# Financing Strategies for Transportation and Climate Change: Synthesis
**Final Draft**

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Transportation Synthesis Reports (TSRs) are brief summaries of currently available information on topics of interest to WSDOT staff. Online and print sources may include newspaper and periodical articles, NCHRP and other TRB programs, AASHTO, the research and practices of other state DOTs and related academic and industry research. Internet hyperlinks in the TSRs are active at the time of publication, but host server changes can make them obsolete.

### Request for Synthesis:

Katy Taylor, Director, in the Public Transportation Division, requested information on financing strategies for transportation and climate change.

### Databases Searched:

Kathy Lindquist searched Google and the FTA and FHWA websites.

- TRIS Online
- Research in Progress
- Previous Synthesis Reports
- Google
- Wisconsin DOT Transportation Synthesis Reports

### Synthesis Summary:

Categories of publications and resources are as follows:

- State Funding
- Transportation Financing Related Publications
- Publications Related to Climate Change, VMT, and Smart Growth Financing Strategies

## STATE FUNDING:

**Survey of State Funding for Public Transportation—2005**
Department of Transportation—Bureau of Transportation Statistics

The following report provides a summary of state transit funding for the 50 states and the District of Columbia. Information includes funding sources and amounts, programs, eligible uses and allocation, and per capital state transit funding. The report also includes an overview of the results of transit-related state and local ballot initiatives held in 2005. The report was prepared by the Research and Innovative Technology Administration, Bureau of Transportation Statistics, Office of Survey Programs.

http://www.apta.com/research/info/online/documents/survey_of_state_funding_05.pdf

**Securing a Clean Energy Future—Greener Fuels, Greener Vehicles: a State Resource Guide**
National Governors Association, February 2008

Overcoming Barriers: State Examples *(p. 24 of PDF)*:
Governors across the country are applying one or more types of policy tools to build sustainable alternative fuel sources, infrastructure, and advanced vehicle markets. Some of these state policy actions are described below . . .

http://www.nga.org/Files/pdf/0802GREENERFUELS.PDF

**State Transit Funding**
Arizona DOT

LTAF II - Local Transportation Assistance Fund II:
In 1998, the State Legislature passed House Bill 2565 called LTAF II, to assist counties and incorporated communities in Arizona with additional transportation funds based upon a tiered distribution formula during any fiscal year. The fund initially permitted any transportation use in communities and counties outside Maricopa County, as well as those within the County under 50,000 in population. In 2000, additional legislation was passed making the use of LTAF II funds "transit use only" (public transportation sponsored by a local government entity or special needs transportation) for jurisdictions allocated more than $2,500. This legislative change also made it clearer that Indian Communities could engage in Intergovernmental Agreements with local jurisdictions receiving LTAF II allocations, in order to assist Tribal Governments with their local transit needs. Similarly, private-non-profit agencies have been permitted to apply to local jurisdictions for assistance with their transit operations, effectively making them "second-tier" grant recipients.

Over the past four years, the LTAF II has been funded by Powerball earnings which is the single determining factor funding LTAF II distributions from year to year. Prior to 2003, the Vehicle License Tax (VLT) and the General Fund were the primary contributors. In order to distribute funding in this category, the overall fund must exceed $31M annually and is capped at $18M during any FY. The FY08 collection of Powerball earnings resulted in a $11.7M FY09 LTAF II Distribution.

**Transportation Financing Opportunities for the State of California**
Mineta Transportation Institute, October 2006

The Current System of Transportation Funding in California *(p. 38 of PDF)*:
This chapter describes California's various revenue sources, including those used for transit and congestion. Applicable sources are as follows:

- **State Fuel Tax** *(p. 43 of PDF)*,
- **Federal Fuel Tax** *(p. 45 of PDF)*,
  The Mass Transit Account receives 2.86¢ per gallon from the gasoline fuel tax.
- **Tolls** *(p. 47 of PDF)*,
  Some revenues from the Bay Area Toll Authority, Golden Gate Bridge, and the I-15 HOT lanes are used to subsidize transit services, and highway and transit capital projects. In addition, the Bay Area Toll Authority administers a special $1 region-wide toll surcharge on its seven bridges that funds a wide array of congestion relief projects, including improvements to highways, local roads, and public transit.
- **Transit Fares** *(p. 49 of PDF)*,
- **Public Transportation Account** *(p. 54 of PDF)*,
  California's 1971 Transportation Development Act dedicated a portion of the sales tax revenues from fuel for public transit purposes. Today, the Public Transit Account (PTA) receives three distinct revenue streams created by the Transportation Development Act:

    - 4.75% state sales tax on diesel fuel
    - 4.75% state sales tax on half (9¢ per gallon) of the state gasoline tax
    - Funds equivalent to the revenue from a 4.75% sales tax on all goods minus a 5% sales tax on all goods except gasoline (known as spillover revenue)
- **Proposition 42** *(p. 56 of PDF)*,
  Twenty percent of the revenue from sales tax on gasoline is allocated to public transit.
- **Property Tax** *(p. 58 of PDF)*,
  For fiscal year 2003–04, direct revenues from property taxes totaled $85 million for transit agencies.
- **State Sales Tax** *(p. 61 of PDF)*,
  The 1971 Transportation Development Act, created a permanent subvention for local public transit services using a 0.25% general sales tax. Under this program, revenues are distributed back to the counties in which they were collected and deposited in the county's Local Transportation Fund (LTF).
- **Permanent Local Option Transportation Sales Tax** *(p. 63 of PDF)*,
- **Limited-Term Local Option Transportation Sales Tax** *(p. 65 of PDF)*, and
- **General Funds and Other Sources of Revenue** *(p. 66 of PDF)*.
  In 2003-4, $198 million were spent in state subsidies to transit capital projects.

