International and Municipal VMT Reduction Policies: Synthesis

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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:

Anne Criss, Program Lead, Climate Change Team, WSDOT, requested a synthesis of VMT reduction policies, targets, and measures by cities in the US and cities and countries internationally.

Background:

Municipal and national programs to curb vehicle miles traveled (VMT) work variously. Alternative modes of travel are improved through increased pedestrian access or investing in transit infrastructure. Incentives function financially by taxing road use or offering cash in lieu of unused parking fees, or they may simply be advisory, educating the public on travel behavior. Urban growth and planning strategies encourage development near transit, seek public involvement, and generally build transportation-efficient cities.

Databases Searched:

- Transport, available through WSDOT Library
- TRIS Online
- Research in Progress
- Google
- Wisconsin DOT Transportation Synthesis Reports

Synthesis Summary:

Categories of publications and resources are as follows:

- Multimodal Programs
- Financial Mechanisms
- Growth and Planning
- Transit
- Ad Campaigns
- Resources

MULTIMODAL PROGRAMS:

Pedestrian Design Guidelines
Portland, Oregon, Office of Transportation, 1998

Seven design principles enhance the pedestrian environment by providing safety, accessibility, efficient transportation, and a pleasant atmosphere (p. 3 of Introduction):

- The pedestrian environment should be safe,

- The pedestrian network should be accessible to all,
- The pedestrian network should connect to places people want to go,
- The pedestrian environment should be easy to use,
- The pedestrian environment should provide good places,
- The pedestrian environment should be used for many things, and
- Pedestrian improvements should be economical.

http://www.portlandonline.com/transportation/index.cfm?c=34955

Employer Resources, Bike and Walk Benefits, Parking Cash Out
Downtown Minneapolis Transportation Management Organization

Employers that subsidize employee parking, transit pass, or vanpool costs, can extend this benefit to employees who bike or walk to work by allowing employees to take a “healthy choice” award in cash in lieu of the subsidy.

The value of the award will be subject to taxes. There is no real cost to employers. The amount is treated as additional compensation and employees incur payroll and income taxes. The employer will have to pay payroll taxes on the cash out benefit provided. To offset that cost, employers can simply lower the cash out amount by their share of the payroll taxes.

This "healthy choice" award allows employees to cover the costs of walking shoes, rollerblade and bicycle equipment and repair, bicycle locker rental, or shower privileges at a nearby gym.

http://www.mplstmo.org/pages/employer_bikewalk.html

Safe Routes to Schools
NYDOT

Transportation Commissioner Janette Sadik-Khan announced that 97% of the short term safety improvements at the 135 priority schools in the Safe Routes to Schools Initiative are complete. This work includes new traffic and pedestrian signals, the addition of exclusive pedestrian crossing time, speed bumps, speed boards, high visibility crosswalks and new parking regulations. DOT also announced that capital construction on long term improvements has begun. The next 135 public, private and parochial elementary and middle schools will be identified this winter as well as 40 high schools for similar safety enhancements.

http://www.nyc.gov/html/dot/html/safety/saferoutes.shtml

FINANCIAL MECHANISMS:

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 favouring 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.

GROWTH AND PLANNING:

Portland Program Offers Incentives to People Who Buy Homes Near Transit
Smart Growth Online

Similar to other such measures across the nation, the new Portland Regional Smart Commute Initiative will let buyers of homes near transit obtain higher mortgage loans, or increase their purchase power by the prospective transportation savings -- $200 per month for one-wage-earner households and $250 for two-wage-earner households . . .

The initiative brought together Fannie Mae, Countrywide Home Loans, Portland Metro, TriMet, the Portland Development Commission, the city's Transportation Office, Flexcar, and the Portland Metropolitan Association of Realtors.

According to *The Business Journal of Portland,* the Smart Commute Initiative will provide home buyers with free one-month passes on TriMet buses and light-rail trains, while Flexcar will offer those who join its car-use program $100 in initial credit . . .

http://www.smartgrowth.org/news/article.asp?art=4342&State=38&res=1024

Regional Funding Programs
Sacramento Area Council of Governments

SACOG has three federally funding programs that help local government agencies promote the goals of SACOG's Metropolitan Transportation Plan and Blueprint Project. SACOG solicits project applications from public agencies and their partners, proposing projects located in Sacramento, Sutter, Yolo, and Yuba counties. There are three transportation-related programs: Bicycle/Pedestrian, Air Quality and Community Design. All three programs have awarded projects in early 2006.

