

## Methods

### New York City Housing and Vacancy Survey (HVS)

The HVS is conducted every two to three years by the U.S. Census Bureau under contract with the City of New York. The New York City Department of Housing Preservation and Development (HPD) sponsors and supervises the HVS. The primary purpose of the HVS is to satisfy the City's statutory requirement to measure the rental vacancy rate in order to determine if rent regulations should be continued. In addition to the housing unit and household information, a limited set of data is also collected regarding each person in the household.

Because the HVS is a sample survey, not a Census, all data derived from the HVS are estimates, not exact counts. The sample for the HVS is designed primarily to achieve acceptable reliability in estimating the 'vacant available for rent' rate for the entire City, so estimates for smaller geographic units, such as sub-borough areas, are subject to potentially large sampling errors. This report uses the convention established by HPD in cautioning the reader about any estimates that are based on 2,000 or fewer weighted observations. Readers should treat these estimates with some skepticism and be aware that the true value may differ significantly from the reported estimate.

When reporting median income, all dollar amounts are adjusted to 2004 dollars, the most recent year for which income data exists from the Housing and Vacancy Survey. When reporting median rent, all dollar amounts are adjusted to 2005 dollars. This allows for more consistent comparisons across years for individual indicators.

### Indices of Housing Price Appreciation

These indices, also called the repeat sales indices, are a relative measure of changes in property values over time. The indices have been constructed for four different property types (condominiums, single-family homes, 2 to 4 family homes, and 5+ unit apartment buildings) for New York City as a whole and for each borough. Due to insufficient data, the price indices have been created only for the most representative building type at the community district level. Estimating price indices separately for different types of properties allows for different market valuations and fluctuations within each property type.

The primary data set used to construct the price index was obtained under an exclusive arrangement with the New York City Department of Finance. This data set contains information on address, price, and date of sale for all transactions involving sales of apartment buildings,

condominium apartments and single family homes in New York City between 1974 and 2004. A total of roughly 200,000 pairs of sales were used in the estimation.

The repeat sales price indices are created using statistical regression techniques. There are two basic approaches that are used by economists to estimate housing price indices: the hedonic regression and the repeat sales method. Both of these approaches estimate the temporal price movement controlling for the variation in the types of homes sold over time. Each method has its own strengths and weaknesses.

The repeat-sales methodology controls for hedonic characteristics by using data on properties that have sold more than once. An attractive feature of this method is that, unlike the hedonic approach, it does not require the measurement of house quality; it only requires time invariance of the quality of individual houses in the sample. The most important drawback of the repeat sales method is that it fails to use the full information available in the data. In most data sets, only a small proportion of the housing stock is sold more than once, and none of the data on single sales can be used. Moreover, properties that transact more than once may not be representative of all properties in the market, raising concerns about sample selection bias. As the index period lengthens, more houses fit the multiple sales category. This attenuates sample selection bias but exacerbates a heteroskedasticity problem; Case and Schiller (1989) show evidence that price change variability is positively related to the interval of time between sales.

This report uses the repeat sales method to estimate price indices. Most of the problems associated with this method are overcome in this report. Specifically, the data set used here is quite large, so that we lose little precision by eliminating observations (properties that sold only once). Moreover, the time period of 30 years is long enough that we capture a fairly large proportion of the housing stock. Finally, we use the three-step procedure suggested by Case and Schiller (1989) and modified by Quigley and Van Order (1995) to account for the possibility of time-dependent error variances.

In the first stage, the log price per unit of the second sale minus the log price per unit of the first sale is regressed on a set of dummy variables, one for each time period (year, in this case) in the sample except for the first. The dummy variables have values of +1 for the year of the second sale, -1 for the year of the first sale, and zeros otherwise.

In the second stage, the squared residuals from the first stage are regressed on a constant term, the time interval between sales, and the time interval squared. The fitted value in the stage-two regression is a consistent estimate of the error variance in the stage-one regression. In the third stage, the stage-one regression is re-estimated by generalized least squares, using as weights the inverse of the square root of the fitted values in the stage-two regression.

Case, K.E. and R.J. Schiller, 1989. "The Efficiency of the Market for Single Family Homes." *American Economic Review*, 79, p.125-37.

Goodman, A.C. and J.L. Goodman, Jr., 1997. "The Co-op Discount." *Journal of Real Estate Finance and Economics*, 14(1-2), p.223-33.

Quigley, J.M. and R. Van Order, 1995. "Explicit Tests of Contingent Claims Models of Mortgage Default." *Journal of Real Estate Finance and Economics*, 11(2), p.99-117.

### Racial Diversity Index

The Furman Center calculates the racial diversity index by measuring the probability that two randomly chosen heads of households in a given neighborhood will be of a different race. Using the categories of Asian/Pacific Islander, Black (including Hispanic), Hispanic (non-Black), White (non-Hispanic), and Native American, the raw index varies from 0 (minimum diversity) to 0.75 (maximum diversity). The data are then normalized so the maximum value is 1. A higher number indicates a more racially diverse neighborhood.

