

East River Bridge Tolls: Who Will *Really* Pay?

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1. Introduction

This report examines a crucial but little-studied aspect of the debate over tolling New York City's East River bridges: How will the cost of the tolls be distributed among New York-area residents and businesses? Who stands to pay the tolls, and how much?

This question becomes more pressing as the tolls themselves become more likely. Elected officials in Brooklyn and Queens represent East River bridge tolls as a dagger poised above the outer-borough jugular. Representatives of truckers and of citizens poorly served by transit, among others, are calling for toll discounts or exemptions — demands that are likely to multiply as the prospects for tolling improve.

It should be self-evident that East River bridge toll revenue will benefit New York City transit users, schoolchildren and indeed everybody who depends directly or indirectly on public services and investment — which is to say, all New Yorkers. This report examines the other side of the toll coin — who will pay, rather than who will benefit — and reaches surprising and important conclusions, including these:

- Very few New Yorkers will be hit hard by the tolls. The 98% of New York City residents of driving age (ages 18-80) who do *not* drive daily to work on an East River bridge will spend, on average, less than \$50 a year in East River bridge tolls.
- Regular users of the East River bridges tend to be relatively well-off. Compared to their neighbors who don't drive to work via an East River bridge, bridge commuters earn, on average, \$14,300 a year more.
- Toll revenue from non-residents of New York City will replace a third or more of the revenue lost when the commuter tax was repealed in 1999.
- While more than half of the tolls will be paid by residents of Brooklyn and Queens, the prospective toll burden on either borough is lighter than the cost to Manhattanites of the residential property tax surcharge enacted as a budget-balancing measure last fall. Seen in this context, bridge tolls look more like equity than highway robbery.

2. Executive Summary

Slightly more than half-a-million motor vehicle trips were made each day on the Brooklyn, Manhattan, Williamsburg and Queensboro Bridges in 2000, the last “normal” traffic year before the events of September 2001. After carefully analyzing Census and other data about travel on these crossings, we have reached the following conclusions:

- Most (nearly 78%) of the toll revenue will be paid by residents of New York City, with the largest shares to be paid by residents of Brooklyn (who will pay 33% of the total) and Queens (24%). *See Tables 1, 2, and 7.*

- Nassau County residents will pay the third highest amount (13% of the total), followed by Manhattan (10%) and Staten Island (8%). Counting Suffolk County (5%), Long Island residents will pay 18% of the total toll amount, while residents of New Jersey will pay 4%. **The total “take” from Long Island and New Jersey will be almost \$160 million, at least a third of the “out-of-town” revenue that New York City lost when the commuter tax was repealed in 1999. See Table 7.**
- East River bridge *commuters* — those who drive daily across one or more of the East River bridges — will pay heavily once the bridges are tolled, unless they switch to transit or form carpools. **Regular bridge commuters who drive alone will face annual toll costs of around \$1,500.** Cars with more than one occupant will pay the same amount but can share the cost. *See Table 5.*
- **While these costs are high, few people will pay them.** Just 75,000 New Yorkers, plus 23,000 from Long Island or New Jersey, now commute solo between home and work via a free East River bridge. The number of East River bridge-using carpool commuters is smaller still: 38,000 from the five boroughs plus 8,000 from Long Island and New Jersey. *See Table 6.*
- In New York City, these **East River bridge-using commuters add up to only 2% of people “of driving age”** (persons aged 18-80) — 1.3% solo commuters, 0.7% carpoolers. **The other 98% of New York City adults — nearly 5¾ million people — will pay, on average, less than a dollar a week — \$47 a year — in East River bridge tolls. See Table 6.**
- Compared to their neighbors who don’t drive to work via an East River bridge, **bridge commuters earn, on average, \$14,300 a year more** — enough to cover a solo driver’s annual bridge tolls almost ten times over. *See Section 7.*
- Notwithstanding the handwringing from some elected officials, on a total dollar basis **the prospective cost of East River bridge tolls for Brooklyn residents is less than Manhattan residents are already paying** from last fall’s 18.5% boost in residential property taxes. When the two big budget-balancing measures — higher property taxes and bridge tolls — are added together, **it is Manhattan that absorbs the greatest “hit.”** When the impact is calculated per capita, the burden on Manhattanites is even greater compared with the other boroughs. *See Table 2.*

These findings assume that the tolls are priced to gross \$700 million a year, with the same toll charged at all times. If toll levels are set to gross a different figure, then the dollar amounts above should be adjusted proportionately. If premium prices are charged for peak trips, with off-peak discounts to keep overall revenues constant, the findings above would be little changed. Costs to peak-period commuters to Manhattan would rise by a third, but off-peak discounts would minimize the borough-wide impact. **The boroughs and counties that feed peak commuters into Manhattan will pay just 2-3% more overall under value pricing than with a flat fee. See Table 7.**

3. How This Report Is Organized

The remainder of this report is in five sections:

County-to-County Trip Breakdown — We show the volumes of motor vehicle trips from one borough or county to another.

Borough Burdens from Tolls and Increased Property Taxes — Here we compare costs to each borough from prospective East River bridge tolls with the increase in residential real estate taxes.

Per Capita Toll Impacts — We examine the impact of bridge tolls on a per capita basis, and highlight the vast difference between costs for bridge commuters, on the one hand, and the far larger population of City and area residents who don't use the East River bridges regularly.

Income "Progressivity" — We show that regular users of the East River bridges are considerably more affluent than other New Yorkers.

Value Pricing — How time-differentiated toll rates could affect the cost of tolls by borough and per capita.

Commercial Drivers — Effects on commercial drivers, from interstate truckers to deliverymen and service workers, and how the impacts might be ameliorated.

Not every tolling issue is treated here. For example, the impact of bridge tolls on traffic flow and travel time is outside our scope (we touch on it briefly in Section 9). So is the state of technology for tolling at high speed without toll booths (for a primer on this subject see www.bridgetolls.org/highspeed/). Rather, we address only borough and per-capita impacts from bridge tolls, to explode some often-repeated myths about the effect of bridge tolls. For more on bridge toll benefits, go to <http://www.bridgetolls.org/faq/>.

4. County-to-County Trip Breakdown

Three of the four East River bridges connect Manhattan Island to Brooklyn, and the fourth links it to Queens. East River bridge tolls are usually thought to apply primarily to trips originating in Brooklyn or Queens and ending in Manhattan, rather than the reverse. This is only partly true. Some 84% of East River bridge traffic originates as westbound trips, with just 16% traveling west-to-east (if we assign each trip's return leg the same direction as the first leg). Yet trips from Brooklyn or Queens to Manhattan constitute barely half (51%) of East River traffic. Table 1 includes other important findings:

- Almost 78% of trips across the East River bridges are bound for Manhattan. Roughly two-thirds of these originate in Brooklyn (27%) or Queens (24%), but Nassau and Suffolk combined add 18% and trips from Staten Island add 8%.

