seem possible as Poultry Road is the proposed location of the Bureau of Engraving and Printing facility and a secured entry off of Powder Mill Road is proposed. Poultry Road is currently closed to the public and has had a closed gate at its northern terminus (the intersection with Odell Road) for years.

These traffic impacts will be in an area that is already experiencing significant traffic congestion, as documented in a recent traffic impact statement done for the proposed Bureau of Engraving and Printing facility. Figure II.J.2 shows existing failing level-of-service F intersections in both the weekday morning and afternoon peak period for the intersection of Edmonston Road with Powder Mill Road and for the intersections of Powder Mill Road with the Baltimore-

Washington Parkway. The DEIS fails to analyze traffic impacts at these failing intersections or to offer any mitigation.

Figure II.J.2: Existing Intersection Level of Service (HCM)⁸⁵



⁸⁵ Alliance Consulting Group, *Bureau of Engraving and Printing Transportation Impact Study Full Report with Appendices*, at 66 (June 2020).

3. The Noise and Vibration Impact Analysis is Incomplete and Relies on Unsupported Assumptions and Data

SCMAGLEV would create new sources of noise and vibration that would negatively impact the Greenbelt community and environment, including by degrading the public use and enjoyment of the Greenbelt Forest Preserve, negatively impacting wildlife within and near the Forest Preserve, and adversely affecting the Greenbelt Historic District and nearby residences, public buildings, and public spaces. Despite the significance of these impacts, the FRA provided incomplete noise and vibration impact analyses that rely on mere assumptions rather than supporting data, in violation of NEPA.

a. The Noise Impact Analysis is Incomplete and Relies on Unsupported Assumptions

DEIS Section 4.17 and Appendix D.10 discuss the noise impacts from the construction and operation of the SCMAGLEV. The DEIS provides only the most conclusory and superficial comparisons between existing (baseline) noise levels and SCMAGLEV noise for each category of land use being evaluated (such as parks, residences, and public buildings such as schools and libraries). Although the DEIS describes the methodology used to calculate estimates of baseline versus anticipated Project noise (estimates), the DEIS provides only the final baseline noise levels and final Project noise impact numbers and neglects to provide the data needed to verify these numbers or even assess how the numbers were calculated. *See* DEIS App. D.10 at 10-16 to 17.

For example, DEIS Table 4.17-7 (which is the same as Table D.10-7 in Appendix D.10) provides noise impact totals for category 2 land uses (residences and other buildings where people sleep) and category 3 land uses (institutional facilities with primarily daytime use, such as schools and libraries) along the alignment, but it does not indicate where these impacts would be located or how the subtotals for each category were calculated. Additionally, it does not indicate which impacts would be caused by construction noise versus operating noise. Appendix D.10 provides operating noise levels anticipated at each of the twenty receptors (which are the same as the baseline locations) for each of the Build Alternatives, but it does not discuss how these numbers were used to calculate the total impact. *See* DEIS App. D.10 at 10.6-35 to 38. Without this information it is impossible to assess where noise impacts would take place along the alignment, determine the source of the noise, or verify the total impact numbers. Table 4.17-7 also provides total numbers for the noise impacts that would be considered “moderate” and “severe” but provides no breakdown of where these impacts would occur and provides no supporting data to allow for verification of these numbers. Although this table provides total noise impacts by Build Alternative, no information is provided as to how these numbers were calculated and no details are provided as to where and when these noise impacts would occur.

The DEIS states that the FRA selected “almost 4,000 sites closest to the project Build Alternatives to evaluate noise and vibration impacts during operations and construction.” DEIS at 4.17-7. However, the name and location of these sites are not provided. Without this information the public does not know which areas the FRA has categorized as having possible noise impacts, let alone the land use categories and specific buildings or other facilities within the sites that were assessed. Additionally, it is not clear from the methodology provided why the existing noise monitoring sites and first and second row receptors included only those within 800 feet, especially given that the “FRA predicted airborne noise impacts up to 2,100’ from the guideway.” DEIS

at 4.17-7, 4.17-12. The baseline and impact analysis should include sites within the larger 2,100 feet impact area for areas near viaducts to properly account for background noise levels within the entire impact area, not just those within 800 feet (the screening distance used to set the baseline noise monitoring locations).

Moreover, Table 4.17-7 shows that Build Alternatives J1-04 and J1-05 have the lowest total noise impact of 278, and J-03 has the highest total noise impact of 600, but it is not explained why these impacts are so different, other than a general conclusion that Build Alternatives that have more viaduct tend to have higher noise impact numbers. *See* DEIS at 4.17-13. The noise analysis also omits any discussion of how proposed noise barriers would impact noise level or where these barriers would be built, other than indicating that certain local municipalities may need to build sound walls. *See* DEIS at 4.4-20, 4.5-16, 4.6-24, 4.17-19, 4.17-20, 4.17-20. The DEIS states that Anne Arundel County and Prince George’s County would be responsible for providing certain mitigation features, presumably at their own expense, which may include sound walls and landscaping buffers to shield visual and noise impacts.⁸⁶ Despite the lack of transparency regarding the location of sites to be impacted by noise, the DEIS environmental justice discussion acknowledges that over 99% of the impacted noise receptors and 100% of the severe vibration impacts would be located in environmental justice population areas. The FRA must make the full noise assessment data available so that the public has a meaningful opportunity to comment on it.

Similar issues exist with the ground-borne noise impact total provided within the noise impact chart. DEIS at 4.17-11 (Table 4.17-7). No calculations or supporting data are provided to explain how the FRA arrived at the ground-borne noise impact totals provided in this table, but they should be. The complete set of calculations used to obtain these totals should be provided, so that the public can evaluate and comment on them. Also, even with the limited information provided, some of the FRA’s conclusions appear dubious. For example, despite the fact that the SCMAGLEV will “generate operational [noise] impacts due to aerodynamic noise effects created by the air turbulence of a rapid train passby,” the FRA “did not predict any noise impacts due to startle effects at tunnel portals since the portal design includes noise mitigation hoods to eliminate these effects.” DEIS at 4.17-11. Again, the FRA provides no information to support this conclusion.

All Build Alternatives use Eleanor Roosevelt High School property. Ground-borne noise and vibrations may have an adverse impact on those using this facility and may affect the school sports teams’ ability to practice at this location. Despite these potential impacts, no baseline noise monitoring was conducted near the high school. In fact, no baseline noise monitoring was included anywhere within the City of Greenbelt. Greenbelt requests the FRA to include a baseline noise monitoring site at the high school and near the portal tunnel exits proposed near Greenbelt for both the J1 and J alignments. Greenbelt also requests that the FRA provide specific analysis of the noise and ground-borne noise anticipated to occur near the portals proposed within and east of the city (including impacts from all proposed facility systems) and the tunnels that would run under Eleanor Roosevelt High School and residential properties within Greenbelt. These areas include

⁸⁶ *See* DEIS at 4.6-24 (“[T]here are a number of mitigation measures that Anne Arundel County or Prince George’s County would need to undertake to lessen the negative property premium impacts related to the TMF and the reduction of the tax base due to parcel acquisitions. These mitigations could include sound walls and landscaping to buffer the neighborhood from the visual and noise impacts . . .”)

Greenbelt Historic District, a National Historic Landmark, which the DEIS acknowledges will be negatively impacted by noise. The analysis that is provided should include how noise would harm both the built and natural environment. Greenbelt is concerned that the operation of the SCMAGLEV will cause noise that may harm wildlife including threatened, rare, and endangered species that live within the Greenbelt Forest Preserve. The noise from passage of the SCMAGLEV trains also would violate a covenant protecting Parcel 1 of the North Woods by diminishing public enjoyment of the natural setting. *See* Section IV.A for a description of the affected sites and Section IV.B for a discussion regarding the FRA's failure to conduct historic preservation processes for the Greenbelt Historic District. *See also* Section IV.D for a discussion of federal, state, and local requirements that must be met prior to any conversion of certain Greenbelt parkland and open spaces, including Parcel 1.

b. The Vibration Impact Analysis is Incomplete and Relies on Unsupported Assumptions

DEIS Section 4.17 and Appendix D.10 discuss the vibration impact analysis conducted by the FRA, which compared anticipated vibration impacts with assumed current vibration levels. No actual monitoring was conducted nor were data collected on existing site-specific vibrations; instead the FRA selected an assumed vibration range for different land uses. No information is provided to support these assumptions. *See* DEIS at 4.17-10. The methodology used for the vibration analysis is not well described, with the FRA simply stating that:

Vibration impacts were compared against the 'frequent' criteria using levels for single events. Ground-borne noise levels were determined from the vibration levels using a 'typical ground' attenuation factor.... FRA determined vibration levels from train operations using the FRA 'maglev' general assessment curves. FRA utilized standard ground-attenuation effects with no adjustments for building foundations.

DEIS at 4.17-8.

Similar to the noise impact analysis, the bulk of the vibration impact analysis data provided in the DEIS is shown in Table 4.17-7 (and reproduced in Table D.10-7). Table 4.17-7 provides one column of vibration totals and no supporting data or information to indicate how these totals were calculated. DEIS at 4.17-11. Unlike noise impacts, the FRA predicts that most vibration impacts would stem from tunnel sections of the alignment, with minor exceptions for some viaduct vibrations near the footings of the viaducts. No information is provided to support this conclusion. DEIS at 4.17-13. The FRA predicts that the vibration totals for the J and J1 alignments would be 359 and 340 respectively. DEIS at 4.17-14. No information is provided to support these totals, and no calculations are provided to show how the FRA arrived at these totals. Additionally, the DEIS does not indicate whether these totals include both construction and operation vibrations.

The only information provided that specifically mentions construction vibration is in the following unsupported statement:

FRA predicted maximum construction vibration levels that range from 0.012 in/sec PPV for FA/EE facilities excavation up to 0.121 in/sec for viaduct construction.

Based on this preliminary assessment of potential vibration damage, FRA predicted no exceedances of FRA Category I damage threshold (0.5 in/sec for typical timber structures) or the Category II damage threshold (0.5 in/sec for masonry buildings) for any of the Build Alternatives.

DEIS at 4.17-18. Appendix D.10 predicts operational vibration levels at the twenty receptors considered along the alignments, but again there is no information provided to support the totals provided in this table and the description of the table does not indicate whether these numbers were taken into account when calculating the vibration totals provided. DEIS App. D.10 at 10.6-37 to 10.6-38. None of the calculations or supporting data for the totals provided in Table 4.17-7 are included in the DEIS. Without this information, the public cannot comment on or verify these conclusions. The complete set of calculations used to obtain these totals and supporting data must be provided.

The FRA also did not adjust for effects from individual building foundations and indicated that this analysis would be done during the final design stage. DEIS at D.17-8. However, this analysis should be performed while the alignment alternatives are being considered during the NEPA process, or else the FRA will be foreclosed from assessing and selecting an appropriate alignment. This gap in analysis is of particular concern to Greenbelt given that SCMAGLEV vibration impacts may affect historic properties within the Greenbelt Historic District.

Greenbelt requests that the FRA provide a detailed analysis of vibration impacts from the J and J1 alignment transition portals proposed in and near Greenbelt (including impacts from all proposed facility systems) and from the tunnels that would run under Eleanor Roosevelt High School and residential properties within Greenbelt. *See also* Section II.G.2.b(2) for additional discussion of the lack of geotechnical and geological evidence provided to assess potential vibrations from SCMAGLEV train operations in the tunnel and lack of data regarding how vibrations may influence soil properties long term.

4. The FRA Does Not Sufficiently Evaluate the Project's Impacts on Utilities

In its discussion in the DEIS regarding utilities in the Project area, the FRA does not attempt to quantify the Project's impacts on utilities and the need for utility relocation; it does not take the required "hard look" at the issue. The DEIS states that:

The SCMAGLEV Project would intersect several major utility corridors, requiring relocation of the utilities within these corridors to accommodate the SCMAGLEV Project. Major utility corridors are existing, regional rights of way through which underground or aboveground power or other services, such as water, are conveyed. Major utility relocation would be required to address physical conflicts and to enable safe operations for the utilities as well as the SCMAGLEV Project.

DEIS at 3-36. Although the DEIS later describes that the FRA found two conflicts to existing transmission lines along the viaduct portion of the Build Alternatives, *id.* at 4.20-2, it does not evaluate the environmental impacts from all necessary relocations, nor who would be responsible for the costs of these relocations. Importantly, the FRA must be clear that the public would bear no responsibility to pay increased utility costs caused by the Project. The DEIS also does not

consider the Project's impact on private utilities, including central plants for water and sewer service with miles of underground piping as well as utility cables, owned by condominium communities and maintained privately by homeowners' associations. All Build Alternatives will tunnel under and transition to the portals near condominium communities with these private utilities. *See* Section II.G.2.b. Moreover, the DEIS does not evaluate the cumulative impact of utility relocation required by the Project, including power, water, and other services, combined with other reasonably foreseeable projects, including, but not limited to, the I-495 Beltway expansion and improvements to the existing Northeastern Corridor rail.

The DEIS also states that the impact from power transmission congestion is not known at this time but any adverse impacts will be appropriately identified and mitigated through the regional transmission organization's planning process. DEIS at 4.19-13 to 14, 4.20-2. It is not clear how the FRA could know that adverse impacts would be appropriately mitigated without knowing what those impacts and mitigation steps would be. The public deserves to know if the Project would increase their electricity costs, decrease their electricity reliability, or cause dirtier and more expensive electricity sources to remain online longer. The FRA also may not ignore the significant environmental impacts from power transmission congestion, *see also* Section II.E.

With regard to construction impacts, the DEIS notes generally that "[t]he mainline viaduct portions have a potential to impact existing utilities on the surface and underground (piers/foundations)." DEIS at 4.20-3. The DEIS further states: "Utility impacts could also occur at the transition portals, the underground guideway switching locations, the underground station locations, and the TBM launch/retrieval sites, where top-down construction methods will be applied." *Id.* The FRA must do more than generally mention potential impacts to comply with NEPA: the FRA must evaluate those utility impacts on the surface and underground at the viaducts and at the transition portals, the underground guideway switching locations, the underground station locations, and the TBM launch/retrieval sites, as well as the deep tunnel, or offer a valid explanation for why the agency could not do so. It is implausible that the FRA does not have access to the information needed on the location of existing utilities that would be impacted.

The DEIS's consideration of mitigation for these unexplored impacts is also insufficient. The DEIS states that "The Project Sponsor is in ongoing dialogue with the relevant utility companies to determine whether utility conflicts will be removed, relocated, re-routed, adjusted vertically, or otherwise modified in the final engineering design." DEIS at 4.20-4. The DEIS continues:

The Project Sponsor will continue to coordinate with utility operators between preliminary engineering and final design and incorporate measures to avoid, minimize, and mitigate potential utility conflicts. Design modifications could be made to avoid utility conflicts, such as modifying viaduct pier locations or tunnel depth where reasonably feasible to avoid underground utilities. For example, the Project Sponsor will design, obtain permits and rights-of-way, and construct the SCMAGLEV Project to avoid the utility conflict at the WSSC CSO tunnel. Prior to completion of final design, the Project Sponsor will develop a utility relocation plan as part of the overall Project construction plan. The utility relocation plan will identify the utilities to be relocated, the procedures for relocation and the responsible parties, and the schedule for utility work.

...

For utility conflicts that cannot be avoided, the Project Sponsor will identify and implement appropriate measures to mitigate conflicts, in coordination with the relevant utilities. Mitigation strategies could include raising, lowering, burying, relocating and protecting utilities.

Id. at 4.20-4; *see also id.* at 3-36 (“During subsequent design, the Project Sponsor will coordinate with the utility operators to develop and obtain approvals for major utility relocations.”). These platitudes are meaningless and violate NEPA. Once again, the FRA makes statements about mitigation measures the Project Sponsor will implement without knowing what the issues even would be. The public has no basis to meaningfully comment on these impacts and mitigation measures. There is no justification for why an analysis of potential utility conflicts and possible mitigation plans could not have been completed prior to the release of the DEIS. To comply with NEPA, the FRA must evaluate this information in the environmental impact statement and provide it to the public for comment before making a decision on the Project.

K. The Cumulative Impacts Discussion Lacks Any Specificity or Quantified Analysis, in Violation of NEPA

A cumulative impact is defined as the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” 40 C.F.R. § 1508.7 (2019). As part of its EIS, the FRA must measure the cumulative environmental effects of its proposed action. 40 C.F.R. § 1508.8 (2019); *see also* 40 C.F.R. §§ 1508.7 (2019); *N.C. Wildlife Fed’n*, 677 F.3d at 602.

“Conclusory statements that the indirect and cumulative effects will be minimal or that such effects are inevitable are insufficient under NEPA.” *N.C. Wildlife Fed’n*, 677 F.3d at 602. Instead, an EIS must include a “useful analysis of the cumulative impacts of past, present and future projects.” *Carmel-by-the Sea*, 123 F.3d at 1160; *accord Ocean Advocs. v. U.S. Army Corps of Engineers*, 402 F.3d 846, 868 (9th Cir. 2005) (“an agency must provide ‘some quantified or detailed information; . . . [g]eneral statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided.’”) (quoting *Neighbors of Cuddy Mountain*, 137 F.3d at 1379-80). “It is not appropriate to defer consideration of cumulative impacts to a future date when meaningful consideration can be given now.” *Envtl. Prot. Info. Ctr. v. U.S. Forest Serv.*, 451 F.3d 1005, 1014 (9th Cir. 2006).

“A meaningful cumulative impact analysis must identify (1) the area in which the effects of the proposed project will be felt; (2) the impacts that are expected in that area from the proposed project; (3) other actions—past, present, and proposed, and reasonably foreseeable—that have had or are expected to have impacts in the same area; (4) the impacts or expected impacts from these other actions; and (5) the overall impact that can be expected if the individual impacts are allowed to accumulate.” *Del. Riverkeeper Network*, 753 F.3d at 1319 (quoting *Grand Canyon Trust v. FAA*, 290 F.3d 339, 345 (D.C. Cir. 2002)). Cumulative impact analyses are insufficient when they discuss only the direct effects of the project at issue on a small area and merely contemplate other

projects without any quantified assessment of their combined impacts. *Bark v. U.S. Forest Serv.*, 958 F.3d 865, 872-73 (9th Cir. 2020); *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 994 (9th Cir. 2004).

Despite these admonitions, the eight-page “cumulative effects assessment” in the DEIS contains no meaningful analysis and is so inadequate that it precludes meaningful review. The DEIS provides merely a cursory and general discussion of potential cumulative impacts with no quantification or details, along with conclusory remarks. The DEIS provides a table with “Representative Present and Reasonably Foreseeable Future Actions” but gives no information about any of the projects listed; it merely names them. DEIS at 4.23-6 to 7. The DEIS does not provide any specific factual findings or other meaningful analysis about the listed projects that would allow for informed decision-making. Most of the reasonably foreseeable future actions listed in the table are not even mentioned again in the chapter on cumulative effects (4.23), or anywhere else in the DEIS where cumulative effects are discussed.

The table provided below illustrates the FRA’s failure to include any meaningful discussion in the DEIS of the cumulative impacts expected from the Project in conjunction with other reasonably foreseeable projects nearby. The left-hand column lists the various “resources of interest” identified in the cumulative impacts chapter of the DEIS, and the right-hand column contains the conclusions in the DEIS of cumulative impacts to those resources. This comparison makes it unmistakable that the DEIS merely restates direct impacts from the Project on the listed resources and then generally opines that other actions may also impact these resources:

Resources of Interest	DEIS Conclusions of Cumulative Effects
Transportation	“Multiple projects that are simultaneously in the construction phase have the potential to create more disruption to transportation services than that caused by a single project. In some instances, travelers may choose alternative transportation to carry out their daily commutes. How travelers will choose to travel is unknown and would be influenced by their commuting patterns and ongoing construction of other transportation projects.” DEIS at 4.23-9 to 10.
Acquisitions and Displacements	“Cumulative impacts could result where impacted properties coincide with parcels impacted by other reasonably foreseeable future actions. . . . Likewise, cumulative impacts to neighborhoods could occur where properties within the same neighborhood are impacted by multiple projects. . . . If those neighborhoods are impacted by other projects, such as other noted transportation projects, then they would experience cumulative effects.” DEIS at 4.23-10.
Socio-Economics	“Generally, other reasonably foreseeable future actions in the vicinity of the SCMAGLEV Project are anticipated to

	<p>produce additional economic benefits and impacts. The SCMAGLEV Project, in combination with these other reasonably foreseeable future actions, has the potential to result in cumulative economic impacts and influence economics in the region.” DEIS at 4.23-10 to 11.</p>
<p>Neighborhoods and Community Facilities</p>	<p>“Generally, other reasonably foreseeable future actions in the vicinity of the SCMAGLEV Project are anticipated to produce additional impacts on neighborhoods and community facilities, in particular commercial and residential development projects and transportation projects that may bisect communities and impact community cohesion, such as road widening projects, as well as result in additional changes in aesthetics and visual appearance, noise, and access and mobility.</p> <p>The SCMAGLEV Project would have direct and indirect effects on neighborhoods, that in combination with other reasonably foreseeable future actions, would contribute to cumulative effects. Cumulative effects would be felt most in neighborhoods closer to the SCMAGLEV Project, such as communities along the BWP and around TMFs and stations.” DEIS at 4.23-11.</p>
<p>Parks, Recreational Land and Open Space</p>	<p>“The I-495/I-270 Managed Lanes Study would result in an Adverse Effect on the BWP. This impact combined with the proposed improvements of the SCMAGLEV Project would result in cumulative effects on the BWP. . . . Generally, other reasonably foreseeable future actions in the vicinity of the SCMAGLEV Project could produce additional direct and indirect impacts on parks and recreational land, in particular transportation projects that may encroach on parkland to obtain additional right-of-way.” DEIS at 4.23-11 to 12.</p>
<p>Historic Properties</p>	<p>“The SCMAGLEV Project, in combination with other reasonably foreseeable future actions, would result in cumulative impacts to historic properties. Among the other reasonably foreseeable future actions, improvements to roadways and the NEC have the potential to impact historic properties, particularly where the right-of-way (ROW) expansion is planned and where induced development and redevelopment caused by those projects may occur. The proposed U.S. Department of the Treasury Currency Production Facility on property currently within BARC would result in significant adverse effects to the BARC Historic District due to visual changes. In addition,</p>

	the Washington, D.C. to Baltimore Loop Project also has the potential to impact historic properties.” DEIS at 4.23-12.
Visual and Aesthetic Resources	“Generally, other reasonably foreseeable future actions in the vicinity of the SCMAGLEV Project are anticipated to produce additional visual impacts, in particular projects that would result in a greater loss of trees and vegetation, for example by the addition of roadway travel lanes for the BWP widening and other roadway widening projects, and the proposed U.S. Department of the Treasury Currency Production Facility on property currently within BARC. The SCMAGLEV Project, in combination with these other reasonably foreseeable future actions, has the potential to result in cumulative visual impacts.” DEIS at 4.23-13.
Air Quality	“Other reasonably foreseeable future projects include roadway improvements to address congestion and capacity improvements along the BWP and NEC. Each of these other projects would have incrementally positive or negative effects on air quality. However, since the SCMAGLEV Project would generally benefit regional air quality, it would reduce any potential cumulative adverse effects on air quality.” DEIS at 4.23-13.
Noise and Vibration	“Generally, other reasonably foreseeable future actions in the vicinity of the SCMAGLEV Project are anticipated to produce additional noise and vibration, in particular projects that add capacity to the existing transportation system, such as airport runway extensions, new rail infrastructure, and other roadway widening projects as identified in Table 4.23-1. . . . The SCMAGLEV Project, in combination with these other reasonably foreseeable future actions, has the potential to contribute cumulatively to noise and vibration impacts. Cumulative noise and vibration impacts would also result if construction activities for the SCMAGLEV Project and adjacent projects occur concurrently.” DEIS at 4.23-14.
Environmental Justice (EJ)	“Since the large majority of block groups surrounding the SCMAGLEV Project qualify as EJ, other reasonably foreseeable projects could have benefits and/or impacts on these populations. Potential benefits and impacts include acquisition and/or displacement, increasing or decreasing affordable housing opportunities, changing employment opportunities, affecting business operations, changing

	neighborhood character and access to community and park resources, visual, noise, and/or vibration effects, changing the availability of consumer goods and services, changing public health and safety conditions, changing access to transit, increasing or decreasing congestion on roadways, and air quality impacts. . . . The SCMAGLEV Project, in combination with these other reasonably foreseeable future actions, has the potential to result in cumulative impacts on EJ populations due to the high concentrations of EJ populations within the SCMAGLEV Project Affected Environment.” DEIS at 4.23-14 to 15.
Utilities	“All other reasonably foreseeable actions listed in Table 4.23-1 would likely have impacts on existing utilities as they include large infrastructure and development projects and road widenings which often result in utility relocation. Thus, the SCMAGLEV Project, in combination with these other reasonably foreseeable future actions, has the potential to result in cumulative impacts on utilities.” DEIS at 4.23-15.
Energy	“The SCMAGLEV Project, in combination with these other reasonably foreseeable future actions, has the potential to result in cumulative impacts on energy as operation of the SCMAGLEV Project would add over 40 percent to regional transportation energy use which would also increase with the implementation of reasonably foreseeable projects as described above.” DEIS at 4.23-16.
Natural Environment	“Other reasonably foreseeable actions listed in Table 4.23-1, particularly those that expand existing roadways and develop new land uses (such as the proposed U.S. Department of the Treasury Currency Production Facility at BARC), would further reduce natural areas and their functions by creating new impervious surfaces and potentially impacting water and ecological resources. The SCMAGLEV Project, in combination with these other reasonably foreseeable future actions, has the potential to result in cumulative effects on natural resources although the SCMAGLEV Project would be compliant with Federal, state and local laws and regulations.” DEIS at 4.23-17.

