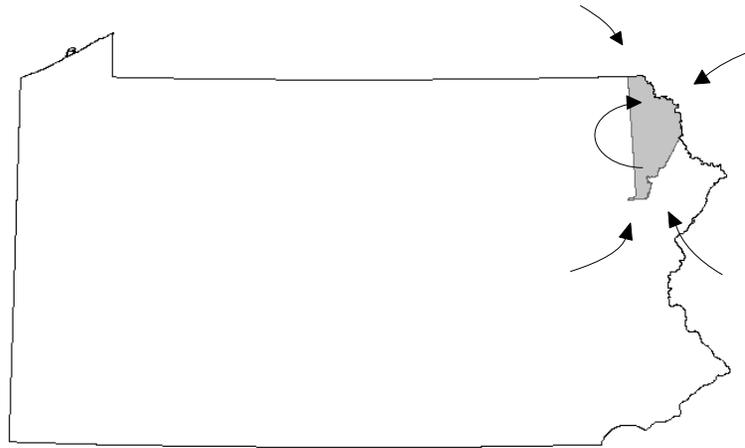


# Origins of Wayne County, Pennsylvania Land Purchasers 1998 to 2008

Prepared by the Wayne County Department of Planning  
11-25-2008  
Derek F. Williams, Planner



## Abstract

The “Origins of Wayne County, Pennsylvania Land Purchasers”, in this study, have been identified using zip codes. Deed transfers for property in Wayne County, Pennsylvania were catalogued over a ten-year study period starting in 1998 and ending in 2008. With the aid of a Geographic Information System (GIS), deed transfer records were organized into categories and used as base data to create the charts, graphs, and maps needed to identify potential demographic trends in deed purchase records. Transfer records were sorted by grantee zip code region and yearly study period.

Multiple sources were engaged for this study. Deed transfer records were obtained through the Wayne County Assessment Office. The United States Census Bureau and Postal Service provided regional and zip code data while additional zip code data and verification came from Google Maps and mongabay.com. Environmental Systems Research, Inc. (ESRI), the U.S. Census Bureau, and the Wayne County Department of Planning supplied the Geographic Information System and GIS data used for this project.

## Introduction

To identify trends in deed transfer records, the source data used was categorized and sorted into groups based on the zip code region of the grantee (purchaser) and the yearly study period in which the deed was recorded. The zip code regions used were; Pennsylvania (Region One), Greater New York City Metro Area (Region Two) (includes; Long Island and Northern New Jersey), New Jersey minus NYC (Region Three), New York minus NYC (Region Four), New England (Region Five), Other U.S. (Region Six), and Outside U.S. (Region Seven). Yearly study periods ran from September 12<sup>th</sup> to September 11<sup>th</sup> of the following year. Expanded explanations of these categories can be found in “Methodology”.

Four main observations were made for Wayne County, Pennsylvania deed transfers occurring over the course of the ten-year study period. Some of these observations have connections to broader trends and will be explained further in “Data and Discussion”.

### Observations

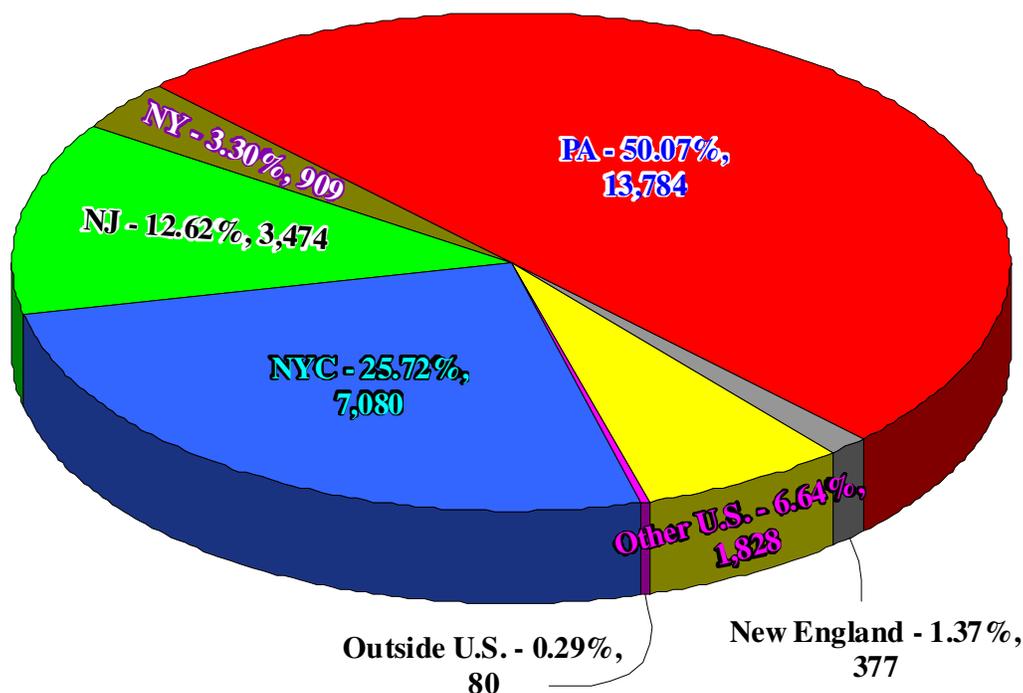
- 1) Just over half of all deed transfer records contained a grantee with a zip code from Pennsylvania.
- 2) Overall and on the individual zip code region level, in general, deed transfers increased from 1998 to 2005 and were followed by a sharp decline.
- 3) Deed transfers with a grantee zip code from the Greater New York City metro area (see Methodology for description) had a noted increase between the year prior to and the year following September 11<sup>th</sup>, 2001.
- 4) When compared to the other zip code regions, the percent of transfer records with a Pennsylvania grantee zip code decreased over the course of the study period.

The chart below illustrates **observation one** (percent totals may not add to 100 due to rounding.). Deed transfers with a grantee zip code from Pennsylvania represented 50.07% of all transfers (piece of the total pie). This proportion is out of the approximately 28,000 deed transfer records analyzed from September 12<sup>th</sup>, 1998 to September 11<sup>th</sup>, 2008. A proportional analysis for each yearly study period follows on *Foldout Insert Two*.

