

Lifeblood of economy  
transportation  
infrastructure  
economics essay



In many ways, the lifblood of our economy has been our transportation infrastructure. Our network of road and rail systems has been expanding since the beginnings of the republic. And compared with the infrastructures of many other countries, notably China or India, we are the envy of the world in most cases. But as we begin the twenty first century, a growing problem has been stalking our infrastructure and the problem is beginning to come to the forefront of top priority issues for the nation. The infrastructure is beginning to crumble and our traditional funding sources are not able to cover the deficit of what is needed to fix it. According to an article from the a 2007 edition of the Public Works Management and Policy, “ Federal and state transportation user fees have historically been the main source of transportation funds in the United States, but the revenue-generating capacity of these fees has waned significantly in recent decades” (Sciara & Wachs, 2007). Along with the problem of eroding revenues that are traditionally used for transportation funding, the cost of maintaining and upgrading our current infrastructure has increased over the past the past couple of decades. According to the Colorado Department of Transportation (CDOT), the state will need the following additional revenue amounts in the next decade to sustain the current condition of the transportation system: (Colorado Department of Transportation, 2010)

\$3. 8 billion for improvement of highway pavement

\$317 million for bridge improvement

\$500 million for road maintenance

These figures are in addition to the department's current budget of \$1.0288 billion dollars in fiscal year 2010-2011 (Colorado Department of Transportation, 2010). Assume that the budget would not significantly increase over the next few years (barring and new revenue sources or changes in current laws), CDOT can expect their next budget to be around \$11 billion for the next decade. According their deficit report, they will need and additional \$4.7 billion to sustain the current condition of Colorado's transportation infrastructure, an increase of 43% of their current forecasted budget. Based on current literature, it would seem that this problem is nationwide occurrence and not just limited to the State of Colorado.

This analysis will examine this problem with our transportation infrastructure in detail, using the State of Colorado as the primary focus of the problem. Based on current information from scholarly sources and from government reports, it will examine what the specific problems in transportation are, what are the current funding sources and what has happened to these sources and finally what are some solutions to these problems that have been examined or put in to practice in other areas that could help with the current transportation issues.

### Deteriorating Conditions

The first problem that much of the nation will face is that road conditions are going to deteriorate to unacceptable levels over the next decade. According to a 2002 report from the General Accounting Office (GAO), interstate highway road conditions have improved over the past few years, but many states predict that they will fall behind in keeping interstate highways in

good condition. The report states that “ officials from 23 states predict that, in 10 years, they will be falling behind in dealing with the condition of their Interstate pavement,” and “ officials from 19 states predict the condition of their bridges will worsen 10 years from now” (United States General Accounting Office, 2002). With the current year being 2010, the report predictions of falling behind in road maintenance seem to be coming to fruition, especially in Colorado.

In their annual report to the state legislature, CDOT reports that the current condition of all highways managed by the department for the current fiscal year is 46% of all highway conditions in the state are in good or fair condition. The assessment is down from a peak of 65% of highways in good/fair condition in 2005. The department currently states that its ultimate goal is to keep 60% of all highways in good/fair condition (Colorado Department of Transportation, 2010). The condition of the state’s inventory of bridges does not seem to be as bleak as overall highway condition, but overall deterioration of bridges seems to be increasing. The report states that currently 94. 4% of all of the state’s bridges are in good or fair condition (CDOT judges the condition of bridges by the condition of the deck area of the bridge) on a goal of maintaining 95% of all bridges in good or fair condition. However in a decade from now (2020), the report estimates that the current bridge condition will deteriorate to 93. 6% in good or fair condition (Colorado Department of Transportation, 2010).

Oregon’s Department of Transportation also reported similar results. A report published by their planning unit concluded that 30% of state bridges showed crack problems. The report concluded that 30% of the total bridge network <https://assignbuster.com/lifblood-of-economy-transportation-infrastructure-economics-essay/>

