

To: The Office of Governor Tony Evers
From: Samantha Anderson, Ph.D., Aaron Lowenstein, and Christopher Unterberger
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Date: April 1, 2020
Re: High-Speed Rail Project Renewal

STATEMENT OF ISSUE:

The transportation sector's dependence on environmentally unfavorable fuel sources remains a daunting hurdle in the path to achieving carbon reduction standards. Perhaps the most promising opportunity to clear this hurdle is high-speed rail (HSR), generally defined as trains operating at speeds of over 120 mph (Rodrigue 2017). HSR is an incredibly efficient and convenient means of travel that is being implemented throughout the world. HSR would be extremely advantageous in Wisconsin, where the transportation sector is the greatest contributor to greenhouse gas emissions (US EPA 2008). Furthermore, the economic opportunities provided by HSR would help reverse economic inequities existing between Wisconsin's larger cities and less populous areas.

In 2010, the state of Wisconsin returned \$810 million of federal funding intended to build a HSR line that would connect Madison, Milwaukee, and Chicago, eventually including the smaller cities of Wisconsin to create an extensive network of commuter rail (Bowden and Johnson n.d.; "Wisconsin Department of Transportation Wisconsin Rail Plan 2030" 2014). The funding was returned to the federal government, moving the money to California's HSR project, which has not made significant progress because of difficulties acquiring land through eminent domain. On the other hand, Wisconsin has existing rail corridors that only need to be upgraded to support HSR - though new corridors will need to be built to support more expansive networks.

Ample demand for HSR has been demonstrated in Wisconsin ("Wisconsin Department of Transportation Wisconsin Rail Plan 2030" 2014) and the Wisconsin Department of Transportation's Statewide Transportation Improvement Program (STIP) has the necessary funding to start building HSR. Recently, two private development companies, Virgin Trains and Texas Central, have made strides in their competition for America's first HSR line. With Congress debating the renewal of the Fixing America's Surface Transportation (FAST) Act, now is the time for Wisconsin to make its bid for HSR and illuminate America's path to sustainable, economically advantageous transit ("Texas Competes with L.A./Las Vegas for First True High-Speed Line," 2020

CURRENT ALIGNED POLICIES:

In 2019, Governor Evers signed on to the US Climate Alliance, a coalition of governors in the US that have agreed to abide by the 2015 Paris Agreement. Investing in HSR would aid Wisconsin in reaching the goals of reducing greenhouse-gas emissions by 26% by 2025 ("U.S. Climate Alliance" n.d.). This new infrastructure would also directly support the United Nations Sustainable Development Goal 9: Industry, innovation, and infrastructure. We call for Governor Evers to revisit the HSR project.

BENEFITS:

Economic:

In the short-term, construction of HSR will create upwards of 5,000 construction jobs (Kertscher 2010). Once HSR is established, permanent jobs will be created in various ways. Stops

in smaller cities will generate foot traffic and stimulate local economies. Every \$1 billion spent on public transportation generated 36,000 jobs and a GDP gain of \$1.8 billion in the short-term, increasing to a net gain of \$3.5 billion by the 20th year (Reno and Weisbrod 2009). Increased accessibility to larger cities will allow workers living in other areas to commute with ease, and increased accessibility to smaller cities will attract businesses and create opportunities for those that live there. This is best exemplified in France, where firms have relocated from Paris to smaller, provincial cities like Lyon and Lille (Button 2017).

HSR will change the economic geography of Wisconsin, where an unlevel playing field has given larger cities a disproportionate share of economic opportunity while smaller cities struggle to cope with rapid economic changes (“Wisconsin” n.d.). In the Chinese city Suzhou, HSR has shifted the percentage of businesses from production-based to information-based—an effect that would diversify the economic landscape of smaller Wisconsin communities (Chen and Vickerman 2019). Furthermore, in Hong Kong, property values have increased along transit lines and have generated \$27 billion of direct financial benefit for the Hong Kong government (Morichi and Acharya 2013).

Environmental:

Over the last twenty years, emissions per person from driving in Wisconsin increased over the last twenty years, concentrated in Madison and Milwaukee (Popvich and Lu 2019). If Wisconsin is committed to reducing emissions, overhauling the transportation infrastructure is a necessity. One option is to invest in electric buses, however that will not dramatically change how society commutes. They will continue to use roads and the vehicle batteries do not have a sustainable recycling program. If implemented thoughtfully, HSR will significantly reduce the emissions from transportation, especially if the trains are completely powered by green energy (Zhang, Yang, and Wang 2017).

For medium to long distance travel, Americans typically opt for air travel. Air travel is one of the worst options for carbon consumption with regards to both the number of people and distance traveled (“Getting There Greener | Union of Concerned Scientists” n.d.). For air routes with parallel HSR options, consumers choose HSR for convenience (Zhang, Yang, and Wang 2017). With HSR connection to the Milwaukee and Chicago airports, there will be a significant reduction of short distance air travel, like that of Madison to Chicago, where take-off, landing, and ground operations produce substantial carbon waste (“Getting There Greener | Union of Concerned Scientists” n.d.).

