

# Preliminary Results

# Price Matters Research Study

Estimating Benefits and Costs  
of  
Free or Reduced Fare Public Transit in  
NYC

Combined with  
Manhattan CBD Cordon Tolls

# Study Team

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# Preliminary Findings - I

- Of the 821,500 motor vehicles entering the Manhattan CBD, 198,500 (24.2% of the total) pay tolls to use four tunnels: Lincoln, Holland, Queens-Midtown and Brooklyn-Battery Tunnels. These tolls are charged 24/7.
- Extending these tolls to the other roadways crossing into the CBD and setting the tolls at London prices -- \$16 per inbound crossing -- produces sufficient additional revenues to offset all NYC bus and subway fares.
- Other cost and capacity consequences of this scenario are still being studied.

# Manhattan CBD

## Weekday Vehicle Entries

Lincoln Tunnel	56,300	
Holland Tunnel	<u>46,100</u>	
Total -- PANYNJ		102,400
Midtown Tunnel	45,700	
Battery Tunnel	<u>29,300</u>	
Total -- MTA B & T		<u>75,000</u>
Total Paid Entries		198,500
East River Bridges	253,700	
Across 60 <sup>th</sup> Street	<u>369,600</u>	
Total Free Entries		<u>623,300</u>
Grand Total – All Entries		821,500

source: NYMTC Hub Bound 2004

# Current Toll Rates

## Midtown and Battery Tunnels (each way)

\$4.50 cash, \$4.00 with E-ZPass

(up to 7,000 lbs gross, over 7,000 \$9.00 each way cash, 7.20 with E-ZPass, each additional axle \$5.00, \$4.00 with E-ZPass)

## Lincoln and Holland Tunnels (eastbound)

\$6 cash - \$5 peak, \$4 off-peak with E-ZPass

Peak Hours: Weekdays: 6-9am, 4-7pm, Sat/Sun 12noon-8pm

(trucks with dual rear axles -- cash \$12, with E-ZPass \$10 off-peak, \$7 overnight; for larger trucks, added per axle : \$6 peak, \$5 off-peak, \$3.50 overnight))

# Annual Revenue Generated from Manhattan CBD Cordon Toll

at uniform \$16 inbound toll (London rate, but applied 24/7)  
**(Gross, Before Shrinkage)**

Key assumptions:

- PANYNJ tunnels – \$5 avg. toll would increase to \$16
- MTA Tunnels -- \$4.50 avg. toll each way would become \$16 inbound
- 330 average weekdays per year

Gross Annual Revenue Generated (millions of dollars)

- PANYNJ Tunnels (+\$11)	372
- MTA Tunnels (+\$7)	173
- NYC-owned bridges and streets (+\$16)	<u>3,291</u>
Total	3,836

# Annual Revenue Generated from Manhattan CBD Cordon Toll

at uniform \$16 inbound toll (London rate, but applied 24/7)  
**(Net, After Shrinkage)**

Key assumption -- shrinkage:

- Currently free bridges and streets -- 20% shrinkage
- PANYNJ tunnels -- 11/16 of 20% or 13.25%
- MTA Tunnels -- 7/16 of 20% or 8.75%

Net Annual Revenue Generated (millions of \$'s)

- PANYNJ Tunnels (+\$11)	323	(49)
- MTA Tunnels (+\$7)	157	(16)
- NYC-owned bridges and streets (+\$16)	<u>2,633</u>	<u>(658)</u>
Total	3,113	(723)

# Comparison of Net Revenues from Manhattan CBD Cordon Tolls with Revenue Loss from Free Transit Fares

Net Revenues from Cordon Tolls (millions of \$'s)		3,113
MTA NYC Annual Revenues (2007 MTA Budget)		
- NYCT Subway (incl. SIRT)	1,964	
- NYCT Bus	737	
- MTA Bus	<u>129</u>	
Total		<u>2,830</u>
Surplus		283

# Preliminary Findings II

- The estimated cost of collecting subway fares in 2007 is about \$360 million

(Awaiting better estimate from MTA)

# Collecting subway fares consumed 19% of subway fare revenue in 1982

(19% of \$740.5 million or \$141 million)

source: PCAC Study, 1982

In 2007,

this would be about \$360 million

(if these cost rose in proportion to other the  
increase in other operating cost)

(Awaiting better estimate from MTA)

# Other cost and revenue impacts

Gains (millions of dollars)

Surplus (tolls minus fares lost) 283

Subway fare collection cost saved 360

Savings from faster bus speeds ?

