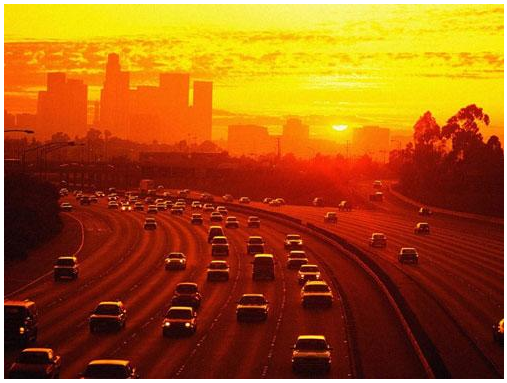
The Economic Case for Investing in Clean Transportation



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Costs and Benefits: The Economic Case for Investment in Clean Transportation

Imagine for a second that even a portion of America's vast network of roads, rails, and airports shut down. The regional economy would grind to a halt, and the impact would ripple through the country. Transportation is vital to any successful nation's economy and America is no exception. Businesses and governments count on being able to move people, goods, services, and ideas quickly and efficiently between places. This ability to freely move and access other firms for materials, customers, services, and labor is what creates the new opportunities that have helped our economy grow into the most successful the world has ever seen.

Americans have this freedom because, similar to all wealthy nations, we've invested trillions of dollars in a highly developed transportation network. Though this network has fostered tremendous economic growth, the economic benefit of new transportation investments is not what it once was. The return on investment of transportation projects – especially new highway projects – has been declining for years, according to a study by New York University economist Ishaq Nadiri.

As inefficiencies in our transportation system – seen in the form of congestion, high costs, and environmental impacts - further undermine its economic benefits, we have the opportunity to reverse this trend with key policy reforms that can benefit both our economy and the environment.

An Economy of Connectivity

America is highly connected. Nearly all significant economic centers and areas are well connected to each other by at least one mode of transportation – primarily highways, followed by air service, and lastly by rail service. Most major economic areas are well connected by more than one mode, creating options and flexibility within the system that further expand economic opportunities and productivity.

Within these economic centers, there is also a high degree of connectivity, again primarily

via roadways. Additionally, several of these centers have well-developed public transit systems that include subways, commuter rail, light rail, streetcars and many types of buses. However, well-developed transit networks are much less common in American economic centers than in many similar regions worldwide. Many U.S. cities have very limited transit options, often only in the form of buses.

Still other economic centers are very walkable, allowing for a great number of very efficient short foot trips. Some such walkable areas are easy to navigate by bicycle as well; anyone who has ever employed a bike messenger can speak to the efficiency of this method of travel.

A Culture of Inefficiency

Though highly connected, our transportation network is plagued by inefficiency. This can be seen through several metrics: congestion frequently makes trips longer and less predictable, families and businesses are spending more each year on transportation, and billions of gallons of fuel are wasted annually.

One of the clearest pictures of this inefficiency can be seen in the traffic that most Americans regularly experience. The Texas Transportation Institute estimates that we lose $87.2 billion dollars in productivity during the 4.2 billion hours Americans spend in traffic each year. Moreover, as economist Joseph Cortright showed in his study *Driven Apart: How sprawl is lengthening our commutes and why misleading mobility measures are making things worse*, sprawling metropolitan land use patterns make the problem worse. Cortright calculated that a typical traveler in the least-sprawling U.S. city spends 40 fewer hours per year in rush hour traffic than the average American, due to shorter travel distances.

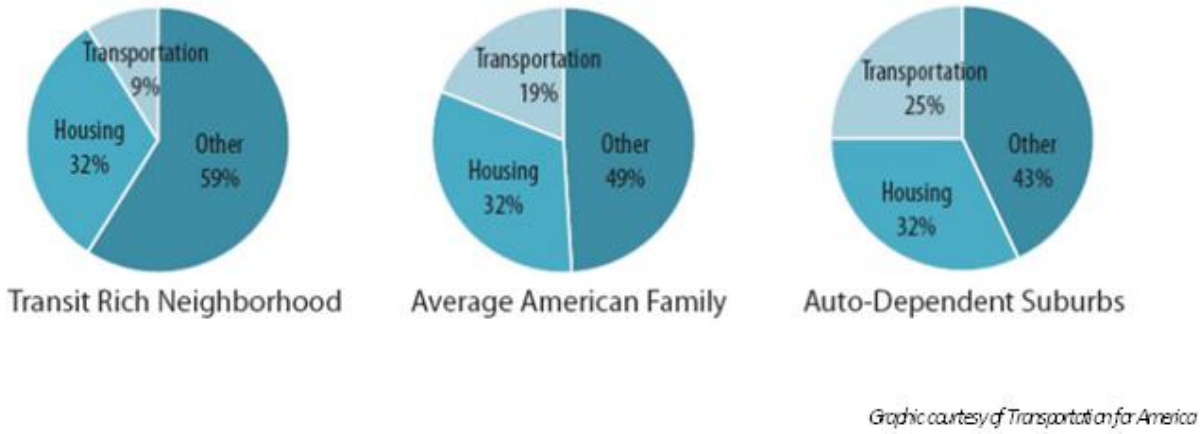


Figure 1 Percentage of household income spent on combined housing and transportation costs.

