vision42:

The Value of Rail Transit Access to Residential Properties of Manhattan

Summary of Findings

- ***The Relationship of Price to Access***

  - *By modeling over 5,000 recent condo sales in Manhattan, statistical analysis shows that 55% of their value can be explained by a multivariate relationship to 5 easily measured variables, including distance to the nearest subway station.*

- ***The Implications for Recent Condo Sales in vision42 Corridor***

  - *When applied to nearly 350 recent condo sales in the study area, results show that as distance to a station declined by 5%, the price per unit rose by 1%, all other explanatory factors being equal (unit size, age, passenger volume, crime rate).*
  - *Thus, with vision42 in service, a condo unit price would increase on average by $74 per unit for every 1 foot closer to a LRT platform.*
  - *And, all recent condo sales would likely have risen by $18.2 million, or 5.8% with LRT access.*

- ***The Implications for All High-Rise Housing in vision42 Corridor***

  - *Property values of all high-rise housing -- including co-ops and recent rentals – would be enhanced 7.3% by LRT access, or $1.78 billion.*
  - *Prices on future units in Hudson Yards and Con Edison sites could be enhanced 10.6% by LRT service, or $772 million.*
  - *Thus, the aggregate benefit of LRT access on existing and future housing values is estimated at $2.55 billion in current dollars -- fivefold the cost of an LRT system on 42nd St.*

Summary of Findings

- ***The Implications for a 10th Avenue Subway Station***

  - *Now under consideration, after having been dropped for cost savings, a 10th Avenue station at 41st Street would also confer benefits on nearby residences by providing access to the #7 Subway line extension.*

  - *The model shows that values on future Hudson Yards housing would be enhanced 8.2%, or reap more benefit to prices than conferred by LRT access at 7.9%.*

  - *However, existing housing, including new rental developments, would likely increase by only 3.0%, compared to 7.3% with LRT service, and future housing on the Con Edison site would not benefit at all from a 10th Avenue station.*

- ***The Aggregate Difference***

  - *In the aggregate, for all existing and future high-rise housing between 37th and 47th Streets, river-to-river in Manhattan, the provision of LRT service on 42nd Street would far outweigh the benefits to housing value of a 10th Avenue subway station.*

  - *The aggregate difference is estimated to be $1.5 billion, or the margin between a $2.55 billion gain with block-to-block LRT access and a $1.03 billion gain with access to a 10th Avenue subway station.*

The Value of Rail Transit Access to Residential Properties of Manhattan

- **Need for & Feasibility of New Research:**
  - Prior analysis estimated a positive financial impact of ***vision42*** on commercial property values in a 10 block study area of the proposed 42nd Street LRT, running river to river in midtown Manhattan*
  - Comparable residential impacts were minimal or missing based on equations modeled on citywide housing relationships to transit access
  - Considerable changes occurred in property values and housing types since the transit access relationships were modeled in the 1990s
  - Availability of a Department of Finance file reporting 20,000 property sales in NYC between July 1, 2009 & June 30, 2010 provided >6,200 records of residential property sales in Manhattan

* Available on www.vision42.org

The Value of Rail Transit Access to Residential Properties of Manhattan

- **Research Approach**:
  - Literature Search
  - Data Base Development
  - Econometric Analysis
  - Application of Model Results to LRT Study Area

Literature Search

THE VALUE OF RAIL TRANSIT ACCESS TO RESIDENTIAL PROPERTIES OF MANHATTAN

Literature Search

- Regional Plan Association, *The ARC Effect,* July 2010
  - Hedonic price modeling of 45,000 home sales within 2 miles of NJ TRANSIT stations demonstrated that 3 recent improvements –Midtown Direct Service, the Montclair Connection, & Secaucus Junction – increased nearby home values by nearly $23,000 on average or $11 billion cumulatively. Homes within walking distance of stations gained up to $34,000 in property value.
- Center for Transit Oriented Development, *Capturing the Value of Transit,* November 2008
  - A review of 20+ analyses of land use effects of fixed guideway systems in the US demonstrates that transit can measurably increase property values. A range of value premiums were identified, from +2% to 18% on condominiums within 2,640 feet of San Diego trolley stations to +45% on Santa Clara County apartments within 1,320 feet of VTA Light Rail stations.
- Parsons Brinckerhoff, *The Effect of Rail Transit on Property Values: A Summary of Studies,* February 2001
  - 10 rapid/commuter rail and 9 light rail transit studies performed between 1993 and 2001 focused on residential and commercial property value impacts. LRT systems overwhelmingly show rising home values closer to stations, ranging as high as $2,000 more between the station and 200 feet away.

Data Base Development

THE VALUE OF RAIL TRANSIT ACCESS TO RESIDENTIAL PROPERTIES OF MANHATTAN

Some 35 data series were compiled to characterize 6,200 observations of residential property sales in Manhattan. Stratified by building type & tenure, they were comprised of dependent & independent variables, parcel-specific & neighborhood location, from an array of data sources:

- Building type & tenure
  - 123 Family – Owner (143 homes)
  - Walkup – Condo (301 units)
  - Walkup – Rental (220 buildings)
  - Walkup – Co-op (3 buildings)
  - Elevator – Condo (5,388 units)
  - Elevator – Rental (73 buildings)
  - Elevator – Co-op (5 buildings)
  - Cond-op (1 unit, 2 buildings)
  - Loft – (8 buildings)

Data Base Development (cont'd)

- Dependent variables
  - PRICE $_{building\ type\text{-}tenure}$
  - PR_UGSF $_{building\ type\text{-}tenure}$ (price per unit gross square foot)
- Independent variables
  - WDST (airline distance to nearest subway station)
  - NGBHD (neighborhood)
  - SBWY (subway station)
  - PRCNT (police precinct)
  - CD (community district)
  - PUMA (public use microdata area)
  - ZIP (zip code area)
  - BLDG_U (building or unit)
  - RUNIT (residential units in building)
  - TUNIT (total units in building including commercial)
  - LSF (land square feet of building)
  - BGSF (gross square feet of building)
  - YRBLT (year built)
  - PSGR09 (average weekday ridership by station, 2009)
  - PSGRAVE (3 year average weekday ridership by station, 2007, 2008, 2009)
  - PSGRTRD (% change in average weekday ridership by station, 2007-2009)
  - ESTAB (number of establishments in zip code area, 2008)
  - EMP (number of jobs in zip code area, 2008:Qtr I)
  - PAYRL (annual payroll in zip code area, 2008)
  - AVEWG (average annual wage in zip code area, 2008)
  - AVESTAB (average jobs per establishment in zip code area, 2008)
  - POVERTY (% population in poverty in PUMA, 2006-2008)
  - MINRATE (% population minority in PUMA, 2006-2008)
  - VACRATE (% housing units vacant in PUMA, 2008)
  - MDHSLDY (median household income in PUMA, 2006-2008)
  - ELFHSLD (ratio of employed labor force to households in PUMA, 2006-2008)
  - MDRENT (median rent of rental occupied units in PUMA, 2006-2008)
  - MNOWNVAL (mean value of owner occupied units in PUMA, 2006-2008)
  - AVTRTIME (average journey-to-work travel time of workers residing in PUMA, 2006-2008)
  - OPSPC (% open space of gross land area in CD, 2010)
  - CRTOT (total crimes reported in precinct, 2009)
  - BURG (burglary crimes reported in precinct, 2009)
  - ROBB (robbery crimes reported in precinct, 2009)

Data Base Development (cont'd)

