Commission Briefing Paper 4G-03

Evaluation of the Potential Applicability and Impacts of Truck-Only Facilities

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Introduction

This paper is part of a series of briefing papers to be prepared for the National Surface Transportation Policy and Revenue Study Commission authorized in Section 1909 of SAFETEA-LU. The papers are intended to synthesize the state-of-the-practice consensus on the issues that are relevant to the Commission's charge outlined in Section 1909, and will serve as background material in developing the analyses to be presented in the final report of the Commission.

This paper presents information on evaluation of the potential applicability and impacts of the use of exclusive truck facilities (ETFs), of which there are two types: Exclusive Truck Lanes (ETL) and Exclusive Truck Roadways (ETR).

Background and Key Findings

With increasing truck volumes, the use of exclusive truck facilities (ETFs) in high traffic volume corridors is considered to be a feasible alternative strategy to accommodate high truck volumes, reduce congestion, improve highway safety, and enhance efficiency in freight movement. It is assumed that physically separating heavy trucks from light vehicles will improve highway safety by reducing the interactions between trucks and passenger vehicles that have significantly different operating and performance characteristics. Implementation of ETFs requires assessment of the costs and benefits measured in terms of construction costs, crash costs, travel time savings, vehicle operating cost savings, as well as consideration of institutional issues.

According to a 2-year-old review[1], Federal, state, and local agencies have examined "truck-only" routes on some of the nation's busiest corridors for a number of years as a way to reduce traffic congestion, improve the flow of commerce, and increase safety on U.S. highways. For example, FHWA's Office of Transportation Studies[2] in cooperation with the Office of the Secretary of U.S. DOT, and FMCSA funded a project that examined the economic feasibility of exclusive truck facilities. Similarly, several states including Texas, Virginia, and Washington have given consideration to the provision of exclusive truck roadways with or without tolling. However, few projects have come to fruition and many have been rejected outright as infeasible, environmentally unfriendly, or too costly. Taxpayers on the whole have been reluctant to fund a highway project that offers transportation to a select segment of highway vehicles. In addition, construction of truck-only toll roads, an idea conceived to reduce taxpayers' costs, has not been a

[1] Consideration of Exclusive Truck Lanes Moves Forward in U.S. Urban Transportation Monitor, December 2004
[2] "Investigation of Potential Safety and Other Benefits of Exclusive Facilities for Trucks," Final Report prepared for FHWA Office of Transportation Studies. Battelle, 2002.

This paper represents draft briefing material; any views expressed are those of the authors and do not represent the position of either the Section 1909 Commission or the U.S. Department of Transportation.

popular alternative to members of the trucking industry. The following are some key findings from recent studies on ETFs.

- Exclusive lanes for trucks and buses have been considered by 17 percent of the highway agencies, exclusive lanes for buses only by 20 percent of the highway agencies, and exclusive roadways for heavy vehicles only by 3 percent of highway agencies.[3]

- A recent FHWA-sponsored study[4] developed multi-variable criteria for identifying suitable locations for ETF implementation based on benefit-cost analysis. It is suggested that ETFs are economically feasible at locations with traffic volume of 100,000 vehicles per day or more and with a truck percent of at least 25 percent of the traffic. Consideration should be given to truck-involved fatal crash rate as well as proximity to intermodal facilities, ports, and processing centers.

- Anticipated benefits of exclusive truck facilities include (i) reduced crashes, (ii) reduced congestion, (iii) travel time savings, (iv) vehicle operating cost savings, and (v) improved efficiency in freight mobility.[4,5,6,7]

- Expected high cost of construction and the potential for resistance to a tolled facility have discouraged the implementation of exclusive truck facilities.[6]

Uses and Opportunities for ETF

Exclusive truck facilities (ETFs) can either be truck-only lanes or truckways. Truck-only lanes are lanes of a multi-lane highway that are designated for the exclusive use of trucks. Truckways on the other hand, are roadways constructed for the exclusive use of trucks. Passenger cars may not use truck-only facilities. The purpose of exclusive truck facilities is to separate trucks from other mixed-flow traffic so as to enhance safety, reduce congestion, stabilize traffic flow, and improve efficiency of freight movement by trucks.

