Takoma Park Mobilization Environment Committee Takoma Alliance for Local Living Economy

SCMagLev Train What You Should Know

May 13, 2021 @ 7:30pm

Welcome to Our Speakers

Laurie McGilvray – Co-Chair, Takoma Park Mobilization Environment Committee

Rhonda Kranz - Takoma Park Mobilization Environment Committee

Patricia Jackman - Treasurer, the Maryland Coalition for Responsible Transit

Louis Cerny - Expert in Train Safety Issues

Owen Kelley - Expert in Computational and Atmospheric Sciences

Stephanie Kaufman - Treasurer, Friends of Patuxent; Takoma Park Mobilization Environment Committee.

Sam Droege - Regional Biologist

Michael Farley - Vice President, Beacon Heights Citizens Association

Suzzie Schuyler - Parliamentarian, the Maryland Coalition for Responsible Transit

Presentation Overview - Rhonda Kranz

Topics Include:

- What is SCMagLev?
- Crashworthiness & Other Safety Concerns
 Environmental Justice
- Cost of SCMagLev
- Jobs
- Greenhouse Gas Emission
- Road Congestion Would Persist
- Ridership
- Environmental & Ecological Impact

- Community Impact
- Health Concerns
- Amtrak (& MARC) A Better Alternative
- BWRR Claims & Promises
- Summary
- What You Can Do
- Q & A

Please send you questions through chat We love to see your faces, but keep the sound on mute

The Basics—Rhonda Kranz

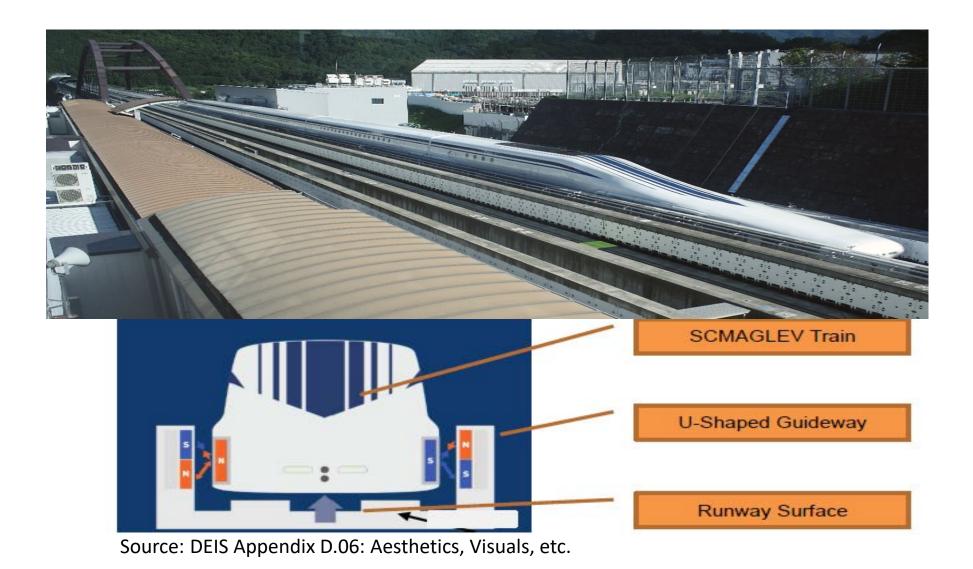
SCMagLev = The <u>Superconducting</u> Magnetic Levitation Train (new tech, protype in Japan)

MagLev = Magnetic Levitation Train (used in Germany, now solely in Shanghai)

BWRR = Baltimore-Washington Rapid Rail (private corporation project developer)

DEIS = Draft Environmental Impact Report (comments due May 24)

FRA = Federal Railroad Administration



What Is SCMaglev? – Patricia Jackman

- The Superconducting Magnetic Levitation or SCMaglev train is a highspeed, ground-based passenger transportation system currently being developed and tested in Japan.
- SCMaglev train would operate by hovering above metal tracks using a levitation system powered by magnets.
- Baltimore-Washington Rapid Rail or BWRR a private corporation is the project developer for the Baltimore to Washington segment at the estimated cost of \$16 billion.