Because person-level data is unavailable from the 2005 HVS, the racial diversity index and the percentage breakdowns of each race/ethnicity are calculated based on the race or ethnicity of the head of household rather than each individual in the home. Heads of household reporting more than one race are excluded from this calculation.

$$P_{\text{Asian (inc. Hawaiian and Pacific Islander)}}^2 + P_{\text{Black (inc. Hispanic)}}^2 + P_{\text{Hispanic}}^2 + P_{\text{Nat. Am.}}^2 + P_{\text{White}}^2 = P_{\text{same race}}$$

$$1 - P_{\text{same race}} = P_{\text{different races}}$$

### Income Diversity Ratio

The Furman Center calculates the income diversity ratio for each sub-borough area and borough, as well as the City, by dividing the 80th percentile income by the 20th percentile income in each geographic area. For example, if the 20th percentile income is \$15,000 and the 80th percentile income is \$75,000, then the income diversity ratio is 5. A higher number indicates a broader range of incomes in a given area.

### Crime and Education Data Weighting

Utilizing tax lots and residential unit counts from the City's PLUTO dataset, the Furman Center calculates the relative weight of each school district and police precinct by community district. This allows for easier comparison of data through a common geography.



# INDEX OF COMMUNITY DISTRICTS

## BRONX

- 34 Mott Haven/Melrose 101
- 35 Hunts Point/Longwood 102
- 36 Morrisania/Crotona 103
- 37 Highbridge/Concourse 104
- 38 Fordham/University Heights 105
- 39 Belmont/East Tremont 106
- 40 Kingsbridge Heights/Bedford 107
- 41 Riverdale/Fieldston 108
- 42 Parkchester/Soundview 109
- 43 Throgs Neck/Co-op City 110
- 44 Morris Park/Bronxdale 111
- 45 Williamsbridge/Baychester 112

## BROOKLYN

- 50 Greenpoint/Williamsburg 201
- 51 Fort Greene/Brooklyn Heights 202
- 52 Bedford Stuyvesant 203
- 53 Bushwick 204
- 54 East New York/Starrett City 205
- 55 Park Slope/Carroll Gardens 206
- 56 Sunset Park 207
- 57 Crown Heights 208
- 58 South Crown Heights/Prospect Hts. 209
- 59 Bay Ridge/Dyker Heights 210
- 60 Bensonhurst 211
- 61 Borough Park 212
- 62 Coney Island 213
- 63 Flatbush/Midwood 214
- 64 Sheepshead Bay 215
- 65 Brownsville 216
- 66 East Flatbush 217
- 67 Flatlands/Canarsie 218

## MANHATTAN

- 72 Financial District 301
- 73 Greenwich Village/Soho 302
- 74 Lower East Side/Chinatown 303
- 75 Clinton/Chelsea 304
- 76 Midtown 305
- 77 Stuyvesant Town/Turtle Bay 306
- 78 Upper West Side 307
- 79 Upper East Side 308
- 80 Morningside Heights/Hamilton 309
- 81 Central Harlem 310
- 82 East Harlem 311
- 83 Washington Heights/Inwood 312

## QUEENS

- 88 Astoria 401
- 89 Woodside/Sunnyside 402
- 90 Jackson Heights 403
- 91 Elmhurst/Corona 404
- 92 Ridgewood/Maspeth 405
- 93 Rego Park/Forest Hills 406
- 94 Flushing/Whitestone 407
- 95 Hillcrest/Fresh Meadows 408
- 96 Ozone Park/Woodhaven 409
- 97 S. Ozone Park/Howard Beach 410
- 98 Bayside/Little Neck 411
- 99 Jamaica/Hollis 412
- 100 Queens Village 413
- 101 Rockaway/Broad Channel 414

## STATEN ISLAND

- 106 St. George/Stapleton 501
- 107 South Beach/Willowbrook 502
- 108 Tottenville/Great Kills 503

# ABOUT NYCHANIS

[www.nychanis.com](http://www.nychanis.com)