- 9% of trips using an East River bridge traverse Manhattan Island to travel from Brooklyn, Queens or Long Island to New Jersey, or vice-versa.
- Trips originating in Manhattan and using an East River bridge to reach Brooklyn, Queens, Nassau, Suffolk or Staten Island account for almost 10% of East River bridge crossings.
- Trips between Brooklyn and the Bronx (or vice-versa) account for 4% of East River bridge crossings; these use either the Brooklyn or Manhattan Bridge.

Table 1: County-to-County Shares of Trips Across (free) East River Bridges

Cells denote share of bridge trips combining origin and destination shown. For example, 27.5% in top row denotes share of all East River bridge trips that originate in Brooklyn and end in Manhattan. See Table 4 for trip numbers. See text box on next page for bridges' shares of county-to-county vehicle trips.

County Of Origin	County of Destination										TOTAL
	Bklyn	Queens	Manh	S.I.	Bronx	Nassau	Suffolk	Bergen	Essex	Hudson	
(read down) Brooklyn	-	-	27.5%	-	1.8%	-	-	1.8%	0.7%	1.5%	33.3%
Queens	-	-	23.9%	-	-	-	-	-	0.2%	0.3%	24.4%
Manhattan	4.0%	2.8%	-	0.4%	-	1.8%	0.6%	-	-	-	9.6%
Staten Is.	-	-	8.0%	-	-	-	-	-	-	-	8.0%
Bronx	2.2%	-	-	-	-	-	-	-	-	-	2.2%
Nassau	-	-	12.8%	-	-	-	-	-	0.1%	0.1%	13.0%
Suffolk	-	-	5.4%	-	-	-	-	-	0.0%	0.0%	5.4%
Bergen	1.9%	-	-	-	-	-	-	-	-	-	1.9%
Essex	0.6%	0.3%	-	-	-	0.1%	0.0%	-	-	-	0.9%
Hudson	1.0%	0.2%	-	-	-	0.1%	0.0%	-	-	-	1.2%
TOTAL	9.6%	3.2%	77.5%	0.4%	1.8%	2.0%	0.7%	1.8%	1.1%	2.0%	100.0%

Blank cells denote zero or trace percent; 0.0% indicates less than 0.05% but greater than zero. Trips originating or concluding in other counties were too few to compile. Data in table are calculated from 1990 U.S. Census data compiled in *Journey-to-Work in the New York Metropolitan Transportation Council Area and the Surrounding Tri-State Metropolitan Region (New York, New Jersey and Connecticut), Analysis and Comparison Between 1980 and 1990 Journey-to-Work Date, A Staff Report*, New York Metropolitan Transportation Council, Oct. 1999, and apply primarily to morning work trips by passenger vehicles; each trip is assumed to have afternoon or evening counterpart in the reverse direction. Percentages include drive-alone, take taxi, and carpool; we converted the latter from people to vehicles by dividing by size of carpool (carpools greater than 3 were assumed to have 5 people). Non-commute trips weren't surveyed but are assumed to have same geographical distribution as work trips. Commercial-vehicle trips are discussed in Section 9. Data for 2000 are still being processed by the Census Bureau.

As Table 1 shows, a third (33.3%) of all trips on the free East River bridges originate in Brooklyn, with another quarter (24.4%) setting out from Queens. These two boroughs are followed, at a considerable remove, by Nassau County, Manhattan and Staten Island. The City's five boroughs together account for 77.5% of East River crossings, with the two Long Island counties accounting for 18.4% and the three New Jersey counties for 4.1%.

East River Bridges' Shares of County-to-County Trips

Not all county-to-county trips across the East River use an untolled East River bridge. Some are taken on one of the three MTA East River crossings, which together carry almost half as many vehicles as do the four "East River bridges" (247,200 for the MTA crossings, counting just the Manhattan Plaza for the Triborough Bridge along with the Brooklyn-Battery and Queens Midtown Tunnels; vs. 514,767 for the four East River bridges; see NYC Dept. of Transportation, *2000 Manhattan River Crossings*, Dec. 2001). Percentages in Table 1 (and corresponding numbers in Table 4 below) were calculated after applying the following fractions:

Bklyn-Manhattan: 84.0% (Bklyn + Manh + Wburg Bridges vs. Bklyn Battery Tunnel)

Queens-Manhattan: 49.9% (QB Bridge vs. QMT + Triborough [Manh toll plaza])

S.I.-Manhattan: 75.6% (90% are assumed to cross Bklyn [with 10% via NJ], of which 84.0% use an East River bridge, per above)

Nassau/Suffolk-Manhattan: 67.6% (all four East River bridges vs. the 3 MTA crossings above)

Bklyn-Bronx: 50% (40% each on BB and Trib-Bx, vs. 10% each on BBT and Manh Br)

Bklyn-Bergen: 80% (70% BB and 10% Manh B; remainder is 10% each BBT and Trib-Bx)

Bklyn-Hudson: 80% (50% BB, 20% Manh B, 10% WBB; rest is 18% BBT and 2% Verrazano)

Bklyn-Essex: 80% (45% BB, 25% Manh B, 10% WBB; remaining 20% is BBT)

Queens-Essex: 40% (20% WBB and 20% QBB; remaining 60% is QMT)

Nassau/Suffolk-Essex/Hudson: 20% (10% WBB and 10% QBB; remaining 80% is QMT)

5. Borough Impact of Tolls

The last column of Table 1 shows the *relative* burden of East River tolls on each of the 10 affected boroughs or counties. This is displayed graphically in Fig. 1.

To estimate the *absolute* burden in dollars, we assume that the toll level will be set to gross \$700 million a year. This figure assumes one-way tolls of \$3.72, a mathematical construct arrived at by dividing \$700 million by the 188 million East River bridge trips taken in 2000. This is a deliberate simplification, ignoring phenomena such as E-ZPass discounts, "value pricing" (time-differentiated tolls), higher rates for heavy trucks, and changes in travel due to price-elasticity (trip reduction, route changes and mode switching in response to the tolls). The \$700 million figure may err on the high side, an intentional choice on our part to avoid understating the burden of tolls. (Should the total toll burden prove different from \$700 million, the dollar estimates for each borough and county may be adjusted proportionally.)

Based on the percentage splits shown in Table 1, this \$700 million would be apportioned as follows:

- New York City residents will pay \$543 million (led by Brooklyn, with \$233 million);
- Long Island residents (Nassau and Suffolk Counties) will pay \$129 million;
- New Jersey residents (Bergen, Hudson and Essex Counties) will pay \$28 million.

