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**Subject:** FW: 12-County Study  
**From:** "Willens, Kevin" <kevin.willens@mtahq.org>  
**To:** Don Boyd <donboyd5@gmail.com>  
**Cc:** "Patel, Jaibala" <Jaibala.Patel@nyct.com>  
**Date Sent:** Friday, August 12, 2022 10:06:00 AM GMT-04:00  
**Date Received:** Friday, August 12, 2022 10:06:07 AM GMT-04:00  
**Attachments:** MTA County Payment Ratio Analysis Report - FINAL 2019.01.04.pdf, Some shortcomings of Payment Ratios.doc


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**From:** Keller, David <dkeller@mtahq.org>  
**Sent:** Tuesday, August 9, 2022 3:09 PM  
**To:** Johnson, Douglas <djohnson@mtahq.org>; Willens, Kevin <kevin.willens@mtahq.org>  
**Cc:** Chou, Frances <fchou@mtahq.org>  
**Subject:** FW: 12-County Study

It should be noted this report was based on 2016 data, and the last MTA Capital Program included is the 2015-2019 Plan. Further, it does not include operating costs of the two Mega Projects that have (or will) come online since the report: Second Avenue Subway and East Side Access. These two projects will mostly impact the two municipalities that already had the highest payment ratios in 2016: NYC and Nassau County – followed closely by Suffolk County (which was #4 in 2016).


If you carefully read the report, it will be apparent that much of the analysis is based on a series of assumptions that are necessary to split amongst the municipalities the tax and subsidy revenues flowing to the MTA, particularly for the Franchise and Business Surcharge Taxes in MMTOA, PBT and PMT. Back in 2008, we released the report that centered on 2005 data; the report was prepared by outside consultants and the latest report (the 2019 report that is attached) corrects a series of errors made by the consultants. After that report was completed, a series of conversations between the MTA and county executives of Rockland and Orange County ensued. As part of those discussions, I put together a short description of some of the shortcomings of the analysis – due to its reliance on estimates – and have attached that as well; this was an internal document only for talking points and was never shared or released.

This analysis is not something that provides strong conclusions for influencing policy. The analysis has been conducted because MTA was pushed to do so by political considerations, always emanating from Rockland and Orange Counties to justify their demand for more service, financial assistance (the DORF fund), and/or their preference to leave the MCTD.

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**From:** Keller, David  
**Sent:** Tuesday, June 7, 2022 12:30 PM  
**To:** Willens, Kevin <kevin.willens@mtahq.org>  
**Subject:** 12-County Study

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# MTA County Payment Ratio Analysis

## 1 Overview

The Metropolitan Transportation Authority (MTA) serves 12 counties in the New York Metropolitan region: the five boroughs of New York City, Nassau, Suffolk, Westchester, Putnam, Dutchess, Rockland and Orange Counties. Each of these counties pays MTA-specific taxes that help to subsidize the MTA's operations. The purpose of this payment ratio analysis is to provide a measure of the benefits received by the counties, in the form of the MTA's expenditure on services and capital, relative to the payments made by each of the counties, in the form of taxes, fares and tolls. This is an accounting exercise, in which the MTA's expenses and revenues are apportioned amongst New York City and the 7 suburban counties; indirect benefits of the MTA's operations, such as economic activity, reduced congestion and pollution, are not factored into this study.

Each county's payment ratio is the ratio of benefits to costs for the county. A ratio greater than 1.0 means that a county receives more in expenditure on MTA services and capital than it pays to the MTA in taxes, fares and tolls; a ratio less than 1.0 means that a county receives less in expenditure on MTA services and capital than it pays to the MTA in taxes, fares and tolls. A normalized payment ratio is also calculated for each county—this is each county's payment ratio relative to the payment ratio for the whole MTA region<sup>1</sup>; a county with a normalized payment ratio greater than one has a more favorable payment ratio than the MTA region as a whole.

This report provides payment ratios for 2005, 2011 and 2016. The 2005 figures presented herein update the analysis presented in the previous payment ratio study that was completed in March 2008, correcting errors discovered in that study and adopting methodological improvements now possible due to improved accessibility of data. Given the amount of time that has elapsed since the previous study, payment ratios for 2011 are also provided to offer a more recent comparison. 2011 is chosen as it allows for a comparative analysis to 2016 given that the Payroll Mobility Tax and MTA Bus had been well established by then, and the worst effects of the 2008 recession were over.

This report is organized in six sections, including this overview. Section 2 summarizes the results, first comparing 2016 with 2005, and then with 2011. Section 3 compares the 2005 results from the 2008 study with the updated 2005 results, describing the methodological changes that lead to differences. Section 4 provides a detailed description of the methods and assumptions used in apportioning costs and benefits to each of the counties. Section 5 provides a detailed look at the 2005 (updated), 2011 and 2016 results on a county-by-county basis, breaking out all the costs and benefits. Section 6 consolidates the detailed breakout of the 2016 costs and benefits for each county into a single table.

## 2 Summary of Results

Before analyzing the results, it is worth discussing the fact that the aggregate MTA region's ratio is greater than 1 in each year studied. We do not expect the region's ratio to be 1, despite the MTA running a balanced operating budget, because the payment ratio incorporates both operating and capital spending. Capital spending is funded by sources external to the 12 counties, such as the State and Federal governments, by New York City, and by debt. While this debt is serviced through the operating budget, the MTA's debt has been increasing, meaning that debt servicing is less than the debt taken out to finance capital spending. This combination of partial funding by sources

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<sup>1</sup> The payment ratio for the MTA region as a whole is not necessarily 1. This is discussed in more detail later in the report.

external to the MTA and accumulating debt means that the MTA has spent more on the 12 counties than it received from them, resulting in payment ratios greater than 1.

While the aggregate payment ratio decreased from 2005 to 2011, and again from 2011 to 2016, this is a consequence of the way capital spending is treated in the study; expenditures on projects from the 2000-2004 Capital Program are allocated to 2005, expenditures from the 2005-2009 Capital Program are allocated to 2011, and expenditures from the 2010-2014 capital program are allocated to 2016. Since expenditures from a capital program continue after the end-date of a capital program, the more time that elapses after a capital program commences, the more of that program’s budget will have been spent. Given that the aggregate payment ratios for 2005, 2011 and 2016 are not constant, a normalized payment ratio is computed to make comparisons between years more meaningful.

Payment ratios for each suburban county, New York City and the MTA region as a whole are shown in Figure 2-1 below, while normalized payment ratios are shown in Figure 2-2.

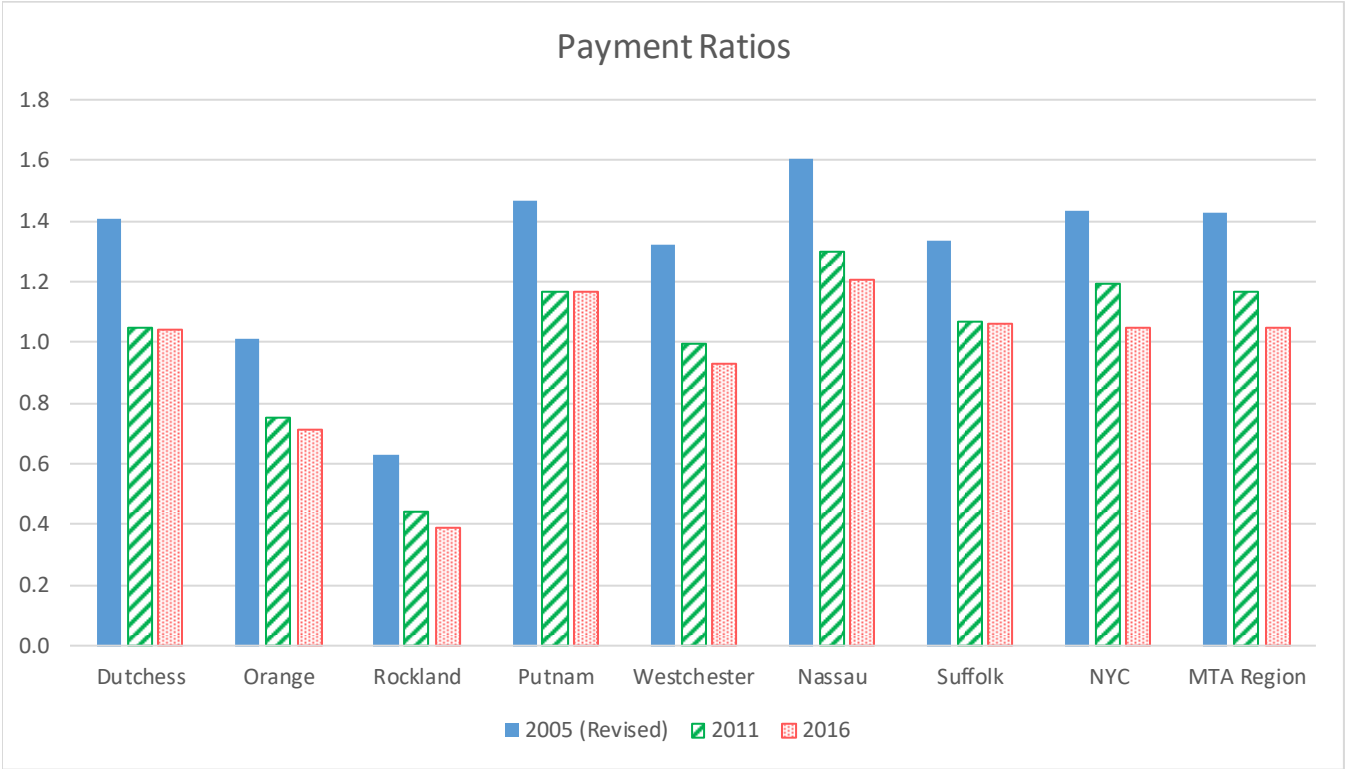


Figure 2-1: Payment Ratios

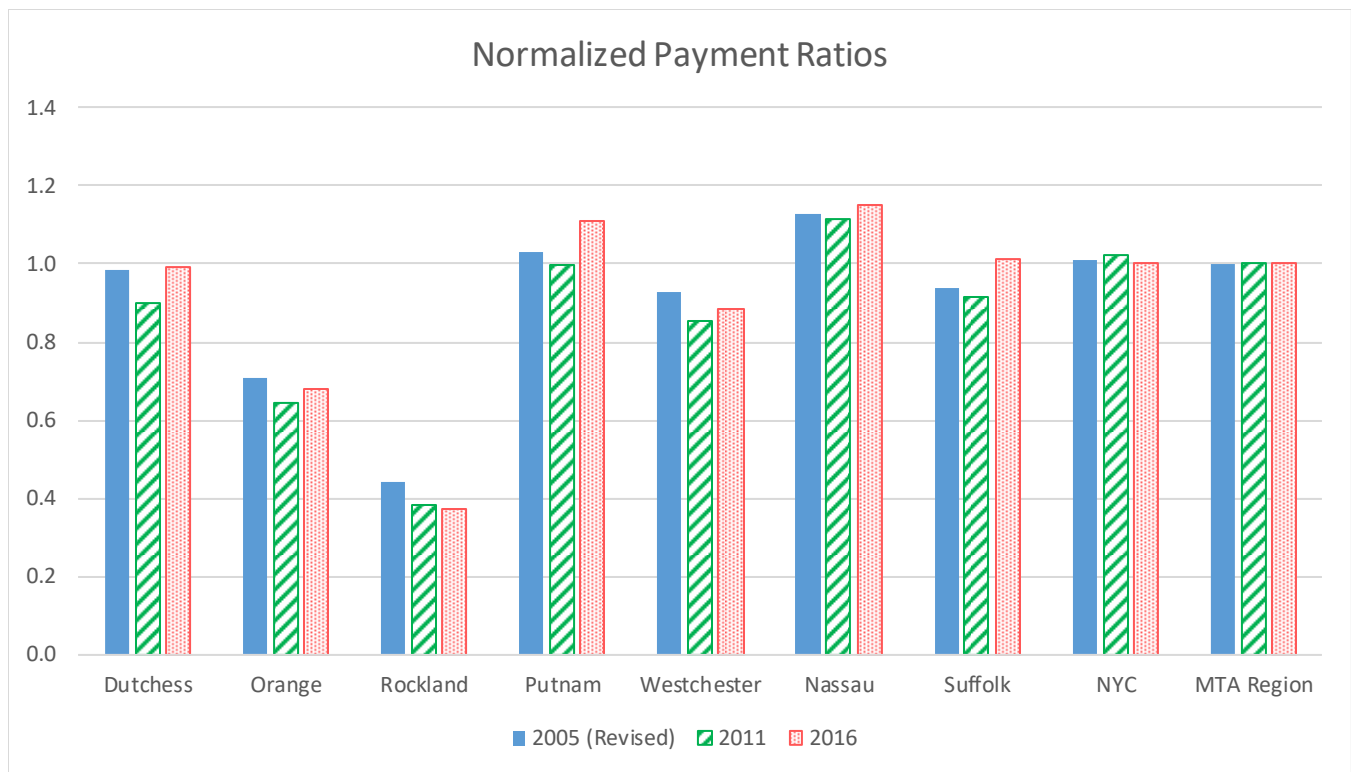


Figure 2-2: Normalized Payment Ratios

## 2.1 2016 and 2005 Results

The 2016 payment ratios are presented for each county and New York City in Table 1 below, along with the 2005 payment ratios that have been recalculated using the updated methodology. Focusing first on the 2016 payment ratios, Nassau and Suffolk Counties, served by the Long Island Rail Road (LIRR) had the highest and third highest payment ratios respectively, with Nassau's ratio of 1.209 indicating that it received 21% more benefits in the form of service and capital investment than it paid in the form of fares, tolls and taxes. Nassau and Suffolk Counties' favorable payment ratios were driven by very high capital investment from the East Side Access project, which more than offset their high per capita tax contributions.

