Transportation and Highway Users Trust Fund

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The effect on the budget will be indirect, however. Funding for state highways comes from a "Highway Users Trust Fund" separate from the General Fund. Most of its revenues come from the State's portion of the tax assessed every time a gallon of gasoline is purchase at the pump, or from the moneys appropriated by Congress to the states. Deferred maintenance and long-deferred road expansion cry out for funding and cause officials to demand money from new taxes and other sources. If instead of more funding for a broken system, however, the Governor would be able to operate this vast bureaucracy in ways that materially improve the productivity and organization, fewer new dollars would have to be generated. More intelligent use of the current stream of funds should be the objective.

Consumers of transportation may appear inconsistent. On one hand they regularly refuse to entrust more funds to government administration. Yet they are willing to pay more for mobility, speed and trip-time certainty. Although these two actions make consumers appear inconsistent, is the opposite possible? Might consumers be consistent? Do taxpayers know that more funds to government are not likely to yield benefits? Do they know an alternative paradigm is possible? Do mere citizens know what leaders have yet to recognize: A new paradigm is possible, one that can yield more benefits at less expense?

Once again, many opportunities exist for improvement, but first the State must be willing to change its thinking and approach. Bold leadership geared towards a willingness to use modern ideas will be necessary to get Colorado out of the mire of long obsolete procedures. Significant changes need to be made.

Action Recommendations

Establish a New System of Performance Measurements

1. Mandate that CDOT employ industry-wide measures of performance for all operational, maintenance, and construction activities. Insist that managers and workers use the information to improve effectiveness. Make the information available for public scrutiny. Report annually to the Senate and House Transportation Committees with comparative outcomes of other states.
2. Implement GAAP accounting.

Mandate that CDOT employ industry-wide measures of performance for all operational, maintenance, and construction activities.

Choose Projects Differently

3. Alter the make-up of the Colorado Transportation Commission with a goal to redefine its role and the process it uses to put next projects into the best priorities. To depoliticize the Commission's decisions, the legislature should establish a minimum level of benefit-cost that must be satisfied for a transportation project to go forward. Further, capital projects can be prioritized by benefit-cost to ensure maximum benefits.

Competition Improves Quality and Reduces Costs

4. Divest or outsource maintenance and operations.
5. Establish a committee of non-CDOT staff to review and approve proposals from CDOT work groups who wish to continue to perform their same work duties at a lower cost to CDOT as independent contractors.
6. Reward CDOT employees who provide efficiency-creating ideas.

Transit Contribution

7. Pass a statute requiring only transit projects that enhance mobility may be funded.
8. It is now known voters were misinformed by RTD about FASTRACKS. Because RTD cannot deliver what was promised, the legislature should prohibit RTD from incurring additional expenses until a new, more truthful FASTRACKS proposal is approved by voters.
9. Convene a grand jury or similar independent body to investigate objectively and to review the facts and conclusions presented to the public about mass transit. Hold officials accountable for purposely mischaracterizing opportunities and facts.
10. Allow RTD to compete for revenues from a Mobility Fund based on the contribution to mobility the outlay will provide. Establish the Mobility Fund using taxes currently going to RTD.

Implement Market Reforms

11. Direct CDOT to present a proposal to the legislature in one year to implement a network of HOT lanes throughout the Denver metro area to eliminate traffic congestion. The HOT lane network will be self-funding, should be implemented in no more than 10 years and may necessitate the use of a PPP to access capital and expertise external to CDOT. The new T-REX lane should be converted to a HOT lane as the first portion of a network, dedicating its revenues to conversion costs, expansion and to enhancing corridor capacity.
12. A network of dedicated lanes may be one in the same with a HOT lane network, as well as a revised Fastracks proposal. Fastracks implemented as Bus Rapid Transit (BRT) would cost less than half of the light rail / heavy rail plan and, operated jointly with HOT lanes, would offer a revenue source and economic benefits Fastracks cannot offer. The I-25 HOT lane should be converted to dynamic pricing. Dedicate its revenues first to cover conversion costs and second to corridor enhancements. Although small, it may be a potential PPP project.
13. Direct CDOT to report on the practicality of improving mobility on U.S. 287 to Texas by establishing new truck-fee-financed, truck-only lanes. Truckers must be consulted to know the feasibility and limits of multi-trailer rigs and whether the new economies would be sufficient to merit the expense.
14. Establish a trial program using transportation vouchers to grow the number of transit providers. A statute is needed to lift regulations that prohibit entry into this market. Direct CDOT's Transit Division (or State Auditor) to commission a study and report on the feasibility of implementing the Miami

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Establish a trial program using transportation vouchers to grow the number of transit providers.

decentralized transit approach in Colorado.

15. Regulations that prohibit transit competition should be loosened or eliminated. CDOT managers incapable or unwilling to implement market systems should be replaced.

Change the Way the State Finances Transportation

16. Establish the Interstate Highway Enterprise in 2011. Direct CDOT to develop a plan by 2012 to transition all Colorado Interstate Highways to IHE by 2020. Direct CDOT and the Colorado Department of Revenue to work with the E-470 Authority to come up with a method to refund gas tax to E-470 users.

Direct CDOT to develop a plan by 2012 to transition all Colorado Interstate Highways to IHE by 2020.