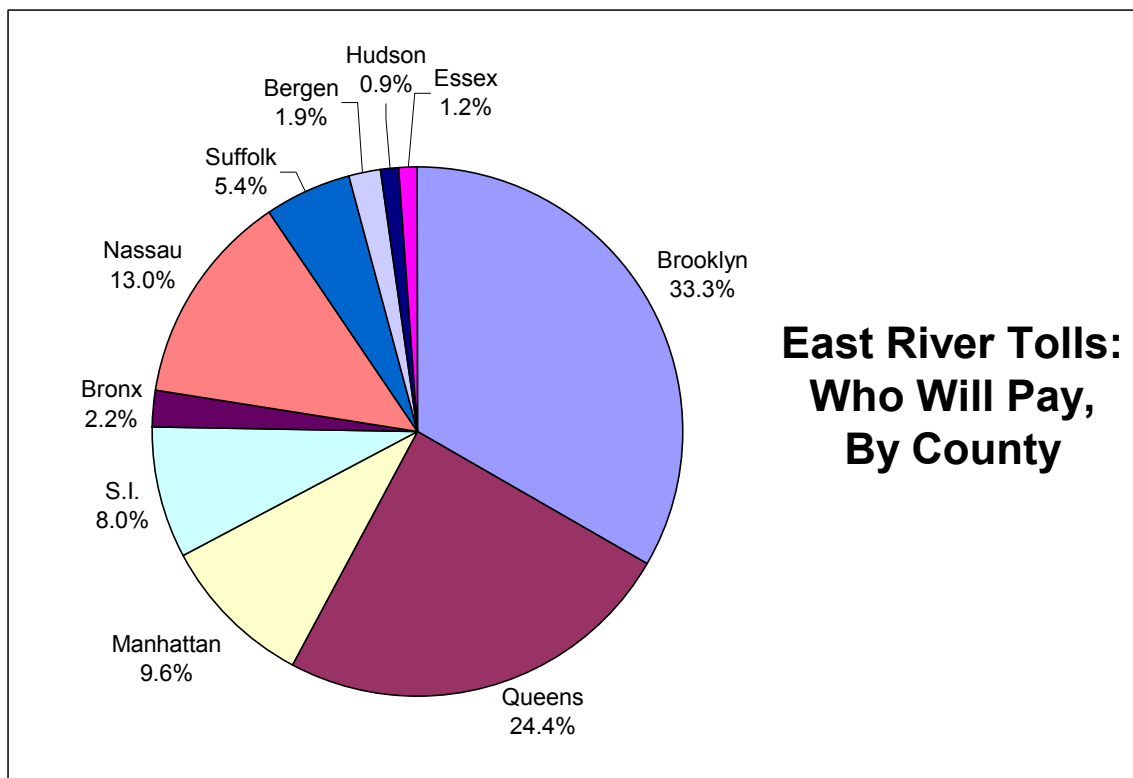


Figure 1

Fig. 1 would seem to support the claim of some Brooklyn officials, including Borough President Marty Markowitz, that bridge tolls will impose a disproportionate burden on residents of Brooklyn. (See <http://www.bridgetolls.org/polpolls/martymarkup.htm>.) But a different picture emerges when East River bridge tolls are viewed in a broader context, alongside other means of raising revenue for fiscally pressed New York City.

In November 2002, the City enacted a permanent 18.5% surcharge on real estate taxes to help close its multibillion-dollar budget gap. This levy imposes \$1.7 billion a year in new taxes, including \$770 million on residential properties. (The remaining \$930 million, from the surcharge on commercial and utility property, is ignored here.) Although the tax rise *percent* is the same for all boroughs, the *dollars* come disproportionately from Manhattan, where the assessed value of residential properties is highest. Some 47% of the \$770 million in new residential property taxes, or \$361 million, is being paid by Manhattan co-ops, condo's and rental apartments. Only 22% of the residential property tax hike, \$143 million, is being paid by Brooklyn households, as Table 2 demonstrates.

As Table 2 and Fig. 2 show, Manhattan's combined "hit" from the tax surcharge and tolls, \$429 million, exceeds Brooklyn's total of \$376 million. Moreover, with Brooklyn's adult *population* exceeding Manhattan's by 40%, the *per capita* tax-and-toll impact is some 60% heavier on Manhattanites than Brooklynites. Similarly, compared to Queens, Manhattan's tax-toll burden is higher by 25% in dollars and by almost 70% per capita.

Table 2: Balancing the City’s Budget, On Which Boroughs’ Backs?

	Bronx	Brooklyn	Manhtrn	Queens	S.I.	NYC
Bridge Tolls Share, %	2.2%	33.3%	9.6%	24.4%	8.0%	77.5%
Bridge Tolls Amount (Millions)	\$15 M	\$233 M	\$67 M	\$171 M	\$56 M	\$543 M
Real Estate Tax Surcharge Share, %	7.6%	18.6%	46.9%	22.1%	4.7%	100.0%
Real Estate Tax Surcharge, Millions	\$59 M	\$143 M	\$361 M	\$170 M	\$36 M	\$770 M
Tolls + Tax Surcharge Combined, Millions	\$74 M	\$376 M	\$429 M	\$341 M	\$93 M	\$1,313 M
Tolls + Tax Surcharge, per capita	\$82	\$217	\$348	\$206	\$291	\$225 M

Bridge tolls percentages add to 77.5% since L.I. and NJ account for 22.5%. Real Estate Taxes are 18.5% surcharge on residential property. See http://www.bridgetolls.org/data/NYC_Tax_Surcharge_by_Borough.htm for details. Per capita figures are calculated using persons age 18 to 80 (2000 Census) to exclude children and elderly.

Is it legitimate to lump bridge tolls together with the property tax surcharge? Absolutely. Both measures are (or will be) new additions to the fiscal landscape, instituted for the same goal: municipal solvency. Each falls unequally among the boroughs. But the disproportionality falls one way where tolls are concerned (against Brooklyn and Queens), and the opposite way with property taxes (against Manhattan).