The issue of truck safety has received increasing attention over the past decade, especially the large trucks of involvement in crashes and the resulting injuries and fatalities. Exclusive truck facilities have been considered by federal, state, and local agencies as a measure to improve highway safety, reduce congestion at bottlenecks within the highway transportation network as well as improve efficiency in freight movement at locations such as ports, intermodal facilities, and international border crossings. Many states are pushing forward with plans to convince truckers and taxpayers that ETFs are an effective countermeasure to congestion and, more importantly, to the increasing number of truck-related fatalities on highways. Potential opportunities for public benefit from ETF implementation include the following:[8]

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[3] *Commercial Truck and Bus Safety Synthesis 3* on "Highway/ Heavy Vehicle Interaction," (Harwood et al., 2003

[4] "Investigation of Potential Safety and Other Benefits of Exclusive Facilities for Trucks," Final Report prepared for FHWA Office of Transportation Policy Studies. Battelle, 2002.

[5] Southern California Association of Governments, Appendix E -Goods Movement, Draft 2001 RTP Update Technical Appendix. January 2001.

[6] Center for Urban Transportation Research, *Potential for Reserved Truck Lanes and Truckways in Florida,* University of South Florida, 2002.

[7] "Toll Truckways: A New Path Toward Safer and More Efficient Freight Transportation". Samuel et al., 2002

[8] "Investigation of Potential Safety and Other Benefits of Exclusive Facilities for Trucks," Final Report prepared for FHWA Office of Transportation Policy Studies. Battelle, 2002.

- Access to freight facilities – improved access to trade zones and facilities for freight transfer such as
    - Foreign-Trade Zones
    - Urban Ports or Intermodal Facilities
    - Trade Zones or Commercial Zones
- System Management – reduced impacts and occurrence of congestion, maximizing operational safety and efficiency of highway users through
    - Transportation Demand Management
    - Freeway Management
    - Environmental Improvements: Air Quality
- Highway Freight System Safety and Efficiency Improvements – improved mobility and safety on freight corridors including
    - High-Priority Corridors on the National Highway System
    - TEA-21 Designated Trade Corridors
    - International Border Crossings.

Benefits and Costs of ETFs

Implementation of ETFs should be based on benefit-cost (B/C) analysis to ensure feasibility. The FHWA study[6] updated an existing benefit-cost model designed to examine the economic feasibility of exclusive truck facilities. The following are anticipated benefits included in the B/C model.

- Reduced crash costs (i.e., injury and property damage savings, due to fewer and less severe crashes, fatal crashes involving light vehicles and trucks reduced).
- Travel time savings resulting from reduced congestion.
- Vehicle operating cost (VOC) savings resulting from reduced congestion
- Travel delay savings due to fewer crashes causing blockages.

The following items are the cost elements associated with ETF implementation that are used in the B/C model.

- Initial right-of-way acquisition and demolition costs.
- For ETFs, initial construction costs and higher rehabilitation costs (life-cycle costs).
- For non-ETFs, lower life-cycle costs.

ETF Configurations

The B/C model[9] is structured to estimate the costs, benefits, net present values (NPVs), and B/C ratios for the following potential configurations of ETFs.

Scenario 1 - Re-designate the functions of existing lanes. For example, one lane of an existing 4-mixed lane highway may be designated as an ETF and the other three lanes kept as mixed lanes. In this scenario, no new lanes are added.

[9] "Investigation of Potential Safety and Other Benefits of Exclusive Facilities for Trucks," Final Report prepared for FHWA Office of Transportation Policy Studies. Battelle, 2002.

Scenario 2 - Increase the capacity of the roadway by adding new mixed lanes.