Stubbornly high household transportation costs also show this inefficiency. Analysis by the transportation and land-use think tank Reconnecting America shows that transportation often imposes hidden costs on families. Transportation costs have been growing for years, and are now often the second highest expense for American families. In highly automobile-dependant suburbs, transportation can consume as much as 25 percent of a household budget, compared to just 9 percent in neighborhoods nearby to public transportation.

The inefficiency of our transportation system can also be seen in the amount of energy it

consumes, and the toll this takes on the environment. Our transportation system is almost entirely dependent on oil for energy. As a result, transportation is responsible for nearly 70 percent of our national oil consumption, imposing a cost that rises with the price of oil and increasing geopolitical instability.

Transportation in the U.S. is also responsible for 31 percent of national greenhouse gas (GHG) emissions, which are closely related to oil use. Petroleum consumption by personal vehicles accounts for 60 percent of transportation-related GHG emissions in the U.S., with an additional 20 percent coming from freight trucks.

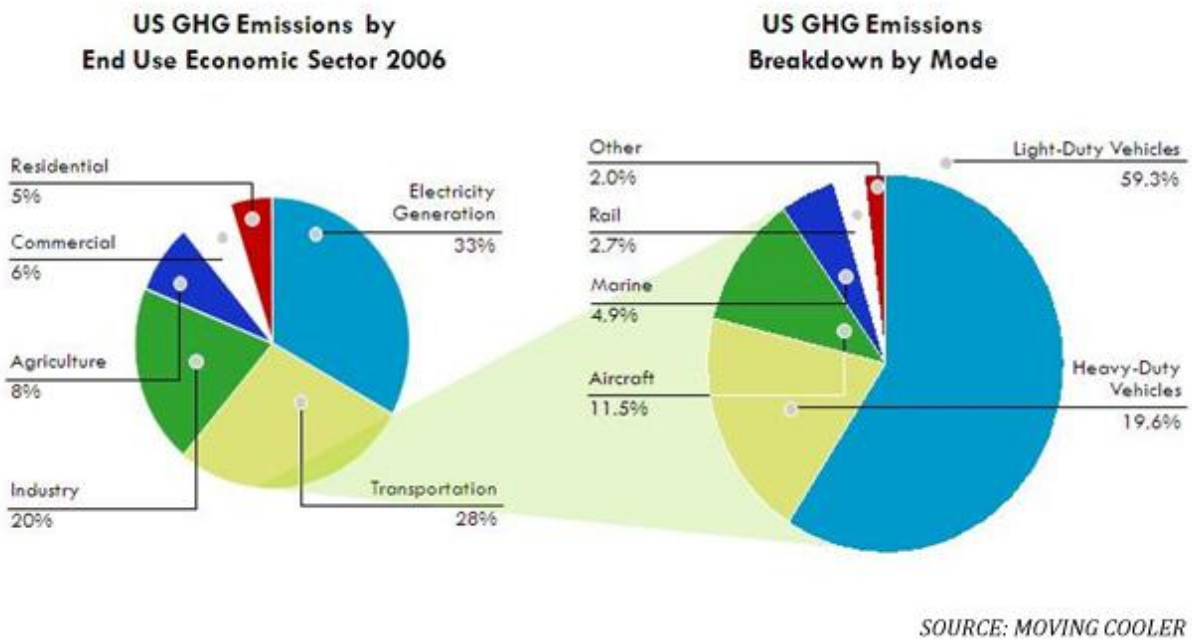


Figure 2 National greenhouse gas emissions due to a variety of factors including transportation.

Due in large part to an increase in travel demand that has outpaced population growth, transportation accounted for 47 percent of the net increase in total U.S. emissions since 1990, making it the fastest growing source of emissions through 2007. Though this trend has begun to slow as the long-increasing rate of automobile travel has declined in recent years, even considering efficiency gains in the U.S. vehicle fleet, transportation remains a large source of emissions projected to continue rising in coming decades. National vehicle travel rates are still projected to increase by 50 percent between 2005 and 2030, potentially undermining much of the oil and emissions savings achieved through vehicle efficiency and a transition to cleaner transportation fuels.