http://transweb.sjsu.edu/mtiportal/research/publications/documents/06-01/TransportFinanceOpps5_020107.pdf

**State Public Mass Transportation Fund**
Indiana DOT

The Public Mass Transportation Fund (PMTF) is a state program that receives 0.635% of the state sales and use tax. These funds are allocated to public transit agencies on a calendar year basis using a performance based formula. Service area population, passenger trips, total vehicle miles, and locally derived income data are utilized to compute the formula allocations.

Awards are limited to an amount equal to 100% of the project's Locally Derived Income or the system's total allocation, which ever is less.

http://www.in.gov/indot/3563.htm

**Transit - General Information**
Missouri DOT

State funded transit operating assistance is provided to both rural and urban public transit agencies. This general revenue funded program helps to defray a portion of the costs those agencies incur in providing mobility services in their communities.

The FTA also provides formula grants to states for the Section 5310 program that targets funding for agencies serving the mobility needs of senior citizens and/or persons with disabilities. MoDOT administers the Section 5310 program as a capital program to procure and fund 80 percent of the cost of vehicles for such agencies as developmental disability resource boards (Senate Bill 40 boards), sheltered workshops, senior citizen services boards (House Bill 351 boards), and senior centers as well as not-for-profit medical service agencies.

The Missouri Elderly and Handicapped Transportation Assistance Program is a state funded program that helps defray a portion of the transportation costs incurred by agencies providing mobility services to senior citizens and persons with disabilities. Half of the annual general revenue funding in this program is allocated to the 10 Area Agency on Aging districts statewide.

The FTA provides planning funds to urbanized areas via states through the Section 5303 program. MoDOT's transit section allocates these urban transportation planning funds on a population basis to locally designated metropolitan planning organizations.

MoDOT's transit section also administers national discretionary transit capital grants specifically designated for rural recipients as well as other transit projects statewide. These federal transit

capital grants in FTA's Section 5309 grant program fund 80 percent of the cost for replacement transit vehicles, vehicles for service expansion, transit facilities, and equipment in support of transit services.

http://www.modot.org/othertransportation/transit/transitgeneralinformation.htm

**Local Aid and Economic Development**
New Jersey DOT

Overview:
The New Jersey Department of Transportation (NJDOT) is committed to advancing projects that enhance safety, renew the aging infrastructure and support new transportation opportunities. The Division of Local Aid and Economic Development staff members work with county and municipal government officials to improve the efficiency and effectiveness of the state's transportation system. The Transportation Trust Fund and Transportation Equity Act for the 21st Century (TEA-21) legislation has provided the opportunity for funding assistance to local governments for road, bridge and other transportation projects.

This web site is intended to be used as a guide by county and municipal officials and engineers to apply for Local Aid projects. It provides information on funding, applications, engineering requirements, and the procurement process.

http://www.state.nj.us/transportation/business/localaid/

Federal Aid:
The New Jersey Department of Transportation, Division of Local Aid and Economic Development, and/or the Metropolitan Planning Organizations currently administers these Federal Aid Programs:

- Local Scoping Program
- Local Lead Program
- Transportation Enhancement Program
- Transit Village
- Safe Routes to School

These programs have been created to assist local governments and in the case of the Transportation Enhancement program, non-profit organizations also, in the improvement of transportation and transportation related facilities. These programs encourage investment in those transportation projects that will yield the greatest mobility, have the least environmental impact and make the most cost-effective use of available resources.

http://www.state.nj.us/transportation/business/localaid/fedaid.shtm

**Governor Spitzer Announces $30.7 Million in Transit Funding**
New York State Executive Chamber, February 2008

Governor Eliot Spitzer today announced $30.7 million in state and federal transit funding for urban and rural public transportation systems to purchase new, clean-fuel buses and support infrastructure improvements to transit facilities. Collectively, these systems help transport more than 240 million passengers annually.

Counties, cities and Upstate regional transportation authorities in urban areas will receive $16 million in state-funded Transit Capital grants. An additional $14.7 million in federal funds will be provided to smaller public transportation systems in the state's rural areas . . .

The Transit Capital funding is being awarded to 14 municipalities and transportation authorities throughout the state. Eligible recipients include counties, cities and Upstate regional transportation authorities in urban areas. The grants are expected to help put more than 50 clean-fuel buses on New York's highways, as well as make necessary upgrades to transit facilities. The funds also contribute to a wide variety of transit needs, including ferry upgrades, facility rehabilitation and modernization and light rail improvements in Western New York.

With this $16 million in Transit Capital investment, NYSDOT now has made a total of $142 million in grants available to urban transit agencies throughout the Empire State. To date, the program has helped fund approximately 225 new clean-fuel buses across New York State and supported numerous infrastructure improvements, such as upgrades to bus garages and terminals, heating and air conditioning improvements and replacement of fuel storage tanks . . .

In addition, the $14.7 million in funding, provided from the federal Transit Administration Section 5311 program and administered by NYSDOT, will support the capital and operating needs of public transportation providers in rural counties and small cities with populations of less than 50,000.

