

**Demographics and Land Use around Tacoma Farmers' Markets:
Providing Context for Increased Neighborhood Participation**

INTRODUCTION

Farmers' markets are a traditional part of our food landscape (Shakow, 1981), but are perhaps more visible in recent years with the increased popular interest in local food economies and supporting local businesses such as small-scale farmers. Market patrons report a variety of reasons for shopping at farmers' markets, including freshness of food and supporting local farmers' (Eastwood, Brooker, & Gray, 1999; Feagan, Morris, & Krug, 2004). There are over 7,000 farmers' markets nationally, with over 100 in Washington State (USDA, 2010). These markets are diverse in nature: they may be permanent or temporary, year round or seasonal, urban or rural, regional or local, or somewhere in between. The Pike Place Market in Seattle is a nationally-recognized tourist attraction and a historic feature. It operates daily, year round, in a well-established permanent series of buildings. In contrast, many smaller markets are seasonal, comprised of temporary infrastructure (e.g., tents and tables), and serve primarily local residents.

Farmers' markets may be disproportionately patronized by higher socio-economic groups as described by Eastwood et al. (1999) for a number of markets in Tennessee. However, as demonstrated by Shakow (1981) they also can provide a beneficial urban service by providing direct access between urban residents and area farmers for fairly priced fresh food: "...such markets may prove a viable means of mitigating high food costs, and if located, as in Seattle, within a low-income CBD neighborhood, may prove a potential aid to low-income shoppers" (Shakow, 1981, page 77). There is evidence that establishing farmers' markets in areas with limited supermarket access can reduce the supermarket prices for fresh food as well as other items (Larsen & Gilliland, 2009). There can be structural barriers for

market patronage by people with lower socioeconomic status because markets are largely cash operations and can exclude people largely reliant on Electronic Benefits Transactions (EBT) (Jones & Bhatia 2011). Jones & Bhatia (2011) described the successful integration of EBT city-wide at San Francisco farmers' markets and a corresponding response in patronage by EBT users. They point out that in addition to increasing access to fresh food, this program facilitated EBT users' participation in the cultural elements of the markets. Most Tacoma and Seattle farmers' markets have similar programs in place.

In Tacoma there are four markets: Broadway, Sixth Avenue, South Tacoma, and Proctor (Figure 1). The first three are operated by the Tacoma Farmers' Market (TFM) organization and the Proctor Market is independently operated. TFM is planning to add a fourth market, Eastside, with a pilot market planned for later this year. In contrast with Pike Place in Seattle, all Tacoma markets are seasonal (Proctor operates on a reduced schedule in the winter), use temporary infrastructure, and serve a local population (unpublished TFM survey data for Sixth Avenue and Broadway markets). The Broadway and Proctor Markets are well-established, having been in operation since the 1990s. Sixth Avenue and South Tacoma are newer locations established by TFM in 2008 and 2010, respectively.

Unpublished TFM surveys from Broadway and Sixth Avenue locations indicate that 40 to 50 percent of market patrons travel by foot or bicycle to the market, however in the case of Broadway which is a weekday, midday market most of these people are anticipated to be travelling from work rather than home. The TFM surveys indicate that less than 20 percent of shoppers at Broadway live within 1 mile of the market, in contrast with over 30 percent for Sixth Avenue. Based on this perception of low neighborhood participation, this year TFM is making a concerted effort to increase neighborhood participation at all of its markets. TFM has also started accepting SNAP, WIC, and Senior Vouchers via EBT in exchange for cash-value market tokens at each of its locations.

My primary purpose in conducting this project to assist TFM in this effort. I conducted a basic analysis of the demographic landscape around each of the current TFM markets and its proposed Eastside location. I also conducted a simple analysis of land use around these markets. I included Proctor in these analyses for additional context in terms of farmers' markets as a whole within Tacoma.



