ACRP Problem No. 12-01-03

The Potential for Congestion Pricing Schemes for use of the Airport Roadway System

ACRP Staff Comments: No comments offered.

TRB Aviation Group Committees Comments: AVIATION ECONOMICS AND FORECASTING CMTE - The topic seems more suited to a synthesis type report that would catalog existing examples, common rationales, and structures for such pricing schemes, and clarification of any legal issues that may arise in this area (concerning, for example, limitations on uses of the funds generated). Committee supports a scaled back version of the project. AIRPORT TERMINALS AND GROUND ACCESS CMTE - We recommend approval. The proposal addresses three of the four legs of sustainability as defined in EONS (Economic, Operational, Natural Resources & Social) by ACI-NA. Economic - by increasing airport revenues and decreasing cost to airlines. Operational - by improving airport roadway throughput. Natural Resources - by reducing motor vehicle emissions. As more metropolitan areas turn to congestion pricing to address regional highway congestion, airport congestion pricing will become a more feasible tool. Pricing can be one remedy for curbside congestion. The proposed research would provide useful guidance on implementing such road pricing schemes in the airport environment. But we have serious reservations about the reliability of a stated preference survey in this instance. The principal contribution of the proposed research would be to assess likely airport user response to such charges using a stated preference survey. The validity of airport user responses to such a survey is debatable, and the Problem Statement does not address how the findings of such a survey might be validated, which calls into question the usefulness of the research results.

Review Panel Comments: Not recommended — Congestion pricing could be a useful source of revenue but is not well understood, so this could be a worthwhile project. However, it is a costly method to extract revenue. Only a few airports (e.g., SFO or ORD) would see this as beneficial, but it is not practical for other airports. It may also be politically intolerable.

AOC Disposition: No funds allocated. No discussion.
I. PROBLEM TITLE

The Potential for Congestion Pricing Schemes for use of the Airport Roadway System

II. RESEARCH PROBLEM STATEMENT

Three areas in which many commercial airport operators strive for improvement are: How to better manage traffic volumes on the airport roadway system and within the terminal curbside areas, Achieving sustainability goals, including reducing vehicle emissions within the airport footprint, and How to increase non aeronautical revenues to reduce the burden of operating and capital costs allocated to the airlines.

Most commercial airport operators assess a trip fee, a circuit fee, or a permit fee to commercial vehicles authorized to transport deplaning air passengers for the privilege of using the airport roadway system. The revenue typically pays for a portion of capital, operating, and management costs for provision of the airport roadway system, but it is often less than the costs incurred by the commercial vehicle operators paying the fees. The fees and permitting process are often used as a way to keep track of and sometimes manage commercial vehicle activity at the airport. The most sophisticated method for tracking these types of trips in the airport terminal area is through an automatic vehicle identification system (AVI). A transponder is placed in each vehicle, and readers are positioned at various locations at the airport, tracking the volume of trips by location, time period, and vehicle. The data can be compiled in various ways that allow for billing by company, and provide information on the volume of vehicles by location.

At most airports, more than half of vehicle trips using the airport roadway system are not assessed fees by the airport operator, and are therefore using the roadways and terminal curbside for free. Yet these users contribute to the wear and tear of the roadway system. This category mainly consists of private vehicles transporting air passengers to and from the airport, commercial transportation operators that are not authorized to pick up deplaning air passengers but are allowed to drop off enplaning air passengers, and airport employees. Furthermore, the private auto pickup and dropoff mode can be a significant cause of congestion and source of vehicle emissions within the terminal curbside areas and on the airport roadway system. Many private vehicles that are picking up a deplaning air passenger recirculate around the airport roadways several times, or idle at the curb while waiting to meet the air passenger party.

Politically it would be difficult at many airports to prohibit private vehicles from picking up and dropping off within the terminal curbside area. However, pricing mechanisms have the
potential to manage the volume of trips using the curb based on the willingness of users to pay for access to the curb. Since most airports have a finite amount of space in curbside area and cannot readily increase capacity, it follows that measures aimed at increasing the throughput are needed to better accommodate the existing customer base, and to prepare for projected growth.

