

# Should Colorado Spend \$50 Million On Studying Disney- Style Mountain Monorail?

**By Beth I. Skinner**  
**Senior Fellow**  
**Independence Institute**

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# Executive Summary

Enough studies! If this tax grab passes, it will add, at minimum, another three years until we even begin to fix the traffic problem on I-70. Despite the impression given, this proposal does not build a monorail, or anything else, in the mountain corridor. It is just another study replicating work being done by the Colorado and Federal Departments of Transportation. It will, however, cost every couple in Colorado about \$40 out of their tax refunds.

Ever notice that the proponents of this tax increase only show artist conceptions of a mountain monorail and never a picture of an actual one from anywhere in the world? That's because the technology the proponents are promising simply does not exist in the known universe. There is no rail system in the world that goes over mountaintops at 125 miles per hour. In fact, every monorail in existence is on flat land and only a few miles long.

A 300-mile magnetic levitation monorail system planned in Japan was dropped due to the estimated \$200 million a mile cost and technical limitations. Germany recently canceled their plans also due to rising costs and environmental concerns. Las Vegas is currently building a three-mile monorail system on its flat land. It will cost approximately \$162 million per mile to build and maintain.

Somehow the proponents of this tax increase want us to believe their

promise that they can build a 170-mile system snaking around steep mountains with freezing conditions for only \$25 million a mile.

This is not the first time Colorado taxpayers have been sold a "bill of goods" on fantasy transportation systems. In the early 1970's the Regional Transportation District (RTD) promised to build a 90-mile system of Personal Rapid Transit, or PRT, to be completed by 1980. This was to be a system of small driverless cars on special track that would zip folks through the metro area at the push of a button. The taxpayers voted for it, and now we still have the tax but no PRT.

The baggage system at DIA was to be the first of its kind in the world. After causing a two-year delay and doubling the cost of the airport, it was scrapped. Will we be duped again?

The real solutions to the I-70 mess will include road improvements, bus rapid transit, congestion pricing (peak time tolling), high occupancy lanes, and competition. Let's not spend more money on another study.

## *Introduction*

The Colorado Intermountain Fixed Guideway Authority (CIFGA) is asking voters to approve the “Surplus Revenue to Test I-70 Fixed Guideway” initiative. This initiative would allow CIFGA to spend \$50 million of the taxpayers’ refund on a study that would research the possibility of developing a monorail system for Colorado.

CIFGA’s ultimate goal is to develop the technology that would allow them to build a monorail that would run from Denver International Airport (DIA) to the Eagle County Airport in Vail.

This issue paper examines both the specific initiative and CIFGA’s long term hopes to construct the DIA-to-Eagle County monorail as well as alternatives to the I-70 mountain corridor problem.

# Should Colorado Spend \$50 Million Studying Disney-Style Mountain Monorail?

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## I. What is this all about?

### A. A \$50 million study

#### ***Surplus Revenue to Test I-70 Fixed Guideway***

*An amendment to the Colorado Revised Statutes concerning the funding of a testing and planning program for a high-speed fixed guideway transportation system, and in connection therewith, requiring \$50 million of excess state revenues collected during the 2000-2001 state fiscal year to be credited to a newly created fixed guideway technology development fund; authorizing the Colorado Intermountain Fixed Guideway Authority to expend moneys from the fund until December 31, 2004, to design and test a high-speed fixed guideway transportation system, including but not limited to a monorail system, to ensure review and approval of the system under federal safety standards, and to conduct planning studies, including studies of the design, finance, construction, and operation of a fixed guideway system connecting Denver International Airport and Eagle County Airport; requiring any moneys in the fund not expended by the authority to be refunded to the state on January 1, 2005; exempting the authority from constitutional revenue and spending limitations; authorizing the authority to expend any state funds that it may receive; and delaying the termination of the authority from January 1, 2004 until January 1, 2005.<sup>1</sup>*

Make no mistake; this initiative does *not* refer to the Disneyesque monorail system that CIFGA would like to see running from DIA to the Eagle County airport. This would be the *only* monorail system in the world that travels over precipitous mountain terrain through all kinds of inclement weather, rockslides and avalanches on approximately 170 miles of track. No monorail system in the world even comes close to this kind of mammoth undertaking.