would be weight-limited during this year, causing significant disruption to local and regional economies (Weidber, Gregor, Wert, & Hunt, 2005). It seems that the effect of the ability to handle the heavier traffic loads of these bridges and its effect on the local economy seems to be the main concern of this report. A case study from the United Kingdom outlines these conclusions based on an analysis of the Humber Bridge. The Humber Bridge in northern England was constructed over the Humber Estuary in the 1980s. Immediately commuters and commercial traffic saw significant reductions in the amount of miles traveled between communities in the area (as well as reduced travel times) than if this traffic were to drive around the estuary as they have in the past. The report concluded that the economic benefits included expanding existing markets for current economies and utilizing new markets that were unavailable in a short term basis (Mackie & Simon, 1986). While this case study is important example on how infrastructure improvement can help the economy, the article stated that “ The importance of roads to industry and commerce is beyond doubt... by cutting journey times and congestion between cities, the motorway network has produced important efficiency gains for commerce and industry” (Mackie & Simon, 1986). Based on these reports, transportation infrastructure is important to our economy, it helps with economic growth, but conditions of our transportation network in the State of Colorado and in the United States in general are deteriorating. The main question is what is causing this deterioration and how can both federal governments and local governments solve the problem?

#### Causes for Road Network Deterioration

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According to governmental sources, one of the main causes for the deterioration of the highway networks has been that the overall usage of the system has increased over the past few decades as the population has increased. On a national level, the GAO reports that “ from 1990 through 2000, the daily vehicle lane miles traveled on rural Interstates increased at an average annual rate of 3. 3 percent,” and “ daily vehicle miles traveled on urban Interstates increased at an annual average rate of 1. 7 percent” (United States General Accounting Office, 2002). Because of the increase use of the interstate highway system and the aging condition of the system, the GAO also reports that:

“ States expect certain factors, especially the levels of truck and car traffic, the age of the Interstates’ pavement and bridges, and funding constraints to negatively affect the conditions of their Interstates over the next 10 years. FHWA data also indicate that traffic, especially the volume of truck traffic, will increase”

(United States General Accounting Office, 2002).

At a national level, it seems that three factors seem to be contributing to Interstate Highway deterioration: increased volume of traffic on the system (that will continue according to government estimates), the age of the current payment and bridges of the system and funding constraints.

On a local level, within the State of Colorado, CDOT seems to be reporting similar conclusions. CDOT’s annual transportation deficit report states that five main factors leading to the deterioration of both the highway pavement condition and bridge condition. First they report that the cost of construction <https://assignbuster.com/lifblood-of-economy-transportation-infrastructure-economics-essay/>

materials has been increasing at a level higher than the level of inflation due to current supply. Second, population growth has been steadily increasing in the state leading to increased usage of the system (the report states that the State Demographer projects 1. 8% annual population growth and CDOT's new revenue model projects 2. 7% annual growth of vehicle miles traveled (VMT) in Colorado over the 10-year period examined). Next the report states that adverse weather conditions, increase weight of vehicles using the system and land use policies which encourage growth all have an adverse effect on highway conditions. Finally, and the main focus of the report, the lack of availability of funding to pay for improvements is preventing improvements to the overall condition of the road network (Colorado Department of Transportation, 2010). It seems that at both the national level and the local level, the amount of funding needed to maintain, improve and expand the system seems to be a main hindrance to the maintenance and expansion of the road network.

### Transportation Funding Deficits

Multiple factors are contributing to the road network deterioration; the one factor that governmental agencies have the most control over is public funding for repairs, improvements and expansion of the system. Both the national and local governments have stated that this is a main contributing factor to the problem. The federal government currently relies on the fuel taxes at a national level to help pay for the costs of building and maintaining the national highway system (in addition to state fuel taxes), usually based on an additional amount per gallon purchased. For most of the twentieth century, this has been sufficient to build and maintain the system. But this <https://assignbuster.com/lifblood-of-economy-transportation-infrastructure-economics-essay/>

formula of transportation funding has not been as reliable as it has in the past couple of decades. The tax has been rarely raised over the past couple of decades as it has in the past. California raised the fuel tax three times between 1947 and 1963. But since 1982, the fuel tax has only been raised once. (Wachs, 2003).

On a local level, the state of Colorado has been in the same situation. Colorado relies on both the state and federal fuel tax to pay for most transportation improvements and maintenance. On a state level the state gets most local funding from the state Highway Users Tax Fund (HUTF) which gets revenue receipts from the state motor fuel tax. According to the current budget published from CDOT:

“ Transportation revenues have in the past decade demonstrated significant volatility due to fluctuations in receipts from these various revenue sources which are described in more detail in the following sections. Certainly in the years since either the state (1991) or the federal government (1993) last increased the motor fuel excise tax, revenues have not kept pace with inflationary increases experienced by the construction sector of the economy which have averaged about 6% per year over the past decade.”