What Is SCMaglev? – Patricia Jackman

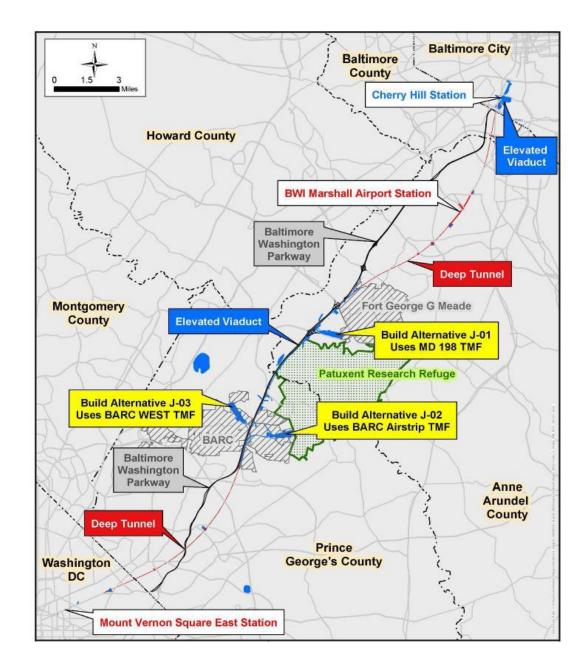
- The short term goal is to obtain the Federal Railroad Administration's approval to build a SCMaglev segment between Baltimore and Washington DC.
- The FRA awarded the Maryland Department of Transportation
 (MDOT) a \$27.8 million grant to develop the Draft Environmental Impact Statement (DEIS).
- BWRR states the train could reach over 300 mph to carry passengers between Washington, D.C. and Baltimore, claimed as a "15-minute" ride (Not!)

What SCMaglev Is Not – Patricia Jackman

- Not designed to serve local commuters
- Not mass transit: only three passenger stations
 - downtown Washington, D.C.
 - BWI Airport
 - South Baltimore/Cherry Hill
- Not Affordable: about \$60 \$80 trip
- Will not remove much local commuter traffic from roads
- Not a "Green" project— it needs a high electrical consumption with no commitment to green power generation.

Proposed SCMaglev Route

- The route is 40 miles long and 70% underground tunnels.
- Catch the train at Mount Vernon Station in DC and a tunnel thru Ward 5 to the Maryland line
- Tunnel under Anacostia River at Bladensburg Waterfront Park, under neighborhoods, and surface at Greenbelt Forest Preserve.
- Portion passing BARC, along the BW Parkway, and the Patuxent Research Refuge would be above ground on viaducts.
- Deep tunnel to the stop at BWI Airport and then to Cherry Hill station.



Project Infrastructure

- Magnetized rails
 - in deep tunnels 80-150 feet underground (as close as 35 ft to foundations)
 - above ground on tall viaducts up to 150 ft high, require 70feet "rights of way"
- Staging areas, both permanent and temporary
- Numerous service buildings, parking lots, access roads, and unspecified structures
- New power substations 7 acres each
- 1 Train Maintenance Facility (TMF) 200+ acres
- 9 Fresh Air/Emergency Egress (FA/EE) 3 + 10 acres (Tunnel Boring Laydown)

Crashworthiness & Other Safety Concerns – Louis Cerny



Photos of the September 22, 2006 German Transrapid International maglev crash in Lathen, Germany.



This is a photo of a maglev accident in Germany in which 23 people were killed in 2006. My reason for being involved is to avoid having this happen here in Maryland. Statements of foreign governments certifying safety should not be relied on. This is clear from the example of the German government certifying the safety of their maglev system, but then this accident happened.