The term “congestion pricing” as it relates to airport ground access trips is an emerging topic of conversation among airport professionals. In the airport environment, congestion pricing strategies may offer success in shifting customers from the terminal curbside area to parking facilities for short term parking or to cell phone lots, or eventually shift customers from the using a private vehicle to be picked up and dropped off at the terminal curbside area to high occupancy vehicle modes. This would improve traffic flow at the curbside, reduce emissions, and potentially delay the need for increasing capacity or the need to prohibit some categories of vehicles from using the curbside. Such applications have the potential to generate a new source of non aeronautical revenue to contribute to airport capital and operating expenses. Many of these benefits may fit within the framework of an airport’s sustainability objectives.

Various forms of congestion pricing have been used in the United States and overseas for transit systems and highways to manage the demand at peak times. Examples are high occupancy toll lanes (HOT lanes) and peak/off peak pricing on transit systems. Additionally, there are many roadway congestion pricing or tolling projects being studied or planned in the United States. There are also a small number of examples of how this is being used on airport roadways overseas. There is also an example of a toll assessed at a U.S. Airport that is intended to discourage vehicles from using the airport roadway system for through trips.

III. OBJECTIVE

The purpose of this study is to explore the options, methods, benefits of, and obstacles to charging fees for use of the airport roadway system or terminal curb areas to a broader population of users of the airport roadway system than the primary group of users that is being charged at most commercial airports (commercial transportation operators authorized to pick up air passengers at the airport). The primary reasons for charging this type of fee would be to manage traffic congestion (fees could be fixed or variable by day of week, time of day, number of circuits around the terminal area, etc.) and improve throughput on roadways in terminal curb areas, reduce vehicle emissions, increase non-aeronautical revenue, or decrease or slow the growth of fees to airlines or commercial transportation operators, within the framework of an airport’s sustainability goals.

The study would also estimate the elasticities of resident air passengers making decisions between using curbside pickup and dropoff via the private auto and short-term parking or the use of high occupancy vehicle modes\(^1\), to understand at what pricing levels such pricing

\(^1\) It does not make sense to apply congestion pricing to airport roadways to try to alter the time of day that air passengers travel to and from the airport in a private vehicle, since this would require different flight choices. Ground transportation is the secondary trip for an air passenger; the primary decision revolves around the flight.
schemes may be effective in altering user behavior. This would be accomplished through the
administration of a stated preference survey to resident air passengers at a sample of U.S.
Airports, and development of a model to estimate behavior. This data would provide airport
operators that are considering such pricing schemes with some initial information on what
levels of pricing may be necessary to realize significant reductions in congestion and emissions,
as well as what level of revenue such pricing schemes may generate.

The work product would be a handbook that would present information on the types of fees,
the purpose of assessing the fees, how to develop strategies for assessing the fees to
accomplish the underlying goals, evaluating the feasibility of charging such fees, selection of
methodologies and technologies (such as cameras, license plate recognition systems, and
transponders linked to regional tolling systems) for assessing and collecting the fees, benefits
and obstacles to congestion pricing, and how to measure results.