These funds will be used to replace 185 buses, more than one-third of the total rural transit fleet in New York, with newer, clean-fuel buses. Funding will also be used to purchase or upgrade passenger shelters, bus stop signs, computer equipment and maintenance facility enhancements for 35 municipalities across the state. These grants finance 80 percent of capital costs, while the state and local governments each assume 10 percent of the balance. The $14.7 million investment of federal funds will leverage an overall $18.4 million investment.

http://www.state.ny.us/governor/press/0205081.html

**Public Transportation Division**
North Carolina DOT

Programs and Funding:
North Carolina's state funding comes primarily from motor fuel taxes and highway use taxes.

NCDOT's Public Transportation Division is expected to administer $73 million in state funds and $36 million in federal funds in the fiscal year ending June 2008.

The Financial Management Unit administers the state and federal funds channeled to NCDOT for public transit. In fiscal year 2007, the unit oversaw 177 separate contracts to the state's 100-plus urban, community and regional transportation systems.

For information on grant programs at work in North Carolina Click Here.

http://www.ncdot.org/transit/nctransit/#programs

**Special Transportation Fund**
Oregon DOT

The State's Special Transportation Fund Program provides financial support to designated counties, transit districts and Indian tribal governments for special transportation services benefiting seniors and people with disabilities. The majority of the STF money (75%) is allocated on a population-based formula. The remaining funds are distributed by the Public Transportation Discretionary Grant Program.

http://www.oregon.gov/ODOT/PT/PROGRAMS/stf_program.shtml

**Public Transportation Home: Program Descriptions: Brief Program Descriptions**
PennDOT

This Web page provides brief descriptions of available funding for local transit assistance programs:

- Urban Transit Operating Assistance Program
- Rural Public Transportation Program
- Rural Transportation Program for Persons with Disabilities (PwD)
- Transit Capital Assistance Program
- Transit Capital Assistance for Purchase of Accessible Small Transit Vehicles
- Intercity Bus Assistance Program
- Intercity Rail Passenger Program

- Free Transit Program for Senior Citizens
- Shared-Ride Program for Senior Citizens
- Community Transportation Capital Equipment
- Welfare to work (w2w) Transportation Demonstration Program
- Transit Research & Demonstration Program

http://www.dot.state.pa.us/Internet/Bureaus/pdBPT.nsf/TransHomepage?openFrameset

Lottery Transportation and Specialized Programs, Introduction:
The Lottery Transportation and Specialized Programs Division is responsible for the administration of: Lottery funded programs on fixed route and shared-ride transportation which make public transportation affordable for senior citizens 65 and older; the Community Transportation Capital Equipment grant program which supports the capital needs of shared-ride systems; the welfare to work Transportation Program using a combination of federal and state funds; and the Rural Transportation Program for Persons with Disabilities. This division is also responsible for the auditing, and the internal operations budgeting functions on a Bureau-wide basis.

ftp://ftp.dot.state.pa.us/public/Bureaus/PublicTransportation/catalog/IntroductionLottery.doc

Urban Transit Division, Introduction:
The Bureau of Public Transportation's Urban Transit Division is headed by the Division Chief and includes both a Capital Grants/Transit Safety Section and an Operating Grants/Section 5310 Section . . .

Urban Transit Division's Capital Grants/Transit Safety Section . . . is responsible for the coordination of the Bureau's activities for TEA-21 federal highway funds flexed for transit assistance . . .

The Capital Grant/Safety Section is responsible for the Bureau's involvement in both FTA's State Rail Transit Safety Oversight Program (SRTSOP) and the Department's Electric Vehicle Inspection Program. The former safety program was originally authorized under ISTEA, and is applicable to urban transit systems which operate heavy rail vehicles (e.g. subway/elevated service); light rail vehicles (e.g. streetcars or trolleys) and inclined planes. Since the Federal Railroad Administration (FRA) is responsible for the safety oversight of commuter rail service, this activity is not included in the SRTSOP . . .

The Bureau's Operating Grants/Section 5310 Section . . . administers the federal Section 5310 capital equipment program for private non-profit agencies and selected public agencies. Although this program does not involve any State financial resources, the Bureau administers this program as a service to FTA, and is reimbursed by FTA for performing this important activity. The Federal Transit Administration annually provides uniform national program guidelines which are utilized by the Bureau for administering these federal funds.

ftp://ftp.dot.state.pa.us/public/Bureaus/PublicTransportation/catalog/catalogurbanchapter1.doc

Rural and Intercity Transit Division, Introduction:
The Rural and Intercity Bus Programs work unit is responsible for the administration of: Rural Operating, Capital and Technical Assistance Programs; Intercity Bus Operating, Capital and Technical Assistance Programs, the Rural Transportation Assistance Program (RTAP) under which, through a grant with PPTA, we administer the PennTRAIN Program. This work unit is also responsible for the administration of the Federal Transit Administration's Section 5311 annual grant.

ftp://ftp.dot.state.pa.us/public/Bureaus/PublicTransportation/catalog/IntroductionRural.doc