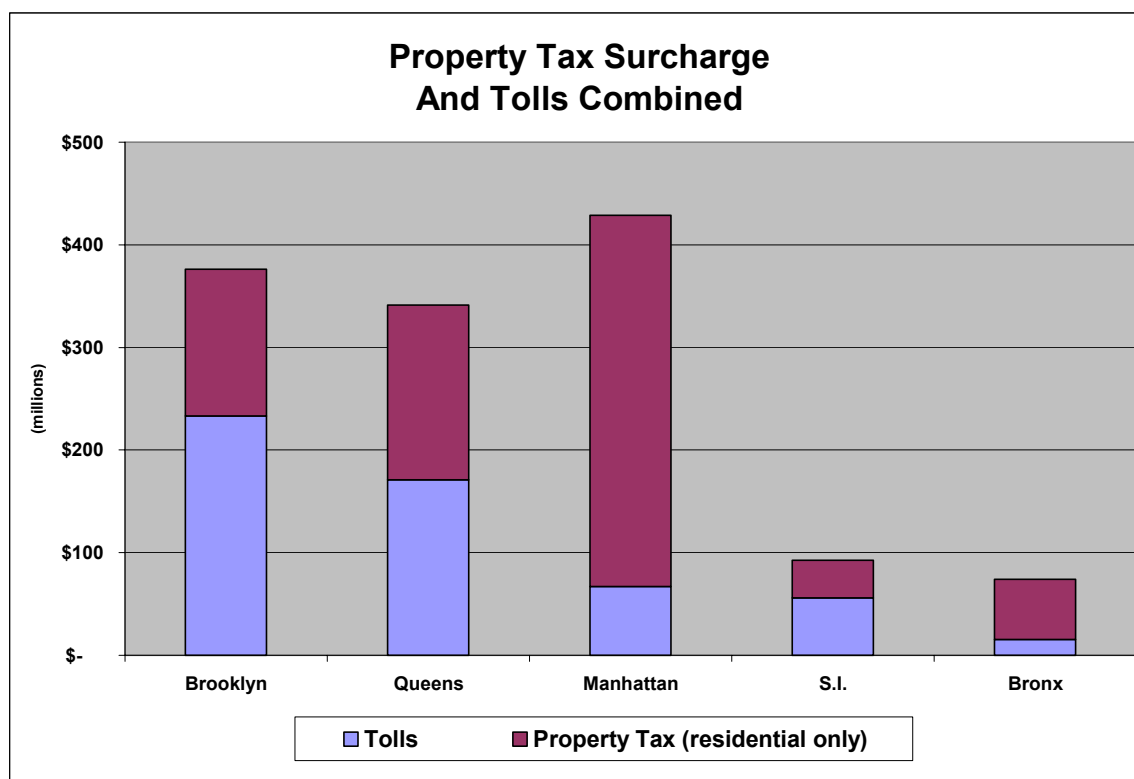


Figure 2

This offsetting result isn’t coincidence but the logical outcome of a larger pattern inherent in New York’s urban form. What gives Manhattan properties their outsized value and consequent high taxes is their proximity to “destinations” — stores, businesses, schools,

entertainment — and to public transit. This same proximity is the reason that Manhattanites take 60% fewer trips per capita on the East River bridges than do Brooklynites. It's to be expected, then, that Manhattan residents will pay less than Brooklyn residents in bridge tolls while shelling out more in real estate taxes.

In short, Manhattan took the first punch, and a very hard one, in order to balance the City's budget without gutting vital government services. Now it is, or should be, Brooklyn's turn.

6. Per Capita Cost of Tolls

Even if tolls cost somewhat less than our \$700 million assumption, they will effect a considerable transfer of money from drivers on the bridges to municipal and transit agencies. We examined the *geographical* (county-wide) distribution of the toll burden in Section 5. Here we look at the toll payments *individuals* can expect to make. Not surprisingly, the “hit” to individuals varies enormously based on whether one is (i) a commuter who drives *solo* more or less daily on an East River bridge; (ii) a commuter who *carpools* on one of the bridges; and (iii) neither of the above, i.e., one who drives on the bridges occasionally or not at all.

More strikingly, we find that the first two groups amount to just 1-2% of area residents. Bridge tolls, it turns out, will have little impact on the vast majority of New Yorkers.

Getting to this important result will take several steps. The first is to divide East River bridge trips between private cars and other vehicles, beginning with Table 3.

Table 3: East River Bridges, Vehicle “Splits,” 2000

Bridge	Autos	Buses	Commuter Vans	Commercial Vans	Trucks	Total
Brooklyn	92.2%	0.3%	3.5%	3.9%	0.1%	100.0%
Manhattan	47.3%	2.4%	9.9%	16.8%	23.6%	100.0%
Williamsburg	65.0%	1.9%	15.4%	7.9%	9.8%	100.0%
Queensboro	77.4%	2.2%	5.4%	9.6%	5.4%	100.0%
TOTAL	74.6%	1.6%	7.7%	8.6%	7.5%	100.0%

Source: NYC DOT, *2000 Manhattan River Crossings*, Dec. 2001, p. 34. Splits are for 7 am – 7 pm (two-way).

Table 3 shows that cars account for three-fourths (75%) of traffic on the four East River bridges, although the share varies wildly from one bridge to the next. Buses and commuter vans together constitute 9% of vehicles, and the remainder of bridge traffic, 16%, is commercial vehicles. This last group is split almost evenly between vans used by tradesmen (typically, service and repair workers) and cargo-carrying trucks ranging from 6,000-pound 2-axle trucks to 80,000-pound eighteen-wheelers. (Buses, commuter vans and trucks are treated in Section 9.)

Summing NYC DOT’s daily average traffic volumes on the East River bridges for the year 2000 — Queensboro 183,000; Brooklyn, 148,000; Williamsburg, 108,000, and Manhattan, 76,000 — yields 515,000 trips per day, or 188 million a year. Private automobiles’ three-fourths share of these trips thus amounts to 141 million annually.

Next, we separate these 141 million car trips into commute and non-commute trips. Using the same U.S. census data that gave us county-to-county percentage “splits” in Table 1, we calculate that 117,000 autos carrying 144,000 commuters cross one of the bridges en route to work each day, as Table 4 shows below.

Table 4: Journey-to-Work Auto Crossings on (free) East River Bridges, 2000

County Of Origin	County of Destination										TOTAL
	(read down)	Bklyn	Queens	Manh	S.I.	Bronx	Nassau	Suffolk	Bergen	Essex	
Brooklyn	-	-	32,120	-	2,110	-	-	2,085	844	1,779	38,938
Queens	-	-	27,907	-	-	-	-	-	289	360	28,556
Manhattan	4,670	3,216	-	433	-	2,146	752	-	-	-	11,216
Staten Is.	-	-	9,375	-	-	-	-	-	-	-	9,375
Bronx	2,548	-	-	-	-	-	-	-	-	-	2,548
Nassau	-	-	14,977	-	-	-	-	-	100	139	15,217
Suffolk	-	-	6,259	-	-	-	-	-	38	42	6,340
Bergen	2,226	-	-	-	-	-	-	-	-	-	2,226
Essex	724	302	-	-	-	61	14	-	-	-	1,102
Hudson	1,112	194	-	-	-	87	23	-	-	-	1,416
TOTAL	11,280	3,712	90,638	433	2,110	2,294	789	2,085	1,272	2,321	116,935

Source: 1990 U.S. Census “Journey To Work” data, increased by 10% to approximate 2000 levels. (NYC DOT *Manhattan River Crossings* reports show 1990-2000 increase of 14.7% in East River bridge volumes and 11.1% increase for all crossings in and out of Manhattan.) Figures here are consistent with percentages in Table 1.