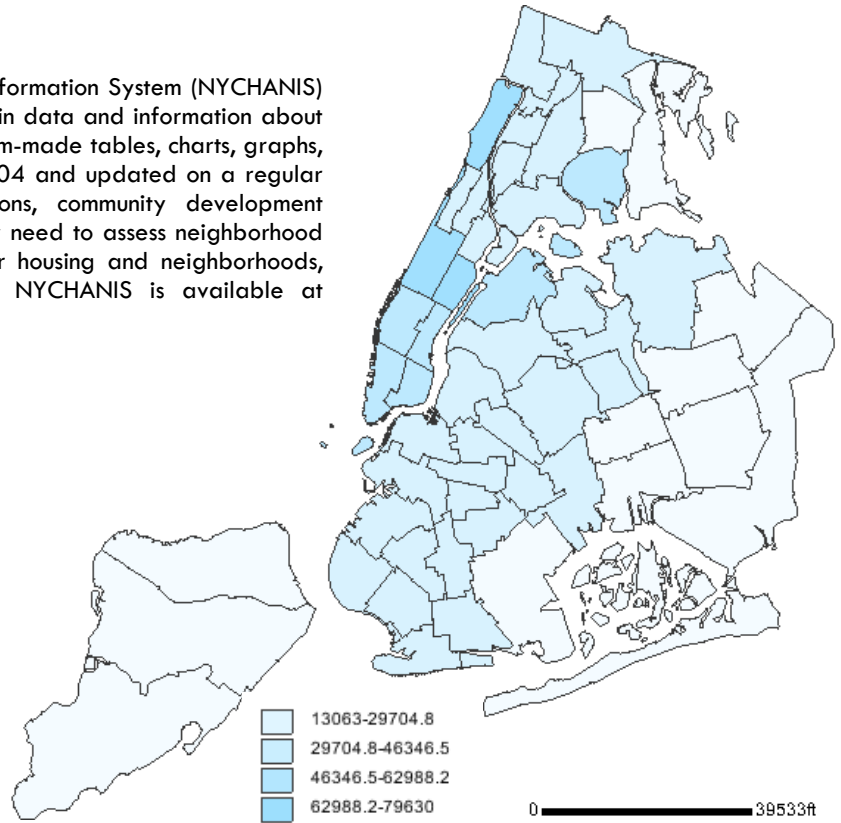
The New York City Housing and Neighborhood Information System (NYCHANIS) is an interactive website that allows users to obtain data and information about New York City neighborhoods and to create custom-made tables, charts, graphs, and maps. Created by the Furman Center in 2004 and updated on a regular basis, NYCHANIS provides housing organizations, community development groups and the general public with the data they need to assess neighborhood conditions, plan programs that will improve their housing and neighborhoods, and monitor the progress of those programs. NYCHANIS is available at [www.nychanis.com](http://www.nychanis.com).

## create maps

right: Number of Rental Housing Units, 2002

Some features of NYCHANIS include:

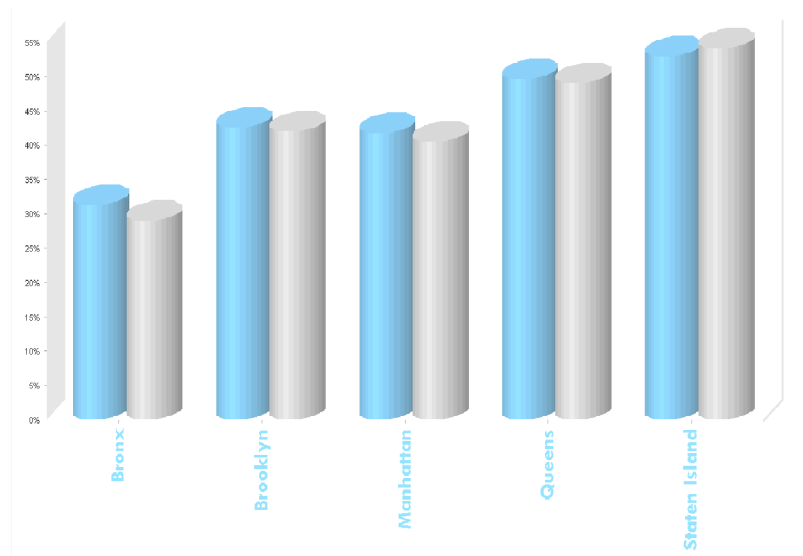
- Data on over 1,800 characteristics of New York City housing and neighborhoods
- The most up-to-date information available on New York City's housing stock, neighborhood conditions, and residential population
- Easily accessible and searchable, web-based interface
- Ability to zero in on geographical areas of interest, from boroughs and community districts all the way down to census tracts, police precincts, and school districts



## create tables & charts

right: Percentage of students who perform at or above grade level in Math/English, 2004

■ Math  
■ English



**A free and easy-to-use tool — visit [www.nychanis.com](http://www.nychanis.com) today.**

For more information about NYCHANIS, or to request a free training for your group, call 212-998-6699 or email [furmancenter@nyu.edu](mailto:furmancenter@nyu.edu)

# ABOUT PlanNYC

[www.PlanNYC.org](http://www.PlanNYC.org)

PlanNYC, located at [www.plannyc.org](http://www.plannyc.org), is a web-based tool that gives citizens and organizations interested in housing and development in New York City easy access to facts, news, and events related to major urban planning projects and development proposals. Unlike traditional media websites, PlanNYC is organized by both project and neighborhood. Unlike the websites of many government agencies and advocacy organizations, PlanNYC takes care to feature perspectives on all sides of each issue.

