

GREENWAY PARADOX

Effects of the Somerville Community Path Extension on Adjacent Neighborhoods

INTRODUCTION

BACKGROUND

Greenways are an increasingly common urban development tool for cities as economic drivers and active transit facilitators. These corridors have various benefits as they add an ecological, social, and economic asset to a community. However, the addition of greenways has also been proven to alter other demographic factors including increasing adjacent rental rates and changing neighborhood racial and income composition. These trends contribute to a more socially and economically inequitable urban landscape in American cities.

SOMERVILLE COMMUNITY PATH EXTENSION

This project analyzes the specific demographic effects Somerville Community Path extension phase between Cedar Street and Lowell Street. The Somerville Community Path (SCP) is a two-mile rail-to-trail project that is the eastern end of the existing 104-mile Mass Central Rail Trail and Minuteman Bikeway. Originally constructed in 1830, the path sits on the abandoned Lexington & Arlington Railroad and the New Hampshire Railroad. The SCP connects Alewife Station to Davis Square and then continues to Lowell Street. Currently, the path is divided into three subsections: the first, constructed concurrently with the Red Line Extension in 1984, runs from Alewife station to Davis Square, the second, constructed in 1992 connects Davis Square to Cedar Street, and the third, recently completed in 2015, connects Cedar Street to Lowell Street. The development path is not finished, however, and the future phases of the path are planned on being constructed concurrently with the \$2.3 billion Green Line Extension (GLX) light rail project.¹



Image Sources: Lydia Collins, April 2017

METHODOLOGY

To situate the Somerville Community Path Extension within the larger trend of greenways as signifiers of neighborhood change indicators, I analyzed two different buffer zones- a quarter-mile and a half-mile buffer zone around the path. This technique is used by other greenway studies to measure how much proximity to the path effects demographic shift.² I also used Kernel density to visualize the correlation between the path and property values, property improvement values, and sale values.