Based on census data that differentiate commuters who drive alone from commuters who carpool, we can divide the 117,000 daily commute vehicle trips that use an East River bridge into 97,600 single-occupant vehicles and 19,000 carpools. The latter carry 46,000 people (including the drivers), for an average occupancy rate of 2.4 persons per car.

To compute the *annual number* of these 117,000 daily commute vehicle trips, we assume that each of these cars travels, on average, 45 weeks a year (allowing for vacation, illness, work travel, etc.), 4.5 days per week (i.e., one day every two weeks *without* driving to work on an East River bridge), and 2 trips a day (since the 117,000 trips are one-way, to work). This yields 405 one-way trips a year (45 x 4.5 x 2). The 117,000 commute vehicles thus rack up 47 million East River bridge trips a year (117,000 x 405).

As it happens, 47 million is exactly a third of the 141 million total trips by private autos. In other words, **one-third of all East River bridge car trips are for commuting**. The remaining 94 million auto trips qualify, then, as non-work auto trips, as shown in Fig. 3.

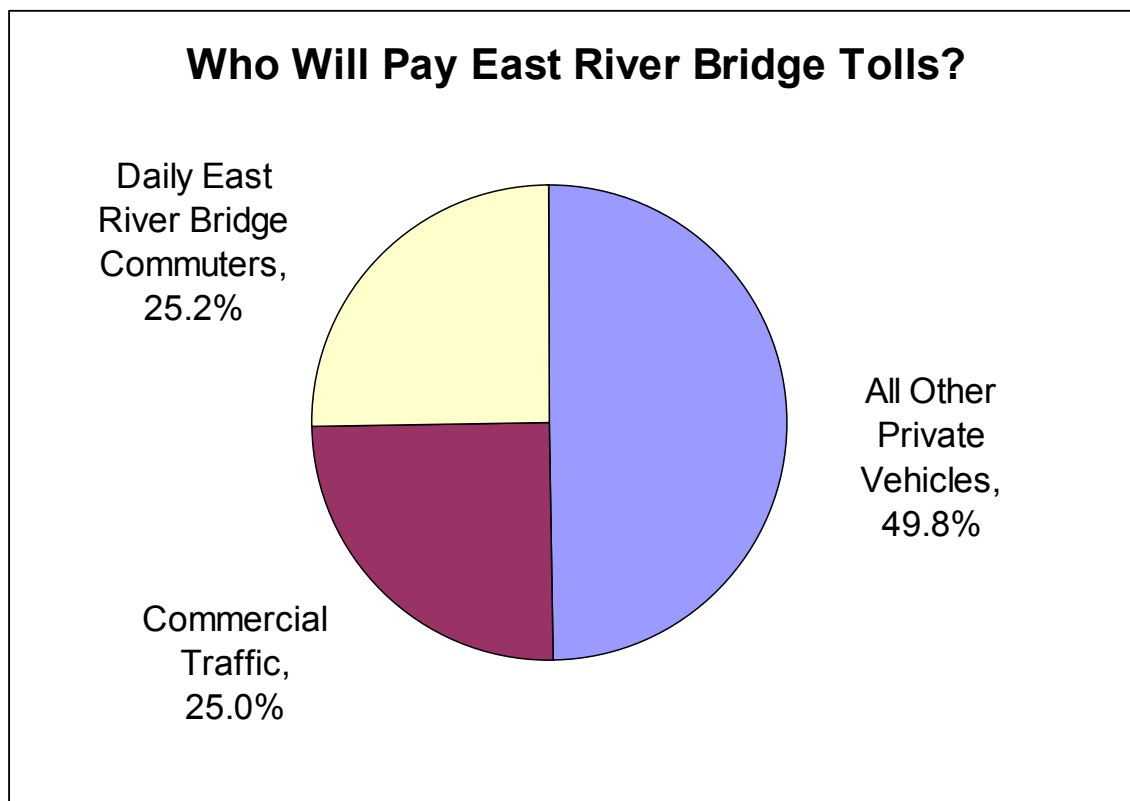


Figure 3

From these estimates, and using county population data from the 2000 Census, we can calculate the annual cost an individual will bear from East River bridge tolls, based on the person’s level and type of bridge usage. This is shown in Table 5.

Table 5 shows stark differences in prospective costs from East River bridge tolls among various categories of area residents, with respect to how, and how much, they use the East River bridges. Commuters who will drive alone on an East River bridge will pay \$1,510 a year for the privilege (a figure we could also have derived by multiplying the average one-way toll level of \$3.72 by the 405 annual one-way trips we assume for bridge commuters). Carpoolers split the cost and thus fare better. Based on the prevalence and occupancy rates of carpools on the East River bridges today, the typical carpooler can expect to pay a little over \$600 annually to commute on an East River bridge.

However, the real news in Table 5 appears in the first data column, showing per-person costs of tolls for “everyone else” other than East River bridge commuters — area residents who don’t now, or won’t in the future, drive across an East River bridge to their job every day. **Included in this category are people who drive to work in Manhattan on an MTA or Port Authority crossing; people whose car commute stays within a borough or between two “outer” boroughs; people who take transit to work, or walk, bike, or work at home; and non-employed adults.**

Table 5: Prospective Annual Costs from East River Bridge Tolls

	All adults except E River bridge-using Commuters	Commuters who Carpool on an East River bridge	Commuters who Solo-Drive on an East River bridge	All adults
Brooklyn	\$ 69	\$ 610	\$ 1,510	\$ 101
Queens	\$ 53	\$ 650	\$ 1,510	\$ 78
Manhattan	\$ 27	\$ 590	\$ 1,510	\$ 41
Staten Island	\$ 91	\$ 590	\$ 1,510	\$ 132
Bronx	\$ 8	\$ 650	\$ 1,510	\$ 13
NYC (5 boroughs)	\$ 47	\$ 620	\$ 1,510	\$ 70
Nassau	\$ 48	\$ 690	\$ 1,510	\$ 71
Suffolk	\$ 19	\$ 680	\$ 1,510	\$ 28
L.I. (2 counties)	\$ 33	\$ 690	\$ 1,510	\$ 49
Bergen	\$ 10	\$ 710	\$ 1,510	\$ 15
Essex	\$ 6	\$ 630	\$ 1,510	\$ 9
Hudson	\$ 9	\$ 620	\$ 1,510	\$ 14
NJ (3 counties)	\$ 9	\$ 650	\$ 1,510	\$ 13
All 10 Counties	\$ 37	\$ 630	\$ 1,510	\$ 55

Sources: 2000 Census population data and BTAP calculations based on 1990 U.S. Census “Journey To Work” data, increased by 10% to approximate 2000 levels (per note to Table 4). “Adults” are defined as persons age 18 to 80.