17. To help CDOT become more open to PPPs and to learn how to capture the benefits of PPPs for Colorado, establish a goal (requirement) that CDOT accept one PPP per year be for each of the next five years.
18. Require CDOT to rewrite its PPI guidelines incorporating best practices creating a friendlier, inviting tone by mid-2011; announce the opening of the PPP process in Colorado on the CDOT website and elsewhere.
19. The ideas of an SIB and other mechanisms of advanced financing to access billions of dollars in private capital are premature and should not be introduced to citizens until the State can demonstrate good faith efforts to improve Colorado's infrastructure by making changes to those things that impose enormous unnecessary costs.

Establish a New System of Performance Measurements

1. Performance measurements. Governments' incentives are wrong. "In government all of the incentive is in the direction of not making mistakes."[1] Costs, accounting, accountability, efficiency and effectiveness are empty terms. "At all levels of government, accounting records almost entirely ignore what assets are owned, their state of repair, and their value. These systems imply that it costs nothing to use existing assets."[2] Operated similarly, any business or family would fail. "Most governments have no idea how much it costs to deliver the services they offer."[3] Infrastructure envy impacts the reason, judgment and priorities of both elected officials and government managers, and "Public accounting reinforces the politician's natural preference for building impressive new structures."[4] Operation and maintenance (OAM) of existing facilities lack political glamour and are off the radar.

With the book ***Reinventing Government*** in hand, President Clinton and Vice President Gore declared that the "era of big government is over." Evidently, no one told the government. The book astutely called for a reformation in government. "What we need most if this revolution is to succeed, is a new framework for understanding government—a new paradigm."[5]

The call for revolution in government—for a new paradigm—was not new to the 1990s. Throughout the 1980s the National Council on Public Works Improvement[6] probed the issue thoroughly, releasing its final report (titled ***Fragile Foundations***) to Congress in 1988. Under the pressure of special interest groups' claims that the nation's infrastructure was in dire condition, immediately requiring unfathomable amounts of funding, Congress commissioned the Council. Because the Council drew a larger perspective than simply allocating the dollars suggested, those same special interest groups undertook to challenge and discredit the Council's work.

For example, the Council answered the question, "Who should pay for infrastructure?" with the simple and politically moderate reply, "… users could finance a greater share of many public works facilities."[7] The Council went on to suggest "dedicated taxes," wherein a tax is designated for a particular service (as the gas tax originally was dedicated to fund highways) and greater use of "user fees," whereby those who benefit directly from a particular service are charged a related fee.[8]

Council recommendations were as follows:[9]

- Clarification of the respective roles of the federal, state and local governments in the construction and management of infrastructure to focus responsibility and increase accountability;
- Steps to improve the performance and efficiency of existing facilities;
- A rational capital budgeting process at all levels of government;
- Strong incentives to ensure adequate maintenance and, where appropriate, adopt new technologies;
- More rigorous and widespread use of low capital techniques for delivering services and meeting service needs, such as demand management, coordinated land-use planning, and waste reduction and recycling.

Fragile Foundations continued with the following suggestions:

- Timely repairs reduce long-term operating costs and ensure the full life expectancy of existing facilities and equipment;[10]
- Public works investments should be guided by clearly stated performance objectives;[11]
- Governments should inventory the facilities they own;[12]
- Infrastructure innovation must be accelerated with more R&D;[13] and
- The nation has a shortage of technically competent personnel to meet future requirements of the public works profession.[14]

These suggestions could have been written yesterday; government reform has not progressed in at least three decades. Periodically, a clamor demands more attention and more dollars. Subsequent studies advocate market-related reforms. Special interests seeking to protect their funding object to the change. The cycle repeats with very little change in how elected officials and government managers view and perform their work. The cry for more funds will persist, and no amount of new funds is ever sufficient— until a new paradigm is envisioned and implemented. New funds (e.g., FASTER[15]) instantly are devoured with little improvement to service.

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The lack of readily available performance information and cost data suggests the need for far more performance information and transparency by CDOT. We know, for example, that during the 2009 fiscal year, CDOT maintenance employees tended more than 23,000 lane miles by repairing and maintaining more than 2.7 million square yards of roadway surface and utilized 175,106 tons of asphalt and 906,663 gallons of liquid asphalt in asphalt preservation activities. Absent from these records is the perspective of productivity.[16] Are Colorado's metrics reasonably comparable with other Western region states? How much improvement should be expected?

In cost-benefit terms, Colorado citizens paid almost a billion dollars and received the above list of services. Was it worth it? Hard to say. Cost-effective? Can't tell. Can some things be done more cost-effectively? Maybe, but there is no way to tell without better information. Numerous contacts to CDOT resulted in no more detailed performance data than is shown above. It is unknown whether detailed CDOT data exists. The fact that data could not be found raises transparency, as well as management, questions. The old way of doing things is the root of the problem. Once the political and bureaucratic worlds get out of the way, traffic congestion, transportation finance and deteriorating infrastructure will all improve.

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2. Accounting. Reliable cost information improves good management. Because government accounting does not provide useful cost information to government managers, governments are hobbled in their mission to provide the best service to the public at the lowest cost. Bureaucracies benefit from the proliferation of poor information; good management is hamstrung. When true costs are unknown, alternative methods of achieving the task are difficult to consider. Aware of the difficulty, accounting professionals established the Government Accounting Standards Board[17] (GASB) to reform government accounting. GASB generates directives that guide audits, but generally issues only one or two per year. At GASB's glacial pace of reform, a more expedient solution is needed. Government accounting should be abandoned and replaced with normal GAAP accounting (generally accepted accounting practices). Armed with better cost information, dedicated government managers not only will be empowered to become better managers but also will find and implement alternative service delivery methodologies that will bring previously unimagined efficiency to public service.