Crashworthiness & Other Safety Concerns – Louis Cerny

- U.S D.O.T. safety experts should determine safety rules, called Rules of Particular Applicability
 (or RPA's) for the safety of the SCMaglev. These rules should be determined before a Record of
 Decision would be issued allowing construction.
- SCMaglev is being questioned In Japan itself. The planned 2027 date to start their first SCMaglev regular operation (other than a test track) is unlikely to be met. This could make Maryland the first place where the safety of the SCMaglev technology would be tested in regular day-to-day service.
- U.S. safety standards applicable to Amtrak should not be ignored just because it is a maglev train. There are many ways the SCMaglev can crash with objects, including where it can leave the guideway, since there is no physical restraint in the guideway hardware to keep the levitated train from rising out of it.
- Safety rules are also needed for the guideway switches. They are extremely complex and involve moving heavy parts, including the guideway sidewalls which support the weight of the vehicle.

Crashworthiness & Other Safety Concerns – Louis Cerny

- U.S. safety standards are needed for the rubber-tire mode that SCMaglev will use up to 93mph in regular use and over 300mph in emergencies. Parts of the vehicles needing to be at a temperature of 450 degrees below zero is also a safety concern. SCMaglev's automated, driverless system needs safety scrutiny.
- Perhaps most importantly, safety rules are needed due to the dangers of SCMaglev electromagnetic radiation. The DEIS shows shielding needed at passenger stations and on the vehicles, but is this sufficient and how secure is it from leakage?
- To repeat, safety rules (known as RPA's) need to be determined by the USDOT before a Final EIS is issued which would allow construction. These safety rules could result in a decision for a no build option.

Jobs – Rhonda Kranz

Jobs created to build the SCMagLev will be short term.

SCMaglev: and the numbers are misleading

- ➤ BWRR say during construction 161,000 195,000 total "job years"
- > Job year = 1 full time job x years of construction
- Approximately 24,000 jobs

After construction only 240-390 total jobs

Investing in Regional Commuter Rail

- > 185,000+ total jobs created for construction
- plus long-term operation and maintenance
- > 5,000 on-going jobs

The Cost of the SCMagLev – Rhonda Kranz

- Construction of the SCMagLev is estimated at \$13.8 to \$16.2 billion.
- SCMaglev is a private for-profit project partnership which should not rely on public funding. However, according to the project website, "financing will come from a mix of sources."
- Japan has agreed in principle to finance \$5 billion, less half of the SCMagLev cost. The remainder of funding would likely come from U.S. government loan and grant programs, and the private sector.
- US taxpayers have already covered over \$28 million for the SCMagLev environmental assessment process and other aspects of the proposed project.

The Cost of the SCMagLev – Rhonda Kranz

The SCMagLev could be another major drain on MD and Federal coffers.

- Under current law, the investors could ask the state for a bailout if they do
 not meet their profit projections. This is a huge risk for Maryland taxpayers.
 Funds could be better spent on transportation projects that would serve
 many more people.
- Maryland has recently experienced significant cost overruns in large transportation projects including the Purple Line and the Inter County Connector. We can not afford another.

Economic benefits to impacted communities are not proven

- There is no guarantee residents from local municipalities will benefit from these jobs during the construction phase or the SCMagLev's daily operation.
- The train will not bring visitors or workers to the County to support our local economy.



Greenhouse Gas Emission – Owen Kelley

Constructing and Operating the SCMaglev

- 1. For years, the companies that want to build the proposed Baltimore-Washington SCMagLev have been saying that the train would reduce greenhouse gas emission
- 2. In January 2021, the Federal Railroad Administration published a 3,000-page draft environmental impact statement for the SCMagLev: 654 pages of main text plus 2,399 pages of appendices
- 3. The draft impact statement's Appendix D4 reports that operating the SCMagLev would increase greenhouse gas emissions by 286 to 336 million kilograms per year.
- 4. Journalists have failed to notice this information, and the companies that want to build the SCMagLev continue to say that the maglev will reduce greenhouse gas emissions. It is easy to miss this information because it is buried in an appendix and the impact statement's Executive Summary makes no mention of this finding.