As shown above, the “cumulative effects assessment” in Section 4.23 of the DEIS consists of precisely the type of vague statements about possible effects and risks that courts have explained

do not constitute the hard look required under NEPA. There is nothing in the DEIS that constitutes the “quantified or detailed information” about the cumulative effects of the Project that is necessary for informed decision-making. *Ocean Advocates*, 402 F.3d at 868; *Bark*, 958 F.3d at 872-73. Moreover, without this information it is impossible to assess whether the FRA has considered how it might prevent or mitigate potential harms coming from the Project.

The proposed relocation of a currency production facility from Washington, D.C. to BARC, *see* DEIS at 4.23-7, Table 4.23-1, is of particular concern, as it would have profound impacts on the human and natural environment at and surrounding the area. The DEIS cursorily mentions that the facility would result in significant traffic impacts (although the DEIS does not differentiate whether those impacts are during construction, operation, or both), DEIS at 4.23-9, significant adverse effects to the BARC Historic District due to visual changes, *id.* at 4.23-12, including adverse visual impacts from loss of trees and vegetation, *id.* at 4.23-13, significant adverse environmental justice impacts from increased traffic, *id.* at 4.23-14 to 15, and a reduction in natural areas and their functions by creating new impervious surfaces and potentially impacting water and ecological resources, *id.* at 4.23-17. However, the DEIS provides no quantitative analysis of these impacts combined with the SCMAGLEV’s similar impacts, despite the availability of some of this information in the BEP DEIS and a BEP Transportation Impact Study. For example, the DEIS does not even consider the BEP Facility’s proposed changes to Powder Mill Road, or the additional impervious surface for roadways that could potentially be added in the area. The inadequacies of the cumulative impact discussion with respect to water resources is discussed in more detail in Section II.C.8.

The SCMAGLEV, including the proposed build alternatives that would install a trainset maintenance facility within BARC, would exacerbate these same impacts and others. The DEIS does not, however, provide any quantified or detailed information on or any consideration or analysis of how these cumulative impacts from these two overlapping projects would affect BARC and surrounding areas and communities.

The DEIS also does not sufficiently account for cumulative impacts from the I-495 Beltway expansion, including the significant water (including stormwater), air, and traffic impacts that will be magnified by the combination of the two projects. Like the SCMAGLEV, the Beltway expansion will disturb and permanently destroy important greenspace within and near Greenbelt, used by the community and necessary for water drainage and air quality benefits. Both projects will also cause increased noise during construction and operation and require significant utility relocation, the cost of which could potentially be borne by the public. And both projects will cause increased traffic and air pollution during the many years required for construction, which are likely to overlap.

Yet the DEIS does not analyze the cumulative traffic and air impacts from the significant construction work occurring in close proximity and the heavy vehicles that will be traveling along the same roads. *See* DEIS App. G7 at PDF pg. 91-92, 95 (BWRR indicated that it intends to send construction vehicles and delivery trucks via the I-495 Beltway). Nor does the DEIS analyze the cumulative water, greenspace, noise, and utility relocation impacts. MDOT released a draft environmental impact statement for the Beltway expansion in July 2020, and has since recommended a preferred alternative and selected a private vendor, so the information needed to perform a cumulative impact analysis should be readily available. The only impact the DEIS even

mentions, and insufficiently analyzes, is a cumulative effect on the Baltimore-Washington Parkway. DEIS at 4.23-11. This superficial consideration does not satisfy NEPA's requirement to take a hard look at cumulative impacts.

The DEIS also ignores the environmental impacts of the expansion of the SCMAGLEV to New York City and New England. That expansion is reasonably foreseeable; BWRR's own website states "Ultimately, the system will be extended to New York City."⁸⁷ As explained above in Section II.A.5, given that the currently proposed Washington, D.C. to Baltimore segment is not economically viable without the expansion, the environmental impacts of that expansion should be considered alongside the impacts from the current segment. At a minimum, its impacts should have been considered in the cumulative impacts section of the DEIS. Instead, the only time the DEIS mentions the expansion to New York City is as a potential mitigation strategy to improve the energy efficiency of the Project. It is unlawful for the DEIS to (vaguely) mention the additional segment in the context of a beneficial impact it might have, while ignoring all its adverse impacts.

The DEIS does not mention the reasonably foreseeable widening of Kenilworth Avenue/MD 201 to accommodate increased traffic from this Project and others (such as the currency facility proposed to be relocated to the BARC). Indeed, the DEIS suggests that material will be hauled via Kenilworth Avenue/MD 201, but it provides no discussion of the traffic or other cumulative impacts that might result. DEIS at 4.1-6.

The DEIS also does not mention the following reasonably foreseeable actions:

- Possible relocation of the Federal Bureau of Investigation Headquarters from Pennsylvania Avenue, Washington D.C. to Prince George's County. Greenbelt is one of the proposed sites under consideration. The proposed project design includes remodeling and expansion of the Greenbelt Metrorail Station and includes impacts to wetlands in the Indian Creek Watershed;
- Sunnyside Avenue Bridge Replacement Capital Improvement Program (CIP) Project between Edmonston Road (MD 201) and the CSX railroad;
- Expansion of US 1 (Baltimore Avenue) College Avenue/Regents Drive to MD 193 (University Boulevard); and
- Purple Line Construction and Operation.

Along with the SCMAGLEV, these actions are of particular concern to Greenbelt because of their potential cumulative impacts on waterways, wetlands, groundwater, and floodplains. *See* Section II.C.8.

Additionally, as explained Section II.F, the discussion in the DEIS regarding cumulative impacts on air quality is inaccurate and misleading, contrary to the requirements of NEPA. It is incorrect to state that the SCMAGLEV would generally benefit regional air quality and reduce cumulative adverse effects on air quality, DEIS at 4.23-13, because doing so ignores the negative impacts on regional air quality from the significant electricity needed to construct and operate the SCMAGLEV. It also ignores the negative air quality impacts from construction and operation

⁸⁷ BWRR, Frequently Asked Questions, <https://bwrapidrail.com/facts/>, visited April 28, 2021.

described above. Moreover, the DEIS fails to consider the cumulative impacts from GHG emissions, which are necessarily cumulative in nature, *id.* The FRA must reasonably quantify GHG emissions from the construction and operation of the SCMAGLEV, evaluate them together with GHG emissions from the reasonably foreseeable projects in the region, and place those in the context of local, regional, national, and international climate change impacts. *See WildEarth Guardians v. Bernhardt*, No. CV 16-1724 (RC), 2020 WL 6701317, at *7-9 (D.D.C. Nov. 13, 2020); *accord Del. Riverkeeper Network*, 753 F.3d at 1319. The FRA cannot waive away this obligation by stating, “individual sources of GHG emissions are not large enough to have appreciable effects on climate change,” DEIS at 4.23-13, without performing any quantification or analysis. *See WildEarth Guardians v. Zinke*, 368 F. Supp. 3d 41, 76-77 (D.D.C. 2019).

III. THE DEIS’S ENVIRONMENTAL JUSTICE DISCUSSION IS INSUFFICIENT UNDER NEPA, TITLE VI OF THE CIVIL RIGHTS ACT, EXECUTIVE ORDER 12,898, USDOT ORDER 5610.2(a), AND PRESIDENT BIDEN’S RECOMMITMENT TO ENVIRONMENTAL JUSTICE

The FRA recognizes in the DEIS that minority and low-income populations comprise a majority of the communities that would be adversely affected by the Project’s environmental impacts, DEIS at 4.5-5 to 6. Moreover, these environmental justice (EJ) impacts would occur along the length of the SCMAGLEV corridor. *Id.* at ES-15. Considering the magnitude of the Project, its extensive environmental impacts, including economic and transportation impacts, and that it traverses minority and low-income communities, the FRA’s need to consider and achieve environmental justice cannot be overstated. Unfortunately, the FRA fails to comply even at a bare minimum with its environmental justice obligations.

EPA explains that:

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. This goal will be achieved when everyone enjoys:

- The same degree of protection from environmental and health hazards, and
- Equal access to the decision-making process to have a healthy environment in which to live, learn, and work.⁸⁸

Title VI of the 1964 Civil Rights Act prohibits discrimination in programs and activities receiving federal financial assistance, stating “no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.” 42 U.S.C. § 2000d.

⁸⁸ U.S. Env’tl. Prot. Agency, Environmental Justice, (Mar. 4, 2021), <https://www.epa.gov/environmentaljustice>.

Executive Order 12,898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (Feb. 11, 1994), requires each Federal agency to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations[.]”

The CEQ has issued guidance on considering environmental justice impacts under NEPA, directing that “[a]gencies should consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed action, and if so whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes.” Environmental Justice Guidance Under the National Environmental Policy Act, at 9 (Dec. 10, 1997). The analysis requires examination of qualitative as well as quantitative factors:

Agencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action. These factors should include the physical sensitivity of the community or population to particular impacts; the effect of any disruption on the community structure associated with the proposed action; and the nature and degree of impact on the physical and social structure of the community.

Id. at 6. The purpose of the environmental justice analysis is to determine whether the proposed federal action will have a “disproportionately adverse effect on minority and low-income populations.” *Mid States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 541 (8th Cir. 2003). An EIS must *compare* impacts on populations to determine whether the environmental justice impacts “appreciably exceed” impacts to the general population. CEQ Guidance at 26-27. Not only should the comparison be quantitative, but the distinct culture and structure of environmental justice communities means the comparison should include qualitative analysis as well. *See id.* at 14. As with all NEPA requirements, agencies must “take a ‘hard look’ at environmental justice issues.” *Sierra Club v. FERC*, 867 F.3d 1357, 1368 (D.C. Cir. 2017).

The Office of the Secretary of Transportation issued Updated Environmental Justice Order 5610.2(a), which states the USDOT’s commitment to consider environmental justice principles in all USDOT programs, policies, and activities; describes how the objectives of environmental justice will be integrated into planning and programming; and sets forth policies to prevent disproportionately high and adverse environmental effects to minority or low-income populations. Order 5610.2(a) highlights the importance of avoiding disproportionately high and adverse environmental justice effects in programs, policies, and activities, and includes as its aim the identification of potential effects, alternatives, and mitigation measures.⁸⁹ *Id.* § 6. The Order adopts a goal to “avoid[], minimize[] or mitigate[]” disproportionate effects. *Id.*; *see also id.* § 7(c)(2).

⁸⁹ The Order defines disproportionately high and adverse effect as an adverse effect that:

In order to comply with USDOT Order 5610.2(a), Executive Order 12,898, and Title VI, USDOT officials must ensure that any of their programs, policies, or activities that will have a disproportionately high and adverse effect on minority populations or low-income populations “will only be carried out if further mitigation measures or alternatives that would avoid or reduce the disproportionately high and adverse effect are not practicable.” Order 5610.2(a) § 8(c). Activities that will have a high and adverse effect on populations protected by Title VI can only be carried out if (1) a substantial need for the program, policy, or activity exists; and (2) alternatives that would have less adverse effects on protected populations, either (a) would have other adverse social, economic, environmental or human health impacts that are severe or (b) would involve increased costs of extraordinary magnitude. *Id.* § 8(d).

Recently, President Biden expanded on the federal government’s commitment to environmental justice and issued an Executive Order On Advancing Racial Equity and Support for Underserved Communities Through the Federal Government, explaining the goal to prioritize environmental justice and that “the Federal Government should pursue a comprehensive approach to advancing equity for all, including people of color and others who have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality.” Exec. Order No. 13,990 of Jan. 20, 2021, 86 Fed. Reg. 7,037 (Jan. 25, 2021). “The order formalizes President Biden’s commitment to make environmental justice a part of the mission of every agency by directing federal agencies to develop programs, policies, and activities to address the disproportionate health, environmental, economic, and climate impacts on disadvantaged communities.” The White House Briefing Room, FACT SHEET: President Biden Takes Executive Actions to Tackle the Climate Crisis at Home and Abroad, Create Jobs, and Restore Scientific Integrity Across Federal Government (Jan. 27, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/27/fact-sheet-president-biden-takes-executive-actions-to-tackle-the-climate-crisis-at-home-and-abroad-create-jobs-and-restore-scientific-integrity-across-federal-government/>.

A. The Project Will Have Disproportionately High and Adverse Effects on Minority and Low-Income Communities

The DEIS acknowledges that the Project’s negative impacts will be borne predominantly by minority populations that live along the proposed routes and throughout the impacted corridor, including in Washington, D.C., Prince George’s County (including Greenbelt), Anne Arundel County, and Baltimore. At the same time, the Project’s purported benefits will not be realized by these communities. The DEIS recognizes:

(1) is predominately borne by a minority population and/or a low-income population, or

(2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

Order 5610.2(a), App. § 1(g).

- “Environmental justice impacts would occur along the length of the SCMAGLEV Project corridor particularly in proximity to aboveground construction, including the stations, viaduct, tunnel portals, TMF sites, and ancillary facilities.” DEIS at ES-15.
- “Due to the prevalence of EJ population areas, impacts to resources along the corridor will predominately be located in EJ population areas.” *Id.* at 4.5-7.
- “Generally, the majority of the SCMAGLEV Project impacts for each Build Alternative, as identified throughout Chapter 4 of this DEIS, would occur within EJ population areas, given that the large majority of the Affected Environment consist of EJ populations.” *Id.* at 4.5-9.

The DEIS recognizes notable disproportionate impacts to community facilities, parkland, aesthetics and visual quality, cultural resources, hazardous materials, noise, vibration, and land use, both long-term and during construction. DEIS at 4.5-9 to 21. In particular, the DEIS recognizes that 47 out of 56 locations that would be subject to moderate or high sensitivity aesthetic impacts are in EJ population areas, *id.* at 4.5-13, over 99% of impacted noise receptors are located within EJ population areas, *id.* at 4.5-15 to 16, 100% of severe vibration impacts would be felt in EJ population areas, *id.* at 4.5-16, and approximately 80% of the parcels that would be impacted are located within EJ population areas, *id.* To emphasize, of the hundreds of parcels that would be permanently or temporarily impacted by the Project, including by the full or partial taking of numerous residential properties, 80% would be located in minority and low-income communities. *See id.* at 4.3-9 to 11, 4.5-16 to 17; DEIS App. D.3 at E-118 to 119. Greenbelt, a majority minority city, would be among those impacted communities. Greenbelt also would be subject to the proposed taking and destruction of significant community properties, some of which are also used by nearby minority and low-income populations, which the DEIS overlooks.

Despite the clear disproportionate adverse effects on minority and low-income populations, the FRA sidesteps making this finding in the DEIS. The DEIS states, “FRA will continue to analyze and consider adverse effects, related mitigation, benefits, and public input to inform FRA’s determination in its final decision document about whether the SCMAGLEV Project would result in disproportionately high and adverse effects to EJ populations,” without providing any justification for postponing this determination. *See* DEIS at 4.5-5. The FRA should have made this determination and included its full analysis, pursuant to USDOT Order 5610.2(a), so that the public and EJ communities in particular could meaningfully review and comment on it before the FRA finalizes its evaluation of the Project’s environmental impacts and makes a decision on the Project. The FRA’s failure to do so violates the USDOT Order and NEPA, as well as the principles articulated in Title VI and the executive orders described above, and prevents full and fair participation by all potentially affected communities in transportation decision-making processes.

B. The DEIS Ignores Numerous Impacts from the Project on Minority and Low-Income Populations

There are a number of deficiencies in the analysis in the DEIS of adverse Project impacts on environmental justice communities. First, the FRA improperly limits its environmental justice evaluation to neighborhoods that are within a 500-foot buffer of the proposed route or one-quarter-

mile buffer of the stations and TMF locations. *See* DEIS at 4.5-3 to 4. The DEIS does not explain why the FRA chose this buffer but it is arbitrarily narrow.⁹⁰ By limiting its consideration of environmental justice impacts to only those communities within one-quarter mile of the stations and TMF locations, and 500 feet of the rest of the routes, the DEIS improperly ignores reasonably foreseeable harmful impacts from the Project.

The Project Sponsor has proposed a seven-year construction period that will involve heavy construction equipment transporting materials to construction sites and transportation and disposal of over 23 million cubic yards of soil. DEIS at ES-16, 4.1-6 to 9. The Project Sponsor has proposed over a dozen construction sites, with hundreds of heavy truck and auto arrivals and departures operating 24 hours a day. *See, e.g.*, DEIS App. D.2 at A.15-84 to 91. The Project Sponsor has also proposed routes through environmental justice communities for thousands of trucks to stage, bring in equipment and materials, and remove and dispose of waste and spoils from all the construction sites.

Although insufficiently evaluated, the DEIS generally explains the Project will result in “[o]verall degradation of general traffic operations on roadways leading to work sites based on slow moving traffic impacting roadway operations and traffic throughput.” *Id.* at 4.2-39. The DEIS also generally explains that transit services will be impacted by construction activities. *Id.* at 4.2-40 to 41. The DEIS does not address the additional safety concerns created by such a significant increase in heavy trucks on the roads. Such impacts will, moreover, most assuredly occur more than 500 feet from the proposed SCMAGLEV routes and a quarter mile from the proposed stations and TMF locations.

The FRA must evaluate and present to the public the adverse impacts on minority and low-income communities from these trips and from the dumping of waste, including their effects on traffic, transit services, and safety, and must identify precisely where these impacts will occur rather than arbitrarily cutting off its evaluation of these impacts at 500 feet or a quarter mile.

Second, the FRA relied on census block group data for its environmental justice analysis. *See* DEIS at 4.5-4 to 5. From an environmental justice standpoint, this information is not specific enough to understand and properly address the unique needs of different socio-economic and community-based groups. Census data is deficient because it excludes “pockets of minority or

⁹⁰ Recently, the Dallas to Houston High Speed Rail EIS utilized a one-half mile zone in each direction from the centerline of the project for its EJ analysis. Dallas to Houston HSR EIS, at 3.18-3 (May 2020), <https://railroads.dot.gov/elibrary/dallas-houston-hsr-final-eis-main-text-ii>. The environmental justice analysis conducted for the Purple Line included census tracts that fall within 500 feet of the alignment or within a half-mile radius of a proposed station. Purple Line Final Environmental Impact Statement, at 4-143 (Aug. 2013), <https://www.purplelinemd.com/component/jdownloads/send/23-volume-1/107-chapter-4-environmental-resources-impacts-and-mitigation>. The Army Corps of Engineers also has stated that transportation projects, such as under the Federal Transit Administration, typically use a .5-mile buffer area to examine environmental justice effects. *See* Environmental Assessment Dakota Access Pipeline Project Crossings of Flowage Easements and Federal Lands, at 84 (July 2016), <https://usace.contentdm.oclc.org/digital/collection/p16021coll7/id/2801>.

low-income communities, including those that may be experiencing disproportionately high and adverse effects.” EPA, Final Guidance for Incorporating Environmental Justice Concerns in EPA’s NEPA Compliance Analyses, at 2.1.1 (1998). Further, as the Federal Highway Administration has found, census data cannot reveal the intricate communal networks that could exacerbate negative impacts on environmental justice populations. *See* FHWA, U.S. DOT, Environmental Justice Reference Guide, at 15 (2015). To remedy these limitations, the FRA’s environmental justice analysis must incorporate supplemental data. For instance, the environmental justice analysis should include data from a full range of state and local health, environmental, and economic agencies. *See* CEQ, Exec. Office of the President, Environmental Justice Guidance Under the National Environmental Policy Act 14 (1997). Incorporation of this data into the EJ analysis is necessary both to determine impacts and to propose and evaluate mitigation to address the particular needs of the affected groups.

Third, as explained in Section II.F, the DEIS fails to consider in any detail the air quality impacts associated with the significant energy that would be required for the Project’s construction and operation. This energy usage includes the 4.9 trillion Btus needed either annually or in total for tunnel boring activities alone, coming either from the grid or from diesel generators. *See* DEIS at 4.19-14; *id.* at 4.16-6. It also includes the estimated 4 trillion Btus annually for SCMAGLEV operations coming from power plants on the grid. *See id.* at 4.9-10. Incredibly, the entirety of the air quality environmental justice discussion in the DEIS is the following:

The SCMAGLEV Project would likely result in a localized increase to mobile source air emissions throughout the affected environment, particularly in areas around station locations due to increased traffic (see Section 4.16 Air Quality). However, the operations of the SCMAGLEV Project would reduce overall mobile source air emissions regionally.

...