	Payment Ratio		Normalized Payment Ratio	
	2005 (Revised)	2016	2005 (Revised)	2016
Dutchess	1.405	1.040	0.986	0.992
Orange	1.011	0.712	0.710	0.679
Rockland	0.632	0.389	0.443	0.371
Putnam	1.467	1.166	1.030	1.112
Westchester	1.319	0.929	0.926	0.886
Nassau	1.604	1.209	1.126	1.153
Suffolk	1.338	1.060	0.939	1.011
NYC	1.437	1.051	1.009	1.003
MTA Region	1.425	1.049	1.000	1.000

Table 1: Updated 2005 and 2016 Payment Ratios and Normalized Payment Ratios

Dutchess and Putnam Counties had the most favorable payment ratios of the counties served by the Metro-North Railroad (MNR), with payment ratios greater than 1 in 2016. This was due to small per capita payments of MTA-specific taxes, and solid utilization of commuter rail (particularly for Putnam) along with long average travel distances. Orange and Rockland Counties had the lowest ratios in 2016, both considerably below 1, which was driven by very low utilization of commuter rail. This is despite low per capita payments of MTA-specific taxes. Orange County had a more favorable ratio than Rockland County due to slightly higher commuter rail utilization and lower Bridges & Tunnels utilization. Westchester had a payment ratio slightly under 1 in 2016; while Westchester benefited from high utilization of Metro-North services, this is offset by paying higher per capita MTA-specific taxes than the other counties served by Metro-North. Overall, the five counties served by Metro-North had below average per capita capital investment in 2016, which, with the exception of Westchester, was partially offset by lower than average per capita tax contributions. New York City's payment ratio was greater than 1 in 2016, driven by very high subway and bus utilization, which offset its high contribution to MTA-specific taxes.

Comparing the 2005 and 2016 results, and focusing on the normalized payment ratios, it is notable that the ratios were reasonably stable between 2005 and 2016 despite significant changes between the two years owing to the introduction of the Payroll Mobility Tax (PMT) and MTA Aid in 2009, as well as MTA Bus in 2008. Prior to the introduction of PMT and MTA Aid, there was very little difference between the per capita tax contributions from each of the counties. After PMT went into effect, three distinct groups emerged: Dutchess, Putnam, Orange and Rockland Counties pay the least on a per capita basis; Westchester, Nassau and Suffolk Counties pay about 25% more; and New York City pays by far the most, just over 40% more than the next highest county in 2016. Despite New York City experiencing significantly larger growth in tax contribution between 2005 and 2016—an increase of 153% compared to increases from 33% to 64% for the suburban counties—higher growth in benefits to New York City from MTA services offset this. This higher growth in benefits was driven by growth in NYCT expenses, which outpaced the other Agencies' expenses, as well as the introduction of MTA Bus, both of which primarily benefitted New York City.

Putnam County saw the most movement in its normalized payment ratio—increasing from 1.030 to 1.112—driven by the smallest increase in MTA dedicated tax contributions of any county. Suffolk County also had a reasonably large increase—from 0.939 to 1.011—driven by being one of only two counties to experience an increase in capital spending from 2005 to 2016. Nassau County—the other county that saw increased capital spending—did not experience such a large increase in its normalized payment ratio due to a larger increase in MTA dedicated tax contributions than Suffolk County, along with the elimination of LI Bus. Dutchess County's ratio was effectively unchanged, while Westchester's slight decrease was driven by the second highest increase in MTA dedicated tax contributions after New York City. Orange County also saw a slight decrease in its normalized payment ratio, with Rockland County experiencing a slightly larger decrease. This was driven by the decrease in capital expenditure between 2005 and 2016, which disproportionately affected the West-of-Hudson counties not because they experienced larger decreases in capital expenditure, but because capital expenditure makes up a larger share of the benefits that the counties receive from the MTA. A detailed breakdown of each county's payment ratio is provided in Section 5.

While the normalized payment ratios were reasonably stable between 2005 and 2016, the absolute payment ratios all experienced significant decreases owing to the fact that a large portion of capital spending from the 2010-2014 capital program, which was allocated to 2016 in this study, has yet to occur. As more funds dedicated to the 2010-2014 capital program are spent, the 2016 payment ratios will increase. The 2005 results suggest that ultimately, New York City and all the suburban counties except Rockland County will have payment ratios greater than 1.

## 2.2 2016 and 2011 Results

To allow for comparison of the 2016 payment ratios with a more recent year, payment ratios are computed for 2011, which was chosen as it allows for a like-for-like comparison with 2016 given that the Payroll Mobility Tax and MTA Aid had been well established by then, MTA Bus was in operation, and the worst effects of the 2008 recession were over. The 2011 and 2016 results are presented in the Table 2 below.

	Payment Ratio		Normalized Payment Ratio	
	2011	2016	2011	2016
Dutchess	1.049	1.040	0.900	0.992
Orange	0.753	0.712	0.646	0.679
Rockland	0.444	0.389	0.380	0.371
Putnam	1.164	1.166	0.998	1.112
Westchester	0.997	0.929	0.855	0.886
Nassau	1.299	1.209	1.114	1.153
Suffolk	1.068	1.060	0.916	1.011
NYC	1.190	1.051	1.021	1.003
Total	1.166	1.049	1.000	1.000

*Table 2: 2011 and 2016 Payment Ratios and Normalized Payment Ratios*

The most significant factors affecting counties' payment ratios (both normalized and not) are per capita contributions to MTA dedicated taxes, per capita capital spending, and per capita utilization of MTA services, along with average travel distances on commuter rail.<sup>2</sup> Due to limitations in the data on county-level utilization, this study was unable to capture any changes over time in the proportion of utilization of MTA services by county. For example, the 2012-2014 LIRR Origin-Destination Survey indicates that Nassau County residents made up 47% of all passenger miles on the LIRR, but a lack of more recent studies meant that this number was used for each year that was studied. Consequently, changing utilization patterns across counties do not explain any changes in payment ratios between 2011 and 2016.<sup>3</sup> Variation between counties' growth rates of per capita tax contributions explain some of the movement in counties' normalized payment ratios; tax contribution grew between 11% to 19% for the suburban counties, and 23% in NYC. Capital expenditure is the other major driver of changes in the normalized payment ratios between 2011 and 2016, along with differing growth rates in Agency expenses.

Focusing on the normalized payment ratios, both Dutchess and Putnam counties saw significant increases in their ratios between 2011 and 2016, driven by relatively small increases in MTA dedicated tax contributions, and by a relatively large increase in MNR's East-of-Hudson operating expenses compared to the LIRR and NYCT<sup>4</sup>. Westchester also benefitted from this increase in East-of-Hudson operating expenses, but this was tempered by a larger increase in tax contributions. Orange County's payment ratio increased on the back of increased capital spending, the only county to see an increase in capital spending between 2011 and 2016, while Rockland County's ratio decreased after MNR's West-of-Hudson operating expenses decreased from the 2011 levels that were inflated by the response to Hurricane Irene. Nassau and Suffolk County's benefitted from lower decreases in capital spending relative to the MTA region as a whole, with Suffolk benefitting the most. New York City saw a

<sup>2</sup> A detailed description of how these factors affect the payment ratios is provided in Section 5.1.

<sup>3</sup> Nor do changing utilization patterns explain any changes between 2005 and 2016.

<sup>4</sup> Agencies' expenses are apportioned amongst the counties as benefits, as it measures the amount of service provided by the MTA.

slight decrease in its normalized payment ratio, though its normalized payment ratio will always tend to be close to 1 given its size and the concentration of MTA services in NYC. Its decrease was driven by the highest increase in tax contributions in the MTA region.

### 3 2005 Comparison and Updated Methodology

Table 3 below presents the comparison between the 2005 numbers from the previous study, and the 2005 numbers using the updated methodology in this study. The region's payment ratio increased compared to the 2008 study because the current study more accurately captured capital spending. This is due to the 2008 study using the average annual capital spending from the 1995-1999 and 2000-2004 capital programs, whereas the current study uses just the 2000-2004 capital program for 2005's capital spending. In addition, NYC's contribution to the capital program is now captured having been omitted in the 2008 study.

	Payment Ratio		Normalized Payment Ratio	
	2005 (Original)	2005 (Revised)	2005 (Original)	2005 (Revised)
Dutchess	1.546	1.405	1.218	0.986
Orange	0.666	1.011	0.525	0.710
Rockland	0.527	0.632	0.415	0.443
Putnam	1.536	1.467	1.210	1.030
Westchester	1.328	1.319	1.046	0.926
Nassau	1.611	1.604	1.270	1.126
Suffolk	1.012	1.338	0.797	0.939
NYC	1.253	1.437	0.987	1.009
Total	1.269	1.425	1.000	1.000

Table 3: Old and Updated 2005 Payment Ratios and Normalized Payment Ratios

Given that the region's aggregate payment ratio differs between the two studies, it is more useful to compare the normalized payment ratios for each of the counties. The East-of-Hudson counties served by Metro-North Railroad—Dutchess, Putnam and Westchester—saw decreases in their payment ratios (both absolute and normalized) for two reasons. First, the current study allocates a much larger proportion of MNR's East-of-Hudson operating expenses to New York City than the previous study, due to the previous study failing to adequately capture the significant number of NYC residents who commute on MNR. This cuts into the other counties' share of MNR's overall beneficial value. Second, East-of-Hudson did not see much additional capital spending under the current methodology. This hurt the counties relative to the region as a whole, which saw more than 50% more capital spending.<sup>5</sup>

Orange and Rockland Counties do better under the revised methodology, Orange significantly so. Orange County's gains are primarily due to a larger share of the East-of-Hudson expenses, and a tripling in expenditures from the capital program. The larger share of East-of-Hudson expenses is due to better capturing the number of commuters who cross the Hudson from Orange County to take the Hudson Line. Rockland also benefitted, relative to the previous study, from a larger share of East-of-Hudson expenses and a doubling of expenditure from the capital program.

<sup>5</sup> Westchester did see a reasonably increase in capital spending, hence its ratio not decreasing as much as the other West-of-Hudson counties.



Nassau and Suffolk Counties moved in opposite directions; Nassau's normalized ratio decreased, while Suffolk's increased. The current study apportioned LIRR's expenses (and fares) very differently, shifting away from Nassau and towards NYC and Suffolk. This was due to better capturing both reverse commuters from NYC, and capturing the longer average trip distance for Suffolk County riders. The prior study undercounted the amount of farebox revenue paid by LIRR riders; correcting for this reinforced Nassau's decrease and partially offset Suffolk's increase. Both saw increases in capital spending at a higher rate than the MTA region, presumably due to the timing of East Side Access work.

New York City's only major change was in capital spending, which was around 50% higher in the current study. The increases in the share of MNR and LIRR expenses were only a small portion—around 2.5%—of NYC's total payments from MTA.

A summary of the methodological changes this study adopts is described below. A more detailed description of the methodology is provided in Section 4.

- LIRR and MNR expenses and fares are apportioned based on much more representative origin-destination studies which better capture riders from NYC and more accurately measure trip distance. (See Sections 4.1.3, 4.1.8, 4.2.15 and 4.2.18.)
- All Agencies' actual farebox revenues/tolls are apportioned, rather than approximations. (See Sections 4.2.14, 4.2.15, 4.2.16, 4.2.17, 4.2.18 and 4.2.22.)
- NYC's contribution to the capital program is included in the study. (See Section 4.2.4.)
- This study apportions actual revenues that the MTA *receives* from the taxes that make up MMTOA (the sales and use, franchise, and business surcharge taxes, as well as a small portion of the business surcharge tax), rather than apportioning tax revenues that are collected, some of which are not distributed to the MTA (See Section 4.2.)

## 4 Payment Ratio Methods and Assumptions

Computing each county's payment ratio requires the division of each of the MTA's expenditures and sources of revenue amongst the twelve counties in the MTA region. While some of the expense and revenue splits are precise, in other cases assumptions are necessary to divide an expenditure or revenue source that is reported only at an aggregate level. For example, Mortgage Recording Taxes are collected and reported at the county level, so they are divided amongst the counties without requiring any assumptions. On the other hand, Payroll Mobility Tax (PMT) revenues received by the MTA are reported at the aggregate level; to divide the PMT amongst counties, the proportion of total wages by county—from the Quarterly Census of Employment and Wages—is used. This method is imprecise and does not account for the various rates of the PMT and the ratio of taxpaying entities subject to those tax rates that varies from county to county.

This section lists each of the MTA services provided and payments made to the counties, as well as all the MTA's sources of revenue, and describes the methodology used to divide them amongst the counties. Any methodological adjustments over the prior study are noted.

### 4.1 MTA Services and Payments to the Counties

The general approach to apportioning the MTA's services amongst the counties is to take each Agency's total expenses and divide amongst the counties based on a measure of utilization by county. Where possible and appropriate, passenger miles are used instead of ridership, as this acknowledges that longer rides are worth more than shorter rides. For most Agencies, utilization by county is obtained by using Origin-Destination (OD) studies,

which survey passengers on their ridership patterns as well as their home counties. Origin-Destination studies are performed infrequently, so for each Agency a single study was used, resulting in the same proportions being used in the apportionment of expenses for segmenting the 2005, 2011 and 2016 data. All but three of the items below follow the approach of apportioning Agency expenses based on a measure of utilization; those items based on different apportionment approaches are noted.

For all Agencies, some of the utilization is by residents outside of the MTA transportation district, such as New Jersey and Connecticut residents, and tourists. As such, some of the Agencies' expenses are allocated outside of the MTA region, which explains why, for some Agencies, the total Agency expenses allocated to the MTA region is less than the total Agency expenses.

The remainder of this section lists each of the MTA's services and payments to the MTA region and provides details, where necessary, of assumptions required for their apportionment.

#### **4.1.1 Dutchess-Orange-Rockland Fund**

The MTA makes direct payments to each of Dutchess, Orange and Rockland counties from the Dutchess-Orange-Rockland Fund (DORF). These payments return a share of the Mortgage Recording Taxes (MRT) to the counties for local transportation services. No assumptions are required to apportion the DORF.

#### **4.1.2 Metro-North Railroad West-of-Hudson Expenses**

The MTA pays New Jersey Transit to operate Metro-North's West-of-Hudson services on the Pascack Valley and Port Jervis Lines. Pascack Valley expenses were allocated exclusively to Rockland County, in which all the Pascack Valley stations are located. Port Jervis expenses were divided amongst Orange and Rockland Counties based on ridership by county from a 2007 study of on/off counts.