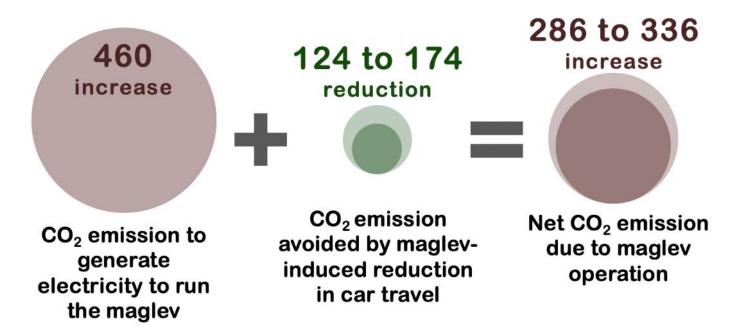
Greenhouse Gas Emission – Owen Kelley

Constructing and Operating the SCMaglev

- 5. The greenhouse gas emissions from constructing the SCMagLev would be significant because of the emissions to manufacture the concrete and steel to build the 36 miles of tunnel and elevated track. 316 to 816 million kilograms of CO2 is an independent, unofficial estimate. The draft impact statement make no attempt to quantify emissions from SCMagLev construction.
- 6. Details about CO2 emissions from operation and construction of the SCMagLev can be found in an article posted to the Greenbelt Online blog: "Operating the maglev would increase greenhouse gas emissions, Federal Railroad Administration finds." The URL for the article is https://www.greenbeltonline.org/operating-the-maglev-would-increase-greenhouse-gas-emissions-federal-railroad-administration-finds/

Federal Railroad Administration Estimate of Greenhouse Gas Impact from Operating the Proposed Baltimore-Washington Maglev

in millions of kilograms of carbon dioxide (CO₂) per year



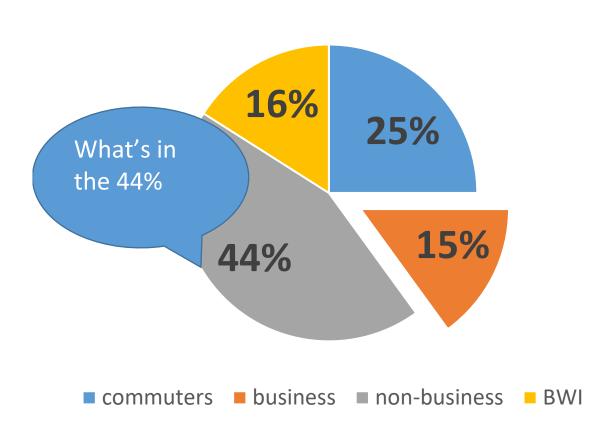
From Tables D4-40 and D4-43 of Appendix D4 of the draft environmental impact statement (DEIS) published by the FRA in January 2021 (pages D4-51 and D4-52)

Can SCMagLev ridership generate sufficient revenue?

- Ridership estimates and benefits of operating the SCMagLev were calculated over the Washington-Baltimore-Arlington, DC-MD-VA-WV-PA Combined Statistical Area (CSA).
- It is misleading to use the CSA data because:
 - Customers will likely come from a smaller geographic area, closer to stations.
 - The ridership study was conducted in 2018 (pre-COVID).

A new ridership study is required.

SCMagLev Ridership Source: DEIS



Road Congestion Would Persist – Stephanie Kaufman

- Annual Vehicle-miles of car travel avoided between Baltimore and Washington?
 - BWRR's claims 165 million (Rogers 2015)
 - DEIS states 316 million.¹
- Traffic on Maryland's highways increased by 1 percent annually (pre-covid), an increase of 500 to 600 million vehicle-miles annually (TRIP 2020).
- Impact on vehicles travelling on Maryland highways would be overtaken well within the first year of SCMagLev operations.
- Increased transit delays near stations at DC's Mt Vernon Square and Baltimore's Cherry Hill, and on the DC Metro.
- Road congestion and work zone operations will disrupt communities throughout the train route for 5 to 8 years during construction and will require building and maintenance vehicles using these same roads and highways throughout the project's life.