The present method for placing a dedicated tax into the Highway Users Trust Fund (HUTF) is strongly supported. Building projects and handling maintenance out of the HUTF maintains a little distance from parochial considerations or from competing with non-transportation programs, so transportation financing decisions can be isolated. Colorado should not backslide further from the dedicated tax model of the HUTF, as has occurred in recent years. Infrastructure managers observe parallel experiences in cities and counties. Those with dedicated revenues sources for transportation have better street maintenance and transportation programs with higher levels of service.

True user fees that cover direct services bring costs and benefits of service closer together and closer to consumers and at the same time further remove politics from the provision of services.

Because dedicated taxes are more effective than general taxes, it follows that user fees would further increase effectiveness. True user fees that cover direct services bring costs and benefits of service closer together and closer to consumers and at the same time further remove politics from the provision of services. That is a large figurative distance from the imposition of fees that are meant instead to relieve General Fund pressures.

As if CDOT's lack of performance measurements and transparency is not enough cause for concern, the maintenance and general budgeting process merits examination. CDOT appears to use prior year costs as a base to develop the budget for the succeeding year. Because CDOT's six regions seek funds from the same pot, each region sends a team of inspectors to another district to inspect 0.3 miles of reach road to determine the amount of work needed to bring roads to the required minimum level of service. Results are multiplied to account for the full 9,144 mile (23,000 lane-mile) CDOT responsibility. The Colorado Transportation Commission (CTC) then decides how funds are allocated among the regions. When billions of dollars in backlogged needs are claimed, it is fair to question the factual basis for the number.

The science of building prediction models for road deterioration (Pavement Management) has been around for more than 30 years. It appears much of this science has not been discovered by CDOT. Prediction models empower managers to minimize costs by knowing when less expensive maintenance can be performed to avoid more expensive maintenance later.

Choose Projects Differently

3. Modernize the way projects are selected. The Colorado Transportation Commission (CTC) was created in 1910 to remove the influence of politics from transportation decision-making. The goal was worthy, and the insight of leaders to understand the deleterious effect of politics on the efficient use of limited tax dollars was astute. The CTC consists of 11 individuals geographically distributed throughout the state who oversee the operation of CDOT, diminishing the oversight role of the General Assembly. It is time that CTC be critically reexamined and potentially restructured. CTC is inherently political; its members are appointed by the Governor. Commissioners often are former legislators, and in their selection pains are taken to sustain partisan balance implying that lack of balance would permit policy to swing. Thus, CTC may not be as apolitical as was hoped during its inception. Fair geographic distribution of limited transportation funds is important. It is even more important that full value is received for expenditures. Policy strategies should benefit the public generally, maximize mobility, and facilitate economic growth. Less political influence can be achieved by applying a minimum benefit over costs to each project assessment: simply don't fund projects with ratios below the required minimum. Colorado taxpayers have been underserved by the failure to establish rational transportation policy priorities. Irrational transportation funding priorities infer the influence of special interests politics in the process, the very thing from which the CTC was created to protect Colorado. RTD will have more internal checks and balances and greater accountability when the method of electing RTD Directors is changed. The change might be something as simple as choosing Directors in partisan elections.

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Competition Improves Quality and Reduces Costs

4. Divest or outsource. Is "privatization" a bad word? The word "privatization" is confrontational, inferring that one is not doing his job efficiently, eliciting predictably defensive reactions. Yet responsible infrastructure managers have a moral obligation to search for and implement efficiencies whenever possible. Wasting (or not using funds efficiently) taxpayer dollars should be a crime. Responsible managers have open and inquiring minds in search of alternative service delivery mechanisms. Some of the many barriers to better management are government accounting and lack of performance information, both discussed in other sections.

Two privatization tools that can bring efficiency to services are divestiture and outsourcing.[18] Each merits brief discussion.

Divestiture is best illustrated by the "yellow page" test. When the same service can be purchased by consumers from a private supplier in the phone book, government involvement in the service cannot be rationalized as a cure for market failure (as market failure has not yet occurred). Instead, government competition (meaning tax subsidized and under-regulated) threatens to perpetrate a market failure. Similarly, when governments provide yellow page services to themselves or other governments, efficiency should be doubted. The presence of politics, bureaucratic management and lack of accountability almost always makes efficiency impossible. Martin L. Gross, the famed author and government critic, claims anything governments do costs twice as much. Although empirical evidence of the half-price claim is lacking because the nature of government accounting makes it impossible to prove or disprove, Gross is probably not far off the mark. Thus, most things that fall under the yellow page subheading can likely be done for about half the price externally, even when done by the same government employees after they leave government.

HOW EXTREME IS TOO EXTREME?

Effective July 1, 2010, the City of Maywood, California, terminated every city employee, including police officers. Had leaders acted sooner, might a less extreme alternative have been possible?

Outsourcing is like divestiture, but government retains control (ownership, management and guiding parameters). As a general rule, the savings that can be captured by outsourcing are about half of divestiture savings. An excellent Colorado example of documented outsourcing benefits is RTD bus routes. In 1988 the General Assembly mandated that RTD outsource 20 percent of its bus routes. RTD dictated routes, schedule, stops, and equipment. The initial result was a cost savings of 45 percent.[19]

The fact that RTD produced indisputable dollar savings for the waste and did nothing more until additional mandates were imposed by the legislature years later reveals some of the psychology of bureaucracies and the need for elected leaders to direct change.