CHALLENGES:

Economic:

Data on HSR benefits is mostly from other countries, so observed benefits may not directly translate to the U.S. The only existing domestic example is Florida’s Brightline, which is still not fully operational, though California and Texas also expect to have HSR this decade. Furthermore, it will be costly for Wisconsin to upgrade existing rail lines, with an original price tag of \$817 million for the Madison to Milwaukee line (Wisconsin Department of Transportation, 2009). It will also be costly to build new corridors and maintain the lines once they are built. Additionally, the rail lines will take time to build ridership, so investments may be slow to recoup.

Environmental:

In the short-term, pollution caused from building along both farmland and forests will be significant, especially in the districts already experiencing air pollution problems (“Most Polluted Cities | State of the Air” n.d.). This temporary inconvenience should be considered when allocating the financial benefits of the HSR rail through the area.

The energy consumed to build and maintain this network only pays off in the long-term if there are many riders on the rail line (Westin and Kågeson 2012). Ultimately, the increase will only occur if there are shifts in transit preference from cars to rail - which will only happen when lines achieve comparable convenience and cost to existing travel options.

Cultural:

The proposed HSR network, especially the initial phases, does not directly benefit all Wisconsinites equally. Those who do not have HSR stops in their counties may push back against the plan. However, reducing Wisconsin emissions and bolstering the state economy via business and tourism benefits all state residents.

There are 11 indigenous communities in Wisconsin and the necessity of eminent domain for the land to build additional rail corridors in more extensive policy options may strain relationships with these Tribal Nations and others. Conversely, the creation of this HSR network could be viewed as an opportunity to build respectful intergovernmental relations, if done effectively.

POLICY OPTIONS:

Option 1: Inaction

Wisconsin is slated to contribute \$45 million to current rail corridor maintenance between the Milwaukee and Chicago Hiawatha lines and expanding additional access to the Twin Cities (Horton 2019). The Hiawatha lines have served millions of southeastern Wisconsinites since 1989, making it the most ridden Amtrak service outside the east and west coasts (“Wisconsin Department of Transportation Chicago - Milwaukee Intercity Passenger Rail Corridor - Facts” n.d.). The demand for transport of passengers in this region is growing.

Advantages: No extra money will be budgeted for large-scale construction projects. The Hiawatha train line will continue to serve Milwaukee and Chicago commuters.

Disadvantages: The transportation needs of Wisconsinites outside of the Milwaukee area will continue to grow. Following the aim of the current budget, these needs will remain unmet.

Option 2: Build high-speed rail from Madison to Milwaukee to Chicago

Madison is the seat to the state’s capital and its flagship university, serving as an important hub for politics, education, and business. However, the city is void of access to rail transportation—an environmentally friendly alternative to highway transportation. Residents of Dane County demand alternative means of transportation to cities such as Milwaukee and Chicago which draw business, residential, and tourist commuters. Implementing HSR from Madison to Chicago via Milwaukee could be the key to satisfying that demand.

Advantages: The existing rail corridor that exists between Madison and Milwaukee can be upgraded for use of HSR and STIP has the funding necessary to begin the project. Job creation from this project would increase significantly over the course of construction. The cost of this project would be offset by the savings to riders who would see an eventual decrease in their commute costs as well as the economic expansion from connecting the two largest cities in Wisconsin. Decreasing the number of vehicles on the road due to daily

commuters between these three cities will significantly reduce the state's carbon footprint while easing congestion of highways.

Disadvantages: Initial costs of implementing this track are significant costing upwards of \$817 million. Following construction, jobs created will decrease to meet operational and maintenance needs. Short-term pollution caused by this construction project will be significant. The limited connectivity of the HSR will not encourage societal change in regards to inter-city transportation.

Option 3: Build a Midwest HSR network through Wisconsin

The Madison-Milwaukee-Chicago route will serve a concentrated region of the state, but a larger portion of residents live outside of south central/eastern Wisconsin. These Wisconsinites will not have immediate access to HSR built in these cities. To address accessibility issues, the HSR can expand to Minneapolis. This expansion will drive a route through smaller cities in Wisconsin such as Eau Claire or La Crosse. Additionally, HSR can be routed to other Wisconsin hubs like Green Bay and Wausau.

Advantages: The addition of smaller Wisconsin cities in the HSR network would serve a larger population, creating access to affordable and environmentally friendly transportation from Minnesota to Illinois with Wisconsinites reaping the benefits. Connecting the Midwest through HSR will contribute to the economic megaregion that includes Minneapolis, Wisconsin, and Chicago through the expansion of tourism, travel, and businesses centered around the HSR lines. Wisconsin will be the fulcrum of this megaregion as much of the HSR will travel through the state. Much of Wisconsin will be served by the HSR, reducing overall vehicle emissions for the state. Additionally, the ability to avoid air travel within the region will drastically decrease carbon consumption for residents of these three states. A Minneapolis to Chicago HSR route will be a major step towards curbing the midwest's negative impact on the environment.