The SCMAGLEV Project . . . could cause potential short-term impacts to air quality (fugitive dust and construction equipment exhaust)[.]

DEIS at 4.5-19. This discussion is plainly insufficient, even putting aside the FRA’s narrow evaluation area. Proper analysis of air quality is especially important in the environmental justice context. Over the past 40 years, research has connected localized air pollutants to adverse health outcomes, including pulmonary and cardiovascular disease, neurological effects, and cancer. 83 Fed. Reg. 42,986 (Aug. 24, 2018). These effects are compounded in environmental justice populations who are disproportionately exposed to harmful air pollution from nearly all major emission categories. *Id.*; Christopher W. Tessum, et al., *PM_{2.5} Polluters Disproportionately and Systemically Affect People of Color in the United States*, *Science Advances*, Apr. 2021, <https://advances.sciencemag.org/content/advances/7/18/eabf4491.full.pdf>. To the extent that the power needed for construction will come from diesel generators on site, the FRA must evaluate the impacts of those diesel emissions on the nearby minority and low-income communities. The FRA must fully analyze the impact of the proposed significant increase in heavy trucks on the roads in these environmental justice communities; one vague sentence about potential impacts does not adequately inform the public or the FRA. The FRA also must evaluate the impacts of air emissions on communities living outside the narrow buffer area, since the agency knows that air

emissions travel more than 500 feet from their source. In addition, the use of electricity from the grid will cause increased harmful emissions to minority and low-income communities near the power plants that would be supplying that power, including the Brandywine community in Prince George's County, which has four power plants within a 13-mile radius.

Fourth, the DEIS ignores possible harmful impacts from the Project on the transit services that minority and low-income communities disproportionately rely on, namely, MARC, Amtrak, Metrorail, Light RailLink, Metro SubwayLink, WMATA bus service, RTA bus service, and MDOT MTA bus service. Specifically, the DEIS relies on predicted diversions from other transit services to the SCMAGLEV to boost positive economic, transportation, energy, and air quality impacts that it attributes to the Project. The DEIS also projects that MARC and Amtrak would suffer around a \$30 million annual loss if the SCMAGLEV is placed into service, which would necessitate service reductions that might in turn exacerbate the loss. DEIS at 4.2-10, 4.2-13, App. D.4 at D-56. The DEIS even projects significant decreases in energy consumption from bus and rail travel in the region in 2045, estimating that both would be cut by more than half compared to the No Build option, presumably based on there being significant reductions to routes, frequency of service, and stations served. DEIS at 4.19-11. Yet, the DEIS conveniently ignores how this predicted reduction in services would impact minority and low-income communities in the region, who disproportionately rely on these services. As the DEIS should recognize, most of these communities do not have the option to switch to the SCMAGLEV, due to cost and station locations. Moreover, this adverse impact would not be limited to a quarter mile from a station or TMF location or 500 feet from the routes.

Finally, although the DEIS recognizes that the Project's Build Alternatives have the potential to increase traffic delays within EJ population areas near stations and TMF locations, it does not quantitatively or even qualitatively analyze these harmful impacts. Instead, the DEIS concludes that, for travelers able to access and afford the SCMAGLEV:

In general, the addition of SCMAGLEV Project to the transportation network will change the way in which trips are made within the SCMAGLEV Project Affected Environment, with individual travelers making trip choices based on factors such as changes in cost and total trip time. One impact of the addition of SCMAGLEV Project to the network will be changes in forecasted Build Alternatives aggregate travel times within the SCMAGLEV Project Affected Environment when compared to the No Build Alternative. The SCMAGLEV Project will result in forecasted travel times savings in 2030 and 2045, and for both Baltimore Station scenarios. This decline is a result of the forecasted diversion of trips from modes with longer travel times to the SCMAGLEV system and is a benefit for travelers within the SCMAGLEV Project Affected Environment.

DEIS at 4.5-10.

As explained above in Section II.B.5, the travel time savings estimated in the DEIS are overstated by a factor of five or more and should not be relied on. Moreover, the FRA's presentation of this information in the environmental justice section of the DEIS, without attempting to evaluate which populations would benefit from these travel time savings and which populations would be hurt by the corresponding decreases in other public transit services, misleads

the public, in violation of NEPA. In fact, only a wealthy segment of the population that lives and works in specific geographic locations convenient to the proposed stations would benefit from the purported travel time savings. Low-income communities would not be able to afford the proposed \$70-79 peak and \$59-\$69 off-peak one-way ticket prices between Washington, D.C. and Baltimore. DEIS App. D.2 at D-108; *see also* Owen A Kelley, *Maglev Riders Would Come From the Wealthiest 2% of the Baltimore-Washington Population*, Greenbelt Online (May 2, 2021), <https://www.greenbeltonline.org/maglev-wealth/>. Minority communities that are not located near the stations, such as those in Prince George’s County (including Greenbelt) and Anne Arundel County, would not be able to utilize the SCMAGLEV either. These imagined travel time savings thus would not help many minority and low-income communities, while at the same time the DEIS acknowledges that the Project would adversely affect the public transit options that these communities rely on.

C. General Statements in the DEIS that the FRA or the Project Sponsor Will Try to Reduce Impacts on EJ Communities Do Not Satisfy the Mitigation Requirements of NEPA and USDOT Order 5610.2(a)

Throughout the DEIS’s environmental justice section, the FRA seeks to minimize the disproportionate economic, social, health and environmental impacts of the Project on minority and low-income communities without actually examining those impacts or proposing mitigation plans. For example, the DEIS includes statements like the following: “The Project Sponsor wants local longtime residents, especially those in places like Cherry Hill and Westport who have been subject to years of chronic disinvestment, to benefit from the SCMAGLEV Project, specifically if Cherry Hill is selected as the Baltimore Station.” DEIS at 4.5-26. While the Project Sponsor may hope for certain local residents to benefit from the SCMAGLEV, the FRA’s duty is to fairly evaluate and *require* alternatives or mitigation measures that would avoid or reduce the disproportionately high and adverse effects on these and similar populations.

The DEIS’s discussion of the impacts from construction of the Project concludes with this statement:

Prior to construction, the Project Sponsor would develop and continually implement a Public Safety Plan for the SCMAGLEV Project. Maintenance of traffic plans would also be developed in accordance with local requirements and in consultation with emergency services to ensure that temporary detours and road closure would not significantly impact emergency response times.

DEIS at 4.5-21. Similarly, the DEIS concludes its discussion of economic impacts by recognizing that the cost of using the SCMAGLEV would be prohibitive for some “notably low-income populations in EJ areas near stations,” but “[t]he Project Sponsor is investigating opportunities for fare subsidies to provide greater access for low-income populations since the introduction of the SCMAGLEV Project would provide an additional transportation choice between Washington, D.C. and Baltimore.” DEIS at 4.5-18 to 19.

The Project Sponsor’s promise to develop and implement a “Public Safety Plan” and for “maintenance of traffic plans” and investigation of opportunities for fare subsidies sometime in the unspecified future contains no firm commitments and is too vague to be meaningful. These

vague promises also would not come close to addressing the suite of adverse impacts the Project would cause to environmental justice communities. The FRA and Project Sponsor also provide no evidence that they have evaluated the realm of options available to mitigate the disproportionate impacts to minority and low-income communities, despite their obligation to do so—and to make the information available to the public for review and comment—under NEPA and USDOT Order 5610.2(a) before moving forward with the Project.

Despite this lack of analysis, moreover, the FRA goes so far as to represent in the DEIS that transportation and economic benefits from the Build Alternatives would benefit minority and low-income populations and even offset the disproportionate harms to these communities. The DEIS must be grounded in facts, which appear to be the following: the minority and low-income communities along all of the SCMAGLEV’s proposed routes would disproportionately bear the brunt of the negative impacts from the Project and would realize none of the Project’s overstated benefits. No amount of vague statements concerning desirable but unspecified, to-be-determined mitigation changes this fact. Moreover, any purported economic benefits like temporary jobs during construction of the Project are tenuous at best, would not accrue to most individuals living in environmental justice communities, and could be achieved through alternatives with fewer disproportionate impacts on minority and low-income communities.

D. The Available Information in the DEIS Demonstrates that the Proposed Build Alternatives Would Violate USDOT Order 5610.2(a)

Even though the FRA has deferred a finding as to the economic, social, health and environmental impacts of the Project on minority and low-income populations, and in addition has not performed the assessment required by USDOT Order 5610.2(a), piecing together the information that is in the DEIS reveals that: 1) there is no substantial need for the Project, *see* USDOT Order 5610.2(a) § 8(d)(1); and 2) there are Build Alternatives that would address the claimed need for additional modes of transportation with fewer adverse effects on minority and low-income communities and at lower cost, or at least without increasing costs by an extraordinary magnitude, *id.* § 8(d)(2).

The DEIS claims that the SCMAGLEV is needed to address increasing population and employment opportunities in the area that will lead to further commuting, resultant increased demands on the existing transportation network as a result, and inadequate capacity of the existing transportation network. DEIS at 2-2. First, nothing in the DEIS shows that this purported need is still present given the increased prevalence of teleworking following the COVID-19 pandemic and accounting for the improvements planned for MARC, Amtrak, and other roadways. *See* Section II.A.3.

On the contrary, even the flawed information presented in the DEIS shows that there is not a substantial need for the Project. The cost-benefit analysis, when corrected for faulty ridership and time travel assumptions and inaccurate quantification of air quality emissions, *see* Sections II.B and II.F, shows a significant negative value for the Project, even before accounting for other environmental harms in addition to air quality, and without including the tens of billions of dollars needed for construction of the Project. The DEIS and a proper ridership analysis do not even show the Project would be able to sustain itself economically during operations. There is no substantial need for this Project and it should not go forward.

Further, even if there were a need for the Project, nothing in the DEIS shows that the SCMAGLEV, under any of the nearly identical SCMAGLEV Build Alternatives considered in the DEIS, is the only way to address this need. The FRA improperly limited its evaluation of the Project to only those Build Alternatives that would have essentially the same impacts on minority and low-income communities. In doing so, the FRA ignored numerous reasonable alternatives that would better take environmental justice concerns into account and cause less harm. *See* Section II.A.4. When considering Build Alternatives under USDOT Order 5610.2(a), the FRA must consider these other alternatives, including MARC and Amtrak improvements, bus improvements, conventional high-speed rail, different Maglev technology, a fully underground or significantly longer underground SCMAGLEV, an SCMAGLEV with a smaller trainset and thus smaller footprint, and alternative routes with an above ground portion that go through areas with a smaller percentage of environmental justice communities. The DEIS does not explain why many of these alternatives were not evaluated, but in any event, they must be evaluated under NEPA and USDOT Order 5610.2(a).

Moreover, according to the DEIS the SCMAGLEV Build Alternatives would have construction costs of above \$13.8 billion and \$16.8 billion in 2018 dollars, with no explanation for who would pay these costs.⁹¹ After a proper evaluation, the FRA would find that none of the alternatives listed above would “involve increased costs of extraordinary magnitude,” USDOT Order 5610.2(a) § 8(d)(2)(b), that is, costs significantly above \$13.8 to \$16.8 billion, if they would even amount to equivalent costs in the first place. Under a proper analysis, therefore, one of those options must be selected instead. DEIS at 4.6-16.

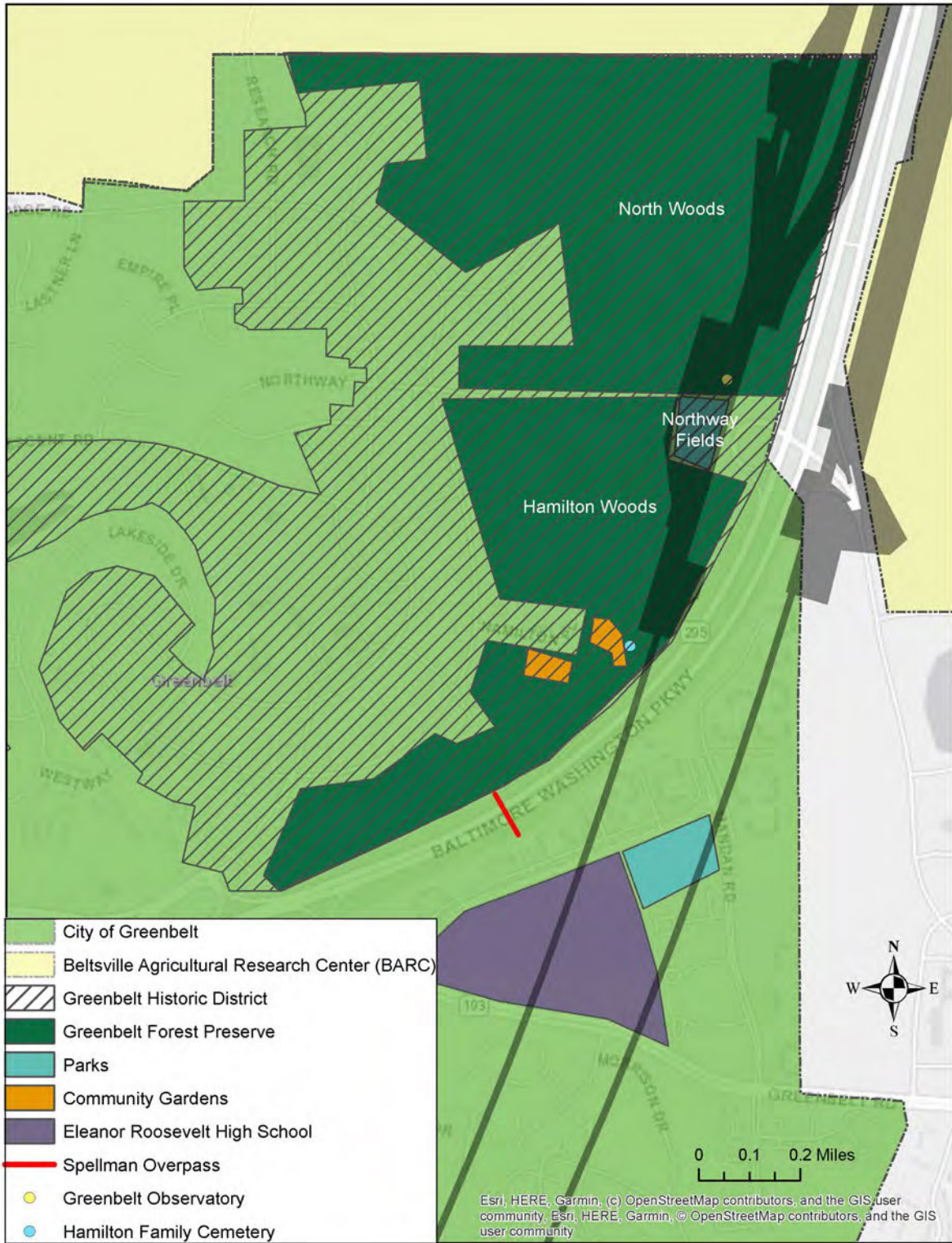
IV. THE DEIS DOES NOT ADEQUATELY CONSIDER IMPACTS TO GREENBELT HISTORIC AND CULTURAL RESOURCES, IN VIOLATION OF OTHER LAWS IN ADDITION TO NEPA

A. Description of Greenbelt Parks and Historic, Cultural, and Otherwise Significant Properties

Numerous parks, historic, cultural, and otherwise significant properties within Greenbelt will be harmed by the Project.

⁹¹ The DEIS does not present the capital construction costs of the Project, but instead leaves it to the public to guess the costs themselves from a table that presents purported job benefits from the Project. *See* DEIS at 4.6-16. This table does not even include the significant costs of the SCMAGLEV’s vehicles (traincars), nor of other items that would be manufactured outside the Washington-Baltimore-Arlington area. *Compare* DEIS App. D.4 at D-20, App. G9 at PDF p. 199 (listing capital cost of vehicles at 0 and 0% of total costs); *with Baltimore-Washington Maglev Project Draft Environmental Impact Statement and Section 4(f) Evaluation*, at ES-15 (Oct. 2003), <https://babel.hathitrust.org/cgi/pt?id=ien.35556034589457&view=1up&seq=43> (estimating vehicle costs at about 6.5% of total capital costs). This lack of transparency with respect to a key aspect of the Project, obscured further by the touting of the alleged economic benefits that spending on the Project would bring, violates NEPA requirements for accuracy and for public input in the evaluation process.

Figure IV.A.1: Greenbelt Parks and Historic, Cultural, and Otherwise Significant Properties Impacted by the SCMAGLEV Alignments



These are shown on the map above in Figure IV.A.1 and include, but are not limited to:

1. The Greenbelt Historic District

In 1919, the Garden and Town Planning Association in England, in conjunction with Ebenezer Howard, adopted the following definition of the term “garden city”:

A Garden City is a Town designed for healthy living and industry; of a size that makes possible a full measure of social life, but not larger; surrounded by a rural belt; the whole of the land being in public ownership or held in trust for the community.

Greenbelt was the first of three “greenbelt towns” built on garden city principles by the national Resettlement Administration in 1935-1938 as an attempt to solve social and economic problems confronting the nation. Defense housing was added to the community by the Farm Security Administration in 1941-1942. The plan of Greenbelt is a crescent-shaped layout of “superblocks.” Each superblock contains rows of frame and concrete-block group and multi-family dwellings. Most group house units are two stories tall and range from two to eight units long. All dwellings feature a garden and service side and are linked to one another via foot paths. Underpasses connect the housing to a town common, which features the original commercial buildings and community center/school. A recreational area with a swimming pool and athletic facilities is located behind the town common, and a 27-acre man-made lake is just beyond. Allotment gardens maintained by local residents since the community’s origin are positioned at the edge of town. The architecture of Greenbelt clearly reflects a modernist approach, with straightforward housing and more stylistically conscious public buildings.

The Greenbelt Historic District is a National Historic Landmark (NHL), determined by the Secretary of the Interior to be nationally significant in American history and culture and of exceptional value in representing or illustrating an important theme in the history of the nation. The Greenbelt Historic District is made up of over 400 contributing resources: buildings, sites, structures, or objects that add to the historical associations, historic architectural qualities, or archeological values for which a property is nationally significant because they were present during the period of significance, relate to the documented significance of the property, and possess a high degree of historical integrity.

In addition to being the first of the three greenbelt towns, Greenbelt is the largest and most complete. It is also the only one to retain many of its original features, such as all the Resettlement Administration housing and many buildings and sections of the surrounding “green belt.” Greenbelt continues the concept of community responsibility which was inherent in the original design, as the majority of the housing is owned by a cooperative. The Greenbelt Historic District NHL boundaries encompass 756.8 acres. The period of significance of the NHL is 1935-1946.

The Greenbelt Historic District is the only NHL contained within the Build Alternatives under consideration. The J1 Build Alternatives would directly impact the Greenbelt Historic District and many of its contributing resources, including the remaining portions of the green belt, composed in part of the North and South Tracts of the Greenbelt Forest Preserve, the nearby allotment gardens within the NHL boundary, and the Hamilton Family Cemetery, which is located

in the core of the planned community. All the J and J1 Build Alternatives would adversely impact the NHL through noise and possible vibrations, impairment of the visual environment due to the erection of above-ground viaducts and the loss of forest, and structural impacts caused by tunneling, particularly close to the surface within Greenbelt, as discussed in Section II.G. These adverse impacts to the Greenbelt Historic District and its contributing resources could not be mitigated and would compromise the integrity of the NHL.

2. The Greenbelt Forest Preserve

Natural, undeveloped areas within Greenbelt that have been protected for natural resource conservation purposes are known as Greenbelt's "preserves." The Greenbelt Forest Preserve consists of 254.8 acres of forested land that are protected and conserved in their existing natural state for the use and enjoyment of present and future generations. The Forest Preserve serves a vital function by providing a link between residents of the city and nature. The Forest Preserve is part of Greenbelt's cultural identity, its ambiance and sense of place. It adds to Greenbelt's air and water quality and ultimately, by reducing storm water runoff, improves the quality of the Chesapeake Bay. By providing a form of passive recreation, it contributes to the health and wellness of Greenbelt residents. It also serves to buffer homes in historic Greenbelt from the noise and disturbance that otherwise would be experienced from the Baltimore-Washington Parkway.

The Forest Preserve contains five tracts: the North Woods, the Hamilton Woods, Boxwood, Belle Point, and Sunrise. The different ecological characteristics and surroundings of each tract influence the stewardship activities that are appropriate there. Removal of any lands, in whole or in part, from the Greenbelt Forest Preserve requires an ordinance approved by a supermajority vote of the Greenbelt City Council, a public hearing which must be held no fewer than two weeks preceding the first reading of the ordinance, and approval by the voters of Greenbelt, by way of a question placed on the ballot of the next regularly scheduled general city election, in accord with the City Charter. Greenbelt City Code § 12-154. In 2017, the Maryland National Capital Park and Planning Commission (M-NCPPC) renewed its commitment to the Greenbelt Forest Preserve when it published the *Prince George's County Resource Conservation Plan*, a document that functions as a county-wide master plan. This master plan locates the Greenbelt Forest Preserve within an M-NCPPC-designated Special Conservation Area that also includes Greenbelt National Park, BARC, and the Patuxent Wildlife Research Refuge.⁹²

a. North Woods Tract and Hamilton Woods Tract (South Woods)

The North Woods and Hamilton Woods Tracts within the greater Greenbelt Forest Preserve are predominantly forested, include some areas of wetlands, and are generally free of built infrastructure. They provide opportunities for self-directed, natural-resource appropriate recreation, including walking, hiking, and birding.

⁹² Map 3 in section 2 of M-NCPPC, *Prince George's County Resource Conservation Plan: A Countywide Functional Master Plan*, at 32 (March 2017), available at <http://www.pgplanning.org/944/Publications>.

Greenbelt has jurisdiction over both Tracts and agencies at the County, State, and Federal level hold easements, covenants, and other restrictions over the majority of the land within the North Woods and Hamilton Woods. The National Park Service also holds easements over portions of the North Woods totaling approximately 73 acres. A deed dated September 6, 1989, conveying portions of the North Woods and Hamilton Woods totaling approximately 70 acres from Prince George's County to Greenbelt includes the following stipulation: "Should the site or sites cease to be retained or used by the City of Greenbelt for public purposes, then the site or sites shall immediately revert back to Prince George's County, without cost to the County." (Deed found among the Prince George's County Land Records at liber 7418 / folio 344 to 346.)