Table 1. RTD Outsourcing Results[20]

	Internal	Outsourced
	1979-1988	1988-1997
Bus Expenditures*	Increased 8.7%	Increased 4.3%
Bus Service	Decreased 12.6%	Increased 34.3%
*inflation adjusted		

5. Managed competition. Some governments have experimented with "managed competition," wherein work groups are allowed to bid to continue providing services. The City of Phoenix[21] was the first in 1978 to experiment with managed competition. Applied to city trash collection services, it resulted in cost reductions and newfound efficiencies.

6. Empower government workers. In addition to benefiting CDOT, management and the public, transparent performance information would benefit workers by informing them of their effectiveness and help motivate them to come forth with efficiency-generating ideas. "Government cannot achieve the same market efficiencies as business."[22] Those most familiar with government waste and in the best position to root it out are government workers. Programs should be devised that invite and reward innovative cost-saving reforms by government workers. Innumerable untapped ideas and innovations are being suffocated by the lack of a mechanism to receive, evaluate and implement them. The traditional "suggestion box" yields control and judgment to higher-ups who might be threatened by change or improvement.

Beyond simply making suggestions, a second system should be devised whereby government workers may extricate themselves.

Both government and individual workers can benefit when the individual (or work group) is allowed to remove the job function from bureaucracy and politics, establishing it as a privately-owned, taxpaying business and providing the same services to their former government employer for less cost. The main reason not to establish this system is it might threaten the bureaucratic status quo. The legislature should direct CDOT and RTD to employ systems that allow employees to offer their same services at a reduced cost.

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Transit Contribution

As expressed in CDOT's budget for fiscal year 2011, ***"The mission of the Colorado Department of Transportation is to provide the best multi-modal transportation system for Colorado that most effectively moves people, goods and information."***[23] As the population in Colorado has increased and subsequently the vehicle miles traveled (VMT) have risen, CDOT has been challenged to maintain service levels while keeping congestion levels low, roads open and safe, and a general level of mobility that "most effectively moves people, goods and information." Use of the term "multi-modal" creates a perverse anti-mobility incentive within CDOT to apply funds not necessarily to their most effective use. Offering consumers an alternative to the automobile, when rarely used, is hardly defensible when far greater mobility can be offered to far more citizens for far less money. The politicization of Colorado's transportation policy has resulted in disproportionate and wasteful outlays for transit.

Transit has an important role to play in transportation. Transit should enhance overall mobility at a minimum expense to taxpayers. Colorado's current approach to transit directs disproportionate outlays in exchange for small mobility enhancement. Serious re-evaluation and reconsideration is in order.

7. Decentralize transit. A new statute is needed to limit new transit projects only to those that will enhance mobility. Other concerns of directing where new development or redevelopment is to occur, or of reducing carbon emissions, should not be funded from the transportation pots. Mobility and traffic congestion are decentralized problems. It is impossible to solve a decentralized problem with a centralized approach. Over the years bus transit subsidies have grown from zero to 80 percent of trip costs. It is an absurdity to believe that even more centralization (light rail) will change this trend.

Do transit advocates truly care about transit? If they favor mobility by transit they would support a new vision and reform. What they advocate—the re-population of central cities–cannot work. A century ago transit was an effective mode of mobility. Americans in large numbers lived in tenements and worked in factories. As Americans grew wealthier, dependence on transit declined. As market share fell, covering costs became impossible for private transit companies. Governments stepped in to preserve the failing industry with subsidies. As the trend continued, the subsidies grew to be exorbitant. Similar to declaring that water shall run uphill, lawmakers implemented statutes declaring that subsidies were not to exceed a stated level. When they inevitably did, the limit was simply raised and raised again. Currently, most bus trips receive about 80 percent taxpayer subsidy, and rail trips are subsi-

Currently, most bus trips receive about 80 percent taxpayer subsidy, and rail trips are subsidized closer to 95 percent when capital costs are counted.

dized closer to 95 percent when capital costs are counted. Because traditional transit grew out of a time when cities were more centralized, transit remains centralized in its approach. A new vision with a decentralized design is needed.

Colorado's anti-transportation policy. Taxpayers and consumers want and deserve more mobility. Colorado's transportation policy has been so politically influenced by special interests that it might be considered outright "anti-transportation" and anti-mobility. The Denver Regional Council of Governments (DRCOG) reports for the Denver metro area between 2008 and 2011, of the $1.8 billion state and federal transportation funds for transportation "two-thirds is for transit."[24] It is now common knowledge that RTD's Fastracks 67 percent tax increase, approved in 2004, cannot construct light rail anywhere near the promised cost or deliver the promised reductions in traffic congestion. RTD is in blatant violation of its agreement, commitment and trust with voters. Normally, such violation voids a contract.

Colorado's transportation policy has been so politically influenced by special interests that it might be considered outright "anti-transportation" and anti-mobility.

8. Revisit FASTRACKS. The General Assembly should require that Fastracks be put on hold until voters re-approve the light rail expansion tax with more accurate and complete information regarding costs and realistic expectations of impact on traffic congestion disclosed to the public. RTD is a questionable steward of the public trust, and a new oversight entity will likely be needed.