Scenario 3 - Increase the total number of lanes and designate at least one lane for the exclusive use of a certain vehicle class. Trucks are restricted to truck-only lanes but ETFs are not barrier separated.

Scenario 4 - Increase the total number of lanes and designate at least one lane for the exclusive use of a certain vehicle class. In this scenario, trucks are allowed in the mixed lanes when the capacity of the dedicated lane is exceeded. Similar to the previous scenario, the additional lane is not barrier-separated from the mixed lanes.

Scenario 5 - Increase the total number of lanes and designate at least one lane for the exclusive use of a certain vehicle class. The additional exclusive lane is barrier-separated from the existing lanes and trucks are restricted to use the ETF only.

Criteria[9]

This updated model was tested with data from three different road highway segments identified to have high volume-capacity (v/c) ratios based on the 1998 Highway Performance Monitoring System (HPMS) data. These sites represent different combinations of traffic and truck volumes.

- *Alameda County, California, I-10* – This is a 3.5-mile section of I-10 in Alameda County in California with traffic volumes averaging about 155,500 vehicles per day in each direction with a truck percentage of 6 percent.
- *Cincinnati, Ohio, I-275* – This is a 2.6-mile section of I-275 in Cincinnati, Ohio with traffic volumes averaging about 104,000 vehicles per day in each direction with a truck percentage of 16 percent.
- *Chicago, Illinois, I-294.* – This is a 2.8-mile section of I-294 in Chicago, Illinois with traffic volumes averaging about 59,000 vehicles per day in each direction with a truck percentage of 26 percent.

An analysis was then conducted to examine the sensitivity of B/C ratios and NPVs to changes in total traffic volume, truck percent, and crash rates. The results of this analysis formed the basis for developing the following criteria for identifying candidate locations for ETF implementation.

1. The traffic criteria to be used to identify potential locations for ETF implementation should be some combination of total traffic volume and the proportion of trucks in the traffic stream. The suggested traffic threshold values are an average annual daily traffic (AADT) of 100,000 or more with a truck percentage of 25% or higher.

2. The level of service (LOS) should be used to further evaluate and prioritize potential locations that satisfy the traffic criteria. The suggested threshold LOS is E (i.e., volume/capacity ratio ≥ 1.0).

3. The suggested threshold for crashes is the national average rate of truck-involved fatal crashes. The national average serves as the benchmark against which all safety analysis

comparisons are made. For example, in 1999, the national average value was 2.3 per 100 million vehicle miles of travel (MVMT).

4. The existence of freight intermodal terminals and processing centers in close proximity to freeways and interstate highways should be sufficient justification for consideration together with other criteria. The suggested threshold distance of 2 miles is based on the fact that the intermodal terminals are typically located within 2 miles of freeways or interstate highways. In addition, these facilities should handle a certain minimum volume of freight measured in tons or twenty-foot equivalent unit (TEU) containers.

Implementation Issues

Institutional Issues

The following are potential institutional issues that should be taken into consideration in the implementation of ETFs. These issues include those that support as well as those that potentially impede implementation of ETFs:

- *Resource Allocation and Finance* – budget limitations, legislative priorities, project prioritization criteria, and who should pay for the additional cost of construction are major barriers to ETF implementation. Ideally, transportation finance for a facility should balance three objectives: raise adequate revenues, encourage efficient use of the facility, and be easy to understand and administer.

- *Legal and Regulatory* – Legal impediments to implementation of ETFs may include operational issues and the use of funds. There appears to be nothing in Federal law or regulation that would preclude the use of federal aid by a state for ETFs. FHWA guidelines for projects that may exceed $1 billion i.e., mega-projects, may apply to ETFs. The issue of Federal-state share of costs for ETFs also needs consideration. If the ETF is intended to promote national goals for highway safety or freight mobility and access, and the freight is being moved in interstate commerce, then questions of who should contribute to construction and how much need to be considered. National defense needs that may be met with ETFs would certainly include mobility for military equipment through highly congested areas of the nation.