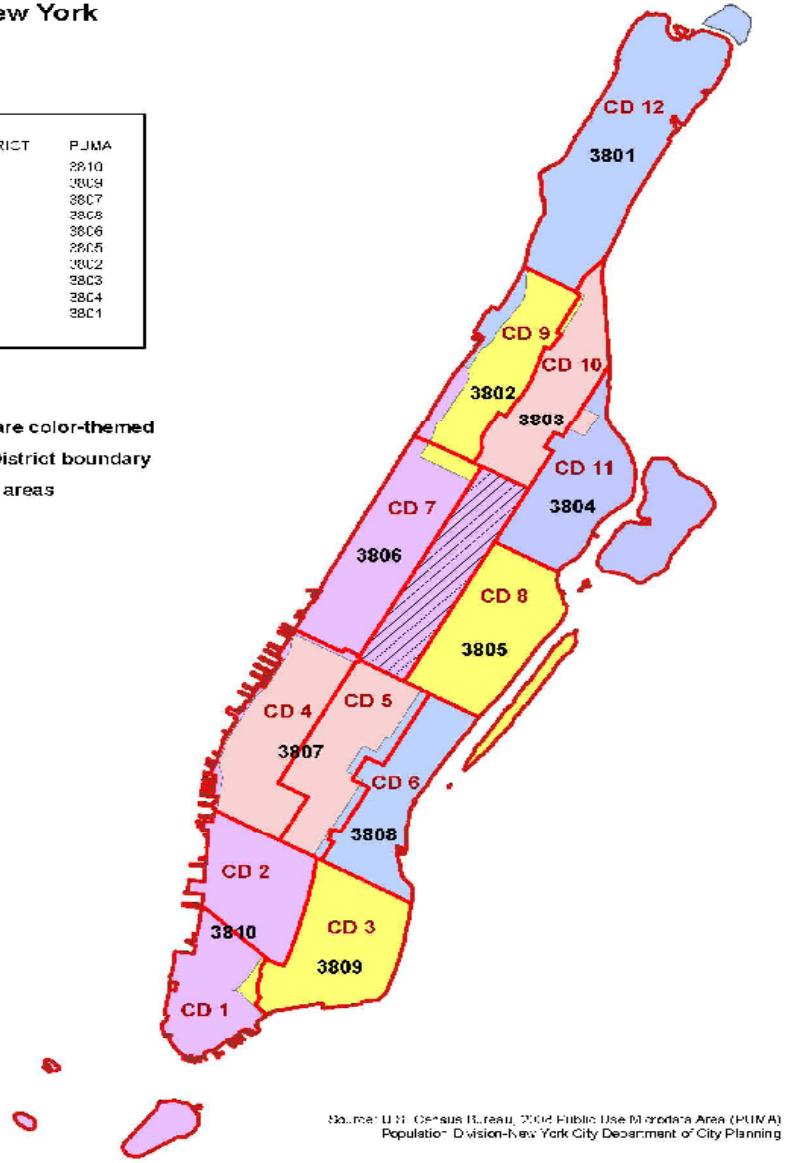
- Data sources:
  - NYC Department of Finance, Rolling Property Sales File, July 1, 2009 to June 30, 2010
    - www.nyc.gov/html/dof/html/property/property_val_sales.shtml
  - GIS Analysis of Parcel Distance to Transit Stations
    - NYC DCP PLUTO GIS
    - MTA Subway GIS layer
    - CommunityVIZ Spatial Analysis modeling software
  - Transit Data
    - MTA, 2007 Subway Ridership
    - MTA, December and Full Year 2009 Subway Ridership Report
  - Socio-economic & Other Data
    - 2008 *County Business Patterns*
    - 2006-2008 *American Community Survey*
    - *2008 Housing Vacancy Survey*
    - *2010 PLUTO file of NYC Department of Planning*
    - *2009 NYC Police Department Crime Reports by Precinct*

Data Base Development (cont'd)

Public Use Microdata Area (PUMA) and Community District Equivalencies
Manhattan, New York

COMMUNITY DISTRICT	PUMA
MN 1 & 2	3810
MN 3	3809
MN 4 & 5	3807
MN 6	3808
MN 7	3806
MN 8	3805
MN 9	3802
MN 10	3803
MN 11	3804
MN 12	3801

3801 PUMA areas are color-themed
CD 1 Community District boundary
Joint Interest areas



Source: U.S. Census Bureau, 2002 Public Use Microdata Area (PUMA)
Population Division-New York City Department of City Planning

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Econometric Analysis

THE VALUE OF RAIL TRANSIT ACCESS TO RESIDENTIAL PROPERTIES OF MANHATTAN

Econometric Analysis

- In a built environment, where development has already taken place, the appropriate method of determining real estate value relationships is the use of multivariate regression analysis. This method of econometrics incorporates an array of explanatory independent variables in estimating a price function.
- While the choice of dependent variable is clear, in this case price per unit, the choice of independent variables necessitates a process of stepwise analysis, testing potential factors to construct a more explanatory – or better fitting -- relationship.
- In this process, we were guided by theory, prior related research studies, data availability, and tests for co-linearity in variation between variables.
- Available explanatory factors were drawn from measures of transit access and ridership levels, building type and tenure, and neighborhood characteristics of development, public amenity, diversity and security. Unavailable factors included measures of market condition and real estate quality.

Econometric Analysis: Tests

- The output of econometric modeling is judged by several tests of statistical significance for each explanatory variable – the *"t-Statistic" and "Probability"* – and the equation as a whole – the *Adjusted R-squared* and the *Durbin-Watson statistic:*

  – Assuming a 5% risk of the independent variables not being statistically significant, the *"t-Statistic"* should have a value of 2 or greater, while the *"Prob."* should measure 0.05 or less.

  – The *R-squared* measures the percent of variation in the dependent variable explained by relationship to the independent variables. As such, it predicts the goodness of fit and varies between 0 and 1, with a value of 1.0000 representing perfect fit. The *Adjusted R-squared* indicates how well a regression line approximates the relationship in real multivariate data. When modeling cross-sectional data, such as this analysis, the value of R^2 is far less significant than the *"t-Statistic".*

  – The *Durbin-Watson statistic* tests for autocorrelation in data with a value that always lies between 0 and 4. If the *Durbin-Watson* is less than 1.0, there is substantial evidence of positive serial correlation, while a value of 2.0 indicates no autocorrelation.

Econometric Analysis: Tests

- Based on successive testing, the following equations were specified by building type & tenure using *Eviews* , econometric modeling software. All had statistically significant coefficients for explanatory variables, but relatively weak R^2, or measures of best fit:

Econometric Analysis: Elevator-Condominium, eq1

EViews - [Equation: PRICEWOY_EQ04 Workfile: ELEV-CONDO X DIST RANK W PRICE::

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Dependent Variable: PRICE
Method: Least Squares
Date: 11/02/10 Time: 09:58
Sample: 1 3971
Included observations: 3971

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-10240755	1385476.	-7.391507	0.0000
WDST	-74.38343	35.21091	-2.112511	0.0347
UGSF	2105.782	30.42244	69.21804	0.0000
YRBLT	4877.606	706.6119	6.902808	0.0000
PSGR09	3.059432	0.707953	4.321521	0.0000
ROBB	-2663.330	529.5583	-5.029342	0.0000

R-squared	0.553848	Mean dependent var	1620077.
Adjusted R-squared	0.553285	S.D. dependent var	2214859.
S.E. of regression	1480340.	Akaike info criterion	31.25495
Sum squared resid	8.69E+15	Schwarz criterion	31.26445
Log likelihood	-62050.71	Hannan-Quinn criter.	31.25832
F-statistic	984.4194	Durbin-Watson stat	1.352649
Prob(F-statistic)	0.000000		

Econometric Analysis: Elevator-Condominium, eq2

EViews - [Equation: YRHSLDYUGSFPSGRROBB_EQ02 Workfile: ELEV-CONDO X DIST RANK WO 0S::

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Dependent Variable: PR_UGSF
Method: Least Squares
Date: 11/01/10 Time: 11:43
Sample: 1 3971
Included observations: 3971

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4006.439	883.2973	-4.535776	0.0000
WDST	-0.048445	0.022233	-2.178995	0.0294
YRBLT	2.393452	0.446043	5.365971	0.0000
MDHSLDY	0.002683	0.001008	2.661623	0.0078
UGSF	0.308345	0.019337	15.94550	0.0000
PSGR09	0.001120	0.000447	2.505550	0.0123
ROBB	-1.091767	0.422378	-2.584807	0.0098

R-squared	0.078112	Mean dependent var	1184.667
Adjusted R-squared	0.076717	S.D. dependent var	972.4986
S.E. of regression	934.4510	Akaike info criterion	16.51956
Sum squared resid	3.46E+09	Schwarz criterion	16.53064
Log likelihood	-32792.58	Hannan-Quinn criter.	16.52349
F-statistic	55.97853	Durbin-Watson stat	1.691845
Prob(F-statistic)	0.000000		

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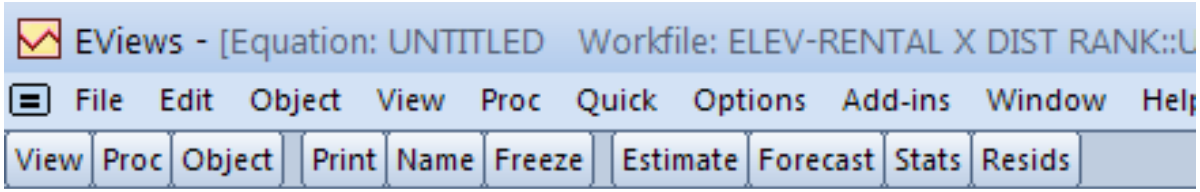
Econometric Analysis: Elevator-Rental



Dependent Variable: PR_UGSF
Method: Least Squares
Date: 11/03/10 Time: 13:03
Sample: 1 73
Included observations: 73

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1526.199	1387.135	1.100253	0.2751
WDST	0.103096	0.051819	1.989555	0.0507
MNOWNVAL	0.000994	0.000178	5.585727	0.0000
BURG	0.535335	0.268533	1.993554	0.0502
YRBLT	-1.072481	0.725415	-1.478439	0.1439

R-squared	0.387869	Mean dependent var	244.4914
Adjusted R-squared	0.351862	S.D. dependent var	236.0160
S.E. of regression	190.0095	Akaike info criterion	13.39806
Sum squared resid	2455044.	Schwarz criterion	13.55494
Log likelihood	-484.0292	Hannan-Quinn criter.	13.46058
F-statistic	10.77185	Durbin-Watson stat	1.763217
Prob(F-statistic)	0.000001		