The cost of oil dependence in transportation goes beyond dealing with air and water pollution and, in the future, the impacts of climate change. In 2008, the US imported $357 billion worth of foreign crude oil, equivalent to 2.3 percent of GDP. This was a major driver of our country's massive trade deficit, accounting for 16 percent of all import spending. And every recession over the past 35 years has either been preceded by or concurrent with an oil price spike.

This cost is not only reflected in the money that travelers feed into gas pumps every day, but also in our trade deficit and petroleum supply chain. The Rand Corporation placed the

cost of patrolling oil transit routes and protecting infrastructure between $67.5 and $83 billion annually, plus an additional $8 billion in military operations.

This inefficiency need not be the case. Improvements to the transportation system that maximize environmental benefits can also yield surprising returns for the economy as well.

Location Efficiency: The Green Dividend

Reducing oil consumption allows us to reduce the total amount of GDP we spend each year on foreign sources of oil. This idea has been applied to the metropolitan area by Cortright in a concept he calls the Green Dividend. The premise of this concept is that the ability to access more opportunities - economic, as well as social and civic - and destinations with less driving increases welfare for residents in a given area.

This can be seen clearly in New York City, America's densest and most populous metropolitan region. Cortright calculated that New York's extensive public transportation network and high number of walkable and bikable neighborhoods are key contributors to greater economic well-being for residents. Very simply put, while the average New Yorker drives about 9 miles per day, the average resident in any U.S. city drives about 25. This yields about $19 billion in annual savings on vehicle costs for the residents of New York (assuming an average vehicle operating cost of 40 cents per mile).

These economic benefits are not specific to large dense areas like New York. Portland, Oregon, which is much smaller, less dense, and less urban than New York, also fared well in Cortright's analysis. Residents in the Portland area travel about 20 percent fewer miles per day then the average – equal to about 4 miles. This translates to about $1.1 billion dollars per year in savings to area travelers, or about 1.5 percent of personal income earned in Portland in 2005.

These savings are partially spent on the higher cost of housing, but it is much more likely that this consumer spending will stay in the local economy. Additional savings spent on local goods and services will bolster the local economy.