  On the operational side, the issues of exclusive (dedicated) and mandated use must be addressed. The question of whether to mandate that all trucks use a facility (as on the New Jersey Turnpike), make use optional, or restrict use to local truck traffic, is an important issue to be considered.

- *Project Development.* Lack of emphasis on performance measures of freight-specific projects in highway needs assessment is considered a potential impediment to ETF implementation. For example, ETFs would require a new dimension of evaluation of success or failure of the project. There is the need for specific focus on freight transportation in the planning process in order for the anticipated benefits of ETFs (e.g., improved highway safety) to be realized.

- *Public Participation/Role Issues.* Identification and involvement of key stakeholders prior to the feasibility study phase is considered critical to ETF projects with a potential for generating controversy. The State Route 60 (SR 60) feasibility study[10] is an example of a successful, formal public participation process that was incorporated into the annual updating of the Regional Transportation Plan. An example of the role of organized groups in constraining project implementation is the corridor study of the I-35 Trade Corridor[11].

- *Environmental Externalities.* Environmental issues are important in evaluating the ETFs because of the potential for citizen opposition if they perceive adverse environmental impacts. An example of potentially positive environmental impacts to construction of ETFs is the Tchoupitoulas Corridor Project in New Orleans, Louisiana. The new truck-only facility is intended to remove three heavy-truck routes that pass through residential neighborhoods and average more than 1,500 trucks per day[12].

- *Transportation Planning* –The benefit of dedicated truck highways or lanes in moving freight in and out of urban freight centers (such as ports and warehouses) seems evident. This benefit has led to the development of the concept of Truckways or Portways planned for implementation by the Port of New Orleans and the Ports of New Jersey/New York.

Financing of ETFs

In considering ETFs as a means of improving safety and mobility, the issue of financing becomes important. Recent studies focused on tolling as a potential funding mechanism for ETFs. These studies arrived at different conclusions which reflect the assumptions underlying the analyses. Fischer et al. (2003)[13], in exploring the feasibility of ETFs on SR-60 and I-710 in California, concluded that almost 70% of the potential users of the truck lanes would divert to the mixed flow lanes and that revenues were only able to cover 30% of the amortized capital cost and maintenance cost of the facility. Holguin-Veras et al. (2003)[14] analyzed the economic and financial feasibility of toll truckways using a hypothetical corridor. This study found that the maximum toll that would be attractive to trucking companies would be one that captures 50% of the direct operational cost savings. The remaining 50% should be considered as incentive to the trucking firm.

Reason Public Policy Institute[15] assessed the costs of developing and operating toll truckways along existing Interstate rights-of-way. The analysis assumes that trucking firms would be willing to pay a toll of up to one-half of the cost savings that would be generated from the use of such truckways. The study proposed that self-financing toll truckways consisting of one or two

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[10] Southern California Association of Governments, Appendix E -Goods Movement, Draft 2001 RTP Update Technical Appendix. January 2001.
[11] HNTB Corporation and Wilbur Smith Associates. *I-35 Trade Corridor Study Recommended Corridor Investment Strategies.* Texas Department of Transportation, September 30, 1999
[12] World Trade Center of New Orleans. *Tchoupitoulas Corridor Project.* On-line available 12/5/00 http://www.wtc-no.org/transport/ip-pnotc.htm.
[13] Fischer M J; Ahanotu, D N; Waliszewski, J M. Planning Truck-Only Lanes: Emerging Lessons From The Southern California Experience. Transportation Research Record No. 1833. pp. 73-78. 2003.
[14] Holguin-Veras, J; Sackey, D; Hussain, S; Ochieng, V. Economic and Financial Feasibility of Toll Truckways (03-3317), Transportation Research Record No. 1833. pp. 66-72. 2003
[15] "Toll Truckways: A New Path Toward Safer and More Efficient Freight Transportation". Samuel et al., 2002.