## TRANSPORTATION FINANCING RELATED PUBLICATIONS:

**State Policy Options for Funding Transportation, Issue Brief**
National Governors Association, February 2007

The federal-state partnership in transportation finance is entering a period of transition. In the future, states may bear more responsibility for funding transportation systems. While the states and other stakeholders continue to work to determine the appropriate federal role in transportation finance, states can use new financing tools, as well as federal policies allowing (and even encouraging) states to impose tolls on federal-aid highways and bridges to meet some of their transportation finance needs. These new financing tools and tolling strategies can help manage highway capacity, fight congestion, and improve total system performance. In addition, a variety of demand-side strategies are available to help states reduce their financing needs by diffusing demand across the entire transportation network, taking trips off congested facilities, and managing transportation for a broader array of societal outcomes.

http://www.nga.org/Files/pdf/0702TRANSPORTATION.PDF

**Financing Needs and Next Steps: New Haven-Hartford-Springfield Commuter Rail Implementation Study, Final Report, Chapter 8**
Connecticut Department of Transportation and Wilbur Smith Associates, June 2005

Section 8.4, Funding Plan *(p. 5 of PDF)*:
This section provides a summary of available federal funding for transit projects, particularly rail. Sources described are as follows:

- *page 6 of PDF*: Section 5307 Urbanized Area Formula Program
  Section 5309 New Start Program
- *page 7 of PDF*: Section 5311 Non-Urbanized Area Formula Program
- *page 8 of PDF*: Surface Transportation Program (STP)
  Congestion Mitigation and Air Quality Improvement Program (CMAQ)
  Railroad Rehabilitation and Improvement Financing (RRIF) Program
- *page 9 of PDF*: Section 130 Grade Crossing Program
  Job Access and Reverse Commute Grants
  TIFIA Financing
  DMU Demonstration Grant

http://www.ct.gov/dotinfo/lib/dotinfo/nhr/docs/final/NHHS_Rail_-_Final_-_Ch8.pdf

**Options for Making Concurrency More Multimodal**
Mark Hallenbeck, Dan Carlson, Keith Ganey, Anne Vernez Moudon, Luc de Montigny, and Ruth Steiner, December 2006

Strategy D: Provide and Fund Transit and HOV Systems *(p. 50 of PDF)*:
This section provides three funding strategies for concurrency, the policy of creating infrastructure in pace with development.

http://depts.washington.edu/trac/bulkdisk/pdf/ConcurrencyOptions.pdf

**Tolling and Pricing Program**
FHWA Web site

This site is intended to provide information about the tolling and pricing programs and provisions available under Title 23 of the United States Code (23 U.S.C.), following enactment of Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), and to invite Expressions of Interest from States and/or other public entities. This site contains information on "getting started" by submitting an Expression of Interest for the available tolling authority. An agency can download an Expression of Interest template through this web page, complete it, and re-submit it electronically via e-mail. This site also provides key contacts and links to resources related to tolling and pricing that can be used to support an initiative. Through

this site, agencies can understand the tolling and pricing opportunities that now exist and can communicate with the Federal Highway Administration (FHWA) in order to assist them in effectively meeting their desired goal(s) for applying for tolling and pricing authority or funding.

Current Programs

- Value Pricing Pilot Program
- Express Lanes Demonstration Program
- HOV Facilities
- Interstate System Reconstruction & Rehabilitation Pilot Program
- Interstate System Construction Toll Pilot Program
- Title 23 United States Code Section 129 Toll Agreements
- Toll Credit for Non-Federal Share, Section 1905 of SAFETEA-LU

http://ops.fhwa.dot.gov/tolling_pricing/index.htm

**Long-Term Transportation Financing Study, Final Report**
Cambridge Systematics and Mercator Advisors, January 2007, prepared for the State of Washington Joint Transportation Committee

The study addresses five topics related to existing and new methods for funding and financing statewide transportation needs. The topics are organized into five sections of the report:

- Section 1.0: Motor Fuel Tax Viability – Compares of Washington State's dependence on fuel taxes with that of other states, the impacts of the State's fuel price fluctuations on revenue, and the forecasted impacts of hybrid and alternative fuel vehicles.
- Section 2.0: Alternative and Emerging Revenue Sources – Provides an evaluation of alternative and emerging transportation funding efforts throughout the country and internationally, including vehicle travel pricing and tolling innovation, concession and/or private development of transportation facility improvements, and other funding sources.
- Section 3.0: Debt Financing Trends and Implications – Evaluates trends and long-term implications of applying debt financing to complete transportation projects, including both conventional and non-traditional approaches.
- Section 4.0: Evaluation of State-Distributed Transportation Funds – Reviews the approaches used by other states to distribute funds to local governments for transportation purposes, such as direct distribution of funds by formula and project grants subject to particular eligibility criteria and priorities.
- Section 5.0: Recommendations – Presents recommendations for maintaining the medium- and long-term viability of the State's funding portfolio.

http://www1.leg.wa.gov/documents/LTC/jtc/Transportation%20Financing%20Study%20Jan%2007.pdf

**Proposed Task Plan for Creating a Viable Transportation Funding System**
Mark Hallenbeck, Washington State Transportation Center (TRAC), Research Proposal to WSDOT, Proposal Available (Project cancelled—work completed as part of *Long-Term Transportation Financing Study)*

The Washington State Transportation Center at the University of Washington (TRAC-UW) is pleased to submit this pre-proposal in response to the Washington State Department of Transportation's problem statement to examine alternatives for creating a viable long-term transportation funding system. This short submission describes TRAC-UW's current thinking on the tasks needed to complete the project.