Losses

Cost of increased service to handle  
diverted motorists and new transit riders ?  
(TBD in study)

# Other Benefits and Costs of Free Transit coupled with Manhattan Cordon Tolls

## Societal Benefits:

- Travel time savings for motorists
- Reduced VMT benefits pedestrians and cyclists
- Reduction in greenhouse gas emissions
- Some shift in cash to lower income families

## Other Costs:

These benefits and costs are under development

# Preliminary Findings - III

- A Manhattan Cordon toll reverse the current price differential that encourages travel to pass through the Manhattan CBD, rather than to bypass it. This eliminates the unacceptable backups at the Manhattan approaches to the Lincoln and Holland Tunnels.
- This also allows all MTA Bridge and Tunnel tolls to be collected in one direction, reducing transaction cost and inconvenience.

# Escape from Long Island

Via Manhattan CBD

No toll using four East River Bridges

Via GWB bypassing Manhattan CBD

(using Tri-borough, Whitestone, Throgs Neck Bridges) \$4 with E-ZPass

Via Verrazano bypassing Manhattan CBD

\$8 with E-ZPass

# Existing Weekday toll transactions to and from Long Island

Verrazano

98,000 (westbound)

Other MTA Bridges and Tunnels

551,500 (total eastbound and westbound)

Total

649,500

# Weekday Toll Transactions, with all Tolls Westbound from Long Island

Verrazano

98,000

Other MTA Bridges and Tunnels

275,500

Four East River Bridges

253,800

Total

627,300 -- 22,200 fewer transactions

# Preliminary Findings - IV

- Morning peak hour inbound subway loads are 40.9% and regional rail passenger loads are 19.9% higher than afternoon outbound peak hour loads.
- Morning peak hour trips are more work oriented and less likely to respond to fare reductions. The number of jobs that can be housed in the Manhattan CBD is limited by the capacity of existing and planned buildings.
- There are more non-work trips in afternoon peak hour – would respond to fare reduction

# For Rail lines: Inbound Morning Peak Hour Loads are Considerably Higher than Afternoon Outbound Peak Hour loads

## Peak Hour Passengers

### Subways

Morning inbound	349,700
Evening outbound	248,200
morning 40.9% higher	

### Regional Rail

Morning inbound	80,200
Evening outbound	66,900
morning 19.9%	

# MTA Subway Loading Guidelines

A Division (numbered lines)

Capacity per car 110

10 car train 1,100, 11 car train 1,210

B Division (lettered lines)

Capacity per car (60 foot cars) 145

10 car train 1,450, 8 car train 1,160

(note: capacity of 75 foot cars 175, 8 car train 1,400, for this analysis  
all B Division trains are expressed in 60 foot equivalents)

# Subway Capacity Analysis

Maximum Practical Peak Hour Capacity

30 trains per hour (could be higher with advanced signaling features already available on many lines using 1920s technology)

# Existing Inbound Subway Track Capacity at Manhattan CBD Cordon

## 60<sup>th</sup> Street

A Division	4 tracks	10 car trains
B Division	2 tracks	10 car trains

## Queens

A Division	1 track	11 car trains
B Division	3 tracks	10 car trains

## Brooklyn

A Division	2 tracks	10 car trains
B Division	4 tracks	10 car trains
	2 tracks	8 car trains

New Jersey (PATH) assume same loading as subway guidelines

1 uptown track 7 car trains

1 downtown (WTC) track (assume 30 10 car trains, 10 7 car trains)