The Monorail Society, which is made up of monorail enthusiasts world wide, maintains an extensive database of international monorail systems on their

website.<sup>2</sup> According to their data the longest monorail system in the entire world barely reaches 15 miles long.

It should be obvious that what we've actually been asked to vote on is not a first-of-its-kind monorail system between DIA and Eagle County airport. Unfortunately it is easy to lose sight - with all the discussion between the initiative's supporters and non-supporters - of the fact that this \$50 million "gift" from the taxpayers is *only for research and development*.

Even the media that *should* strive to present the facts correctly have misrepresented this issue. Shortly after CIFGA announced they had turned in the signatures to get the issue placed on the ballot a reporter in Clear Creek County wrote,

"Coloradans may very well get a chance to vote directly for or against a monorail in the mountains."<sup>3</sup>

Coloradans will not be voting on a monorail through the mountains this November; they will be voting on whether or not monorail consultants should get \$50 million of taxpayer funds to research the *possibility* of a 170-mile monorail system.

The same reporter then went on to describe the monorail proponents' efforts to gather signatures for a

"\$50 million monorail test and demonstration project from Denver International Airport and downtown Denver."<sup>4</sup>

When the ***Denver Rocky Mountain News*** reported on the fact that the signatures on the petition had to be further scrutinized, they referred to it as both a study and a DIA-to-Vail possibility:

Each signature on a petition to spend \$50 million for a study to build a monorail to the mountains will be examined...The monorail project is a 167-mile link between Denver International Airport and Eagle County Airport west of Vail.<sup>5</sup>

## B. Whose money is it?

It should also be clear that the \$50 million in “surplus tax revenue” CIFGA wants the voters to approve is money that Coloradans *overpaid* on their state taxes. It’s money that rightfully, under the Tabor Amendment, belongs to the taxpayers unless voters decide to give it to someone else. Money that is currently refunded to taxpayers every spring would *instead* be given to CIFGA to research the *possibility* of a yet-to-be-<sup>6</sup>developed technology.

## C. Three years or five?

CIFGA contends that this study will take three years to carry out (despite the fact that Sandia National Laboratory in New Mexico, which would attempt to develop the monorail’s motor, claims it will take five<sup>7</sup>). The research and development phase for this outrageously large and complicated monorail system is three to five years.

What that means for Coloradans is *at least* three more years of studies and *at least* three more years of doing nothing directly to alleviate traffic through the I-70 mountain corridor. It means *at least* three more years of sitting in traffic while consultants spend tax dollars to push around paperwork. It means *at least* three more years that we completely ignore other far less expensive and less invasive alternatives to relieve congestion through that area.

## D. A 170-mile long monorail

CIFGA claims that it would cost \$4 billion to build. Assuming that the technology to build this colossal system was eventually developed, even if \$4 billion was an accurate figure, it is a drop in the bucket compared to what it would cost to *maintain* this system. Of course, considering the *fact* this technology has yet to be developed, any cost approximation seems ludicrous.

If the system failed to pick up enough riders to support it, it would either have to be funded with additional tax dollars or shut down completely. In order for the system to reduce congestion it would have to transport a *substantial* portion of current drivers in addition to all new drivers.

Taxpayers would still be sitting in traffic because not enough people will ride the monorail to substantially reduce congestion. Yet they’ll *still* be paying for it – probably through yet another tax increase.

In addition the money spent on the monorail system (which failed to reduce congestion) will be gone. That means there won’t be any money left to build new roads or develop further ideas for reducing congestion.

“How much does monorail cost?” is, according to The Monorail Society, one of their most frequently asked questions. The society’s website states, “*No matter what the cost of building one is, monorail has the best chance of all transit modes of turning a profit.*”<sup>8</sup>

Of course the Monorail Society does not explain any further how one can make a profit from building a monorail “no matter what the cost.” This is surely the first and only product in the world to recognize a profit “no matter what the cost.” If that is true, companies should be scrambling to build *and maintain* these systems – after all, they can’t lose.

## II. Worldwide Monorail Systems

The following examples of some monorail systems throughout the world were found on the Monorail Society website.