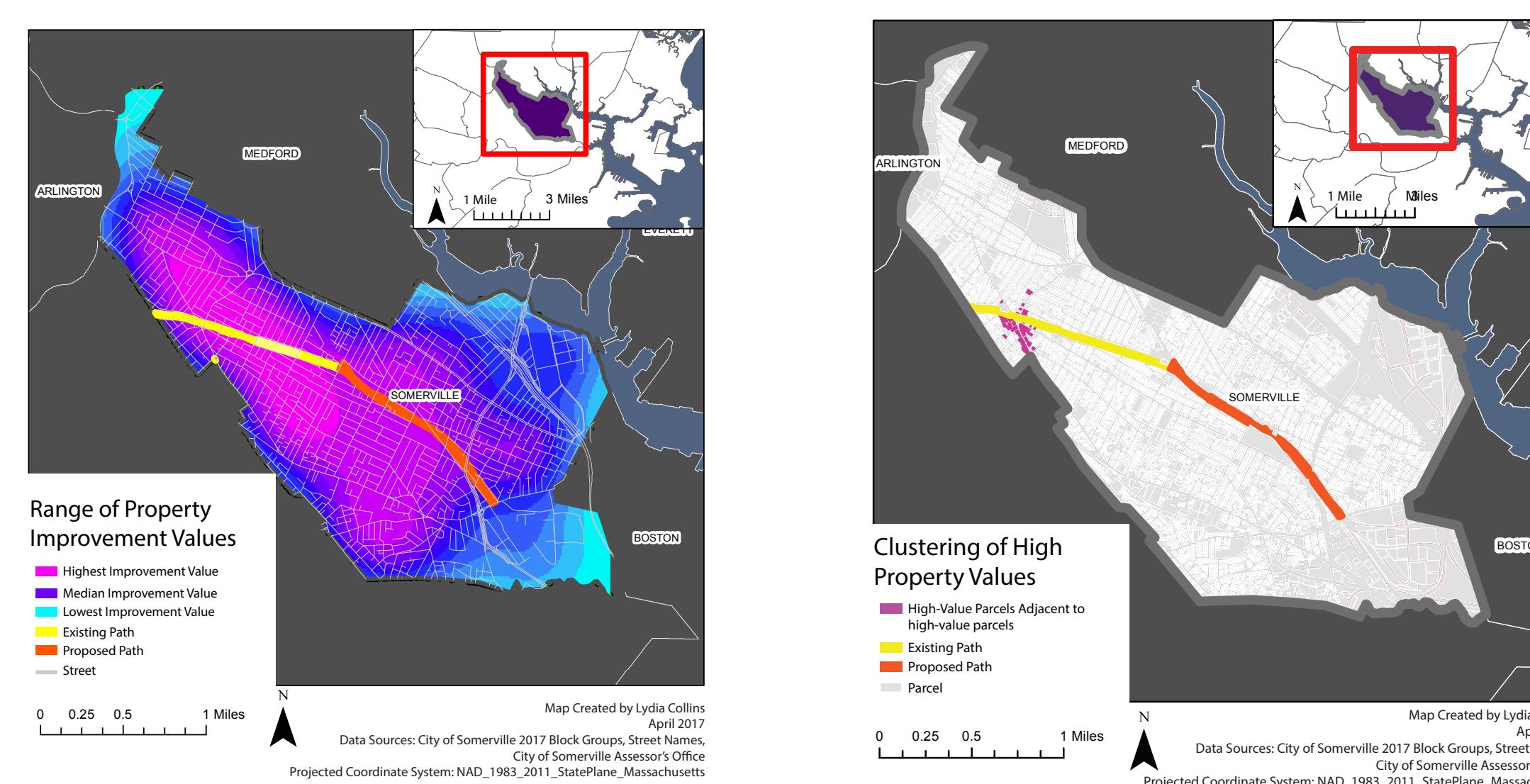
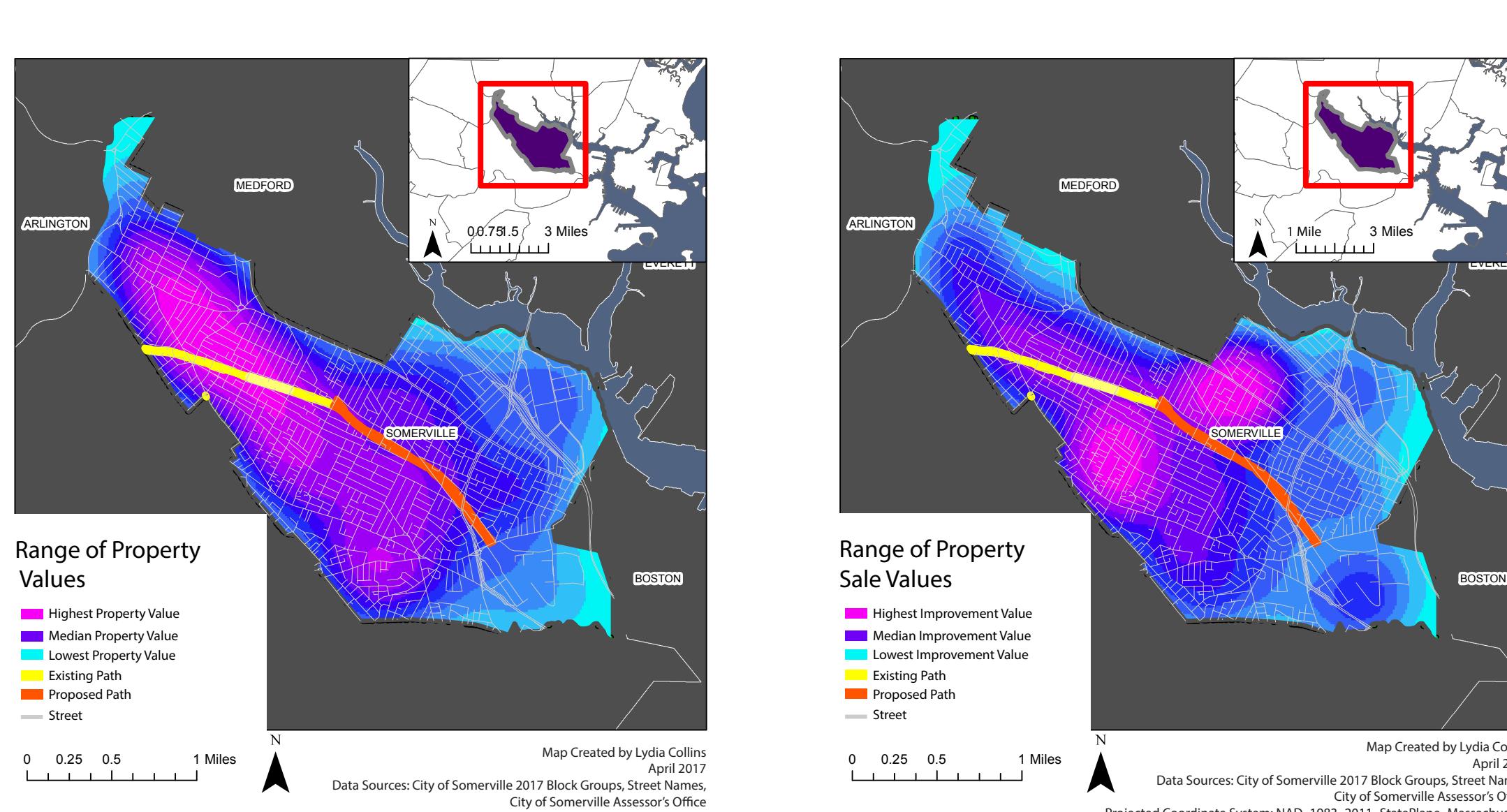
The buffer zones were created by clipping the TIGER Massachusetts state block group data to the Somerville boundary and then using the buffer tool in ArcMap to create buffer zones. I then perform a spatial join to add demographic data to the buffer zone vector layers. When the demographic data was in the attribute table of the buffer vector layers, I use the Summarize tool to find the mean of that specific data set. I then compared the demographic results in the two buffer zones with the City of Somerville demographic statistics as a whole to see if change can be attributed to the path and not just city-wide trends. Block group-level data was accessed from US Census TIGER files. To stay consistent with these regional standards, the demographics I map are educational level attained by the residents over 25, number of individuals below the poverty line, non-White population, Latino or Hispanic population, median gross rent, and median household income.³ This data is from American Fact Finder estimates.