(Colorado Department of Transportation, 2010)

Based on this information from both the federal and national level, it seems the nation and the state of Colorado are trying to fund a 2010 road network system with funding levels from the early nineties. Also based on the inflationary concerns and population growth, the amount of money received is not enough to meet current needs. As stated above, CDOT needs an <https://assignbuster.com/lifblood-of-economy-transportation-infrastructure-economics-essay/>



additional \$4.7 billion to sustain the current condition of the transportation network and prevent further deterioration (Colorado Department of Transportation, 2010). Funding transportation needs, however, is not just a state or even a national problem, it extends worldwide.

The World Bank reports that the problem of financing road construction and maintenance over the past few decades has been a problem for other nations and not just the United States. According to the World Bank Research observer, many other nations have had the problem of inefficient funds to allocate to road maintenance and construction, in addition to other factors such as poor planning, misallocation of funds and using funds earmarked for transportation projects for other governmental functions. Two examples given are Ghana and Zaire (now known as the Democratic Republic of the Congo). The article states that Ghana's current revenue base for transportation could only finance 60 percent of the need work for period maintenance on their system. In Zaire, which at the time the report was published, just raised their fuel taxes to increase their revenue base, but were still insufficient to cover all qualifying transportation expense the central government had (Gwilliam & Shalizi, 1999). Based on the information from these sources it seems that funding for transportation seems to be the major problem, and probably an easier problem for governments to address than population growth, adverse weather or heavier vehicles. But what is the best way for future legislators, governors and presidents to address transportation funding shortfalls?

Solving Transportation Funding Problems

From the prospective of the United States in general and the State of Colorado specifically, how can governments solve for the funding problems that are being reported? Based on current literature, the current funding sources (motor fuel taxes) are not meeting current needs either through a reluctance to raise the amount of the tax or through inflationary concerns that have eroded the value of the current tax revenue base. It seems that both issues are major problems to the current formulas. What are the alternatives governments can seek? One proposal is to use public-private partnerships. Basically this approach would have policy making staying with governmental entities, while private partners would implement the policy and/or project, while sharing the costs of the project. The public entity would be able to solve a pressing social issue, while the private entity would be able to retain a profit from the investment of money and resources (Boase, 2000). However, an article from the Canadian Public Administration Journal concludes that while this solution does help with the funding situation governments may face, there are downfalls including government official acquiesced to the demands of the private partner, questions of accountability and quality of work from private partners when using government funds (Boase, 2000).

Another alternative is allowing Metropolitan Planning Organizations (MPOs) to generate their own revenue. MPOs are loose organizations of governments within the same geographical or metropolitan region that make decisions on issues relevant to all parties involved. One article advocates allowing MPOs to generate their own funds instead of/in addition to the funds they receive at the state or federal level. This would allow the MPOs to make better

decisions at the local level and generate additional revenues need to meet transportation needs within the area (Sciara & Wachs, 2007). While this does seem to be a promising idea, allowing local governments add new funds to already existing sources, there are drawbacks to this idea as well. The main question would be where these new revenues would come from. The Federal and State governments have been reluctant to raise motor fuel rates over the past few decades, what would make MPOs more eager to take up this task? And in the state of Colorado for example, MPOs would be under the same revenue and tax restrictions as the state government, the limits set under the TABOR amendment to the state constitution. Finally another proposed solution would be to implement a vehicle miles traveled tax as a supplement or replacement to the current fuel tax. Basically, this would be a tax based on the miles traveled on the road network. This would be tracked through a GPS based system the user would be billed accordingly from the governmental entity. This system would levy the highest taxes on those groups who use the system the most. While the idea in theory is seems to be logical, this too has some problems including concerns about citizen privacy using the GPS system and implementing a new way of billing that will address the concern about tax evasion, a problem not present when one pays a fuel tax (London, Saltzman, Skinner, & Gunaydin, 2003).

## Conclusion

From the current literature on transportation, there seems to be two main issues facing transportation today. First, the current road network is deteriorating and soon will not be able to meet the demands of future populations. Second the current revenue streams are becoming insufficient

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to maintain, let alone expand the current road system. While many sources have presented possible solutions to this funding issue, many of the proposed solutions are far from perfect and have several flaws that must be address before they could be implemented. It seems the governments will have to spend some time analyzing what is best to solve the problem and the best solution may be a combination of ideas outlined in this analysis.