<u>Location</u>	<u>Length</u>
Disneyland, CA	2.3 miles
Newark International Airport	3.9 miles
Jacksonville, FL	4.2 miles
Walt Disney World, FL	15 miles
Jurong Birdpark, Singapore	1 mile
Taedok Science Town, Korea	1.5 miles
Window on the World	1 mile

Sea World, Gold Coast	1.2 miles
Oasis-Jupiter, Broadbeach	0.8 miles
Tokyo – Haneda	10.5 miles
Ueno Zoo, Japan	0.1 miles
Tokyo Disneyland	3 miles

Alton Towers, England	1.7 miles
Europa Park, Germany	1.5 miles
Magdeburg, Germany	1.7 miles <sup>9</sup>

The overwhelming majority of these monorails function either at theme parks, airports, shopping centers or hotels.

There is no monorail in the world that comes even vaguely close to doing what CIFGA would like a monorail in Colorado to do.

## A. Cost of other monorails

### Las Vegas

Las Vegas is currently building a three-mile monorail system that will connect eight hotels between the MGM Grand and the Sahara in addition to the convention center. **USA Today** reported that it would cost approximately **\$162 million per mile to build and maintain.**<sup>10</sup>

Riders will be charged \$2.50 to board whether they disembark part way or travel the entire distance. Roland Montgomery, a Las Vegas traffic engineer, estimates they will need 50,000 riders per day just to break even.<sup>11</sup>

Interestingly, in November 1999, over 5,000 patrons riding on the free Mandalay Bay monorail (that is already in use), were surveyed. A large majority - 84% of them - said that they would be “unwilling to pay for any monorail in Las Vegas.”<sup>12</sup>

If the approximate cost to build and maintain the Las Vegas monorail, which runs for three-miles along the strip, is roughly \$162 million per mile, what would a monorail snaking through steep mountainous terrain with freezing conditions, snow and ice cost?

### Florida

Last fall voters in Florida (53%) approved a *constitutional amendment* that mandated the state to begin constructing a high-speed rail system (financed by taxpayers) by 2003. The amendment requires the state to “start building a high-speed system by November 1, 2003 which must travel 120 m.p.h. and link the five largest urban areas of the state.”<sup>13</sup>

One month before the election C.C. Dockery, a Lakeland businessman, spent \$1.5 million of his own money to appeal to the Florida Supreme Court to get the issue placed on the ballot.

Ironically, the Florida monorail system had been planned (without the election) but was scrapped in 1999 after Governor Bush,

“...halted further state spending because the privately operated Florida Overland Express, or FOX, System could not complete its financing package, despite a \$3 billion commitment from the state of Florida. FOX would have connected Miami, Orlando, and Tampa, 322 miles, using a high speed 200 mile-per-hour train on a dedicated right of way. The estimated capital cost was \$6.2 billion. Projected fares were \$54 from Miami to Orlando and \$21 for Orlando to Tampa. But, ridership projections were so unreliable and the prospects for covering operating costs so bleak, **FOX could not find sufficient backers**...the definition of high-speed rail requires use of technologies that are completely untested in large-scale commercial use...A study of FOX by the James Madison Institute estimated that FOX would have cost each Florida family over \$1,000 per year in subsidies.”<sup>14</sup>

In other words, since the FOX system could not find enough *voluntary* private financial backers, a businessman managed to get it on the ballot to win and now the taxpayers of Florida are required to back this system – by constitutional mandate - at whatever the cost.

Florida Senate Majority Leader Jim King told the **St. Petersburg Times** that the system is “estimated to cost up to \$21.9 billion to build and another \$1.7 billion a year for operations and debt payments.”<sup>15</sup>

### Jacksonville, FL

Jacksonville, Florida already has a 2.5-mile monorail (Jacksonville Skyway) that cost \$184 million to build. The manager of Skyway operations told the **Seattle Post-Intelligencer** "It's relatively expensive but is ideal as a downtown circulator."<sup>16</sup>

Of course others disagree as to how "ideal" it really is:

"A Bombardier-constructed monorail system in Jacksonville, Florida is an embarrassing financial failure, costing hundreds of millions of dollars and capturing only one-tenth of its projected ridership."<sup>17</sup>