Figure 1. Farmers Markets in Tacoma, Washington

PLANNING PROCESS

I approached TFM Executive Director Janie Morris early in the winter quarter to discuss whether she had an interest in some kind of demographic analysis related to the TFM markets. Ms. Morris indicated that in fact this was information the market would be very interested in obtaining, particularly with their planned campaign to improve neighborhood attendance and patronage during the 2012 market season.

I initially planned a basic demographic analysis (e.g., income, density) in an area buffered around each existing market location as well as the City at large in order to ask questions about who has access to farmers' markets and who is underserved. However, it has developed more into a study to help the TFM better understand the communities in the surrounding neighborhoods so that they can better engage with them. TFM had direct input in determining the demographic factors addressed in this analysis, including age categories and inclusion of race as a factor. I incorporated some basic land use analysis in order to characterize both the neighborhood service areas and the landscape in immediate proximity to each market location. I also decided to use network analysis rather than buffering to create 5, 10, and 20 minute walking service areas as areal units of analysis around each market. During planning, TFM identified its new Eastside location, so I was able to incorporate it into this analysis as well as the independent Proctor Farmers Market for comparison and additional context for markets within the City.

My methods largely mirror my anticipated work flow with one major exception. Due to data availability and feasibility constraints, I based my Service Area analysis solely on City of Tacoma street layer without incorporating sidewalk presence or barriers and pathways (e.g., uncontrolled/controlled crosswalks). Other minor exceptions include changes in demographic data based on availability (e.g., Ratio of Income to Poverty measure instead Receipt of SNAP Benefit), streamlined Land Use analysis, and adding site-based assessment and land use reclassification at the market (5 minute service area) scale. I initially planned to conduct a short survey about market accessibility as a part of the TFM "Rapid Market Assessment" survey, but TFM decided to postpone their surveys until later in the summer, so I was unable to incorporate information from market attendees into my project.

METHODS

This project was based on three related analyses: service area, demographic, and land use. All spatial analyses were completed using ArcGIS 10, including Network Analyst and Spatial Analyst extensions. All data were incorporated into a single project geodatabase and projected in WA

NAD_1983_HARN_StatePlane_Washington_South_FIPS_4602_Feet. I organized my data in a single geodatabase with feature datasets of each of the three analyses.

My initial project base map included streets, schools and parks, city boundary, and census geographies (point files for block and block groups). I geocoded the five markets locations. All base data, including Tacoma streets data, extended beyond the city boundary. Census geographies were for all of Pierce County.

Service Area

What constitutes a “walkable” distance can be highly variable depending on who is walking and the environment in which they are walking. For instance, although Colabianchi et al. (2007) reported an average “easy” walking time of approximately 15 minutes or 0.75 miles (as cited at 3 miles per hour) for a sample of 900 12th grade girls, they observed significant variation for multiple factors within that population. I used a maximum walking distance of 20 minutes (1 mile) which is consistent with the reporting categories used in the TFM surveys and neighborhood distances reported in the walking literature (Rodriguez, Aytur, Forsyth, Oakes, & Clifton, 2008). In consideration of variability and TFM’s interest in demographics of school aged children and senior citizens, I duplicated the demographic analysis with a 10 minute (0.5 mile) walking distance. I used the smallest walking area, 5 minutes (0.25) mile only for fine scale land use analysis in immediate proximity to each market site.

I used Network Analyst to create these service areas around each market location. The network dataset was created from the Tacoma streets layer and was set to accumulate both distance and time based on an average walking speed of 3 miles per hour (a 20 minute mile pace), equivalent to .25, .5, and 1 mile distances.

Walkability, or what makes a route more or less walkable, can be approached using both quantitative (environmental correlates) and qualitative (walkable versus non-walkable places) methods (Brown, Werner, Aburgery, & Szalay, 2007; Saelens & Handy, 2008). For this project, walkability was based on a single environmental correlate: sidewalk presence. Prior to running Network Analyst, I placed

a 1-mile buffer on each market location in order to review the street layer for sidewalk presence and also problems such as obvious areas of disconnection. In addition to aerial photos, I reviewed a digitized planimetrics layer from the City which included some sidewalks data. Based on this assessment, I felt comfortable that most mapped streets included sidewalks. The major exceptions to this included alleys and apparent rights of way, so I removed these street types by extracting a new streets layer excluding StreetClasses “L” and “Z”, respectively.