lanes in each direction be built in the existing right-of-way. These truckways would be barrier-separated from existing lanes and would have their own ramps. Trucks using the truckways would be rebated federal and state fuel taxes for the mileage traveled on the truckways. The study recommends that, since trucks using the truckways would pay tolls to cover the costs of building and operating the lanes, those trucks should not be charged ordinary state or federal fuel taxes or other truck user taxes for the miles they actually drive on the truckways. The tolls would be collected electronically. After factoring in the rebate of user taxes, the net cost of using the truckways would, in many cases, be comparable to the current expenses heavy trucks incur using existing turnpikes. The analysis of the costs of constructing and operating these facilities and corresponding returns indicate that these truckways might be economically feasible.

Strategies to Promote ETF Implementation

From a national perspective it is unrealistic to expect that all institutional barriers will be resolved in all instances. The following are potential approaches to address the institutional barriers and to promote implementation of ETFs.

Federal Aid and Public-Private Partnerships

Competing priorities for resources in the state transportation program are often influenced by Federal aid. Providing financial incentives for pilot projects through an intermodal freight management program would encourage state participation and support the development of a national system. There has been an increasing emphasis on the concept of flexibility and partnering with the states, turning program responsibility over to the state and local levels, with the federal government providing more guidance and coordination of the funding elements and less hands-on management.

The Alameda Corridor Project provides an example of how the public and private sector can work together to advance a concept to implementation. The partnership between the private rail and port interests and the public sector was able to gain local, state, and Federal support and to secure funding to undertake a Mega-Project that will benefit the economy without degrading the environment of the region. The issues addressed by the Alameda Corridor partnership are likely to be involved in ETF partnerships. For example, gaining consensus and support of competing freight transport modes (rail and truck) is important for a project that may benefit one mode more than the other.

Outreach Efforts

Consensus is the desired result of coordination and shared vision, first between Federal and state policy makers, and second, between the government and the private sector. Outreach sessions, workshops, information sharing, and technology transfer are all means of initiating change and should be used to maximize resources and build a national agenda for the transportation program in the future reauthorization of TEA-21.

Federal Facilitator Role

Developing tools for states to use for evaluating options or alternatives to move increasing volumes of truck traffic generated by increasing amounts of freight is within the Federal purview as facilitator. The concept of ETFs may be of interest to some states with heavily congested

highways and truck traffic, but is unlikely to be implemented without federal government involvement in some capacity.

Examples of ETFs Initiatives in the U.S.

This section presents summaries of the characteristics of some ETF initiatives in the U.S. These examples include intermodal connectors, urban bypasses, intercity connectors, and ETFs in both rural and urban settings. The strategies used or proposed for their implementation also vary.

- *Port of New Orleans* (ETR) – Tchoupitoulas Roadway or the Clarence Henry Truckway is a 2 lane 3.5-mile heavy duty intermodal connector reserved for port-related truck traffic. The truckway relieved congestion and improved movement of in and out of the port's intermodal facilities and intermodal rail yard.[16,17]

- *Boston, Massachusetts* (ETR) – Central Artery Tunnel, South Boston Haul Road – A 1.5 mile haul road, converted from an underutilized four-track rail line, was constructed to allow trucks and buses easy unobstructed travel from South Boston Expressway through residential neighborhoods in South Boston.[17]

- *California* (ETL) – State Route 60, from I-710 to I-15, a distance of approximately 38 miles, was initially considered sharing existing High Occupancy Vehicle (HOV) lanes, and adding both at-grade and above grade lanes. Cost estimate is at least $16 billion. The study recommended adding truck lanes to the freeway at grade, and adding limited above-grade mixed-flow lanes where right-of-way acquisition would be difficult.[18,19]

- *Virginia* (ETL) –The objective is to separate passenger vehicles and heavy trucks using physical barriers in the I-81 corridor; add truck climbing lanes, as well as longer on- and off-ramps; toll heavy commercial vehicles. Initial estimate of $6.25-$7.75 billion over 15 years.[19]

