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Gateway Greening Community Garden Areas, Reversing Urban Decline

The City of Saint Louis faces a number of challenges in maintaining and promoting strong neighborhoods and the last census identified a number of concerns. One significant concern is the population of Saint Louis City decreased by nearly 50,000 inhabitants between 1990 and 2000. At the same time the number of housing units decreased by 18,500. Overall the percent of occupied housing slightly decreased while the percent of owner occupied housing slight increased. In such a context, community and neighborhood strength is quite a challenge.

Methodology

This study for Gateway Greening focuses on 54 of the gardens it sponsors. To examine the relationship between community gardens and their immediate neighborhood, the Public Policy Research Center at the University of Missouri-St. Louis gathered census data from 1990 and 2000 regarding occupancy rates, owner occupancy rates and rents as a percentage of income. While Gateway Greening has over 100 gardens in its program, the number of gardens examined in this analysis was limited by the ability to reliably place the gardens using Geographic Information Systems (GIS) software and to reliably gather Census data for the surrounding area.

One challenge to evaluating community gardens is defining the area of their impact and then collecting data for that specific area. As such, one must examine data from a small area of geography. This can be difficult due to the definitions of geography created by the

Bureau of Census. The smallest level of analysis released publicly is the Block Group. Block Groups' boundaries are small enough that while some gardens may be contained well within one, many gardens will impact more than one Block Group. The next highest level of data released is the Census Tract. Census Tracts are large enough that one cannot reasonably expect a garden located in one to impact the entire Tract.

To overcome these issues, the Center used GIS software to locate each garden on an electronic map and drew a .3-mile circle around the garden. Any 1990 Block Group that fell within that radius was then included as a part of the garden's expected area of impact. The Center staff extracted data from the relevant Block Groups and combined it to offer a snapshot of the neighborhood surrounding the garden. For this report, the extracted Block Groups within .3 miles of a garden are referred to as garden areas. This is an imperfect solution given some Block Groups will be more affected by the gardens than others, but given the organization of Census data, it is by far the best measure available.

The 1990 and 2000 Censuses were significantly different in how Block Group boundaries were drawn. To compensate for this, the Missouri Census Data Center provided the Public Policy Research Center staff with a Block Group correlation file to most closely match Block Groups from the 1990 Census to the 2000 Census. Center staff ran this file and data from the correlated 2000 Census Block Groups were extracted.

Given the strong identity that neighborhoods have in Saint Louis City, the Center staff would have preferred to compare the local data for each garden to the data for the neighborhood in which it resides. To understand the data for each garden, one needs to compare how the immediate surroundings of each garden compare to an area that is comparable, but not directly impacted by the existence of the garden. In a city undergoing dramatic demographic change positive increases in the rate of occupancy or home ownership may be desired, but unrealistic given the larger demographic trends. In such cases, the data for a garden's immediate area should be compared to the larger area it resides in to determine the impact compared to the areas of the city most like where the garden resides.

The US Census Bureau does not release data at the neighborhood level though, and Saint Louis City officials have yet to release their breakdown of 2000 Census data at the neighborhood level. The next logical choice is to use Census Tracts. Census Tracts are the next lowest geographic level of data released by the Census Bureau after the Block Groups. Census Tracts do not relate to the neighborhoods

in Saint Louis City, but are generally compact and relatively consistent areas.

To locate the census Tract, Center staff identified the 1990 and 2000 Block Groups and the Tract in which they were located. In some cases only one Tract surrounded the relevant Block Groups, but in others, 2 or more census Tracts were contained within the immediate garden area. In those cases, one Tract was selected to represent the larger geographic area. To do this, Center staff determined the Tract in which the majority of the Block Groups were located and chose that Tract to be the comparison. In a few cases, the number of Block Groups was equal and in those cases Center staff chose the larger percentage of population. This was done in cases where gardens were located in areas with less immediate residential surroundings. Given the larger population area is likely to be the area of interest, this most closely followed the goals of the research.

New Variables

Median Gross Rent

In 51 of the 53 cases, the immediate garden area rents increases more than in the tracts as a whole. One of those was by less than a dollar and should be considered even with the larger Tract. Two more garden areas increased rents by less than \$10 per month and the other 48 cases increased by more than \$10 per month. This is the most dramatic change observed in the data evaluating the areas immediately surrounding the gardens.