"Built for \$184 million, the Skyway has fallen far short of ridership predictions. The JTA once estimated that 38,000 people would board the Skyway daily after the whole system is open. Currently, the Skyway provides about 2,300 rides a day... For the current fiscal year, the JTA has budgeted \$3.5 million to operate the Skyway. Fares and parking fees will shoulder 11 percent of the cost, according to the JTA's budget. **Taxpayers will foot the rest of the bill.**"<sup>18</sup>

## Seattle

Apparently 2000 was a banner year for monorail builders - although probably not for taxpayers. Proposition 2, which voters approved in Seattle, recreated the Elevated Transit Company (ETC), which the city council had previously dissolved, provided \$6 million in taxpayer funds for the ETC and set aside \$200 million in possible bonds for a future monorail system.<sup>19</sup> Not unlike the FOX system in Florida, the ETC had run out of money before they could come up with a solid monorail plan or private investors willing to pay for the system.<sup>20</sup>

Andrew Jakes, a monorail-planning consultant, predicts "building a high-capacity monorail in Seattle probably would cost between \$35 million and \$45 million a mile." A study of Seattle transportation options disagrees. They "estimated that a Seattle monorail would cost an average of \$74 million per mile - nearly three times as much as the Las Vegas high-capacity system cost."<sup>21</sup>

Mark Hallenbeck, director of the Washington State Transportation Center, told **The Daily** newspaper, "If [private ownership] would have been attractive,

you would see companies running to build and run monorail systems all over the world."<sup>22</sup>

## **B. Getting rid of your monorail**

### Philadelphia

Not everyone, however, is clamoring to install or even keep their monorail system. The Philadelphia Zoo thinks so little of its monorail that they're accepting \$1 million dollars from the city (taxpayers) to demolish the monorail and install a new communications network instead.<sup>23</sup>

### Germany

Germany had planned a Maglev monorail system (magnetic levitation is a monorail system that floats above a single track on a "cushion of friction-free magnetism."<sup>24</sup>) but it was recently canceled due to rapidly escalating costs and environmentalists' concerns that the "magnetically powered trains pose health hazards for people and animals because of their electromagnetic fields."<sup>25</sup>

The Germans spent

"15 years and more than \$2 billion playing around with the hovering trains but, outside of a 16-mile test track, have yet to create a single commercial Maglev system."<sup>26</sup>

### Japan

Japan has declined so far to build a proposed 300-mile Tokyo-Osaka Maglev system, "mostly because of the estimated \$60 billion cost."<sup>27</sup> It should also be noted that, "no commercial intercity Maglev system exists in the world."<sup>28</sup>

An engineering professor at the Hong Kong University of Science and Technology wrote, "Practically, you get a lot of downside. This still is not a fully developed technology."<sup>29</sup>

### England

A half-mile, low-speed Maglev system at the Birmingham International Airport in England was

pushed aside for a shuttle bus several years ago, partly because of “technical difficulties.”<sup>30</sup>

## II. Does the technology even exist?

### A. Sandia National Laboratory and the undeveloped Seraphim motor

The motor that CIFGA would like to see developed for use in the proposed monorail is known as a “Seraphim” motor:

“Segmented Rail Phased Induction Motor [which] relies upon electromagnetic forces to push a transit vehicle forward and to provide braking.”<sup>31</sup>

Seraphim is similar to the European and Japanese Maglev systems but is allegedly simpler and less expensive because it relies on steel wheels for support instead of magnetic levitation only.

Miller Hudson, CIFGA’s executive director, claimed in a *Denver Post* op-ed that,

“The monorail system has been frequently criticized as ‘unproven technology.’ A high-speed monorail is only unproven in the same sense that next year’s car models are unproven.”<sup>32</sup>

If you were to assume Hudson’s statement is accurate you might think that the only changes a Seraphim-powered monorail running through Colorado’s mountains would need are different colors for the leather interior or bigger cup holders. Yet,

“In the mid-1990s, Sandia researchers demonstrated a Seraphim motor prototype that accelerated a two-foot tall aluminum plate to 34 miles per hour in only 12 feet as it traveled along rails. However, **no funding was available to build a motor suitable for testing on a vehicle.**”<sup>33</sup>

A motor *prototype* that moved a *two-foot tall aluminum plate* along a rail up to a speed of 34 mph, is about as

far from being a motor that can propel a train full of people up a steep, snow-packed and windy mountain at an average of 70 mph as I imagine you can get.