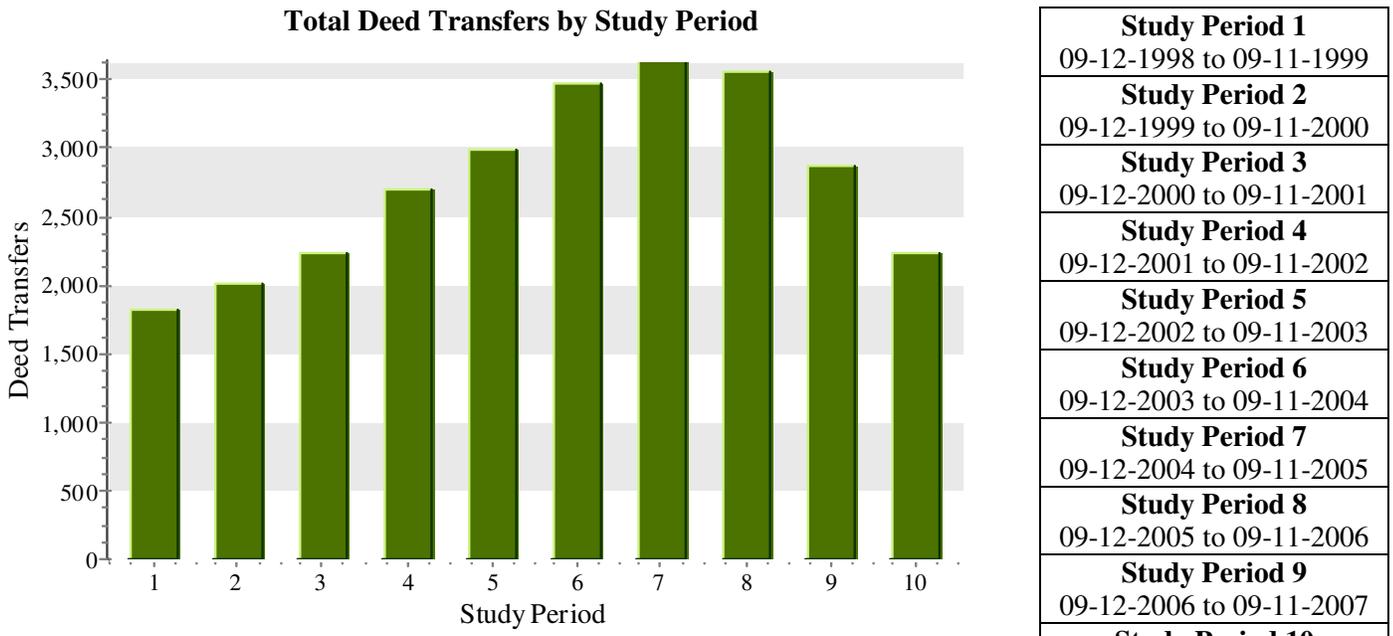
### Deed Transfers by Region

09-12-1998 to 09-11-2008

(27,532 transfer records)

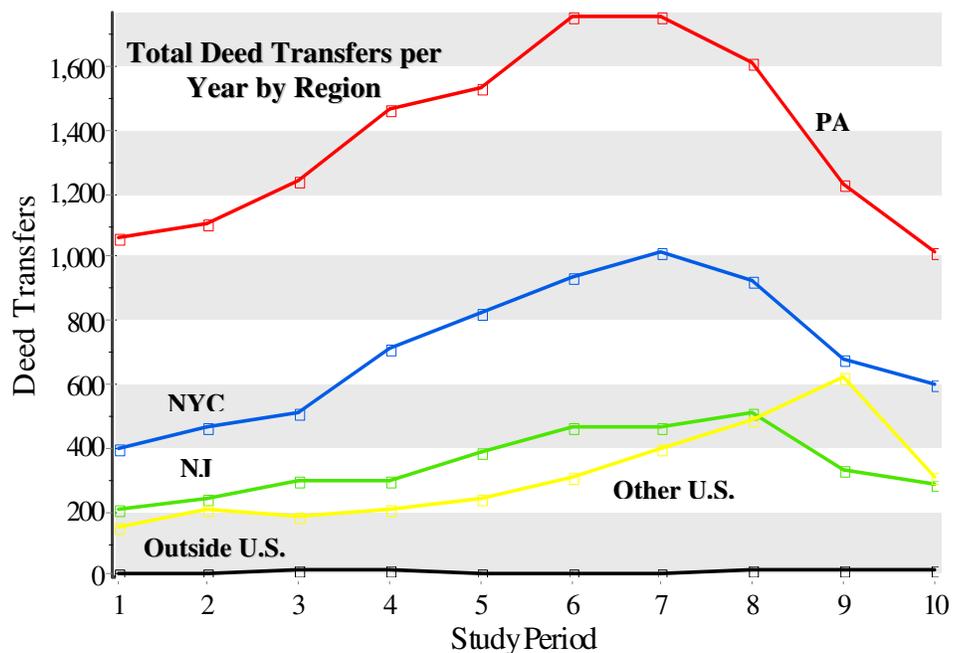


The graphs below illustrate **observation two**. From Study Period One through Seven (includes years 1998 through 2005) there was a marked increase in deed transfers. Study Period One contained 1,825 total transfers and Study Period Seven contained 3,634. This is a 99.12% increase. Conversely, a 38.47% decrease occurred between Study Period Seven (3,634 total transfers) and Study Period Ten (2,236 total transfers).

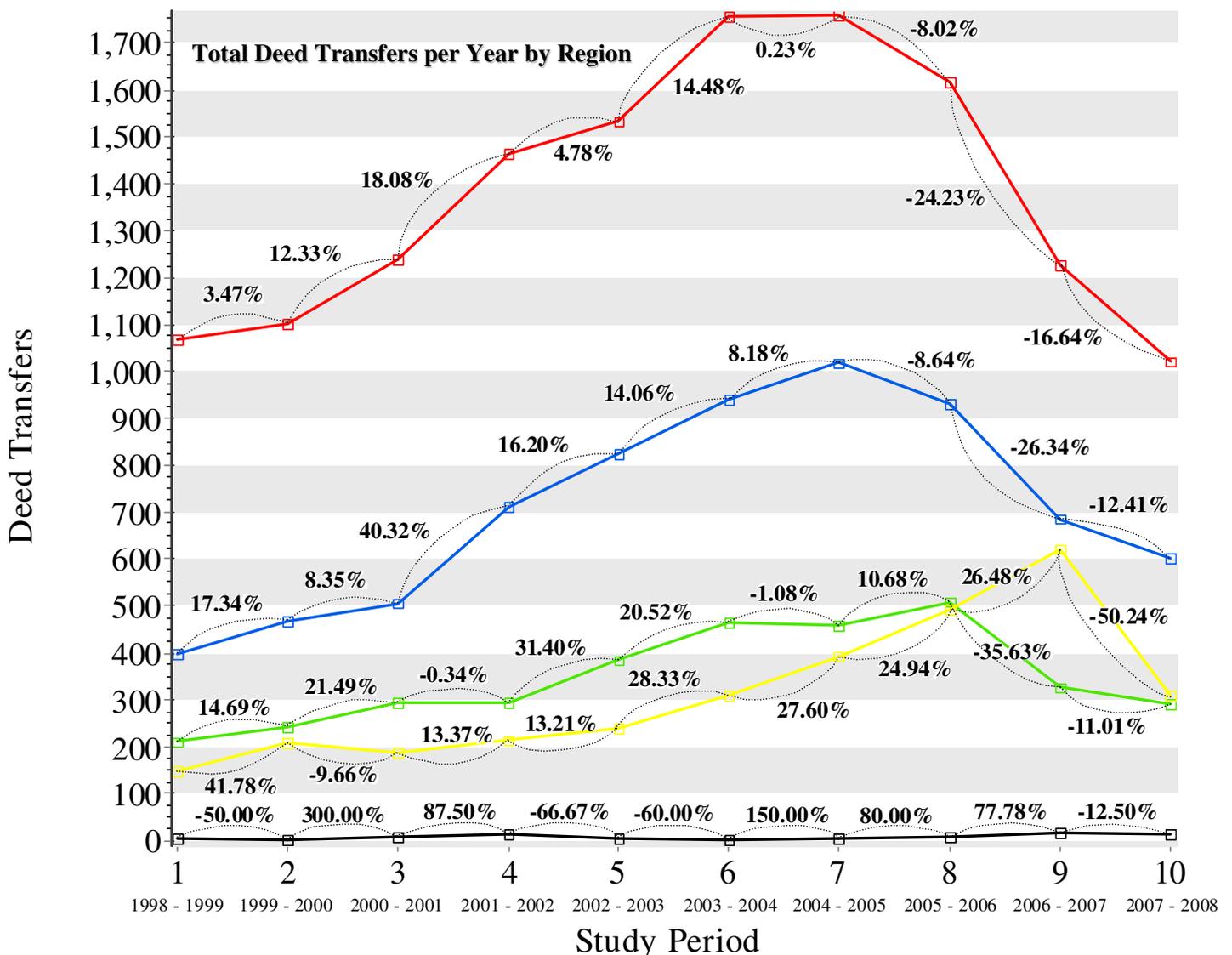


Individual zip code regions fared about the same, in regard to deed transfer activity, as the combined transfer results shown above. Nearly all regions (including PA and NYC) noted increases in deed transfer records from Study Period One through Seven followed by a decline (The NJ region had a slight increase from Study Period Seven to Eight but then followed suit with this trend). Region Six (Other U.S.) was different and noted continued gains in transfer totals through Study Period Nine (*See note following "Data and Discussion"*). In the graph below, the Other U.S. region is the combination of Zip Code Regions Four, Five, and Six. The Outside U.S. region contained only 80 deed transfers over ten years and its low numbers per study period show no noticeable difference at this graph's scale. The table below gives deed transfer totals for each study period and each zip code region except for the Outside U.S. region. As in the graph, the Other U.S. region in the table represents Regions Four, Five, and Six.