Table 1. Median Gross Rent Change

	2000 Garden Areas	2000 Tracts	Citywide 2000
Mean Increase in Median Gross Rents	\$113	\$0	-\$4
Median Increase in Median Gross Rents	\$91	\$3	N/A
Range	-\$81- \$531	-\$71- \$103	N/A

In Saint Louis City, overall median gross rents fell \$4 between 1990 and 2000, and in the Tracts surrounding the gardens there was no change in rents. The areas immediately surrounding the gardens saw a median increase of Median Gross Rents of \$91 and average increase of \$113. Rents charged in areas immediately around the gardens are significantly higher than the surrounding tracts and in the City as a whole. The areas directly around the gardens have increased what people are willing to pay at a greater amount than in the larger Tracts

and city as a whole.

Monthly Costs for Owner-Occupied Units with Mortgages

The Census measures monthly housing costs by including mortgages, taxes and maintenance costs into one measure, but primarily the measure is one of the expense of a mortgage. The results between the immediate garden areas and the Tracts are do indicate higher increases on average in the immediate garden areas compared to the surrounding Tracts. In 30 of the immediate garden areas owner costs increased indicating a rise in value for housing units in the immediate garden areas. While there were a number of Tract that did better than the immediate garden areas, overall both the median and mean of increases in owner costs in the immediate garden areas was greater than in the Tracts as shown in Table 2.

Table 2. Median Monthly Costs for Owner Occupied Units with a Mortgage

	2000 Garden Areas	2000 Tracts
Mean Increase in Median Owner Costs with A Mortgage	\$314	\$198
Median Increase in Median Owner Costs with a Mortgage	\$295	\$207
Range	-\$410 - \$1119	-\$186 - \$608

Home values and costs increased in the immediate areas surrounding gardens more than in the Tracts. People are willing to invest in their homes in areas directly surrounding the gardens than are people in the Tracts surrounding the garden areas.

While the Census does collect information on home valuation, people tend to be more accurate in recalling their monthly costs than they are at providing an accurate value of their home. The one disadvantage is that long-term residents often have paid off their mortgages.

Median Household Income

Median Household Income increased citywide by \$1770. In the garden areas that increase was on average \$6440 between 1990 and 2000 while the surrounding Tracts recorded an increase in Median Household Income on average of \$2588. Median increases of the Median Household Income reported demonstrate a similar pattern as

shown in Table 3.

Table 3. Increase in Median Household Income from 1990 to 2000

	2000 Garden Areas	2000 Tracts	Citywide 2000
Mean Increase in the Median Household Income	\$6440	\$2588	\$1770
Median Increase in the Median Household Income	\$6712	\$1730	N/A
Range	-\$16550 - \$18856	-\$5025 - \$14592	N/A

While gardens are unlikely to increase Household Income by themselves, clearly the areas directly surrounding the gardens are attracting households with incomes increasing above the average for the city and the surrounding Tracts.

Poverty Rate

The overall poverty rate in the city was constant between 1990 and 2000, while both the garden areas and the surrounding tracts experience a slight decrease, with the tracts surrounding garden areas actually having slightly more of a decrease in the median rate. Gardens are almost evenly split between doing better than surrounding tracts and doing less well.

Table 4. Median Poverty Rates 1990 - 2000

	1990 Garden Areas	2000 Garden Areas	1990 Tracts	2000 Tracts	Citywide 1990	Citywide 2000
Median Poverty Rate	32%	29%	34%	27%	25%	25%
Range	5% - 75%	4% - 59%	8% - 73%	5% - 65%	N/A	N/A

Gardens should not exhibit much of an influence on the poverty rates in a given area, but poverty rates do provide three important pieces of information. First, the gardens are placed in diverse neighborhoods from low poverty areas to high poverty areas. Next, poverty rates provide a context for the starting point of a neighborhood for one to judge the beginning social conditions before gardens were cultivated. Third, it provides a context giving the neighborhood change. While the city as a whole had a constant poverty rate, there is a slight improvement in poverty rates in both the Tracts and garden areas, even though both categories have a median poverty rate above the citywide poverty rate in 1990 and

2000.

It is important to note that the Census measure for unemployment is highly correlated to the poverty rate and presenting that figure would be repetitive. The Census measures unemployment differently than does the Bureau of Labor Statistics by using a broader definition of who fits in the unemployed category.