In 1990 the City of Greenbelt used state funds from Maryland's Program Open Space (POS) to purchase Parcel 1 of the North Woods.⁹³ By Maryland state law, land purchased using POS funds shall be perpetually protected green space. Also, this portion of the Forest Preserve may have been partially funded through the Land and Water Conservation Fund, which would subject it to the requirements of section 6(f)(3) of the Land and Water Conservation Fund Act of 1965.⁹⁴ Additionally, in 1990 the M-NCPPC purchased a woodland covenant on Parcel 1 within the Forest Preserve.⁹⁵ The J1 Alternatives would violate this covenant by converting the woodland to transportation infrastructure. The noise from passage of the SCMAGLEV trains would also violate the covenant by diminishing public enjoyment of the natural setting. In 1995, the National Park Service purchased a scenic easement on 60 acres of land within Parcel 1 of the North Woods to the Baltimore-Washington Parkway for \$553,050, and that easement would be impaired by the J1 Alternatives.⁹⁶ The NPS also holds a scenic easement on approximately 13 acres of land within the North Woods located between Parcel 1 and the Baltimore-Washington Parkway that would be impacted by the J1 Build Alternatives.⁹⁷

Among all of the tracts in the Greenbelt Forest Preserve, the 145-acre North Woods Tract contains the greatest diversity of species and habitats and is considered the most ecologically valuable. At its center is Blueberry Hill, which rises 100 feet above the Goddard Branch wetlands

⁹³ Program Open Space funds from FY1990: Maryland Land Records, liber 7967, folio 441-445.

⁹⁴ Maryland DNR, 2006, *Local Program Open Space Manual*, at 66, available at <http://dnr.maryland.gov/land/Pages/ProgramOpenSpace/Program-Open-Space-How-to-Apply.aspx>.

⁹⁵ The City of Greenbelt and M-NCPPC entered into a woodland covenant after M-NCPPC provided \$1,250,478 of Program Open Space funds to assist the City with purchasing Parcel 1 (Maryland Land Records, liber 7967, folio 441-445).

⁹⁶ This agreement is outlined in the City of Greenbelt's Resolution No. 830, A Resolution to Approve a Scenic Easement on 60 Acres of Parcel One to the National Park Service (NPS). Congressman Steny Hoyer was instrumental in securing these funds. The easement can be found among the Prince George's County Land Records at liber 10374 / folio 347-359.

⁹⁷ The easement can be found among the Prince George's County Land Records at liber 8015 / folio 867-874.

and Canyon Creek. The types of habitats within the North Woods Tract include floodplain, cove forest, seep, vernal pools, upland oak-hickory forest, and heath forest. The North Woods Tract also contains a considerable area that is suitable for species that dwell preferentially in forest interiors (also known as Forest Interior Dwelling Species, or FIDS, *see* Section II.D), a feature of the North Woods that is enhanced because it is adjacent to extensive forest within BARC. A number of tulip poplars, oaks, and red maples have grown to considerable girth in the North Woods Tract, suggesting that some of these trees may have been growing before Greenbelt was founded. Maryland Land Records trace the North Woods Tract to three parcels of land known as Green Spring (on present-day Blueberry Hill), Poplar Thicket (north and west of Blueberry Hill), and Parcel Enlarged (along the east bank of Goddard Branch). Both the North Woods and Hamilton Woods Tracts are remnants of the eastern portion of the “belt of green” that originally surrounded Old Greenbelt in 1937.

The Hamilton Woods Tract consists of 81 acres, making it the second largest tract in the Greenbelt Forest Preserve. The Hamilton Woods Tract is also called the “South Woods” because it lies immediately south of the North Woods Tract. The Hamilton Woods Tract contains stream and upland-forest habitats, as well as three community gardens.

The Hamilton family owned this land from the mid-1700s to the mid-1800s. Since the late 1930s, community gardens have existed at approximately their present-day locations within the Hamilton Woods Tract. Community gardens in roughly this area were part of the original New Deal era design for Greenbelt. Since the creation of the Forest Preserve, the northern portion of the Hamilton Woods Tract has often been used for Greenbelt’s annual pumpkin walk. Greenbelt’s volunteer-run pumpkin walk was envisioned as a way to introduce residents to Greenbelt’s forests in 1988 during a successful campaign to have the city purchase Parcel 1 at the heart of the North Woods Tract. The North Woods and northern portion of the Hamilton Woods have for decades contained an informal network of trails.

The J1 Build Alternatives would directly impact the North Woods and Hamilton Woods Tracts, resulting in a loss of passive recreation space and walking/hiking trails. Greenbelt anticipates that not only would the Project result in the direct loss of trails, but it would also result in the loss of connections within the trail system, leading to decreased utility or even loss of trails outside of the Project’s claimed limit of disturbance. Additionally, the passage of the 300-mph SCMaglev trains would create enough noise to impact the public’s ability to enjoy recreational visits to the Greenbelt Forest Preserve. Further, as part of the “remaining portions of the [City’s] greenbelt,” the Greenbelt Forest Preserve is a contributing resource to the Greenbelt Historic District NHL. These impacts to the NHL and its contributing resources could not be mitigated and would compromise the integrity of the NHL.

b. The Community Gardens

As part of Greenbelt’s original green belt, the community gardens (originally called “allotment gardens”) are a contributing resource to the Greenbelt Historic District NHL. Per the Greenbelt Historic District NHL nomination form:

In the early years [of Greenbelt], three hundred allotment gardens were located in five areas on the edge of town [...]. These gardens were envisioned to be the domain

of housewives, who would supplement family meals with home-grown fruit and vegetables. [...] During World War II, 350 people planted victory gardens at Greenbelt. Today, roughly 60 plots remain and are managed by the Greenbelt Garden Club, formed in 1948. [The Greenbelt Garden Club was renamed the Greenbelt Community Garden Club (GCGC) in 2007.] Two of the original five areas designated for allotment gardens remain, each with two garden sections: 1) The Crabbe property accessed via Hamilton Place, and 2) the Gruden site, located behind Gardenway.

GCGC's mission is to promote gardening in the community, to stimulate, foster and share knowledge of gardening techniques and sustainable practices, and to promote a love of gardening among amateurs. The plots are for private, not-for-profit use to grow vegetables, fruits, flowers, and herbs. The J1 Build Alternatives would impact the Crabbe property community gardens (now known as "Henry's Hollow" and "Hamilton Gardens") through noise, possible vibrations, and nearby surface impacts. It is also possible that revisions to the limit of disturbance (LOD) would result in direct impacts to the community gardens. The proposed impacts could not be mitigated and would compromise the integrity of the NHL.

c. Hamilton Family Cemetery

As part of Greenbelt's original green belt, the Hamilton Cemetery is a contributing resource to the Greenbelt Historic District NHL. It is located at the end of Hamilton Place and six members of the family are known to be buried in the cemetery:

- Andrew Hamilton, died September 21, 1823;
- Jane Hamilton, wife of Andrew Hamilton, died February 28, 1824;
- Col. Samuel Hamilton, son of Andrew and Jane Hamilton, died January 24, 1857;
- Elizabeth Hamilton, first wife of Col. Samuel Hamilton, died May 1, 1834;
- Jane Hamilton, daughter of Col. Samuel and Elizabeth Hamilton, died March 18, 1819; and
- Elizabeth Hamilton, second wife of Col. Samuel Hamilton, died June 15, 1847.

There may be other family members buried in the Hamilton Family Cemetery as well, but if so their graves are unmarked. There are no formal boundaries for the Hamilton Family Cemetery. A ¼-acre tract was set aside by Samuel Hamilton in his will for the graveyards on his property, including his "colored as well as white family." Both cemeteries may have been next to each other and located on the same tract, or they may have been separated by some distance. The DEIS fails to identify the Hamilton Family Cemetery as an affected community facility and no field work has been performed to identify the extent of archaeological sites near the Project area.

The Hamilton Family Cemetery is located in the Greenbelt Forest Preserve in and around the area where the SCMAGLEV is proposed to come above ground. Greenbelt is concerned that the J1 Build Alternatives will directly impact the Hamilton Family Cemetery, especially

considering the cemetery's lack of formal boundaries. We are also concerned that the Build Alternatives will disturb the remains of others who may have been buried in the area but have yet to be identified. Impacts to the NHL and its contributing resources could not be mitigated and would compromise the integrity of the NHL.

d. Greenbelt Observatory

The small observatory managed by the City of Greenbelt and the Astronomical Society of Greenbelt (a Greenbelt "Recognition Group"⁹⁸) is located in the southern-most portion of the North Woods. The observatory and its telescope were donated to the Astronomical Society in 2001 and the observatory was installed in 2007, funded partially by Greenbelt and partially by the Astronomical Society. Pre-COVID-19, the Society hosted stargazing parties and events at the observatory every other week. Youth soccer and baseball leagues utilize the Northway fields for practice and games. Near the Greenbelt Observatory, the site is utilized by the Greenbelt Public Works Department to compost mixed yard waste, which is freely available to community members for their collection and use.

This area would be destroyed by the above-ground portion of the J1 Build Alternatives, decreasing residents' quality of life, access to passive recreational facilities, and scientific opportunities. Even if it were possible to preserve the observatory, any lighting and vibrations associated with the SCMAGLEV project would preclude the use of the astronomical equipment. Vibration, noise, and lighting from the J Build Alternatives would also impact this facility directly, as the J Build Alternatives would emerge above ground nearby.

3. James N. Wolfe Softball Fields, a.k.a. Northway Ball Fields

Built upon Greenbelt's former landfill and located within the historic "green belt," adjacent to the BW Parkway and the Hamilton Woods Tract of the Greenbelt Forest Preserve, are the two side-by-side Northway ballfields. The facility includes two ball fields and several small bleachers for seating.

This area would be destroyed by the above-ground portion of the J1 Build Alternatives, decreasing residents' quality of life and access to recreational facilities. The DEIS does not properly consider use of the Northway Ball Fields but instead only briefly mentions them lumped in with a discussion of the Greenbelt Forest Preserve. As part of the "remaining portions of the [City's] greenbelt," the Northway Ball Fields are a contributing resource to the Greenbelt Historic District NHL. These impacts to the Greenbelt Historic District NHL and contributing resources could not be mitigated and would compromise the integrity of the NHL.

⁹⁸ Recognition groups are designated by Greenbelt and are required to be non-profit organizations that provide or underwrite ongoing cultural, athletic, recreational, civic, service, and social opportunities which are open to the public and reflect significant participation by, and benefit to, Greenbelt residents. Recognition groups receive in-kind support from Greenbelt (including staff support, meeting space, storage space and equipment use), which can add up to thousands of dollars in waived fees. They are also eligible on an annual basis for Greenbelt grants of programming and operational funding or funding for specific projects.

4. Eleanor Roosevelt High School

Eleanor Roosevelt High School (ERHS) is a Maryland public magnet high school specializing in science, technology, engineering, and mathematics. The school was established in 1976 at its current location in Greenbelt and is part of the Prince George's County Public Schools system. It was the first high school named for former first lady Eleanor Roosevelt. The school serves all of the City of Greenbelt and a section of the Seabrook census-designated place. It also serves a section of the former Goddard CDP.

ERHS has received numerous awards, including being twice-awarded National Blue Ribbon School of Excellence; a New American High School; a National School of Character; and receiving the Siemens Awards for Advanced Placement. It is best known for its specialized *Science and Technology (S/T) program*, which has been in place since the school was opened. ERHS is the S/T center for the northern part of Prince George's County and admission is based on a competitive exam. It is a member of the National Consortium for Specialized Secondary Schools of Mathematics, Science and Technology. Students have the opportunity to take Advanced Placement (AP) coursework and exams. The AP participation rate at Eleanor Roosevelt High is 58%. The total minority enrollment is 89%, and 46% of students are economically disadvantaged. In 2020, ERHS was ranked #1 of 36 high schools in Prince George's County, in the top 20% of high schools in Maryland, and in the top 12% of high schools in the nation by the U.S. News and World Report.

ERHS has a turf field that is used by the following local sports leagues through an informal agreement for practice during the fall and spring months:

- Greenbelt Babe Ruth Baseball
- Greenbelt Boys and Girls Club
- Greenbelt Soccer Alliance
- Greenbelt Youth Baseball Little League

All of these organizations are local "Recognition Groups" which receive financial assistance from Greenbelt to help meet both programming and operational expenses. Greenbelt issues permits to the groups to allow use of the fields during their playing season. ERHS also has an outdoor track and outdoor basketball courts, currently undergoing construction to include a new court and fitness area, which will be available for public use. It also has a gymnasium, multipurpose rooms, and auditoriums that can be used after school by community groups such as recreation and youth groups.

All Build Alternatives use Eleanor Roosevelt High School property. Ground-borne noise and vibrations may have an adverse impact on those using this facility and may affect the sports teams' ability to practice at this location.

5. Greenbriar Park

This seven-acre wooded park is located on Hanover Parkway and includes a trail and picnic tables. A stream also runs through the park. Greenbelt's Forest Preserve Advisory Board has

proposed to designate Greenbriar Park as a preserve in order to manage the area as a protected, undeveloped, and undisturbed area for the benefit of current and future generations. The J Build Alternatives would use land in and otherwise impact this park. Ground-borne noise and vibrations may also have an adverse impact on those using this public facility.

6. Spellman Overpass

The Gladys Noon Spellman Pedestrian Trail and Overpass (commonly known as the “Spellman Overpass”) spans the Baltimore-Washington Parkway and has provided an important pedestrian and bicycle connection between historic Greenbelt and Greenbelt East since it opened in 1983. Prior to this time, students crossed the Parkway on foot at approximately the location of the overpass to reach Eleanor Roosevelt High School in Greenbelt East or the Center School in historic Greenbelt. The construction of the overpass was the culmination of nearly six years of coordination between the National Park Service (NPS) (approval of the project), the Federal Highway Administration (FHWA) (construction approval), Greenbelt (acquisition of land access rights), and the acquisition of federal appropriations. In a letter dated March 14, 1979, the FHWA reiterated support for the siting of this overpass in its current location because it is the most direct, “fits into the environment in that the approach walks will not be unnaturally steep or obtrusive . . . serves the center of Greenbelt to center of Greenbriar [and is] expected to be an inducement for high school students to avoid the dangerous practice of crossing the Baltimore-Washington Parkway on foot.”

Now, many residents who live in Greenbelt East, especially children, also use the Spellman Overpass to partake in recreational amenities in historic Greenbelt, as Greenbelt East does not have a recreation center/gymnasium, skatepark, public tennis courts, public fitness center, or pool. The Spellman Overpass is crucial for Greenbelt East residents to access historic Greenbelt and the cross-city bike route which ultimately connects to the wider Anacostia regional trail network. In addition to serving pedestrians and cyclists travelling locally between Greenbelt East and historic Greenbelt, the Spellman Overpass is also an important link in the East Coast Greenway, a 3,000-mile walking and biking route from Maine to Florida. Maintaining this critical non-vehicular infrastructure is necessary to support a bicycle- and pedestrian-friendly environment and provide local and regional connectivity.

In recent years, state and local funding has been dedicated to designing improvements that would enhance access to the Overpass from Greenbelt East. Greenbelt has completed 30% designs for an off-road bikeway along Hanover Parkway, extending from Schrom Hills Park to a terminus at the Spellman Overpass, to allow greater recreational connection. This bikeway is identified as a missing link corridor in the Maryland Statewide Trails Plan. Designs were funded at \$50,000 by a Maryland Department of Transportation Bikeways Grant in FY 2018. Greenbelt has provided a \$15,000 cash and \$5,000 in-kind match.

Without explanation, justification, or consultation with Greenbelt, the DEIS states that the Spellman Overpass will be permanently closed under all Build Alternatives. DEIS at 3-38.⁹⁹ This

⁹⁹ On April 30, 2021, the Project Sponsor posted on its Facebook page that the DEIS is mistaken and there are no plans for the Spellman Overpass to be removed or relocated, *see* <https://www.facebook.com/NortheastMaglev/posts/2871858803031208>. Greenbelt hopes this

is highly concerning for Greenbelt, as the overpass is an invaluable piece of pedestrian and bicycling infrastructure which has served the community and region for nearly forty years. The closure of the Spellman Overpass would eliminate a safe and direct off-road connection between historic Greenbelt and Greenbelt East, with larger implications for the existing regional ped/bike network and proposed future improvements. Removal of the Spellman Overpass would also end its recreational use. A point of grave concern is the possibility that the removal of the Spellman Overpass would cause students to once again walk across the Parkway to and from school, with potentially fatal results.

7. Schrom Hills Park

Located on Hanover Parkway, Schrom Hills Park is the largest improved park in Greenbelt East. Recreational amenities at Schrom Hills include a baseball and soccer field, basketball court, playground, the Fitness Zone (outdoor fitness station with exercise equipment), covered picnic pavilion with grill, restrooms, small clubhouse building with kitchen, the “Three Sisters” demonstration garden, a central landscaped walkway with benches, and a paved perimeter trail. The Chesapeake Education Arts Research Society (a Recognition Group) manages the upkeep of the Three Sisters garden, where they also provide several educational workshops each year. Paths are frequented by walkers and joggers, and several local sports leagues are regular users of the athletic fields. Greenbelt issues permits for organized field use at Schrom Hills Park and gives priority to Recognition Groups. The stormwater pond and forebays located in the northwest portion of the property are currently being rebuilt. All Build Alternatives run through Schrom Hills Park. Additionally, portions of Schrom Hills Park were purchased with Program Open Space money.¹⁰⁰ *See, e.g.*, the deed stored among the Prince George’s County Land Records at liber 6419 / folio 553.

8. The Beltsville Agricultural Research Center (BARC)

The Henry A. Wallace Beltsville Agricultural Research Center (BARC) is a USDA Agricultural Research Service (ARS) research facility. The entire 6,582-acre Center is eligible for the National Register of Historic Places. BARC is the main research facility of the U.S. Department of Agriculture and is the leading and most diversified agricultural research complex in the world. BARC scientists and researchers have made major contributions toward scientific knowledge that have resulted in incredible advances in crop production, plant and animal disease control, and pest control. Government acquisition began in 1910 and grew rapidly with the Depression-era programs of the 1930s and 1940s. The facility continued growing to its peak size of 12,461 acres in 1938. In

statement is true and requests that the FRA confirm it and explain why this “error” occurred. The FRA is required to produce an accurate DEIS. Greenbelt’s comments still apply to the extent any Build Alternative would have an impact on the Spellman Overpass, even temporarily.

¹⁰⁰ As explained in Section IV.D, the DEIS does not address the requirements for properties acquired or developed using Program Open Space funds, including that any conversion in land use may be approved only after the land is replaced with land of at least equivalent area and of equal recreation or open space value.

1935, the facility was designated the National Agricultural Research Center, and it retained this designation until 1984.

BARC's current size is 6,582 acres and it is composed of five farms: South Farm, North Farm, Linkage Farm, Central Farm, and East Farm. The diversity of the scientific research has influenced many aspects of twentieth century living for the farmer and the consumer. The history and development of the agricultural research facility reflects New Deal policies and programs. The consistent use of Georgian Revival architecture has created a cohesive build environment which retains a high level of integrity, and because the mission of the facility has remained constant over the years, the landscape also reflects a high level of integrity. The physical appearance of BARC was strongly influenced in the 1930s by the planning team of A.D. Taylor, landscape architect, and Delos Smith, architect. The Civilian Conservation Corps and the individual bureaus at BARC played important roles in shaping the landscape as well. Contributing elements of the landscape include major paved roads, including Powder Mill Road, minor service roads, cultivated fields and research crops, pasture lands, seasonal ponds, forests, meadows, and hundreds of buildings and structures scattered throughout the facility.

The Beltsville Agricultural Research Center 1996 Master Plan has the stated objective of developing a framework to support accomplishment of the following items: "Preservation of BARC's low density character," "Improvement of BARC's visual environment," and "Protection of wildlife and birds," among others. Additionally, much of BARC is located within the County's Priority Preservation Area (PPA), Growth Tier IV,¹⁰¹ the Plan Prince George's 2035 Rural and Agricultural Policy Area, and the M-NCPPC Subregion 1 Master Plan Rural Tier,¹⁰² all of which prioritize the preservation of prime agricultural land and the redevelopment of existing sites. BARC is also included in the National Capital Planning Commission's regional parks and open space network. Additionally, the Land Use Article § 25-211 of the Maryland Annotated Code stipulates, "If the United States Department of Agriculture sells any portion of the property known as the Beltsville Agricultural Research Center, the district council shall place and permanently maintain the land in a zoning classification of agricultural open space immediately after the transfer of the land to the buyer."

All Build Alternatives under consideration would use land on BARC. The SCMAGLEV is proposed to travel above ground through BARC under all Build Alternatives. Additionally, of the three TMF locations being considered, two alternatives are located on BARC. These facilities are approximately 180 acres in size and require additional land to accommodate ramps leading to and from the mainline guideways.

The BARC West TMF option would use land located in the 2,980-acre Central Farm. Most of the buildings and landscape of the Central Farm were developed between 1911 and 1944. The

¹⁰¹ Growth Tier IV is the designation intended for the least intense uses under the Maryland Sustainable Growth and Agricultural Preservation Act of 2012.

¹⁰² The vision for the Rural Tier is the protection of large amounts of land for wooded wildlife habitat, recreation and agricultural pursuits, and preservation of the rural character and vistas that now exist.

Central Farm has approximately 12 clusters of buildings situated on approximately 336 acres along with pastures, wetlands, and forested areas used for animal husbandry, production crops, animal and plant research, and wildlife management. The BARC Airstrip TMF option would use land located in the 2,225-acre East Farm. The USDA acquired the East Farm, which is largely forested, in the mid- to late-1930s for the Bureau of Animal Industry and other agencies, including the Soil Conservation Service. The East Farm only has a few building clusters.

Greenbelt is concerned about the possible impact of the SCMAGLEV and the TMF on the NRHP-eligible BARC Historic District. The Build Alternatives would not be in keeping with the general character and mission of BARC. BARC serves the area as a critical environmental and open space resource and it is a National Register-eligible historic resource, a major employer, and a location for anticipated growth in research and development activities. Local and state policies and regulations strongly discourage development of BARC, as its unique mission of agricultural research allows for both economic benefits and environmental preservation. Not only does the Project conflict with established planning policies and adversely impact BARC's historic visual and natural environment, but it would also establish a precedent for future actions with significant effects. The DEIS fails to recognize the significance of the precedent that the Build Alternatives would set in reversing these policies.

B. The DEIS Ignored Significant Impacts to Historic and Cultural Resources in Violation of NHPA Section 106, Failed to Meet the Heightened Standard of Care under NHPA Section 110(f), and Neglected to Consider These Requirements in the Programmatic Agreement

1. The Requirements of NHPA Sections 106 and 110

The National Historic Preservation Act is the cornerstone of historic and cultural preservation policy. 54 U.S.C. §§ 3000101 *et seq.* The NHPA aims to preserve and protect from development the country's most important and irreplaceable cultural heritage buildings, landscapes, and cultural spaces. The Act also created the Advisory Council on Historic Preservation (ACHP) as an independent agency charged with advising the President and Congress on historic preservation matters and recommending measures to federal, state, and other private entities relating to historic preservation. The backbone of the NHPA is the consultation process, which is required by NHPA Section 106 and applies to properties owned or controlled by federal agencies under Section 110. 54 U.S.C. §§ 306108, 306101-306114. The ACHP has promulgated regulations that establish the consultation process, which are referred to here as the Section 106 regulations.

Section 106 and its implementing regulations require federal agencies to follow step-by-step procedures to consider the full effect of their undertakings (i.e., projects and actions) on places listed in the National Register of Historic Places (NRHP) and places that are eligible for listing in the NRHP. The Section 106 consultation process requires federal agencies to determine whether their undertaking, in this case the SCMAGLEV, may have an effect on NRHP listed or eligible properties and begin the consultation process with the appropriate State Historic Preservation Officers (SHPOs) and consulting parties, including local governments like Greenbelt, Indian tribes, and the public. 36 C.F.R. § 800.3. Consultation with these parties should be taken as early

in the process as possible to provide concerned consulting parties with time to review and participate in the Section 106 planning process.