As the first column of Table 5 shows, these folks can expect on average to feel little impact from East River bridge tolls — a mere \$37 per person averaged across the 10 counties as a whole, and just \$47 for residents of New York City. Even Brooklynites will only pay around \$70 a head, provided they don’t drive daily on an East River bridge.

What is, perhaps, unexpected is the extent to which “everyone else” — adults who don’t use an East River bridge on a daily basis — outnumber the daily commuters, who are a tiny minority. For the 10 counties as a whole, **those who don’t drive daily on an East River bridge outnumber bridge commuters (solo drivers and carpoolers combined) by 65 to 1**. In New York City alone, the ratio is 50 to 1, and even in Brooklyn almost 35 to 1, as may be calculated from the data in Table 6.

Table 6 reveals how few people regularly car-commute on an East River bridge — just 1.5% of residents of the 10 relevant counties, and under 2% in the 5 boroughs. (Here we are summing the percentages of solo-drive and carpooling commuters shown in the second and fourth data columns of Table 6.)

Even among adult residents of Brooklyn, fewer than 3% regularly commute on an East River bridge; and a third of these travel in a carpool and so can share the cost with the other rider(s). Only one borough or county, Staten Island, sends more than 3% of its residents to work daily via an East River bridge. And because many Staten Islanders who take cars to Manhattan are in carpools, the share of those who commute alone on an East River bridge and thus are subject to \$1,500 a year in new bridge tolls is just 2.3%.

Table 6: Population Distribution of East River Bridge Users

	Solo-drive Commuters Number, % of Adults		Carpooling Commuters Number, % of Adults		All other adults (no E.R. commuters)	
Brooklyn	32,049	1.8%	16,962	1.0%	1,687,549	97.2%
Queens	23,424	1.4%	11,909	0.7%	1,617,006	97.9%
Manhattan	9,968	0.8%	3,219	0.3%	1,220,673	98.9%
Staten Island	7,235	2.3%	5,510	1.7%	305,909	96.0%
Bronx	2,174	0.2%	872	0.1%	899,335	99.7%
NYC (5 boroughs)	74,851	1.3%	38,472	0.7%	5,730,472	98.1%
Nassau	13,114	1.4%	4,617	0.5%	942,978	98.2%
Suffolk	5,503	0.5%	1,853	0.2%	1,004,155	99.3%
L.I. (2 counties)	18,617	0.9%	6,470	0.3%	1,947,133	98.7%
Bergen	2,226	0.3%	446	0.1%	645,525	99.6%
Essex	1,102	0.2%	389	0.1%	562,298	99.8%
Hudson	1,416	0.3%	519	0.1%	453,577	99.6%
NJ (3 counties)	4,157	0.2%	1,354	0.1%	1,661,401	99.7%
All 10 Counties	97,625	1.0%	46,296	0.5%	9,339,005	98.5%

Source: BTAP calculations based on 1990 U.S. Census “Journey To Work” data (increased 10% to approximate 2000 levels, per note to Table 4) and 2000 Census population data. “Adults” are defined as persons age 18 to 80.

7. Income Progressivity

Opponents of bridge tolls sometimes argue that tolls will be “regressive” — that they will fall more heavily, relative to income, on people with lower incomes than on the well-off. This argument has a certain *a priori* plausibility; flat fees often are regressive in this sense. But the devil, as always, is in the details, especially given the oft-overlooked correlation between car ownership and household income in New York City.

To determine whether East River bridge tolls will be regressive, we analyzed a subset of U.S. Census data called PUMS (Public Use Microdata Samples) which is obtained from detailed surveys filled out by a sub-sample of the population. To keep the analysis manageable, we limited it to residents of Brooklyn, Queens and Staten Island, who account for nearly two-thirds of regular East River Bridge users (see Table 1). Pending release of PUMS data from the 2000 Census, we employed 1990 data adjusted to 2002 income levels. (For details of the methodology and calculations in this section, see www.bridgetolls.org/data/Toll_Progressivity_Calculations.htm.)

We then divided all two million employed residents of the three boroughs into two groups: a small group, 79,000, who regularly drive a car, truck or van into Manhattan via an East River bridge; and a large group, 1,919,000, who get to work without doing so (either by driving on an MTA toll bridge or tunnel or by taking transit into Manhattan or by working in a borough or county other than Manhattan). Adjusted to 2002 levels using national-average wage growth, the average income of the small group of East River

bridge-using commuters is \$53,468 a year, while the average for the other group that doesn't use an East River bridge to get to work is \$39,132.

The difference between the average income of the two groups, \$14,336 a year, is almost 10 times as great as the \$1,510 in bridge tolls that a daily East River bridge user can expect to pay annually once the bridges are tolled (see Table 5).

This comparison can be refined in a number of ways:

- using *medians* rather than *averages* narrows the income difference between daily East River bridge users and other jobholders from the same boroughs, from \$14,336 to \$10,670;
- using *after-tax* rather than *pre-tax* income also shrinks the average income difference, from \$14,336 to \$9,548;
- *carpooling*: some East River bridge commuters now carpool, and more will do so to split the cost of tolls; with two in the car instead of one, the annual toll cost (the denominator in the ratio of income difference to toll cost) drops from \$1,510 to \$755;
- netting the toll “hit” by the jump in commuting costs for transit users, which will average \$123/year when the fare hike takes effect, in May, likewise reduces the denominator of the ratio, from \$1,510 for a solo commuter, to \$1,387.

With these refinements, the ratio of the income differential (between East River bridge commuters and other workers) to a bridge commuter's new annual toll cost, can be made to vary from as little as 5 to more than 20. But in any scenario, East River tolls will be paid primarily by people who are better-off than average. In addition, the tolls will disproportionately *benefit* lower-income citizens and families who depend heavily on city services. Far from being regressive, then, bridge tolls are in fact “doubly progressive.”