#### **4.1.3 Metro-North Railroad East-of-Hudson Expenses**

East-of-Hudson expenses were divided amongst the counties using passenger miles derived from the MTA's 2007 OD Survey of MNR. The OD survey allowed the home county of 87% of respondents to be inferred, and, using this subset of respondents, the distance between the origin and destination stations of each trip was computed. This method has three significant benefits over the methods used in prior studies. First, prior studies assumed that the boarding station was the home county of a respondent. Second, prior studies only captured inbound AM trips. Third, prior studies assumed that all trips terminated at Grand Central. Therefore, prior studies significantly under counted the benefit to NYC residents who use MNR.

A significant portion of MNR's New Haven line serves Connecticut, which is not part of the MTA region. The Connecticut Department of Transportation (CDOT) provides payment to the MTA to cover the operating costs of the service in Connecticut. As such, MNR's East-of-Hudson expenses less CDOT's portion of New Haven Line expenses were divided amongst the counties in the MTA region, which excludes the counties in Connecticut served by the New Haven line.

#### **4.1.4 New York City Transit Expenses**

NYCT expenses were apportioned to the counties using passenger miles obtained from the New York Metropolitan Transportation Council's (NYMTC) 2010/2011 Regional Household Travel Survey. This was preferred over the MTA's 2008 New York Customer Travel Survey as the former surveyed residents of the New York-New Jersey-Connecticut metropolitan region, whereas the latter only surveyed residents of New York City. The NYMTC survey did not make a distinction between NYCT Bus and MTA Bus trips and as such, NYCT and MTA Bus expenses were

combined and apportioned based on the proportion of combined NYCT Subway, NYCT Bus and MTA Bus passenger miles by county of residence.

#### **4.1.5 MTA Bus Expenses**

See “New York City Transit Expenses” above.

#### **4.1.6 Long Island Rail Road Expenses**

LIRR expenses were apportioned using passenger miles derived from the MTA’s 2012 OD Survey of LIRR. This approach mirrors that used for MNR, yielding the same benefit over prior studies by more accurately capturing the number of NYC riders on the LIRR.

#### **4.1.7 Staten Island Railway Expenses**

All Staten Island Railway expenses were allocated to NYC.

#### **4.1.8 Long Island Bus Expenses**

Long Island Bus is no longer operated by the MTA; 2011 was the last year under MTA control. For 2005, the apportionment matches that used in the prior study, which used OD survey results. For 2011, LI Bus expenses were eliminated so that a like-for-like comparison to 2016 could be made.

#### **4.1.9 Bridges & Tunnels Expenses**

B&T expenses were apportioned using total crossings by county of residence, obtained from the MTA’s Bridges & Tunnels OD Study published in 2013.

#### **4.1.10 MTA Headquarters**

MTA Headquarters (MTA HQ) has a managerial and administrative role in support of all the Agencies; MTA Police also operates under MTA HQ. MTA HQ expenses (less MTA Police expenses, which were apportioned separately—see below) were first divided amongst the Agencies, using the proportion of each Agency’s expenses out of total Agency expenses. Then, each Agency’s allocation was apportioned amongst the counties using the respective Agency apportionment method described above.

#### **4.1.11 MTA Police**

MTA Police expenses were first allocated amongst SIR, MNR and LIRR based on MTA Police spending in Southern, Northern and Eastern regions. Then, each Agency’s allocation was apportioned amongst the counties using the respective Agency apportionment method described above.

#### **4.1.12 MTA Policy and Gap Closing Actions**

In 2005, the MTA allocated approximately half of a \$1.2 billion operating surplus to reducing pension liability, offering lower fares during the December holiday season and funding security programs. Following the 2008 County Payment Ratio Study, the allocation was divided amongst various operating Agencies, and then apportioned to counties using the methodology described for the Agencies above. In 2016, \$145 million was allocated from the General Reserve balance to reduce the LIRR pension liability. This was apportioned between the counties following the methodology for LIRR described above.

#### **4.1.13 Capital Expenditures**

MTA capital projects are managed through five-year capital programs. Expenditures on projects from the 2000-2004 Capital Program are allocated to 2005, expenditures from the 2005-2009 Capital Program are allocated to 2011, and expenditures from the 2010-2014 capital program are allocated to 2016. The five-year average of total expenditures for each plan is allocated across the counties. Note that expenditures continue after the end-date

of a capital program; expenditures on projects from the 2010-2014 program, for example, continue to this day. A consequence of this is that fewer projects from more recent capital programs have been completed, resulting in lower expenditures for the 2010-2014 program than the 2005-2009 program, even though the former has more funding. This can introduce challenges comparing the county payment ratios across years, and is the reason that the ratios are normalized.

Expenditures from the capital programs are apportioned as follows. Each project is allocated to an Agency, and for projects allocated to NYCT, MTA Bus, B&T, and MTA Police, the apportionment amongst the counties follows the methods described for the Agencies above. For MNR and LIRR, projects are allocated to counties on a project-by-project basis. Station and parking facility work is allocated to the county in which the station/parking facility is located<sup>6</sup>, track work is allocated to the counties *served* by the track<sup>7</sup>, while rolling stock, yards and maintenance facilities are allocated to all counties. Projects that are allocated to multiple counties are apportioned based on ridership, except for rolling stock, which is apportioned based on passenger miles. After a review of existing geocoding of project work revealed inconsistencies, county assignments were performed manually by the MTA Division of Management and Budget to make the coding consistent with the purpose of this study. For example, a large number projects for LIRR were assigned by MTA Capital Construction to the Bronx and Westchester, possibly because this is where the work was *performed*. However, the benefits of this work accrue to the counties served by the LIRR, so the county coding was changed to reflect that.

## 4.2 County Payments to MTA

Payments to the MTA come in four forms. Customers' fare and toll payments account for about half of the MTA's revenue, dedicated taxes account for about a third, while state and local subsidies account for approximately ten percent; the remainder—around five percent—are made up by other revenues such as advertising, rents and parking.

Fares and tolls are apportioned amongst counties using the same OD studies described in the "MTA Services and Payments" section above. Dedicated taxes tend not to be collected and reported at the county-level (Mortgage Recording Taxes and the Urban Taxes are exceptions) and so the general approach to apportionment is to find economic and/or demographic indicators that relate to the tax and are measured at the county-level. State and local subsidies are collected at the county-level, so no assumptions are required for apportionment.

Three of the dedicated taxes—the sales and use, franchise, and business surcharge taxes—are reported in MTA Financial Plans collectively as Metropolitan Mass Transportation Operating Assistance (MMTOA). In addition, MMTOA has a small component made up of the petroleum business tax (PBT), distinct from the PBT reported separately in MTA Financial Plans. Not all the sales and use, franchise, business surcharge and petroleum business tax revenue that is collected within the MTA region is distributed to the MTA; the State appropriates some of the taxes for other transportation agencies in New York. The 2008 County Payment Ratio Study did not account for this, and overstated the amount of dedicated taxes the counties paid that went to the MTA. This has been corrected in the current study. For 2005, the combined sales and use, franchise, business surcharge and petroleum business tax revenue is exactly equal to the MMTOA and PBT the MTA received and reported. For 2011, Long

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<sup>6</sup> The exceptions are Grand Central, Penn Station, Jamaica and Atlantic Terminal, which serve all riders and as such are allocated to all counties served by their respective Agency.

<sup>7</sup> For example, track work in Nassau County that is used by service that terminates in Suffolk County is allocated to both Nassau and Suffolk Counties.

Island Bus's portion of MMTOA was removed so that a like-for-like comparison could be made to 2016<sup>8</sup>; consequently, the combined sales and use, franchise, business surcharge and petroleum business tax revenue apportioned in this study for 2011 is slightly less than the MMTOA and PBT the MTA received and reported. For 2016, a small portion of MMTOA was from investment income, so the combined sales and use, franchise, business surcharge and petroleum business tax revenue apportioned in this study for 2016 is slightly less than the MMTOA and PBT the MTA received and reported.

Another significant methodological flaw in the 2008 County Payment Ratio Study relates to the apportionment of fare and toll revenue. The 2008 study used OD studies to determine passenger counts/crossings by county, and multiplied these passenger counts by an aggregate fare/toll to determine total fare/toll revenue paid by county. Due to the imprecise nature of the aggregate fare/toll used in the calculation, the total fare/toll revenue allocated amongst the counties was incorrect for a number of Agencies. As an example, total farebox revenue of \$321 million was apportioned to the counties served by the LIRR, when in fact the LIRR collected \$442 million in farebox revenue in 2005. This study rectifies this flaw.

For all Agencies, some of the utilization is by residents outside of the MTA region, such as New Jersey and Connecticut residents, and tourists. As such, some of the Agencies' farebox revenues are allocated outside of the MTA region, which explains why, for some Agencies, the total farebox revenue allocated to the MTA region is less than the total farebox revenue collected.

The remainder of this section lists each of the MTA's sources of revenue and details any assumptions required for their apportionment.

#### **4.2.1 Mortgage Recording Taxes**

Mortgage Recording Taxes are collected at the county-level, so no assumptions are required.

#### **4.2.2 Urban Tax**

The urban tax is only levied on NYC residents, so no assumptions are required.

#### **4.2.3 City Subsidy to MTA Bus and Staten Island Railway**

NYC subsidizes the operations of MTA Bus and SIR; no assumptions are required.

#### **4.2.4 NYC Capital Program Contribution**

NYC contributes to each capital program. The five-year average of NYC's contributions to the 2000-2004 Capital Program is allocated to 2005, the five-year average of the 2005-2009 Capital Program contribution is allocated to 2011, and the five-year average of the 2010-2014 Capital Program is allocated to 2016.

#### **4.2.5 Sales and Use Tax**

Sales tax collections are reported at the county-level, but the MTA's portion is not. Total sales tax collections are used to back out total taxed sales for each county using the county-specific tax rate. The proportion of total taxed sales in each county is then used to apportion the MTA's share of the sales tax.

#### **4.2.6 Franchise Tax**

The franchise tax is levied on to various telecommunications and transmission businesses. Population and employment by county are used as proxies of energy use to apportion the tax.

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<sup>8</sup> Since the MTA ceased operating LI Bus, MMTOA receipts that the MTA had received to subsidize LI Bus operation are now sent to Nassau County to subsidize the Nassau Inter-County Express, which replaced LI Bus.

#### 4.2.7 Business Surcharge Tax

The business surcharge tax is levied on businesses in the telecommunications and public utilities sectors, general business corporations, banks, and insurance companies. The collections are reported for each of these four categories, but not by county. Employment by county in each of the four categories was used to apportion the taxes.

#### 4.2.8 Petroleum Business Tax

The petroleum business tax (PBT) is levied on businesses that provide petroleum products, rather than on the purchase or consumption of petroleum. Vehicle registrations, electricity consumption and enplanements at the county-level were used as a proxy of petroleum sales to apportion the tax revenue.

#### 4.2.9 Payroll Mobility Tax

The Payroll Mobility Tax (PMT), introduced since the previous study, is levied on the payroll of all business and self-employed individuals conducting business in the MTA region. Total wages by county are used to apportion the total. After changes to the tax in 2011, which led to lower PMT revenues, the state government has provided a lost revenue offset from the general State budget. This “PMT Replacement Fund” is allocated to the counties using the same apportionment process used for the PMT collections.

#### 4.2.10 MTA Aid

MTA Aid is comprised of taxes and fees on drivers’ licenses, vehicle registrations, taxi trips and car rentals in the MTA region.<sup>9</sup> The number of drivers’ licenses and vehicle registration by county apportion the corresponding fees, while taxi trips and car rentals are all allocated to NYC.

#### 4.2.11 Local Operating Assistance

The Local Operating Assistance is a set of payments made by the counties to match a contribution to operating subsidies made by the State. The payments are made at the county-level, so no assumptions are required for apportionment. The State portion is not allocated to the counties, as it comes from the general State budget.

#### 4.2.12 Station Maintenance

Each county makes a payment to the MTA, using a statutory-based formula, for the operation and maintenance of the stations within their jurisdiction. These are collected at the county level, so no assumptions are required for apportionment.

#### 4.2.13 Other Payments

Other payments made to the Agencies consist primarily of advertising revenue and rents from tenants in stations, but also consists of miscellaneous items such as the sale of scrap metal and parking. NYC’s student and elderly fare reimbursement is also captured in this category. Other payments are considered for each Agency on an item-by-item basis.

#### 4.2.14 Metro-North Railroad West-of-Hudson Fares

Pascack Valley farebox revenue was allocated exclusively to Rockland County, in which all the Pascack Valley stations are located. Port Jervis farebox revenue was divided amongst Orange and Rockland Counties based on ridership by county from a 2007 study of on/off counts.

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<sup>9</sup> Only taxi trips originating in NYC and ending in the MTA region are taxed.

#### **4.2.15 Metro-North Railroad East-of-Hudson Fares**

Using the MTA's 2007 OD Survey of MNR, fares by county were computed with a high level of precision. The survey allowed the determination of the number of trips between all combinations of fare zones, for all fare types and for all counties. This, in combination with the fare prices for all fare types and fare zones, allowed the total fares paid by residents of each county to be inferred. Compared to the prior study, this has the advantage of capturing the significant number of NYC riders, and avoiding the prior assumption that all trips are monthly trips.

A significant portion of MNR's New Haven line serves Connecticut, which is not part of the MTA region. The Connecticut Department of Transportation (CDOT) is allocated a portion of fares from the New Haven line. As such, MNR's East-of-Hudson farebox revenue less CDOT's portion was divided amongst the counties in the MTA region, which excludes the counties in Connecticut.

#### **4.2.16 New York City Transit Fares**

The New York Metropolitan Transportation Council's 2010/2011 Regional Household Travel Survey was used to apportion fares by utilizing the proportion of trips by county of residence. As with the apportionment of NYCT and MTA Bus expenses, the two were combined due to the inability to distinguish between NYCT Bus and MTA Bus trips.

#### **4.2.17 MTA Bus Fares**

See "New York City Transit Fares" above.

#### **4.2.18 Long Island Rail Road Fares**

LIRR fares were apportioned using the MTA's 2012 OD Survey of LIRR. The same approach as for MNR was used, yielding the same benefit over prior studies by more accurately capturing fare revenue paid by NYC riders on the LIRR.

