

E2011-G-04 Rev 1
U.S. Customary Units

A VISION FOR FEATHER RAIL: SUMMARY

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Introduction

Many of the problems facing personal transportation today are due to the predominance of cars, which leads to automobile congestion and contributes to global warming. The social construction of car culture and the reliance on automobiles appear to dissuade a majority from adopting other ways to travel. Space limitations and the desire to possess one’s own car undermine effective solutions to congestion and pollution, regardless of the emerging technology around it.

The incremental improvements made by present-day efforts will not provide enough carbon dioxide reductions recommended by scientific advice. A new mode of transportation is presented with the intent to integrate the best advantages, help the environment, alleviate congestion, and diversify choice.

Brief Description

The proposed solution is to create a “feather rail” system, where vehicles with 1) low rolling resistance and 2) an aerodynamic profile are light enough to pick up off the track by hand.



Figure 1 Renderings of feather rail vehicles showing the wheels and fairing. The fairing represents the passenger envelope and can be expanded to allow for more upright sitting position, or lean to increase mileage.

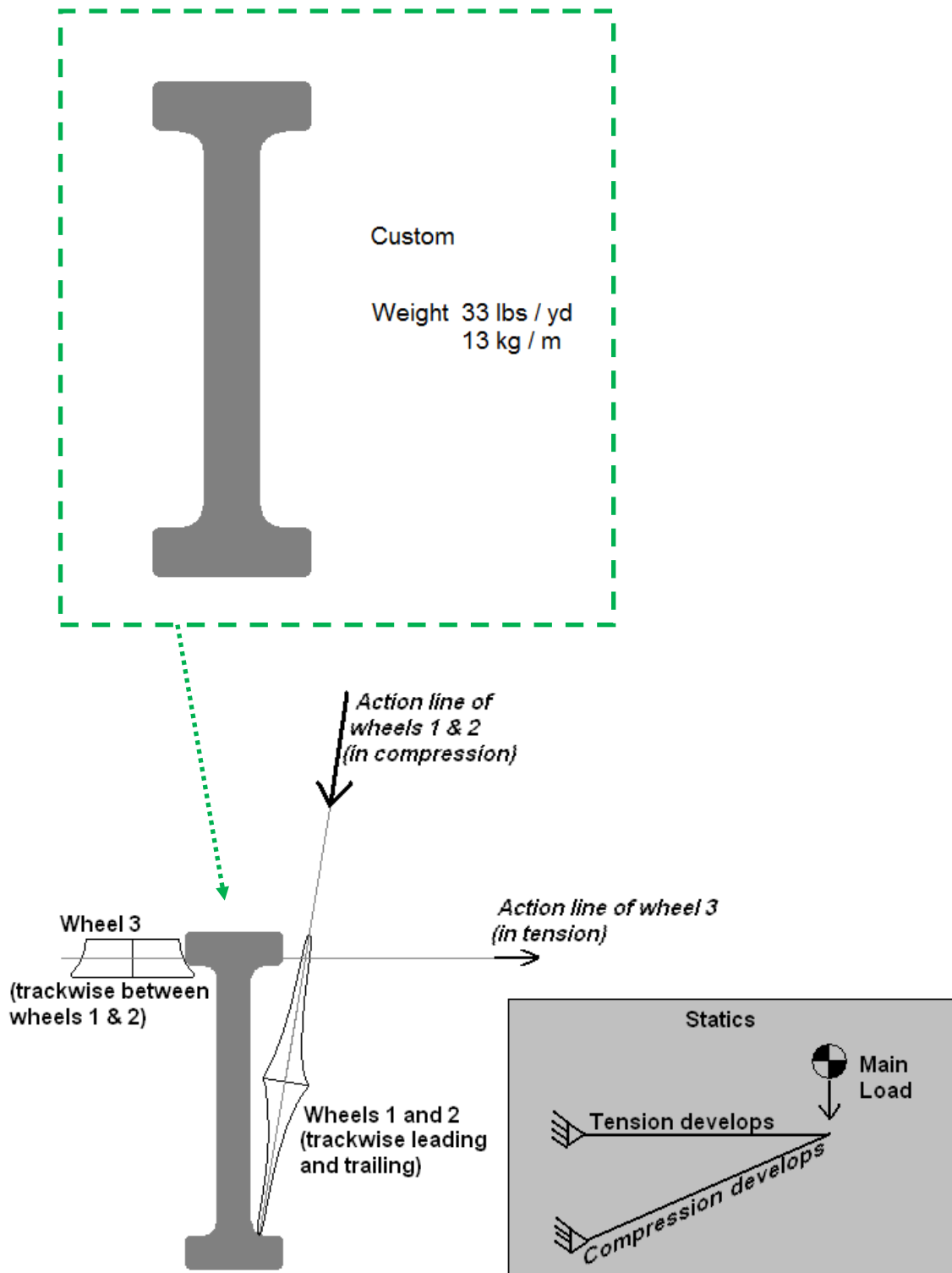
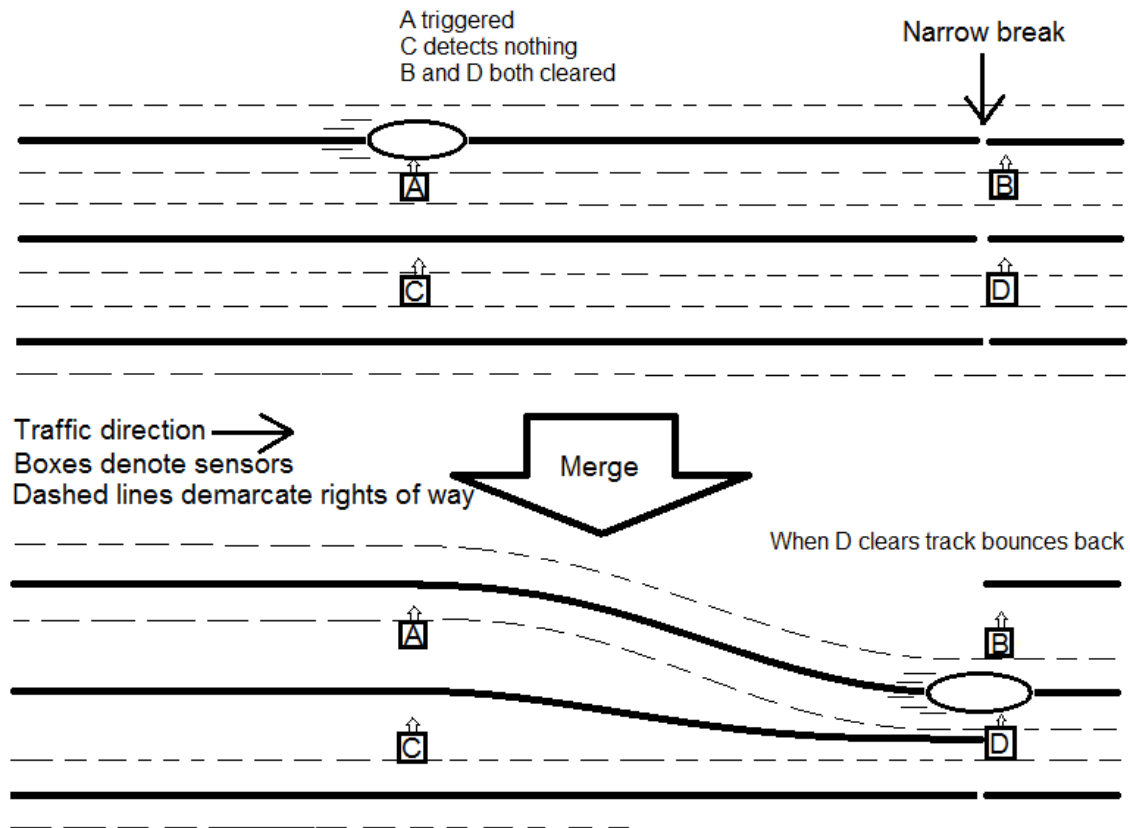


Figure 2 The method of cantilevering for balancing a vehicle on the rail, truss analogue and rail profile shown in insets.