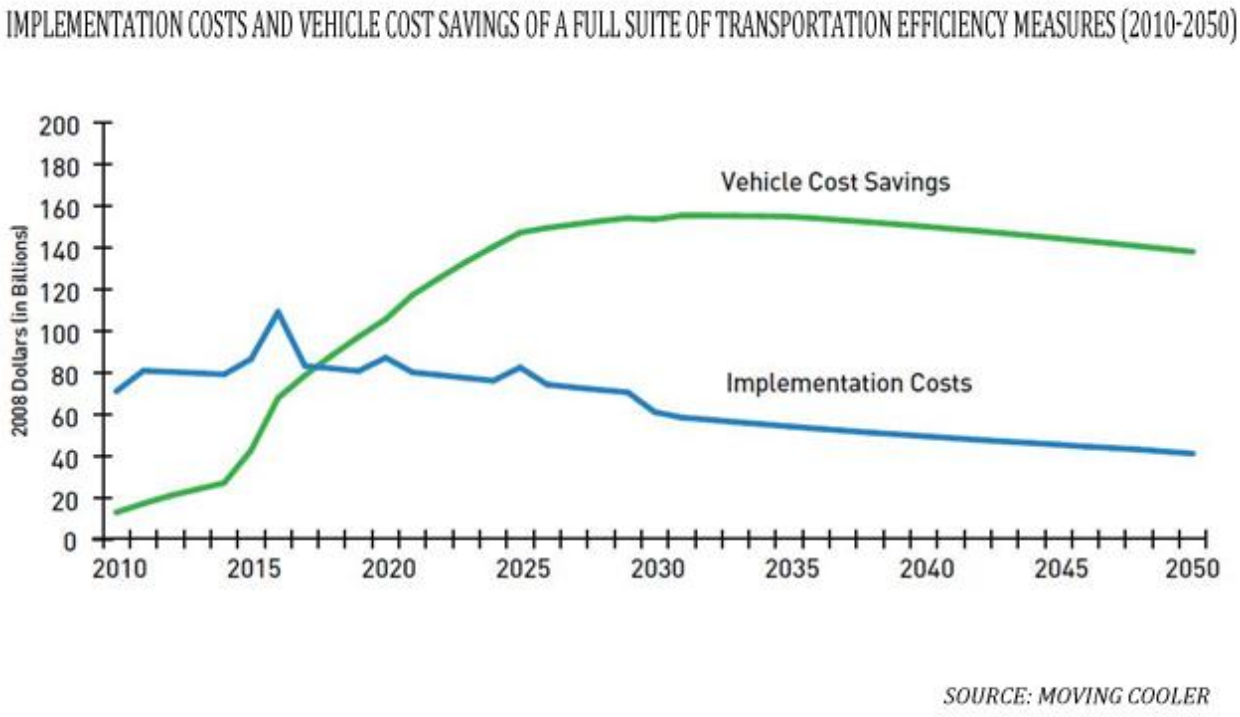


Figure 3 Implementation costs and vehicle cost savings of a full suite of transportation efficiency measures (2010-2050)

These results are not unique to cities like New York and Portland. In 2009, NRDC sponsored a landmark study of the technical potential to reduce auto use nationwide with a set of 50 transportation policy measures, entitled Moving Cooler. As part of this, we looked at the costs of implementing these measures, and the projected consumer savings as a result of their use. The results were staggering – between $2.2 and $2.8 trillion in cumulative savings over 40 years.

Location Efficiency for Businesses: Agglomeration

Households aren't the only ones to benefit from a cleaner, more efficient transportation network. There is a growing body of evidence showing that agglomeration benefits—an increase in economic productivity due to dense clusters of firms with convenient and affordable transportation and communication options—can result from investments in cleaner transportation.

Overall, such economies require fewer and shorter auto trips due to such increased connectivity, density, and diversification of destinations. Studies have shown positive correlations between economic productivity and proximity/travel time, employment density, sector size, and city size. This is likely due to the fact that transportation costs determine in part the extent of economic opportunity (e.g. employees, customers, capital services) to which a business has access.

Targeted transportation investments can expand the number of business opportunities available to a firm by reducing travel times and/or costs to access them. The economic impacts of this additional opportunity can be substantial, particularly in the service sector. A

study by economists at the Organization for Economic Cooperation and Development found that the effect of agglomeration externalities can add significant value to the overall benefits of a transportation project, on the order of 10 to 20 percent.

A similar study of Australian cities by Curtain University professor Roman Trubka found that in some cities, employment density is the best predictor of economic productivity. The authors found that in Melbourne, for example, doubling the employment density of an area of the city would result in an average productivity increase within existing job categories of more than 7 percent.

Growing Smarter, Growing Wealthier

All of these strategies to provide cleaner transportation options are synergistic. The transportation system works best where public transportation connects areas that also are walkable and bikable, with nearby roadways that are managed for efficient travel flow. Similarly, the economic benefits of investments in cleaner transportation often work together to create a whole that is greater than the sum of the parts.

The Center for Clean Air Policy (CCAP) looked at this question this year in a report entitled Growing Wealthier. The report sought to explore how investments in cleaner transportation come together at the local level to improve and sustain economic prosperity. CCAP found that, while these impacts varied widely between individual areas, examples of a variety of clear economic benefits were widespread and often significant.

A good example of this synergy can be found in Arlington County, Virginia. When the Washington-area Metro subway was first being built, Arlington chose to route the Orange Line along its main business arterial, rather than along the adjacent interstate highway, as was originally proposed. Officials zoned for mixed-use development along the new Metro corridor and other public transit lines, improved the quality of other travel choices and information, and expanded transportation demand management programs. Commercial, office, and residential development increased over the next few years and have continued decades later.

Today in Arlington, eighty-nine percent of office space and forty percent of housing units are convenient to rail transit stations. Two square miles of transit-oriented development in Arlington would have required 14 square miles of land at the regional suburban densities without viable transit. Such planning and investment in clean transportation and supporting land use and development allows 8 percent of county land to generate 33 percent of total real estate taxes, demonstrating the exceptionally high productivity of such a small area. Despite steady population and economic growth, with more people able to ride transit, bike, or walk for some of their trips, there is actually less traffic volume on many roads in the county than in there was in 1996.

Arlington County made strategic infrastructure decisions that expanded choices, mobility, access and economic development, and also minimized GHG emissions. Today, Arlington is a desirable community providing several successful commercial corridors with millions of square feet of office space and tens of thousands of residential housing options ranging from single-family homes and row houses to condos and apartments.