With such a large share of tax dollars going to transit, one might expect transit to account for a reasonable share of mobility. Buses and light rail combined account for only 2 percent of all miles traveled, yet use 55 percent of the budget.[25] Within the transit segment, buses do the bulk of the lifting, with rail consuming the bulk of the funding and contributing a fraction of mobility.

Cost-effectiveness of transit

	Cost	Benefit = Mobility	Cost: Benefit	Cost: Benefit
Transit	55%	2%	55 to 2	27.5 to 1
All other modes	45%	98%	45 to 98	0.45 to 1

In cost-effectiveness terms, transit costs taxpayers 60 times[26] more per unit of benefit than other forms of transportation.

9. Ensure truthful claims. Citizens have come to expect less and less information and more hyperbole from campaigns, even those that deal only with ballot issues and not candidates. Elected officials have gone terribly wrong in allowing transit zealotry to cloud objective trade-offs in developing new projects. Accountability should be the watchword here. Where elected officials have intentionally misled the public, there should be remedies in place. Transit exaggerations are not limited to Colorado, as can be learned from the mistakes of others.

In May 1999 an Orange County California Grand Jury released its report investigating the decision process to build light rail, including the following findings:[27]

- Benefits were overstated;
- Of the 12 LRT systems built in various parts of the country over the prior two decades, "none can be called a success;"
- The national experience with urban LRT systems' ability to solve traffic congestion, air pollution, and related urban problems has been poor;
- The transportation authority had done "more promoting than studying;" and
- There would be a "negligible impact on traffic congestion, less effectiveness than predicted, more expense than predicted, an inflexible system, and no improvement in

commuter travel times, energy conservation, or safety."

The Grand Jury suggested that:[28]

- Measurable goals be established and published;
- Disinterested national experts be consulted for historical perspective; and
- Full disclosure be made to the public of all perceived benefits, drawbacks, costs and impacts before final approval.

In short, the Grand Jury asked the Orange County Transportation Authority to stop misleading voters. Colorado should convene a Grand Jury (or equivalent) investigation of RTD.

10. Establish a mobility fund. Voters have approved taxes for RTD to improve mobility. Mobility is defined as reducing or minimizing travel times, and as such is associated with greater economic growth, job creation and poverty alleviation. Because RTD has undertaken extravagantly expensive policies that do little for mobility, a new approach is in order. Why not do what voters were led to believe? Put the tax revenues into a mobility fund. All cities and counties, as well as RTD and CDOT, can apply to receive mobility funds. Allocation of funds would be to the projects and programs that most significantly enhance mobility.

Implement Market Solutions

Traffic congestion wastes time and money, and injures both the environment and the economy. Generally, congested traffic generates 2.5 times[29] the air emissions as free-flowing traffic.[30] The Texas Transportation Institute[31] reports annually on traffic congestion throughout the U.S. that the annual cost of traffic congestion nearly equals the amount of money needed to eliminate it. Traffic congestion in Colorado costs drivers $1.35 billion per year.[32] In the Denver metropolitan area, the annual average cost of traffic congestion is $913 per person.[33] A plan to capture these benefits and eliminate traffic congestion more fairly should assess the costs to those who benefit directly rather than taxpayers generally. HOT (high occupancy toll) lanes should be expanded strategically throughout the metro area.

11. Expand HOT lanes. Beyond the metropolitan area, additional HOT lanes are possible along I-25 to Colorado Springs and north to Fort Collins. T-REX can be converted quickly and the revenue stream capitalized to fund a HOT lane connection with the current I-25-North HOT lane. A complete network of HOT lanes eliminating all traffic congestion in the metropolitan area can be achieved before 2020.

T-REX is the I-25 widening project accomplished between 2000 and 2006. It added one traffic lane (from 3 to 4 lanes throughout) in each direction that is freely available to all motorists. The new lane should have been a HOT lane. HOT lanes are HOV (high occupancy vehicle) lanes that sell unused capacity. HOT lanes also provide a lane that is never congested. HOT lanes are never congested because the fee to travel them varies with demand. When demand is high the price goes up. Never-congested lanes provide many benefits. High occupancy vehicles can move large numbers of people. Emergency vehicles can readily reach emergencies, saving both lives and property. HOT lanes generate revenue. Had the new T-REX lane been a HOT lane, one estimate capitalizes the potential revenue stream after operating expenses ***at a value of $600 million.***[34] Not exercising this option precluded CDOT's ability to apply funds elsewhere in the system. Even though Colorado decided against securing these benefits during construction, the conversion opportunity still exists.

Had the new T-REX lane been a HOT lane, one estimate capitalizes the potential revenue stream after operating expenses at a value of $600 million.

Federal government prohibitions on innovation at the state level may be loosened when the next reauthorization passes, possibly in 2011, giving Colorado some time to prepare.

The current HOT lanes on I-25 north of Denver will be able to generate more revenue and serve more customers by installing dynamic pricing. Current pricing varies by the clock, and thus overpricing is needed as insurance against traffic congestion. This, in turn, results in under use. Dynamic pricing would allow the price to vary with demand, resulting in more use and more revenue. Net revenue ($2.5 million revenue and $1.5 million expenses)[35] after operating expenses to CDOT of $1,000,000 in 2009 would likely double.

Dynamic pricing would allow the price to vary with demand, resulting in more use and more revenue.