#### **4.2.19 Staten Island Railway Fares**

All the SIR fare revenue was allocated to NYC.

#### **4.2.20 Long Island Bus Fares**

Long Island Bus is no longer operated by the MTA; 2011 was the last year under MTA control. For 2005, the apportionment matches that used in the prior study, which used OD survey results. 2011 uses the same proportions for apportionment as 2005.

#### **4.2.21 Nassau Subsidy to LIB**

While the MTA operated Long Island Bus, Nassau County provided a direct payment to the MTA to subsidize operations.

#### **4.2.22 Bridges & Tunnels Tolls**

B&T toll revenues were apportioned by computing the tolls paid by residents of each county, using crossings by facility from the MTA's Bridges & Tunnels OD Study published in 2013, and multiplying by the toll for each facility.

## 5 Results

### 5.1 Key Factors Driving Payment Ratios

#### 5.1.1 Utilization Per Capita vs. Subsidies Per Capita

A key aspect of the MTA's operations is that, apart from B&T, none of the Agencies collect sufficient farebox revenue to cover operating costs and hence operations are subsidized through taxes, subsidies and B&T surplus revenue. A consequence of this is that each trip on MTA's transit services is a net benefit to the rider; the fare (the cost to the rider) is less than the cost of providing the trip (the benefit to the rider). As such, counties with relatively higher transit usage will tend to have higher payment ratios.

Figure 5-1 below shows annual subway and bus ridership per capita for each of the counties in the MTA region.<sup>10</sup> Unsurprisingly, NYC ridership per capita dwarfs that of the other counties. Amongst the other counties, Nassau and Westchester have relatively high subway and bus ridership, Dutchess and Suffolk have moderate ridership and Orange, Rockland and Putnam have low ridership.

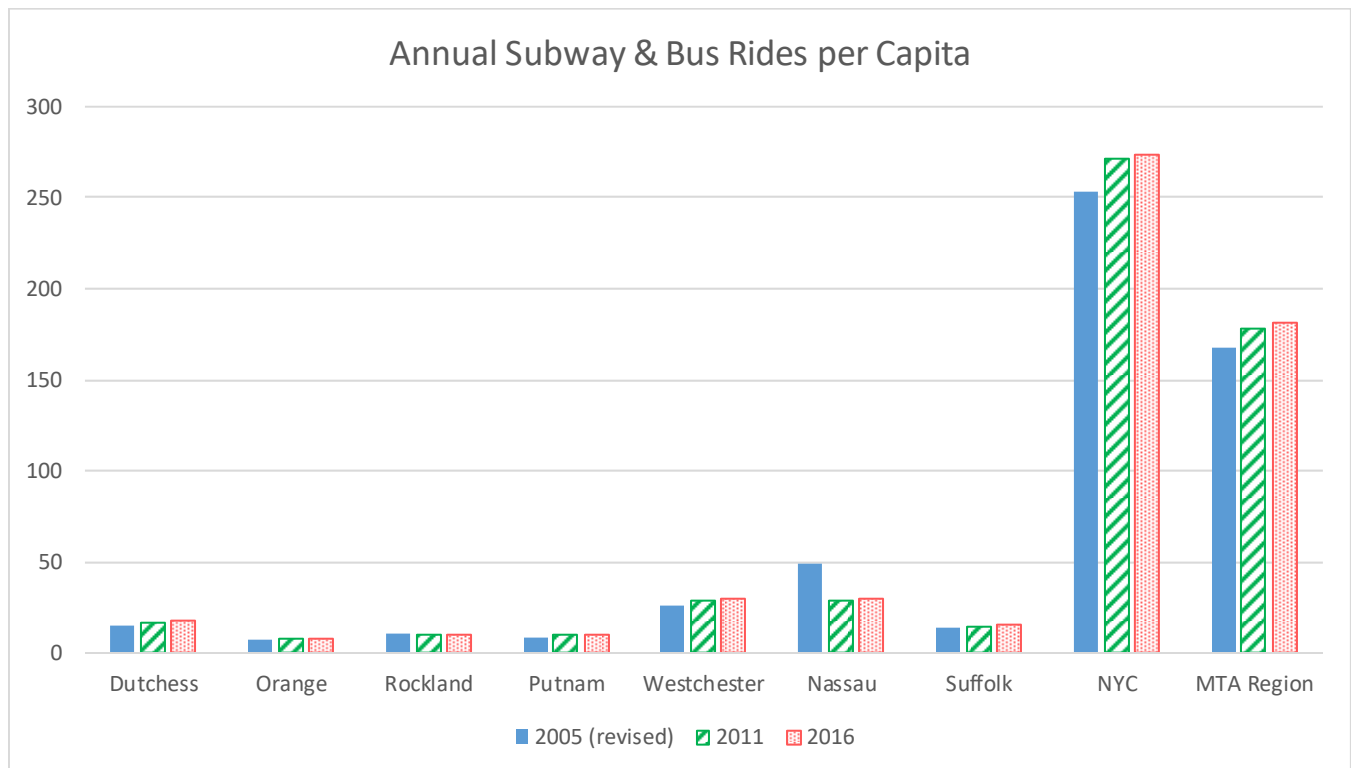


Figure 5-1: Annual Subway & Bus Trips Per Capita

Figure 5-2 below shows annual commuter rail ridership per capita for each of the counties. Westchester, Nassau and Putnam Counties have the highest commuter rail ridership per capita, while Suffolk and Dutchess have moderate levels of ridership per capita, and NYC, Orange and Rockland have very low levels of usage per capita. Commuter rail trips are more heavily subsidized than subway and bus trips, and long commuter rail trips are more heavily subsidized than short ones.

<sup>10</sup> This includes NYC Subway and Bus, MTA Bus and SIR. The 2005 figure also includes LI Bus; for 2011 LI Bus was removed to facilitate a like-for-like comparison between 2011 and 2016, when LI Bus was no longer in operation.



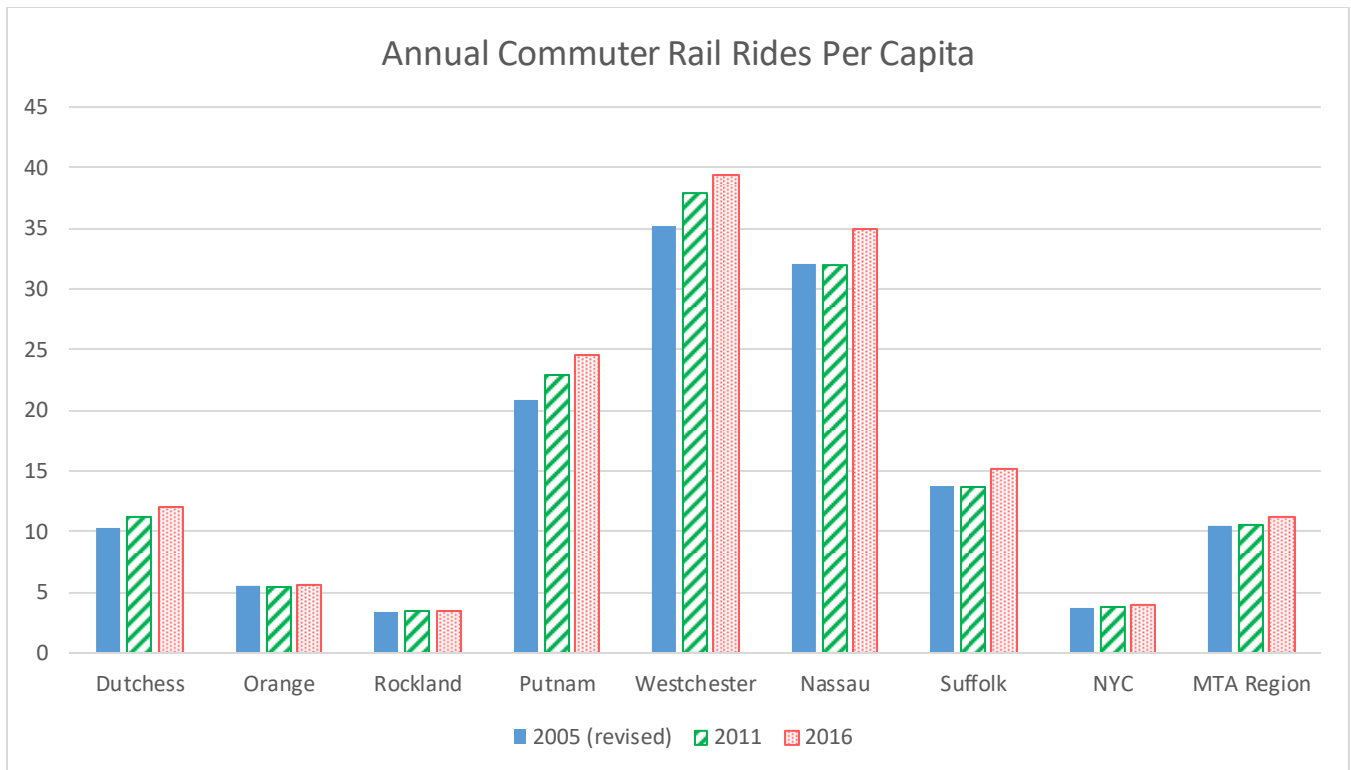


Figure 5-2: Annual Commuter Rail Trips Per Capita

Across all modes, it is apparent that Orange and Rockland counties have very low transit usage. Dutchess and Suffolk have moderate usage, but their long distance from NYC results in commuter rail trips that are more heavily subsidized. Westchester and Nassau have high usage, as does Putnam to a lesser extent. NYC's low commuter rail usage is offset by very high subway and bus usage.

Utilization of B&T facilities works in the opposite direction to the other Agencies because B&T toll revenues exceed operating costs. Consequently, relatively high usage of B&T facilities will tend to pull counties' payment ratios down. **Error! Reference source not found.** below shows the number of B&T crossings per capita by county. Westchester, Nassau and NYC have the highest crossings per capita, while Orange and Dutchess counties have the lowest.

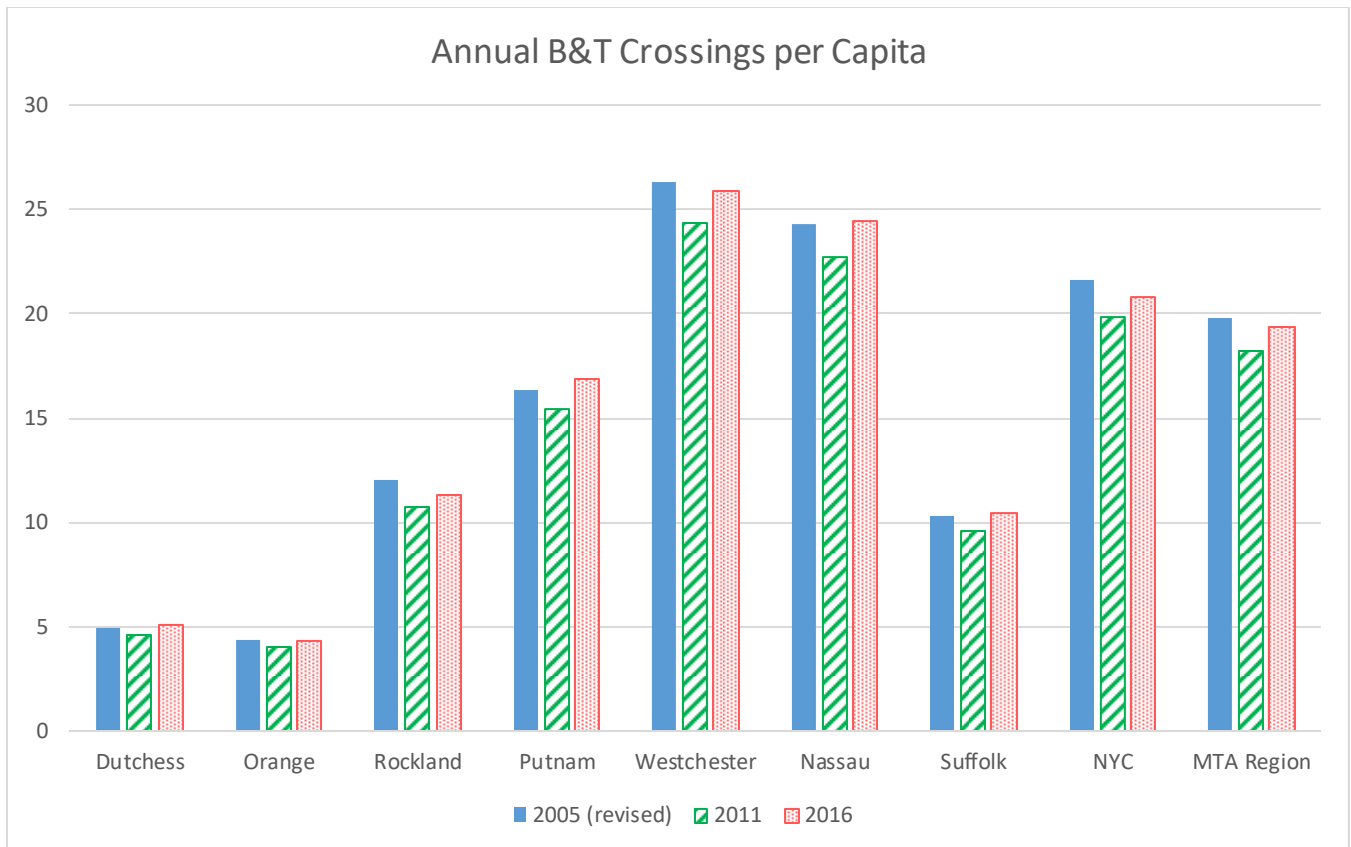


Figure 5-3: Annual B&T Crossings Per Capita

While there is a lot of variation in usage rates of MTA services between counties, the amount of dedicated taxes paid per capita is more consistent, as shown in Figure 5-4 below. In 2005, prior to the introduction of the Payroll Mobility Tax and MTA aid, there were two groups of counties with very similar taxes per capita: Dutchess, Orange, Rockland and Putnam paid somewhat less per capita than Westchester, Nassau, Suffolk and NYC. The introduction of PMT disproportionately affected NYC, so now NYC pays more per capita than Westchester, Nassau and Suffolk. Given the reasonably stable amount of taxes paid per capita across the counties, but the wide variation in usage rates per capita, a lot of variation in payment ratios between counties is to be expected.