I used the Network Analyst service areas to create feature classes for 5, 10, and 20 minute walks classified by market location on which to base the land use and demographic analyses.

Demographic Analysis

I used digital data available through the US Census website either sourced from Census (American Fact Finder, block data) or American Community Survey (Excel-based macro search tool, block group data). All US Census data were from 2010 (AFF, block) or 5-year samples from 2006-2010 (ACS, block group). Spatial data for census geographies were previously downloaded from the US Census TigerLine site. I downloaded all tabular demographic data at either the state or county scale and prepared them for importing into ArcGIS in Excel, including data aggregation as necessary (Table 1). I filtered all tabular data to the county scale before importing it into ArcGIS.

I imported tabular data in ArcGIS and joined it to county scale point geographies. In order to interpolate data around Tacoma city limits, I created a boundary file with a 1-mile buffer and clipped all demographic data to the city scale using that buffer. I normalized demographic data as-needed (Table 1), and interpolated them (IDW, cell size 20) across the city plus 1-mile buffer area. I used the Zonal Statistics by Table to summarize results by service areas for all five markets as well as across the entire city (no buffer). Some data, such as race, required additional calculations in order to make final comparisons (Table 2).

Table 1. US Census and ACS Data Summary

Description	Data Table	Source/Scale	Aggregation	Normalization
Total Population	P1, total population by race	AFF, block	no, D001 (universe)	density (in Arc)
Race (White, Black, Asian, Other)	P1, total population by race (not Hispanic)	AFF, block	yes: aggregation by single race (white, black, asian) and other (aggregation of all other responses) D001 is universe	density (in Arc)
Seniors (65+ years)	P12, total population sex by age	AFF, block	yes, aggregation of both sexes 65 or greater D001 is universe	density (in Arc)
School-Aged Children (5 to 12 years)	P12, total population sex by age	AFF, block	yes, aggregation of both sexes 5 to 12 D001 is universe	density (in Arc)
Tenure by household (Total Households, Rental Households, Owner Occupied Households)	QT-H2, tenure, household size, and age of householder	AFF, block	yes, aggregate HD03 and HD04 (owner occupied mortgage and owner occupied free and clear) for owner occupied total, HD02 for rental HD01 is universe	total density (in Arc), percent rental rate (in Arc)
Median Income	B19013, median income (12 month)	ACS, block group	no	not needed
Population in poverty	C17002, ratio of income to poverty	ACS, block group	yes, aggregation for under 0.50 and 0.50-0.99; divide by universe for percent below 1 C17002001 is universe	percent (in Excel)

Table 2. Additional Demographic Calculations

Data returned by Interpolation	Further Calculations?	Description
Total Population Density	Yes	Multiply by analysis areas to estimate total population
Total Population Density, by Race (White, Black, Asian, Other)	Yes	Multiply by analysis areas to estimate total population by race, estimate percentage by group.
Population Density of Seniors (65+ years)	Yes	Multiply by analysis areas to estimate total population of seniors, estimate percentage based on total population.
Population Density of School-Aged Children (5 to 12 years)	Yes	Multiply by analysis areas to estimate total population of school-aged kids, estimate percentage based on total population.
Total Households	Yes	Multiply by analysis areas to estimate total housing units.
Percent Rental Households	No	Analysis yields percent rental by area.
Median Income	No	Analysis yields estimated median income (mean)
Percent Poverty by Population	No	Analysis yields percent of population with ratio of income to poverty < 1

Land Use Analysis

I used Pierce County parcel data sourced from the WAGDA website to conduct parcel analysis at two scales: 20 minute service area (coarse scale) and 5 minute service areas (fine scale).