Elastic lane change

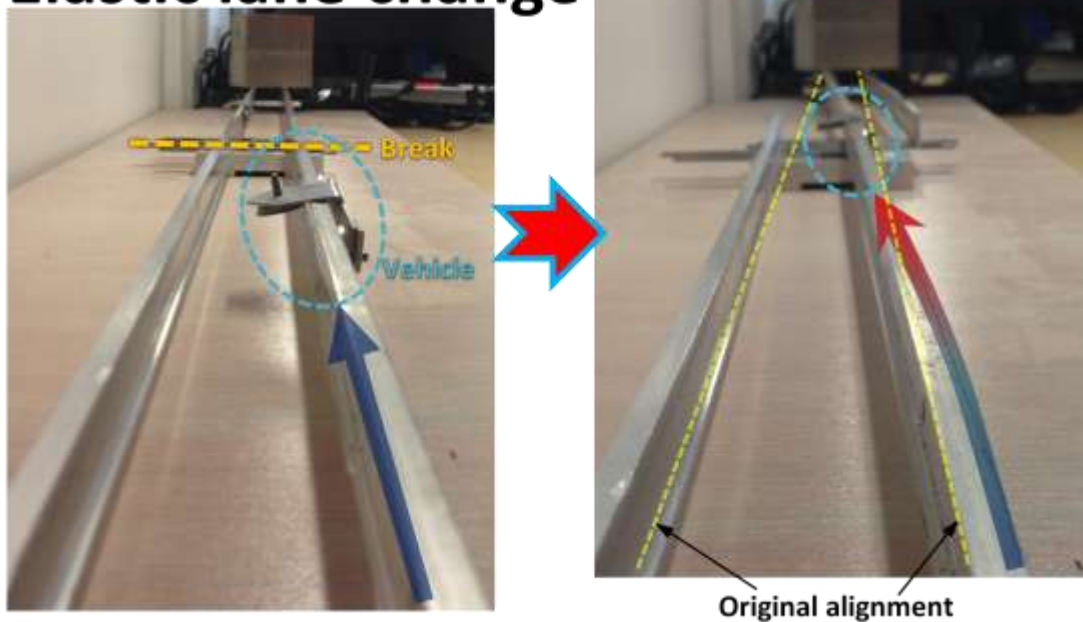


Figure 3 Schematic of lane merging on a multiple rail lanes, with schematic (top) and demonstration (bottom).

Coexists with other forms of transport



Compare 10 lanes vs. 4



Figure 4 Renderings for rail positions within city infrastructure.

Summary of Advantages

1. Feather rail **allows for travel on demand**, because a person can simply walk up to the nearest station platform, get his/her vehicle out of a station locker, put it on the shoulder track, and go.
2. Provided that there is adequate funding, **the system will have many convenient, nearby stations within walking distance.**
3. The effective “steering” of vehicles is provided by a merging system, **preserving the freedom to navigate** individual vehicles.
4. Recall that it is possible to balance a vehicle on a monorail. With few vehicle requirements, there are otherwise **no limits on how vehicles are designed, what they are used for, or how many people they can hold in total.**
5. The vehicles are designed to travel on average at 30 mph. **Electric and human-powered vehicles can travel at 30 mph using only the power it takes to walk.** The flow of traffic is similar to a freeway. The result: **the system will be competitive with car travel** even if its average speed is slightly slower. Congestion likelihood is minimal.
6. **The infrastructure will be cheap**, because the light weights mean that the cost to build a viaduct will be only a little more than that required to build an elevated sidewalk, due to the savings in construction material. **The rail cost is cheap**, because it is a simple cross section with 3 times less weight - and cost - than a railroad rail.
7. **A new feather rail vehicle costs about as much as the cheapest used car.** Retrofitted bicycles, which are allowed on the system, are yet cheaper still. The cost of operation is low, because money is saved (no gasoline), and electricity (for electric vehicles) is comparatively cheap. **Individuals who do not own a private vehicle can continuously use a public set for free.**
8. **The efficiency of the vehicles will be extremely high.** The projected efficiency of a feather rail human-powered vehicle will be, in car terms, about 2,500 mpg or greater.
9. **Separated rights-of-way ensure the safety of vehicles**, and prevent relatively heavy cars and trucks from colliding with feather rail vehicles.
10. **A developed feather rail system will take a competitive amount of traffic flow, comparable to freeways and railways. Conservative estimate: 25,000 vehicles per day.**
11. Theft is generally deterred by the presence of station personnel and the presence of lockers. Safeguarding against theft is possible in a variety of other ways.
12. The noise level will be relatively low, because vehicles are extremely light and wheels are solid steel. This can reduce local opposition from building feather rail infrastructure.
13. Since the infrastructure is light and uses less material to construct, the payback time for carbon dioxide emissions involved in construction (e.g., machinery, cement production), will be quickly offset by the virtues of #8.

Further Information

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Details

[US Patent 8,624,255](#)

Artists and Animators

Artists may use the patent and designs seen herein free of charge upon notification.

Acknowledgments

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