IV. RESEARCH PROPOSED

The research effort would consist of (a) researching airports in the U.S. and overseas that have
applied some form of similar pricing related to the airport roadway system or terminal curbside
area, (b) providing case studies of congestion pricing methods used for highways and transit
that lend themselves to consideration in the airport environment, (c) providing an overview of
the types of fees currently charged to airport commercial transportation operators (circuit fees,
trip fees, dwell time fees, permit fees) (d) interviews with airport executives from small, medium
and large hub airports to gather opinions on the utility (i.e., congestion and emissions reduction,
improved utilization of roadways and curb space, contribution to sustainability, increased
revenue) and obstacles (i.e., political, public resistance, startup costs, implementation hurdles)
to such applications within their operating environment, as well as any consideration that is
being given to congestion pricing (e) development and administration of a stated preference
survey to resident air passengers at a sample of U.S. airports and subsequent model
development to gain a preliminary understanding of potential elasticities between use of the
curbside versus parking facilities for short term use or high occupancy vehicle modes, such as
transit and shared ride vans (f) technologies available or being developed that will enable
airports to assess fees to a larger group of users than commercial transportation operators, and
the compatibility with technologies outside of the airport environment, such as regional tolling
systems. This will include contacting a sample of agencies that are planning or have
implemented regional tolling faculties to identify the technology and implementation issues
and determine what kind of planning or dialogue is taking place with commercial airport
operators in the market area to ensure compatibility in the future (or at least not preclude it),
(g) input from companies that provide commercial transportation services and are currently
assessed fees by the airport operator, and (h) development of a guidebook that will assist
airport operators in determining the feasibility of developing and offering a congestion pricing
scheme, determining the purpose of assessing such fees, how to develop a pricing scheme,
technologies for consideration, benefits and obstacles, and how to measure results.
V. ESTIMATE OF THE PROBLEM FUNDING AND RESEARCH PERIOD

The estimated funding is $525,000, and the timeframe for conducting the research is 24 months.

VI. URGENCY AND PAYOFF POTENTIAL

In recent years, with a decline in air passenger traffic at many commercial airports, and airlines seeking ways to reduce their costs, airport operators are interested in additional sources for generating non aeronautical revenue. Additional non aeronautical revenue from such a pricing scheme has the potential to reduce or slow the growth of fees to two airport customer groups who often voice concerns about cost containment: airlines and commercial transportation operators.

Effective methods for traffic management within the airport roadway system and within the terminal curbside areas have the potential to improve customer service, decrease operational costs, eliminate or delay the need for the provision of additional capacity, and reduce emissions within the airport footprint. Additionally, improved vehicle throughput, ie, reduced dwell times in the vicinity of the terminal curbside is more desirable from a security perspective. For airports that have adopted the triple bottom line approach to sustainability, pricing schemes considered should be developed to achieve results in accordance with sustainability policies. The exploration of this topic and development of a guidebook through ACRP would provide airports with a framework for evaluating the practicalities of pursuing such a pricing scheme, well as how to go about adopting one, and provide an indication of the potential pricing levels necessary to achieve results based on development of preliminary air passenger elasticities.

This topic is timely since many state highway or regional agencies with roadway jurisdiction are planning or have adopted technologies to bill vehicles, or subtract fees from a prepaid account for using tolling facilities. Airport operators should be considering how such technologies may be compatible with the airport environment. Collaboration in the planning stages may provide economies of scale to the airport operator on the costs of equipment and technology needed to adopt congestion pricing at a later date.

VII. RELATED RESEARCH

Limited research is available related to variations of congestion pricing in the airport environment. Research is available for highways, transit and freight. A recent example is the International Scan: Reducing Congestion and Funding Transportation Using Variable Road Pricing, conducted jointly by AASHTO, FHWA, FTA through NCHRP. The initial report was submitted in January 2010. Research can be conducted on some of the technologies that could be used to introduce and maintain such a pricing scheme in the airport environment. Research on the technology and implementation issues on tolling and congestion pricing projects currently being planned in the United States will also inform this project.

VIII. PERSON(S) DEVELOPING THE PROBLEM

Diane M. Ricard, Principal
IX. PROCESS USED TO DEVELOPMENT PROBLEM STATEMENT
The problem statement was developed by Diane Ricard, and was prompted by how such applications could be useful on projects her firm has been involved in as well as conversations with airport professionals contemplating such pricing in the airport environment.

X. DATE AND SUBMITTED BY

March 4, 2011 by
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Craig Leiner, Chairman
TRB Committee AV050
This statement is being submitted by way of TRB AV050, Airport Terminals and Ground Access Committee
This problem statement has been endorsed by TRB Committee AV050 and the ACI Environmental Steering Committee