The purpose of the research was:

i. to determine the feasibility of revenue options to offset a possible decline in gasoline tax revenues;
ii. to develop and employ future scenarios for transportation funding to assist in determining the relative merits of those revenue options;

iii. to determine the administrative requirements of collecting revenue from these options, and
iv. to screen the alternative options through the filter of technical, social, and political feasibility.

**Washington State Tolling Studies-WA State Transportation Commission**

The 2007 Legislature directed the Commission to do a second phase of the tolling study aimed at providing more detail on possible tolling project candidates statewide. Study is on the Commission's website with all the related tolling studies.

http://www.wstc.wa.gov/tolling/

**Oregon Road User Fee Task Force**
March 2006

In 2001 the Oregon State Legislature approved House Bill 3946, legislation that directed the Governor, Senate President and Speaker of the House to form a 12 member Road User Fee Task Force ("Task Force") with the charge to design a revenue collection strategy that can effectively replace the fuels tax in order to provide a long-term, stable source of funding for maintenance and improvement of Oregon's road system. The Task Force consists of legislators, city, and county elected officials, members of the Oregon Transportation Commission, representatives of highway users, and a representative of the research community. The legislation also requires the Oregon Department of Transportation (ODOT) to staff the Task Force and to develop, design, implement and evaluate pilot programs to test fuels tax alternatives identified by the Task Force.

http://www.oregon.gov/ODOT/HWY/OIPP/ruftf_reports.shtml

**The Economic Effects of Recent Increases in Energy Prices**

The U.S. Congressional Budget Office has released a report that explores developments in the oil and natural gas markets since 2003, the economic effects of higher oil and natural gas prices, and some of the reasons for the less than expected effects of oil and natural gas prices on the economy.

http://trb.org/news/blurb_detail.asp?id=6550

**Innovative Public-Private Partnership Models for Road Pricing/BRT Initiatives**
Patrick DeCorla-Souza, Federal Highway Administration William G. Barker, Urban Transportation Consultant

This article presents alternative concepts for serving commuter travel demand in major metropolitan areas with a system of priced expressways integrated with Bus Rapid Transit (BRT), and presents potential new models for setting up public-private partnerships (PPP) to finance, implement, and operate the system. These new models may make possible the self-financing of new BRT services and facilitate efficient provision of multimodal transportation services. The PPP model for expressway operation uses shadow tolls to compensate private partners, while at the same time charging motorists market-based tolls to ensure free-flowing traffic conditions and to provide a fast, reliable running way for BRT. Revenues from tolls charged to users may be used to pay contractual obligations to private partners for highway operations, toll collection, and BRT services. To encourage efficient and effective provision of transit, high-occupancy vehicle (HOV, and park-and-ride/pool services, private partners may be compensated for provision of transit services and HOV promotion using shadow fee payments based on the number of commuters served.

http://www.nctr.usf.edu/jpt/pdf/JPT%208-1%20DeCorla.pdf

**How Do We Get There from Here: A Transportation Strategy for the Puget Sound Region**

Cascadia Center

There is no consensus about the causes of, or solutions to, the region's transportation problems; about the basis for apparent popular distrust of government and nominal leaders in business, labor and the media; about the proper balance between roads and transit; about which mix of transit modes is preferable; about the best funding mechanisms for dealing with the transportation future; or even about the optimal governmental structures to address the subject. Geographic competition is keen and cooperation is strained along Introduction political fault lines that are urban/suburban, Seattle/ Eastside, state/counties, and among the counties themselves (King/Pierce/Snohomish/Kitsap).

http://www.discovery.org/cascadia/transportationReport/cascadiaReport.pdf

**Review and Synthesis of Road-Use Metering and Charging Systems**
Paul A. Sorensen and Brian D. Taylor, UCLA Institute of Transportation Studies, 2005, Report Commissioned by the Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation Finance

The Transportation Research Board convened a special Committee for the *Study of the Long-Term Viability of Fuel Taxes for Transportation Finance*. One of the many charges to the committee was to investigate the potential for a system of distance-based user fees [using recently developed electronic tolling technologies such as on-board computers, Global Positioning Systems (GPS), digital jurisdiction and road network maps, and wireless communications] to eventually replace fuels taxes in the world have such innovative systems been proposed, planned, or developed? Second, how have these projects and proposals been structured in terms of technical design, institutional, Road Use Metering and Charging Systems issues, and political considerations? Third, what is the current status of the projects and proposals, and what factors have aided or impeded their implementation?

http://onlinepubs.trb.org/Onlinepubs/news/university/SRFuelTaxRoad-MeterPaper.pdf

**Third-Party Financing of Federal Projects: A series of issue summaries from the Congressional Budget Office**
June 1, 2005

Third-Party Financing of Federal Projects Budgetary pressures have spawned a new approach to financing federal projects. Rather than relying on regular appropriations or other traditional forms of federal financing, agencies have arranged for private parties to fund various infrastructure projects, such as housing on military bases, government office buildings, and electric power facilities. Agencies have been able to arrange such financing by making long-term commitments, either explicit or implicit, to use the resulting facilities (or related services, such as electric power).

http://www.cbo.gov/ftpdocs/63xx/doc6399/06-01-thirdpartyfinancing_brief.pdf

**Funding and Financing Our Surface Transportation System**
American Society of Civil Engineers, June 2, 2008

The American Society of Civil Engineers appreciates the opportunity to comment on the interim report of the National Surface Transportation Infrastructure Financing Commission, "The Path Forward: Funding and Financing Our Surface Transportation System."

