

To: Deborah E. Brown, VDOT Director Innovative Finance and Revenue Operations
From: Carlos M. Contreras
CC: Keisha H. Parker, M.B.A., Jennifer R. Ahlin
Date: October 30, 2009
Re: Downtown Tunnel/Midtown Tunnel/ MLK Freeway Extension Stated Preference
Travel survey

Executive Summary Overview

During the months of April and May of 2009, Resource Systems Group Inc. (RSG), conducted the Downtown Tunnel/Midtown Tunnel/ MLK Freeway Extension Stated Preference (SP) Travel survey for automobile travelers and commercial vehicle drivers and decision-makers in the Norfolk-Portsmouth region. C&M Associates, Inc. contracted RSG to conduct the SP Travel survey as part of their work for the Virginia Department of Transportation (VDOT). VDOT is currently evaluating a plan to increase Midtown Tunnel capacity, fund maintenance and safety improvements to the Midtown and Downtown tunnels, and extend the MLK Freeway from London Boulevard to I-264 through the design and construction of tolled facilities on Downtown Tunnel, Midtown Tunnel, and MLK Freeway Extension.

The purpose of the SP survey was to assess the potential demand for the proposed toll facilities from travelers who currently travel on one of the tunnels and/ or the MLK Freeway when faced with an option between toll facility and free roads. The SP survey questionnaire was designed for automobile travelers and commercial vehicle drivers and non-driver decision-makers. The survey collected data on current travel behavior, presented respondents with information about the proposed toll facilities. With the use of SP experiments, collected detailed information that was used to estimate values of the toll sensitivity, or “values of time (VOT)” and propensity to use the proposed toll facilities under a range of possible future conditions. In addition, the estimates of travelers’ toll price sensitivities were used to support estimates of traffic and toll revenue.

Respondents were recruited for the SP Survey using a comprehensive multiple approach of one of four methods:

1. Laptop-based administration of the survey to respondents intercepted at activity sites in the study area.
2. Postcard mail-out invitation for online completion of the survey, for license plate numbers captured on site (Downtown and Midtown users).
3. Online administration through an online member panel.
4. Online administration of the survey to employees of area businesses and universities.

The purpose of the license plate survey was to obtain a representative sample of tunnel users. The local tunnel users were filtered and invited to do the online completion of the survey.

The number of records used to estimate the discrete choice models included a total of 2,330 respondents from automobile users and 173 respondents from commercial survey. The survey presented each respondent with several stated preference trade off scenarios designed as choice experiments with three travel alternatives:

1. Current route at the same time of day with a toll.
2. Current route at a different time of day (earlier or later) with toll different than toll in the first alternative
3. Alternate route at the same time of day with no toll.

The alternatives were described by attributes of travel time, toll cost, and, for the second alternative, shift in departure time. Each stated preference experiment presented respondents with all three alternatives under varying travel time, cost, and departure time values.

Statistical analysis and discrete choice model was developed using the stated preference survey data segmented by vehicle type and time of day. The specification testing was completed using a conventional maximum likelihood procedure that estimates a set of coefficients for a multinomial logit model. The value of time was estimated for automobile drivers and commercial vehicle drivers varied by vehicle type and time of day.

Selected Findings

Automobile

- 61% of respondents said they were strongly or somewhat in favor of the toll project, 17% were neutral, and 21% were either somewhat or strongly opposed to it.
- Almost 90% of respondents made a recent trip using the Downtown Tunnel, 72% made a trip using the Midtown Tunnel, and 34% made a trip using the MLK Freeway.
- The majority of trips (64% of respondents) indicate their travel time between 20 and 60 minutes. Almost 90% of the trips took less than 80 minutes.
- Most respondents (84%) reported some traffic-related delay on their trip. Of respondents who experienced a delay, more than one-third (39%) were delayed at least 20 minutes, 35% were delayed 10-20 minutes, and 27% were delayed less than 10 minutes. Over three-quarters (76%) of respondents attributed most of their delay to either the tunnels or the MLK Freeway. Reported delay was evenly distributed among the facilities, and was highest in the PM peak period and lowest in the off-peak period.

- Nearly half of respondents (44%) indicated an annual household income of less than \$50,000 before taxes. More than one-tenth of respondents (12%) indicated a household annual income of under \$15,000.
- The aggregate VOT for the entire automobile sample was \$5.90. The VOT for AM, PM, Midday, Night and Weekend were \$5.72, \$5.51, \$5.80, \$5.55, and \$5.95 respectively.
- The aggregate value of \$5.90 is approximately 40% of the median hourly wage rate of \$14.81 and 32% of the mean hourly wage rate of \$18.65 for the Virginia Beach-Norfolk-Newport News, well within the range of comparable studies across the country.

Commercial Vehicles

- The survey showed that 60% of truck respondents had used both tunnels recently. Of these, about 52% used the Downtown Tunnel and the remaining used the Midtown Tunnel.
- The majority of trips (68%) both began and ended in the Portsmouth-Norfolk area. The most common trip origins and destinations were Norfolk International Terminal and Portsmouth Marine Terminal.
- Most survey respondents (71%) reported experiencing some delay on their trip, with more delay reported by those using the Midtown Tunnel (37%) than the Downtown Tunnel (20%).
- The aggregate VOT for the entire commercial vehicle sample is \$19.71, with a lower VOT in the off-peak period (\$11.08) and a higher valued in peak period (\$19.10).