http://www.sacog.org/regionalfunding/fundingprograms.cfm

Introduction to Envision Utah

In January 1997, the Envision Utah Public/Private Partnership was formed to guide the development of a broadly and publicly supported Quality Growth Strategy - a vision to protect Utah's environment, economic strength, and quality of life for generations to come. Five years of scenarios analysis, research and public involvement have helped Envision Utah bring the topic of planning and preparing for growth to the forefront of the public mind. With the help of thousands of Utah residents, Envision Utah has developed a Quality Growth Strategy that will help preserve critical lands, promote water conservation and clean air, improve our region-wide transportation systems, and provide housing options for all residents.

http://www.envisionutah.org/introduction.phtml

Singapore's motorization policies 1960–2000
C. Willoughby, April 2001, *Transport Policy 8*(2): 125-139

Abstract: Because of the rapid economic growth it sustained over the last 40 years and the small physical space at its disposal, Singapore has had to give special attention to managing the process of motorization—the spread of private motor vehicle ownership and use. Despite the

inevitable imperfections of the policies adopted—and, more seriously, of related land-use and resettlement policies—the motorization restraints had no major negative side-effect on economic growth and generated substantial funds for the improvement of social welfare.

TRANSIT:

Renaissance of Public Transport in the United States?
John Pucher, Winter 2002, *Transportation Quarterly 56*(1): 33–49

The article details New York's public transportation boom from 1995 to 2005, crediting improved fare policy, service, and security (p. 11 of PDF).

http://www.vtpi.org/tqtransi.pdf

Curitiba, Brazil: BRT Case Study

Curitiba's bus system was developed as an integral part of an overall master plan whose basic objectives included radial expansion of the city along five corridors (structural axes), integrating land use and transport, and protecting the traditional city center. The median busways in each corridor are in the center of a "trinary" road system (busway, local street, one-way arterial). Development densities are greatest within this system as compared with other parts of the city.

Curitiba's busways are viewed as a model bus rapid transit (BRT) system. They are widely recognized for their many innovative features. Trunk and feeder bus lines routed through terminals allow convenient fare-free transfer. Bi-articulated five-door buses and tube stations with off-vehicle fare collection and floor-level boarding facilitate passenger access. Finally, direct express service and tube stations are provided along parallel, one-way arterial streets.

The overall system is the result of many incremental decisions aimed at improving service quickly, pragmatically, and affordably.

http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp90v1_cs/Curitiba.pdf

The relationship between car ownership and public transport provision: as case study of Hong Kong
S. Cullinane, January 2002, *Transport Policy 9*(1): 29-39

Abstract: It is often suggested that traffic demand management measures designed to make public transport more attractive have little impact on car ownership and use. Much of the work on this subject, however, relates to piecemeal changes in public transport provision. Results of an attitudinal survey of 389 university students in Hong Kong, where public transport is both plentiful and cheap and car ownership and use is extremely low, indicate that good public transport can deter car ownership, with 65% of respondents stating that they are unlikely to buy a car in the next 5 years.

AD CAMPAIGNS:

Travel Feedback Programs: Communicative Mobility Management Measures for Changing Travel Behavior
Satoshi Fujii and Ayako Taniguchi, 2005, *Proceedings of the Eastern Asia Society for Transportation Studies 5:* 2320-2329

Abstract: This paper reviews the literature on travel feedback programs (TFPs). These constitute soft measures, involving psychological and behavioral strategies, designed to change travel behavior, mainly, from automobile to a non-automobile travel, in Mobility Management (MM). We classified TFPs according to place, technique, procedure, and communication media. Then, we reviewed the effectiveness of ten TFPs implemented in Japan. We found that the TFPs in Japan reduced CO2 emissions by about 19%, and car use by about 12%, while increasing the use of public transport by about 50%. The size of these effects did not differ much from those observed in Western countries including European countries and Australia. In addition, we found that TFP's

effectiveness increased when participants were asked to make behavioral plans to change their travel behavior.

Travelling smarter down under: policies for voluntary travel behaviour change in Australia
Michael A.P. Taylor and Elizabeth S. Ampt, July 2003, *Transport Policy 10*(3): 165-177

Abstract: This paper reviews the voluntary travel behaviour change programs adopted across Australia in recent times. These programs facilitate individuals and households in changing their travel behaviour through personal choice and individual action. The paper examines the issues relating to the various programs and discusses the techniques used and the results and evaluations. The behaviour change programs reported to date show consistent evidence that participating households make substantial reductions in their usage of private motor vehicles. Further, a range of non-transport benefits have been found, albeit at the local level. These benefits include changes in land use, social interaction, economic development, and health indicators. One consequence is that other government agencies, responsible for areas such as community development, health, environment, energy, public safety, planning and even education, have begun to form interests in the programs. Two key challenges have emerged: (1) the actual measurement tools are hard to implement or the changes are on a scale smaller than that at which measurement is usually made, and (2) the clients for travel behaviour change programs have to date been transport organisations for who the only relevant outcome is travel change. Given that these projects may be of value to other interested organisations, it may be that ultimately travel behaviour change may be intimately linked with all aspects of community life, which could lead to greater change, and certainly to greater sustainability.