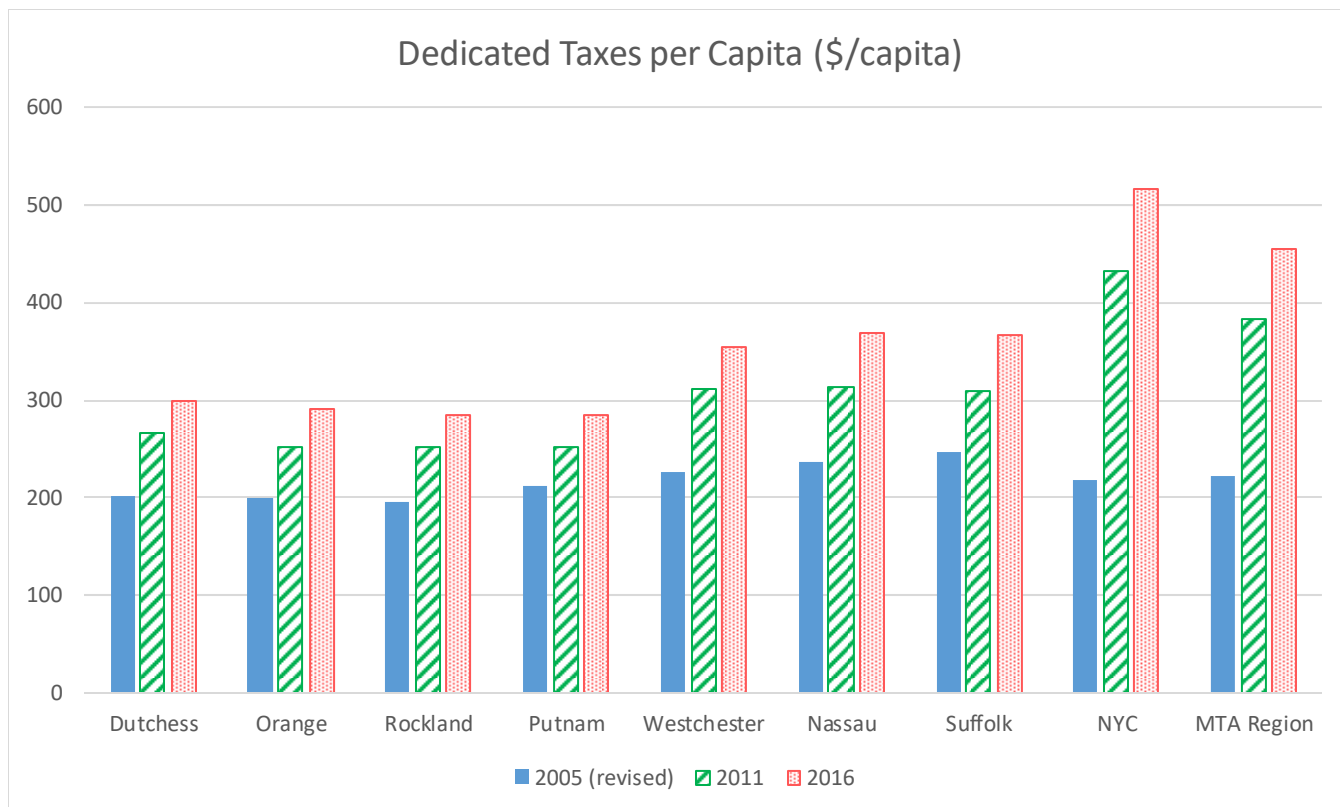


Figure 5-4: Dedicated Taxes Per Capita

### 5.1.2 Fares vs. Passenger Miles

As discussed in the previous section, longer journeys naturally tend to be more heavily subsidized because they are more expensive to operate. In addition to this, the methodology adopted to apportion costs and benefits—fares for costs, and passenger miles for benefits—drives the payment ratio further up for longer journeys because fares per mile decrease as journey length increases. For example, the one-way peak fare from Tarrytown to Grand Central costs \$14 for the 25-mile journey, while the 50-mile journey from Garrison to Grand Central costs \$19.25. Using passenger miles to apportion benefits means that a single trip from Garrison to Grand Central has twice the benefit compared to a trip from Tarrytown; using fares to apportion costs means that the trip from Garrison costs only 37.5% more than the trip from Tarrytown. Consequently, a single trip from Garrison will drive the payment ratio up more than a single trip from Tarrytown because the benefit of the trip is double but the cost is less than double.

The consequence of using fares and passenger miles to apportion costs and benefits is that counties with longer travel distances will tend to have their payment ratios driven up, all else held equal.

### 5.1.3 Capital Expenditure

Capital expenditure can explain large differences in payment ratios because it is distributed very differently across counties and time based on the capital projects underway (see **Error! Reference source not found.** below). For example, Westchester and Nassau counties have similar utilization rates, distances from terminal stations in NYC, and tax expenditures per capita, but Nassau has considerably more capital spending thanks to East Side Access, which drives the difference in payment ratios.

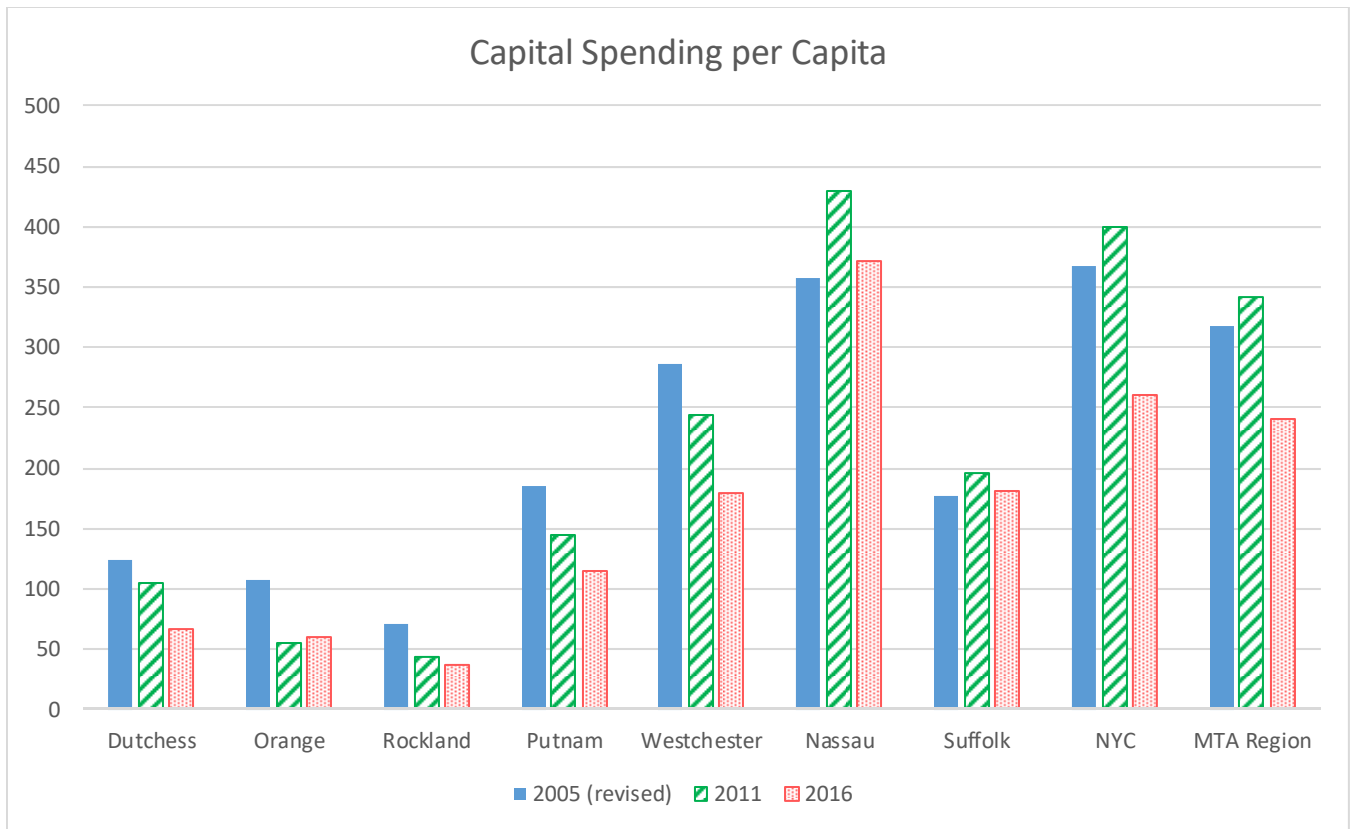


Figure 5-5: Capital Spending Per Capita

## 5.2 County-by-County Payment Ratios

The following pages summarize the payment ratios for each of the counties in the MTA region, with breakouts of each of the benefits and payments that make up the ratio. The breakouts are provided for 2011 and 2016, as well as the updated 2005 numbers. For comparative purposes, impacts related to LI Bus have been removed from the 2011 data presented in the tables on the following pages.

When discussing the ranking of the counties' payment ratios, a high-ranking county has a high payment ratio. For example, the second ranking county has the second highest payment ratio.

### 5.2.1 Dutchess County

<b>Dutchess County Payment Ratio (\$ millions)</b>			
<b>MTA Payments to County</b>	<b>2005 (revis.)</b>	<b>2011</b>	<b>2016</b>
DORF	6.685	1.944	2.402
MNR West of Hudson Expenses	-	-	-
MNR East of Hudson Expenses	67.799	81.469	104.852
MTA Headquarters (without PD)	1.860	2.043	4.473
MTA Police Department	4.871	5.022	5.483
NYCT Expenses	9.153	12.468	15.487
MTA Bus Expenses	-	1.055	1.392
LIRR Expenses	0.075	0.089	0.108
SIR Expenses	-	-	-
LI Bus Expenses	-	-	-
B&T Expenses	1.676	1.751	2.267
MTA Policy & Gap Closing Actions	8.683	-	0.011
MTA Capital	36.619	31.295	19.794
<b>TOTAL</b>	<b>137.421</b>	<b>137.135</b>	<b>156.270</b>
<b>County Payments to MTA</b>			
MRT-1 and MRT-2 Payments	17.427	4.950	6.736
Urban Tax Payments (90% Portion)	-	-	-
City Subsidy to MTA Bus & SIR	-	-	-
NYC Capital Program Contribution	-	-	-
Sales and Use Tax	9.498	11.232	13.230
Franchise Tax	1.158	1.006	0.892
Business Surcharge Tax	7.850	8.525	12.982
PBT	23.508	27.277	27.141
PMT	-	18.995	19.697
MTA Aid	-	7.450	7.362
Local Operating Assistance	0.380	0.380	0.380
Station Maintenance Payment	1.902	2.237	2.370
Other Payments	1.318	1.846	2.403
MNR - West of Hudson Fares	-	-	-
MNR - East of Hudson Fares	23.348	31.294	37.557
NYCT Fares	5.397	7.797	9.688
MTA Bus Fares	0.000	0.080	0.096
LIRR Fares	0.029	0.038	0.047
SIR Fares	-	-	-
Long Island Bus Fares	-	-	-
Nassau Subsidy to LIB	-	-	-
B&T Tolls	6.021	7.579	9.610
<b>TOTAL</b>	<b>97.837</b>	<b>130.685</b>	<b>150.191</b>
<b>PAYMENT RATIO</b>	<b>1.405</b>	<b>1.049</b>	<b>1.040</b>
<b>PAYMENT RATIO (NORMALIZED)</b>	<b>0.986</b>	<b>0.900</b>	<b>0.992</b>

Dutchess County's payment ratios were 1.405 in 2005, 1.049 in 2011 and 1.040 in 2016, ranking fourth in 2005 and 2016, and fifth in 2011. In 2005 and 2016, Dutchess County's payment ratio was comparable to the aggregate MTA region's ratio, while in 2011 it was 90% of the aggregate ratio.

Dutchess County's combined subway and bus utilization is low—its 14, 16 and 17 annual trips per capita were more than 10 times below the regional average. Despite moderate utilization of commuter rail—the 10, 11 and 12 annual trips per capita in 2005, 2011 and 2016 respectively were about average—the long distance of the commuter rail trips, owing to Dutchess County's distance from NYC, means that it was allocated a relatively high proportion of Metro-North's expenses.

The Dutchess County ratio also benefits from below average MTA taxes per capita; taxes of \$202 per capita in 2005 were 91% of the MTA region average, \$266 per capita in 2011 were 70% of the MTA region average, while the \$299 per capita in 2016 was 66% of the MTA region average. Furthermore, Dutchess County's utilization of B&T facilities is 4 times lower than the average for the region.

Capital spending benefitting Dutchess County is low relative to the MTA region—per capita capital spending was 39% of the MTA-wide per capita capital spending in 2005, 31% in 2011 and 28% in 2016. This is to be expected to some extent, given the relatively low utilization of MTA services by Dutchess

County residents. Nonetheless, all the counties served by Metro-North are disadvantaged by the focus of recent capital plans on East Side Access, expansion of the 7 subway line and the Second Avenue Subway.