- *Texas* (ETR) – Trans Texas Corridor parallels I-35, I-37, and I-69 from Denison to the Rio Grande Valley, I-69 from Texarkana to Houston to Laredo, I-45 from Dallas-Fort Worth to Houston, and I-10, El Paso to Orange. The 4,000-mile corridor cost would range from $145.2 billion to $183.5 billion. The corridor will include separate tollways for passenger vehicles and trucks, as well as passenger and freight rail and dedicated utility zones. Pavement cost for a four-lane truck roadway is estimated at $3.1 million per centerline mile.[19, 20]

- *Washington* (ETL) – Corridor is a possible alternative passenger and truck transportation route to I-5; might be financed by tolls and could also be used by rail and utilities.

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[16] http://www.fhwa.dot.gov/freightplanning/lop2.html
[17] Center for Urban Transportation Research, *Potential for Reserved Truck Lanes and Truckways in Florida*, University of South Florida, 2002.
[18] KAKU Associates, Inc. *SR-60 Truck Lane Feasibility Study*. Southern California Association of Governments. November 1999.
[19] Consideration of Exclusive Truck Lanes Moves Forward in U.S. Urban Transportation Monitor, December 2004
[20] HNTB Corporation and Wilbur Smith Associates Team. *I-35 Trade Corridor Study Recommended Corridor Investment Strategies*. Texas Department of Transportation I-35 Steering Committee. Final Report, September 30, 1999.

Exclusive truck-only toll lanes will be considered. Estimated cost of at least $41 billion for a four-lane north-south highway across the state from Oregon to Canada[19].

- *Iowa* (ETR) – Reason Public Policy Institute study[21]proposed I-80 Illinois – Iowa intercity 300-mile open corridor as a truckway to connect States allowing long combination vehicles (LCVs). A self-financing intercity toll truckway is proposed with one or more lanes in each direction for the sole use by trucks. This truckway will be separated from existing lanes by concrete barriers.

Way Forward

Recent freight forecasts developed by FHWA's Office of Freight Management and Operations indicate that the volume freight transported by trucks is expected to double by 2035 from 2002 base year.[22] The implications of increased freight truck traffic include reduced capacity or increased congestion on the highway system. Congestion affects not only passenger traffic but also affects reliability of freight delivery.

By separating trucks from other traffic, ETFs have the potential to decrease crashes involving trucks thereby improving safety; reduce congestion, and improve efficiency in freight movement by trucks as demonstrated by the Tchoupitoulas Roadway at the Port of New Orleans. However, the quantifiable benefits of ETFs are yet to be fully assessed and realized. It is important therefore to continuously monitor the few ETFs and truckways/portways in operation in the U.S. in order to gather and analyze data necessary to quantify these benefits.

Given the range of potential benefits that ETFs offer, it is expected that State Departments of Transportation will increasingly turn to ETF as a feasible strategy in safety improvement, transportation system management (e.g., congestion mitigation at bottlenecks), improving access to freight facilities (e.g., portways and truckways to intermodal facilities), and improving efficiency in freight movement along corridors of national importance.

An additional use of ETFs, looking to the future, includes research initiatives for Longer Combination Vehicles (LCVs). Current truck size and weight regulations provide stringent limitations on the use of LCVs on the National Network; however, ETFs could provide an avenue for looking at the feasibility of allowing LCVs on dedicated lanes.

A major impediment to ETF implementation in the short term is the funding mechanism. The use of federal aid for ETF projects and the federal-state cost share issue need to be addressed in identifying potential sources of funding. While self-financing toll facilities have been proposed as a feasible funding mechanism, the success of such an approach needs to be tested. Furthermore, no research evidence is currently available to suggest the minimum mileage and altered size and weight vehicles that would make tolled ETFs more attractive to trucking firms. Also, public-private partnerships have been suggested as a feasible alternative for financing highway projects including ETFs. Regardless of the funding source for ETFs, some form of legislation to back the funding mechanisms may be necessary.