The original motor was designed for the Strategic Defense Initiative (SDI) to hurtle Volkswagen-sized pieces of metal into space at about 12,000 mph. “[...] [Now] the challenge in designing a Seraphim motor for transit applications is making it operate efficiently at low speeds.”<sup>34</sup>

The questions of why private companies aren’t willing to bankroll this research and why the taxpayers must be tapped for it are crucial. Corporations are often criticized over their “love of money.” Yet it’s that love of money that should serve as an important signal to taxpayers.

If there was a single corporation which saw the possibility that developing a Seraphim motor for monorail applications was a good bet, it would have done so long ago. Taxpayers will be expected to foot the bill not only for research, but also for building *and maintaining* a system for as long as the monorail runs because it will not be financially viable.

Consider the fact that corporations often spend hundreds of millions of dollars researching and developing pharmaceuticals – because they consider the risk of failure to be low and the possibility of profits to be high. Sandia National Laboratories put the Seraphim motor project on the shelf for *five years* because **“no funding was available to build a motor suitable for testing on a vehicle.”**<sup>35</sup>

According to CIFGA, “The state [may] also profit from owning and selling the technology for the monorail...”<sup>36</sup>

Do they honestly think they are the first to consider this? That no private company in existence thought about developing this technology themselves and selling it?

### B. How long have taxpayers been funding the research for this motor?

Sandia National Labs, where the Seraphim motor is being developed, received \$1 million federal tax

dollars in 2000<sup>37</sup> and \$2 million of federal tax dollars in 2001 and \$500,000 for 2002 for “*further motor testing and design.*”<sup>38</sup>

Interestingly enough, this project is flagged on Senator John McCain’s Pork Barrel Spending website:

“...it is essential that critical transportation safety and policy programs get proper funding...However, while I agree with need for increased funding, I do not agree with the need for increased pork. Unfortunately once again, the appropriations committee has adopted the mantra that increased funding for necessary programs equals increased pork-barrel spending for parochial projects...a frantic chase [is] underway by members seeking to ensure they could take home plenty of earmarked pork barrel projects for their districts and states...And this enormously bloated transportation bill takes the cake...It illustrates one of the most gluttonous, pork-driven, self-serving spending agendas we’ve seen yet.

The report further earmarks the following low-speed maglev programs:

Segmented Rail Phased Induction Electric Magnetic Motor (Seraphim) Project	\$2,000,000
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Colorado Intermountain Fixed Guideway Authority Airport Link Project	\$2,000,000 <sup>1</sup>
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John McCain’s Transportation Appropriations Bill Fiscal Year 2002 Objectable Provisions in S. 1178:

Segmented Rail Phased Induction Electric Magnetic Motor (Seraphim) Technology	\$500,000 <sup>1</sup>
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### III. Will a monorail relieve congestion along I-70?

#### A. Who rides mass transit?

While mass transit has made technological gains since World War II, *ridership* levels have not increased. Streetcars gave way to buses, which gave way to cars.

“Mass transit ridership declined from 23.5 billion passengers in 1945 to only seven billion in 1975, during which time the population of U.S. metropolitan areas doubled.”<sup>39</sup>

In the 1960s, Congress created the Urban Mass Transportation Administration, which began feeding gobs of federal monies to states in an attempt to promote and recreate public transportation. The idea, of course, is and was that public transportation will reduce traffic congestion and therefore air pollution.

“The unfortunate, but indisputable fact is that transit has virtually no impact on traffic congestion except for work trips beginning or ending in the largest downtown areas.”<sup>40</sup>

#### B. Even the monorail supporters think we’ll still be stuck in traffic

One of the most emphatic arguments that anyone pushing a new public transit system inevitably makes, is that “it will take cars off the road...” Monorail supporters are no exception.