	PA	NYC	NJ	Other U.S.
<b>1</b>	1,066	398	211	146
<b>2</b>	1,103	467	242	207
<b>3</b>	1,239	506	294	187
<b>4</b>	1,463	710	293	212
<b>5</b>	1,533	825	385	240
<b>6</b>	1,755	941	464	308
<b>7</b>	1,759	1,018	459	393
<b>8</b>	1,618	930	508	491
<b>9</b>	1,226	685	327	621
<b>10</b>	1,022	600	291	309



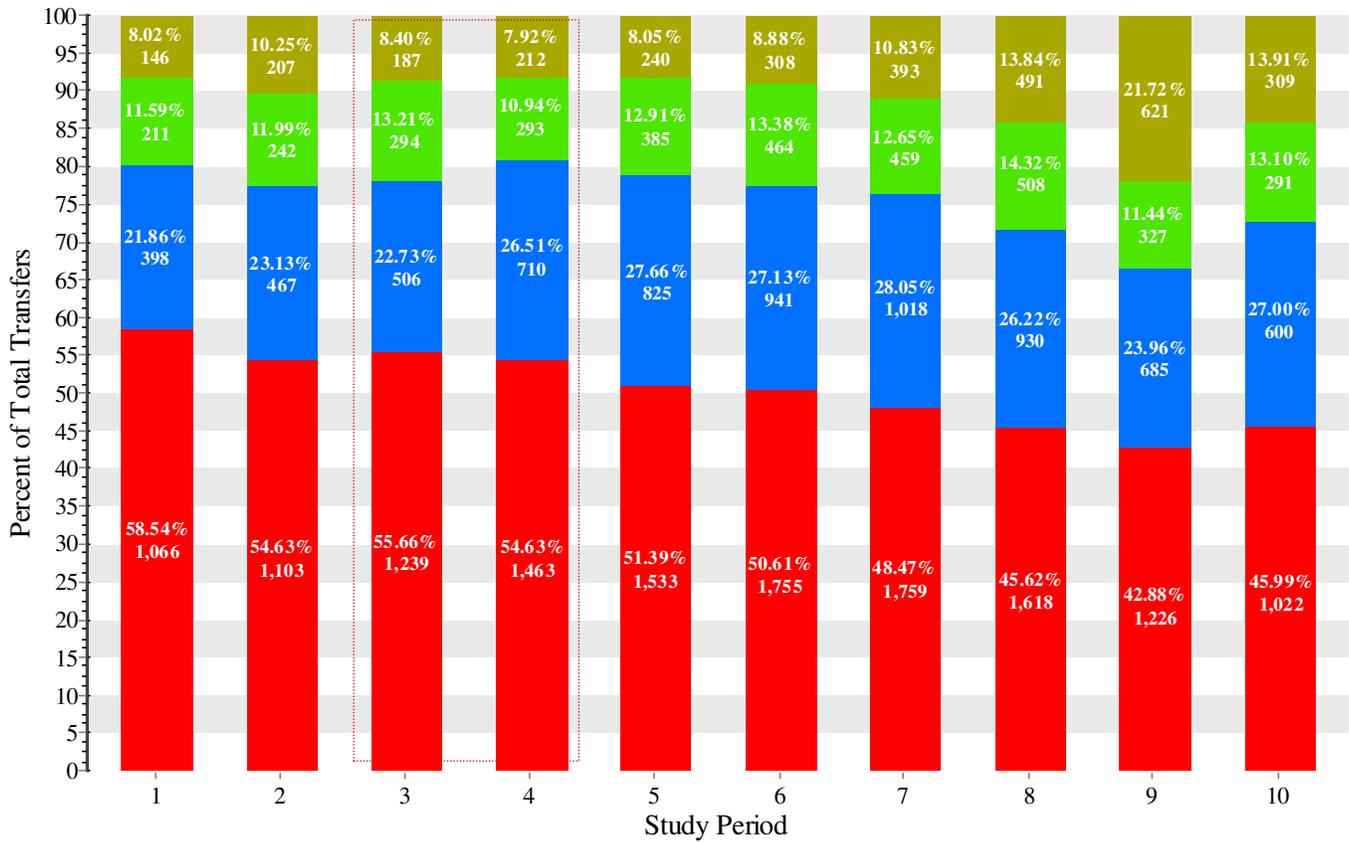
Between Study Periods Three and Four there was a marked increase in deed transfers with a NYC grantee zip code. This trend (**observation three**) is illustrated in the graph below. Study Period Three ran from September 12<sup>th</sup>, 2000 to September 11<sup>th</sup>, 2001 and Study Period Four ran from September 12<sup>th</sup>, 2001 to September 11<sup>th</sup>, 2002. These study periods represent the deed transfer records occurring during the year prior to and the year following September 11<sup>th</sup>, 2001 respectively. During Study Period Three there were 506 deed transfers with a grantee zip code from NYC and during Study Period Four there were 710. This jump corresponds to a 40.32% (204 deed transfer) increase in deed transfers; the largest percent increase compared to other domestic regions. (Region Seven (Outside U.S.) was not considered in this evaluation because its low numbers created exaggerated fluctuations in the percent change variable.) This percent increase is more than twice the size of the second largest increase during the same time period (PA - 18.08%, 224 deed transfer increase). The Other U.S. region (below) is the combination of Regions Four, Five, and Six as in the graph described on *page 3*. Zip code regions below are colored as follows: **PA, red**; **NYC, blue**; **NJ, green**; **Other U.S., yellow**; and **Outside U.S., black**. Dotted lines indicate the percent change from one study period to the next.



The decrease in the percentage of total deed transfers with a grantee zip code from Pennsylvania (**observation four**) is illustrated with the graph on *page 5*. When looking at total deed transfers per study period, it becomes evident that the *percentage of deed transfers* with a PA grantee zip code declined during the course of the ten-year study period. Even though, in many cases, the *number of transfer records* increased from one study period to another, the *percentage of total transfers* with a Pennsylvania grantee zip code generally decreased from one study period to another. While Regions Two and Three showed some increase and stayed about constant, the Other U.S zip code region (the combination of Regions Four, Five, and Six in this case) had a trend contrary to

that of PA and its piece of the deed transfer pie over the ten-year study period generally increased. Only U.S. zip code regions were used in the graph below so deed transfer percentages will differ slightly than those found later that contain the Outside U.S. region. Percentages may not add to 100 due to rounding.

**Percent of Deed Transfers and Deed Transfer Counts per Year by Region**



	<b>PA</b>
	<b>NYC</b>
	<b>NJ</b>
	<b>Other U.S.</b>

<b>Study Period 1</b>	09-12-1998 to 09-11-1999
<b>Study Period 2</b>	09-12-1999 to 09-11-2000
<b>Study Period 3</b>	09-12-2000 to 09-11-2001
<b>Study Period 4</b>	09-12-2001 to 09-11-2002
<b>Study Period 5</b>	09-12-2002 to 09-11-2003
<b>Study Period 6</b>	09-12-2003 to 09-11-2004
<b>Study Period 7</b>	09-12-2004 to 09-11-2005
<b>Study Period 8</b>	09-12-2005 to 09-11-2006
<b>Study Period 9</b>	09-12-2006 to 09-11-2007
<b>Study Period 10</b>	09-12-2007 to 09-11-2008

As the above graph illustrates, the percentage of deed transfers with a grantee zip code from Pennsylvania decreased, on average, over the course of the ten-year study period while other regions maintained or increased their piece of the deed transfer pie. The red dotted line around Study Periods Three and Four draws attention to the years surrounding September 11<sup>th</sup>, 2001 to help reinforce **observation three**. Between Study Periods Three and Four the NYC region increased in its percentage of total deed transfers by 3.78 percentage points but as noted in the graph on *page 4*, the percent increase in actual deed transfers for this region between these two study periods was more significant.