## 5.2.2 Orange County

<b>Orange County Payment Ratio (\$ millions)</b>			
<b>MTA Payments to County</b>	<b>2005 (revis.)</b>	<b>2011</b>	<b>2016</b>
DORF	6.383	2.685	3.873
MNR West of Hudson Expenses	25.501	38.703	36.336
MNR East of Hudson Expenses	16.372	19.673	25.320
MTA Headquarters (without PD)	1.259	1.525	2.819
MTA Police Department	1.186	1.222	1.335
NYCT Expenses	5.457	7.433	9.233
MTA Bus Expenses	-	0.629	0.830
LIRR Expenses	0.153	0.181	0.219
SIR Expenses	-	-	-
LI Bus Expenses	-	-	-
B&T Expenses	1.823	1.904	2.465
MTA Policy & Gap Closing Actions	2.393	-	0.023
MTA Capital	39.021	20.893	22.931
<b>TOTAL</b>	<b>99.548</b>	<b>94.848</b>	<b>105.384</b>
<b>County Payments to MTA</b>			
MRT-1 and MRT-2 Payments	21.668	5.292	7.928
Urban Tax Payments (90% Portion)	-	-	-
City Subsidy to MTA Bus & SIR	-	-	-
NYC Capital Program Contribution	-	-	-
Sales and Use Tax	12.000	16.395	20.056
Franchise Tax	1.385	1.241	1.145
Business Surcharge Tax	9.734	11.288	17.626
PBT	27.853	32.363	32.637
PMT	-	18.787	22.017
MTA Aid	-	8.802	8.832
Local Operating Assistance	0.146	0.146	0.146
Station Maintenance Payment	0.394	0.463	0.490
Other Payments	0.443	0.532	0.723
MNR - West of Hudson Fares	8.436	9.004	9.502
MNR - East of Hudson Fares	5.997	8.038	9.647
NYCT Fares	3.268	4.790	5.984
MTA Bus Fares	0.000	0.000	0.000
LIRR Fares	0.081	0.105	0.131
SIR Fares	-	-	-
Long Island Bus Fares	-	-	-
Nassau Subsidy to LIB	-	-	-
B&T Tolls	7.079	8.752	11.116
<b>TOTAL</b>	<b>98.485</b>	<b>125.999</b>	<b>147.980</b>
<b>PAYMENT RATIO</b>	<b>1.011</b>	<b>0.753</b>	<b>0.712</b>
<b>PAYMENT RATIO (NORMALIZED)</b>	<b>0.710</b>	<b>0.646</b>	<b>0.679</b>

Orange County's ratios were 1.011 in 2005, 0.753 in 2011 and 0.712 in 2016, ranking it second-to-last behind only Rockland County. In 2005 Orange County's payment ratio was 71% of the aggregate MTA region's ratio, while it was 65% in 2011 and 68% in 2016.

Orange County has very low usage of MTA services; commuter rail ridership per capita is half the MTA region's average, and a quarter of the region's average if NYC is excluded, while subway and bus ridership per capita is the lowest in the MTA region. While Orange County benefits from long average travel distances on commuter rail, this is not enough to overcome the very low utilization. Consequently, Orange County's share of Metro-North expenses is much lower than Dutchess County, despite having a larger population.

Orange County's below average MTA-specific taxes per capita—the second lowest in the MTA region in 2005, the lowest in 2011 and third lowest in 2016—is of some benefit, but this is not enough to offset the very low utilization. Orange County also benefits from the fewest per capita crossings of B&T facilities at 22% of the MTA region's average in each year studied.

As with all the counties served by Metro-North, Orange County is also disadvantaged by the focus of recent capital plans on East Side Access and subway expansion; capital spending per capita was 34% of the MTA region's average in 2005, 16% in 2011 and 25% in 2016. Unlike all other counties, Orange County saw an increase in capital

expenditure between 2011 and 2016 reflecting significant track and signal work in the 2010-2014 Capital Program.

### 5.2.3 Rockland County

<b>Rockland County Payment Ratio (\$ millions)</b>			
<b>MTA Payments to County</b>	<b>2005 (revis.)</b>	<b>2011</b>	<b>2016</b>
DORF	7.908	1.686	2.349
MNR West of Hudson Expenses	5.411	12.391	9.628
MNR East of Hudson Expenses	5.941	7.139	9.188
MTA Headquarters (without PD)	0.567	0.751	1.393
MTA Police Department	0.430	0.443	0.484
NYCT Expenses	6.505	8.861	11.006
MTA Bus Expenses	-	0.750	0.989
LIRR Expenses	0.054	0.064	0.077
SIR Expenses	-	-	-
LI Bus Expenses	-	-	-
B&T Expenses	4.123	4.307	5.576
MTA Policy & Gap Closing Actions	1.080	-	0.008
MTA Capital	20.968	13.634	11.936
<b>TOTAL</b>	<b>52.988</b>	<b>50.025</b>	<b>52.636</b>
<b>County Payments to MTA</b>			
MRT-1 and MRT-2 Payments	19.660	6.566	9.787
Urban Tax Payments (90% Portion)	-	-	-
City Subsidy to MTA Bus & SIR	-	-	-
NYC Capital Program Contribution	-	-	-
Sales and Use Tax	9.816	11.258	14.103
Franchise Tax	1.157	1.059	0.989
Business Surcharge Tax	7.373	9.384	15.238
PBT	20.508	24.083	24.417
PMT	-	20.653	22.156
MTA Aid	-	6.645	6.652
Local Operating Assistance	0.029	0.029	0.029
Station Maintenance Payment	0.042	0.049	0.052
Other Payments	0.614	0.591	0.838
MNR - West of Hudson Fares	2.265	3.862	5.108
MNR - East of Hudson Fares	3.131	4.197	5.037
NYCT Fares	3.462	4.506	5.358
MTA Bus Fares	0.000	0.410	0.486
LIRR Fares	0.032	0.041	0.051
SIR Fares	-	-	-
Long Island Bus Fares	-	-	-
Nassau Subsidy to LIB	-	-	-
B&T Tolls	15.781	19.457	24.959
<b>TOTAL</b>	<b>83.870</b>	<b>112.791</b>	<b>135.262</b>
<b>PAYMENT RATIO</b>	<b>0.632</b>	<b>0.444</b>	<b>0.389</b>
<b>PAYMENT RATIO (NORMALIZED)</b>	<b>0.443</b>	<b>0.380</b>	<b>0.371</b>

capita was the lowest in Rockland County in each year at 22% of the aggregate MTA region average in 2005, 13% in 2011 and 15% in 2016.

Rockland County's payment ratios of 0.632 in 2005, 0.444 in 2011 and 0.389 in 2016 ranked it last in the MTA region. In 2005 Rockland County's payment ratio was 44% of the aggregate MTA region's ratio, while it was 38% in 2011 and 37% in 2016.

Rockland County's usage of MTA services is very low—per capita utilization of commuter rail is the lowest in the MTA region, *including* NYC, at 3 annual trips each year, while per capita usage of subways and buses is only slightly higher than Orange and Putnam Counties at 10 annual trips in each year. Furthermore, per capita utilization was stagnant between 2005 and 2016, in contrast to the MTA region as a whole which experienced increasing per capital utilization.

Relative to Orange County, Rockland's shorter average travel distance on commuter rail hurts its payment ratio. Furthermore, the Pascack Valley Line, which serves Rockland, is less heavily subsidized than the Port Jervis Line, which predominantly serves Orange County.

Rockland County's below average MTA-specific taxes per capita—the second lowest in the MTA region in both 2011 and 2016—is of some benefit, but this is not enough to offset the very low utilization.

As with all the counties served by Metro-North, Rockland County is also disadvantaged by the focus of recent capital plans on East Side Access and subway expansion; capital spending per

#### 5.2.4 Putnam County

<b>Putnam County Payment Ratio (\$ millions)</b>			
<b>MTA Payments to County</b>	<b>2005 (revis.)</b>	<b>2011</b>	<b>2016</b>
DORF	-	-	-
MNR West of Hudson Expenses	-	-	-
MNR East of Hudson Expenses	34.361	41.289	53.140
MTA Headquarters (without PD)	0.894	0.964	2.117
MTA Police Department	2.468	2.545	2.779
NYCT Expenses	1.811	2.467	3.064
MTA Bus Expenses	-	0.209	0.275
LIRR Expenses	0.033	0.039	0.047
SIR Expenses	-	-	-
LI Bus Expenses	-	-	-
B&T Expenses	1.870	1.953	2.529
MTA Policy & Gap Closing Actions	4.270	-	0.005
MTA Capital	18.471	14.452	11.321
<b>TOTAL</b>	<b>64.178</b>	<b>63.918</b>	<b>75.277</b>
<b>County Payments to MTA</b>			
MRT-1 and MRT-2 Payments	7.657	2.255	2.827
Urban Tax Payments (90% Portion)	-	-	-
City Subsidy to MTA Bus & SIR	-	-	-
NYC Capital Program Contribution	-	-	-
Sales and Use Tax	2.936	3.723	4.443
Franchise Tax	0.350	0.307	0.276
Business Surcharge Tax	1.488	1.861	3.016
PBT	8.752	10.200	10.198
PMT	-	4.155	4.662
MTA Aid	-	2.781	2.765
Local Operating Assistance	0.380	0.380	0.380
Station Maintenance Payment	0.744	0.875	0.927
Other Payments	0.906	1.264	1.629
MNR - West of Hudson Fares	-	-	-
MNR - East of Hudson Fares	13.336	17.875	21.453
NYCT Fares	1.057	1.512	1.871
MTA Bus Fares	0.000	0.026	0.031
LIRR Fares	0.019	0.024	0.031
SIR Fares	-	-	-
Long Island Bus Fares	-	-	-
Nassau Subsidy to LIB	-	-	-
B&T Tolls	6.125	7.681	10.052
<b>TOTAL</b>	<b>43.750</b>	<b>54.922</b>	<b>64.561</b>
<b>PAYMENT RATIO</b>	<b>1.467</b>	<b>1.164</b>	<b>1.166</b>
<b>PAYMENT RATIO (NORMALIZED)</b>	<b>1.030</b>	<b>0.998</b>	<b>1.112</b>

Putnam County's payment ratios of 1.467 in 2005, 1.164 in 2011 and 1.166 in 2016 ranked it second, third and first respectively. In 2005 the payment ratio was 3% greater than the aggregate MTA ratio, while it was the same as the MTA-wide ratio in 2011 and 11% greater in 2016.

Putnam County benefits from solid commuter rail utilization—its 21, 23 and 25 annual rides per capita were double the average for the region, and close to the regional average excluding NYC—combined with its long average travel distance. These gave it a per capita share of Metro-North's expenses on par with Westchester County, while its per capita share of fares is considerably lower.

Furthermore, Putnam County benefits from paying low MTA-specific taxes—the \$285 per capita in 2016 was the lowest in the MTA region at 63% of the average. Relative to Dutchess, Orange and Rockland Counties, Putnam's MTA-specific taxes have decreased from 2005 to 2016; in 2005 Putnam's tax contributions to the MTA were the highest amongst this group of counties, but by 2016 its contributions were the lowest. Putnam County also benefits from usage of B&T facilities that is slightly below the MTA region average, though usage has grown from 83% of the MTA region average in 2005 to 87% in 2016.

As with all the counties served by Metro-North, Rockland County is disadvantaged by low capital spending, with per capita capital spending at 59%, 42% and 48% of the MTA region average

in 2005, 2011 and 2016 respectively. However, compared to Dutchess, Orange and Rockland Counties, Putnam has significantly more per capita capital spending.



### 5.2.5 Westchester County

<b>Westchester County Payment Ratio (\$ millions)</b>			
<b>MTA Payments to County</b>	<b>2005 (revis.)</b>	<b>2011</b>	<b>2016</b>
DORF	-	-	-
MNR West of Hudson Expenses	-	-	-
MNR East of Hudson Expenses	294.054	353.342	454.759
MTA Headquarters (without PD)	8.982	9.813	21.471
MTA Police Department	21.144	21.798	23.803
NYCT Expenses	52.844	71.981	89.413
MTA Bus Expenses	-	6.090	8.036
LIRR Expenses	0.590	0.695	0.843
SIR Expenses	-	-	-
LI Bus Expenses	-	-	-
B&T Expenses	28.191	29.449	38.131
MTA Policy & Gap Closing Actions	38.432	-	0.089
MTA Capital	267.276	233.817	174.094
<b>TOTAL</b>	<b>711.514</b>	<b>726.986</b>	<b>810.640</b>
<b>County Payments to MTA</b>			
MRT-1 and MRT-2 Payments	76.937	26.114	37.860
Urban Tax Payments (90% Portion)	-	-	-
City Subsidy to MTA Bus & SIR	-	-	-
NYC Capital Program Contribution	-	-	-
Sales and Use Tax	32.576	40.486	47.369
Franchise Tax	3.785	3.355	3.083
Business Surcharge Tax	32.551	40.830	58.380
PBT	64.700	74.809	75.304
PMT	-	92.034	102.352
MTA Aid	-	20.453	20.412
Local Operating Assistance	7.342	7.342	7.342
Station Maintenance Payment	15.957	18.764	19.877
Other Payments	14.356	20.017	25.892
MNR - West of Hudson Fares	-	-	-
MNR - East of Hudson Fares	169.638	227.372	272.881
NYCT Fares	30.016	41.845	51.259
MTA Bus Fares	0.000	1.545	1.833
LIRR Fares	0.300	0.387	0.483
SIR Fares	-	-	-
Long Island Bus Fares	-	-	-
Nassau Subsidy to LIB	-	-	-
B&T Tolls	91.101	114.071	148.041
<b>TOTAL</b>	<b>539.259</b>	<b>729.423</b>	<b>872.368</b>
<b>PAYMENT RATIO</b>	<b>1.319</b>	<b>0.997</b>	<b>0.929</b>
<b>PAYMENT RATIO (NORMALIZED)</b>	<b>0.926</b>	<b>0.855</b>	<b>0.886</b>

spending in the period covered by this study thanks to the focus of capital spending on subway expansion and East Side Access.

Westchester County's payment ratios of 1.319 in 2005, 0.997 in 2011 and 0.929 rank it ahead of Orange and Rockland Counties, but behind all the other suburban counties and NYC. In 2005, its ratio was 93% of the MTA-wide ratio, while it was 86% in 2011 and 89% in 2016.

Westchester benefits from the highest commuter rail usage in the MTA region—the 35, 38 and 39 annual trips per capita in 2005, 2011 and 2016 respectively were close to quadruple the MTA region's average, and close to double the regional average excluding NYC. Westchester's utilization of subway and buses is also solid—second of the suburban counties, only behind Nassau.

The high utilization of commuter rail is somewhat offset by its shorter average travel distance to NYC than the rest of the counties served by Metro-North.

Westchester also pays high MTA-specific taxes relative to the rest of the counties served by Metro-North—around 20% higher per capita. Furthermore, Westchester's utilization of B&T facilities is the highest in the MTA region at around 25 annual crossings per capita—a third higher than the MTA region average.