# Regional Rail Capacity

## Key assumptions:

- 30 ten car trains per inbound track
- 100 passengers per car, on average
- modern high density signal system, like that in place on Hudson River Tunnel, installed on all mainline tracks
- multiple berths at Manhattan stations
- Park Avenue tunnels operated 2 and 2
- Amtrak West Side single track tunnel limited to 10 inbound peak hour trains

# Subway and Regional Rail Inbound Morning Peak Hour capacity and Current Utilization

	Capacity	Current Use
60 <sup>th</sup> Street		
subway	219,000	123,600
regional rail	70,000	31,000
total	279,000	154,600
Queens		
subway	130,000	84,100
regional rail	60,000	34,000
total	190,000	118,100
Brooklyn		
subway	309,600	142,000
New Jersey		
PATH	63,800	19,300
regional rail	30,000	15,100
total	93,800	34,400

# Inbound Morning Peak Hour Motor Vehicle Occupants

- 60<sup>th</sup> Street 30,500
- Queens 16,900
- Brooklyn 18,200
- New Jersey 11,400

# Transit Use is More Peaked than Auto Use

8-9 am as percent of 7-10am

Motor vehicles	34.1%
Transit riders	45.5%

Each peak hour motorist shifted to transit could result in more peak hour transit use

Staggered Work Hours, an option successfully applied in the early 1970s could be revisited

# Preliminary Findings - V

Regional Rail Opens new Opportunities for  
Transit Service in NYC

Potential for Diverting Riders From  
Overcrowded Subway lines

# Regional Rail in NYC

## Regional Rail Features

- Frequent service
- Integrated fares
- Thru-running

## **Special Feature: One City – One Fare**



# Existing Regional Rail Stations Bronx

- Melrose
- Tremont
- Fordham
- Botanical Garden
- Williams Bridge
- Woodlawn
- Wakefield
- Morris Heights
- University Heights
- Marble Hill
- Spuyten Duyvil (could be relocated north)
- Riverdale

# Existing Regional Rail Stations Queens

- Long Island City (would be closed when Sunnyside Intermodal opens)
- Hunterspoint Avenue ( “ “ )
- Woodside
- Forest Hills
- Kew Gardens
- Jamaica
- St. Albans
- Locust Manor
- Laurelton
- Rosedale
- Hollis
- Queens Village
- Shea Stadium
- Flushing
- Murray Hill
- Broadway
- Auburndale
- Bayside
- Douglaston
- Little Neck

# Existing Regional Rail Stations Brooklyn and Manhattan

- Flatbush Terminal
- Nostrand Avenue
- East New York
- 125<sup>th</sup> Street
- Grand Central Terminal
- Penn Station

# New Regional Rail Stations

## Bronx

Yankee Stadium  
High Bridge (employees only now)

Hell Gate Line

Hunts Point  
Parkchester  
Einstein Hospital  
Coop City

## Queens

Sunnyside  
Astoria  
Woodhaven

## Manhattan

42nd Street/10th Avenue  
Lincoln Center  
Harlem West  
168th Street

# Preliminary Findings - VI

Bus ridership increased with recent pricing innovations like free-bus subway transfers and unlimited ride passes

Bus service has grown more slowly

Greater ridership gains occurred off-peak and could be handled without matching service increases

# Bus Ridership Analysis

## NYC Transit and MTA Bus (2004)

Annual Passenger-Miles 1,955 million

Annual bus vehicle-miles 140.8 million

Average bus load 13.9

Annual Passengers 1998	694.6 million
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Annual Passengers 2004	994.9 million
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43.2% increase

Annual vehicle-miles 1998	118.2
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Annual vehicle-miles 2004	140.8
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18.1% increase

source: NYMTC

# Much More Work Needed to complete Price Matters Study

- Obtain data from MTA
- Refine data from NYMTC
- Detail Regional Rail Scenario
- Outline time-of-day options
- Interim and Final Reports

# acknowledgments

- Thanks to Nurturing New York's Nature Foundation, Theodore Kheel, President for financial support
- Thanks to study team and volunteers