SCMagLev Would Provide Little to <u>NO</u> Relief of the Region's Road Congestion.

Reference: (1) DEIS Appendix D2, Table D2-3, page A-3.

Reference: Rogers, W., 2015 April 17: "Direct testimony of Wayne L. Rogers", Case #9363, MD Public Service Commission, URL: https://www.psc.state.md.us/search-

results/?q=9363&x.x=20&x.y=20&search=all&search=case

Reference: TRIP, 2020: "Restoring Maryland's Interstate Highway System", URL: https://tripnet.org/wp-content/uploads/2020/08/TRIP_Maryland_Interstate_Report_August_2020.pdf. Reference: Kelley, O., 2021. "SCMagLev would do little to reduce road congestion." Greenbelt online blog, www.greenbeltonline.org



• SCMagLev wishes to transfer public lands – federal conservation lands, county and municipal parks, and open space – to their private corporation. This includes:

Patuxent Research Refuge,
Beltsville Agricultural Research Center,
BW Parkway (National Park Service property),
NASA, Greenbelt Forest Preserve, and others.

- Precedent setting transfer opens the door to any corporation taking federal land.
- The land in question cannot be mitigated or replaced it can only be destroyed.



SCMagLev has targeted the largest remaining natural area in the region to:

- Install a 200-acre industrial site
- Expand rural roads
- Destroy wetlands
- Remove trees and other vegetation
- Decrease ecosystem services that remove pollution and mitigate stormwater

- Build multiple train trackways
- Divert rivers and streams
- Increase industrial runoff to the Chesapeake Bay
- Expand powerlines
- Introduce 24/7 light and noise
- Impact nature study and human recreation areas



The land in question is:

- The largest conservation and research facilities in the Federal Government.
- Retains almost all its original biodiversity.
- Contains endangered, rare, unusual, and uncommon plants and animals.
- Involves National Park Service, United States Geological Survey, United States Fish and Wildlife Service, National Aeronautics and Space Administration, Department of Defense, Secret Service, state, county, and local conservation lands.

Conclusion:

The Proposed SCMagLev Would Partially <u>Destroy</u> One of the Last Significant Conservation, Wildlife Habitat & Research Areas on the East Coast.

CATS & MCRT have developed a series of white papers identifying the negative consequences building the SCMagLev will bring. They can be found at www.mcrt-action.org.

Community Impact – Michael Farley

The SCMaglev project will have a major impact on the communities residing next to the BW PKY. BWRR plans to run the train

- Underground from Baltimore to BWI Airport
- Continuing underground through southern Anne Arundel County
- Above ground through Prince Georges County
- To the outskirts of Washington DC, where the train will go underground again and in to the City.

Community Impact – Michael Farley

Potential Property Damage

• The tunneled sections of the SCMaglev will be constructed using massive tunnel Boring Machines. The 43-foor diameter tunneled sections will be 80- to 150-feet underground, potentially as close as 35 feet below residential structure foundations.



Bertha was a 57.5-foot-diameter (17.5 m) tunnel boring machine built specifically for the Washington State Department of Transportation's (WSDOT)

Community Impact – Michael Farley

Potential Property Damage

- To support the tunneled sections ventilation facilities up to 13 acres will have to be built every 3 to 4 miles along the route. Also, the SCMagLev calls for large power substations to be built along the route
- The vibration of the boring process will be transmitted into the surrounding earth.
 Masonry and concrete do not respond well to such vibration and will crack, weaken the foundation and allow water penetration.