http://financecommission.dot.gov/Documents/Interim%20Comments/ASCE%20comments.doc

**TRB Special Report 285: The Fuel Tax and Alternatives for Transportation Funding**
TRB, 2006

TRB Special Report 285: The Fuel Tax and Alternatives for Transportation Funding examines the viability of existing revenue sources, the merits of present transportation finance arrangements, and potential directions for reform of transportation finance. According to the report, fuel taxes can remain the primary funding source for the nation's highways for at least another decade, but

eventually replacing them with a system for metering road use and charging accordingly could benefit travelers and the public. In addition, the committee that developed the report suggests that while the current funding system helps maintain existing highways and build new ones and ensures that users pay most of these costs, it does not help transportation agencies alleviate congestion or target investment in the most valuable projects.

http://www.trb.org/news/blurb_detail.asp?id=5810

**NCHRP Future Financing Options to Meet Highway and Transit Needs, Web-Only Document 102**
Cambridge Systematics, Mercator Advisors, Alan E. Pisarski, and Martin Wachs, December 2006

Executive Summary:
The objective of this project is to present options for all levels of government to close the nation's highway and transit investment deficits on a sustainable basis. The study was conducted in three phases.

- Phase 1 estimated the needs and revenues available at all levels of government from 2007 to 2017;
- Phase 2 examined existing and emerging revenue options; and
- Phase 3 demonstrated potential portfolios of funding options.

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_w102.pdf

**2010 and Beyond: A Vision of America's Transportation Future for the Hudson Institute**
Hudson Institute, 2004

In this book which emanated from what is arguably the most comprehensive study of transportation in a generation, the Hudson Institute calls for revolutionary changes in the financing, technology, and management of the nation's surface transportation system. This study contends that changes are essential if the American economy is to progress without major impediments.

http://www.camsys.com/pubs/2010%20and%20Beyond_Foreward_PolicyRec.pdf

**Future Highway and Public Transportation Finance Phase I: Current Outlook and Short-Term Solutions**
Cambridge Systematics, Mercator Advisors, and Alan E. Pisarski, May 2005, for the National Chamber Foundation

The two-phased study*, Future Highway and Public Transportation Finance* study, commissioned by the U.S. Chamber of Commerce through the National Chamber Foundation, is to identify short-term funding for the period 2005 through 2015, starting with the reauthorization of the funding mechanisms to meet national highway and transit investment needs. Phase I focuses on Transportation Equity Act for the 21st Century (TEA 21). It examines Federal options that would increase Federal Highway Trust Fund (HTF) revenues, and options that could enable and stimulate greater investment by states, local government, and the private sector.

http://www.uschamber.com/publications/reports/050518_transportation.htm

**Innovative Finance Quarterly Newsletter for the FHWA**
FHWA, Winter 2007, Volume 13, Number 1

This is a quarterly newsletter that provides a summary of current activities using innovative financing sources.

http://www.fhwa.dot.gov/innovativefinance/ifqwintr07.pdf

**The Third National Report on Commuting Patterns and Trends Transportation Research Board—U.S. Academy of Sciences**
Panos D. Prevedouros, November 2006

*Commuting in America III* provides a snapshot view of commuting patterns and trends derived principally from an analysis of the 2000 decennial U.S. Census and will be a valuable resource for those interested in public policy, planning, research, and education. This is the third report in this series authored by Alan E. Pisarski, transportation consultant, over the last 20 years. His first two reports were published in 1987 and 1996.

http://www.hhua.org/Commuting_in_America_III_panos_v6-ci.pdf

**Cambridge Systematics Transportation Finance**
Cambridge Systematics Website article

Recent research has documented the shortfalls in transportation revenue and investment, and identified and evaluated options to increase revenue for transportation programs. The options cover conventional and innovative ways to generate revenues, and options for both the short term and the long term. The options include raising and indexing fuel and vehicle taxes, hiking transit fees, introducing mileage-based or vehicle-mile user fees, adopting local-option sales taxes, applying impact and development fees, adding sales taxes, increasing property taxes, and using more of the general revenue to pay for transportation programs. The options also include introducing tolling to fund projects, using road pricing to manage demand, and expanding opportunities for public-private partnerships that attract private capital for investment in transportation facilities. The research showed that the funding shortfalls are large enough that a single option will not suffice; packages of funding options will be required. The research described successful examples of state and local application of these options. The keys to their success have been building consensus on needed action; developing specific plans and investment requirements; identifying appropriate roles and responsibilities for Federal, state, and local governments and the private sector; clearly describing revenue sources and rationales; fielding well thought out public education campaigns; sustaining leadership for the initiatives; and working to a clear timetable for action. The research concluded that action at all levels of government will be necessary to fill the transportation funding gap that is threatening our economic competitiveness, personal mobility, and quality of life.

http://www.camsys.com/kb_hotissue_finance.htm

**Public-Private Partnerships Reach Record Levels**
The Trucker News Services, July 2008

A new DOT report found that the use of public-private partnerships is increasing at record pace due to their proven track-record of relieving congestion and encouraging infrastructure development.

http://www.thetrucker.com/News/Stories/2008/7/23/DOTPublic-privatepartnershipsreachrecordlevels.aspx

The related USDOT Report:
**Innovation Wave: An Update on the Burgeoning Private Sector Role in U. S. Highway and Transit Infrastructure**
USDOT, July 18, 2008