Designing a procedure to undertake long term evaluation of the effects of TravelSmart interventions
P. Stopher, S. Greaves, M. Xu, and N. Lauer, 2005, *Australasian Transport Research Forum (ATRF) 28*, Report No. 1877040428

Abstract: As part of the program of strategies to reduce the emission of greenhouse gases in Australia, the ACT, Queensland, South Australia, and Victoria have joined together to undertake a program of voluntary travel behaviour change (VTBC) strategies. Based on implementation of such strategies in a few locations around Australia, estimates have been made of the potential reductions in greenhouse gases that might be achievable. The intent of the project undertaken by the Institute of Transport and Logistics Studies (ITLS) was to develop a method for long-term monitoring that would indicate the probable extent of reductions of greenhouse gas emissions through measuring the reduction in vehicle kilometres of travel (VKT).

RESOURCES:

Climate Change 2007: Mitigation, Transport and its infrastructure
S. Kahn Ribeiro, S. Kobayashi, M. Beuthe, J. Gasca, D. Greene, D.S. Lee, Y. Muromachi, P.J. Newton, S. Plotkin, D. Sperling, R. Wit, and P.J. Zhou, 2007, Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change

Discussion of VMT reduction policy begins on page 26 of the PDF with attention to modal shifts from personal vehicles to public and non-motorized transportation. Detailed discussion of mitigation policies and measures for surface transportation begins on page 44 of the PDF, covering:

- Land use and transport planning,
- Taxation and pricing,
- Regulatory and operational measures,
- Fuel economy standards, and
- Transport Demand Management.

http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter5.pdf

Policies in Key Countries
Pew Center on Global Climate Change

http://www.pewclimate.org/policy_center/international_policy

Trends in vehicle kilometres of travel in world cities, 1960–1990: underlying drivers and policy responses
I. Cameron, T.J. Lyons, and J.R. Kenworthy, July 2004, *Transport Policy 11*(3): 287-298

Abstract: Increases in private motorised urban vehicle kilometres of travel are shown to arise from population growth, urban sprawl, increased car ownership and decreases in vehicle occupancy. In particular, the worldwide increase in urban mobility since 1960 has been the direct result of increased affluence and the consequent greater accessibility of private motor vehicles, as well as population growth. Urban sprawl has significantly less influence, although it has been significant in USA, Canadian and Australian cities. Despite this, a number of cities have shown that clear policy initiatives can contain the growth of urban private motorised mobility.

Greenhouse Policy Options for Transport
Bureau of Transport and Regional Economics, 2002, ISSN: 1446-9790, Report No.'s 1877081094 and Report 105

Abstract: This report explores the actions involving the transportation industry that have the potential to decrease greenhouse gas emissions in Australia. The report includes the economic, fiscal, and environmental impacts. Since road transportation accounts for about 14% of Australia's total greenhouse emissions, it is the main focus of the report. (Australia generates less than 2% of the greenhouse gas emissions in the world). The table of contents lists the following chapter and subject headings. Chapter 1 Greenhouse Gas Emissions And The Australian Transport Sector—Kyoto origins and outcomes, The transport sector and greenhouse emissions; Chapter 2 Reducing Vehicle Kilometres Traveled (VKT)—Induced travel, Public transport, Personalized journey planning techniques, Ridesharing, High occupancy vehicle (HOV) lanes, Parking, Park and ride, Non-motorized transport, Carsharing, Car-free days, Flexible work arrangements, Increased urban density, Shifting freight from road to rail; Chapter 3 Reducing Emissions per VKT—Mandated fuel efficiency standards, Feebates, Promoting technological improvements, Inspection and maintenance programs, Voluntary agreements with manufacturers, Education and provision of information, Encouraging the use of alternative fuels, Modernizing the vehicle fleet: accelerated scrapping of older cars, Intelligent transport systems; Chapter 4 Road-Use Charges—The case for road-use charges, Environmental impact of road-use charges, Efficiency impact of road-use charges, Fiscal impact of road-use charges; Chapter 5 Economy-Wide Measures—Carbon taxes, Tradable permits; Chapter 6—Choosing the Best Policies - Win-win measures, Economy-wide measures, Targeted measures, Integrated strategies.