Econometric Analysis: Walkup-Condominium, eq1

EViews - [Equation: PRICE_EQ02 Workfile: WU-CONDO X DIST RANK W PRICE:

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Dependent Variable: PRICE
Method: Least Squares
Date: 11/02/10 Time: 10:22
Sample: 1 196
Included observations: 196

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-24063732	4933730.	-4.877391	0.0000
WDST	624.9052	189.6974	3.294222	0.0012
UGSF	508.5176	64.80296	7.847135	0.0000
YRBLT	13287.22	2591.686	5.126861	0.0000
PSGRAVE	-9.255241	3.465976	-2.670313	0.0082
OPSPC	-5045651.	1514034.	-3.332589	0.0010
POVERTY	-5711923.	1570338.	-3.637384	0.0004

R-squared	0.482741	Mean dependent var	1747284.
Adjusted R-squared	0.466320	S.D. dependent var	2043921.
S.E. of regression	1493154.	Akaike info criterion	31.30574
Sum squared resid	4.21E+14	Schwarz criterion	31.42282
Log likelihood	-3060.963	Hannan-Quinn criter.	31.35314
F-statistic	29.39787	Durbin-Watson stat	1.283568
Prob(F-statistic)	0.000000		

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Econometric Analysis: Walkup-Condominium, eq2

EViews - [Equation: EQ06 Workfile: WU-CONDO X DIST RANK WO 0S:

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Dependent Variable: PR_GSF
Method: Least Squares
Date: 11/01/10 Time: 17:10
Sample: 1 196
Included observations: 196

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-145.6474	1516.265	-0.096057	0.9236
WDST	0.116912	0.050989	2.292901	0.0230
AVTRTIME	-136.0704	16.39039	-8.301838	0.0000
YRBLT	3.168326	0.673184	4.706480	0.0000
ESTAB	-0.092689	0.022707	-4.081984	0.0001
MNOWNVAL	-0.001975	0.000577	-3.419916	0.0008
PSGRAVE	-0.002193	0.000945	-2.321451	0.0213

R-squared	0.365474	Mean dependent var	942.7537
Adjusted R-squared	0.345331	S.D. dependent var	490.4614
S.E. of regression	396.8404	Akaike info criterion	14.84001
Sum squared resid	29764152	Schwarz criterion	14.95708
Log likelihood	-1447.321	Hannan-Quinn criter.	14.88740
F-statistic	18.14337	Durbin-Watson stat	1.476734
Prob(F-statistic)	0.000000		

Econometric Analysis: Walkup-Rental

EViews - [Equation: UNTITLED Workfile: WU-RENTAL X DIST RANK::Ur

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Dependent Variable: PR_GSF
Method: Least Squares
Date: 11/03/10 Time: 14:48
Sample: 1 220
Included observations: 220

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	589.5528	303.0908	1.945136	0.0531
WDST	0.093582	0.040438	2.314185	0.0216
MDHSLDY	0.004615	0.001132	4.076184	0.0001
AVTRTIME	-18.87025	8.407931	-2.244339	0.0258

R-squared	0.336478	Mean dependent var	399.7518
Adjusted R-squared	0.327262	S.D. dependent var	378.4352
S.E. of regression	310.3949	Akaike info criterion	14.33158
Sum squared resid	20810513	Schwarz criterion	14.39328
Log likelihood	-1572.474	Hannan-Quinn criter.	14.35650
F-statistic	36.51179	Durbin-Watson stat	1.653490
Prob(F-statistic)	0.000000		

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Econometric Analysis: 123 Family Homes

EViews - [Equation: BEST_EQ01 Workfile: 123-OWNER X DIST RANK::U

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Dependent Variable: PR_GSF
Method: Least Squares
Date: 11/03/10 Time: 15:04
Sample: 1 143
Included observations: 143

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-484.1730	127.1204	-3.808775	0.0002
WDST	-0.169684	0.082824	-2.048732	0.0424
MDHSLDY	0.014122	0.001721	8.205010	0.0000
CRTOT	0.492209	0.127930	3.847495	0.0002

R-squared	0.675272	Mean dependent var	1082.117
Adjusted R-squared	0.668264	S.D. dependent var	785.5161
S.E. of regression	452.4301	Akaike info criterion	15.09472
Sum squared resid	28452321	Schwarz criterion	15.17759
Log likelihood	-1075.272	Hannan-Quinn criter.	15.12839
F-statistic	96.35036	Durbin-Watson stat	1.980215
Prob(F-statistic)	0.000000		

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Econometric Analysis: Results

- Best Fitting Models were as follows:
  - The Elevator-Condominium eq1 model calibrated on 3,971 observations, with an *Adjusted R-squared* of 0.553285 and 5 statistically significant explanatory variables, indicates condo prices rise with declining distance to transit stations:

PRICE = -10240754.8726 - 74.3834336038*WDST + 2105.78170373*UGSF + 4877.60613494*YRBLT + 3.05943234292*PSGR09 - 2663.32996315*ROBB

  - The 123 Family Homes model calibrated on 143 observations, with an *Adjusted R-squared* of 0.668264 and 3 statistically significant explanatory variables, indicates single-three family home prices rise with declining distance to transit stations:

PR_GSF = -484.172966903 - 0.169683530879*WDST + 0.0141222061906*MDHSLDY + 0.492208727782*CRTOT

Econometric Analysis: Results

- Least Significant Relationships:
  - The Elevator-Rental model calibrated on 73 observations, with an *Adjusted R-squared* of 0.351862 and 4 statistically significant/1 weakly significant variables, indicates elevator rental building prices psf rise with rising distance from transit stations:

    PR_UGSF = 1526.19934864 + 0.103095794646*WDST + 0.000993607827206*MNOWNVAL + 0.535334778113*BURG - 1.07248142345*YRBLT

  - The Walkup-Condominium model calibrated on 196 observations, with an *Adjusted R-squared* of 0.466320 and 6 statistically significant variables, indicates walkup condo prices rise with rising distance from transit stations:

    PRICE = -24063731.6697 + 624.90521508*WDST + 508.517563472*UGSF + 13287.2150407*YRBLT - 9.25524137453*PSGRAVE - 5045651.00037*OPSPC - 5711922.89764*POVERTY

  - The Walkup-Rental model calibrated on 220 observations, with an *Adjusted R-squared* of 0.327262 and 3 statistically significant variables, indicates walkup rental building prices psf rise with rising distance from transit stations:

    PR_GSF = 589.55282657 + 0.0935819577923*WDST + 0.00461500112776*MDHSLDY - 18.870246482*AVTRTIME

Application of Best-Fit Model Results to LRT Study Area

THE VALUE OF RAIL TRANSIT ACCESS TO HIGH-RISE RESIDENTIAL PROPERTY SOLD BETWEEN 2009 & 2010

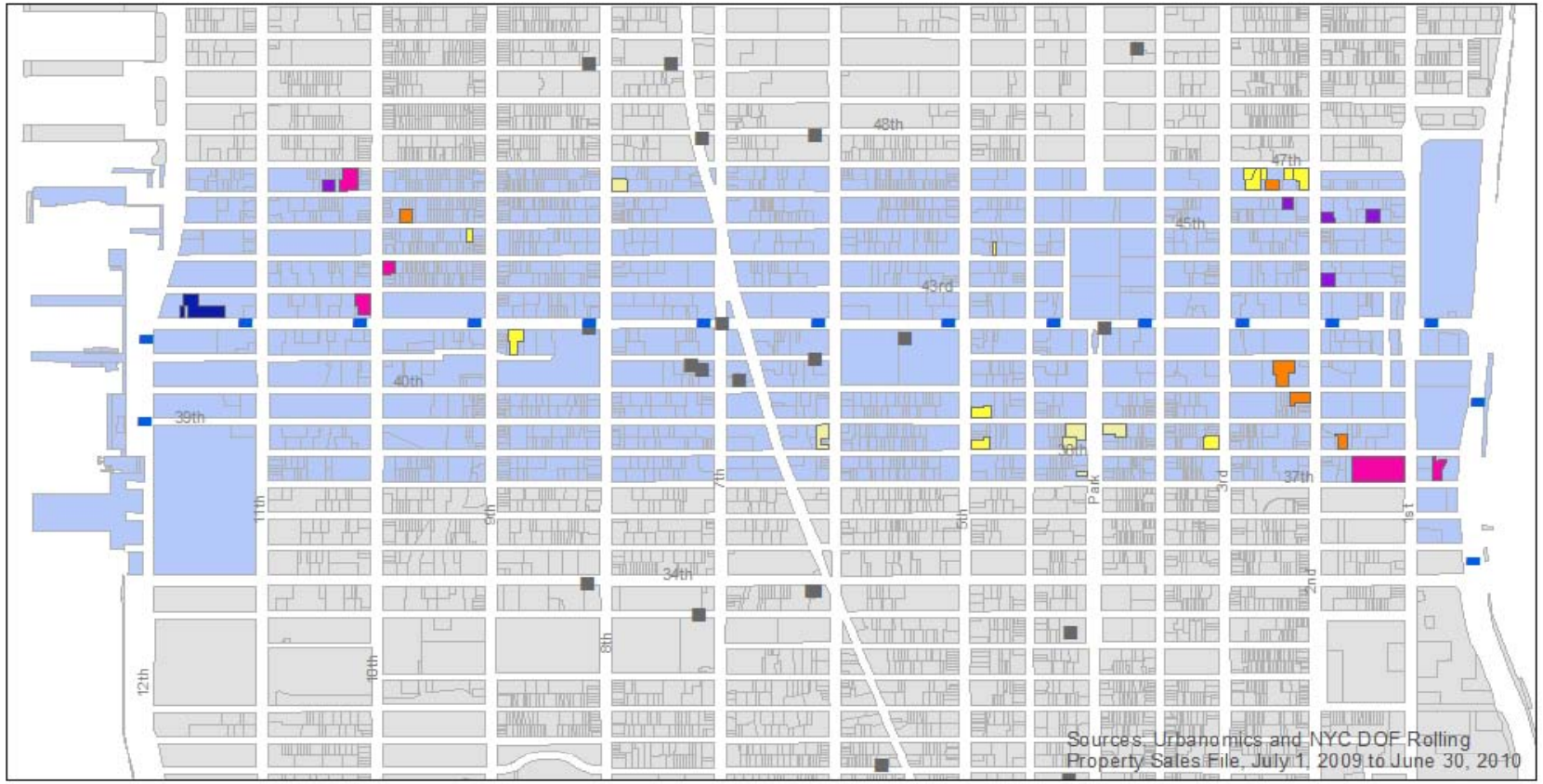
Application of Model to Recent Sales in LRT Study Area: Elevator-Condominium