Population Change

In 37 of the 53 studied gardens the immediate garden areas maintained a higher percentage of its 1990 population in 2000. The City of Saint Louis maintained 87 percent of the population in 2000 that it had in 1990. The median Tract population percentage in 2000 compared to the 1990 population is 88 percent. This is compared to the areas nearest the gardens that have a 2000 population that is 94 percent of the 1990 population. The population loss in the areas immediately surrounding the garden was less than in the city as a whole and in the surrounding tracts.

Table 5. Median 2000 Population as a Percentage of 1990 Population

	2000 Garden Areas	2000 Tracts	Citywide 2000
Median 2000 Population as a Percentage of 1990 Population	94 %	88 %	87 %
Range	25 % - 310 %	59 % - 106 %	N/A

One should notice the Median is used in this case so as not to weight outlying observations. The area experiences a 310 percent increase in population is probably affected by changes in block group boundaries from 1990 to 2000. Given that Census boundaries at the block group level changed significantly between 1990 and 2000, reliably measuring population changes is difficult. Swings in that population are especially likely at the block group level and they are present as the range is shown in Table 5

Population itself is not likely to be directly affected by the existence of a garden, but again, it gives a better understanding of the neighborhood's characteristics. One important element of understanding the effects of a garden is to understand what facilitates a garden. By looking at poverty and population changes, one is able to examine what underlying conditions are likely to be conducive to a garden being established.

Occupancy Rates

Table 6. Occupancy Rates in Garden Areas and Surrounding Census Tracts

	1990 Garden Areas	2000 Garden Areas	1990 Tracts	2000 Tracts
Mean Occupancy	79 %	78 %	80 %	79 %
Range	60 - 96 %	54 - 94%	64 - 93 %	61 - 92 %

Comparing the results to the entire city, gardens areas and Tracts tend to have slightly lower occupancy rates than the city as a whole. In 1990 the occupancy rate for Saint Louis City was 84.6 percent, which fell to 83.4 percent in 2000. Given garden areas are slightly below the city average of occupancy, Center staff would normally expect those areas to be hit hardest by continuing demographic challenges. It appears that garden areas did slightly better than the city as a whole as well as the surrounding Census Tracts in the 10 year period.

Previously Reported Variables

Owner Occupied Housing Units

An important indicator of the health of a neighborhood is the rate of home ownership. The Census measures home ownership through the number of households that are owner occupied as a proportion of total occupied housing units. It is in this category that the greatest difference is observed between the garden areas and the surrounding census tracts. Forty-four of the garden areas did better in the ten-year period, improving home ownership than the surrounding Census Tracts. Eight did slightly worse, and two performed the same. Areas directly around the gardens saw higher increases in home ownership rates than did the Census Tracts as a whole. More importantly, only three areas directly surrounding a garden reduced the rate of home ownership between 1990 and 2000. This is in contrast to 10 Census Tracts in which the gardens reside where there was a reduction in the rate of home ownership.

Citywide the rate of owner occupancy increased by 1.8 percent. The 2000 Citywide rate of owner occupancy was 47 percent. Amongst the garden areas, Table 7 demonstrates the average rate of home ownership has increased from 23 percent in 1990 to 36 percent in 2000. The median rate increased from 21 percent to 37 percent. In comparison, the Census Tracts in which the gardens reside had an average increased in owner occupancy from 34 percent owner

occupied units to 35 percent. The median increase in the Census Tracts was 34 percent to 37 percent. By all measures, areas surrounding the gardens improved far more than the city as a whole or the Census Tracts in which they reside. While they are still behind the overall rate of owner occupancy for the city, the garden areas have dramatically improved the rate of owner occupancy in their immediate areas.

Table 7. Mean Owner Occupancy 1990 - 2000

	1990 Garden Areas	2000 Garden Areas	1990 Tracts	2000 Tracts	Citywide 1990	Citywide 2000
Mean Owner Occupancy	23 %	36 %	34 %	35 %	45 %	47 %
Range	0% - 70%	3% - 76%	1% - 100% ¹	3% - 68%	N/A	N/A

¹This is an artifact of the Tract and Block Group selection method. The next highest percent is 69 percent. The number has been included for accuracy, but given none of the other Tracts approached it, readers are cautioned to treat it as an outlier.

Areas directly surrounding gardens have experienced a slightly higher number of housing units being taken out of use during this period than the Tracts as a whole, but the number of housing units taken out of the market should have produced a similar, if lower increase in owner occupancy at the Tract level if this was the only factor driving the improvement. Ultimately, the areas directly surrounding the gardens have increased the proportion individuals invested in the vitality of the neighborhood more than the surrounding tracts.