## Data and Discussion

Whether looking over the entire ten-year study period or each yearly study period individually, Pennsylvania (Region One) was the region where the most deed transfer grantee zip codes came from (**observation one**). Overall, Pennsylvania zip codes represented 13,784 deed transfers or 50.07% of all records. Of these transfers, 9,062 had a zip code serving Wayne County. These zip codes represented 32.91% of all transfer records and 65.74% of Pennsylvania transfers. The amount of transfers with grantee zip codes from Region One was markedly greater than the number of transfers in any other zip code region (See graph on *page 2*).

Over the ten-year study period, NYC (Region Two) represented grantee zip codes for 7,080 deed transfers or 25.72% of all records. There were 3,474 deed transfers, or 12.62% of transfer records, with a grantee zip code from NJ (Region Three) and Region Four (NY) had 909 deed transfers with grantee zip codes from that region representing 3.30% of total transfers. The foldout map (*Foldout Insert One*) on the following page shows deed transfers with a grantee zip code from Regions One through Four (PA, NYC, NJ, and NY). This group of regions, the tri-state area of NJ, NY, and PA, represents the grantee zip codes of 91.70% of total transfers (91.97% of total U.S. transfers).

In the map, zip code boundaries are color-filled depending on the percentage of total transfers each zip code represents. For example 18431 (Honesdale, PA), in central Wayne County represents grantee zip codes for 2,455 transfer records (the largest amount for any single zip code). On the following page the Honesdale zip code stands out as one of only a few red-colored zip code boundaries. The map's legend lists the percentage of total deed transfers each color represents. Since the foldout map shows only the zip code regions from the tri-state area (listed above), the percentage of total transfers each zip code holds comes from those records that had a grantee zip code from this tri-state area. The tri-state area represented grantee zip codes for 25,247 deed transfers. Out of this total, the Honesdale zip code represents 9.72% of transfers whereas if this total were out of all transfers or total U.S. transfers it would represent 8.92% or 8.94% respectively.

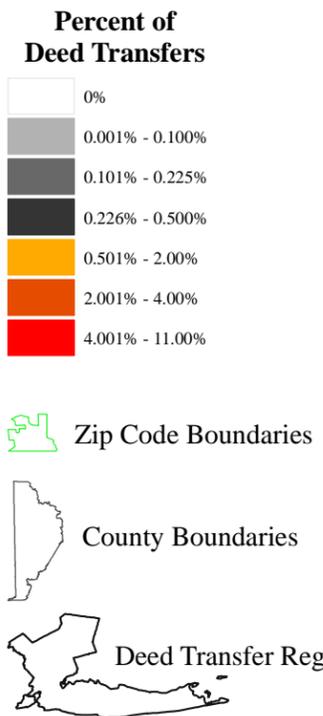
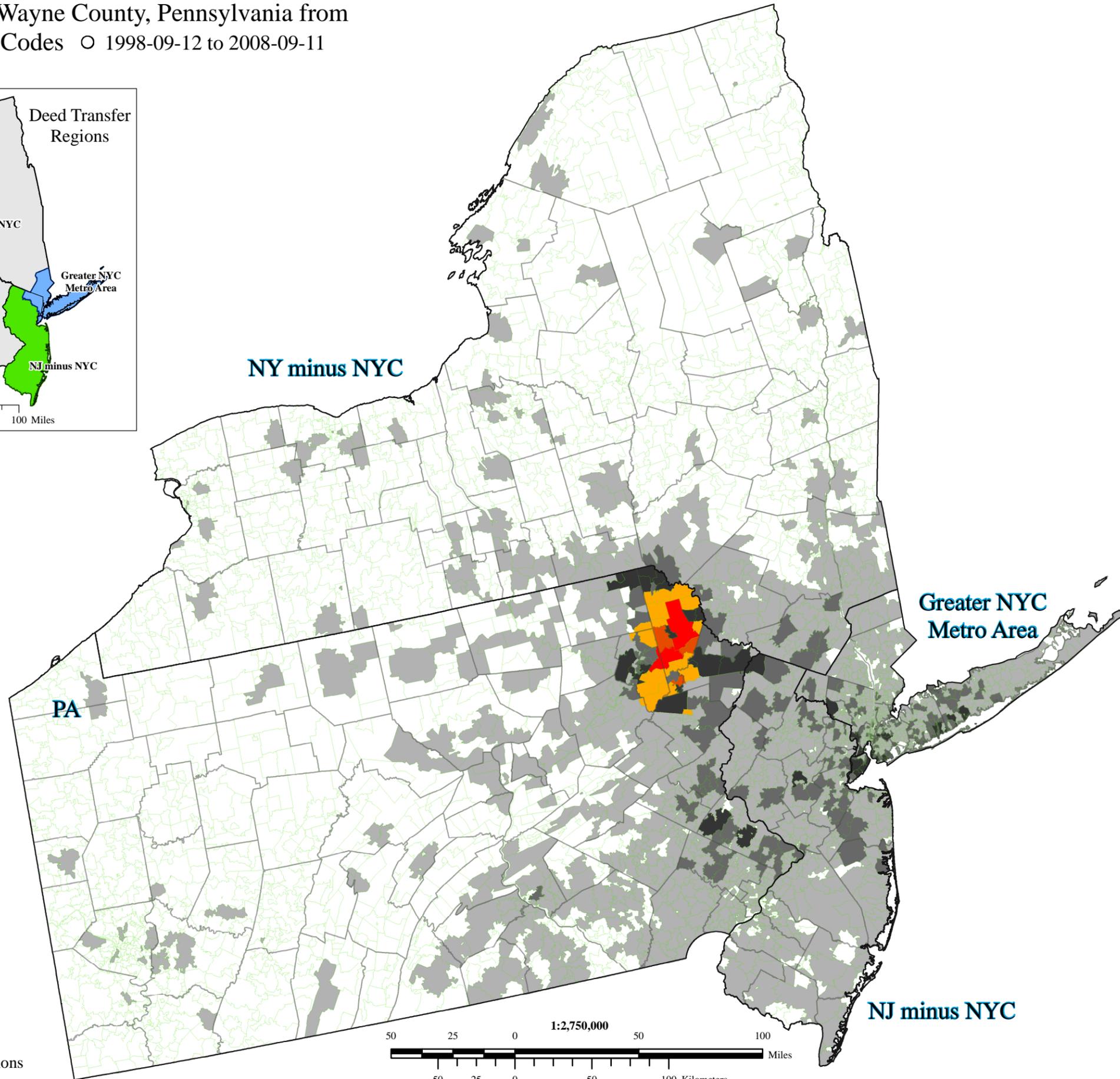
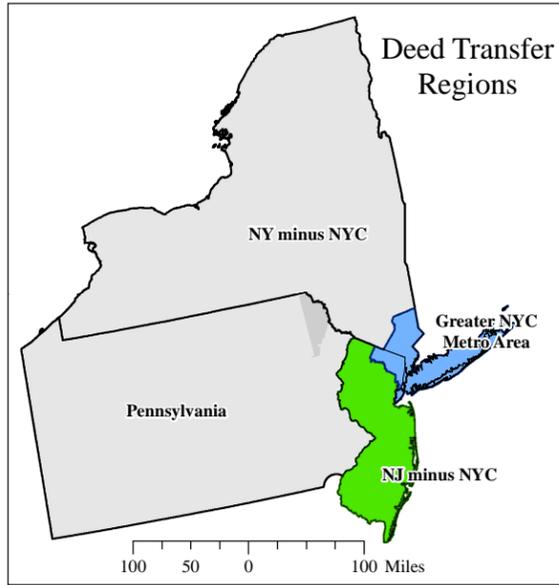
Wayne County's (the most northeastern PA county) influence on grantee zip codes from Zip Code Region One also stands out on *Foldout Insert One*. The 9,062 transfer records that are represented by Wayne County zip codes account for 35.89% of all deed transfers with a tri-state area grantee zip code.