- LRT Study Area Sales 1Characteristics:
  - Located between 37th & 47th Streets, River to River in Midtown Manhattan
  - 345 Elevator-Condominium units sold between July 1 2009-June 30 2010
  - Average sale price: $912,800 (min=$97,500/max=$5.9 million)
  - Aggregate sales value: $315 million
  - Average distance to nearest station: 1,386 feet (min=514 feet/max=2,863 feet)
  - Average unit size: 868 gross square feet (min=330 gsf/max=3,318 gsf)
  - Average year built: 1990 (min=1924/max=2007)
  - Average weekday ridership of existing stations: 110,600 (min=17,400/max=181,200)
  - Median household income, 2008: $90,000
  - Equation explain 55% of Elevator-Condo price variation with 5 independent variables

- Benefit of LRT over Existing Subway Access:
  - With LRT system, aggregate sales value increases $18.2 million, or 5.8%

- Value of Rail Transit Access to Elevator-Condo sales price:
  - As distance to transit station declines by 4.8%, the price of an elev-condo increases by 1%
  - Every 1 foot closer to an LRT platform, an elevator-condo unit price increases by $74 on average

Benefit of LRT Access over Existing Subway: Elevator-Condominium Value Increase – 5.8% on Average



Vision42 Study Area Parcels: Elevator Condos Sold in 2009-2010*

* 300+ Sales are housed in the 35 mapped properties.

Increase in Property Value Due to LRT Proximity

- No Change
- 0.1% - 4.2%
- 4.3% - 9.7%
- 9.8% - 12.5%
- 12.6% - 16.9%
- 17% - 30.5%

- LRT Platform Entrances
- Study Area Parcels
- Other Manhattan Parcels

Application of Best-Fit Model Results to LRT Study Area

THE VALUE OF RAIL TRANSIT ACCESS TO ALL EXISTING & FUTURE HIGH-RISE RESIDENTIAL PROPERTIES

Application of Elevator-Condo Price Equation to All Existing & Future High-Rise Residential Units of Study Area

- **Under Existing Subway Conditions in the Study Area:**

  – Some 9,800 condominiums are located in high-rise buildings in the LRT Study Area. Application of the Best-Fit Model predicting unit prices of elevator-condominiums, as explained by five independent variables, provides values for these units under existing subway conditions that average $940,000 per unit or $1,092 per square foot (psf).

  – Assuming the prevailing price differential between condos and co-ops, as well as their smaller size, some 5,900 elevator cooperatives are valued at roughly $710,000, or $914 psf.

  – Nearly 5,800 new rental units built in the Study Area since 2007 would likely command higher prices if market conditions had allowed their sale as condos. Given their desirable locations, newer age and larger floor plates, these units are predicted to sell for $1,600 psf.

  – Two major future developments – Hudson Yards and the Con Edison Waterfront – have potential to deliver nearly 7,500 more high-rise units in the Study Area by 2025. In current dollars, given size and locational differences, they are predicted to have comparable values under existing subway conditions, or nearly $1,400 psf for smaller Hudson Yards condos and $1,700 for somewhat larger Con Edison units.

Study Area Parcels of High-Rise Residential Types
(Results in 2009 Dollars)

High-Rise Residential Type	*# of Residential Units*	*Residential GSF*	*Average Unit Size*	*Average Unit Price*	*Ave Price PSF*
Elevator-Condos	9,817	8,461,190	862	$941,551	$1,092
Elevator Co-ops*	5,938	4,629,887	780	$712,818	$914
Recently Built Rentals	5,782	6,749,785	1,167	$1,868,678	$1,601
Con Ed Site (Built by 2020)	2,939	2,166,980	737	$1,249,234	$1,694
Hudson Yards Site (Built 2015-2025)	4,555	2,619,692	575	$792,608	$1,378
Total	29,031	24,627,534	848	$1,087,198	$1,282

(*) Note: Given comparable size, location and age, co-ops have traditionally had lower values than condos, reflecting differences in ownership and transferability. Thus, co-op results shown above were adjusted downward based on 2009 Manhattan co-op/condo price differentials for 1 bedroom apartments (Source: Miller Samuel).

Application of Elevator-Condo Price Equation to All Existing & Future High-Rise Residential Units of Study Area

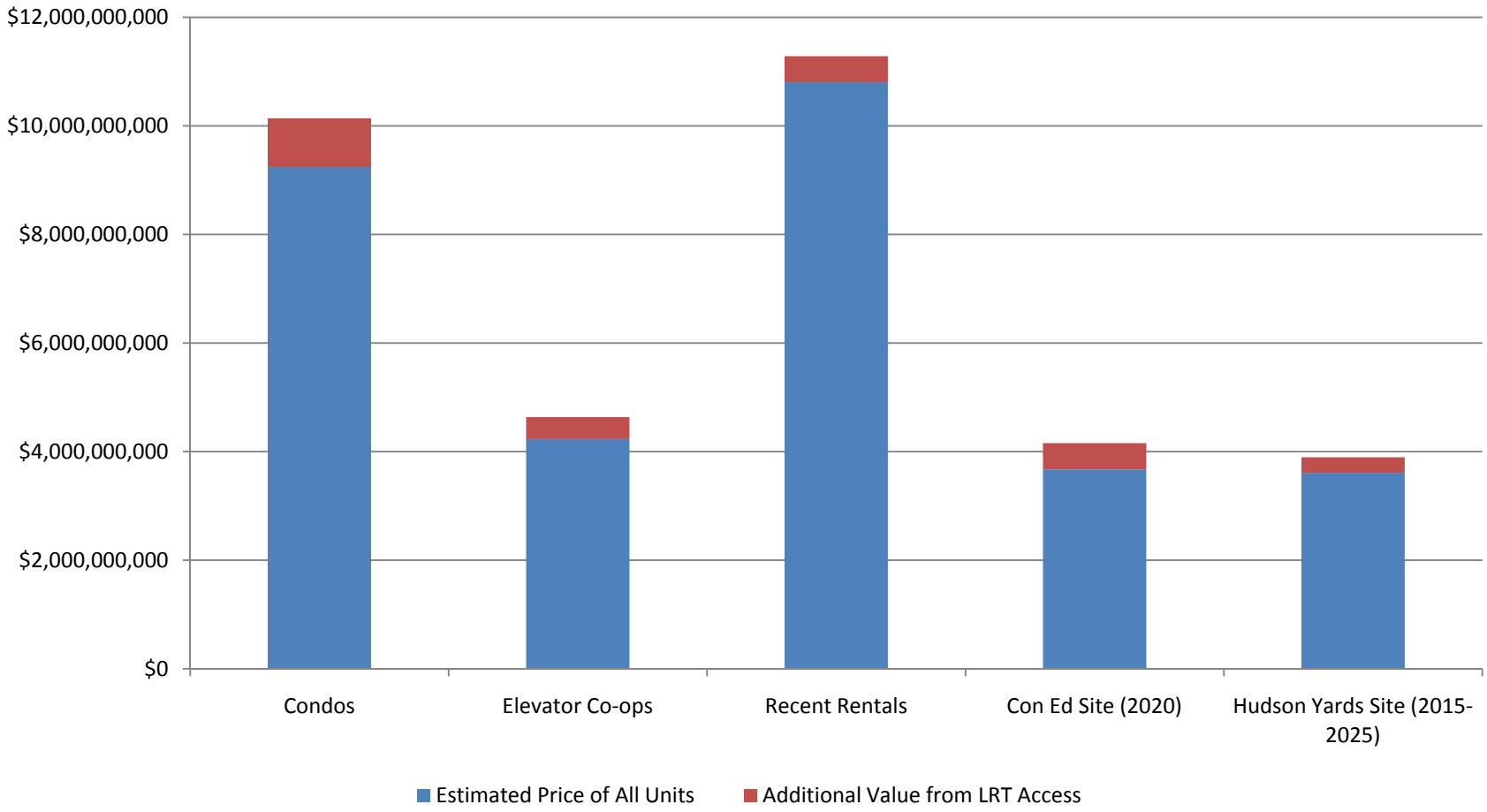
- **With LRT & Existing Subway System:**
  - Property values of all existing and future high-rise residential units are enhanced by LRT access.
  - As a result of LRT access, the asset value of existing high-rise condos, elevator co-ops and recently built rental units is projected to rise by $1.78 billion, or an average increase of 7.3% per unit. Existing condos and co-ops fare better than higher priced rental units, although these are likely to increase in value by 4.4%.
  - Prices on future Hudson Yards and Con Edison developments could be enhanced by $770 million, or 10.6% on average. The Con Edison site is especially advantaged by LRT access, or gains by $485 million, while Hudson Yards units built between 37th & 41st Streets, west of 8th Avenue, gain less or $285 million.
  - The aggregate one-time financial benefit of the LRT system on existing and future high-rise residential unit values is estimated at $2.55 billion in current dollars.