Miller Hudson wrote in a *Denver Post* op-ed that

“For three years a dozen citizens have dedicated their best efforts to developing a realistic solution to the traffic congestion that is rapidly strangling access to Colorado’s mountain recreational areas.”<sup>41</sup>

Highspeedmonorail.com, the website used to promote a monorail in Colorado, lists some future scenarios they “would like to see in 2010” – they’re remarkable considering that one of the supposed benefits of monorail is to get cars off the road and relieve congestion:

Denver resident shopping in Silverthorne  
“Took June shopping at the outlet stores in Silverthorne yesterday. We bought her a new wardrobe for college - lots of great deals. I paid \$40 for my round-trip ticket, June traveled free on the family plan. Most of the stores were “monorail partners” and gave us a 5% to 10% discount for taking the monorail - ended up with \$32 in discounts so the monorail was nearly free for both of us. They dropped us back at the station with all our packages. **We had a lovely ride home - the highway traffic was stop-start all the way from Eisenhower Tunnel with highway construction...and we just flew by at 150 MPH. Those people are nuts.**”

Weren't all those "nuts" supposed to be riding the monorail therefore relieving congestion *and* freeing the mountains from new highway construction?

#### Front-range day skier

"We took off at 8:00 AM on the Saturday express and we were in Copper Mountain before 9:00 AM. On the way home we managed to get on the Piano Bar monorail, so we were singing Irish ditties with some crazy students. **The other guys got stuck at Vail Pass until it opened at 8:00 PM so they didn't get back until after 11:00 PM** Cost me \$40 round trip."

#### Second Home or Condo Owner

"Took the family for the long weekend to our condo in Dillon. Johnnie and I drove up at Thursday noon before all the traffic and June and the girls followed after work on the new high-speed monorail. June hates driving in the ice and snow, ever since she slid off the highway. June took Johnnie back to Denver for a hockey game on Saturday afternoon - they zipped down and back on the high-speed monorail while we went ice fishing. **We came back early Monday morning but June took the high-speed monorail as she couldn't risk being late for an important meeting.** Next time we're all taking the high-speed monorail on their family plan."<sup>42</sup>

So does this mean that even the monorail supporters don't really believe that it will relieve congestion? Half of them were driving in this last pro-monorail scenario?

## **C. Does anyone else ride on the monorail?**

### Florida

When the two-mile Jacksonville, Florida monorail opened its first leg (Phase 1-A) its projected ridership was 10,000 riders per day. Its actual ridership was 1,600 riders per day.<sup>43</sup>

"Optimistic Projections" for ridership on Florida's constitutionally mandated monorail system are between 17,200 and 23,000 daily one-way riders.

"Realistic Projections" indicate a daily ridership of 6,600 to 6,800. The impact on traffic congestion is estimated to remove "between 1.1 percent and 4.0 percent of traffic by 2020." Yet overall traffic volume is expected to increase 51 to 55 percent.<sup>44</sup>

### Las Vegas

As was noted previously, the new monorail in Las Vegas will need approximately 50,000 riders per day to break even but,

"There is a consensus amongst reviewers of this proposed project that 25,000 – 29,000 daily patrons is a generous estimate..."<sup>45</sup>

### Denver

In the Denver-Boulder metropolitan area public transit carries less than two percent of the overall travel. Most riders are going to the downtown area where it is the most densely developed. Other areas of metropolitan Denver that have access to public transit simply don't receive the same amount of ridership.

Portland, St. Louis and Sacramento are among a few of the U.S. urban areas that hoped rail systems would reduce congestion but were sorely disappointed.<sup>46</sup>

If billions of dollars are poured into a monorail system and it doesn't relieve congestion the money will be gone – money that could have been used for something that might actually provide some relief for the I-70 corridor.

If we waste at least three years on a study that's three more years that we continue to sit in traffic instead of implementing solutions that would mostly require a change in political will as opposed to changes that would require billions of dollars to implement.

## **IV. Other taxpayer funded transportation follies**

### **A. Personal Rapid Transit**

In 1973, Coloradans voted to approve an increased tax for RTD, which promised a nifty little invention called Personal Rapid Transit (PRT). PRT was going to consist of 98 miles of aerial track and 800 vehicles that carried 12 people each. It would fly through the city at a whopping 40 miles per hour. It would be sexy, it would be efficient, it would be cost effective,

it would be scads of fun to ride the gondola (read monorail) to work into downtown Denver everyday and it was supposed to be completed by 1983.