After this concentration of Wayne County zip codes, grantee zip codes tend to be found in the south through the east of the tri-state area. Most non-Wayne County grantee zip codes from Pennsylvania are found in the southern corridor along PA's eastern border. From here, swinging counterclockwise from south to east, we find the next bulk of zip codes matching the grantee zip codes of deed transfer records. This area includes the NJ and NYC zip code regions.

*Foldout Insert Two* expands on **observations two and four**. This foldout contains charts similar to the one found on *page 2* showing deed transfers by region. These charts show the transfer activity of each region for each yearly study period instead of for the overall ten-year study period; otherwise they are the same in their presentation.

The yearly study period totals show the increase in deed transfers occurring from Study Period One (September 12<sup>th</sup>, 1998 to September 11<sup>th</sup>, 1999) through Study Period Seven (September 12<sup>th</sup>, 2004 to September 11<sup>th</sup>, 2005) followed by an acute decrease in Wayne County deed transfers. As mentioned earlier, the Other U.S. region did not experience a sharp decline following Study Period Seven and instead, transfers with grantees from this region continued to increase through Study Period Nine. With these charts, the trend of a decreasing percentage of transfer records with a Pennsylvania grantee zip code is noticeable. Additionally, the increasing slice of the deed transfer pie Region Six held can be seen. In this foldout the percent of total transfers per study period and the actual amount of transfers are shown for each zip code region. This distinction helps when the number of deed transfers for a zip code region increase from one study period to another while the percentage of transfers that region holds decreases, or vice versa.

Deed Transfers in Wayne County, Pennsylvania from  
Tri-State Area Zip Codes ○ 1998-09-12 to 2008-09-11



Origins of Wayne County, Pennsylvania  
Land Purchasers  
1998 to 2008  
*Foldout Insert One*



Shaded areas represent the zip codes of land purchasers from deeds of property purchased in Wayne County, Pennsylvania. The zip code regions of NJ and NY do not include any parts of NYC which has been described as its own zip code region (see inset map at left). The Tri-State area of New Jersey, New York, and Pennsylvania represents zip codes that account for approximately 91.70 % of total deed transfers made between September 12th, 1998 and September 11th, 2008.



Data Sources: ESRI, 2004. United States Census Bureau, 2007. United States Postal Service, 2008. Wayne County Assesment Office, 2008. Wayne County Department of Planning, 2008.

Wayne County Department of Planning, 2008  
www.co.wayne.pa.us (570) 253-5970 ext. 4060

Origins of Wayne County, Pennsylvania  
Land Purchasers  
1998 to 2008  
Foldout Insert Two

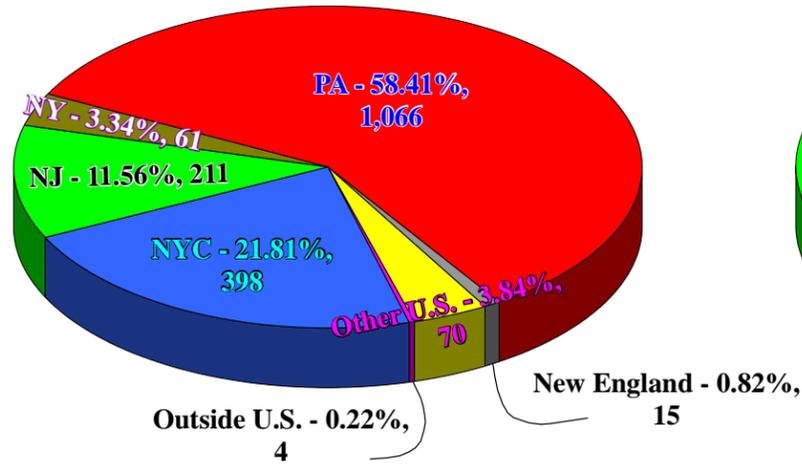


Each chart represents a yearly study period. Each colored wedge represents an individual zip code region. In some charts the number of deed transfers with a grantee zip code from the Outside U.S. region was so small that the corresponding colored wedge cannot be seen. Data labels have been provided so in these cases, the transfers from the Outside U.S. region can be evaluated. Percentages may not add to 100 due to rounding.

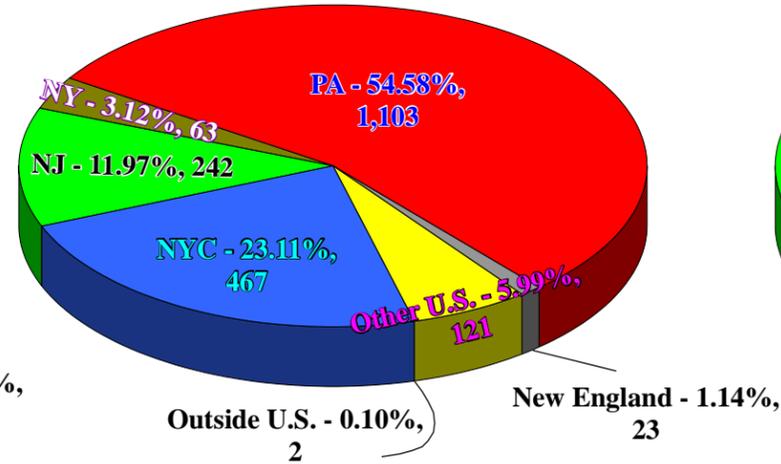
Data Sources: ESRI, 2004. United States Census Bureau, 2007. United States Postal Service, 2008. Wayne County Assesment Office, 2008. Wayne County Department of Planning, 2008.

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www.co.wayne.pa.us (570) 253-5970 ext. 4060

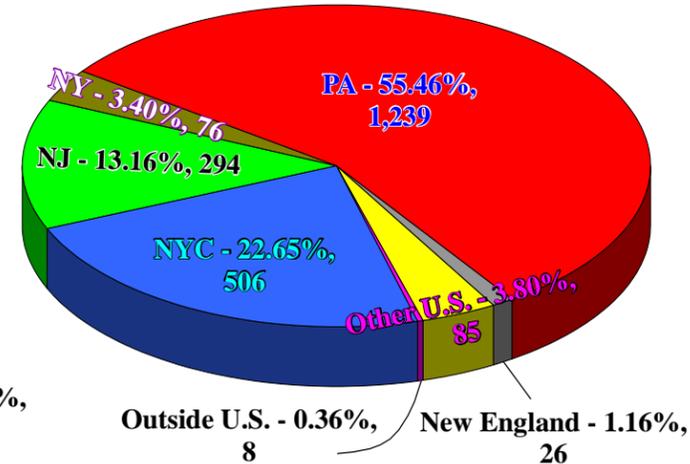
Deed Transfers by Region  
09-12-1998 to 09-11-1999  
(1,825 transfer records)



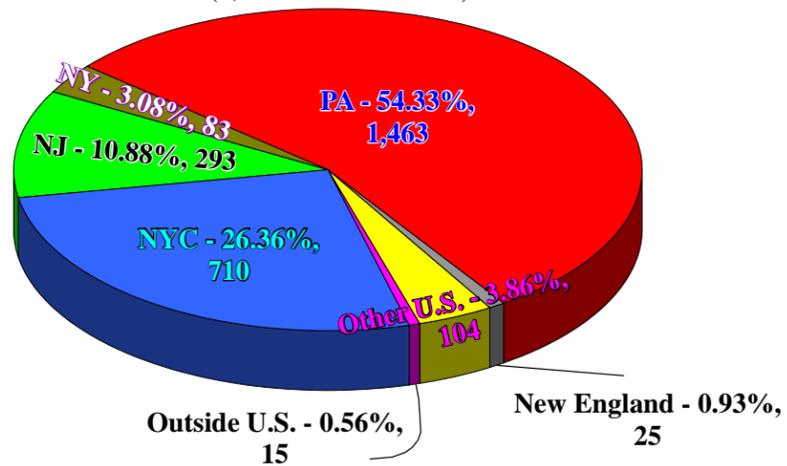
Deed Transfers by Region  
09-12-1999 to 09-11-2000  
(2,021 transfer records)