To fulfill these requirements, the agency (in this case, the FRA) must identify the Area of Potential Effects (APE), as defined in 36 C.F.R. § 800.16(d), conduct a review of existing information on historic properties within the APE, engage consulting parties, and “[s]eek information, as appropriate, from consulting parties, and other individuals and organizations likely to have knowledge of, or concerns with, historic properties in the area, and identify issues relating to the undertaking’s potential effects on historic properties.” 36 C.F.R. § 800.4(a)(3). Using this information, the agency must make “a reasonable and good faith effort” to identify historic properties within the APE. *Id.* § 800.4(b)(1). The agency is required to document which properties qualify for consideration under NHPA § 106 and must make documentation regarding these determinations available to the public for their inspection before making a decision on the undertaking. *Id.* § 800.4(d). The agency must consider any objections made by SHPOs or the ACHP prior to moving forward with the Section 106 process or the project and also must notify all consulting parties and invite their views on how historic properties might be affected by the project. *Id.* § 800.5. The agency must consider any views provided by the consulting parties and the public on whether the project will have adverse effects on properties within the APE. *Id.* § 800.5(a).

Adverse effects are defined as direct or indirect impacts to any characteristics of the property that “would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association.” *Id.* § 800.5(a)(1). The term includes effects that are reasonably foreseeable, which may occur later, be more removed in distance, or are cumulative. *Id.* It also includes, but is not limited to, physical destruction, removal of the property from its location, change in the use of the property or its physical features that contribute to its historic significance, use of visual, atmospheric, or audible elements that diminish the integrity of the property’s historic features of significance, and transfer, lease or sale of the property out of federal ownership without safeguards to preserve the property’s historic significance. *Id.* § 800.5(d)(2). When an adverse effect is found, after consultation, then the agency must consult further to determine if the adverse effect can be avoided or mitigated. At this point the consultation focuses on whether there are project alternatives or modifications that can be developed that would avoid the adverse effect entirely or minimize or mitigate it. *Id.* § 800.6(b)(2). The ACHP must be notified of adverse effects and may participate in continued consultation. *Id.* §§ 800.6(a)(1), 800.6(b)(2). The public must also be provided an opportunity to express their views on how the adverse effects may potentially be resolved. *Id.* § 800.6(a)(4). If a resolution is not reached, the agency must request the ACHP’s formal comments on the project and consider them prior to any final approval of the project. *Id.* § 800.7(c)(4); *see also* 54 U.S.C. § 306107.

Section 110 establishes an agency’s Section 106 responsibilities for properties owned or controlled by the agency. Pub. L. No. 96-515, 94 Stat. 2957, 2981 (1980); 54 U.S.C. §§ 306101-306114. Federal agencies must ensure that properties under their jurisdiction or control are maintained in a way that considers the preservation of their historic, archaeological, architectural, and cultural values in compliance with Section 106. Importantly, Section 110(f) requires federal agencies like the FRA to provide special consideration to the preservation of NHLs. 54 U.S.C. § 306107. Each NHL designation is approved by the National Park System Advisory Board and designated as an NHL by the Secretary of Interior. When a project will adversely affect an NHL,

the FRA must “undertake such planning and actions as may be necessary to minimize harm to such landmark to the maximum extent possible and to allow the Advisory Council on Historic Preservation (“ACHP”) time to comment.” *Coliseum Square Ass’n Inc. v. Jackson*, 465 F.3d 215, 225 (5th Cir. 2006) (quotations omitted) (emphasis added). This standard is higher than the one applied to other historic properties under NHPA Section 106 and subjects the agency to more stringent requirements. When an agency action will cause a direct adverse effect to an NHL, “the agency has an affirmative duty under NHPA 110(f) to minimize the harm done.” *Id.* at 242. The Secretary of the Interior’s Standards and Guidelines direct agencies to “consider all prudent and feasible alternatives to avoid an effect on the NHL.” 63 Fed. Reg. 20,495, 20,503 (Apr. 24, 1998) (emphasis added).

2. The FRA Ignored the Importance of the Greenbelt Forest Preserve and Other Contributing Resources to the Greenbelt NHL, Defined APEs Too Narrowly to Fully Consider All Impacts to Historic and Cultural Resources, and Should Improve Its Consultation and Public Information Process

Although the DEIS acknowledges in Appendix F that the Greenbelt Forest Preserve (described in Section IV.A) is part of the Greenbelt Historic District, the FRA does not fully describe the Forest Preserve’s contributing status to the Greenbelt Historic District. The FRA ignores the integral importance the Forest Preserve has to the Greenbelt NHL and has failed to take the appropriate measures to assess all the effects of the SCMAGLEV on the historic district and all contributing properties.

For example, in Appendix F to the DEIS, the FRA states:

The Greenbelt Forest Preserve consists of 200 acres of woodland owned and administered by the City of Greenbelt within four tracts – the Boxwood, North Woods, Hamilton Woods, and Belle Point Tracts. The Project Study Area is located within two of these tracts – North Woods and Hamilton Woods. The tracts are bordered to the east by the Baltimore Washington Parkway, to the south by the Baltimore Washington Parkway interchange with MD 193, and to the west by development in the City of Greenbelt, MD. The Greenbelt Forest Preserve is part of the Greenbelt Historic District’s historically significant greenbelt.

DEIS App. F. at F-36. Despite its acknowledgment that the Forest Preserve is part of the Greenbelt NHL, the FRA focuses its analysis in the next paragraph on DOTA § 4(f) requirements. No mention of NHPA Section 110(f) requirements is made. *Id.* Moreover, many other references to the Forest Preserve in the DEIS and associated documents fail to mention the Forest Preserve’s importance to Greenbelt’s NHL status. The Forest Preserve is repeatedly mischaracterized as simply a “Park” within Greenbelt, not as an important contributing resource to the Greenbelt Historic District. DEIS at 4.8-21, 4.8-26 (tables 4.8-4 and 4.8-5); *see also* DEIS App. F at F-22, F-69. Most alarming of all, the DEIS states that “only a sliver of the historic district is within the APE.” DEIS at 4.8-21, 4.8-26. This statement is incorrect and counter to other information provided within the DEIS. The Greenbelt Historic District NHL encompasses 756.8 acres, and even using the conservative physical LOD proposed by the FRA, it appears that the J1 SCMAGLEV alignment would affect approximately 7% of the total NHL, which is hardly a “sliver.”

The FRA must provide an accurate description of the Greenbelt Historical District as including the entire Forest Preserve and community green spaces, and should cite the NHL description provided in the NHL nomination document for the Greenbelt Historic District. U.S. Department of Interior, National Park Service National Registry of Historic Places, Greenbelt Historic Landmark National Historic Landmark Nomination Form (1996). Although the 1979 NRHP nomination document for the Greenbelt NHL should be considered to understand the final NHL listing, U.S. Department of Interior, National Register of Historic Places, Inventory-Nomination Form, Greenbelt Historic District (1979), the FRA should not rely exclusively on the 1979 document because it is not the formal nomination form that memorializes the extent, description, and nature of the Greenbelt NHL. Both of these documents are attached to these comments. Additionally, Greenbelt requests that any Determination of Eligibility (DOE) used to describe the Greenbelt NHL be updated to appropriately reflect that the Forest Preserve is part of the Greenbelt NHL. The DEIS should have made clear that the Forest Preserve and Community Gardens (Henry's Hollow and Hamilton Gardens; originally called "allotment gardens") are a defining characteristic of the Greenbelt NHL, which was designed specifically to include a "greenbelt" surrounding the historic portion of the city since the city's creation in the 1930's. Greenbelt Historic Landmark, National Historic Landmark Nomination Form, at 4.

The Greenbelt NHL would be negatively affected by the Build Alternatives under consideration. The J1 alignments would directly impact the Greenbelt NHL and many contributing resources, including the remaining portions of the greenbelt surrounding the city, composed in part of the North Woods and Hamilton Woods of the Forest Preserve and the nearby allotment gardens within the NHL boundary, and also the Hamilton Family Cemetery within the core planned community. Greenbelt is also concerned that the NHL would be impacted by noise and vibrations caused by the Project, along with impacts to the visual environment due to the erection of viaducts and loss of forest. These impacts could not be mitigated and would severely compromise the integrity of the NHL.

Furthermore, the DEIS fails to identify and describe the properties mentioned above, as well as the Greenbelt Observatory. The Hamilton Cemetery and the associated Hamilton Farmstead site are just outside the proposed LOD (and within the Affected Environment as defined in DEIS Chapter 4.4, which is intended to include cemeteries among the community facilities addressed. DEIS 4.4 at 4.4-2.). These historic properties are not listed on the Maryland Historical Trust's (MHT's) MEDUSA database (the MHT's online database of architectural and archaeological sites and standing structures), but consultation with the staff archaeologist for the Maryland-National Capital Park and Planning Commission (M-NCPPC) and/or Greenbelt's Department of Planning and Community Development would have yielded this information. See The Maryland Inventory of Historic Properties, Draft Maryland Historical Trust Inventory Form, Hamilton Cemetery (2010) (not yet approved by MHT); Mary Lou Williamson, *Greenbelt: History of a New Town*, 20-21 (1997).

Similarly, the original allotment gardens, known as the Community Gardens (Henry's Hollow and Hamilton Gardens) are located just outside the proposed LOD. The Hamilton Gardens section of the allotment gardens are within the Affected Environment, as defined in DEIS Chapter 4.4. Additionally, local residents have reported finding prehistoric and historic artifacts and features within the Forest Preserve, some of which appear to be within the proposed LOD. Again, these potential historic properties are not listed on MHT's MEDUSA database, but consultation

with Greenbelt, the M-NCPPC staff archaeologist, and the public would have yielded this information. The DEIS provides incomplete information relating to the extent and importance of these contributing resources. The FRA must identify and describe these historic sites in the DEIS and ensure it has the most updated information for analysis within the NEPA and NHPA §§ 106 and 110(f) process.

The FRA identifies different APEs for various types of impacts on cultural resources. For example, the DEIS uses an “above-ground APE” as the designated area where it has looked for cultural resources that may be impacted by the SCMAGLEV. Specifically, the above-ground APE is defined as including “above-ground resources more than forty-five (45) years old or older (pre-1974) located within the APE.” DEIS at 4.8-6. The APE includes an “area within 150 feet of the Limits of Disturbance (LOD), defined as the construction footprint of the Build Alternatives” in Maryland, and “does not include the deep tunnel portions of the Project.” DEIS at 4.8-4 to 4.8-5. The above-ground APE focuses on impacts to the built environment only and is too narrow to fully account for impacts to all cultural resources, including impacts to the Forest Preserve; it should be expanded to include the full scope of geographical impacts to natural and built cultural resources. Additionally, the LOD itself, which the above-ground APE relies upon, is too narrowly delineated and fails to account for all impacts to water resources, wetlands, wildlife and RTE species within the Greenbelt Forest Preserve and other cultural properties where these resources are important, or for impacts on the built environment from noise and vibration. Therefore, the LOD itself should be expanded to properly account for these impacts, and then the above-ground APE should be adjusted to incorporate the larger LOD and to account for all impacts to natural and built cultural resources throughout the routes of the Build Alternatives.

The above-ground APE should be revised to match the area in which noise impacts are anticipated, so that it takes noise and vibration impacts into account more fully. Noise and vibration would likely impact cultural resources, such as the Greenbelt Forest Preserve and Greenbelt Historic District, up to the full 2,100 feet from the guideways, as discussed in Section II.J.3. The above-ground APE should also be expanded to accommodate the areas anticipated to be impacted by ground-borne noise and vibration related to tunneled portions of the alignments. The above-ground APE should be expanded to encompass the full extent of these impacts because noise and vibration may harm the natural setting of the Forest Preserve and nearby historic buildings that are part of or contribute to the Greenbelt NHL.

The DEIS uses the term “archaeological APE” to refer to “the LOD to focus on potential ground-disturbing activities associated with the construction of the Build Alternatives,” and it does not include deep tunnel portions of the SCMAGLEV on the theory that the “potential for construction of the deep tunnel portions of the SCMAGLEV system to result in adverse impacts on archaeological sites located near the surface (i.e., above 6 feet) was evaluated and determined to be low...based on the extremely low probability of collapse of a deep tunnel to such an extent that the ground surface is breached.” DEIS at 4.8-5. However, the DEIS fails to provide information to support this conclusion, and it is difficult to know how the FRA could arrive at it with the very limited geotechnical data provided in the DEIS, *see* Section II.G. The archaeological APE in Maryland is too narrow and should include the full range of impacts from deep tunnels. Although these impacts may be difficult to assess, the FRA cannot simply ignore how deep tunnels may impact surface subsidence and possible shifts in surface strata, including from noise and

vibration impacts, as acknowledged elsewhere in the DEIS, *see* Section II.J.3., which may then impact built and natural cultural resources.

The Phase I and II archeology surveys should be completed and made available to consulting parties and the public prior to execution of the Programmatic Agreement and indeed must be completed prior to the completion of the NEPA process. Currently, the FRA states that a “Phase I Archaeological Survey has been initiated.” DEIS App. D.5 Cultural Resources Attachments at PDF p.117. Draft copies of the Phase IA Documentary Study and Archaeological Assessment have been shared with the MD SHPO. The DEIS indicates that that archaeological field survey has not begun. At a future date, Phase I surveys will commence additional identification of undocumented archaeological sites and evaluation of archaeological resources not yet evaluated for NRHP significance. Phase II archaeological surveys will be conducted at any sites that are determined potentially eligible for inclusion in the NRHP. DEIS at 4.8-6. This sequence of work is fine, but surveys must be completed and the results of these surveys must be made available to consulting parties as soon as they are shared with the MD SHPO and should be made available to the public for comment prior to completion of the NEPA process. Waiting to provide this information, including complete lists of potentially eligible cultural resources, until the final NEPA Record of Decision would foreclose the public’s opportunity to review and comment on the information, in violation of NEPA.

Finally, although the FRA is not required to outreach to consulting parties immediately upon beginning the NHPA § 106 process, it is an accepted best practice for the lead agency to invite consulting parties and inform them of important NHPA milestones and information early within the process.¹⁰³ The FRA did not invite Greenbelt to be a consulting party until July 28, 2020 (Greenbelt accepted the invitation virtually immediately, on August 7, 2020). The FRA had already held two consulting party meetings (March 14, 2018; September 17, 2018) beforehand (neither of which Greenbelt was invited to attend), despite having identified the Greenbelt NHL as a historic property near the Project and that the tunnel would daylight near Greenbelt. *See* FRA, NHPA Consulting Party Meeting Presentation (March 14, 2018) slides 20, 37; FRA, NHPA Consulting Party Meeting Presentation (Sept. 17, 2018) PDF p. 43. At no point in time has the FRA reached out to Greenbelt to discuss how the Project might affect the Greenbelt NHL or to discuss alternatives that would avoid adverse effects. Greenbelt requests that the FRA outreach to city staff to discuss the issues raised in this section, including the status of the Section 110(f) process and what steps the FRA is taking to avoid adverse effects on the Greenbelt NHL.

¹⁰³ *See* Council on Environmental Quality Executive Office of The President and Advisory Council on Historic Preservation, NEPA and NHPA A Handbook for Integrating NEPA and Section 106 (2013), pp. 7, 8 (“collaboration of NEPA and Section 106 practitioners and involvement of appropriate stakeholders early in project planning can inform the development and analysis of alternatives and the assessment and resolution of effects that meet the purpose and intent of Section 106 and the NEPA reviews.”) (emphasis added), https://www.achp.gov/sites/default/files/2017-02/NEPA_NHPA_Section_106_Handbook_Mar2013_0.pdf.

3. The FRA Failed to Comply with Section 110(f) of the National Historic Preservation Act

Section 110(f) “establishes a higher standard of care to be exercised by federal agencies” with respect to National Historic Landmarks, as compared to the standard imposed by NHPA § 106 or DOTA 4(f). H.R. Rep. No. 96-1457, at 38 (1980), *reprinted in* 1980 U.S.C.C.A.N. 6378, 6401. Section 110(f) complements Section 106 by setting a higher standard for agency planning for NHLs before the agency brings a project affecting an NHL to the ACHP. The FRA must consider “all prudent and feasible alternatives to avoid an effect on the NHL.” 63 Fed. Reg. at 20,503. The DEIS acknowledges that there are at least three NHLs within the APE, including the Greenbelt Historic District, the Baltimore-Washington Parkway, and L’Enfant Plan (Reservation 173), DEIS at 5-26, but the FRA has not complied with the mandate of Section 110(f).

The U.S. Department of Interior-National Park Service (NPS) is a cooperating agency for the NEPA process for the SCMAGLEV. DEIS, Executive Summary, at ES-3. The DEIS states that the FRA is “coordinating with the...Department of the Interior regarding SCMAGLEV Project effects to the Greenbelt Historic District in the context of Section 106 and [DOTA] Section 4(f)...[t]he Final Section 4(f) Evaluation will report the outcome of coordination with MD SHPO and NPS regarding the Build Alternatives and the Greenbelt Historic District.” DEIS App. F at F-82. However, the DEIS otherwise is silent on what process and actions the FRA is taking to obtain the Secretary of Interior’s approval; it also gets the standard under Section 110(f) wrong. The DEIS states that the FRA “will consult with the ACHP and Department of the Interior to minimize harm to the maximum extent possible.” DEIS, 4.8-17. The FRA is required to consider all prudent and feasible alternatives to avoid an adverse effect on the Greenbelt Historic District, as discussed above, not simply to minimize effects. The only documentation in the DEIS showing that the FRA has reached out to the ACHP states that “there are no National Historic Landmarks within the APE.” DEIS App. D.5 Cultural Resources Attachments at PDF p. 118. This statement simply is not true, as discussed above, and must be corrected.

The DEIS acknowledges that all J1 alignment options would have tremendous permanent negative impacts on the Forest Preserve, but fails to call out these adverse effects and completely ignores the Section 110(f) requirements. The J1-01 and J1-04 Build Alternatives proposed tree removal would “result in long-term impacts, lasting well beyond the period of construction” and “permanently incorporate 39.68 acres of Greenbelt Forest Preserve property for the portal (9.41 acres), stormwater management (28.16 acres), SCMAGLEV systems (0.98 acre), and right of way for the viaduct (1.11 acres).” DEIS App. F at F-37. The DEIS continues:

Hiking trails, ballfields and access to the Observatory would be permanently impacted. Build Alternatives J1 (J1-01 and J1-04) would temporarily occupy 5.83 acres of the Greenbelt Forest Preserve for the tunnel construction laydown areas. Build Alternatives J1 (J1-01 and J1-04) would result in noise and visual intrusion caused by the viaduct that would affect viewing wildlife in an area of the Greenbelt Forest Preserve property intended for such viewing, and the ecological intrusion would substantially diminish the value of wildlife habitat and substantially reduce wildlife use within the Greenbelt Forest Preserve property.

Id. The J1-02 and J1-05 Build Alternative also would remove trees, and would:

permanently incorporate 35.94 acres of the Greenbelt Forest Preserve property for the portal (8.28 acres), SCMAGLEV systems (0.98 acres), stormwater management (26.67 acres). Hiking trails, ballfields and access to the Observatory would be permanently impacted. Build Alternatives J1 (J1-02 and J1-05) would temporarily occupy 6.58 acres of the Greenbelt Forest Preserve for the tunnel construction laydown areas.

Id. Build Alternatives J1-02 and J1-05 would:

result in noise and visual intrusion caused by the viaduct that would affect viewing wildlife in an area of the Greenbelt Forest Preserve property intended for such viewing, and the ecological intrusion would substantially diminish the value of wildlife habitat and substantially reduce wildlife use within the Greenbelt Forest Preserve property.

Id. Build Alternatives J1-03 and J1-06 would:

permanently incorporate 37.46 acres of the Greenbelt Forest Preserve property for the portal (8.28 acres), SCMAGLEV systems (0.99 acres), stormwater management (28.16 acres), and above-ground viaduct (0.02 acres). Hiking trails, ballfields and access to the Observatory would be permanently impacted. Build Alternatives J1 (J1-03 and J1-06) would temporarily occupy 4.48 acres of the Greenbelt Forest Preserve for the tunnel laydown areas.

Id. at F-38. J1-03 and J1-06 would result in the same noise and visual obstructions discussed above. *Id.*

Despite the extensive adverse effects proposed to the Forest Preserve, the DEIS looks only at the DOTA § 4(f) use assessment and property-specific avoidance and minimization requirements and ignores the Section 110(f) requirement that it must first attempt to avoid adverse effects on the NHLs that would be harmed by the Project. The FRA fails to meet DOTA § 4(f) requirements also, as discussed in Section IV.C, but even if it had met these requirements, it would not have satisfied NHPA § 110(f) requirements, which require consultation with the Secretary of the Interior as to how the Project would affect the NHL and whether prudent and feasible alternatives are available. 63 Fed. Reg. at 20,503-04. The DEIS states that “FRA analyzed the potential to avoid a permanent incorporation of land from the Greenbelt Forest Preserve by considering property specific alignment shifts and design refinements.” DEIS App. F. at F-39. It concludes that, “design changes would not allow avoidance of the Greenbelt Forest Preserve under Section 4(f),” *id.*, but it fails to provide any Section 110(f) analysis. The FRA states that it will try to “reduce impacts to the Greenbelt Forest Preserve,” *id.*, but it fails to discuss what, if any, actions the FRA has taken to consider “all prudent and feasible alternatives to avoid an effect” (emphasis added) on the Forest Preserve. 63 Fed. Reg. at 20,503. The DEIS discusses the negative impacts the J1 alignment would have on the Historic District, including the Forest Preserve, and states that the FRA “analyzed the potential to avoid a permanent incorporation of land from the Greenbelt Forest Preserve by considering property specific alignment shifts and design refinements,” but it concludes that the only alternative considered was the J alternative which it found would harm other properties. DEIS App. F at F-82. This analysis does not meet the Section 110(f) standard;

the FRA failed to apply the heightened scrutiny that Section 110(f) requires to avoid adverse effects on the Greenbelt Historic District, a National Historic Landmark. Finally, the FRA failed to consider alternatives that would have emerged if they had used all possible planning to avoid affecting the Greenbelt Historic District.

4. Comments on the Proposed NHPA § 106 Programmatic Agreement¹⁰⁴

The proposed Programmatic Agreement (PA) has specific stipulations indicating that the FRA must fully consider all NHPA § 110(f) requirements for NHLs. However, to date the FRA has failed to meet its Section 110(f) obligations, as discussed above. The Section 110(f) process appears to be moving forward, but the FRA has not reached out to Greenbelt and it seems unlikely that it has provided the ACHP with accurate information regarding how the Project would affect the Greenbelt NHL. Greenbelt objects to any PA being signed until the description of the Greenbelt NHL is updated within the PA and within the information provided to the ACHP.