Disadvantages: This is an expensive option that is not guaranteed to make back its investment in a timely manner. Implementation and maintenance of this long route will be costly due to the lack of compatible tracks along this route. Further disrupting farmland and Native lands will be economically and environmentally costly—in the short-term.

POLICY RECOMMENDATION:

We recommend that Governor Evers pursue Option 2: to connect Madison and Milwaukee to Chicago. Though this HSR route only directly impacts southeastern Wisconsin, it utilizes an existing rail corridor which significantly reduces construction costs.

Because the transportation sector is the greatest contributor to greenhouse gas emissions, the way Americans travel must change in order to combat climate change. Transitioning to HSR provides an excellent opportunity for the state to act as a forward-thinking beacon by prioritizing environmentally sound growth and long-term economic gains.

REFERENCES:

- Bowden, Bridgit, and Shawn Johnson. n.d. "Derailed | Wisconsin Public Radio." Derailed. Accessed February 29, 2020. <https://www.wpr.org/derailed>.
- Button, Kenneth. 2017. "'High-Speed Railways: Do They Produce Economic Growth?'"

- Mercatus Research. Arlington, VA: , Mercatus Center at George Mason University. <https://www.mercatus.org/system/files/mercatus-button-high-speed-railways-v1.pdf>.
- Chen, Chia-lin, and Roger Vickerman. 2019. "Quantifying the Economic and Social Impacts of High-Speed Rail: Some Evidence from Europe and the People's Republic of China," May. <https://www.adb.org/publications/quantifying-economic-and-social-impacts-hsr-evidenceeurope-prc>.
- "Getting There Greener | Union of Concerned Scientists." n.d. Accessed February 29, 2020. <https://www.ucsusa.org/resources/getting-there-greener>.
- Horton, Ray. 2019. *Passenger Rail Bonding*. https://docs.legis.wisconsin.gov/misc/lfb/budget/2019_21_biennial_budget/102_budget_papers/723_transportation_passenger_rail_bonding.pdf.
- Kertscher, Tom. 2010. "Democratic Party Says Scott Walker Killed 13,000 Jobs in Wisconsin by Opposing High-Speed Rail." Politifact. December 14, 2010. <https://www.politifact.com/factchecks/2010/dec/14/state-democratic-party-wisconsin/democratic-party-says-scott-walker-killed-13000-jo/>.
- Morichi, Shigeru, and Surya Raj Acharya, eds. 2013. *Transport Development in Asian Megacities: A New Perspective*. Transportation Research, Economics and Policy. Berlin Heidelberg: Springer-Verlag. <https://doi.org/10.1007/978-3-642-29743-4>.
- "Most Polluted Cities | State of the Air." n.d. American Lung Association. Accessed February 29, 2020. <https://www.lung.org/our-initiatives/healthy-air/sota/city-rankings/most-polluted-cities.html>.
- Reno, Arlee T., and Glen E. Weisbrod. 2009. "Economic Impact of Public Transportation Investment." In .
- Rodrigue, Jean-Paul. 2017. "High Speed Rail Systems." *The Geography of Transport Systems* (blog). December 28, 2017. https://transportgeography.org/?page_id=7457.
- "Texas Competes with L.A./Las Vegas for First True High-Speed Line;" 2020. High Speed Rail Alliance. February 28, 2020. <https://www.hsrail.org/newsletter-february-28-2020>.
- "U.S. Climate Alliance." n.d. U.S. Climate Alliance. Accessed February 29, 2020. <http://www.usclimatealliance.org>.
- US EPA, OAR. 2008. "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017." Reports and Assessments. US EPA. 2008. <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2017>.
- Westin, Jonas, and Per Kågeson. 2012. "Can High Speed Rail Offset Its Embedded Emissions?" *Transportation Research Part D: Transport and Environment* 17 (1): 1–7. <https://doi.org/10.1016/j.trd.2011.09.006>.
- "Wisconsin." Wisconsin | U.S. Cluster Mapping. Institute for Strategy and Competitiveness, Harvard Business School. Accessed March 31, 2020. <https://clustermapping.us/region/state/wisconsin/subregions>.
- Wisconsin Department of Transportation. *Milwaukee--Madison High--Speed Intercity Passenger Rail Service Financial Plan*. 2009. <https://dailyreporter.com/files/2010/02/rail-grant.pdf>
- "Wisconsin Department of Transportation Chicago - Milwaukee Intercity Passenger Rail Corridor - Facts." n.d. Accessed February 29, 2020. <https://wisconsin.gov/Pages/projects/multimodal/rail-chi-mil/facts.aspx>.
- "Wisconsin Department of Transportation Wisconsin Rail Plan 2030." 2014. March 19, 2014. <https://wisconsin.gov/Pages/projects/multimodal/railplan/default.aspx>.

Zhang, Qiong, Hangjun Yang, and Qiang Wang. 2017. "Impact of High-Speed Rail on China's Big Three Airlines." *Transportation Research Part A: Policy and Practice* 98 (April): 77–85. <https://doi.org/10.1016/j.tra.2017.02.005>.