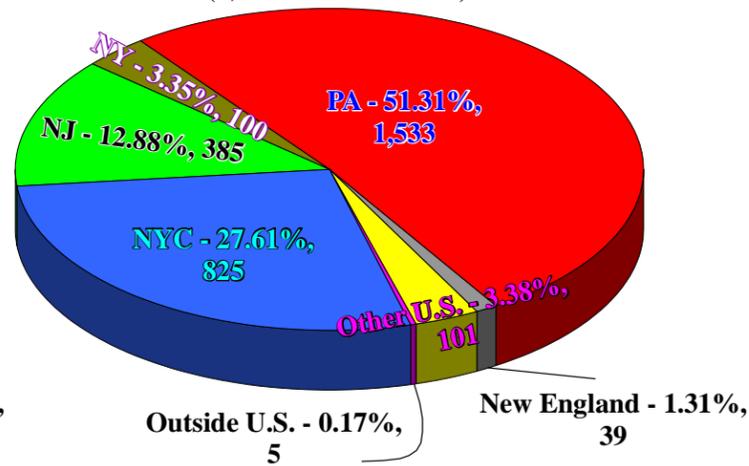
Deed Transfers by Region  
09-12-2000 to 09-11-2001  
(2,234 transfer records)



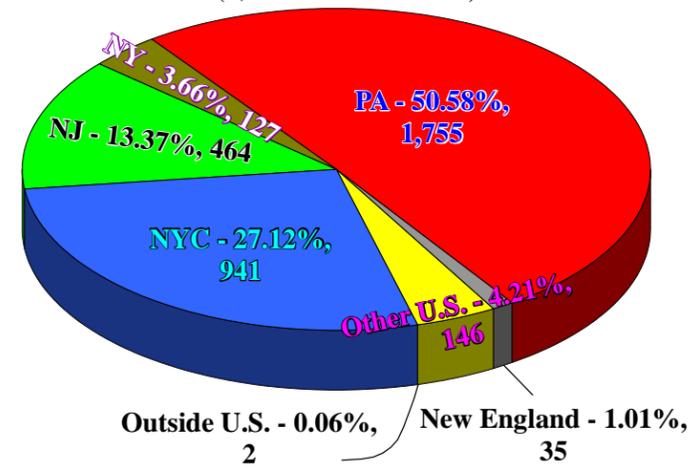
Deed Transfers by Region  
09-12-2001 to 09-11-2002  
(2,693 transfer records)



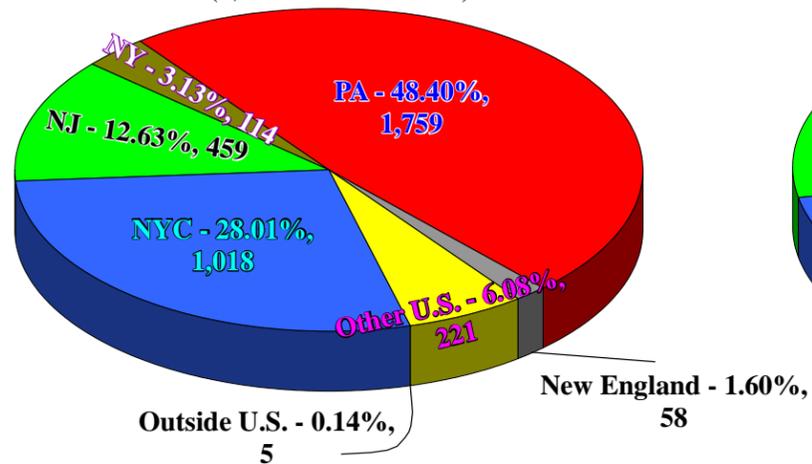
Deed Transfers by Region  
09-12-2002 to 09-11-2003  
(2,988 transfer records)



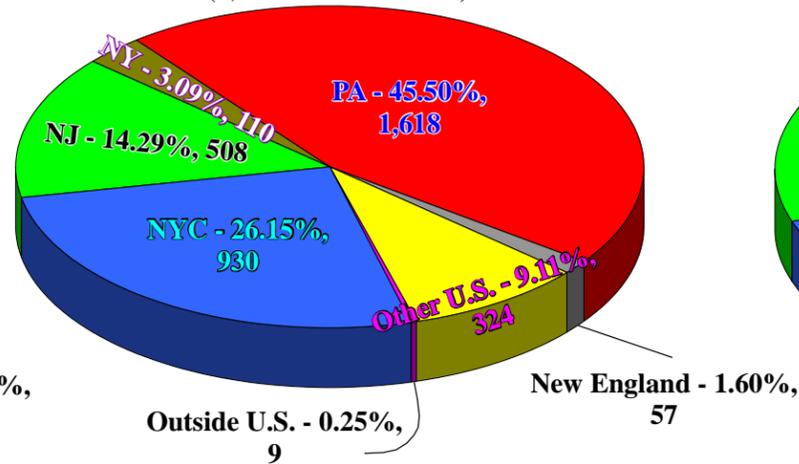
Deed Transfers by Region  
09-12-2003 to 09-11-2004  
(3,470 transfer records)



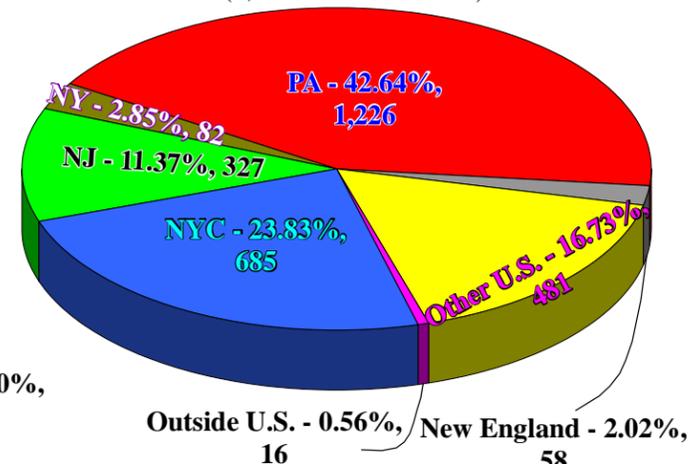
Deed Transfers by Region  
09-12-2004 to 09-11-2005  
(3,634 transfer records)



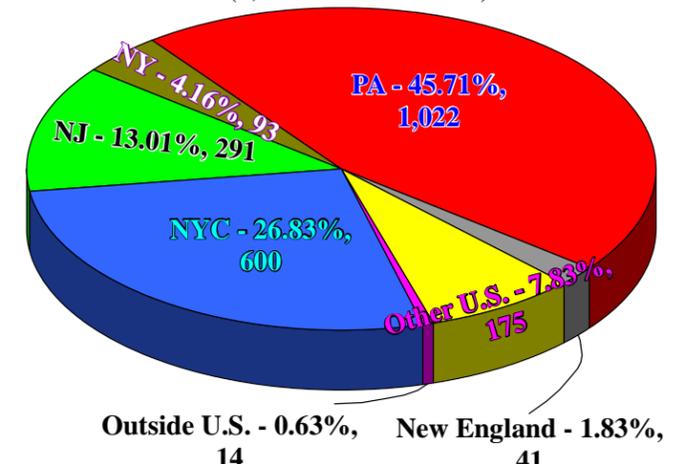
Deed Transfers by Region  
09-12-2005 to 09-11-2006  
(3,556 transfer records)



Deed Transfers by Region  
09-12-2006 to 09-11-2007  
(2,875 transfer records)



Deed Transfers by Region  
09-12-2007 to 09-11-2008  
(2,236 transfer records)



The increase in deed transfers with a grantee zip code from NYC between Study Periods Three and Four (**observation three**) showed an effect September 11<sup>th</sup>, 2001 had on deed purchases from the Greater New York City Metro Area. As noted on *page 4*, there was a 40.32% increase in transfer records with a grantee zip code from NYC between these two study periods (the one prior to and the one following September 11<sup>th</sup>, 2001). It could be surmised that this trend was certainly influenced by September 11<sup>th</sup>, 2001 but when taking a comprehensive look at the deed transfer activity in Wayne County, the effect this micro trend had was less evident.