Community Impact – Michael Farley

In an Emergency

- The emergency exits (egress stations) would be 3 to 4 miles apart. Passengers and emergency personnel would have to walk up to 2 miles and descend or ascend 80 to 150 feet to the surface. How is this going to work with a firefighter carrying 50 to 70 pounds of gear or a person with disabilities trying to escape?
- In case of a fire in the tunnel, BWRR will have the upstream ventilation facility push air into the tunnel, where plastic, wire insulation and lubricants will burn and release toxic compounds that cause respiratory ailments, stress human immune systems, and are potentially carcinogenic.
- The downstream facility will release these chemicals into the atmosphere surrounding the ventilation faculty threatening all who live nearby.



Community Impacts – Michael Farley

Environmental impacts to local communities are of major concern

- Impacts to local ecosystems.
- Constructing tunnels in a flood plain.
- Proposed ventilation station at Bladensburg Waterfront Park.
- Impacts to recreational facilities and parklands, and cultural resources

Economic benefits to impacted communities are not proven.

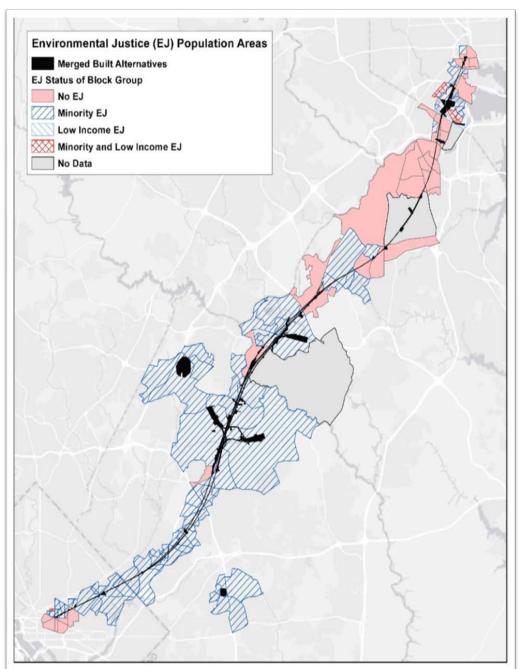
- There is no guarantee residents from local municipalities will benefit from jobs during the construction phase or the SCMagLev's daily operation.
- The train will not bring visitors or workers to support the local economies.

Environmental Justice

Michael Farley

Minority populations comprise 69.6% of the total population, and low-income populations make up 12.7% of the SCMagLev Project Affected Environment.

Takoma Alliance for Local Living Economy



Environmental Justice – Michael Farley

There would be both permanent, long term and shorter term impacts from the SCMagLev on Environmental Justice minority populations.

- Construction impacts that would occur at varying locations and for varying durations 24hrs a day-7 days a week for up to 5yrs. An estimated total of 460 trucks per day and 190 worker vehicles would be arriving and leaving for viaduct and electrical substation construction.
- Most of the frequent and severe noise and vibration impacts occur in EJ communities.
- There will be a decreased level of Service in residential areas- trash collection and police access.
- There is no benefit for the EJ community because there is no train stop until BWI airport.



Human Health Concerns – Suzzie Schuyler

- The adverse health effects of exposure to the increasing amount of electromagnetic fields (EMF) we are being exposed to are of great concern among a growing list of government and non-government public health organizations.
- Ongoing studies include an exploration of non-thermal effects of radiofrequency electromagnetic fields (RF EMF).
 - An article of the Journal of the American Medical Association (2020) reported the association between maternal exposure to magnetic field non-ionizing radiation during pregnancy and the risk of Attention-Deficit/Hyperactivity Disorder in their offspring.
 - o Another recent study evaluated electromagnetic hypersensitivity (EHS) characterized by a variety of nonspecific symptoms that can vary with individuals. The symptoms were found to be real and to vary in severity, and can be disabling for affected individuals. Sweden has classified EHS as a functional impairment and Spain recognized EHS as a permanent disability.

Human Health Concerns – Suzzie Schuyler

 EMF from mobile phones is being found to increase the risk of intracranial tumors, mostly gliomas, particularly in the case of the same-side exposure. In 2019, the International Agency of Research on Cancer (IARC) recommended a reassessment of cancer risks involved with RF EMF exposure and recommended this research should be a "high priority."