This report describes the unprecedented use of PPPs by state and local transportation authorities over the last three years and provides an update of USDOT's 2004 Report to Congress on PPPs (the "2004 Report"). The primary purposes of this report are: (i) to explore the growing use of PPPs by state and local transportation authorities, and (ii) to identify the advantages and

disadvantages of PPPs as an alternative to traditional approaches to transportation funding and procurement.

http://www.fhwa.dot.gov/ppp/dotpppreport071808.doc

**Financing Transportation in the 21st Century - An Intergovernmental Perspective**

National Association of County Government (NACO), March 2008

The report contains six recommendations and describes the roles and responsibilities of the governments and other entities that support the nation's highway and transit systems. These systems include nearly four-million miles of roads and highways, nearly 600,000 bridges, almost 178,000 transit vehicles, approximately 11,000 miles of transit track-miles, and nearly 3,000 transit stations.

The gap between America's surface transportation needs and the financial resources required to bridge them is large, immediate and long-term, according to a report released by state and local government groups. All levels of government must work together to set system-performance goals and provide the financial means to meet those goals, the report concluded. The full report is available at http://www.naco.org under Issues and Interest Areas / Issues /Transportation.

## PUBLICATIONS RELATED TO CLIMATE CHANGE, VMT, AND SMART GROWTH FINANCING STRATEGIES:

**Transportation Financing: Vehicle Miles Traveled (VMT) Assessment and Measurement: A Critical Review and Evaluation of Alternative Revenue Sources**

Reza Nevai, July 2007, California Department of Transportation, Source Notes: This document consists of two reports: Transportation Pricing: Vehicle Miles Traveled (VMT) Assessment and Measurement: Executive Summary, and 2) Transportation Financing: Vehicle Miles Traveled (VMT) Assessment and Measurement: A Critical Review and Evaluation of Alternative Revenue Sources: White Paper

*Abstract*: This study provides a framework for the analysis and evaluation of transportation pricing, and in particular, vehicle miles traveled (VMT). It presents a critical analysis of transportation pricing issues and develops a realistic notion of market-based measures. The study evaluates transportation revenues and financing reform using different transportation sensitive criteria and strategic scenarios, along with the application of the VMT method. A framework is used to evaluate alternative revenue sources and provide an assessment in terms of adequacy and stability. Options are given that are available for reforming the existing financing system. Recommendations are presented underlining the packaging of potential new revenue sources and improvement measures.

**Economic Development and Smart Growth: Eight Case Studies on the Connections between Smart Growth Development and Jobs, Wealth, and Quality of Life in Communities**

August 2006

Economic development success and smart growth can go hand-in-hand. IEDC's Economic Development and Smart Growth presents eight case studies on communities that incorporated smart growth principles in their development projects and have experienced economic development improvements in the form of increased tax revenue, more jobs, higher income levels, downtown revitalization, business growth, and other indicators of economic success.

The case studies range from the use of transit-oriented development in Portland, Oregon, where light rail has sparked $3 billion in new development, to commercial corridor revitalization in Pittsburgh, Pennsylvania where it has nearly doubled the per capita income in the south side of the city. IEDC's case-based research provides direction for local government officials, economic development professionals, and all those concerned with the future of their communities.

http://www.iedconline.org/Downloads/Smart_Growth.pdf

**TRB Special Report 290: The Impact of Climate Change on Transportation**
The National Academies, 2008

Climate change will have significant impacts on transportation, affecting the way U.S. transportation professionals plan, design, construct, operate, and maintain infrastructure. Decisions taken today, particularly those related to the redesign and retrofitting of existing or the location and design of new transportation infrastructure, will affect how well the system adapts to climate change far into the future. Focusing on the problem now should help avoid costly future investments and disruptions to operations. The primary objective of this report is to provide guidance for transportation decision makers on how best to proceed.

http://onlinepubs.trb.org/onlinepubs/sr/sr290.pdf

**B.C.'s Revenue-Neutral Carbon Tax**

*Excerpt*: On July 1, 2008, subject to approval by the legislature, British Columbia will begin to phase in a fully revenue-neutral carbon tax with built-in protection for lower income British Columbians.

The purpose of the carbon tax is to encourage individuals and businesses to make more environmentally responsible choices, reducing their use of fossil fuels and related emissions. The tax has the advantage of providing an incentive without favoring one way to reduce emissions over another. Business and individuals can choose to avoid it by reducing usage, increasing efficiency, changing fuels, adopting new technology or any combination of these approaches.

http://www.bcbudget.gov.bc.ca/2008/backgrounders/backgrounder_carbon_tax.htm

**Road Pricing: Different payment for mobility**
Dutch Ministry of Transport and Water Management

At the end of November 2007, the Dutch cabinet decided to introduce a road payment system based on a kilometre charge. The first road users will be confronted with the kilometre charge in 2011, with the entire system being operational by 2016. This site contains background information on the introduction of the kilometre charge.