The general trend in deed transfers across all zip code regions up to Study Period Seven (**observation two**) indicates an overall increase in deed purchases. This macro trend makes an evaluation of the September 11<sup>th</sup> trend that Region Two (NYC) experienced difficult in regard to its overall influence. It is likely that any effect the NYC increase in deed transfers (between Study Periods Three and Four) had on overall transfer activity was absorbed within the broader trend in deed transfer increases that all zip code regions experienced.

Comparing the percent increase and percent of total transfers per study period for Region Two further illustrates **observation three**. Between Study Period Three (September 12<sup>th</sup>, 2000 to September 11<sup>th</sup>, 2001) and Study Period Four (September 12<sup>th</sup>, 2001 to September 11<sup>th</sup>, 2002) deed transfer records with a NYC grantee zip code increased from 506 to 710, a 40.32% increase. This increase, being markedly larger than those found for all other zip code regions during the same interval (with the exception of Region Seven whose low numbers and erratic fluctuations warranted its exclusion from this analysis), indicates a cause and effect relationship between September 11<sup>th</sup>, 2001 and deed transfer activity that led to an increase in NYC deed purchasers.

During this time period, the percentage of total deed transfers NYC had rose from 22.65% in Study Period Three to 26.36% in Study Period Four. This 3.71 percentage point increase (the 3.78 percentage point increase noted on *page 5* looked at U.S. zip code regions only) was also the highest increase across all zip code regions during this period. Looking at the three study periods prior to September 11<sup>th</sup>, 2001, the average percentage of total transfers that Region Two held was 22.52% and when looking at the following three study periods, the average percentage of total transfers increased to 27.03%.

When compared to the same percentage averages of other zip code regions for the same study periods, NYC stands out again. There was a decrease in the average percentage of total transfers from Study Periods One through Three to Four through Six for the PA zip code region (Region One) and the Other U.S. region (Regions Four, Five, and Six). Region Three (NJ) experienced a slight increase from 12.23% to 12.38%. This indicates a September 11<sup>th</sup> influence on Wayne County deed transfers with a NYC grantee zip code that may be greater than the initial increase, mentioned above, that immediately followed September 11<sup>th</sup>, 2001 (the 40.32% increase). In the study periods following Period Seven, deed transfer records and the percentage of total transfer records from Region Two (NYC) began to level off and eventually drop as can also be seen for Regions One and Three.

There is an apparent correlation between September 11<sup>th</sup>, 2001 and an increase in Wayne County, Pennsylvania deed transfers with a NYC grantee zip code (**observation three**) but since deed transfers were generally increasing during this same period of time, it is difficult to completely isolate this observation's effect on overall Wayne County deed transfers. Had September 11<sup>th</sup> occurred outside of **observation two** its influence on Wayne County deed transfers in general may have been more noticeable; however, since September 11<sup>th</sup>, 2001 occurred during the first seven study periods, where deed transfers were increasing across all zip code regions, the effect this date had on overall deed transfers (property purchases) in Wayne County was less conclusive. Although the effects the September 11<sup>th</sup>, 2001 event had on transfer activity may not be noticeable when looking at ten years of Wayne County deed transfer records, the change in deed transfer activity experienced by the NYC zip code region surrounding this date was certainly recognizable as a short-term trend.

*Note: The atypical increase in deed transfers experienced by the Other U.S. zip code region (Regions Four, Five, and Six combined) in Study Periods Eight and Nine can be partially explained by transfers of large residential development properties. During these two study periods, there were 805 deed transfers with a grantee zip code from the Other U.S. zip code region. 515 or 63.98% of these deed transfers involved property in either Lehigh (256 transfers) or Sterling (259 transfers) townships in Wayne County. These two townships represented property for significantly more deed transfers, with an Other U.S. grantee zip code, than any other Wayne County municipality for Study Periods Eight and Nine. Behind Lehigh and Sterling, the municipality with the most deed transfers was Lake Township with 54.*

*Of the 515 deed transfers for property in Lehigh and Sterling Townships that involved an Other U.S. grantee zip code and occurred during Study Periods Eight and Nine, 511 or 99.22% were transfers of property in large residential developments. This concentration of development property transfers in Lehigh and Sterling townships is responsible for most of the Other U.S. deed transfer increases for Study Periods Eight and Nine. Nearly every other zip code region experienced transfer decreases during these periods. Further analysis would be needed to discover the root cause(s) of this trend. An interesting note however is the fact that a number of properties for the largest residential development in these two townships (includes property involved in 503 or 98.43% of the 511 large residential development property deed transfers mentioned above), consisting of property in both Lehigh and Sterling townships, have been advertised for sale online.*

*Perhaps the ease of present day property sales, as evidenced by online land advertisements, has led to an increase in deed transfers involving buyers from outside the property's area. Perhaps large residential developments, many of which have significant numbers of second home residences, represent properties that Other U.S. purchasers are more likely to buy. Of the Wayne County municipalities that represented the greatest numbers of deed transfers with an Other U.S. grantee zip code during Study Periods Eight and Nine, all (top six) contain large residential developments. Whatever the case may be, the numbers show that large residential developments contain properties involved in a marked number of deed transfers with an Outside U.S. grantee zip code and this has led to the spike in total transfers for this region illustrated in the graphs on **pages 3 and 4**.*

## **Conclusion**

Increases in deed transfers from Study Period One through Seven may be representative of the housing market across the country until the recent decline. The recent downturn in the market has been described often and the year 2005 has been used when identifying the apex of the market's curve. Lawrence Yun, Chief Economist for the National Association of Realtors (NAR) noted in a commentary on April 24<sup>th</sup>, 2008 that new home "Sales are down 37 percent from a year ago and down by close to 60 percent from peak activity in 2005." <sup>1</sup> Existing single family and condo home sales data from the National Association of Realtors <sup>2</sup> also supports this trend. Although the sale of new homes and the sale of land are two different events, they are closely related. Thus the NAR housing data compliments and supports the trends found in this study and sheds some light on a cause of some of this study's observations.

September 11<sup>th</sup>, 2001 affected the amount of deed transfers in Wayne County, Pennsylvania with a NYC grantee zip code by increasing them. This can be seen by looking at the amount of transfer records tallied during the period prior to and the period following this date in addition to the percentage of total transfers recorded during this time. The noted increase, although marked in and of itself, occurred during a period of overall deed transfer increases across all zip code regions. The September 11<sup>th</sup> increase experienced by the NYC zip code region stands out, but the event's direct effect could not be completely isolated from the overall increases in Wayne County deed transfer activity observed in transfer records from 1998 to 2005.

Common knowledge tends to lean towards the identification of September 11<sup>th</sup>, 2001 as a marker for emigration of NYC residents to the surrounding, less-urban areas, in this case, Wayne County, Pennsylvania. **Observation three** supports this by showing a large increase in Wayne County deed transfers and percentage of total transfers with a NYC grantee zip code between the study periods prior to and the study periods following

September 11<sup>th</sup>. More localized common knowledge also tends to identify this date with an increasing number of NYC expatriates occupying rural areas since September 11<sup>th</sup>, 2001. The short-term nature of **observation three** does not support this as the noted increase in NYC grantee zip code transfers was caught within the wave of **observation two**, watering down some of the effect on overall deed transfer activity it may have had.