Application of Elevator-Condo Price Equation to All Existing & Future High-Rise Residential Units of Study Area
(Results in 2009 Dollars)

Residential Type	***Estimated Price of All Units***	***Additional Value from LRT Access***	***% Increase in Value***
Elevator-Condos	$9,243,205,594	$898,586,434	9.72%
Elevator Co-ops	$4,232,711,415	$403,968,818	9.54%
Recently Built Rentals	$10,804,694,426	$480,032,525	4.44%
Con Ed Site (Built by 2020)	$3,671,497,565	$486,584,178	13.25%
Hudson Yards Site (Built 2015-2025)	$3,610,328,228	$285,219,064	7.90%
Total	$31,562,437,228	$2,554,391,019	8.09%

(*) Note: Given comparable size, location and age, co-ops have traditionally had lower values than condos, reflecting differences in ownership and transferability. Thus, co-op results shown above were adjusted downward based on 2009 Manhattan co-op/condo price differentials for 1 bedroom apartments (Source: Miller Samuel).

Application of Elevator-Condo Price Equation to All Existing & Future High-Rise Residential Units of Study Area under (*Results in 2009 Dollars)*



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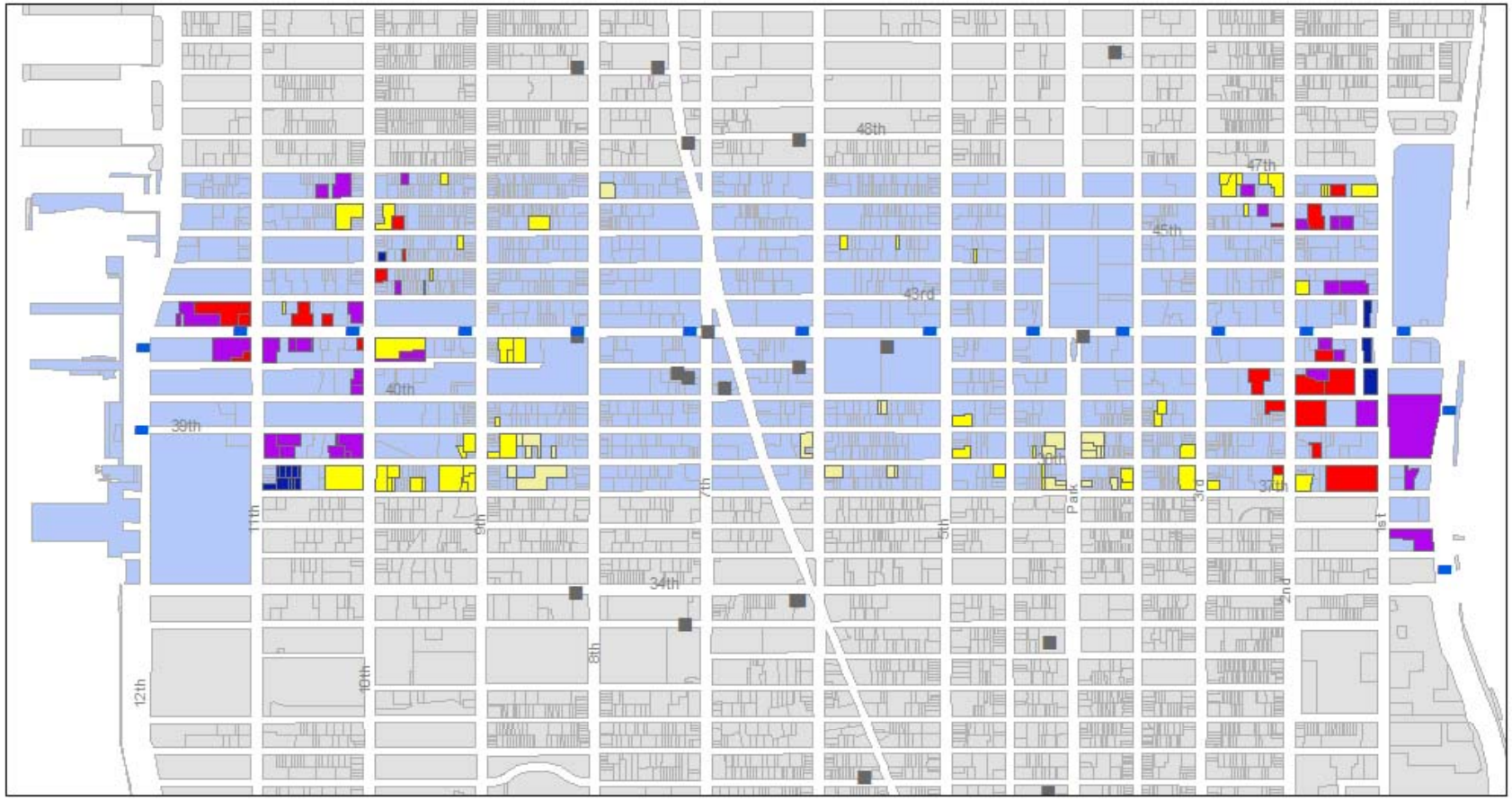
AN AUTO FREE LIGHT RAIL BOULEVARD FOR 42ND STREET

Benefit of LRT Access over Existing Subway: All Residential Parcel Unit Value Increases



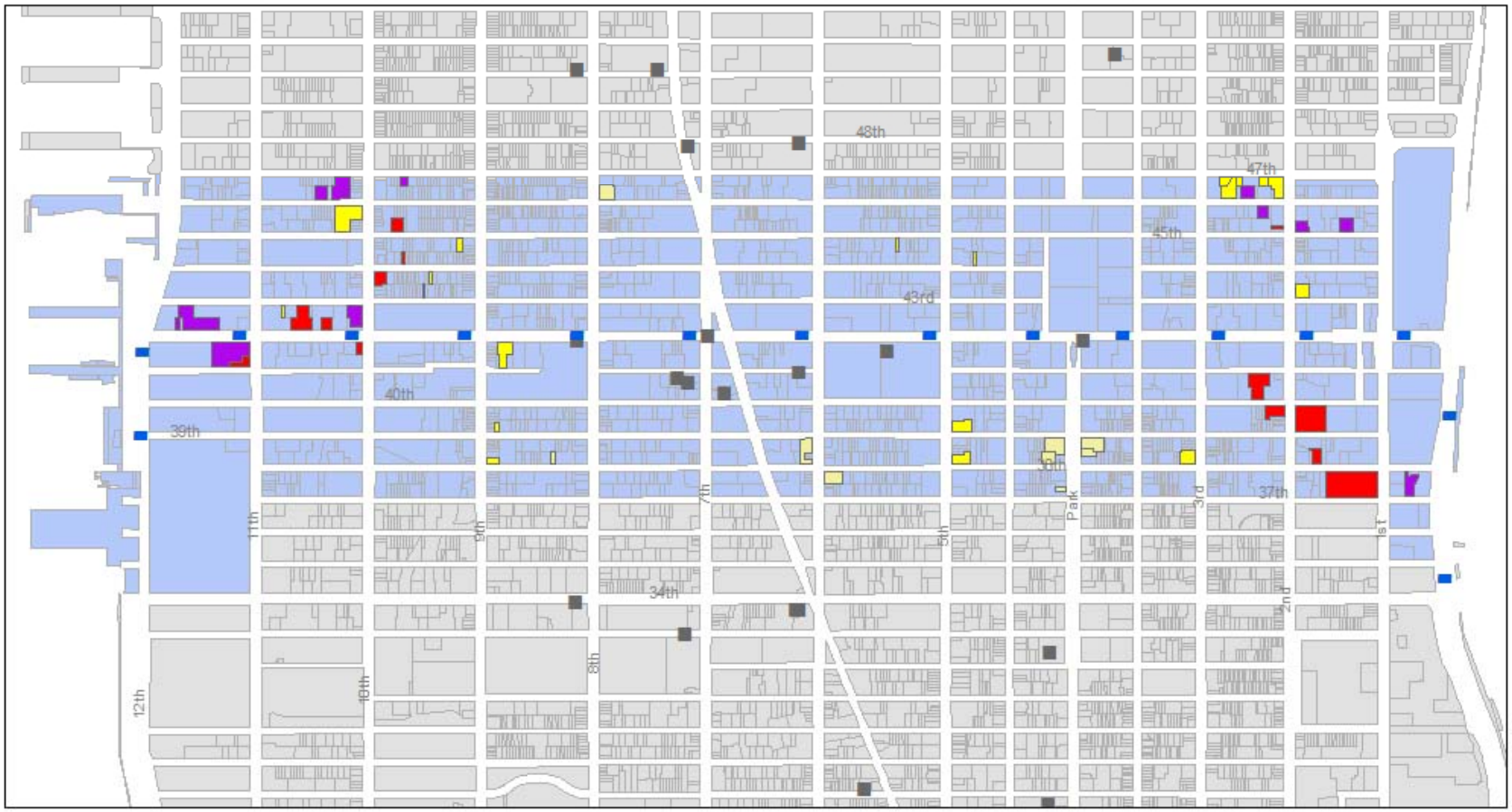
Vision42 Study Area Parcels: All Elevator Residential Parcels