Paying per kilometer:
In the near future you will pay for the use rather than the possession of a car. The road tax (MRB) and the vehicle purchase tax (BPM) will be phased out and road users will pay per kilometre driven. Motorists who use the car infrequently will pay less, whereas those who drive regularly will pay more. In addition, cars that cause more pollution will be more expensive than cleaner cars and driving in off-peak periods and on quiet roads will be cheaper than driving on busy roads in the rush hour. The revenue from the kilometre charge system will be paid directly into the infrastructure fund. This will be used to finance the construction, management and maintenance of roads, bridges and viaducts . . .

http://www.verkeerenwaterstaat.nl/english/topics/mobility_and_accessibility/roadpricing/index.aspx

**Road Pricing Project Descriptions**
FHWA Office of Policy and Governmental Affairs

This Web site provides case studies under the following headings:

- Converting HOV Lanes to HOT Lanes (Category A-1),
- Cordon Tolls (Category A-2),
- FAIR Lanes (Category A-3),
- New Priced Lanes (Category B),
- Pricing on Toll Facilities (Category C),
- Usage-Based Vehicle Charges (Category D-1),

- "Cash Out" Strategies (Category D-2), and
- Regional Pricing Initiatives.

http://www.fhwa.dot.gov/policy/otps/projdesc.htm

**Congestion and variable user charging as an effective travel demand management instrument**

D. Hensher and S.M. Puckett, August 2007, *Transportation Research Part A 41*(7): 615-626, ISSN: 0965-8564

*Abstract*: Interest at the political level in congestion charging is gaining pace as cities struggle with ways to reduce the effects of growing traffic congestion on the liveability of cities. Despite a long history of promotion of a wide array of travel demand management (TDM) initiatives, very few have had a noticeable impact on the levels of traffic on the road networks of metropolitan areas. TDM success in this context has almost become a band-aid in the absence of a pricing strategy that not only promotes efficient use of the system but also hypothecates revenues to support essential complementary infrastructure and services such as public transport. This paper takes a look at the stream of pricing consciousness that is surfacing around the world. Although very few jurisdictions have implemented congestion charging, or any form of efficient variable car and truck user charging, the winds of change are well in place. The adage "it is not a matter of if but of when" seems to be the prevailing view. Our overview of global trends in positioning the debate and hopefully follow-through commitment to implementation provides a backdrop to papers submitted for this special issue on travel demand management. The predominance of papers on pricing is indicative of the priority that must be given to efficient charging and revenue disbursement.

**The road pricing proposal for Tokyo—its development and major issues**

K. Ohta, 2001, *World Congress on Intelligent Transport Systems, 8th*, Sydney, New South Wales, Australia

*Abstract*: Road Pricing is a measure of traffic access restraint with economic incentive. Facing deteriorating traffic congestion and air pollution, TMG (Tokyo Metropolitan Government) has introduced several TDM (Transportation Demand Management) measures to reduce traffic volumes especially in the central area of Tokyo. Pollution by nitrogen oxides and particulates is of increasing concern and control of traffic and especially older diesel lorries is considered important. An outline of proposed road pricing schemes is outlined. It is planned to charge both cars and lorries. Charges are set to reduce traffic and improve air quality, but the lorry charge is reduced for economic reasons. A cordon pricing system is proposed from 0700 to 1900h on weekdays. A camera identification system is proposed. The effects and impacts of the road pricing scheme are simulated and the implementation of the scheme is discussed.

**California Puts on the Brakes**
Adam Millard-Ball, March 2007, *Planning*

Some results of Caltrans' Climate Action Program:

- New tailpipe standards for cars and light trucks are a centerpiece of [California's] transportation efforts. Regulations drawn up by the state Air Resources Board in the wake of legislation drafted by former state assembly member Fran Pavley require a 30 percent reduction in greenhouse gas tailpipe emissions by 2016 . . .
- But the regulations are currently in limbo thanks to a legal challenge by the auto industry. Car makers claim that the tailpipe regulations are a surrogate for fuel economy standards, which may be set only by the federal government. (p. 1)
- A "clean car discount" or "feebate" program would give consumers incentives to buy more fuel-efficient cars, under legislation introduced by state assembly member Ira Ruskin. Cleaner cars such as the Honda Insight would attract a rebate of up to $2,500,

while a similar surcharge would be levied on SUVs and trucks such as Toyota's Land Cruiser.

- The program, which would be self-financing, would apply only to new cars bought in California from 2010 on. What's more, the rebate and fee schedule would be recalibrated every couple of years, giving manufacturers a constant incentive to improve efficiency. (p. 2)

http://www.stanford.edu/~adammb/Publications/Millard-Ball_2007_California_Puts_on_the_Brakes.pdf

**Transportation and Global Warming: Defining the Connection and the Solution**
CTC & Associates LLC and WisDOT Research & Library Unit, July 2007

This transportation synthesis report provides background on transportation's contribution to global warming and a state-by-state list of DOT and local government initiatives. [Most state initiatives were researched for this report; local initiatives generally were not.] Research articles on $CO_2$ emission reduction strategies are cited or included for the following subjects:

- reducing GHG emissions through land-use development (The Kyoto Protocol and Sustainable Cities: Potential Use of Clean-Development Mechanism in Structuring Cities for Carbon-Efficient Transportation, *Transportation Research Record No. 1983*, 2006);
- using byproducts such as fly and bottom ash for embankment construction (p. 15 of the pdf);
- developing policies to target behavioral differences of diesel and hybrid car buyers (p. 35 of the pdf);
- implementing an emission permit trading program (p. 50 of the pdf); and
- measuring emissions reductions of roundabouts (p. 66 of the pdf).

http://www.dot.wisconsin.gov/library/research/docs/tsrs/tsrglobalwarming.pdf