TAKING DEVELOPMENT PRESSURE OFF THE AGRICULTURAL RESERVE

As we look for solutions for removing commuter traffic, development pressure, and storm water runoff from the Agricultural Reserve, we should consider a new approach to our transportation challenges in the I-270 Corridor. That new approach, we believe, is monorail.

BY ROBERT EISINGER

Ever since going to Disney World back in the 70s, I have been intrigued by monorail: a transportation system that rides above ground, is built offsite, is erected like a Lego set at night, doesn't interfere with roadways or underground utilities, and quietly runs on environmentally clean electricity, all while projecting a futuristic image.

These qualities inspired me to form The High Road Foundation, a 501c4 nonprofit dedicated to studying monorail, and to promote whatever transit technology made sense to help fix the crazy automotive traffic problems we have in our region.

The first thing I wanted to understand was the true cost of monorail versus competing transportation technologies, like Bus Rapid Transit (BRT). I discovered that the annual operating costs per passenger for monorail are about half of a BRT or light or heavy rail, and that the lifespan of the monorail system exceeds 50 years, compared to BRT, which needs to be completely replaced every 10-12 years. Light rail and heavy rail tend to require much more maintenance since they travel through surface dirt and stormwater. Their metal wheels wear out their metal rails over time, while monorail's rubber tires provide a gentler ride and are much easier and less expensive to replace, to identify just a couple components elements for operating savings.

Monorail is also the only transit mode that can penetrate habitable space while you are sitting next to it having a cup of coffee. Look at Disney World and the monorail coming into its Disney Contemporary Resort. It was built 50 years ago and remains virtually unchanged. It's timeless. So even if the initial costs were more for monorail, I believe the lower long-term operating costs and some station costs could be shifted to developers and make this a more sound investment.

Monorail glides into the lobby at Disney Contemporary Resort.

Monorails are much more environmentally friendly than surface transit from construction through their lifespan. A primary issue is stormwater runoff. Pavement on 1-270—and even the MARC track beds—shed storm water into the many streams going through the Agricultural Reserve. Monorail has a very small stormwater footprint by comparison, only touching the ground every 100-120 feet, and because it would also be removing traffic from the roadway it would consequently remove much of the road pollution entering the Ag Reserve's streambeds.

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Placing the transit on 270 would also allow the development density to be designed at station locations outside of the Ag Reserve along that busy highway.

I am not a proponent of staking the economic future of the county on a BRT system sharing a roadway with automobile traffic. For one, buses are weather dependent, so if it is raining or snowing and interacting with cars even just 20 percent of the time, you would not be able to fully rely on getting to places on time. A transportation system is only as good as its reliability and BRT is not the answer. I would consider it an *interim* solution toward completing a long-term goal.

Another option under consideration would be to enhance ridership on the Marc Rail. While this would help connect Frederick and Montgomery Counties with Northern Virginia and the District, we need to remember that this right of way is owned privately by CSX. Since CSX currently receives much more revenue from freight traffic than commuter traffic, there is little incentive for them to increase commuter capacity.

As with BRT, however, that is not to say an improved MARC is not part of a solution going forward. MNCPPC is currently studying available options in their Corridor Forward I-270 Transit Plan Study which will include a number of different potential transit solutions, including, BRT, MARC, and...wait for it...monorail.

The High Road Foundation assembled a group of international experts to support its efforts to promote a monorail within the existing right of way along 270 from the City of Frederick to the Shady Grove Metro Station, with stops in Urbana, Clarksburg, Germantown, Gaithersburg (Metropolitan Grove), and the Red Line. This route covers 28 miles and requires approximately 42 minutes including stops—a number a commuter could completely rely on.