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[21] "Toll Truckways: A New Path Toward Safer and More Efficient Freight Transportation". Samuel et al., 2002

[22] Freight Analysis Framework-2. FHWA Office of Freight Management and Operations. Dec 2006. http://ops.fhwa.dot.gov/freight/freight_analysis/faf/faf2_tech_document.htm

Strategies to promote ETF projects could include addressing concerns of special interest groups opposed to ETFs and resolving funding issues. For example: (i) involving all stakeholders from project development through implementation (ii) deploying effective outreach programs to demonstrate the benefits of ETFs to stakeholders. The use of pilot projects could be valuable in this regard.

Several ETF configurations have been identified, each with different cost implications. However, the question of the minimum number of truck-only lanes needs to be investigated. It has been argued that speed differentials among trucks can be problematic where all trucks are restricted to one lane. It is recognized that site and traffic characteristics specific to each site are key variables in determining the economic feasibility. Consequently, an ETF configuration that is suitable for a given location may not necessarily be effective for another location.

In order to demonstrate the benefits of ETFs, evaluate the feasibility of alternative funding mechanisms, and develop guidelines for the minimum number of lanes, it may be necessary to develop demonstration or pilot projects. These projects would be structured so as to enable evaluation of a range of potential funding mechanisms and/or ETF configurations.

The preliminary criteria for identifying potential locations discussed earlier can be used to select demonstration or pilot projects. However, given that these criteria were developed based on limited research, the results of demonstration or pilot projects can be used to evaluate and refine these criteria as necessary. These criteria together with the benefit-cost model could serve as a valuable tool in evaluating potential ETF locations and configurations. The selected project(s) should have the highest potential of success and should be meaningful to both government and industry. Furthermore, criteria for judging failure or success of a pilot or demonstration project needs to be established.

Further research is needed to: refine the criteria for identifying potential locations and ETF configurations; establish minimum number of truck-only lanes; and determine funding mechanism(s) that are suitable for ETF implementation.

SELECTED COMMENTS FROM MEMBERS OF THE BLUE RIBBON PANEL OF TRANSPORTATION EXPERTS - PAPER 4G-03

On page 1, the third paragraph states: "With increasing truck volumes, the use of exclusive truck facilities (ETFs) in high traffic volume corridors is considered to be a feasible alternative strategy to accommodate high truck volumes." This review believes this to be overstated, considering the paucity of the use of ETFs and the frequency with which they have been and are being rejected.

On page 3, the first line states: "...to the increasing number of truck-related fatalities on highways." In fact, the absolute number of large truck-related fatalities fell in the most recent year for which data are available (2005), as well as in most years in the past 10. The rate of fatal truck accidents, which in all fairness is a more appropriate measure, is trending downward, not upward.

CONSOLIDATED COMMENTS FROM MEMBERS OF THE BLUE RIBBON PANEL OF TRANSPORTATION EXPERTS - PAPER 4G-03

One reviewer commented as follows:

On page 7, the paper states: ".The analysis of the costs of constructing and operating these facilities and corresponding returns indicate that these truckways might be economically feasible." This sentence refers to toll truckways in existing rights-of-way. This reviewer believes these truckways are not feasible. Except for occasional, intermittent stretches of interstate highway, there is not sufficient space in the medians for a truckway configuration. Moreover, the cost would likely be prohibitive if full costs are to be recovered by the tollway users.

Page 9, fourth full paragraph: "Given the range of potential benefits that ETFs offer, it is expected that State Departments of Transportation will increasingly turn to ETF as a feasible strategy..." This paper details many of the problems associated with ETF. Therefore, this reviewer believes it is more appropriate to state that "...State Departments of Transportation <u>might</u> turn to ETF as a feasible strategy..."

In general, the paper does not address the idea that trucks should fully repay the cost of the damage they cause to the highway system.