## read

news articles,  
government documents  
and perspectives from  
all sides on  
development projects  
and issues

CONEY ISLAND DEVELOPMENT <span>RSS</span>	QUICK LINKS
Investments in Coney Island like the construction of the Brooklyn Cyclone's KeySpan Park, restoration of the Stillwell Avenue Terminal, and development of substantial amounts of infill housing within the community have all laid the groundwork for further development at Coney Island. In 2003, the City mobilized the Coney Island Development Corporation to plan and implement economic and development strategies like developing vacant property for commercial and residential use, including housing, retail stores and a community center.	<ul style="list-style-type: none"> <li>▶ Coney Island Development Corporation</li> <li>▶ Coney Island-Nickel Empire</li> <li>▶ Thor Equities</li> <li>▶ Triple Five Group</li> <li>▶ NYC Parks Department-Coney Island Info</li> <li>▶ Coney Island USA</li> <li>▶ New York Wired Discussion Forum</li> <li>▶ Strategic Plan Press Release</li> <li>▶ Coney Island Area Map</li> </ul>

The City announced the strategic plan in September, 2005, committing \$83.2 million in funds to keep the projects rolling. Projects will continue in the area through 2009 as more private funds become available. Some long-time vendors will be forced to leave as a result of the revitalization plans, causing concern about what will happen to the beloved unique Coney Island experience.

A complete urban planning web portal, PlanNYC features news summaries and links to development-related articles, official documents such as environmental impact statements, and a calendar of upcoming planning events that includes local community board meetings as well as citywide panels and hearings. PlanNYC brings together information from advocacy organizations, government agencies, academic institutions, neighborhood groups, and media organizations—all in one location.

## search

for planning issues  
and projects

**PLANNING EVENTS**

<< May 2006 >>

S	M	T	W	T	F	S
> 30	01	02	03	04	05	06
> 07	08	09	10	11	12	13
> 14	15	16	17	18	19	20
> 21	22	23	24	25	26	27
> 28	29	30	31	01	02	03

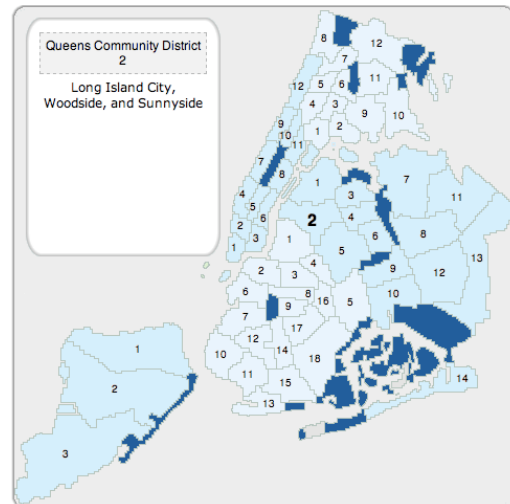
**Upcoming Events**

**Thu, June 15 2006**

06:30 PM The Atlantic Yards Project: Can It Work for Brooklyn?

### Calendar

View local meetings  
and planning events



### Community Districts

View planning projects in your CD  
by clicking on the interactive map

PlanNYC was developed by Jordan Anderson as part of his Master of Urban Planning capstone project at NYU's Wagner School of Public Service.

# ABOUT THE FURMAN CENTER

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Since its founding in 1994, the Furman Center for Real Estate and Urban Policy has become the leading academic research center in New York City devoted to the public policy aspects of land use, real estate development and housing.

The Furman Center is dedicated to the following three missions:

**Providing objective academic and empirical research** on the legal and public policy issues involving land use, real estate, housing and urban affairs in the United States, with a particular focus on New York City. At present, our research focuses particularly on measuring the impacts public and private investments such as housing, schools, amenities and changes in services have on neighborhood property values and other measures of neighborhood quality;

**Promoting frank and productive discussions** among elected and appointed officials, leaders of the real estate industry, leaders of non-profit housing and community development organizations, scholars, faculty and students about critical issues in land use, real estate and urban policy;

**Presenting essential data and analysis** about the state of New York City's housing and neighborhoods to all those involved in land use, real estate development, community economic development, housing, urban economics and urban policy.

For more information, please contact us at:

**Furman Center for Real Estate and Urban Policy**

New York University School of Law  
40 Washington Square South, Suite 314-H  
New York, NY 10012-1099  
Telephone: 212-998-6713, Fax: 212-995-4341  
Web: <http://furmancenter.nyu.edu>  
Email: [furmancenter@nyu.edu](mailto:furmancenter@nyu.edu)

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[Ricky Revesz](#), *Dean*, School of Law, New York University  
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