Land Use: 20 Minute

I selected all tax parcels with centroids within the 20-minute service area and extracted them to a new feature class which I reclassified using the Pierce County land use code (Table 3). For each market, I used Select by Location to select all parcels in the 20 minute service area and then ran Summary Statistics to calculate the total parcel area or each reclassified land use type. Within each summary table I used the field calculator to determine percent land use that service area two ways: including and excluding residential areas.

Table 3. Parcel Reclassification for 20 Minute Service Areas

Reclassification	Code	Original Use Codes
Single family residential	res_SFR	1101
Multi family residential	res_MFR	1201, 1203, 01304, 1300, 1305, 1306, 1307, 1401, 1402, 1403, 1404, 1405, 1410, 1440
Residential, other	res_other	1600, 1800, 1840, 1860
Manufacturing and fabrication	mfg_fab	2100, 2300, 2400, 2600, 2700, 2800, 3200, 330, 3400, 3500, 3900
Transportation, utilities, communications	trans_util_comm	4100, 4111, 4500, 4700, 4800, 7900
Commerce (includes wholesale, retail, restaurants, grocery, etc.)	commerce	5020, 5060, 5100, 5200, 5300, 5350, 5360, 5390, 5400, 5410, 5340, 5510, 5515, 5520, 5525, 5530, 5540, 5550, 5560, 5570, 5600, 5700, 5800, 5805, 5820, 5900, 5999
Professional and personal services (includes financial, beauty, medical, legal, auto, etc.)	prof_serv	6100, 6110, 6120, 6199, 6200, 6210, 6231, 6241, 6242, 6300, 6310, 6390, 6400, 6412, 6420, 6500, 6510, 6511, 6512, 6516, 6520, 6600
Government and education (includes private and public education from preschool through university)	gov_edu	6700, 6720, 6730, 6810, 6820, 6830, 6850, 6860, 6870, 6900
Miscellaneous services (includes religious services)	misc_serv	6900, 6910
Recreation and parks (includes public and private facilities)	rec_park	7400, 7420, 7600, 7630, 7900
Vacant	vacant	9110, 9140, 9166, 9170, 9180, 9900
Other	other	0000, 1155, 1197, 7100, 7110, 7200, 7210

Land Use: 5 Minute

I decided that my 5 minute walking areas needed to be further refined to better address likely market pedestrian areas. The Sixth Ave, Eastside, and Proctor markets are located within City-described Neighborhood Business Districts, so I selected parcels within the 5 minute service area and also within those districts. Broadway and South Tacoma markets are not located within Neighborhood Business Districts. Because Broadway is located in a steeply-sloped area of downtown, I limited fine-scale parcel analysis areas within the service area and on streets leading to the market (Broadway, St Helens, and Court C) along relatively flat (North/South) slopes. For South Tacoma I planned to limit the fine-scale parcel analysis areas within the service area and also on streets leading to the market and South Tacoma Way, which is the major arterial in the area. However, during my site visit I observed that a rail line including a rail overpass and sidewalk underpass separate South Tacoma Way from the market. While technically walkable, there was such little connectivity between the two areas that I limited the analysis to areas to parcels with the service area adjacent to 66th Ave or Hood Street and also west of the rail line.

Because fine scale land use analysis is intended to address the pedestrian experience, I further reclassified land use based on ground floor use as observed during my site visit (Table 4). I used Summary Statistics to determine areal coverage for each land use type, but this time ran a single summary using both market and fine scale use as cases in order to generate a single summary table for all five markets. I used the field calculator to determine percent land use two ways.