By 1976, PRT was considered an “alternative” and RTD scrapped it for Automated Rapid Transit. This system was going to consist of 80 miles of track and would carry between 12 and 20 passengers.

In 1978, it turned into Commuter Rail until RTD decided it wasn’t “feasible.” In 1980, RTD went back to the voters to ask for even more of their tax money to build light rail and this time the voters turned them down. In 1982, RTD returned to studying Automated Rapid Transit and claimed that it would consist of “the most cost effective and appropriate transit technology available at the time each stage is constructed.”

Whether it’s through bureaucratic behemoths like RTD or through CIFGA - like Freddy Krueger, this bizarre notion of some kind of choo-choo train or another continues to pop up every few years in an attempt to bleed the taxpayers to death through increased taxes, or in CIFGA’s case, decreased tax refunds. (Rumor has it there is a PRT *test track* still sitting in Broomfield...)

## B. And the underwear flew

Denver International Airport was the first new airport built in the United States in over twenty years and one of the many new technologies it was slated to feature was a high-tech baggage system. It was called “the world’s most advanced baggage handling system.”

In language that sounds eerily like what the monorail supporters tell us, “it was hailed as the savior of modern airport design.” It was going to change everything. Airport designers worldwide would be able to completely change any new airports they might decide to build. The technology that Denver was implementing in this airport would revolutionize the world. Mayor Webb said, “This project is of the same magnitude as the Panama Canal or the English Channel Tunnel.”

While there were three other airports that had *similar* systems, Denver’s system completely dwarfed theirs in terms of size and complexity. San Francisco’s system was ten times smaller, the one in Frankfurt ran

on trays and conveyor belts and was three times smaller and Munich’s system was “far less complex.”

When the installers decided to run the system for several media groups suitcases were flung from cars, bags were chewed up, cars jumped the track, cars crashed into each other, “suitcases went flying like popcorn kernels, some of them breaking in half, spewing underwear in every direction.”

“Before it was all over, the \$232 million system that was supposed to make the airport one of the wonders of the aviation world had crashed in a costly and embarrassing flop.”

What was supposed to be a (approximately) \$1.5 billion airport ended up costing nearly \$4 billion.<sup>47</sup>

## C. Southwest Corridor

RTD promised the Denver Regional Council of Governments (DRCOG) in 1994 that light rail in the southwest corridor would cost \$126 million to build. When all was said and done it actually cost \$178 million.<sup>48</sup>

# V. Alternatives

## A. Congestion Pricing

Miller Hudson of CIFGA has conceded that the congestion pricing solution might work “in theory.”

Unlike the 170-mile mountain monorail system that does not exist any where in the world, some high congestion areas are doing more than theorizing when it comes to congestion pricing techniques.

“Continuing experience shows that increasing numbers of commuters are willing to pay tolls to enjoy the benefits of reduced travel time, improved driving comfort, and the perception of safety.”<sup>49</sup>

## Orange County, California

The ten-mile 91 Express Lane, which had been “one of the most heavily congested freeway corridors of California”,<sup>50</sup> runs on varied tolls according to the time of day in order to optimize traffic flows.

- Carpools with three or more riders, motorcycles, zero emission vehicles and the disabled can get 50% off the posted tolls.
- Users are charged anywhere from 75 cents to \$4.25 one way depending on the day and time. Drivers who don't wish to pay have the choice of driving in the non-toll lanes.
- Corridor emissions “are about the same as would have occurred if dual HOV lanes or dual general use lanes had been constructed instead.”
- A substantial amount of 91X use occurs on Friday afternoons *during the highest fare time period.*<sup>51</sup>

### **San Diego, California**

The I-15 Express Lane is an eight-mile, two-lane, reversible HOV lane.