12. Dedicated lanes. There are many types of dedicated lanes: HOV (high occupancy vehicle), HOT (high occupancy toll) and BRT (bus rapid transit). BRT costs about half as much as light rail and can move more people more quickly. BRT is nearly 10 times more cost-effective than light rail, depending on respective ridership. Fortunately HOV, HOT and BRT are compatible. That is, all three may share a dedicated lane, increasing benefits and distributing costs. A network of dedicated lanes should be planned and implemented immediately as a key element to eliminating traffic congestion in the metro area.

13. Truck-only lanes. Trucks and automobiles are not particularly compatible. Their use of the same facilities drives up operation and maintenance costs, as well as construction costs, while reducing safety and carrying capacity. Truck traffic counts comprise about 10 percent of vehicles but consume nearly 30 percent of highway capacity. Thus, removing trucks from some highways effectively would increase capacity by 30 percent for automobiles. Trucks pay a lot in taxes and fees which, if isolated for exclusive use of trucks, might be enough revenue to construct their own truck-only lanes.[36] If current taxes and fees are not sufficient, new efficiencies could allow truckers to pay more to move more goods more quickly to market. Engineering design standards for separate automobile and truck facilities would allow both to become more cost-effective and safe. Truck-only lanes could allow major innovative changes to truck traffic management. For example, truckers capture greater economic efficiency when they pull multiple trailers. What should be the trailer-limit on the truck-only system (2, 3, 4 or more)? This question can be addressed when the new engineering standards are developed. Obviously, multi-trailer rigs will not move off their truck-only system, meaning there will be truck stops or hubs where they may break down to single trailers to go on to their final destinations. Weight limits, axle configurations and tire pressures can be changed to allow heavier loads in accordance with the new engineering standards. What economies might be captured using GPS guidance systems? The likely first candidate for this experiment in Colorado would be U.S. 287, which carries significant truck traffic to Texas.

Truck traffic counts comprise about 10 percent of vehicles but consume nearly 30 percent of highway capacity. Thus, removing trucks from some highways effectively would increase capacity by 30 percent for automobiles.

14. Transportation vouchers. Subsidies always should be used sparingly and with ongoing scrutiny, review and reconsideration. The economic rule that applies is, "Anything that is subsidized grows; anything taxed shrinks." The current model provides tax subsidies to transit bureaucracies such as RTD. The result is RTD grows to be bigger and more bureaucratic. As if the subsidies were not enough to exclude competition, RTD enjoys regulatory protections that make it illegal to compete directly. RTD subsidies (as well as regulatory protections) result in a closed market (a monopoly), erroneously called a "market failure." Taxpayer subsidies and regulatory protections have caused the transit market to fail. Rational public policy can restore the transit-mobility market.

Transit vouchers would increase the number of suppliers and increase competition, both of which always lead to better service at lower cost.

With deregulation, the problem can be remedied via transit vouchers. Rather than subsidize bureaucracy, subsidize mobility. More mobility is better than more bureaucracy. Those who need transit subsidies would get vouchers to spend like cash on any form of transportation available. Obviously, regulatory protections would need to be lifted to allow a private transit market to grow and compete. Transit vouchers would increase the number of suppliers and increase competition, both of which always lead to better service at lower cost.

15. Open transit to entrepreneurs. Deregulation is the process of allowing free entry to markets with service and price decisions but subject to appropriate safety regulations. Some regulations legitimately protect consumers. Other regulations serve to protect some businesses from competition. Regulatory protectionism benefits special interests who advocate for such regulation at the expenses of consumers. The notion that some industries are "natural monopolies" and can operate more efficiently as monopolies has been brought into question. Some natural monopolies recently deregulated include "airlines (1977), trucking (1980), railroads (1980), natural gas (1984), and long distance telephone (1984)."[37] The benefits of these deregulations, documented by the Brookings Institution, are not trivial. "The cost of service in inflation-adjusted-dollars declined 13 percent after two years, 22 percent after five years, and 40 percent after ten years."[38] Benefits to the U.S. economy are estimated at "$53.1 billion[39] per year or $200 per person."[40] A point to be taken from this example: these were private businesses and the profit motive without competition proved insufficient to motivate efficiency. When government monopoly services similarly are opened to competition, consumers reasonably should expect similar or larger magnitudes of benefits.

The General Assembly must update statutes to obtain unrealized gains from allowing the private sector to end the restrictions that prevent competition with RTD. Companies that move people are regulated by the Public Utilities Commission under the same general theory of monopoly that governs electric and gas service—an unnecessary restraint on free trade. Only safety need be ensured, and not the number of companies, number and types of vehicles, or the price structure.

The General Assembly must update statutes to obtain unrealized gains from allowing the private sector to end the restrictions that prevent competition with RTD.

The potential of decentralized transit was experienced in Miami, Florida, in 1989. Regulations that prohibited competition with government-owned buses were lifted accidentally by the Florida legislature. Within a few months 20 new firms using mini-buses existed, providing faster trip times, shorter wait times, flexibility in boarding locations and drop-off points, and availability of service in late evening. The $1.00 fare included no government subsidy. By the end of the year ridership was 25 percent of the bus system, at nearly 50,000 trips per week. Even though the mini-bus riders were primarily new transit users, the accidental legislative loophole was "corrected," putting dozens of entrepreneurs out of business and depriving a share of the transit market the use of more viable, more efficient, decentralized transit.[41]
The Miami experience occurred before GPS and current common use of cell phones, computers and the internet. Incorporation of new technologies with the

Miami experience would certainly yield a decentralized transit approach that would be inexpensive and viable to consumers.