Table 4. Fine Scale Parcel Use Classifications for 5 Minute Service Areas

Classification	Code
21 and over food, drink, and club venues	bar_tavern_club
Cultural areas (e.g., theaters, museums)	cultural
Government and educational (same as Table 3)	gov_edu
Manufacturing and fabrication (same as Table 3)	mfg_fab
Mixed (parcels with multiple uses, such as restaurant and retail or professional service and bar)	mixed
Parking	parking
Professional and personal services (same as Table 3)	prof_serv
Recreation and parks (same as Table 3)	rec_park
Multi family residential	res_MFR
Single family residential	res_SFR
Restaurant	restaurant

Classification	Code
Retail	retail
Transportation, utilities, communications (same as Table 3)	trans_util_comm
Vacant	vacant
Other	other
For South Tacoma Way parcels east of rail tracks (to exclude)	ignore

RESULTS

Demographics

Population is unevenly distributed both between and within market areas (Figure 2). Sixth Avenue has highest population, closely followed by Broadway; South Tacoma has the smallest relative population (Figure 3).

Broadway and Proctor are at opposite ends of the economic spectrum, with Broadway being economically the most disadvantaged community around a market (Figures 4 – 6). The remaining three communities fairly comparable economically, with Eastside have slightly lower poverty and rental rates than South Tacoma or Sixth Avenue (Figures 4 – 6). Sixth Avenue and South Tacoma are most representative of the City’s average economic status.

Eastside, South Tacoma, and Proctor all have similar relative age compositions and that also are similar to the City-wide composition (Table 5). Broadway has relatively fewer school-aged children, but more seniors; Sixth has fewer kids and seniors. Relative racial compositions are variable as well, with Proctor and Sixth have having fewer non-whites and South Tacoma having more non-whites than the City-wide population (Table 6).