Human Health Concerns – Suzzie Schuyler

- EMF exposure is carefully controlled in medical diagnostic testing, specifically Magnetic Resonance Imaging (MRI). Patients with cardiac pacemakers, as well as implantable cardioverter-defibrillators (ICD) are cautioned about having a MRI.
- Current information from the Mayo Clinic and Johns Hopkins state that even with newer model pacemakers, MRI magnets can only be 1.0 or 1.5 Tesla in strength, along with other considerations. The same criteria also applies to ICDs.
- Exposure to EMF can heat up the leads on the older models of pacemakers and interfere with the functioning of these devices – including altering or stopping their functioning.

Human Health Concerns – Suzzie Schuyler

- People with pacemakers and ICDs should think seriously before riding the SCMagLev. Again, for an MRI 1.0 to 1.5 Tesla field strength is the maximum. Compare this MRI safety maximum to the 15 Tesla electromagnetic field strength needed to lift a multi-ton SCMagLev train.
- Although the BWRR *Final Alternatives Report* (2018) recommend people should not be within 20 feet of the guideway, section 4.18 of the DEIS states the Limits of Disturbance (LOD) reaches out to 500 feet.
- The SCMagLev brings with it potential exposure to unwarranted and dangerous human health levels of EMF.

- Amtrak currently provides intercity passenger rail service with over 21,000 miles of track across 46 states, including the District of Columbia, and Canada.
- Amtrak's Acela Express, Northeast Regional, State Supported, and Long-Distance rail services between Boston, and Washington, DC, provide an expansive array of services for passengers and commuters.
- Amtrak provides coordinated passenger and freight rail service planning for the Northeast Corridor (NEC), as well as infrastructure access and operational support to eight commuter rail authorities — including the Maryland Area Rail Commuter (MARC) and the Virginia Railway Express (VRE) — and four freight rail operators.

- Amtrak has long experience as the U.S. high-speed operator. BWRR has no large, complex building or system operating experience.
- The Federal Railroad Administration (FRA) has already completed a lengthy and costly evaluation of future transportation needs and considered the capacity constraints of the total transportation system — including rail, highway, and air to complete a programmatic Environmental Impact Study (EIS) of the NEC Future proposals and plans, and Amtrak received FRA's approval.
- During this long and costly study, building an additional rail alignment for Amtrak was considered but found to be too expensive and not needed when the plans for the existing system upgrades and enhancements were considered.





• Amtrak's Future is to renew and modernize the NEC infrastructure between Washington, D.C., Baltimore, Philadelphia, New York City, and Boston was approved by the FRA, and construction is progressing. As part of the secured \$2.5 billion in loans, \$4.7 million was expended to replace the Baltimore-Washington Airport rail station used by both Amtrak and MARC.

- Over the next 5 to 10 years, the cost for the upgrades to Amtrak will require substantial financial commitment from the federal government, Amtrak, and others. These commitments are in direct competition with the plans of BWRR and their proposed SCMagLev. If the SCMagLev is built, we will likely be subsidizing two competing systems.
- The January 2021 DEIS ignores the requirement for SCMagLev to compare and contrast itself with Amtrak services. This appears to acknowledge that Amtrak is already providing passenger and commuter transportation and improving their array of services, as well as the NEC rail transportation facilities, equipment and systems.

And ...

Note: All of the pain and none of the gain.

SCMagLev has only 3 passenger terminals: D.C., BWI and Baltimore. There is no way for Prince George's county residents to ride SCMagLev as local transit, as it plows under and flies through the county. Prince George's and Anne Arundel will be burdened with all of the construction and operations pain. Financing remains obscure. And, in case of failure/bankruptcy, there are no obvious solutions for how to recommission or decommission SCMagLev's ubiquitous exotic/toxic, non-standard proprietary facilities, nor binding obligations to restore or make our communities whole.