Change the Way the State Finances Transportation

CDOT has responsibility for 9,144 miles of Colorado's 88,259 center-line miles of road. Interstate highways account for 956 miles (10.5 percent). Interstate highways generally account for one percent of center-line miles but carry about 20 percent of all traffic.

16. Establish an Interstate Highway Enterprise. The 2011 Federal reauthorization may allow more tolling of interstate highways. Colorado should create a new Interstate Highway Enterprise (IHE) that is financially self-supported via tolling. Revenue generated within a corridor must not be transferred to another corridor.

Colorado should create a new Interstate Highway Enterprise (IHE) that is financially self-supported via tolling.

Toll road authorities might achieve similar benefits at the local level. Rather than limit change to a statewide entity, this idea would create another mechanism for diminishing politics by allowing costs of services to be closer to those who benefit. Similar local government entities already have proven effective in Florida and Texas. The independent agencies are empowered by state statute to sell bonds, build roads and repay bonds out of new toll revenues.

Because the Colorado Constitution[42] requires gas tax revenue to be used for "public roads," other uses of gasoline are not subject to the HUTF (highway user trust fund) tax. The Colorado Department of Revenue has systems in place to refund tax to farmers, boaters, and manufacturers. The Colorado Constitution makes it illegal to collect gas tax from vehicles that pay a fee for use of a road. At 22 cents per gallon the gas tax is approximately equal on average to $0.01 per mile. Because IHE will use electronic toll collection, the $0.01 per mile can be refunded to users at the time of use.

The creation of IHE would reduce HUTF revenue by about 20 percent, requiring the fund sharing formula to be revised to keep city, county and CDOT revenues the same. HUTF is currently shared among CDOT, Colorado's 64 counties and 271 cities and towns by a sharing formula specified in state statute (62% state / 23% counties / 15% cities)[43]. The after-transition HUTF formula that would keep all entities whole is 52 / 29 / 19.

Colorado should set the goal of transferring all 956 miles of Interstate highways to IHE by 2020.

Colorado should set the goal of transferring all 956 miles of Interstate highways to IHE by 2020. IHE could be removed from direct oversight of CTC; instead, CDOT managers would lead the transition. Alternatively, IHE could function as a utility under the oversight of the PUC or similar new entity, to improve chances that IHE acts in the best interest of citizens. The phase-in sequence would look something like the following:

Year	Miles Transferred to IHE	Cumulative Miles
1	30	30
2	50	80
3	100	180
4	200	380
5	300	680
6	276	956

17. Public-Private Partnerships. Colorado's name for public-private partnerships (PPPs) is Public Private Initiatives. PPPs introduce opportunities to bring external talent, expertise, and resources to the table. Resources are virtually unlimited and may range from capital (as with the construction of E-470) to design-build (as with T-REX) that can shave both dollars and years from a project to operation and/or maintenance of facilities to anything or to any combination. Various other states have experimented with PPPs, but CDOT experience has been limited.

18. Open up institutional attitude. After passage of Colorado's PPI statute in 1995, CDOT authored facilitating guidelines. Unfortunately, the original guidelines were merely tolerant, and even could have been perceived as hostile or threatening. For example, CDOT can assess a "review fee" of any amount, unilaterally imposed on anyone bold enough to make a suggestion. Because many people are able to offer worthy ideas, CDOT's PPI guidelines should be simple, inviting, accessible, readily known, and rewarding to idea-generating people. The process should be easily understood and widely publicized. CDOT commissioned a study of best practices in 2001,[44] but there is no evidence that any of the study's pro-active PPI recommendations were considered and implemented or that the PPI guidelines were made friendlier. Over the years, "several unsolicited proposals have been received but none have moved forward."[45] "At times, proponents have felt CDOT to be adversarial."[46]

Because many people are able to offer worthy ideas, CDOT's PPI guidelines should be simple, inviting, accessible, readily known, and rewarding to idea-generating people.

19. Private Capital. One key finding from CDOT's 2001 best practices study[47] was that states such as Florida, Texas and Virginia were able to access billions of dollars in new private capital via transportation concessions.

The notion of an infrastructure bank exists in most states and in Colorado statute, but is non-functioning in Colorado. Functioning State Infrastructure Banks (SIBs) have proven effective in Texas, South Carolina and Missouri. Generally, they operate as any bank does, issuing loans that are repaid. SIBs pose a problem in that they can be a target for politicization of funds. Politicization, including converting loans into grants, must be avoided.

Because the Federal income tax code discriminates against privately-owned infrastructure, a SIB could be empowered with tax-exempt revenue bonds in order to level the playing field. That is, taxed bonds cost more than non-taxed government bonds by the amount of the tax rate. Thus, the cost-premium of private capital is about 30 percent higher. An infrastructure bank could provide to qualifying PPPs tax-exempt revenue bonds to finance PPP projects. A functioning infrastructure bank empowered with revenue bonds should be created as one of the pieces of a plan to invite and facilitate innovation and leadership to improve Colorado infrastructure.

Functioning State Infrastructure Banks (SIBs) have proven effective in Texas, South Carolina and Missouri.