- Carpools with two or more people, buses and motorcycles travel for free.
- Tolls don't exceed \$4 for a normal rate of traffic but could be raised to \$8 in the case of severe congestion like an accident that shut off one or more lanes of the highway.
- The project is currently self-supporting and generates approximately \$1.2 million a year in toll revenue.
- Revenue from the tolls has paid for the Inland Breeze bus route.<sup>52</sup>

### **Houston, Texas**

- The Katy Freeway in Houston uses an HOV lane for morning and evening rush hour traffic.
- It's \$2 to ride with one other person in the car and free for three or more people in one car.<sup>53</sup>

### **Lee County, Florida**

- Drivers can purchase a transponder that attaches to their car in order to receive a 50% discount on tolls for certain hours of the day.<sup>54</sup>

New York, New Jersey, Portland, Seattle, San Francisco and the Twin Cities are all studying (or starting to implement) congestion pricing and variable tolls as a means of more effectively managing congestion.

## **B. Alternative and Additional Lanes**

The Federal Highway Administration (FHWA) along with the Colorado Department of Transportation (CDOT) are conducting a Programmatic Environmental Impact Study (PEIS) to examine alternatives to the current I-70 Mountain Corridor situation.<sup>55</sup>

- Adding one additional lane in each direction. Since each lane on I-70 carries approximately 5,000 people per hour, three lanes in each direction would be sufficient for the next 50 years.
- Making one lane reversible according to the flow of traffic. During peak travel the direction of a lane on either side could be reversed to accommodate more traffic.
- Double deck construction similar to what is in Glenwood Springs now would “provide additional lanes but will fit within the existing I-70 envelope.”
- Curve smoothing would replace tight curves with smoother ones and would allow for faster speeds. The segment from the Idaho Springs Twin Tunnel to Floyd Hill “has curves with only 50 mph design speed.”<sup>56</sup>

## **C. Bus Rapid Transit**

Bus Rapid Transit (BRT) is a bus service that “comes bundled with features more typically associated with rail.”

- Exclusive rights of way
- Stations instead of stops

- Platform rather than curb loading
- Higher operating speeds
- Shortened headways
- Expedited fare collection
- Real-time passenger information

### **Curitiba, Brazil**

- Holds 270 passengers
- Stops at stations approximately every ½ mile
- Features a high-speed SuperExpress which stops at every fifth station
- Services 70% of Curitiba's work trips
- Costs only a small fraction of what light rail would have cost

### **Pittsburgh, PA**

- Opened in September 2000 more than a year ahead of schedule
- Five miles long
- Built in an abandoned rail right of way
- Two to four lanes wide
- Allows express buses to pass other buses that stop at all stations

### **Orlando, FL**

- Costs slightly more than half of what a trolley system would
- Separated from general traffic lanes
- Traffic signals can be controlled strictly by buses

In Los Angeles, instead of expanding rail, they decided to use BRT. Miami, Charlotte, Boston, Houston, Eugene, and other cities have committed to BRT. Washington is developing BRT to Dulles Airport.<sup>57</sup>

implementing a solution to traffic problems in the I-70 Mountain Corridor.

It is a fairly simple concept to consider. There is no system in the entire world that does what CIFGA is proposing this monorail will do. Not even close.

Even if the technology did exist it would be exorbitantly expensive to maintain, especially when you consider the fact that most public transportation systems carry only about two percent of the commuting public. Japan and Germany, which have developed systems vaguely similar to what CIFGA has proposed, have scrapped plans to go any further due to out of control costs. The furthest these systems ever extended were a few miles and nowhere near 125 mph up steep mountainous terrain.

We all have to grow up eventually and admit that Santa Claus doesn't exist. (And yes that means that neither do the Easter Bunny or the Tooth Fairy.) The technology for a motor that would propel thousands of people on a monorail 170 miles through the Colorado Rockies does not exist – not even close.

If it could be developed and implemented in a cost effective manner, a private company that expected to profit from it, would have conducted the study themselves long ago. In a time when the economy is not exactly flourishing the last thing Colorado taxpayers need to fund is a *study to possibly develop the technology* for a 170-mile amusement park ride.

## **VI. Conclusion**

If Colorado voters decide to take three (or more) years to conduct a study on the possibility of a 170-mile monorail system, that means three years that we do nothing to begin implementing more efficient and far less costly solutions. In three years when we find out that no monorail system can do what CIFGA wants it to we will be an additional three years behind

# Endnotes

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