The ACHP also should request a report from the Secretary of the Interior to assist in the consultation, as is permissible under 36 C.F.R. § 800.10(c). Further, Greenbelt objects to the execution of any PA or other NHPA Program Alternatives until the FRA has “to the maximum extent possible, taken such planning and actions” to minimize harm to any NHL, including the Greenbelt National Historic Landmark, under NHPA § 110(f), and also until the status of the Department of the Interior’s involvement in the NHPA process is updated and provided to all consulting parties. Currently the DEIS lacks any information regarding what outreach, if any, the FRA has conducted with the Secretary, other than indicating that the Department of the Interior has agreed to be a consulting party. Below is a list of additional revisions proposed for the PA:

- The phased approach for identification, evaluation, and assessment of adverse effects discussed in PA Section IV(3) can be combined only if the consulting parties and the public will have an adequate opportunity to express their views for the agency to consider. 36 C.F.R. § 800.3(g). The PA should reflect this requirement in lines 379-381.
- Written comments made by signatories and consulting parties should be shared with all other signatories and consulting parties. (lines 395 – 398)
- Greenbelt does not believe that the proposed impacts to the Forest Preserve have been fully identified at this time and objects to any mitigation measures being considered until the FRA conducts the appropriate Section 110 process. If the Project nevertheless moves forward in a manner that would have adverse effects on the Greenbelt Forest Preserve, Greenbelt requests that a preconstruction landscape plan be created for the Forest Preserve given that it is a contributing resource to the Greenbelt Historic District. There is a similar plan proposed in the PA for the BW Parkway. (Lines 593- 603).

¹⁰⁴ The FRA publicly released the Draft Programmatic Agreement as part of the DEIS, and sought public input, as is required by NHPA Section 106, on the Draft Programmatic Agreement during the DEIS comment period. DEIS Cover Page at p. 4. The City of Greenbelt provides the comments in this section on the Draft Programmatic Agreement.

Similarly, a Historic Landscaping plan should be developed for the Forest Preserve. (lines 609-634)

- Greenbelt requests that consulting parties be provided copies of any draft Treatment Plans proposed by BWRR, not just a copy of the final document. That way consulting parties would have sufficient time to review draft documents and comment on how the plans are developed. Currently, consulting parties would have only 30 days to review the final Treatment Plan and would not be provided copies or the opportunity to comment on draft Plans. (lines 668-683).
- The provision accounting for changes to the APEs should include changes required other than “modifications to the Project’s engineering designs that require changes to the approved APEs,” as this does not account for situations where new information or findings may require changes to the APEs. Greenbelt requests this provision be revised to read:
 - ~~“If there are modifications to the Project’s engineering designs that require changes to the approved APEs are required,~~ pursuant to 36 CFR § 800.4 BWRR, after consulting with FRA, will submit the proposed revised APE(s) in writing to the applicable SHPO with copy to all other signatories and consulting parties.” (lines 474-476).

C. The DEIS’s Draft Evaluation Required by Section 4(f) of the Department of Transportation Act is Insufficient

Section 4(f) of the Department of Transportation Act of 1966 sets forth a mandate to preserve the nation’s parks, recreation areas, and historical properties from the adverse impacts of federal transportation projects. Although it is similar to Section 106 of the National Historic Preservation Act (NHPA), Section 4(f) requires a more rigorous level of consideration for historic properties; compliance with NHPA Section 106 is not the equivalent of compliance with Section 4(f).

Under Section 4(f), the Secretary of Transportation may approve a transportation project that requires the use of publicly owned land in a public park, recreation area, or wildlife and waterfowl refuge or land at a historic site only if the following three criteria are satisfied: (1) there is no prudent and feasible alternative to using that land, (2) the approved alternative causes the least overall harm, and (3) the project includes all possible planning to minimize harm to the publicly owned land resulting from the use of that land. 49 U.S.C. § 303(c); 23 C.F.R. § 774.3(a), (c); *Defs. of Wildlife v. N.C. Dep’t of Transp.*, 762 F.3d 374, 398-99 (4th Cir. 2014). Congress intended Section 4(f) to give protection of these resources “paramount importance,” so that their value would not “be lost unless there were truly unusual factors present in a particular case or the cost or community disruption resulting from alternative routes reached extraordinary magnitudes.” *Citizens to Pres. Overton Park, Inc. v. Volpe*, 401 U.S. 402, 412-13 (1971).

To comply with Section 4(f), the FRA first must determine whether the Project will require the “use” of land from a public park, recreation area, wildlife or waterfowl refuge, or historic site. *Adler v. Lewis*, 675 F.2d 1085, 1091 (9th Cir. 1982). The term “use” is construed broadly and is

not limited to the concept of a physical taking. *Id.* at 1092; *see* 23 C.F.R. § 774.15(a). If a project would so “use” a protected resource, then the FRA must either find that the “use” will have a “de minimis” impact (essentially no impact), or otherwise must thoroughly analyze possible alternatives to avoid such use. 49 U.S.C. § 303(c); 23 C.F.R. §§ 774.3, 774.17. If there is a “prudent and feasible” alternative that does not impact the Section 4(f) resource, then the FRA must choose that alternative. 23 C.F.R. § 774.3. An alternative is not prudent if there are unique problems or unusual factors involved in its use, and the cost, environmental impacts, or community disruption resulting from its use reach extraordinary magnitude. *Id.* § 774.17(2); *Defs. of Wildlife*, 762 F.3d at 400. An alternative is infeasible only when it “cannot be built as a matter of sound engineering judgment.” 23 C.F.R. § 774.17(2); *see also Overton Park*, 401 U.S. at 411. If there is no such prudent and feasible alternative, the Agency may approve only the alternative that causes the least overall harm, after conducting “all possible planning to minimize harm” to the Section 4(f) resource. *Id.*

“[T]he existence of an unexamined but viable alternative to the adopted plan can . . . provide a basis for overturning” a decision to use a Section 4(f) property, if the alternative was “reasonable.” *Coal. for Canyon Pres. v. Bowers*, 632 F.2d 774, 784-85 (9th Cir. 1980). Moreover, an alternative cannot be rejected solely due to the inability to use certain funding sources to finance the option. When the taking of parkland is involved, “cost is a subsidiary factor in all but the most exceptional cases.” *Coal. for Responsible Reg’l Dev. v. Brinegar*, 518 F.2d 522, 526 (4th Cir. 1975). Conclusory or vague statements claiming avoidance is not prudent and feasible are insufficient.

Prior to making Section 4(f) approvals, the Section 4(f) evaluation must be provided to officials with jurisdiction over the resource for coordination and comment. 23 C.F.R. § 774.5(a). If the Section 4(f) evaluation makes “de minimis impact” determinations for parks, recreation areas, and wildlife and waterfowl refuges, public notice and an opportunity for comment is required, along with concurrence from the official with jurisdiction. *Id.* § 774.5(b). A de minimis impact determination also must include sufficient supporting documentation to demonstrate that the impacts, after avoidance, minimization, mitigation, or enhancement measures are taken into account, are in fact de minimis and that the required coordination has been completed. *Id.* § 774.7(b). Similarly, a Section 4(f) evaluation must include sufficient supporting documentation to demonstrate why there is no prudent and feasible avoidance alternative and shall summarize the results of all possible planning to minimize harm to the Section 4(f) property. *Id.* § 774.7(a). The potential use of land from a Section 4(f) property shall be evaluated as early as practicable in the development of the action when alternatives to the proposed action are under study. *Id.* § 774.9(a).

All of the properties described in Section IV.A above are Section 4(f) properties that will be used by the Project, and the Draft Section 4(f) Evaluation provided with the DEIS either insufficiently analyzes or completely ignores many of them. Instead of evaluating alternatives that do not use Section 4(f) land, cause the least overall harm to that land, and include all possible planning to minimize harm to Section 4(f) properties, it appears the Project Sponsor is recommending Build Alternatives that do the opposite and use the most Section 4(f) properties, such as BARC and others. The Draft Section 4(f) Evaluation claims that the FRA met with the “Officials with Jurisdiction” to share Project information and seek input, and lists the entities and meeting dates. DEIS App. F at F-121 to 122. Notably absent from that list is Greenbelt, despite

the fact that the FRA knows Greenbelt is an “Official with Jurisdiction” over Section 4(f) Property that will be harmed by the Project. *See, e.g., id.* at F-22, F-39.

Specific sites that either were not evaluated at all or were not sufficiently evaluated include but are not limited to: BARC, the BW Parkway, the Greenbelt Historic District NHL, James N. Wolfe Softball Fields, a.k.a. Northway Ball Fields, the North Woods and South Woods Preserves (including Greenbelt observatory), the Community Gardens (Henry’s Hollow and Hamilton Gardens), the Hamilton Family Cemetery, Eleanor Roosevelt High School, Greenbriar Park, Spellman Overpass and connections, and Schrom Hills Park. Significantly more evaluation, including consideration of avoidance alternatives, alternatives that would cause the least harm, and all possible planning to minimize harm, must be done with respect to all these properties.

With respect to these and other Section 4(f) properties, the Draft Section 4(f) Evaluation provided in Appendix F is insufficient in numerous ways:

1. The alternatives considered are based on an unreasonably narrow purpose and need;
2. The Draft Section 4(f) Evaluation fails to consider alternatives that would not impact Section 4(f) resources, or would impact fewer Section 4(f) resources, and would cause less overall harm;
3. The Draft Section 4(f) Evaluation does not assess impacts or develop measures to minimize harm to Section 4(f) properties, improperly leaving this step to a later unspecified date; and
4. The Draft Section 4(f) Evaluation ignores many Section 4(f) properties that will be used by the Project’s tunnels.

In addition, the evaluation continually relies on conclusory unsupported assertions from the Project Sponsor, with no verification from the FRA, and no supporting analysis provided to the public. The evaluation certainly does not contain sufficient supporting documentation to demonstrate why there is no prudent and feasible avoidance alternative or that the approved alternative causes the least overall harm, and does not summarize the results of all possible planning to minimize harm to the Section 4(f) property. Accordingly, the FRA has not complied with its obligation to evaluate the potential use of Section 4(f) properties as early as practicable in the development of the Project when alternatives to the proposed action are still under study.

1. The Alternatives Considered in the Draft Section 4(f) Evaluation Are Based on an Unreasonably Narrow Purpose and Need

As explained in Section II.A.2 above, framing the purpose and need in a way that limits possible alternatives to only an SCMAGLEV system was unreasonable under NEPA. It is also unreasonably narrow under Section 4(f), and as a result the FRA’s Draft Section 4(f) Evaluation unlawfully eliminated prudent and feasible alternatives. The purpose and need should be reframed so that it requires the FRA to evaluate, construct, and operate a travel system that reduces travel time in and meets the capacity and ridership needs of the Baltimore-Washington region. Under this more appropriate purpose and need, the FRA would have found prudent and feasible avoidance

alternatives to the currently proposed Project, as well as alternatives that caused less overall harm to Section 4(f) resources.

2. The Draft Section 4(f) Evaluation Fails to Consider Alternatives that Would Not Impact Section 4(f) Resources, Would Impact Fewer Section 4(f) Resources, or Would Cause Less Overall Harm

The Draft Section 4(f) Evaluation fails to discuss alternatives that would not impact Section 4(f) resources, or that would use fewer Section 4(f) resources or would cause less harm to them. Nor does the draft evaluation justify this omission by showing that such alternatives would not be prudent and feasible. By failing to evaluate alternatives, the FRA will not be able to choose the alternative that causes the least overall harm to Section 4(f) resources or show that it has used all possible planning to minimize harm or mitigate adverse impacts on these resources.

The FRA and the Project Sponsor have been inconsistent in their justifications for not considering alternatives that would avoid using or mitigate the use of Section 4(f) resources. For example, such alternatives could include a different route, a completely underground (tunneled) route in the same area, a route that continues to be tunneled further north, a route using smaller trainsets and having a smaller environmental footprint, other high speed rail options, other rail improvements in the corridor, other public transit improvements, such as upgrades to bus service and to the Amtrak Acela roadbeds, or some combination of the above. *See* Section II.A.4 for discussion of reasonable alternatives. In particular, the FRA could evaluate a 100% tunneled route or at least a route that remains tunneled past Greenbelt Forest Preserve and/or BARC, impacting less of the Forest Preserve, the BW Parkway, BARC, and the Greenbelt Historic District NHL. Further, the FRA could also evaluate the Project and its associated 4(f) impacts using smaller TMF and railyard locations with previously considered smaller 12-car trainsets; FRA did not explain why this trainset size and its smaller TMF needs was eliminated.

The FRA, relying on the Project Sponsor's representations, has stated in the past that the Project cannot be 100% tunneled because that would be too expensive.¹⁰⁵ In response to concerns about this justification, the FRA agreed to provide the financial feasibility analysis that the Project Sponsor based its assertion on. DEIS App. F Draft Section 4(f) Evaluation Attachment B – Coordination & Correspondence, Response to Comment at PDF p. 36; *see also id.* at 30. The FRA also previously stated that the DEIS would include a 100% tunneled option for comparison. Final Alternatives Report, at 63 (Nov. 2018). But the Draft Section 4(f) Evaluation does not mention this cost justification, nor include the financial feasibility analysis or a comparison to a 100% tunneled option.

The FRA's omission not only reneges on its commitment but also prevents this tunneling alternative from being meaningfully evaluated. As explained above, the cost impacts of this option

¹⁰⁵ The Project Sponsor also makes this claim on its website. BWRR, Frequently Asked Questions, <https://bwrapidrail.com/facts/> (“A requirement of the grant is that the project must be financially feasible. The higher the percentage of tunnel – which is about twice as expensive as elevated viaduct – the less financially viable. A balance of tunnel and viaduct will best ensure financial viability.”).

would have to be “severe” to eliminate it from consideration, 23 C.F.R. § 774.17, and the public has a right to review and comment on any such determination. The FRA therefore may not rely on this cost justification in its Final Section 4(f) Evaluation; that would be a clear attempt to evade meaningful review and comment from Greenbelt, other Officials with Jurisdiction, and the public. Similarly, the FRA and the Project Sponsor may not rely on funding or grant requirements or stipulations as a justification for eliminating review of full tunnel or longer tunnel alternatives because the FRA did not provide information about these requirements to the public in the Draft Section 4(f) Evaluation.¹⁰⁶ From the limited information presented in the DEIS, it does not appear that the Project is financially viable even with the alternatives that are up to 75% tunneled, so it seems unlikely that 25% or less additional tunneling will be so extraordinary as to change the financial viability of the Project. In any event, cost is not a justification for excluding consideration of an alternative. *See Coal. for Responsible Reg’l Dev.*, 518 F.2d at 526.

Regarding a longer tunneled route, the Draft Section 4(f) Evaluation merely asserts, without explanation or support, that:

The Project Sponsor examined the potential to avoid incorporation of land from the Greenbelt Forest Preserve by placing the portal to the north, on BARC property. However, to accommodate the grade requirements of the TMF ramps to either the MD 198, BARC Airstrip, or BARC West TMF ramps, which must be above ground, the portal must be provided south of BARC property.

DEIS App. F at F-39. First, the FRA cannot rely on the Project Sponsor’s bald claims, but rather must independently verify them and provide documentation supporting them. Second, this assertion is woefully insufficient to satisfy Section 4(f) obligations. At least the following information must be documented: What are the maximum TMF ramp grade requirements? Were longer ramps considered? How high above ground must the TMF ramps be? Why must they be at that elevation? What is the minimum distance between a TMF facility and tunnel portal?

The DEIS elsewhere states that “the recently adopted design criteria require an optimum grade of four percent on the two ramp viaducts leading from the main alignment to each TMF to achieve required operational and safety criteria.” DEIS at 3-21 to 22. While this requirement too is stated without supporting documentation, and focuses on the optimum rather than the maximum acceptable grade, even if it applied the FRA has not justified its failure to consider a tunnel portal further north. Assuming that the deep tunnel begins 100 feet below ground (double the minimum underground depth the DEIS proposes as “deep tunnel,” DEIS at 4-18; *see also id.* at 3-3 (showing 15-meter minimum depth)), a 4% grade would need less than half a mile to reach a TMF at ground level. *See also* DEIS App. F Draft Section 4(f) Evaluation Attachment B – Coordination & Correspondence, Response to Comment at PDF p. 25 (“The transition distance will be approximately one km (0.6 miles) in length, depending on ground slope.”). The DEIS suggests the

¹⁰⁶ For example, the Project Sponsor has previously suggested that the Japanese technology owner is requiring some of the Project to be above ground because they want to demonstrate the technology to the public. This justification, even if true, would not make a 100% or significantly greater percent underground route imprudent and infeasible.

BARC TMFs will have ramps of 1.4 and 1.6 miles and the MD 198 TMF will have ramps from 0.7 to 3.3 miles. DEIS at 3-22.

The proposed TMF ramps for BARC West and BARC Airstrip begin at different locations but appear to be over 2 miles from the proposed tunnel portals in Greenbelt. That distance appears to be farther away than necessary. Further, the proposed MD 198 TMF facility appears to be at least 7 miles from the portals in Greenbelt. Even if the Project Sponsor's unsupported assertions are correct regarding the grade requirements, it appears that the Project could transition to being above ground through a portal further north, avoiding or minimizing impacts on Greenbelt's and other nearby Section 4(f) properties. The FRA's failure to consider this alternative violates Section 4(f). The FRA must redo the Draft Section 4(f) Evaluation with full consideration of reasonable alternative routes and tunnel lengths and provide the full analysis to the public for review and comment.

3. The Draft Section 4(f) Evaluation Does Not Assess Impacts or Develop Measures to Minimize Harm to Section 4(f) Properties, Improperly Leaving This Step to an Unspecified Later Time and Preventing Meaningful Review and Comment by Greenbelt and the Public

Build Alternatives J1-01 through J1-06 will permanently take about 16% of the land in the Greenbelt Forest Preserve, plus cause permanent noise, lighting, and visual impacts to the remainder of the Preserve, reduce wildlife habitat, and destroy ballfields, hiking trails, and the Greenbelt Observatory.¹⁰⁷ DEIS App. F at F-37 to 38. Those Build Alternatives will also cause significant impacts that the Draft Section 4(f) Evaluation misclassifies as "temporary." *See, e.g.*, DEIS App. F at F-37. While the specific use of the Preserve as a construction lay-down area may be temporary, the land will not be returned to its prior use following construction. For example, BWRR would remove trees and other vegetation and, most likely, grade the land. The Section 4(f) Evaluation itself states, "[a]lthough laydown areas are temporary, the loss of trees would result in long-term impacts, lasting well beyond the period of construction." *Id.* Elsewhere in the DEIS, the FRA states, "[a]lthough considered a short-term effect, clearing and vegetation removal would occur in areas of mature forest and habitat, with impacts lasting 75-100 years." DEIS App. D.3, at C-74. It is inaccurate and misleading to classify this type of use of a fully forested area as "temporary."¹⁰⁸

¹⁰⁷ The DEIS and Draft Section 4(f) Evaluation do not accurately present the land ownership and easement status of the Greenbelt Forest Preserve, Baltimore-Washington Parkway, or other Greenbelt and National Park Service properties that would be taken for use by the J1 alternatives. The FRA cannot assess impacts or develop measures to minimize harms based on inaccurate information.

¹⁰⁸ It is unclear whether the calculations in the Draft Section 4(f) Evaluation of permanent and "temporary" impacts to the Greenbelt Forest Preserve include only areas inside the LOD or also the areas outside the LOD (especially to the east of the J1 alignments) that will be fragmented and cut off from access by humans. The effective loss of Greenbelt Forest Preserve areas to most human access and the fragmentation of habitat must be calculated.

While the FRA recognizes the Greenbelt Observatory and Greenbelt Forest Preserve are unique elements of the historically significant Greenbelt, it downplays the significance of the hiking and wildlife viewing opportunities provided to the public that will be destroyed by the Project, dismissively stating that similar opportunities may be available at the nearby Patuxent Research Refuge.¹⁰⁹ DEIS App. F at F-39. The FRA barely even mentions the Northway Ballfields. The FRA also states that “Build Alternatives J1 may have a Permanent Use of the Greenbelt Historic District because land from the district would be incorporated into the SCMAGLEV Project,” but provides no further details. *Id.* at F-82. The FRA postpones any analysis, stating that refinements to concept designs will be undertaken by the Project Sponsor to reduce impacts to the Greenbelt Forest Preserve and the FRA will coordinate with Greenbelt to examine these refinements. *Id.* at F-39, F-82. The FRA treats other Section 4(f) properties within Greenbelt, such as the Greenbelt Historic District, in similar dismissive fashion.

These vague, inaccurate, and conclusory statements are insufficient to assess the impacts from the Project to the Greenbelt Forest Preserve and its users. The FRA should have begun its consultation with Greenbelt long before releasing its Draft Section 4(f) Evaluation; if it had done so it might have produced a more accurate and complete evaluation. Regardless, the FRA must complete a full analysis of the impacts that the Project’s alternatives would have on the Greenbelt Forest Preserve and all Section 4(f) properties, including the Forest Preserve’s interconnected hiking trail system and wildlife viewing opportunities, in order to meet its Section 4(f) obligations.

Additionally, the Draft Section 4(f) Evaluation contains a completely unsupported claim that the J Build Alternatives will not “use” the Greenbelt Forest Preserve because the “noise associated with the SC MAGLEV System operations would not result in impacts that would substantially interfere with noise-sensitive uses within GFP.” DEIS App. F at F-69. The FRA makes this claim, without further discussion, despite recognizing that the Greenbelt Forest Preserve is 500 feet from open-cut tunnel and just over the BW Parkway from the tunnel portal and the viaduct; elsewhere the FRA predicted airborne noise impacts up to 2,100 feet from the viaduct utilizing proposed maximum train speeds. DEIS at 4.17-12.¹¹⁰ The DEIS also recognizes that the rapid release of air pressure at the tunnel portals when the high-speed trains exit the tunnel onto the viaduct is associated with a sudden onset of sound. DEIS App. D.10 at 10-18. And none of the noise receptors evaluated in the FRA’s noise monitoring program to evaluate existing background noise levels are located within Greenbelt or nearby on the western side of the Baltimore-Washington Parkway. DEIS App. D.10 at 10-4 Table D.10-6; *see* Section II.J.3. The FRA has not shown that the Greenbelt Forest Preserve, and particularly wildlife-viewing in the

¹⁰⁹ The DEIS contradicts itself as it correctly explains elsewhere that the Greenbelt Forest Preserve “is historically significant as the ‘greenbelt’ that surrounds the district, and therefore recreational opportunities offered within the greenbelt cannot be moved elsewhere.” DEIS at 4.5-12.

¹¹⁰ Elsewhere, the DEIS recognizes that residences west of the BW Parkway would experience impacts due to increased noise from trains passing by along the J Build Alternative viaduct east of the BW Parkway, DEIS at 4.4-11, making it all the more puzzling that the FRA would claim the Greenbelt Forest Preserve would not be impacted by noise from the J Build Alternatives.

Preserve, would not be impacted by noise or visual impacts during construction and operation of the J Build Alternatives.