Devolve the Federal Gas Tax

People are usually shocked to learn the Federal government does not own any highways, airports, trains, harbors or transit facilities. Centralized collection of gas tax made sense to expedite the construction of the interstate highway system, which began in 1956 and finished in 1982. Coincidently, 1982 was the genesis of the explosion of Federal earmarks using transportation funds. The Federal gas tax of 18.4 cents per gallon generates about $40 billion per year. Some of the money is used to fund other programs such as mass transit, but much of it eventually finds its way to the states two years later with expensive conditions imposed on the states.

A Colorado dollar that cycles through Washington, D.C., is worth about 70 cents[48] when it gets home. Colorado is a donor state, meaning it gets less money back than it sends to Washington. At least 33 states[49] are donor states. Devolution of the gas tax to the states would equal 4.82 cent per gallon[50] revenue windfall to Colorado, equating to about $100 million per year in money paid by Colorado taxpayers. In 2003 the Colorado General Assembly passed Senate Joint Resolution 42 by a vote of 97 to 3, asking that the Federal gas tax be devolved to the states. Arizona passed a similar resolution. Congress ignored both. If Colorado passed the same resolution every year, other states will follow Colorado's lead. With resolutions from many states, Congress eventually will be forced to act.

Colorado is a donor state, meaning it gets less money back than it sends to Washington.

In short, Colorado would benefit not only from the additional $100 million per year but also from the 30 percent (equaling nearly $150 million per year) no longer donated to other states. Greater effectiveness of the remaining $500 million per year would be gained, due to the elimination of federal mandates, time delays and diversions to earmarks and to other programs, as well as gaining the benefit of setting priorities independent of federal coercion.

Partial Devolution of the Federal Gas Tax

Partial or gradual devolution may be more likely in the short term, phasing in the devolution over a few years. There are value-creating functions that merit consolidation at the Federal level such as research and safety standard conformity (public goods, in effect, that can be done once by a federal entity rather than many times by several of the individual states).

Acknowledgements

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Wendell Cox reviewed this section for completeness and accuracy. Mr. Cox has been a visiting professor at a French national university and provided consulting assistance to the U.S. Department of Transportation and public transit authorities in Canada, Australia and New Zealand. He served as a certified expert for the Urban Mass Transportation Administration during its Public-Private Transportation Network program, the Amtrak Reform Council and three terms on the Los Angeles County Transportation Commission. He was elected chairman of both the American Public Transit Association's Planning and Policy Committee and the Governing Boards Committee. Mr. Cox is the author of scores of monographs and book chapters addressing urban sprawl and smart growth, transportation, mass transit, congestion, and demographic trends. He holds an MBA from Pepperdine University.

We extend our thanks to **Dobbs Hogoboom**. He contributed the initial research and wrote about managerial issues. Mr. Hogoboom is a 2008 graduate of Brown University with a Bachelor of Arts degree in American Civilization. He was a summer 2010 Intern at the Independence Institute, before accepting a position with the Clinton Foundation in Eastern Highlands Province, Papua New Guinea.

Randall O'Toole reviewed this section for accuracy and factual interpretation. He is a Cato Institute Senior Fellow working on urban growth, public land, and transportation issues and Director of the Independence Institute's Center for the American Dream. Among the many books he has authored is his latest, ***Gridlock: Why We're Stuck in Traffic*** and What to do about It, in which he presents a wide range of innovative ideas and policy recommendations for creating an effective transportation system. Mr. O'Toole has written numerous papers and articles, and speaks frequently about free-market environmental issues. He holds a degree in

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Bob Poole reviewed this section for content and accuracy. Mr. Poole is Director of Transportation Policy at the Reason Foundation. He produces Reason's monthly e-newsletter, Surface Transportation Innovations, and writes a monthly column on transportation policy for ***Public Works Financing***. He has advised the U.S. Department of Transportation and half a dozen state transportation departments on policy. Over the past 20 years, he has helped introduce a number of policy ideas, including long-term toll concessions, HOT lanes, and truck-only toll lanes. His research directly inspired the first state PPP law, enacted in California in 1989, that led directly to the first all-electronic toll road and the first U.S. long-term toll concession project. Mr. Poole received his B.S. and M.S. in mechanical engineering at the Massachusetts Institute of Technology.

We appreciate the tireless work of **Charles F. Riebe**. He expended extensive effort in the pursuit of performance measurement information and budgeting process of CDOT. His career included serving as a Regional Maintenance Engineer for the National Park Service and as an Assistant Superintendent for Interstate Highway Construction. Mr. Riebe is a licensed professional engineer who also owned and operated 6R Corporation, a private engineering consulting business. He holds a Bachelor of Science in Civil Engineering from Montana State University and completed graduate studies in business administration and economics at the University of Maryland.

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Appendix

Table 1. CDOT Highway Responsibility[51, 52]

Year	Highway Miles	Lane-Miles	VMT (billion)	Budget	Population
1970	9,007	20,190	8.6	Not found	2,209,596
1985	9,201	22,491	16.1	$437,819.000	3,092,065
1987	9,198	22,440	26.4	$367,166,000	3,185,747
1990	9,169	22,751	27.6	$405,840,000	3,294,394
1996	9,137	22,543	36.0	$601,472,000	3,957,160
2010	9,144*	23,000*	40.0*	$973,515,000	4,831,554*
2035	9,200*	24,000*	46.7*	Not available	6,371,593*
*estimated					

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