Mortgaged Owner Occupied Units

Whether an owner occupied unit is mortgaged is less clear of an indicator. If one expects that a more people are investing in the neighborhood, one should expect that mortgaged units increase as a proportion of owner occupied units. On the flip side one might expect that fewer units with mortgages is a good sign because it points to neighborhood stability amongst property owners. In this case, garden areas have decreased on average the number of units with mortgages between 1990 and 2000. The Census Tracts surrounding garden areas have increased however as shown in Table 8. This data would indicate that areas surrounding gardens are more stable. As residents stay longer in an area and pay off their home

loan, the number of mortgaged properties would decrease.

Table 8. Percent of Owner Occupied Units with a Mortgage

	1990 Garden Areas	2000 Garden Areas	1990 Tracts	2000 Tracts
Mean Mortgage Rate	50%	42%	35%	45%
Median Mortgage Rate	50%	45%	34%	45%

Another manner in which to approach the question is to consider whether the prices of homes are increasing in an area. The statistic as gathered by the Census is generally not that reliable and therefore not included. Other sources of data, such as the Home Mortgage Disclosure Act, only provide information at the tract level. Another problem crops up in areas where houses are being rehabbed. Home sales figures and valuations often do not take into account sweat equity for owners that an area with an aging housing stock often requires. Sale prices do not necessarily reflect value at the geographic levels being examined.

Rental Units as Percentage of Household Income

Rent as a percentage of income measures how affordable housing is to occupants. In the case of the garden areas and surrounding tracts the percentage of household income consumed by rent is broadly within each Census classification as Table 9 demonstrates. Typically, affordable housing is considered housing that consumes less than 30 percent of household income. Between 1990 and 2000 the percentage of households in the Census Tracts surrounding gardens that paid over 30 percent of household income to rent was constant, while the garden areas themselves significantly reduced the percentage of household paying over 30 percent of household income. This is indicative of increasing diversity economically amongst renters.

Table 9. Median Percentage of Renters Paying A Specified Proportion of their Income as Rent

	1990 Garden Areas	2000 Garden Areas	1990 Tract	2000 Tracts
19 %of Income or Less	26 %	58 %	38 %	32 %
20 to 24 % of Income	13 %	5 %	9 %	11 %
25 - 29 % of Income	9%	7 %	12 %	11 %
30 - 34 % of Income	9%	5 %	9 %	7 %
35 %of Income or More	39%	23 %	38 %	40 %

This trend demonstrates an increasing diversity in the type of residents occupying areas directly surrounding gardens. While it is important not to generalize too much, increasing diversity amongst renters is generally seen as a strength for a neighborhood. When a high proportion of renters are economically strapped neighborhoods often are challenged with a number of problems stemming from concentrated poverty. More economically integrated neighborhoods stem those problems and so greater diversity is generally a positive development.

In Process Variables

Working with Census data at the Block Group and Tract Level is a slow process. In this case it is complicated due to gardens being located on the border of Block Groups and Census Tracts, thus requiring Center Staff to determine how to weight the Block Groups within .3 miles of the community garden.

One significant set of variables that have not been fully analyzed concerns the range of rents and mortgage payments broken down into categories. These variables are an important aspect of understanding how diverse housing is within the area of a garden. Gardens are used to strengthen neighborhoods and achieving a strong diverse rental and owner base is critical to neighborhood stability. These variables are currently being processed and extracted from general Block Group files and converted into properly weighted data that is consistent with the Block Groups surrounding each garden.

Other variables that are being extracted currently include Housing Unit valuations and the length of time in the particular residence.

Further Evaluation

Currently, the City of Saint Louis is extracting Census data and assigning it to the appropriate neighborhood. While they are unable to provide a specific date at this time, late spring is the expected availability date. Once this data is available, Center staff will be able to provide far more intuitive comparisons between the areas immediately surrounding gardens and neighborhoods that individuals can understand far better than Census Tracts.

Finally, several gardens in the study are not currently geographically identified well enough to assign Block Groups and Tracts for comparisons. There are a number of reasons this is the case. Some gardens are located so as to not be in Block Groups that have large enough populations from which to collect Census Data. In other cases, the Census Data is incomplete due to Census regulations concerning privacy. And in a few cases, the Gardens were unable to be matched to an address suitable for analysis. Center Staff expects to be able to manually place these gardens and then choose the appropriate Tracts and Block Groups for comparisons.