And ... –

Note: A faster train is not a quicker trip.

SCMagLev claims it will enable a 15-minute trip between Washington, D.C. and Baltimore. But the proposed SCMagLev Route Alternatives do not directly connect (co-terminus) with existing Northeast Corridor (NEC) train terminals. So, realistically, an SCMagLev "trip" must add ground transportation time and walking time for passengers to actually get to/from the SCMagLev stations in D.C. and Baltimore, whereas existing NEC's ever faster trains and commuter services (Amtrak, Acela, and MARC) have stations in the heart of both cities and already stop at BWI Airport.

Don't be Railroaded by SCMagLev Claims and Promises.

In Summary

There are many questions and concerns with building the SCMaglev.

- Safety and crashworthiness of train system in question. Germany certified their maglev train and system safe, but there was a crash on September 22, 2006, with 70 percent of the passengers killed and the rest injured. The Rules of Particular Applicability are nonexistent!
- The **SCMaglev is not "green"** a report from Japan states it uses up to five times more energy than a high-speed, steel-wheeled train.
- The SCMaglev will have extreme destructive impact on our waterways and environment and could destroy one of the last wildlife preserves (PRR) and plant research areas left on the east coast (BARC).



In Summary (continued)

Potential impact on communities along SCMaglev route is extreme, including:

- high percentage of Environmental Justice or minority and underserved population
- loss of property, property value
- exposure to risks of experimental technology, health impacts from dangerous emissions and exposure to electromagnetic radiation,
- pollution of streams and waterways, storm water runoff with pollutants, impacts to the Chesapeake Bay and an increase of invasive plants and vermin.

In Summary (continued)

- As other worldwide high-speed train and maglev projects, BWRR's claims of jobs and cost levels will likely not be realized.
- If BWRR follows the history of other such projects, expect fewer jobs in total with most as construction short-term jobs, net loss of high-paying jobs, likely tax-dollar funded cost overruns, and building schedule delays.
- A far better alternative is to continue to upgrade and enhance Amtrak, MARC, and VRE. Far fewer tax dollars, more ridership, more convenience, and already in place and operational.



Maryland Coalition for Responsible Transit Research

- Crashworthiness & Other Safety Concerns
- Greenhouse Gas Emission
- Road Congestion
- Environmental & Ecological Impacts, BARC, PRR
- Environmental Justice

- Water and Chesapeake Bay impacts
- Municipal and Community Impacts
- Health Concerns
- Amtrak (& MARC) A Better Alternative
- BWRR Claims & Promises

www.mcrt-action.org



Two Good Sources for Information

- Additional information and updates about the SCMaglev project:
 <u>www.StopThisTrain.org</u>,
 <u>www.facebook.com/groups/CitizensAgainstSCMaglev</u>,
 <u>https://www.facebook.com/MCRTaction</u>, and <u>www.mcrt-action.org</u>.
- Contact Maryland Coalition for Responsible Transit at: <u>MCRTaction@gmail.com</u>



SCMaglev Call for Action What You Can Do

- The Draft Environmental Impact Statement (DEIS) is available for review and comment at https://bwmaglev.info/index.php/project-documents/deis. Comment period open until **May 24, 2021**.
- Write your concerns, questions, or opposition for the record by email, letter, and web form, according to instructions at: https://www.bwmaglev.info/index.php/project-documents/deis.
- To make sure your mail/email comments are entered into the formal project record, clearly label them as *SCMaglev Comments*. Email or send you comments to:

SCMaglev Project

c/o Lauren Molesworth, Maryland Transit Administration 6 Saint Paul Street, Baltimore, MD 21202 info@BWMaglev.info

- If you would like to find out more about the Takoma Park Mobilization https://tpmobilization.org/
 - The Environment Committee (TPMEC) environment@tpmobilization.org
 - Takoma Alliance for Local Living Economy (TALLE) talle@tpmobilization.org

Q&A

Send your questions to the group via chat