Increase in Property Value Due to LRT Proximity

- No Change
- 0.1% - 4.7%
- 4.8% - 7.8%
- 7.9% - 26.7%
- 26.8% - 43.1%

- LRT Platform Entrances
- Existing NYC Subway Stations
- Study Area Parcels
- Other Manhattan Parcels

Benefit of LRT Access over Existing Subway: All Elevator-Condominium Unit Value Increases



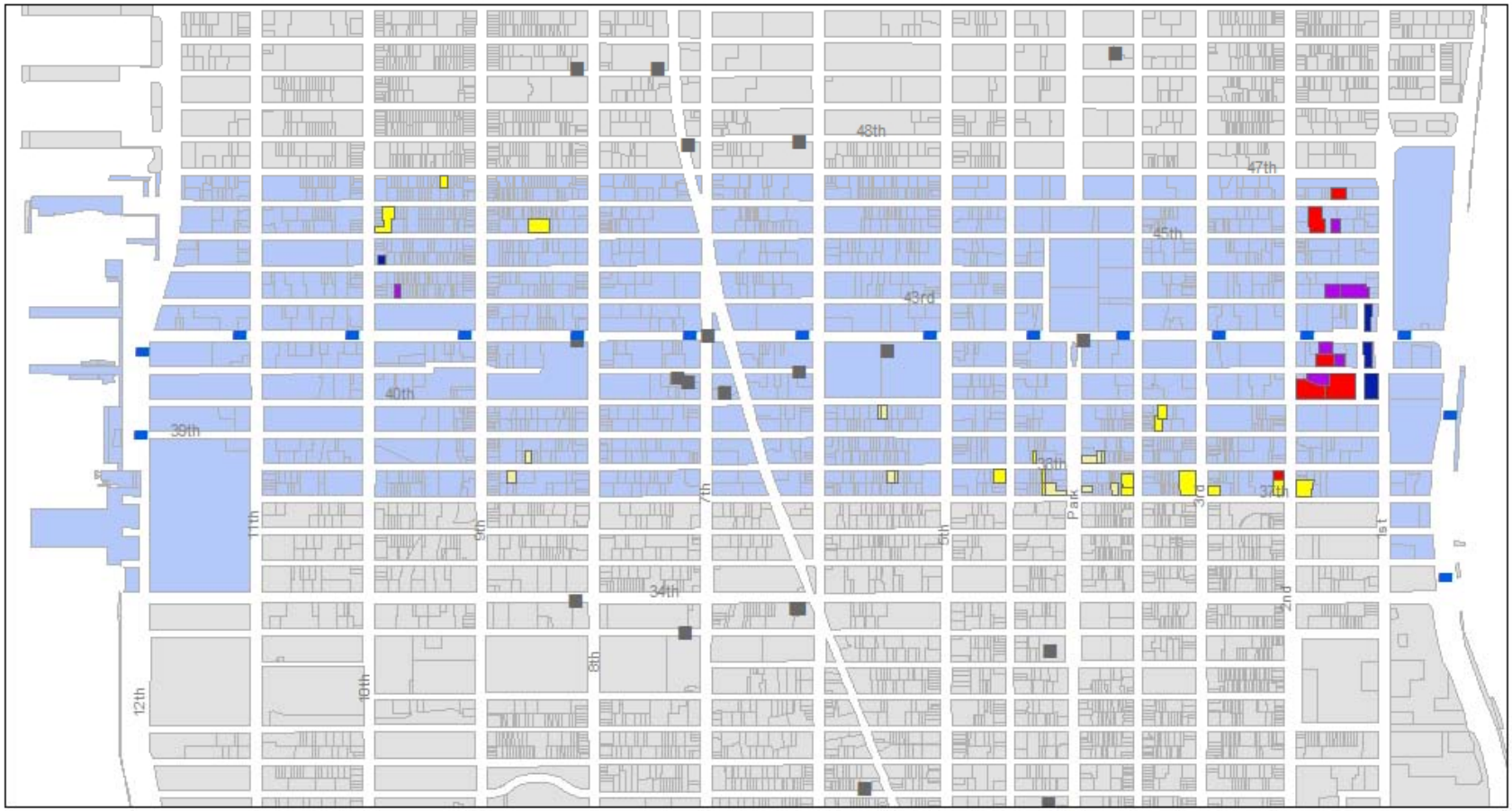
Vision42 Study Area Parcels: All Elevator Condos

Increase in Property Value Due to LRT Proximity

- No Change
- 0.1% - 4.7%
- 4.8% - 7.8%
- 7.9% - 26.7%
- 26.8% - 43.1%

- LRT Platform Entrances
- Existing NYC Subway Stations
- Study Area Parcels
- Other Manhattan Parcels

Benefit of LRT Access over Existing Subway: All Elevator Co-op Unit Value Increases



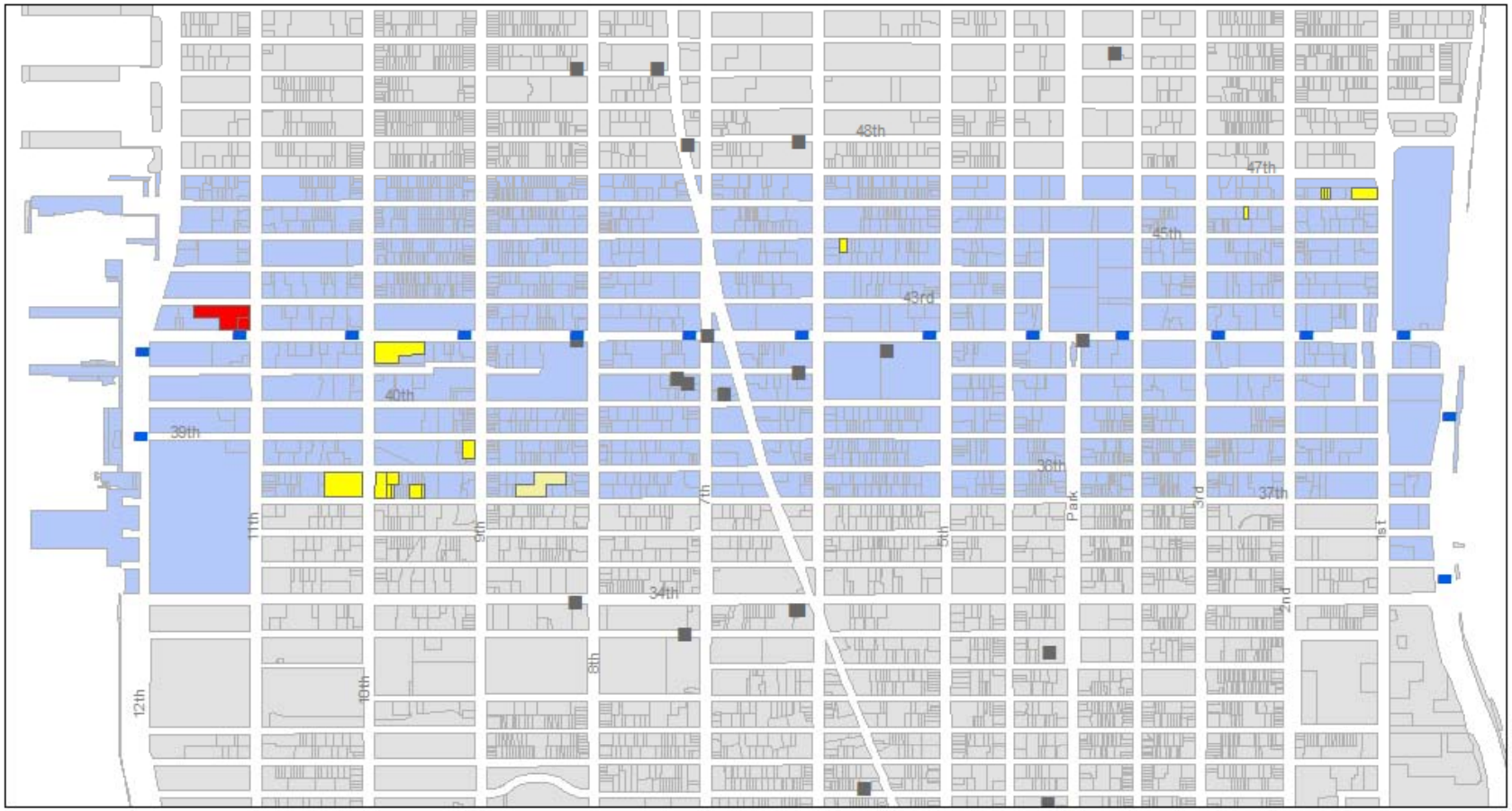
Vision42 Study Area Parcels: Elevator Coops