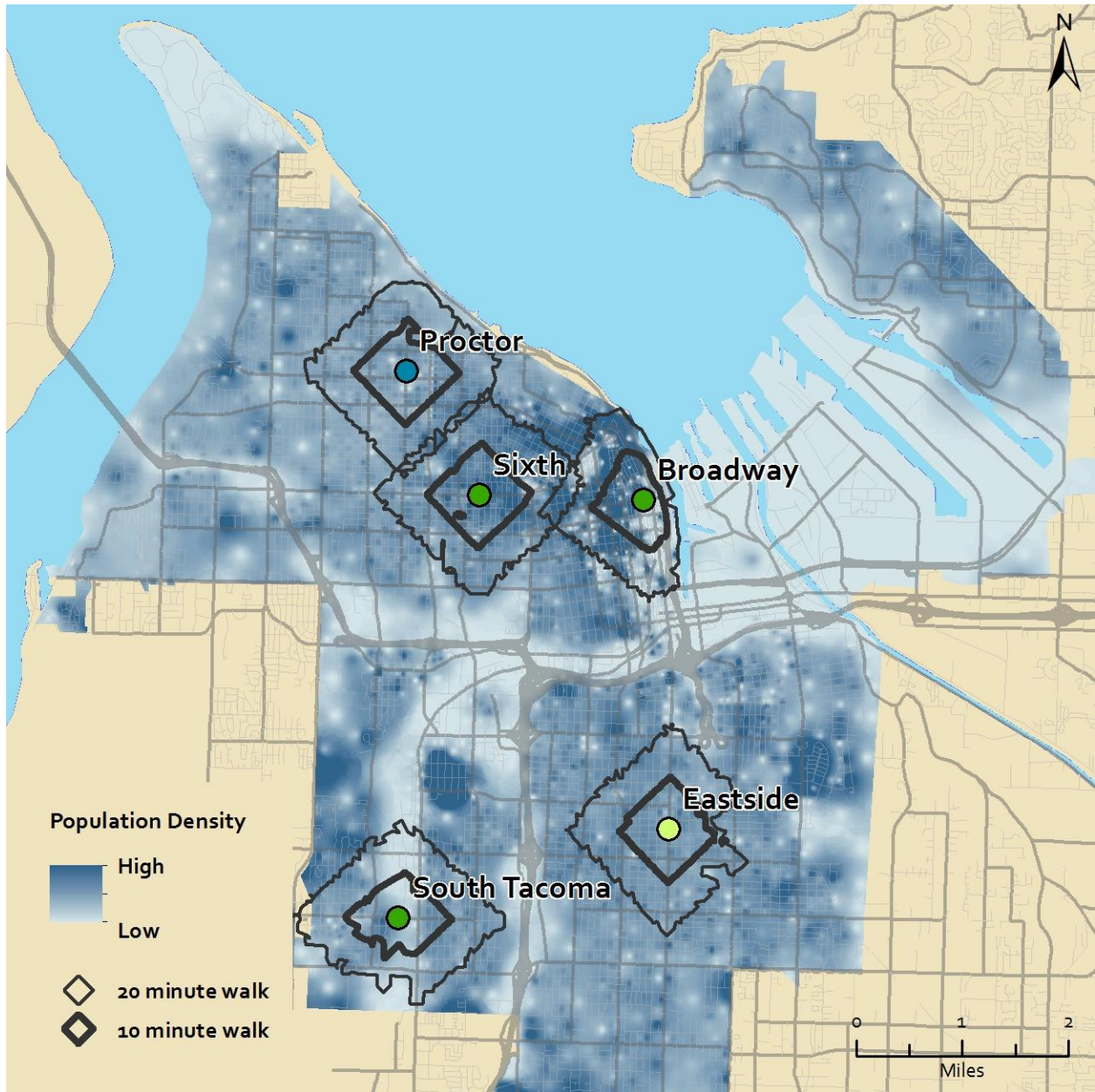


Figure 2. Interpolated Population Density with 10 and 20 Minute Walking Service Areas