Civil engineering studies have confirmed that no additional ground would need to be acquired, nor would any utilities need to be moved, saving valuable money and time. By comparison, the widening of I-270 has created this problem: *Proposed highway widening P3 could leave WSSC customers on the hook for billions in costly water main relocations, WSSC analysis finds.*

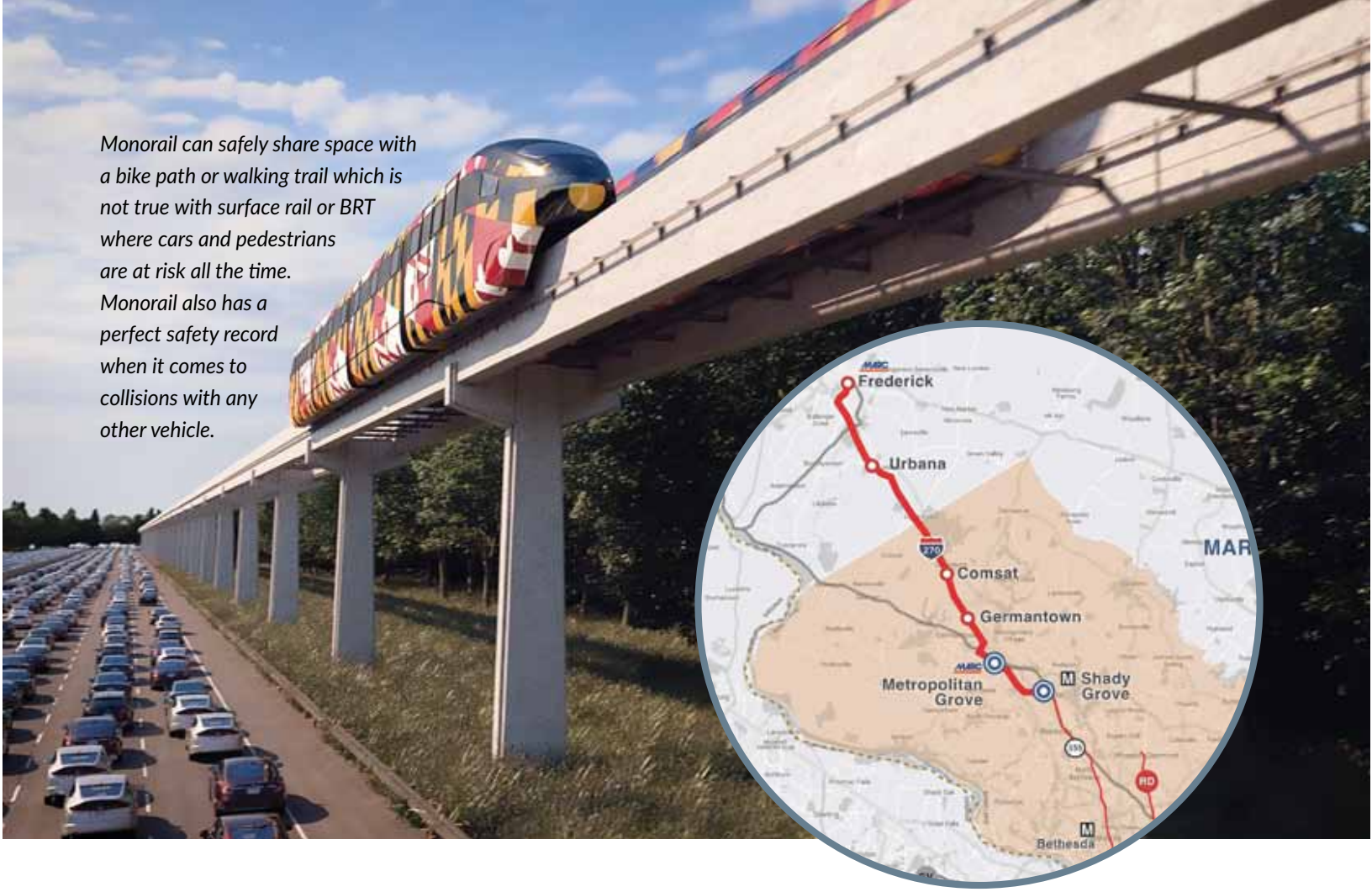
Monorail only touches ground with a pier every 100 to 120 feet. The piers can be designed around the underground utilities. There is no need to move or interfere with anything underground. Less ground disturbance means less environmental harm as well.