Increase in Property Value
Due to LRT Proximity

- No Change
- 0.1% - 4.7%
- 4.8% - 7.8%
- 7.9% - 26.7%
- 26.8% - 43.1%

- LRT Platform Entrances
- Existing NYC Subway Stations
- Study Area Parcels
- Other Manhattan Parcels

Benefit of LRT Access over Existing Subway: All Recently Built Rental Unit Value Increases



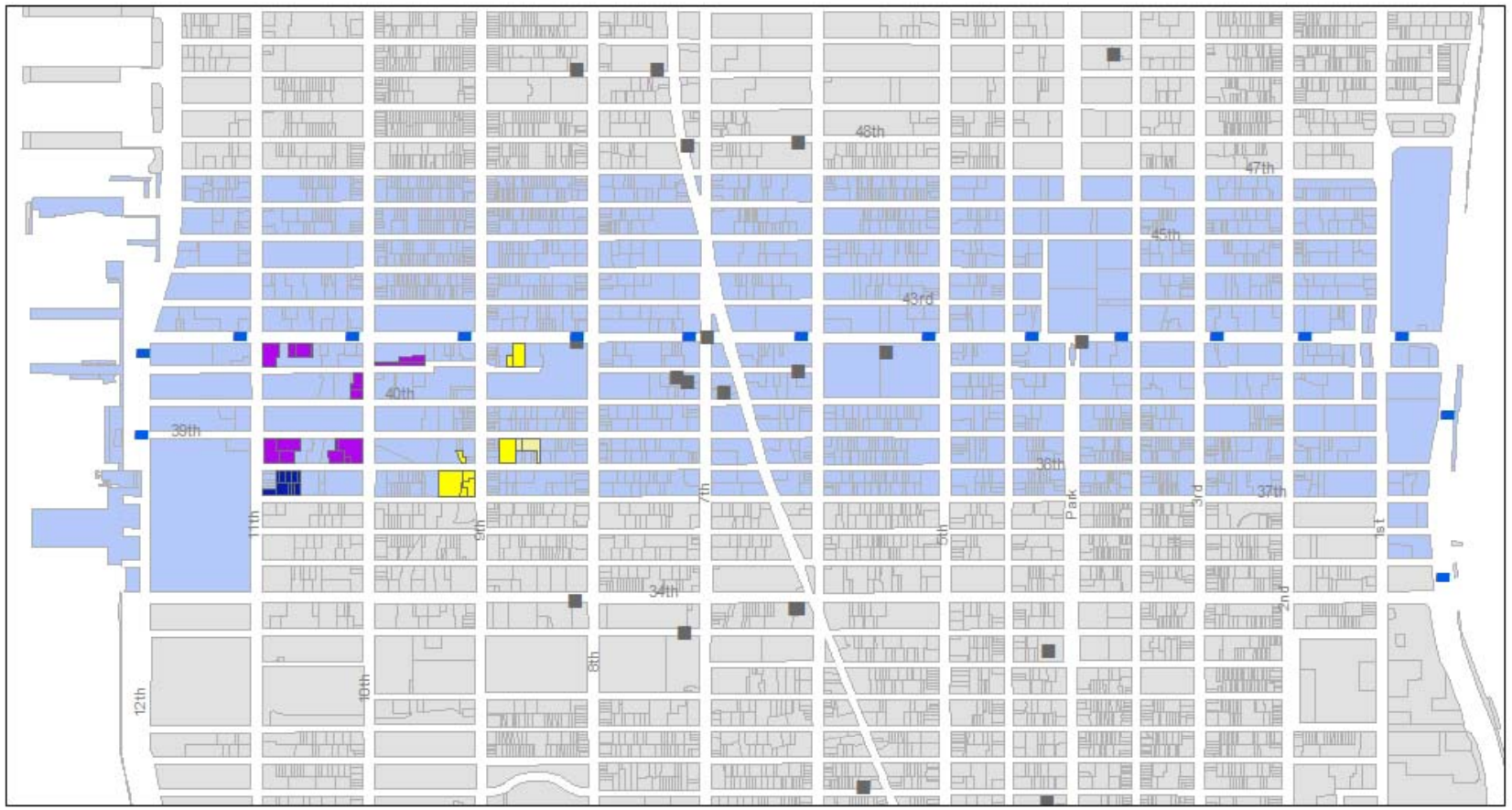
Vision42 Study Area Parcels: Residential Rental Properties Built 2007-2010

Increase in Property Value Due to LRT Proximity

- No Change
- 0.1% - 4.7%
- 4.8% - 7.8%
- 7.9% - 26.7%
- 26.8% - 43.1%

- LRT Platform Entrances
- Existing NYC Subway Stations
- Study Area Parcels
- Other Manhattan Parcels

Benefit of LRT Access over Existing Subway: Future Hudson Yards Unit Value Increases



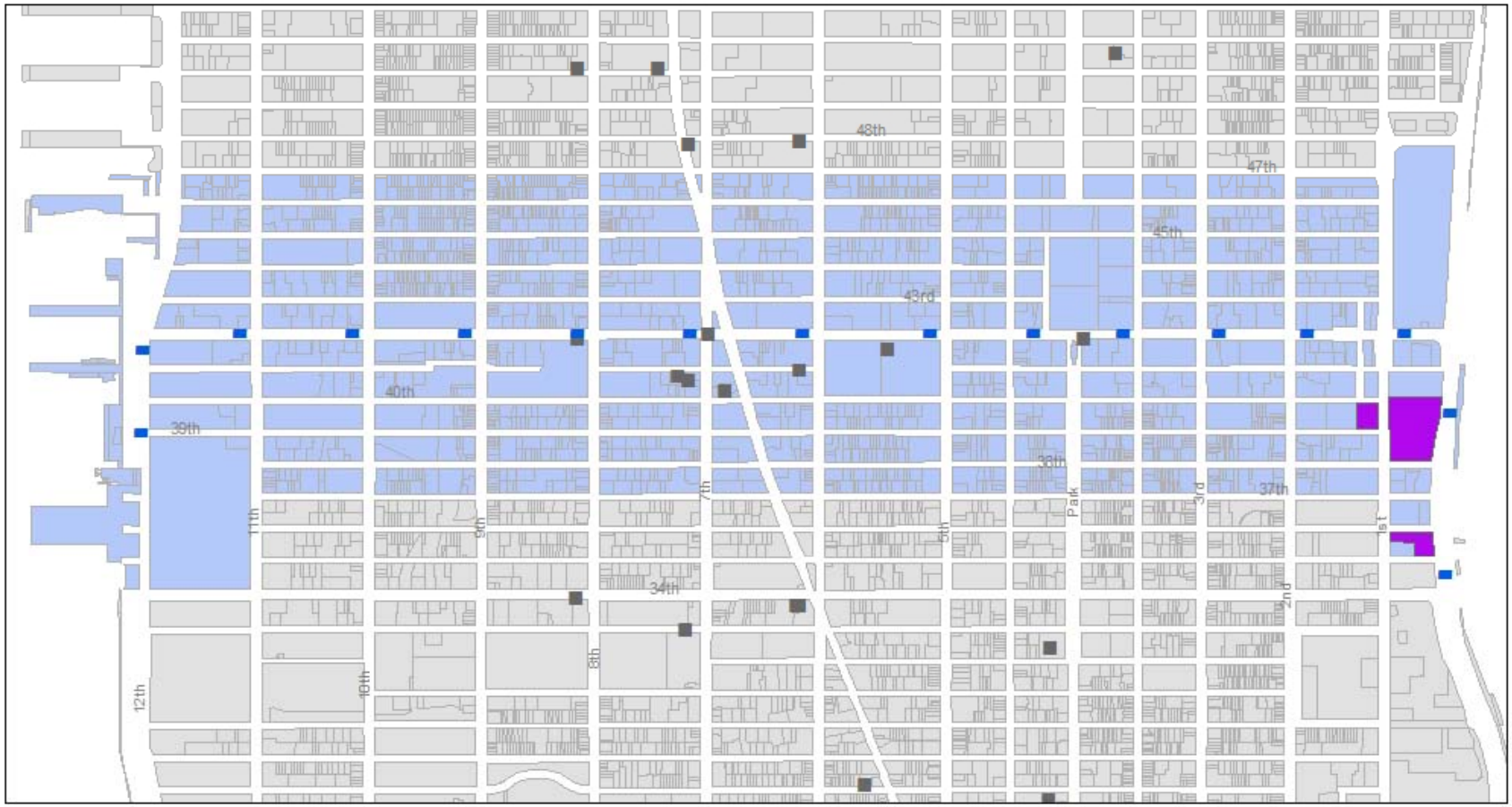
Vision42 Study Area Parcels: Hudson Yards Residential Sites