I also look at two different time periods to gauge the "announcement effect" of the path. This tracks the possibility that the announcement of a project has effect on surrounding housing demographics. I mapped the change of these measures at three points in time: first, in 2000 for control data; second, at ground breaking in 2013; and third, in 2015-the year when the path opened.

Finally, I also used parcel-level data accessed from the City of Somerville Accessor's Office to understand property value patterns in relation to the path. I used Kernel density to visualize the correlation between the path and property values, property improvement values, and sale values. These maps were built using feature to point and then performed Kernel density to build these maps. The final analysis was using Local Moran's I to see if there is clustering of high-high property values near the path.

REFERENCES

- Report to the MBTA Fiscal and Management Control Board and the MassDOT Board of Directors' Green Line Extension Project Interim Project Management Team, May 2016.
- Immergluck, Dan. "Large redevelopment initiatives, housing values and gentrification: the case of the Atlanta Beltline." *Urban Studies* 46, no. 8 (2009): 1723-1745.
- Reardon, Tim., Clay Martin, and Jessie Partridge. "Dimensions of Displacement." *Metropolitan Area Planning Council*. February 2014.



Median Gross Rent

Year	Median Gross Rent (in 2015-adjusted dollars)		
	1/4 Mile Buffer	1/2 Mile Buffer	City-wide
2000-2013	\$941	\$937	\$919
2000-2015	\$1,1550	\$1,547	\$1,461
2013-2015	\$1,662	\$1,667	\$1,543

Source: Author's analysis, April 19, 2017.
US Census 2000 Bureau, American Community Survey 5-Year Estimates 2010-2014

Year	Median Gross Rent % Change (in 2015-adjusted dollars)		
	1/4 Mile Buffer	1/2 Mile Buffer	City-wide
2000-2013	65% increase	65% increase	59% increase
2000-2015	77% increase	73% increase	68% increase
2013-2015	12% increase	8% increase	9% increase

Source: Author's analysis, April 19, 2017.
US Census 2000 Bureau, American Community Survey 5-Year Estimates 2010-2014

Median Household Income

Year	Median Household Income (in 2015-adjusted dollars)		
	1/4 Mile Buffer	1/2 Mile Buffer	City-wide
2000	\$73,447	\$74,201	\$66,856
2013	\$88,822	\$77,785	\$71,811
2015	\$89,534	\$82,085	\$76,889

Source: Author's analysis, April 19, 2017.
US Census 2000 Bureau, American Community Survey 5-Year Estimates 2010-2014

Median Household Income % Change (in 2015-adjusted dollars)

Year	Median Household Income % Change (in 2015-adjusted dollars)		
	1/4 Mile Buffer	1/2 Mile Buffer	City-wide
2000-2013	11% increase	5% increase	8% increase
2000-2015	19% increase	11% increase	15% increase
2013-2015	7% increase	6% increase	7% increase

Source: Author's analysis, April 19, 2017.
US Census 2000 Bureau, American Community Survey 5-Year Estimates 2010-2014

Share of Non-White Residents

Year	Racial Demographics: Non-White Residents (% of total population)		
	1/4 Mile Buffer	1/2 Mile Buffer	City-wide
2000	5%	4%	5%
2013	5%	6%	9%
2015	7%	7%	9%

Source: Author's analysis, April 19, 2017.
US Census 2000 Bureau, American Community Survey 5-Year Estimates 2010-2014

Racial Demographics Change: Non-White Residents

Year	Racial Demographics Change: Non-White Residents		
	1/4 Mile Buffer	1/2 Mile Buffer	City-wide
2000-2013	No change	Increase of 2%	Increase of 4%
2000-2015	Increase of 2%	Increase of 3%	Increase of 4%
2013-2015	Increase of 2%	Increase of 1%	No change

Source: Author's analysis, April 19, 2017.
US Census 2000 Bureau, American Community Survey 5-Year Estimates 2010-2014

Racial Demographics Change: Latino or Hispanic Residents

Year	Racial Demographics Change: Latino or Hispanic Residents (% of total population)		
	1/4 Mile Buffer	1/2 Mile Buffer	City-wide
2000	5%	4%	5%
2013	5%	6%	9%
2015	7%	7%	9%

Source: Author's analysis, April 19, 2017.
US Census 2000 Bureau, American Community Survey 5-Year Estimates 2010-2014

KEY FINDINGS

- Rent **increased faster** than city-wide average after the newest section opened.
- Renters **pay \$100 more** per month to live within walking distance of the path.
- Median household income is **higher than the city average** by \$12,000.
- Educational attainment **increased** within walking distance while the **city-wide average decreased**.
- The number of residents with Master's degrees **increased by 12%** between 2013 and 2015.
- The number of people under the poverty level is **nearly half** the city-wide average.
- Population of color is **6% less** near the path than the city average.

CONCLUSION

These findings indicate a preference for living near the existing path, an awareness of the future plans of the Green Line Extension, or the effect of the Red Line station in Davis Square. Residents are willing to pay more for access to the Community Path, which is likely very connected to a preference for living near the Green Line Extension and in an overall dense, walkable, and vibrant city.

Without active policy interventions by local planners, community activist groups, and residents, greenways will continue to paradoxically affect neighborhoods and increase stratification of access to green space. Continuing to understand the positive and negative spillover effects of large-scale public investment infrastructure projects such as greenways is integral in maintaining environmentally and socially just cities for all.