By comparison, the Foundation did a quick study on the Purple Line and determined something very important: it should have been a monorail and here are the current facts:

- **Surface Rail:** transit systems that remain on the surface require relocating all the underground utilities: water, sewer, electric, internet, etc. The weight of the system and the vibration make this necessary. Much of the Purple Line right of way penetrates old subdivisions making an estimation of cost to build almost impossible.
- **Right of Way:** Surface rail requires expensive land acquisition and time-consuming eminent domain. These costs could not be predetermined, contributing to cost overruns.
- **Environmental Effects:** Surface transit/rail requires excessive storm water management and engineering costs, including additional ground for ponds and detention areas beyond the tracks themselves.
- **Bridges/Tunnels:** The Purple Line right of way traverses a number of public roads and arteries, and each time it traverses a public road, a completely distinct one-of-a-kind engineering design has to be made for the bridge, the tunnel, or the at-grade crossing. Each individual design takes time and introduces variables that lead to a higher potential for cost overruns.
- **Stations:** While some of the Purple Line stations are elevated, some are at grade and others are below grade. All individual designs must be cost estimated individually—each with contingencies.

Now let's look at Monorail:

- **Surface Rail vs Monorail:** Monorail usually runs about 20-25 feet above grade. It only has a footprint every 100-120 feet, and that footprint is only about 36 square feet. There is no need to move existing utilities, so the construction costs can be predetermined to a much finer degree.
- **Right of Way:** Monorail only requires a right-of-way width of 20 feet. In comparison, the Purple line used an average of 66 feet of width.
- **Environmental Effects:** Monorail has a very small storm water footprint. It does not require the detention areas or storm water structures of surface rail during construction or after.
- **Bridges/Tunnels:** Monorail rides along the same



Monorail can safely share space with a bike path or walking trail which is not true with surface rail or BRT where cars and pedestrians are at risk all the time. Monorail also has a perfect safety record when it comes to collisions with any other vehicle.

27.5-inch-wide concrete beam regardless of topography. No individual bridge or tunnel designs are required. According to the contractor that completed the construction of the system in Sao Paulo, Brazil, monorail's construction costs can be determined within 95 percent accuracy simply knowing the two points it goes between. *When anything is standardized, cost and complexity are reduced.*

- **Stations:** Monorail is the only transit system that can penetrate habitable space, a la Disney Hotel in Orlando. Stations can be integrated into the designs of commercial development without taking up additional land. Lots of cost savings here and many costs can be shifted to developers.
- **Capacity:** Another important detail to consider is how many people per hour per direction (pphpd) a system can carry. While the Purple Line will max out at 9,000 pphpd. Monorail maxes out at 40,000 pphpd.
- **Reliability:** Unaffected by traffic or weather, monorail has an excellent/exceptional reliability record.

Taking all of these findings together, the Foundation's study determined that the Purple Line could have been built twice as fast and could have saved $500 million dollars in cost if it had been a monorail.

Since we started the Purple Line construction as light rail, however, we need to finish it as light rail. But as we look for solutions for removing commuter traffic, development pressure, and storm water runoff from the Agricultural Reserve, we should consider a new approach to our transportation challenges in the I-270 Corridor. That new approach, we believe, is monorail.

Stay tuned and stay involved in the Corridor Forward I-270 Plan by MNCPPC. Here is the link: https://bit.ly/2Xf0uHl

Robert Eisinger is a lifelong resident of Montgomery County, MD. His alma maters include American University and George Washington University, and he holds a B.S. in Finance from Indiana University, Bloomington. As Principal and Managing Member, Robert O. Eisinger oversees all aspects of Promark Partners' daily operations and its investment portfolio. Mr. Eisinger's career has encompassed all aspects of commercial real estate development, investment and management.