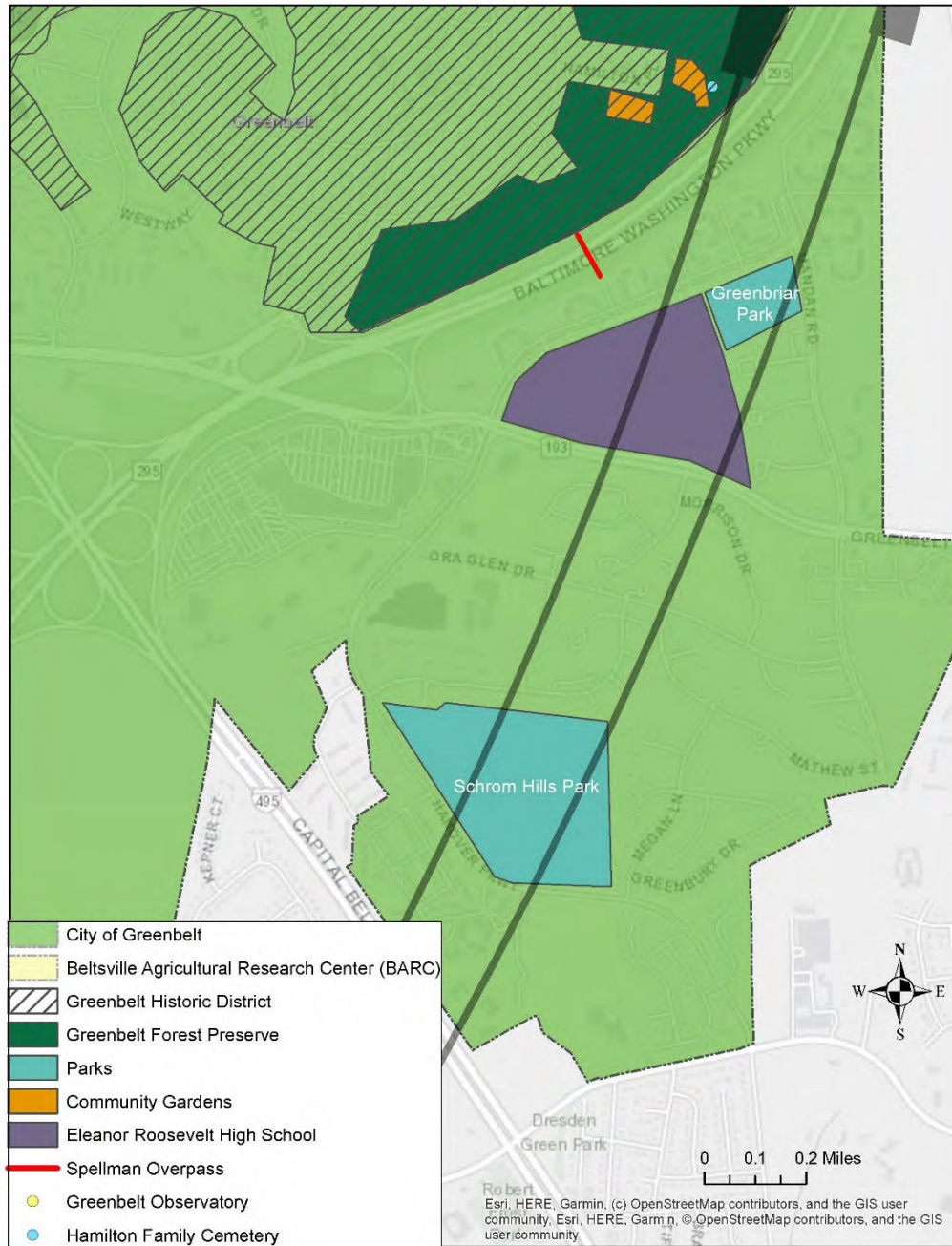
Because the DEIS and Section 4(f) evaluation do not contain enough information to understand the complete range of direct, indirect, and cumulative effects of the Project on Section 4(f) properties, the FRA and the public cannot know how the Project will “use” historic properties and parks or which alternative would cause the least overall harm, and the FRA cannot properly develop measures to minimize harm to those properties.

With respect to the identified Section 4(f) properties, the FRA puts off until the FEIS or later the development of measures to mitigate harms and appears to leave it to the Project Sponsor’s whims. *See, e.g.*, DEIS App. F at F-93 (“Refinements to the concept designs of these facilities to reduce or eliminate impacts to BARC will be undertaken by the Project Sponsor during development of and subsequent to the FEIS.”); *id.* at F-119 (same). These measures must be fully evaluated by the FRA and not left up to the Project Sponsor. And the FRA must not deprive the public of its opportunity to comment on these measures and must release the FRA’s consideration of them prior to an FEIS or making any decisions on the Project.

4. The Draft Section 4(f) Evaluation Ignores Section 4(f) Properties That Will be “Used” by the Project’s Tunnels

The Draft 4(f) Evaluation completely ignores Section 4(f) properties that will be used by the Project’s tunnels. There are numerous Section 4(f) properties proposed to be used by the underground tunnels which the FRA does not consider. Within Greenbelt these properties include, but may not be limited to, Eleanor Roosevelt High School, Schrom Hills Park, and Greenbriar Park. Nearby properties include Youth Memorial Park, Bladensburg South Park, Bladensburg Waterfront Park, Bladensburg High School, and others. For example, in Greenbelt, Eleanor Roosevelt High School’s athletic and recreational facilities—which contain athletic fields, gymnasiums, a fitness area, a track, and basketball courts—are regularly used by the public for recreation, sports, and community events. The FRA recognizes that these resources are likely to be impacted. *See* DEIS App. D.10 at 10.4-20 (“Most ground-borne vibration impacts are along tunnels [sic] sections of the alignment[. . .]. Overall, FRA predicted vibration impacts up to 225’ from the guideway. Similarly, FRA predicted ground-borne noise impacts up to 250’ from the guideway.”). Moreover, there are many impacts in addition to noise and vibration that could be caused by the tunnels, including stability concerns, frac-outs, and seismic issues, as discussed in Section II.G.

Figure IV.C.1: SCMAGLEV Build Alternatives Within the City of Greenbelt East



An agency's determination that a facility is not "used" by a transportation project must be supported by "empirical evidence." *Nat'l Parks & Conservation Ass'n v. FAA*, 998 F.2d 1523, 1533 (10th Cir. 1993). A publicly owned property qualifies as a Section 4(f) resource if it is a locally significant public recreational resource. 23 C.F.R. § 774.17. A property is significant if one of its major purposes or functions is as a public park or recreation area. *Stewart Park & Rsrv. Coal., Inc. v. Slater*, 352 F.3d 545, 556 (2d Cir. 2003). Such properties are Section 4(f) resources even if they primarily serve some other non-protected purpose. For example, courts have repeatedly recognized that public school recreational facilities—which primarily serve school needs—constitute Section 4(f) resources if the public regularly uses them as recreational facilities. *City of S. Pasadena v. Slater*, 56 F. Supp. 2d 1106, 1114 n.9 (C.D. Cal. 1999) (recognizing school playing fields as a Section 4(f) resource); *Coal. for Responsible Reg'l Dev. v. Coleman*, 430 F. Supp. 13, 16 (S.D. W.Va. 1976) (same re school playground), *aff'd* 555 F.2d 398 (4th Cir. 1977). Any park use, regardless of its degree, triggers Section 4(f).

The FRA claims Section 4(f) does not apply to properties that will be used by underground portions of the Project:

In the case of each protected property under which a deep tunnel is proposed, FRA determined that Section 4(f) does not apply because placement of the alignment and any ancillary facilities underground below a 4(f) property would not require maintenance access to the tunnel from those properties.

DEIS App. F at F-F-4. Moreover, the FRA claims, based on an FHWA Section 4(f) Policy Paper, that deep tunneling would not subject sites to the requirements of Section 4(f) because the Project would "not cause disruption of surface or above-ground activities, features, or attributes of each property which would permanently harm the purposes for which the Section 4(f) property was established." *Id.* The FRA's claim, which is more akin to a de minimis impact determination (without following the requirements to reach a de minimis impact determination), is contrary to Section 4(f), which by its plain language is not limited to surface impacts.

There is no dispute that the Project tunnels would "permanently incorporate" land directly beneath Section 4(f) properties such as Eleanor Roosevelt High School, Schrom Hills Park, and Greenbriar Park. As a matter of law, therefore, the Project will "use" these resources. *See* 23 C.F.R. § 774.17 ("Except as set forth in §§ 774.11 and 774.13, a 'use' of Section 4(f) property occurs: (1) [w]hen land is permanently incorporated into a transportation facility."). The FHWA Section 4(f) Policy Paper relied on by the FRA does not cite any statutory, regulatory, or case law support for its limitation on the regulatory definition of use. Thus, based on the applicable regulations and case law, the FRA and the Policy Paper cannot exclude recreation facilities from coverage under Section 4(f), nor may they conclude that tunnels will not "use" Section 4(f) resources. The FRA's reliance on the Policy Paper, which was not subject to notice and comment rulemaking procedures, to reach a contrary conclusion is an abdication of its responsibilities and violates Section 4(f) and its implementing regulations.

Having failed to properly identify the Project's use of these Section 4(f) properties, including Eleanor Roosevelt High School, Schrom Hills Park, and Greenbriar Park, the Draft Section 4(f) Evaluation likewise fails to evaluate and determine whether there were "prudent and

feasible” alternatives to avoid this use, or, if not, to determine what alternative minimizes harm and to conduct “all possible planning to minimize harm” to the proper

D. The DEIS Does Not Sufficiently Evaluate the Conversion of Parkland and Outdoor Recreation Space and Conflicts with Federal, State, and Local Requirements Regarding Those Public Spaces

Two federal and one state program impose restrictions on the use of many of parks, open space, and recreational areas that would be impacted and indeed lost as a result of the Build Alternatives considered in the DEIS. The first of these was created by the Land and Water Conservation Fund (LWCF) Act of 1965, Pub. L. No. 88-578, 78 Stat. 897, which was enacted to help preserve and assure accessibility to outdoor recreation resources by providing funds and federal assistance to states for those purposes. LWCF § 1(b), 78 Stat. at 897. The LWCF State Assistance Program provides matching grants to states, and through the states to local governments, for the acquisition and development of public outdoor recreation areas and facilities. 54 U.S.C. § 200305 (known as Section 6).

Property acquired or developed with LWCF assistance must be used for public outdoor recreation. 54 U.S.C. § 200305(f)(3). Section 6(f)(3) of the LWCF Act prohibits the conversion, in whole or in part, of any property acquired or developed with LWCF assistance to something other than public outdoor recreation uses without the approval of the Secretary of the Interior and the substitution, in accordance with a statewide comprehensive outdoor recreation plan (SCORP), of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location. *Id.* The environmental review process for an action that requires a conversion must analyze not only the Section 6(f)(3) area proposed for conversion, but also the development of the replacement parkland, and in the case of partial conversions the scope of the environmental review still must consider the entire Section 6(f)(3) parkland.¹¹¹ Even a relatively small LWCF grant (e.g., for development of a picnic shelter) in a park of hundreds or even thousands of acres can provide anti-conversion protection to the entire park site.¹¹²

In addition, Maryland’s Program Open Space (POS) is intended to provide open space and recreational areas for present and future Maryland citizens and visitors to the state.¹¹³ Land acquired or developed under a grant from the POS may not be converted from outdoor public recreation or open space use to any other use without written approval of the Secretary of the Department of Natural Resources, the Secretary of the Department of Budget and Management, and the Secretary of the Department of Planning, and only after the local governing body replaces

¹¹¹ National Park Service, *Land and Water Conservation Fund State Assistance Program Federal Financial Assistance Manual Volume 69*, at 8-7 (Oct. 1, 2008), <https://www.nps.gov/ncrc/programs/lwcf/manual/lwcf.pdf>.

¹¹² See National Park Service, *Land and Water Conservation Fund Compliance Responsibilities and Legal Protection*, (Oct. 30, 2019), <https://www.nps.gov/subjects/lwcf/protection.htm>.

¹¹³ Maryland Department of Natural Resources, *Local Program Open Space Manual*, at 66 (2006), https://dnr.maryland.gov/land/Documents/POS/localposmanual_2006.pdf.

the land with land of at least equivalent area and of equal recreation or open space value. Md. Code Ann., Nat. Res. § 5-096(d)(7). The Maryland POS Manual explains:

Years of study, planning and negotiations by county, municipal and State agencies were invested in the selection of each POS site. Conversions defeat the purpose of the program. Should a change from the original use be requested, that change must first be consistent with the State and local Land Preservation and Recreation Plans and the County's Comprehensive Plan, and The Economic Growth Resource Protection and Planning Act of 1992.¹¹⁴

Finally, the Federal Lands to Parks (FLP) Program deeds former surplus federal land to local government entities for use in perpetuity solely for public parks and recreation. Under the FLP Program, the deed of conveyance of property transferred must provide that "all of the property be used and maintained for the purpose for which it was conveyed in perpetuity, and that if the property ceases to be used or maintained for that purpose, all or any portion of the property shall, in its then existing condition, at the option of the [federal] Government, revert to the [federal] Government." 40 U.S.C. § 550(e)(4)(A). The federal government may release this reversion "if the official determines that the property no longer serves the purpose for which it was transferred or that a release, conveyance, or quitclaim deed will not prevent accomplishment of that purpose." *Id.* § 550(b)(1).

The DEIS does not sufficiently evaluate properties acquired or developed with LWCF, POS, or FLP Program assistance. First, the FRA's identification of impacted properties funded by these programs is incomplete. The FRA says it identified public recreational facilities and parklands within 800 feet of the centerline of the alignments and ancillary facilities of the twelve Build Alternatives, claiming that distance represents the outer limits of potential visual, noise, and other impacts from the SCMAGLEV on parks and recreational facilities. DEIS at 4.7-4. But the DEIS elsewhere says that "along the viaduct sections of the guideway utilizing proposed maximum train speeds, FRA predicted airborne noise impacts up to 2,100' from the guideway," DEIS at 4.17-12, indicating that an 800-foot boundary is too narrow by more than half.

Also, the DEIS states that the Greenbelt Forest Preserve was funded by the FLP Program. DEIS at 4.7-6. However, the FRA failed to fully investigate the funding of the Greenbelt Forest Preserve; as explained in Section IV.A.2, Parcel 1 of the Forest Preserve was acquired using POS funds and may have utilized the LWCF as well. Further, it appears the FRA limited its evaluation to only those properties impacted by the viaduct, ignoring all the property conversions required for the tunneled sections, such as Schrom Hills Park (*see* Section IV.C.4). The FRA must fully investigate all conversions of recreational or park property for the Build Alternatives and determine whether those properties were acquired or improved using the LWCF, Program Open Space funds, or FLP Program assistance.

Second, before the National Park Service will consider a Section 6(f)(3) conversion of an LWCF property, the FRA must show that all practical alternatives to the proposed land conversion

¹¹⁴ Maryland Department of Natural Resources, *Local Program Open Space Manual*, at 66.

have been evaluated and rejected on a sound basis. 36 C.F.R. § 59.3(b)(1).¹¹⁵ As explained in Sections II.A.4 and IV.C.2, the FRA has not considered numerous alternatives to the Build Alternatives, such as a completely tunneled SCMAGLEV route, an SCMAGLEV that travels through tunnels for a longer portion of its route, an SCMAGLEV with smaller trainsets and a smaller conversion footprint, other routes with fewer impacts on park and recreational lands, and other public transit improvements. These alternatives would avoid some or all the Section 6(f)(3) conversions of the Build Alternatives. It is impossible for the FRA to show these alternatives were rejected on a sound basis, without even evaluating them.

Third, even as to the two LWCF sites that the FRA identifies, the DEIS contains no discussion regarding the Section 6(f)(3) requirements, such as the fair market value of the property, the proposed substitute property of equivalent usefulness and location, and how the proposed conversion and replacement would comply with Maryland's SCORP. This information is essential for the public and the FRA to meaningfully evaluate the alternatives under NEPA.

With respect to Maryland POS-funded lands, the DEIS merely states: "Maryland MDNR's Program Open Space (POS) provides funding to acquire land for open space and for outdoor public recreation. Prior approval from the Secretaries of the Departments of Natural Resources, Budget and Management, and State Planning is required before any acquisition or development sites may be converted to any other use." DEIS at 4.7-4. This vague statement does not substitute for a discussion and evaluation of the requirements. Significantly, the DEIS is silent as to whether the Project Sponsor will comply with the POS requirements, who will be responsible for replacing the converted POS-funded land, and what those lands would be. This information is essential for the public and the FRA to meaningfully evaluate the alternatives under NEPA.

Similarly, the DEIS acknowledges that the Greenbelt Forest Preserve, and other recreational facilities and parklands, were funded or transferred through the FLP program, but again offers no actual discussion beyond describing the program and saying:

NPS would determine mitigation measures for impacts to FLP-transferred parks in collaboration with the current owners of the properties and other agencies involved in the Project.

DEIS at 4.7-4. The DEIS contains no discussion about whether use of the Greenbelt Forest Preserve and other FLP Program lands for the Project would violate the purpose of the original conveyance, although it clearly would. The DEIS also contains no discussion about whether the federal government could release the owner of the FLP Program lands from the federal government's reversion interest in FLP land that is not used for its intended purpose. Although the one-paragraph discussion in the DEIS mentions mitigation measures for impacts, there is no mention of what these mitigation measures would be and there has been no discussion, at least with Greenbelt, regarding mitigation for the Greenbelt Forest Preserve.

¹¹⁵ See also National Park Service, *Land and Water Conservation Fund Compliance Responsibilities and Legal Protection*, at 8-5 (Oct. 30, 2019), <https://www.nps.gov/subjects/lwcf/protection.htm>.

Beyond the federal and state restrictions discussed above, many parklands in and near Greenbelt and elsewhere along the Project route are subject to conversion restrictions in their deeds and based on local laws. Some of these restrictions are discussed in Section IV.A.2 and include a reversion of portions of the Greenbelt Forest Preserve to Prince George's County if the sites cease to be used by Greenbelt for public purposes; a woodland covenant on Parcel 1 within the Forest Preserve; and scenic easements owned by the National Park Service within the Forest Preserve. Moreover, Greenbelt requires that its forest preserve areas, such as the impacted tracts of the Greenbelt Forest Preserve, be managed to provide for and protect the natural character of these lands and to allow for the use of these lands in a manner that does not alter or degrade their essential natural character. Greenbelt City Code § 12-155(a). Among other things, within Greenbelt's designated forest preserve areas, commercial enterprises, permanent roads, the use of motorized vehicles (except for maintenance and public safety vehicles), grading, and construction of manmade structures are prohibited. *Id.* § 12-156. Removal of any lands from Greenbelt Forest Preserve areas requires an ordinance approved by a supermajority vote of the Greenbelt City Council, a public hearing which must be held no fewer than two weeks preceding the first reading of the ordinance, and approval by the voters of Greenbelt, by way of a question placed on the ballot of the next regularly scheduled general city election, in accord with the City Charter. *Id.* § 12-154. Also, the *Prince George's County Resource Conservation Plan*, a document that functions as a county-wide master plan, locates the Greenbelt Forest Preserve within an M-NCPPC-designated Special Conservation Area that also includes Greenbelt National Park, BARC, and the Patuxent Wildlife Research Refuge.¹¹⁶

NEPA requires that an EIS evaluate “[p]ossible conflicts between the proposed action and the objectives of federal, regional, state, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned.” 40 C.F.R. § 1502.16 (2019); *see also id.* §1506.2(d) (“To better integrate environmental impact statements into state or local planning processes, statements shall discuss any inconsistency of a proposed action with any approved state or local plan and laws (whether or not federally sanctioned). Where an inconsistency exists, the statement should describe the extent to which the agency would reconcile its proposed action with the plan or law.”).

The DEIS entirely fails to evaluate the Project's possible conflicts with these federal, state, and local land use requirements. Instead, the DEIS merely suggests that the Project Sponsor will comply and follow the relevant but unspecified procedures at some unspecified time in the future:

The impacts associated with land use and zoning changes would require coordination with local or Federal agencies, and the approval process would vary per agency. Land use and zoning changes occur frequently within developed areas, and changing residential, commercial, and industrial land uses to transportation uses are generally allowed and approved given that the relevant procedures are followed.

¹¹⁶ Map 3 in section 2 of M-NCPPC, *Prince George's County Resource Conservation Plan: A Countywide Functional Master Plan*, at 32 (March 2017), available at <http://www.pgplanning.org/944/Publications>.

DEIS at 4.3-8. Similarly, the DEIS states:

SCMAGLEV Project elements are located in areas zoned with various designations. SCMAGLEV Project elements would be considered transportation and/or public utility use. These uses would be permitted or would require a special exception prior to construction.

DEIS at 4.3-9.¹¹⁷ The FRA must be explicit that the Project must comply with local zoning and land use requirements. Otherwise, the FRA must evaluate any possible conflicts, and it may not avoid that obligation by proffering unsubstantiated assurances of future compliance.

Moreover, the Transportation Equity Act for the 21st Century requires that projects “satisfy applicable statewide and metropolitan planning requirements” to be eligible for federal funding. 23 U.S.C. § 322(d)(5). The DEIS states broadly that “[a]ll Build Alternatives would generally support statewide and regional transportation goals as identified in various approved comprehensive planning documents.” DEIS at 4.5-16. But the DEIS also suggests that the Project will conflict with current metropolitan transportation plans. *See, e.g.*, DEIS at 4.2-10 to 18. Without any more detail, the public cannot meaningfully evaluate this claim. It remains unclear whether the Project would satisfy applicable statewide and metropolitan planning requirements.

Finally, the DEIS should address the use of Maryland taxpayer dollars for the Project and the applicability of the Maryland Environmental Policy Act (MEPA) that would ensue. MEPA requires state agencies to prepare an “environmental effects report” on “each proposed State action significantly affecting the quality of the environment.” Md. Code Ann., Nat. Res. § 1-304(a). MEPA defines “proposed state action” to include “requests for legislative appropriations and other legislative actions that will alter the quality of the air, land, or water resources.” *Id.* § 1-301(d). Maryland’s Guidelines for Implementation of the Maryland Environmental Policy Act, which are applicable to all state agencies, define “other legislative actions” as “requests by the unit of the Department [or other State agency] for proposed legislative acts and/or a change in existing acts or agency authority.” Guidelines, IV.A.3 (June 28, 1974).