8. Value Pricing

Up to now we have assumed a flat rate for East River bridge tolls — a single rate applying at all hours. Yet “variable” or “value” toll pricing is clearly a better idea, and the idea is gaining ground. In the New York metropolitan area, both the New Jersey Turnpike and the Port Authority charge higher rates for their roads, bridges and tunnels in peak-use periods and offer lower rates at other times. And they appear to be getting what they hoped for: drivers are shifting a non-trivial number of peak trips into less-congested off-peak times or onto other travel modes.

Within New York City, however, the Metropolitan Transportation Authority still maintains a uniform \$3.50 toll on its crossings, a policy it is preparing to reinforce with a flat 50¢ increase to \$4.00. In a report earlier this year for the Tri-State Transportation Campaign, *A Value-Pricing Plan for the MTA*, available at www.tstc.org, I proposed instead that the MTA hold the line at \$3.50 for off-peak trips, which cover 70% of all usage, and charge \$5.00 for the other 30% of trips that are made during peak periods.

This arrangement would, I calculated, generate virtually the same revenue as a \$4.00 flat toll, but would save time for peak travelers by shifting or deterring some peak traffic.

Here, we have implicitly assumed a \$3.72 flat-rate toll for the East River bridges; this is the toll rate that mathematically produces our annual revenue target of \$700 million (obtained by dividing \$700 million by 188 million trips a year). If value pricing were to be employed instead, then this same revenue could be obtained by charging \$5.00 for westbound travel during the morning peak and for eastbound trips in the evening peak, while the rate was dropped to \$3.18 for all other trips. We use this scenario here to estimate the impacts of value pricing.

Table 7: County Toll Burdens — Flat vs. Value Pricing

	Annual Toll Amount Under Flat Pricing	Annual Toll Amount Under Value Pricing	% Change
Brooklyn	\$ 233.1 Million	\$ 238.7 Million	+ 2.4%
Queens	\$ 170.9 Million	\$ 175.0 Million	+ 2.4%
Manhattan	\$ 67.1 Million	\$ 58.5 Million	- 12.8%
Staten Island	\$ 56.1 Million	\$ 57.5 Million	+ 2.4%
Bronx	\$ 15.3 Million	\$ 13.3 Million	- 12.8%
NYC (5 boroughs)	\$ 542.6 Million	\$ 543.0 Million	+ 0.1%
Nassau	\$ 91.1 Million	\$ 93.3 Million	+ 2.4%
Suffolk	\$ 38.0 Million	\$ 38.9 Million	+ 2.4%
L.I. (2 counties)	\$ 129.0 Million	\$ 132.1 Million	+ 2.4%
Bergen	\$ 13.3 Million	\$ 11.6 Million	- 12.8%
Essex	\$ 6.6 Million	\$ 5.8 Million	- 12.8%
Hudson	\$ 8.5 Million	\$ 7.4 Million	- 12.8%
NJ (3 counties)	\$ 28.4 Million	\$ 24.8 Million	- 12.8%
All 10 Counties	\$ 700.0 Million	\$ 700.0 Million	+ 0.0%

Annual toll amounts assume \$3.72 per trip with flat pricing, and \$5.00 for peak and \$3.18 for off-peak trips with value pricing. They are calculated from trip volumes in Table 8 with the simplifying assumption of no trip changes due to either toll system.

Since the \$5.00 peak rate exceeds the \$3.72 flat rate by a third, it's clear that value pricing will impact East River bridge drivers who travel at peak times — westbound during 6-10 a.m. and eastbound 3-8 p.m. Someone who drove alone to Manhattan at these times every day and year-round would pay \$2,000 in tolls, a third more than the \$1,500 annual cost to solo-commute on an East River bridge under a flat rate (that's \$5 for each of 405 trips a year, based on 45 weeks a year and 9 one-way trips a week).

Value pricing would widen the tolls gap between Manhattan and other boroughs, since peak trips originating in Brooklyn, Queens, Staten Island or Long Island would outnumber those by residents of Manhattan, the Bronx and New Jersey by 50 to 1. And yet, on an overall basis, *value pricing would increase the overall toll cost to Brooklyn and its neighbors just 2-3%*, as Table 7 shows, due to the offsetting effect of millions of

discounted trips made in off-peak hours by commercial vehicles and non-commuting motorists from those boroughs.

It may appear counterintuitive that the total toll tab for Brooklyn and other areas east of Manhattan stands to rise just 2-3% with value pricing, even though commuters from these areas who drive across an East River bridge to Manhattan at peak times will pay a third more. The explanation can be found in Table 8, most notably in the fact that westbound off-peak trips by non-commuting motorists outnumber westbound on-peak commute trips almost two-to-one, 69 million to 36 million. Also helping Brooklyn and its neighbors, an estimated three-quarters of westbound commercial travel over the East River bridges takes place during off-peak hours.

Table 8: East River Trips by Type and by Peak vs. Off-peak

	Share of trips by type	Number of trips, millions	% trips in peak	Number of peak trips, millions	Number of off-pk trips, millions
Westbound trips on E River bridges (trips originating east of Manhattan, plus return trips)					
Commute autos	25.2%	39.9	90%	35.9	4.0
Non-commute autos	49.8%	78.8	12%	9.5	69.3
Commercial (truck, van, bus)	25.0%	39.5	25%	9.9	29.7
WESTBOUND TOTAL	100.0%	158.2	34.9%	55.2	102.9
Eastbound trips on E River bridges (trips originating west of Manhattan, plus return trips)					
Commute autos	25.2%	7.5	0%	–	7.5
Non-commute autos	49.8%	14.8	5%	0.7	14.1
Commercial (truck, van, bus)	25.0%	7.4	5%	0.4	7.1
EASTBOUND TOTAL	100.0%	29.7	3.7%	1.1	28.6
Both directions, combined (all trips; westbound-originated account for 84%, eastbound for 16%)					
Commute autos	25.2%	47.4	75.8%	35.9	11.5
Non-commute autos	49.8%	93.6	10.9%	10.2	83.4
Commercial (truck, van, bus)	25.0%	47.0	21.8%	10.3	36.7
ALL TRIPS TOTAL	100.0%	187.9	30.0%	56.3	131.6

First column, trip shares by type, is from Section 6. Second column, number of trips, is product of trip share % and total annual East River crossings, 187.9 million. Middle column, % trips in peak, is our assumptions; key one is that 90% of westbound commute trips occur in peak (allows 10% for trips before 6 a.m., after 10 a.m. or by swing-shift or late-shift commuters). Other assumptions in column were made for conservatism (designating virtually all eastbound-originated trips as off-peak) or to ensure that sum of peak trips in both directions satisfies “constraint” of equaling 30% of all trips. Note that here we assign each trip’s return leg the same direction as the first leg.