Transit Investment + Economic Development

City/State	Transit Investment	Resulting/Expected Development
St. Louis, MO	25-year modernization, expansion of system	$2.3 billion in business sales expected[14]
Wichita, KS	American Heritage streetcars installed	$50 billion in revenue, $15 million contributed to local economy[15]
Portland, OR	Streetcar network opened in 2001	$2.8 billion invested within two blocks of streetcars route[16]
Dallas, TX	Light rail starter line	Generated over $922 million in development[17]
Minneapolis, MN	12-mile Hiawatha light-rail line completed in 2004	5,400 new housing units under construction as of 2006[18]
California	700-mile high-speed rail line, state voters approved bonding for projects in Nov. 2008	Would help create 45,000 new jobs in San Diego, 100,000 construction jobs in the Bay Area, and save Central Valley residents $3 billion per year.[19]
Charlotte, NC	Newly built 9.6-mile light-rail line	Businesses have committed more than $1.8 billion in development[20].

SOURCE: TRANSPORTATION FOR AMERICA

Figure 4 Economic development based on transit investment.

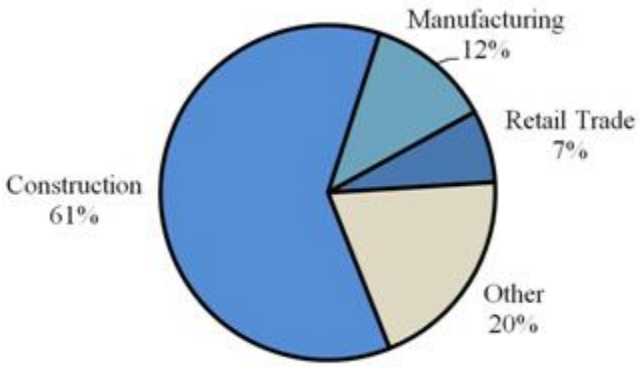
This experience is not unique. Drawing on a variety of sources, the Transportation for America coalition has surveyed additional examples from around the country (see image on right).

The Time to Invest is Now

The time could not be riper for investing in transportation infrastructure. With the national economy in the midst of a slow recovery from a deep recession, investing in transportation can help to create jobs in sectors hard hit by the downturn. Further, due to the depressed economic situation, both labor and materials cost are extremely appealing. Finally, the benefits of targeting investments in cleaner transportation would compound the overall benefit to the economy.

Investment in transportation infrastructure requires a variety of products and services, including road construction, engineering, and other professional labor, heavy equipment, fuel, tools and hardware, and goods like cement and asphalt. Due to flagging demand in many of these sectors, these inputs can be provided at a much lower cost, making infrastructure investment particularly affordable right now. For example, 21 percent of the jobs lost over the course of the recession were in the construction industry.

According to a report by the U.S. Department of the Treasury and the Council of Economic Advisors, 61 percent of the jobs created by investing in infrastructure would be in the construction sector, 12 percent would be in the manufacturing sector, and 7 percent would be in retail trade, all of which have been hard hit by the recession. Further, the report found that nearly 90 percent of the jobs created in these three sectors would be middle class jobs.



SOURCE: US TREASURY AND COUNCIL OF ECONOMIC ADVISORS

Figure 5 Percentage of jobs created by investing in transportation infrastructure.

A wide-ranging study by the Apollo Alliance found even greater potential for job growth and economic development though investing in clean transportation. The report found that an annual federal investment of $30 billion per year in public transportation and $10 billion per year in intercity passenger and high-speed rail could boost the domestic manufacturing.

The report estimates that more than 600,000 jobs could be created in the manufacturing sector alone, producing advanced buses, rail cars, and clean freight technology. More broadly, this would create 3.7 million direct and indirect jobs, double transit and rail ridership over the next two decades, and leave America with a comprehensive intercity and high-speed rail system. In addition, these investments would yield $60 billion in net annual gross domestic product, nearly $45 billion in additional worker income, and $14 billion in annual tax revenue, driving growth throughout the economy.

A Moment for Leadership

None of this potential is likely if Congress and the Obama Administration don't take the lead. The federal transportation bill that provides tens of billions of dollars in infrastructure investment has been expired since September of 2009, operating on a series of stopgap extensions. And the trust fund that provides the money for investment is broken, likely becoming insolvent between 2012 and 2013. State and local governments are in no position to pick up the slack, with competing needs of education, health, and emergency services to meet.

Fortunately, as part of the annual budget, the Obama Administration recently released a visionary proposal to invest $556 billion in transportation infrastructure over 6 years. This proposal also includes a broad set of reforms meant to direct funds toward projects that maximize economic and environmental benefits in addition to improving traffic and mobility. It is now up to Congress and the Administration to agree on such a proposal, and more importantly, find a way to pay for it. If they are successful, the investments will pay dividends for decades to come.