Westchester County is most like Nassau County (see the next section)—very high commuter rail utilization, solid subway and bus utilization, but high taxes and B&T utilization. However, they differ in capital spending—Westchester, like the rest of the counties served by Metro-North, has had relatively low capital

### 5.2.6 Nassau County

<b>Nassau County Payment Ratio (\$ millions)</b>			
<b>MTA Payments to County</b>	<b>2005 (revis.)</b>	<b>2011</b>	<b>2016</b>
DORF	-	-	-
MNR West of Hudson Expenses	-	-	-
MNR East of Hudson Expenses	0.735	0.884	1.137
MTA Headquarters (without PD)	17.848	15.554	32.581
MTA Police Department	33.313	31.849	35.477
NYCT Expenses	74.665	101.705	126.335
MTA Bus Expenses	-	8.605	11.355
LIRR Expenses	450.195	530.796	643.813
SIR Expenses	-	-	-
LI Bus Expenses	105.420	-	-
B&T Expenses	37.147	38.805	50.245
MTA Policy & Gap Closing Action	126.330	-	67.831
MTA Capital	477.338	578.126	505.895
<b>TOTAL</b>	<b>1,322.992</b>	<b>1,306.324</b>	<b>1,474.669</b>
<b>County Payments to MTA</b>			
MRT-1 and MRT-2 Payments	110.529	34.726	53.980
Urban Tax Payments (90% Portio	-	-	-
City Subsidy to MTA Bus & SIR	-	-	-
NYC Capital Program Contribution	-	-	-
Sales and Use Tax	53.078	64.516	73.968
Franchise Tax	5.427	4.767	4.378
Business Surcharge Tax	52.132	63.856	94.995
PBT	93.827	110.865	112.532
PMT	-	111.800	130.212
MTA Aid	-	30.755	30.722
Local Operating Assistance	11.584	11.584	11.584
Station Maintenance Payment	23.089	27.151	28.761
Other Payments	19.891	18.368	25.211
MNR - West of Hudson Fares	-	-	-
MNR - East of Hudson Fares	0.531	0.711	0.854
NYCT Fares	43.282	61.542	75.990
MTA Bus Fares	0.000	1.359	1.613
LIRR Fares	219.043	283.145	352.799
SIR Fares	-	-	-
Long Island Bus Fares	38.100	-	-
Nassau Subsidy to LIB	10.500	-	-
B&T Tolls	143.891	180.686	221.861
<b>TOTAL</b>	<b>824.904</b>	<b>1,005.832</b>	<b>1,219.460</b>
<b>PAYMENT RATIO</b>	<b>1.604</b>	<b>1.299</b>	<b>1.209</b>
<b>PAYMENT RATIO (NORMALIZED)</b>	<b>1.126</b>	<b>1.114</b>	<b>1.153</b>

75% higher in 2011, and more than double in 2016, which is the primary driver for Nassau's high payment ratio. After the completion of East Side Access, Nassau County's payment ratio is expected to be closer to 1.

Nassau County's payment ratios of 1.604 in 2005, 1.299 in 2011 and 1.209 in 2016 ranked it first each year. In 2005, the payment ratio was 13% higher than the MTA-wide ratio, while it was 11% higher in 2011 and 12% higher in 2016.

Nassau County benefits from high commuter rail usage—annual trips per capita are around 50% higher than the regional average, and triple the regional average excluding NYC, making it the second highest in utilization of commuter rail. It is also the second highest in utilization of subway and buses, behind only NYC.

The high utilization of commuter rail is somewhat offset by its shorter average travel distance to NYC than Suffolk County, which reduces the share of LIRR operating costs that are apportioned to Nassau County.

Nassau County pays high MTA-specific taxes—per capita MTA-specific taxes are slightly higher than Westchester and Suffolk Counties, making it second only to NYC. Furthermore, Nassau County's per capita utilization of B&T facilities is the second highest in the MTA region, following Westchester.

Nassau and Westchester have similar characteristics: very high commuter rail utilization, solid subway and bus utilization, but high taxes and B&T utilization. However, Nassau County benefits greatly because of its high capital spending, driven by the East Side Access project. Consequently, Nassau County's capital spending per capita was 25% higher than Westchester in 2005,

### 5.2.7 Suffolk County

<b>Suffolk County Payment Ratio (\$ millions)</b>			
<b>MTA Payments to County</b>	<b>2005 (revis.)</b>	<b>2011</b>	<b>2016</b>
DORF	-	-	-
MNR West of Hudson Expenses	-	-	-
MNR East of Hudson Expenses	0.189	0.227	0.292
MTA Headquarters (without PD)	11.534	11.795	24.642
MTA Police Department	27.225	26.026	28.991
NYCT Expenses	42.977	58.541	72.718
MTA Bus Expenses	-	4.953	6.536
LIRR Expenses	368.316	434.258	526.719
SIR Expenses	-	-	-
LI Bus Expenses	2.830	-	-
B&T Expenses	17.450	18.229	23.603
MTA Policy & Gap Closing Action	101.614	-	55.494
MTA Capital	262.701	294.732	270.684
<b>TOTAL</b>	<b>834.835</b>	<b>848.761</b>	<b>1,009.680</b>
<b>County Payments to MTA</b>			
MRT-1 and MRT-2 Payments	137.142	42.260	60.460
Urban Tax Payments (90% Portio	-	-	-
City Subsidy to MTA Bus & SIR	-	-	-
NYC Capital Program Contribution	-	-	-
Sales and Use Tax	61.154	72.787	87.920
Franchise Tax	5.857	5.199	4.725
Business Surcharge Tax	44.009	54.905	83.888
PBT	117.349	138.662	141.491
PMT	-	113.059	130.331
MTA Aid	-	37.815	38.305
Local Operating Assistance	7.518	7.518	7.518
Station Maintenance Payment	14.231	16.735	17.727
Other Payments	7.064	8.327	11.943
MNR - West of Hudson Fares	-	-	-
MNR - East of Hudson Fares	0.086	0.115	0.138
NYCT Fares	24.763	35.008	43.127
MTA Bus Fares	0.000	0.924	1.096
LIRR Fares	134.016	173.235	215.851
SIR Fares	-	-	-
Long Island Bus Fares	1.020	-	-
Nassau Subsidy to LIB	-	-	-
B&T Tolls	69.895	87.913	107.559
<b>TOTAL</b>	<b>624.105</b>	<b>794.462</b>	<b>952.080</b>
<b>PAYMENT RATIO</b>	<b>1.338</b>	<b>1.068</b>	<b>1.060</b>
<b>PAYMENT RATIO (NORMALIZED)</b>	<b>0.939</b>	<b>0.916</b>	<b>1.011</b>

Suffolk County's payment ratios of 1.338 in 2005, 1.068 in 2011 and 1.060 in 2016 ranked it fifth in 2005, fourth in 2011 and third in 2016. Its payment ratio was 94% of the MTA-wide ratio in 2005, 92% in 2011, while it was 1% higher than the MTA-wide ratio in 2016.

Suffolk County's utilization of commuter rail is somewhat low—per capita utilization is slightly higher than the MTA region average, but around a third lower than the regional average excluding NYC. This is offset by the long average travel distances to NYC—Suffolk's passenger miles are only around 20% below Nassau's, despite having less than half the ridership—which helps to keep Suffolk's payment ratio as high as it is.

Suffolk County pays similar MTA-specific taxes per capita as Westchester and Nassau Counties, higher than the other counties but lower than NYC. B&T utilization is about half the average for the MTA region, which is favorable for Suffolk's payment ratio.

Given Suffolk County's utilization and travel distances are similar to Dutchess County, but the per capita MTA-specific taxes it pays are higher, it may be surprising that both have similar payment ratios. Once again, this is driven by capital expenditure. High expenditures from the East Side Access project help to offset the reasonably high per capita taxes in Suffolk County and drive up its payment ratio. However, Suffolk benefits less than Nassau from the high capital spending, as Suffolk's utilization is less than half that of Nassau's, and it is utilization that is used

to apportion much of capital expenditure, rather than passenger miles.

### 5.2.8 New York City

<b>NYC Payment Ratio (\$ millions)</b>			
<b>MTA Payments to County</b>	<b>2005 (revis.)</b>	<b>2011</b>	<b>2016</b>
DORF	-	-	-
MNR West of Hudson Expenses	-	-	-
MNR East of Hudson Expenses	112.584	135.283	174.112
MTA Headquarters (without PD)	129.142	159.677	342.468
MTA Police Department	26.082	27.757	27.128
NYCT Expenses	4,378.299	5,963.915	7,408.216
MTA Bus Expenses	-	504.601	665.843
LIRR Expenses	132.035	155.674	188.820
SIR Expenses	27.336	33.227	63.945
LI Bus Expenses	-	-	-
B&T Expenses	198.695	207.563	268.757
MTA Policy & Gap Closing Action	260.238	-	19.894
MTA Capital	2,939.806	3,315.431	2,223.957
<b>TOTAL</b>	<b>8,204.217</b>	<b>10,503.129</b>	<b>11,383.141</b>
<b>County Payments to MTA</b>			
MRT-1 and MRT-2 Payments	351.542	123.642	280.541
Urban Tax Payments (90% Portio	557.435	346.973	771.476
City Subsidy to MTA Bus & SIR	-	281.421	486.251
NYC Capital Program Contribution		565.813	133.843
Sales and Use Tax	246.323	332.362	452.180
Franchise Tax	32.407	29.467	28.041
Business Surcharge Tax	292.814	421.862	557.336
PBT	259.981	252.000	264.587
PMT	-	1,035.561	1,250.600
MTA Aid	-	188.541	185.260
Local Operating Assistance	160.544	160.544	160.544
Station Maintenance Payment	73.880	86.877	92.029
Other Payments	353.872	434.615	602.722
MNR - West of Hudson Fares	-	-	-
MNR - East of Hudson Fares	66.687	89.383	107.273
NYCT Fares	2,446.675	3,350.055	4,070.637
MTA Bus Fares	0.000	172.778	205.049
LIRR Fares	82.900	107.161	133.522
SIR Fares	3.256	5.586	6.522
Long Island Bus Fares	-	-	-
Nassau Subsidy to LIB	-	-	-
B&T Tolls	677.071	839.390	1,039.543
<b>TOTAL</b>	<b>5,709.256</b>	<b>8,824.031</b>	<b>10,827.958</b>
<b>PAYMENT RATIO</b>	<b>1.437</b>	<b>1.190</b>	<b>1.051</b>
<b>PAYMENT RATIO (NORMALIZED)</b>	<b>1.009</b>	<b>1.021</b>	<b>1.003</b>

directly to the Capital Program.

New York City's payment ratios of 1.437 in 2005, 1.19 in 2011 and 1.051 in 2016 ranked it third, second and fourth respectively. Given NYC accounts for around 75% of the MTA region's spending, it is unsurprising that NYC's payment ratio is close to the MTA region's ratio; it was 1% greater than the MTA-wide ratio in 2005, 2% greater in 2011 and effectively identical to the MTA-wide ratio in 2016.

Utilization on subways and buses is nine times higher in NYC than the next highest county (Nassau) on a per capita basis, while per capita commuter rail utilization is 35% of the MTA region average, the second lowest in the region.

This incredibly high subway and bus utilization has mostly been offset by NYC's high per capita payment of MTA-dedicated taxes; NYC paid 41% more on a per capita basis than the next highest county in 2011, and 43% more in 2016. NYC's large dedicated tax burden is driven by the Payroll Mobility Tax (PMT); in 2005, prior to the introduction of PMT, NYC paid slightly less than Nassau, Suffolk and Westchester Counties. NYC's utilization of B&T facilities is about average, further dampening its payment ratio.

NYC has a high level of capital spending; on a per capita basis only Nassau had more capital spending in 2005, 2011 and 2016. Given the level of utilization in NYC, it is unsurprising that it benefits from significant capital investment. This is partially offset by the fact that, unlike any other counties, NYC contributes

Overall, despite its large contribution via MTA-specific taxes, NYC receives more payments from the MTA than it pays to the MTA, thanks to its incredibly high utilization of subways and buses, and the high level of capital investment it receives.