The DEIS is not clear on whether Maryland legislative action would be required for the Project. Although the Project Sponsor has repeatedly stated to the public that no Maryland funds

¹¹⁷ *See also* DEIS at 4.7-24 (stating that the Project Sponsor anticipates “Complying with applicable local laws for construction activity including noise producing activities” to mitigate impacts to recreational facilities and parklands). A spokeswoman for the Project Sponsor recently stated that it is committed to “comply with all federal, state, and local mitigation requirements.” Luz Lazo, *Federal Panel Sows Doubts About High-Speed D.C.-to-Baltimore Maglev Train*, Washington Post (May 7, 2021), <https://www.washingtonpost.com/transportation/2021/05/07/dc-baltimore-maglev-train/>. The Project Sponsor’s public statements on this issue make it all the more essential that the FRA in the DEIS accurately evaluate it.

would be used for the Project,¹¹⁸ the Project Sponsor also opposed a bill that would memorialize this commitment.¹¹⁹ The DEIS also suggests that funding assistance to businesses that would need to be relocated because the Project would take their land would come through a Maryland state program. DEIS at 4.6-23. And given the lack of clarity in the DEIS's presentation regarding funding of the capital costs and operating and maintenance costs of the Project, *see* Section II.B.3, including indirect costs such as those stemming from impacts on utilities, *see* Section II.J.4, it appears likely that the Project Sponsor will utilize state taxpayer money for the Project. The FRA must examine Maryland legislative action on the Project, including the use of Maryland funds, whether direct, indirect, for construction, or in the future, to consider whether MEPA applies and an environmental effects report is required.

V. BY WITHHOLDING RELEVANT INFORMATION FROM THE PUBLIC AND NEGLECTING TO VERIFY INFORMATION IN THE DEIS, THE FRA VIOLATED NEPA AND PRESIDENT BIDEN'S COMMITMENT TO SCIENTIFIC INTEGRITY

NEPA requires that agencies “insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements [and] shall identify any methodologies used.” 40 C.F.R. § 1502.24 (2019). NEPA requires independent agency verification of all information supplied by an applicant if the agency relies on that information in preparing an EIS. *Id.* § 1506.5 (2019).

“NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.” *Id.* § 1500.1(b) (2019). Ultimately, the FRA, as the lead agency, is responsible for the accuracy, scope, and content of environmental documents prepared by the Project Sponsor or contractors, and must independently evaluate the information. *Id.* § 1506.5 (2019); *see also* 23 C.F.R. § 771.09(c).

Under NEPA, materials can be incorporated by reference into an EIS but must be “made reasonably available for inspection by potentially interested persons within the time allowed for comment.” 40 C.F.R. § 1502.21 (2019). “Material based on proprietary data which is itself not

¹¹⁸ *See, e.g.,* Northeast Maglev, Common Questions, <https://northeastmaglev.com/faq/#Economics>, visited (May 17, 2021) (“no state money will be used on this project”).

¹¹⁹ *See, e.g.,* Testimony of Wayne L. Rogers Baltimore Washington Rapid Rail in Opposition to HB063 (Feb 12, 2021), http://mgaleg.maryland.gov/cmte_testimony/2021/ent/1UEPdqq0ZiVuEMXBSIF1XD61RGr5xdtCM.pdf; Bruce DePuyt, *Maglev Firm Urges Legislators Not to Close Door on Public Funding*, Maryland Matters (Feb. 13, 2021), <https://www.marylandmatters.org/2021/02/13/maglev-firm-urges-legislators-not-to-close-door-on-public-funding/>.

available for review and comment shall not be incorporated by reference.” *Id.*¹²⁰ If an agency prepares an appendix, it shall be published with the EIS and shall contain the material prepared in connection with the environmental impact statement, material substantiating any analysis fundamental to the impact statement, and material relevant to the decision to be made. *Id.* § 1502.18.¹²¹

“To fulfill NEPA’s public disclosure requirements, the agency must provide to the public ‘the underlying environmental data’ from which the [agency] develops its opinions and arrives at its decisions.” *WildEarth Guardians v. Mont. Snowmobile Ass’n*, 790 F.3d 920, 925 (9th Cir. 2015); *Or. Natural Desert Ass’n v. Bureau of Land Mgmt.*, 625 F.3d 1092, 1099 (9th Cir. 2008) (NEPA requires agencies “to take a ‘hard look’ at how the choices before them affect the environment, and then to place their data and conclusions before the public”). “When relevant information ‘is not available during the [impact statement] process and is not available to the public for comment[,] . . . the [impact statement] process cannot serve its larger informational role, and the public is deprived of [its] opportunity to play a role in the decision-making process.” *N.C. Wildlife Fed’n v. N.C. Dep’t of Transp.*, 677 F.3d 596, 604-05 (4th Cir. 2012) (alterations in original) (quoting *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1085 (9th Cir. 2011)); see *League of Wilderness Defs./Blue Mountains Biodiversity Project v. Connaughton*, No. 3:12-CV-02271-HZ, 2014 WL 6977611, at *15-17 (D. Or. Dec. 9, 2014) (agency is prohibited “from relying on information in the preparation of an EIS while refusing to make that information available to the public” and there is no privilege exception to the required disclosure).

In his Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, President Biden committed the federal government to a policy of scientific integrity in decision-making. Exec. Order No. 13,990, 86 Fed. Reg. 7,037, § 1 (Jan. 25, 2021); see also Presidential Memorandum on Restoring Trust in Government Through Scientific Integrity and Evidence-Based Policymaking, 86 Fed. Reg. 8,845 (Feb. 10, 2021). Responding to these directives, the Department of Transportation recently appointed a Chief Science Officer and re-designated a Scientific Integrity Officer. *USDOT Appoints Chief Science Officer for the First Time in Over 40 Years; Take Steps to Restore Scientific Integrity* (Apr. 21, 2021), <https://www.transportation.gov/briefing-room/usdot-appoints-chief-science-officer-first-time-over-40-years-take-steps-restore>.

The FRA flagrantly violated these requirements. In particular, the FRA incorporated documents and data prepared by the Project Sponsor or the Project Sponsor’s consultants without independently verifying the information contained in them and also refused to make those documents and data available to the public for review and comment. Even when the FRA released some of this information, albeit nearly three months into the public comment period, the FRA unlawfully redacted large quantities of the relevant information, claiming that information is

¹²⁰ See also 40 C.F.R. § 1501.12 (2021) (emphasis added) (“Agencies shall not incorporate by reference material based on proprietary data that is not available for review and comment.”).

¹²¹ See also 40 C.F.R. § 1501.19 (2021).

proprietary. Thus, the FRA deprived the public of its opportunity to play a meaningful role in the decision-making process.

First, the FRA based its alternatives on information withheld from the public. The FRA states: “The previous studies considered for this DEIS are . . . Baltimore-Washington Maglev Project, Final Environmental Impact Statement (FEIS) and Section 4(f) Evaluation (Unpublished), 2007: . . . Baltimore-Washington Maglev Project, Alternatives Study (Unpublished), 2012: A private entity (The Northeast Maglev, LLC) conducted a study that considered additional alignments for implementing Maglev technology.” DEIS App. C at C-1 (emphasis added). Although the DEIS links to a website “[f]or more information on these previous studies,” *id.* n.1, the studies themselves are not available on the website.

Second, the FRA withheld several documents it references as the basis for the ridership estimates in the DEIS, which also form the basis for its transportation, air emissions, energy, and economic analyses. The biases in these ridership estimates bleed through the entire DEIS. These documents are:

1. Louis Berger. 2018: Baltimore-Washington SCMAGLEV Project Draft Ridership Report, June 29, 2018 / Baltimore-Washington SCMAGLEV Project Draft Final Ridership Report, June 29, 2018. DEIS App. D.4 at C-6 n.4, D-40 n.51, D-43.
2. Louis Berger. 2018: Baltimore-Washington SCMAGLEV Project Final Ridership Report, November 8, 2018. DEIS at 4.2-10, 4.6-3 & n.9 (PDF p. 16), App. D.4 at D-35 n.42, D-36, D-53, D-54, D-56.
3. Louis Berger. 2018: Baltimore-Washington SCMAGLEV Ridership Supplement, December 10, 2018. DEIS at 4.6-3 n.7 (PDF p. 16), App. D.4 at D-35 n.41.
4. SCMAGLEV Ridership Report Revenue and Operations Estimates Addendum, October 25, 2018. DEIS App. D.4, at D-43, D-54.
5. SCMAGLEV Project Ridership Data Request, May 6, 2020. DEIS at 4.6-13, 4.16-10, App. D.2 at A-3 to 5, A-46, App. D.4, at D-81 n.82.
6. SCMAGLEV Project Ridership Data Request, July 27, 2020. DEIS at 4.6-2 n.2 (PDF p. 6), App. D.4, p. D-35, D-40, D-42, D-44, and D-45.
7. AECOM analysis. *E.g.*, DEIS at 4.6-5, 4.6-8 to 9; DEIS App. D.4 at D-19, D-36, D-40, D-44 to 47.

Despite NEPA’s clear directive to provide these referenced documents to the public for review and comment, the FRA did not release them with the DEIS. The FRA initially refused to release any of the documents, in response to Greenbelt’s February 17, 2021 request for them. Eventually, after repeated prodding, on April 9, 2021 the FRA released two heavily redacted documents to Greenbelt and then released three more heavily redacted documents to Greenbelt and the public on April 23, with only a month remaining in the comment period. *See* Email chain between Ian Fisher, Brandon Bratcher, and Faris Mohammed, “Access to SCMaglev DEIS Referenced Reports” (Feb. 17, Feb. 23, Feb 24, March 1, March 5, March 11, March 22, March 26, April 9,

April 12, April 16, & April 23) (attached). As explained above, an EIS cannot be based on information withheld as proprietary.

Ultimately the FRA conceded that it failed to release information that the agency used to inform the analysis in the DEIS. *See* Email from FRA “SCMAGLEV Ridership Studies Now Available!” (April 23, 2021) (attached). However, these did not comprise all the documents listed above, and the FRA ignored requests to extend the public comment period to allow the time for meaningful review and comment.

What is more, the FRA so heavily redacted the documents that it did release that it rendered them largely useless, meaning that the underlying data and assumptions contained in the DEIS are still not publicly available. Some examples include the following:

1. The DEIS says: “The ridership report assumes that about 70.0 percent of business travelers in the defined catchment area and 67.0 percent of non-business travelers, which includes those making personal trips as well as commuters, between Baltimore and Washington, D.C. would choose the SCMAGLEV service if it were available.” DEIS at 4.6-3. The DEIS cites to Louis Berger, Baltimore-Washington SCMAGLEV Ridership Supplement, December 10, 2018 (Document No. 3 in the list above) as the source of this information. But this information, and the reasoning behind it, are not contained in the redacted Ridership Supplement eventually provided to the public. The FRA must have redacted the very information in the ridership report that it relied on in the DEIS. It is not clear if the FRA even attempted to verify that the ridership assumption was reasonable. Greenbelt has explained above why this assumption makes no logical sense. *See* Section II.B.4.
2. The DEIS says: “Based on the regional VMT forecasts provided in Ridership Data Request (BWRR, May 6, 2020), the SCMAGLEV Project will likely reduce overall regional VMT in a range of nine to 12 percent during 2027 and 2045 under Cherry Hill and Camden Yards Station options.” DEIS at 4.16-10. The FRA also represents that the source of these results and of the aggregate hours of time savings for the years 2030 and 2045 is Baltimore-Washington SCMAGLEV Project: Ridership Data Request, BWRR, 5/6/2020 (Document No. 5 above). DEIS App. D.2 at A-3 to 5. The public should be allowed to see the source of this forecast and understand how it was estimated. But the heavily redacted Ridership Data Request document that was released April 23, 2021 does not include any forecasts for 2027 or 2030. Where did the FRA get this information? Did the FRA do anything to independently verify its accuracy? And although the document contains the final estimates of VMT reduction for 2040, all the information needed to calculate those numbers and evaluate their accuracy has been redacted. Did the FRA independently verify those final numbers? How could it without knowing the calculations that went into them?
3. The FRA estimates that the anticipated SCMAGLEV services will reduce travel times by 8 to 27 minutes depending on the trip purpose and length under each of the Build Alternatives. DEIS App. D.4 at C-6 (citing Baltimore-Washington SCMAGLEV Project Draft Ridership Report. 2.2 Document Travel Demand. Revision 0, 2018-06-29, page 51) (Document No. 1 above). Again, the public should be allowed to see the information that provides the basis for these estimates, but the FRA refused to publicly release this document and in fact told Greenbelt that “this record was not relied on for the Draft

Environmental Impact Statement.” Faris Mohammed email to Ian Fisher, April 9, 2021 (in Email chain between Ian Fisher, Brandon Bratcher, and Faris Mohammed, “Access to SCMaglev DEIS Referenced Reports”) (attached). If that is true, where did the FRA get this information from? When the FRA failed to provide the referenced Draft / Draft Final Ridership Report, Greenbelt searched the redacted Baltimore-Washington SCMAGLEV Project Final Ridership Report but could not find this information anywhere within that source; moreover, page 51, the cited page number, is entirely redacted from the Final report. It is clear that the FRA based its analysis on information it has not provided to the public. It is not clear whether the FRA even attempted to verify this information or just accepted the Project Sponsor’s conclusions as fact.

4. The FRA also says: “Parking fees are assumed to be an average of \$30 per round-trip and are applied to all auto trips between Washington, D.C. and Baltimore because the major employment centers have parking garages that require daily payment either by the hour or as a portion of the employee’s paycheck.” DEIS App. D.4 at D-40. As explained above in Section II.B.6, this assumption makes no sense, making it all the more important to be able to review the information on which it is based. The FRA again cites the section entitled 2050 SCMAGLEV By Market Segment in the Baltimore-Washington SCMAGLEV Project Draft Final Ridership Report, June 29, 2018 (Document No. 1), but this is the report that the FRA refused to release, claiming it did not rely on it. Again, although it is not the public’s responsibility to hunt down information, Greenbelt searched for parking fee information in the Final Ridership Report but did not find it there. What information did the FRA rely on? And did the FRA do anything to verify its accuracy?
5. In the DEIS, the FRA presents the estimated SCMAGLEV ridership percentage by market segment and airport/non-airport trips in 2050. DEIS App. D.4 at D-35 to 36. The FRA cites as its source Figure 7-6, SCMAGLEV Final Ridership Report, November 8, 2018 (Document No. 2). There is no Figure 7-6 in the released, redacted ridership report, nor is that information found elsewhere in that report. Where did the FRA get this information? Did the FRA do anything to verify its accuracy?

These are just a few of the many instances where, plainly, the FRA has not been forthcoming with the public in saying it withheld and redacted only those materials which it did not consider or rely on. As an outgrowth of that misrepresentation, moreover, by not providing the ridership information sources, the FRA has left the public (and perhaps itself) with an incomplete understanding of the Project’s environmental and economic impacts.

Third, the FRA refused to release geotechnical reports and data cited as the source of the information in the geotechnical engineering assessment provided with the DEIS; this information underlies the Bedrock, Structure Preliminary Foundation Evaluations, and Cut-and-Cover Tunnel and Portal Foundations sections of that assessment. *See* DEIS App. G13 at PDF pp. 84, 93, 106, 108, 111. The missing information includes the following references: BOTA Consulting Engineers (2018), SCMAGLEV Geotechnical Data (Factual Report); boring logs; engineering property test results; results of in-situ soil testing data; and a geotechnical data report. Given the proposed tunneling and other ground-disturbing activities within Greenbelt, this data is of utmost significance to Greenbelt and essential to evaluating the Project’s environmental impacts.

In response to Greenbelt's request for these documents, the FRA claimed that it did not have them in its possession. *See* Email chain between Mary Clemmensen and Faris Mohammed, "Access to SCMaglev DEIS Referenced Geotechnical Report and Data" (March 12, March 23, March 26, April 12, & April 16) (attached). The FRA also stated that the DEIS did not rely upon these reports or data. *Id.* ("The bases for FRA's conclusions in the DEIS are stated in the relevant sections and accompanying appendices"). Greenbelt requests that the FRA clarify whether it ever had these reports and data in its possession and whether it ever reviewed them. Either the FRA possessed this information, and has since destroyed it, which would violate NEPA and other public record retention laws, or the FRA never had this information and never reviewed it when preparing the DEIS, also in violation of NEPA.

It is alarming that the FRA claims to not have reviewed or verified this information given the overall absence of geotechnical data in the DEIS documents. As discussed in Section II.G, there is a complete lack of site-specific geotechnical data presented in the DEIS to support the FRA's conclusions with respect to topography, geology, soils, structure foundations, and construction planning. If the FRA did not review and verify the geotechnical data that Greenbelt requested, it would appear that the FRA simply took the Project Sponsor's conclusions, as contained in the one geotechnical engineering assessment provided in the DEIS, at face value with no independent review or analysis. Moreover, it is disturbing that the FRA would deny Greenbelt's request for this information based on disclaiming its possession when the FRA could simply direct the Project Sponsor to provide it.

Fourth, in October 2017, the FRA stated that it was independently working on a ridership study that would encompass travel from Washington, D.C. all the way to New York. Final Preliminary Alternatives Screening Report at C-22. In the three and a half years since this statement, the FRA has not provided this study to the public, even though its consideration is required to avoid an unlawful segmentation of the project and to understand cumulative impacts. *See* Sections II.A.5 & II.K.

Fifth, astonishingly the DEIS presents a cost-benefit analysis of the Build Alternatives without presenting the cost of constructing any of these alternatives. This omission violates NEPA. Regardless, considering that the FRA has been utilizing the cost of construction throughout the NEPA process to eliminate alternatives at the behest of the Project Sponsor and has promised to release additional information on the construction costs of these alternatives, surely the FRA has this cost information along with information on the expected sources of and conditions on those funds. This cost information must be provided to the public for review.

Sixth, the DEIS cites an Electrical Coordination Technical Memorandum dated May 8, 2020 as supporting BWRR's statement that it plans to meet the full TBM energy demand with "temporary standby generation facilities, which will most likely be diesel-powered." DEIS at 4.19-14 & n.20. Greenbelt was unable to find this memorandum or information supporting it within the DEIS files. The FRA released a document along with the DEIS that is titled "Electrical Coordination Technical Memorandum Revision 1 dated October 9, 2020," but it does not provide support or detail for the use of diesel-powered standby generation facilities.

Repeatedly throughout the DEIS, information is presented based solely on the Project Sponsor's say so, with no indication that it was reviewed or verified by the FRA. *See, e.g.,* DEIS

at ES-12 (“The Project Sponsor considered opportunities to avoid and minimize impacts during the conceptual design of the SCMAGLEV system.”); 4.2-3 (“Ridership forecasts were developed by the Project Sponsor (BWRR) to provide a range of inputs into the assessment of potential transportation impacts.”); App. C at C-26 (“The Project Sponsor applied newly adopted design criteria” and eliminated less environmentally harmful alternatives); App. F at F-39 (“The Project Sponsor examined the potential to avoid incorporation of land from the Greenbelt Forest Preserve by placing the portal to the north, on BARC property.”). The FRA may not hand off its NEPA obligations to the Project Sponsor or consultants hired by the Project Sponsor. Throughout these comments, Greenbelt highlights some glaringly misleading or biased presentations. While it is not clear what caused the FRA to publish a document with such errors, the FRA, as the lead agency, is responsible for the accuracy, scope, and content of environmental documents prepared by the Project Sponsor and its contractors, and must independently evaluate the information presented in the DEIS.

Additionally, the Project’s website, which is where the interested public was directed by email to find the DEIS and its appendices, has been missing the 140-page Socioeconomic Environment Technical Report, Appendix D.3 during the entire comment period. *See* Email from FRA “Baltimore-Washington SCMAGLEV DEIS Now Available!” (Jan. 15, 2021) (attached). Those who relied on the email notice likely have an incomplete version of the DEIS and no way of knowing they are missing information. The website formatting has also been changed, perhaps based on citizen complaints that certain appendices remained hidden when members of the public tried to view or download the DEIS and its attachments. The FRA should email all interested parties and explain where to find the files that make up and support the DEIS.

The FRA has failed to provide information to the public that is essential to reviewing and analyzing many of the basic claims made in the DEIS, and it has blindly relied on information obtained from and statements made by the Project Sponsor. At the very least, the FRA must provide all the missing information now (including but not limited to the documents pertaining to costs, ridership, and geotechnical concerns that are discussed above) and allow the public sufficient time to review and comment on it. To the extent that the FRA has not already done so, it also must review and verify all information claimed to support the conclusions made in the DEIS pertaining to Project costs, impacts, and benefits. Depending on the public comments received and the FRA’s own findings, the FRA most likely will need to issue a new DEIS, if not discontinue its consideration of the Project altogether. In the meantime, moreover, Greenbelt requests that the FRA, the Department of Transportation Chief Science Officer, and the Department of Transportation Scientific Integrity Officer investigate the process that led the FRA to release such a biased DEIS, one that demonstrably did not follow sound scientific reasoning, and to withhold underlying documents from public review, with the result that the full impacts of the Project on the public and the environment have been obscured.

VI. CONCLUSION

Based on the extensive flaws in the EIS process that the FRA has conducted, as described in these comments, Greenbelt requests in order of preference that the FRA:

1. Put a halt to its consideration of the Project and not waste taxpayer money any further on an unproven and unnecessary mode of transportation that would have such negative overall impacts to the public and the environment;
2. Failing that, restart the NEPA process to evaluate all reasonable alternatives based on a proper purpose and need, sound science, and public input made after full disclosure of all information and independent verification of that information, after which a new draft environmental impact statement would need to be issued; or
3. At the very least, reopen the public comment period on the DEIS after publicly disclosing and properly referencing all the information the FRA considered or on which the DEIS relies.

If the FRA resorts to one of the last two options, it should be aware that USDOT NEPA regulations and guidance require USDOT to release a Final EIS separately from its Record of Decision to provide agencies and the public an opportunity to comment on the FEIS, either if USDOT did not identify the preferred alternative in the DEIS, 23 C.F.R. § 771.123(e), or if there is a substantial degree of controversy regarding the preferred alternative. USDOT, Guidance on the Use of Combined Final Environmental Impact Statements/Records of Decision and Errata Sheets in National Environmental Policy Act Reviews, at 3.

LIST OF ATTACHMENTS

Attachments can be found at www.Greenbeltmd.gov/maglev

Title	Date
Amenity Value of Proximity to National Wildlife Refuges	April 2, 2012
Email Chain re Access to SCMaglev DEIS Referenced Geotechnical Report and Data	2021
Email Chain re Ridership Reports Request	2021
Email re SCMAGLEV Ridership Studies Now Available!	April 23, 2021
Email re Baltimore-Washington SCMAGLEV DEIS Now Available!	January 15, 2021
FRA SCMaglev Consulting Parties Meeting 1 Presentation	March 14, 2018
George Donohue Maglev Line is a Trojan Horse. Just Fix the Current Train System	February 20, 2021
George Donohue Northeast Corridor Mass Transportation System Analysis	May 9, 2019
Greenbelt Historic District NPS NRHP Inventory Nomination Form	1979
Greenbelt Historic District NPS NRHP Reg Form	1996
Greenbelt History of a Town Hamilton Cemetery	1997
Japan's Maglev Project Derailed by Pandemic and Environmental Fears	August 13, 2020
Draft, Not Yet Approved, Maryland Historical Trust Inventory Form MIHP Hamilton Cemetery Greenbelt	2010
PM _{2.5} Polluters Disproportionately and Systemically Affect People of Color in the United States	April 28, 2021
SCMaglev Consulting Parties Meeting 2 Presentation	September 11, 2018
SCMaglev DEIS Geotechnical Review Full Report of Dr. Burak F. Tanyu	May 14, 2021