Thus, even though very few trips originating in Manhattan would be subject to the peak rate — we assume less than 4% — peak trips will also be a minority of all trips from Brooklyn and its neighbors. (This isn’t an assumption but a mathematical requirement; if off-peak trips are to account for 70% of all trips at all times, as traffic counts indicate, then peak trips from Brooklyn and similarly situated areas can’t amount to more than 35% of all trips from there.) The peak rate would have to exceed \$9 (a level that would “force” the off-peak rate below \$1.50 to keep total revenue constant) before Brooklyn, Queens, Staten Island and Long Island saw their toll costs rise 10% vs. a flat toll.

The five “western” boroughs and counties — Manhattan, the Bronx, and Bergen, Essex and Hudson Counties — would pay slightly less under value pricing than with a flat toll — just \$14 million a year. This same small amount spread over the many trips originating in Brooklyn, Queens, Staten Island, Nassau and Suffolk instead would add just a few percent to the “base” cost these areas will experience from East River tolls in the first place.

9. Commercial Drivers

Trips by commercial vehicles — commuter vans, commercial vans, buses, and trucks of all sizes — account for a quarter of all travel on the East River bridges (see Table 3), or 47 million crossings a year. These vehicles stand to pay a quarter of the total toll cost, or \$175 million a year, if the toll levels are set to generate \$700 million as we have assumed here. (The actual amount could be higher since heavy vehicles and trucks with more than two axles would be charged proportionately higher tolls, an important detail we have bypassed here.)

As can be calculated from Table 3, commercial trips are roughly one-third each by (i) buses and commuter vans, (ii) trucks and (iii) commercial vans. Tolls charged to the first category presumably would be split among passengers of these vehicles. While the daily round-trip toll *per-vehicle* would be \$7.50 (based on the one-way flat-rate average of \$3.72) or \$10 (assuming value pricing of peak travel), this would equate to just 75¢ or \$1.00 a day *per passenger* assuming 10 passengers; and less for higher occupancy rates. For most daily van or bus commuters traveling around 200 days a year (the same 45 weeks a year and 4.5 round-trips per week assumed above), the annual toll cost passed through to their fare should be no more than \$200, and considerably less for those riding high-volume buses.

This leaves 30 million trips (15 million round-trips) a year by trucks and commercial vans, with an implied annual toll totaling \$111 million. Unfortunately, no data are available as to the distribution of these trips by origin and destination; it is probably reasonable to distribute the 30 million trips among the boroughs and counties in the same proportion as the commuter trips, so that roughly 33% originate in Brooklyn, 24% in Queens, etc. (see Table 1). However, without more detailed information on the affected businesses — dollar volume, profit margin, opportunities for consolidating trips, etc. — it is difficult to gauge the true impact of tolls on commercial vehicles.

A countervailing effect, of course, is the time savings commercial drivers will realize from the lessening of traffic congestion due to lower usage of the East River bridges once tolls are charged. (The hue and cry from some Brooklyn and Queens officials about *worsening* gridlock from toll plazas is, of course, nonsense; in fact, “boothless” systems will collect tolls electronically from drivers’ E-ZPasses at high speeds.)

In my report on MTA tolls cited in the previous section, I estimated that converting uniform tolls to value pricing would generate enough time savings to peak-period motorists to offset roughly a quarter of their higher toll cost. Tolling the East River bridges should produce an even greater boon in time savings for commercial drivers, for two reasons. First, commercial drivers (or their companies) value traffic time savings at more than the \$25/hr average I imputed to peak drivers, mostly ordinary motorists, in the MTA study. Second, the rudimentary model I used there to calculate the toll-induced gains in travel time only captured the speedup of traffic on the primary bridge and highway system, and thus missed additional time savings on local feeder roads.

A truer estimate of the time savings that commercial and other drivers can expect from East River bridge tolls can be gotten only from a comprehensive computer-based travel-demand model that incorporates the hundreds or thousands of neighborhoods and districts that are our region's travel "origins" and "destinations," and also includes traveler "choice factors" such as time, price and convenience. Fortunately, such a model does exist. After years of work and expenditures of more than \$10 million in taxpayer money, the "Best Practices Model" is up and running under the auspices of the New York Metropolitan Transportation Council (NYMTC), the state-run "metropolitan planning organization" for the New York area.

Unfortunately, the taxpayers are not getting the return they have every right to expect. Despite repeated requests, NYMTC has refused to use the model to estimate the effects on traffic flow and travel time from East River bridge tolls, which are still anathema to Governor Pataki. Until the NYMTC ostrich removes its head from the sand and runs the model, any estimates of these offsetting benefits from bridge tolls, which are of special interest to any business, small or large, that sends goods or personnel across the East River bridges, remain speculative.

A segment of the commercial sector that could be particularly hard hit by East River tolls is delivery businesses and service personnel who frequently make more than one round-trip per day. Jeff Zupan, the veteran transportation expert for the Regional Plan Association, has suggested waiving or reducing the tolls on second (or third, etc.) same-direction trips on the same day for commercial vehicles. Since relatively few trips would presumably be involved, this would cost little in lost revenue while easing a burden that could otherwise appear punitive. (The exemption would not apply to for-hire vehicles such as medallion and "gypsy" cabs and "black cars.")

The Bridge Tolls Advocacy Project was established in 2002 to serve and energize the citizens movement to toll the East River bridges. Our Web Site, www.bridgetolls.org, operates as the movement's town hall, presenting the arguments, provoking debate and explaining the benefits. See <http://www.bridgetolls.org/faq/> for our set of Frequently Asked Questions (and answers) about East River bridge tolls. Please contact us at info@bridgetolls.org or by writing to BTAP, 636 Broadway, Room 602, NYC 10012.

Charles Komanoff has been engaged in New York City transportation-reform work since the mid-1980s. He is a founding trustee of the Tri-State Transportation Campaign, the "re-founder" of Transportation Alternatives, a founder of Right Of Way, and author or co-author of *Subsidies for Traffic*, *The Bicycle Blueprint*, and *Killed By Automobile*. With Steven O'Neill, he founded the Bridge Tolls Advocacy Project in 2002. Komanoff was an energy-policy specialist in the Lindsay Administration (1972-74) and later gained prominence for deconstructing the economics of nuclear power as author-researcher (*Power Plant Cost Escalation*, *Fiscal Fission*) and expert witness for New York City and State and other states and municipalities. His recent energy-policy monographs include *Ending The Oil Age* and *Securing Power Through Energy Conservation and Efficiency in New York*. Komanoff has a B.A. from Harvard in Applied Math and Economics. He lives in lower Manhattan with his wife and two sons.

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