## 6 2016 Consolidated Table

2016 MTA Payments to County	Dutch.	Orange	Rock.	Putnam	Westch.	Nassau	Suffolk	NYC	Total
DORF	2.402	3.873	2.349	-	-	-	-	-	8.624
MNR West of Hudson Expenses	-	36.336	9.628	-	-	-	-	-	45.964
MNR East of Hudson Expenses	104.852	25.320	9.188	53.140	454.759	1.137	0.292	174.112	822.800
MTA Headquarters (without PD)	4.473	2.819	1.393	2.117	21.471	32.581	24.642	342.468	431.965
MTA Police Department	5.483	1.335	0.484	2.779	23.803	35.477	28.991	27.128	125.480
NYCT Expenses and Admin. Costs	15.487	9.233	11.006	3.064	89.413	126.335	72.718	7,408.216	7,735.474
MTA Bus Expenses and Admin. Costs	1.392	0.830	0.989	0.275	8.036	11.355	6.536	665.843	695.257
LIRR Expenses and Admin. Costs	0.108	0.219	0.077	0.047	0.843	643.813	526.719	188.820	1,360.647
SIR Expenses and Admin. Costs	-	-	-	-	-	-	-	63.945	63.945
LIB Expenses and Admin. Costs	-	-	-	-	-	-	-	-	0.000
B&T Expenses and Admin. Costs	2.267	2.465	5.576	2.529	38.131	50.245	23.603	268.757	393.574
MTA Policy and Gap Closing Actions	0.011	0.023	0.008	0.005	0.089	67.831	55.494	19.894	143.356
MTA Capital	19.794	22.931	11.936	11.321	174.094	505.895	270.684	2,223.957	3,240.611
<b>TOTAL</b>	<b>156.270</b>	<b>105.384</b>	<b>52.636</b>	<b>75.277</b>	<b>810.640</b>	<b>1,474.669</b>	<b>1,009.680</b>	<b>11,383.141</b>	<b>15,067.696</b>
<b>2016 County Payments to MTA</b>									
MRT-1 and MRT-2 Payments	6.736	7.928	9.787	2.827	37.860	53.980	60.460	280.541	460.119
Urban Tax Payments	-	-	-	-	-	-	-	771.476	771.476
City Subsidy to MTA Bus and SIRTOA	-	-	-	-	-	-	-	486.251	486.251
NYC Capital Program Contribution	-	-	-	-	-	-	-	133.843	133.843
Sales and Use Tax	13.230	20.056	14.103	4.443	47.369	73.968	87.920	452.180	713.270
Franchise Tax	0.892	1.145	0.989	0.276	3.083	4.378	4.725	28.041	43.529
Business Surcharge Tax	12.982	17.626	15.238	3.016	58.380	94.995	83.888	557.336	843.460
PBT	27.141	32.637	24.417	10.198	75.304	112.532	141.491	264.587	688.307
PMT (incl. PMT Replacement Fund)	19.697	22.017	22.156	4.662	102.352	130.212	130.331	1,250.600	1,682.027
MTA Aid	7.362	8.832	6.652	2.765	20.412	30.722	38.305	185.260	300.311
Local Operating Assistance	0.380	0.146	0.029	0.380	7.342	11.584	7.518	160.544	187.924
Station Maintenance Payment	2.370	0.490	0.052	0.927	19.877	28.761	17.727	92.029	162.233
Other Payments	2.403	0.723	0.838	1.629	25.892	25.211	11.943	602.722	671.362
MNR - West of Hudson Fares	-	9.502	5.108	-	-	-	-	-	14.610
MNR - East of Hudson Fares	37.557	9.647	5.037	21.453	272.881	0.854	0.138	107.273	454.840
NYCT Fares	9.688	5.984	5.358	1.871	51.259	75.990	43.127	4,070.637	4,263.915
MTA Bus Fares	0.096	0.000	0.486	0.031	1.833	1.613	1.096	205.049	210.205
LIRR Fares	0.047	0.131	0.051	0.031	0.483	352.799	215.851	133.522	702.915
SIR Fares	-	-	-	-	-	-	-	6.522	6.522
Long Island Bus Fares	-	-	-	-	-	-	-	-	0.000
Nassau Subsidy to LIB	-	-	-	-	-	-	-	-	0.000
B&T Tolls	9.610	11.116	24.959	10.052	148.041	221.861	107.559	1,039.543	1,572.742
<b>TOTAL</b>	<b>150.191</b>	<b>147.980</b>	<b>135.262</b>	<b>64.561</b>	<b>872.368</b>	<b>1,219.460</b>	<b>952.080</b>	<b>10,827.958</b>	<b>14,369.861</b>
<b>PAYMENT RATIO TO COUNTY</b>	<b>1.040</b>	<b>0.712</b>	<b>0.389</b>	<b>1.166</b>	<b>0.929</b>	<b>1.209</b>	<b>1.060</b>	<b>1.051</b>	<b>1.049</b>
<b>PAYMENT RATIO (NORMALIZED)</b>	<b>0.992</b>	<b>0.679</b>	<b>0.371</b>	<b>1.112</b>	<b>0.886</b>	<b>1.153</b>	<b>1.011</b>	<b>1.003</b>	<b>1.000</b>

The **MTA County-by-County Cost Benefit Analysis**, published in March of 2008, adopts an approach similar to that undertaken in several previous studies: basically, a ratio of benefits to costs has been calculated. The ratio, however, bears some serious limitations that render it inadequate as a metric for determining the “true” relationship between benefits and costs. These limitations are discussed at length in the study itself. This note is intended simply to delineate the components of benefit and cost so that one type of limitation can be exposed—that arising from shortcomings in the data or the assumptions required to employ the data. It is worth noting that actual county-level data was available for direct use in only five of the twenty-two components of the ratio; all the others were obtained by constructing imperfect proxies.

## **Benefits**

Table 1: Summary of Data Used for Calculating “Benefits”

<b>Data</b>	<b>Method</b>	<b>Using</b>
DORF and MMTOA	Actual	
West of Hudson Operating Expenses	Estimated	Passenger Miles
West of Hudson General Admin. Costs	Estimated	Passenger Miles, Financial Statements
MNR East of Hudson Expenses	Estimated	Passenger Miles
NYCT Expenses and Admin. Costs	Estimated	Ridership
Expenses and Admin. Costs of LIRR and LIB	Estimated	Ridership
MTA Bridges & Tunnels Expenses and Admin. Costs	Estimated	Car trips
MTA-HQ and Police Expenses	Estimated	Passenger miles, Financial Statements, Personnel Assignments
Capital Project Payments	Estimated	Capital Program Data from 1995-1999 and from 2000-2004
MTA Policy and Gap Closing Actions	Estimated	Financial Statements, Passenger miles, Car trips, Ridership

### **1) Direct Payments of MTA-Earmarked Taxes to Local Counties**

Data used: i) Dutchess-Orange-Rockland Fund (DORF) data, as a refunded portion of MRT-2 taxes.

ii) Rockland County’s receipt of MMTOA funds

Assumption Issues: Actual data were used.

### **2) MNR- West of Hudson Operating Expenses**

Data used: Payments made by the MTA to New Jersey for Port Jervis and Pascack Valley services.

Assumption Issues: Expense data is not available on a per county basis; therefore, payment data is estimated. Estimated payments are allocated to each county based on its share of passenger miles<sup>1</sup>. Passenger miles is only one of many determinants of

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<sup>1</sup> Passenger miles is a datum that is itself estimated (according to a methodology approved by the Federal Transportation Administration). This introduces further error into any county share allocation that is based on passenger miles.

actual operating expenses, especially when transit service to a particular destination is part of a much larger system.

### **3) MNR- West of Hudson General Administrative Costs**

Data used: MNR general and administrative cost data, from MNR Financial Statement.

Assumption Issues: The apportionment to counties is made by first estimating West of Hudson service's share in total MNR Revenue passenger miles and then allocating these expenses among Orange and Rockland counties based on each county's share of West of Hudson operating expenses. A problem with this is that the general and administrative costs of operating West of Hudson service are not determined solely by passenger miles; and, with regard to the allotment to the counties, the caveats mentioned above apply.

### **4) MNR- East of Hudson Expenses**

Data used: MNR East of Hudson expense data, from MNR Financial Statement.

Origin-destination survey results.

Assumption Issues: Allocations made according to each county's share of passenger miles on East of Hudson service, as estimated from survey results. As mentioned in (2) above, the allocation will carry error.

### **5) NYCT Expenses and Administrative Costs**

Data used: NYCT Financial Statement. Ridership and revenue passenger miles from origin-destination surveys.

Assumption Issues: Each county assigned costs based on the number of its residents' trips as a share of total NYCT trips. Since expenditures by NYCT are not reported at a per county level, they must be estimated; as above, the apportionment of expenses and costs to each county are not likely explained by a single variable—in this case, ridership; and the estimation of ridership share, in any case, always carries some amount of error.

### **6) Expenses and Administrative Costs of Other MTA Transit Operations (LIRR and LI Bus)**

Data used: Agency Financial Statements. Ridership and revenue passenger miles from origin-destination surveys.

Assumption Issues: Each county assigned costs based on the number of its residents' trips as a share of total LIRR and LI Bus trips. Since actual expense and cost data are not available at a per county level, see Assumption Issues in (5) above.

### **7) MTA Bridges and Tunnels Expenses and Administrative Costs**

Data used: B&T Financial Statements. Car trips from origin-destination surveys.

Assumption Issues: Each county assigned costs based on the number of its residents' car trips into NYC as a percentage of the total. Since B&T does not report its expenses and administrative costs on a per county level, the allocation to counties is only an estimate of actual benefit, and the caveats mentioned above apply.



### 8) MTA Headquarters and Police Expenses

Data used: Financial Statement from MTA Headquarters and Financial Statements from each agency. Data on police assignments in each transit operation.

Assumption Issues: Each agency assigned a share of total operations and this is used to allocate a share of MTA Headquarters expenses. Share of Police personnel assignments to each agency are used to determine share of Police expenses. The allocations are then made to each county, based on its share of each agency's total revenue passenger miles. As mentioned above, use of passenger miles to determine expense shares to counties is far from perfect.

### 9) Capital Project Payments

Data used: 2005-2009 Capital Program and Programs from 1995-1999 and 2000-2004.

Assumption Issues: Average annual distribution of expenditures by county was obtained for the ten-year period 1995-2004. The 2005-2009 expenditures were allocated to each county based on this apportionment. Allocation of rolling stock for 2005-2009 was achieved by first assigning the rolling stock to the agencies that will use it, and then making the county-level allocation based on each county's use of each agency (in the same manner as above). The method of allocation used in the study suffers from important shortcomings that stem from unavailability of actual county-level capital expenditure data for 2005-2009. The estimate is based on earlier capital programs, implemented in the context of priorities distinct from those in the 2005-2009 period.

### 10) MTA Policy and Gap Closing Actions

Data used: MTA Financial Statements.

Assumption Issues : Expenditures for MTA Policy and Gap closing were allocated to the operating agencies according to their shares in overall operations; then the allocation was made to each county in the same manner as described above. See caveats above.

## Costs

Table 2: Summary of Data Used for Calculating "Costs"

<b>Data</b>	<b>Method</b>	<b>Using</b>
Real Estate Tax Payments	Actual	
Sales and Use Tax	Actual	
Franchise Tax	Estimated	Population and Employment
Temporary Surcharge Tax	Estimated	Employment, by Industry
Petroleum Business Tax	Estimated	Vehicle Registrations, Electricity Consumption, Passenger Boardings
Local Operating Assistance	Actual	

Table 2: Summary of Data Used for Calculating “Costs” (Cont’d)

<b>Data</b>	<b>Method</b>	<b>Using</b>
Station Maintenance Payments	Actual	
MNR- West of Hudson Fare Revenue	Estimated	Ridership
MNR- East of Hudson Fare Revenue	Estimated	Ridership
MTA B&T Revenue	Estimated	Bridge Crossings from Origin-Destination Surveys
NYCT Revenue Paid	Estimated	Ridership, from O-D surveys.
Other Transit Fare Revenues	Estimated	Ridership, from O-D surveys

### 1) Real Estate Tax Payments

Data used: Mortgage recording tax receipt data, made available by the County Clerks. MRT data includes MRT-1 and MRT-2. Also, Urban Tax data, made available by the New York City Department of Finance.

Assumption Issues: The data used in the study was drawn from a period of high and rising home prices, as well as a period of unprecedented re-finance activity. This inflated “costs” paid by counties and to smaller ratios, and impacted to a greater degree the counties for which real estate taxes are a greater proportion of total payments to the MTA. This point illustrates the temporal problem associated with the ratios: they represent a snap-shot view of the distribution of benefits and costs, when in fact a more dynamic measure is needed. For example, the subsequent drastic decline in MRT payments, which occurred outside the time-frame of this study, would likely have produced larger ratios for suburban counties.<sup>2</sup>

### 2) Sales and Use Tax

Data used: Actual sales tax receipts in each county.

Assumption Issues: Collections are based on the county of collection, not the county of residence of the purchaser. The sales taxes collected from a county with a large shopping mall, for example, will be significantly greater in the data than the sales taxes actually paid by its residents.

### 3) Franchise Tax

Data used: MTA region Franchise tax receipts.

Assumption Issues: Payments are not recorded by county. Allocation to each county was based on its share in the MTA regional population and employment (as a proxy for energy use). A problem with this is that estimation error will arise from the imperfect correspondence between population and employment and energy usage.

<sup>2</sup> In the study, MRT as a percentage of “costs” was 22% for Orange, Rockland and Suffolk; 19% for Dutchess And Putnam; and 13% for Westchester and Nassau. For NYC—when Urban taxes are added—real estate Taxes comprise 16% of “costs”.

**4) Temporary Surcharge Tax**

Data used: MTA region Temporary Surcharge Tax receipts.

Assumption Issues: Payments are not recorded by county. Allocation to each county is based in its share in each of the affected sectors. The estimation will be compromised by the fact that employment shares in each industry will be an imperfect proxy for the size and number of firms taxed, and therefore of total surcharge taxes.

**5) Petroleum Business Tax**

Data used: MTA PBT receipts.

Assumption Issues: Allocation to each county was made based on its share of vehicle registration, electricity consumption and air passenger boardings; however, the number of petroleum-related businesses in each county may not be well explained by vehicle registrations, electricity consumption and passenger boardings in the county in which the business is located. This is a tax on companies that provide petroleum products, and is not a tax on sales.

**6) Local Operating Assistance**

Data used: Receipts by the MTA from each county.

**7) Station Maintenance Payments**

Data used: MTA receipts from each county.

**8) MNR – West of Hudson Fare Revenue**

Data used: Fare receipts by the MTA for MNR West of Hudson service. Also, origin-destination surveys and data from mail/web ticket sales.

Assumption Issues: Fare revenues attributed to each county as payments are based on each county's share in total MNR West of Hudson ridership. These shares are only estimates, and as such, are not error-free.

**9) MNR – East of Hudson Fare Revenue**

Data and methodology are the same as in (8) above. See caveat in (8).

Assumption Issues: See (8).

**10) MTA B&T Revenue**

Data used: MTA Toll receipts and B&T origin-destination surveys.

Assumption Issues: Each county's share in tolls was assumed to be its share in bridge crossings, as found in B&T's origin-destination surveys. These shares are estimates, and as such, are not error-free.

**11) NYCT Revenue Paid**

Data used: NYCT fares and MTA origin-destination surveys.

Assumption Issues: In the same manner as above, each counties portion of total fares reflects its share of NYCT ridership, reported in the MTA origin-destination surveys. The county shares are estimates, and as such, are not error-free.

## 12) Other Transit Revenues

Data used: Fares paid to other MTA agencies and origin-destination surveys.

Assumption Issues: Fares paid to the MTA agencies are apportioned to each County using the same methodology as above. The county shares are estimates, and as such, are not error-free.

Note: Many of the “Cost” and “Benefit” measures were estimated using a combination of data that dates back to 2000. As regional travel patterns continually change, these old data will not perfectly represent true origins and destinations. The following table gives the dates of data sources used in attributing ridership numbers to each county.

**Table 3: Dates of Surveys Used in the Study**

<b>Survey</b>	<b>Date</b>
NYC Regional Trips Survey	2000
MNR Ridership Analysis	2005
B&T Survey	2004
NYCT Ridership Survey	1990
LIRR Boarding Counts	2005