Although the term emigration has been used, this out migration was not truly monitored during, and falls outside the scope of, this study. For estimation purposes, emigration or immigration data could be a logical extension of deed transfer data but transfer records cannot be a substitute for true emigration and immigration data. The limitation lies with the nature of a deed transfer being a transfer of property ownership alone. Deed transfers do not take into account situations where a landowner from one area moves to another property they own in another area (ie: second home conversion to a full time residence), or where an individual from one area buys land in another and does not move there, or where a family moves to a new area but rents their home. These situations would all affect population shifts and cannot be accurately determined from deed transfer records.

Despite its shortcomings however, deed transfer records are and were useful in evaluating and understanding the observations related to land ownership in Wayne County, Pennsylvania presented here. Describing and identifying these trends is beneficial for all stakeholders as planning issues are bound to arise when demographic changes occur. The connections these observations have to national events (September 11<sup>th</sup>, 2001) and trends (current housing market) illustrate how a comprehensive evaluation of a situation is necessary for the myriad of issues we face that are not constrained by political boundaries. This brings to light how local and regional perspectives can be connected and often overlap.

<sup>1</sup> [http://www.realtor.org/research/commentary\\_quick42408.html](http://www.realtor.org/research/commentary_quick42408.html)

<sup>2</sup> [http://www.realtor.org/Research.nsf/files/EHS.pdf/\\$FILE/EHS.pdf](http://www.realtor.org/Research.nsf/files/EHS.pdf/$FILE/EHS.pdf)

## Methodology

Before any sorting occurred, deed transfer records for the ten-year study period totaled approximately 50,000. Included in these records were deed transfers between the same person or group, people living at the same address, and transfers where the grantee was a corporate entity. Through an extensive selection process, transfer records such as these were identified and removed from our data set leaving us with a total of 27,532 records. The idea was to remove transfers that did not involve the possible movement of people, thus creating a data set that identified potential demographic trends as accurately as possible.

After the above-mentioned selected removal, each record of the data set was classified by grantee zip code and study period to allow for sorting. Grantee zip codes were compared with the zip codes found in the specific regions that were delineated. Transfer records were then classed one through seven depending on which region the grantee zip code from that record fell into. The following are the seven zip code region descriptions.

*Zip Code Region One*, Pennsylvania, was the state of Pennsylvania (PA).

*Zip Code Region Two*, the Greater New York City (NYC) Metro Area (may be referred to as NYC Metro Area or NYC), was the combination of the Nassau - Suffolk, NY and the New York - White Plains - Wayne, NY - NJ Metropolitan Divisions of the New York City Metropolitan Statistical Area (MSA) as described by the U.S. Census Bureau.

*Zip Code Region Three*, New Jersey minus NYC (NJ minus NYC or NJ), was the area of New Jersey left over when Region Two was subtracted.

*Region Four*, New York minus NYC (NY minus NYC or NY), was the area of New York remaining when Region Two was removed.

*Zip Code Region Five*, New England, matched the New England division of the Northeast Census region.

*Zip Code Region Six*, Other U.S. (Other), contained all of the United States not included in Regions One through Five. Region Six also included Puerto Rico and other U.S. territories and U.S. Armed Forces in Europe and the Pacific. Unless otherwise noted, this description will be used for the Other U.S. zip code region. In some instances a combination of regions will be used to represent the "Other U.S." and in these cases a notice will be provided.

*Region Seven*, Outside U.S. (Outside), was planet Earth excepting Regions One through Six.

Transfer records were further classified and sorted by yearly study period. Each study period ran from September 12<sup>th</sup> to September 11<sup>th</sup> of the following year. This range of dates was chosen in an attempt to identify any influence September 11<sup>th</sup>, 2001 had on deed transfers in Wayne County. Records were classed one through ten depending on which study period the date of the deed transfer occurred on. *Study Period One* ran from September 12<sup>th</sup>, 1998 to September 11<sup>th</sup>, 1999 and each subsequent study period followed suit up to *Study Period Ten*, which ran from September 12<sup>th</sup>, 2007 to September 11<sup>th</sup>, 2008.

ESRI® ArcMap™ 9.2(3) was the GIS software package used for data analyses. ESRI zip code data was used to represent individual zip code boundaries and points where P.O. Box zip codes were located. When a grantee had a zip code that was missing from the ESRI data, this record was placed into the nearest zip code or in the case of P.O. Box zip codes, was placed into the zip code whose boundary enclosed the P.O. Box location. In some deed transfer records a zip code was only listed by name and did not list a numerical zip code for the deed's grantee. In these instances the zip code was given the five-digit code that the U.S. Postal service attributed to the name.

If only a name was given for a zip code with multiple five-digit zip code choices (common in urban areas), the five-digit code used was the one that represented the first non-P.O. Box zip code listed numerically.

Geoprocessing tools were used to create zip code region boundaries. In cases where entire states were used as zip code regions, the state boundary doubled as the regional boundary. Since zip code boundaries do not cross state boundaries, selecting zip codes by their state field identified those from that region. When a zip code region contained multiple states, the same selection method was used and a merge of the individual states or a selection then dissolve created the zip code regional boundary.

For Zip Code Regions Two, Three, and Four, a U.S. county data set was used to create the boundaries and to select the zip codes within them. The Census Bureau divides divisions of Metropolitan Statistical Areas by county so for Region Two, each county involved was merged together to create the zip code region boundary. For Regions Three and Four, each county in their respective state, not included in Region Two, was merged together to create the boundary. Since zip codes do cross county boundaries, a select by location was used to select each zip code that had its centroid within these zip code region boundaries.

As zip codes were identified with their respective zip code region they were coded to match the classification scheme mentioned on *page 10*. To match a deed transfer record, based on the grantee zip code, with a zip code region, a join was used. Deed transfer records (tabular data) were joined to the zip code boundary data (spatial data). This brought together the deed transfer records (which contained the study period classification) with the zip code boundary data (which contained the zip code region classification). The resulting joined attribute table was exported and contained each deed transfer record classified according to study period and zip code region.

This table served as the basis for much of the study's evaluation. It was summarized and exported into numerous tables that described deed transfer totals by zip code region and study period. These tables were then joined to the zip code boundary data to create maps showing zip code boundaries by quantity of deed transfer.

When deed transfer records were obtained, the listed grantee zip code reflected the zip code from the deed's certified address. This address is found at the end of a deed and indicates where tax bills are to be sent. For the purposes of this project, a more appropriate zip code to use would have been the one found in the grantee's actual address at the time of the transfer (found near the beginning of a deed). To justify this, each transfer record that contained a grantee zip code serving Wayne County, Pennsylvania was checked against a copy of the deed. If the grantee zip code listed in the transfer records (from the certified address) matched the grantee zip code during the time of the transfer then no change was needed but when the zip codes were different, the transfer records were updated with this new zip code. This process resulted in a data set that more accurately showed where a grantee was purchasing a piece of property from.

Only those transfers with grantee zip codes serving Wayne County were individually checked in this manner. Transfer records with a grantee zip code serving Wayne County, Pennsylvania totaled 9,062 (after this review) and the update process changed the zip codes of approximately 25% of the transfer records checked. It seems significant but the changes did little to alter the overall trends of deed transfers over the ten-year study period. The goal of this quality control procedure was to see if a discrepancy between the two addresses dramatically changed the results of the study, which they did not, and to increase the accuracy of deed transfer records with a Wayne County grantee zip code.

All graphics were created through the synergy of ESRI® ArcMap™ 9.2(3), Microsoft® Excell 2000, Microsoft® Paint Version 5.1, and Microsoft® Word 2000.

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