Increase in Property Value
Due to LRT Proximity

- No Change
- 0.1% - 4.7%
- 4.8% - 7.8%
- 7.9% - 26.7%
- 26.8% - 43.1%

- LRT Platform Entrances
- Existing NYC Subway Stations
- Study Area Parcels
- Other Manhattan Parcels

Benefit of LRT Access over Existing Subway: Future Con Ed Waterside Unit Value Increases



Vision42 Study Area Parcels: Con Ed Waterside Residential Sites

Increase in Property Value
Due to LRT Proximity

- No Change
- 0.1% - 4.7%
- 4.8% - 7.8%
- 7.9% - 26.7%
- 26.8% - 43.1%

- LRT Platform Entrances
- Existing NYC Subway Stations
- Study Area Parcels
- Other Manhattan Parcels

Application of Best-Fit Model Results to 10th Avenue Station

THE VALUE OF RAIL TRANSIT ACCESS TO ALL EXISTING & FUTURE HIGH-RISE RESIDENTIAL PROPERTIES

Application of Elevator-Condo Price Equation to All Existing & Future High-Rise Residential Units of Study Area – Under Alternative Transit Scenario

- ***The Implications for a 10th Avenue Subway Station***

  - *Now under consideration, after having been dropped for cost savings, a 10th Avenue station at 41st Street would also confer benefits on nearby residences by providing access to the #7 Subway line extension.*

  - *The elevator-condo price equation was applied to all 9,800 condos, 5,900 co-ops and nearly 5,800 recent rentals in the Study Area and the distance to a 10th Avenue station was assumed without LRT access.*

  - *For all existing units that would experience an improvement in transit access, the aggregate financial benefit of the 10th Avenue Station is estimated at $730 million, or a one-time increase in asset value of 3.0%.*

  - *For future units in the Study Area, only the access of Hudson Yards residences would show improvement, valued at $297 million, and this benefit is only marginally greater than that conferred by LRT access at $285 million.*

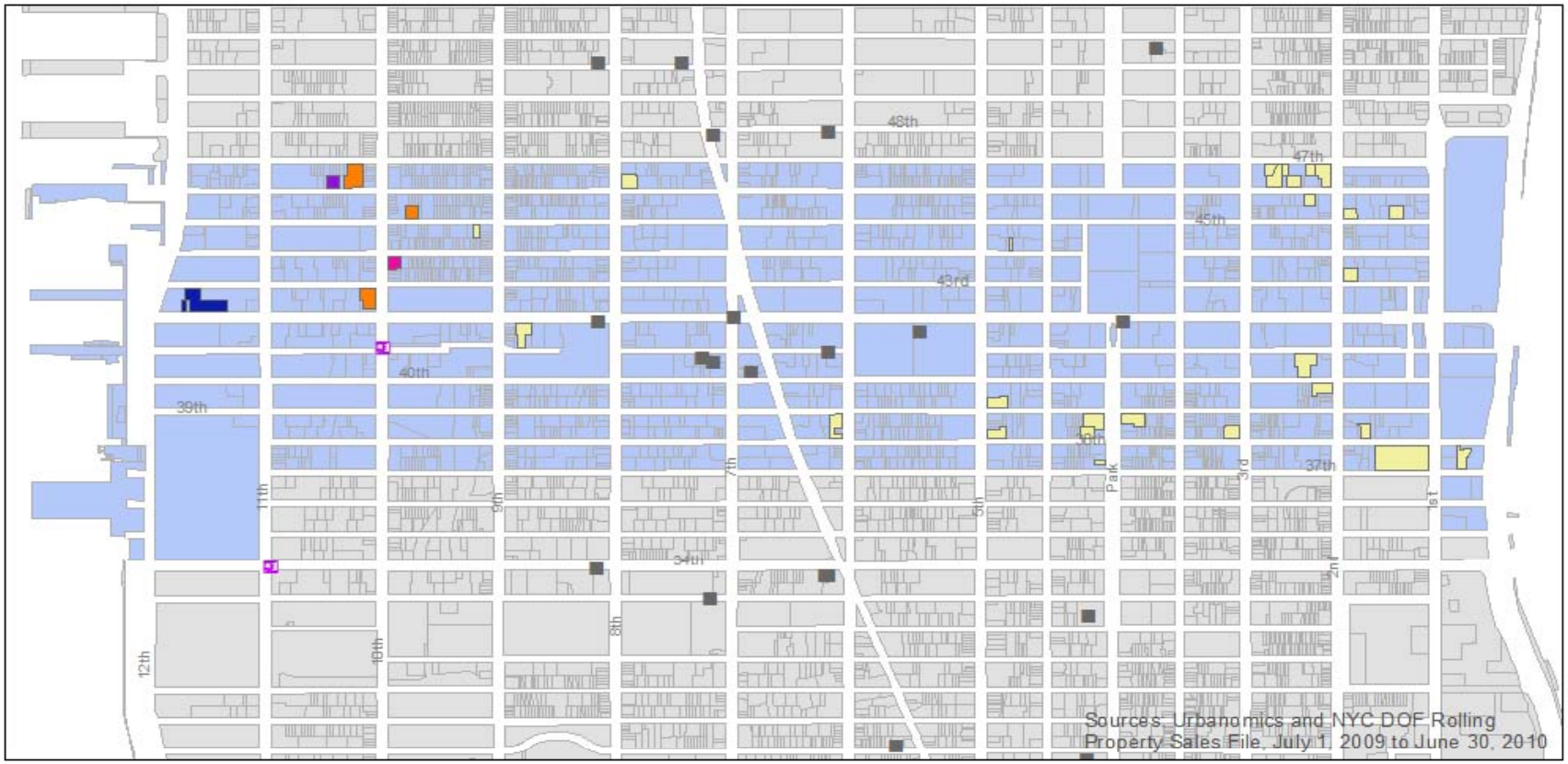
  - *Thus, the aggregate existing and future housing benefit of a 10th Avenue Station would likely be $1.0 billion, some $1.5 billion less than the benefit conferred by a LRT system.*

Application of Elevator-Condo Price Equation to All Existing & Future High-Rise Residential Units of Study Area under Alternative Transit Scenario
(Results in 2009 Dollars)

Residential Type	***Estimated Price of All Units***	***Additional Value from 10th Avenue Station Access***	***% Increase in Value***
Elevator-Condos	$9,243,205,594	$319,132,626	3.45%
Elevator Co-ops	$4,232,711,415	$5,179,570	0.12%
Recently Built Rentals	$10,804,694,426	$405,467,332	3.75%
Con Ed Site (Built by 2020)	$3,671,497,565	$0	0.00%
Hudson Yards Site (Built 2015-2025)	$3,610,328,228	$297,432,453	8.24%
Total	$31,562,437,228	$1,027,211,981	3.25%

(*) Note: Given comparable size, location and age, co-ops have traditionally had lower values than condos, reflecting differences in ownership and transferability. Thus, co-op results shown above were adjusted downward based on 2009 Manhattan co-op/condo price differentials for 1 bedroom apartments (Source: Miller Samuel).

Benefit of 10th Avenue Station Access over Existing Subway: Elevator-Condominium Value Increase –1.6% on Average



Vision42 Study Area Parcels: Elevator Condos Sold in 2009-2010*

* 300+ Sales are housed in the 35 mapped properties.

Increase in Property Value

Due to 10th Avenue 7 Line Station Proximity

- No Change
- 0.1% - 4.2%
- 4.3% - 9.7%
- 9.8% - 12.5%
- 12.6% - 16.9%
- 17% - 18.6%

- 7 Line Extension Entrance
- Existing Subway Entrance
- Study Area Parcels
- Other Manhattan Parcels