Estimated Population

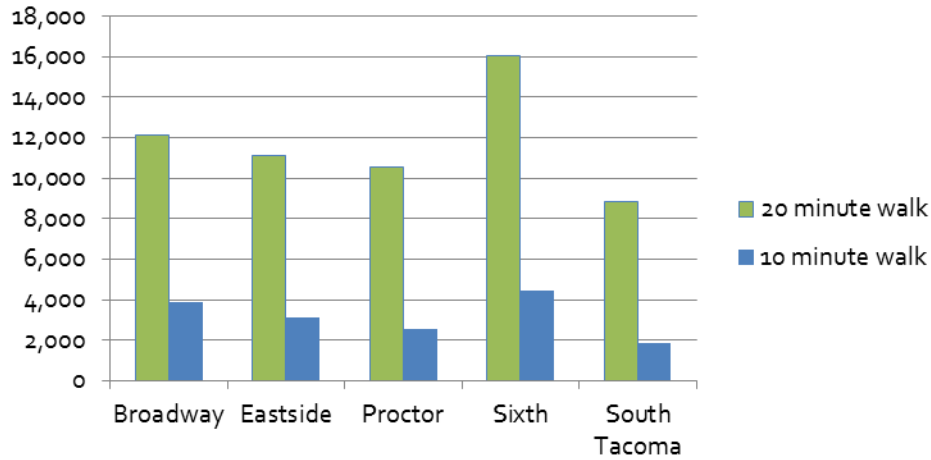


Figure 3. Population Estimates by Market and Service Area

Median Household Income

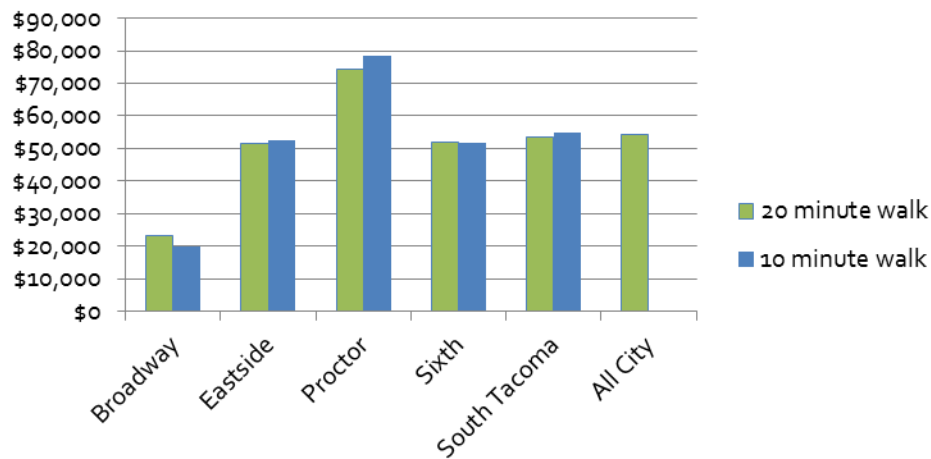


Figure 4. Median Household Income by Market and Service Area

Poverty Rate

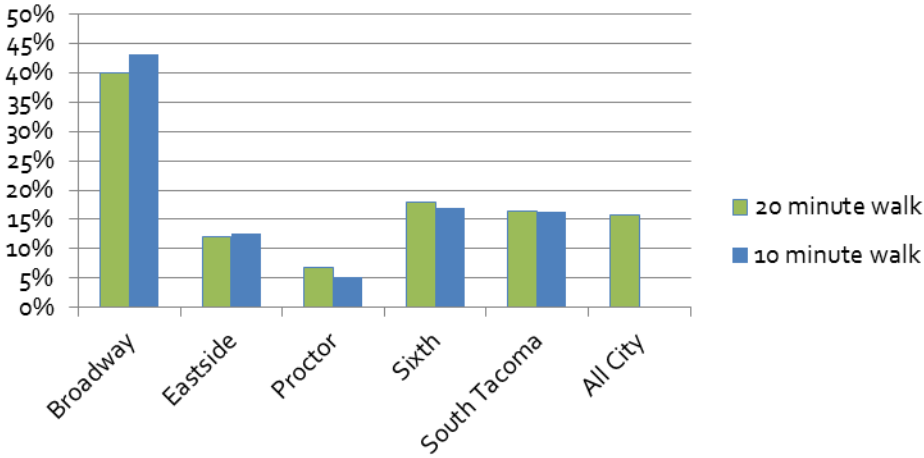


Figure 5. Poverty Rate by Market and Service Area

Rental Household Rate

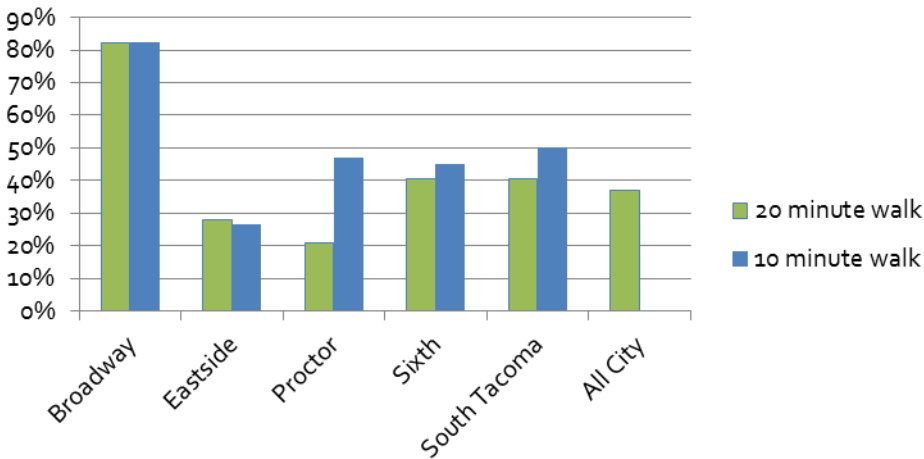


Figure 6. Rental Rate by Market and Service Area

Table 5. Percent of population by ages of interest for each market and service area.

Market	20 minute walk			10 minute walk		
	Other	65+	5 to 12	Other	65+	5 to 12
Broadway	84%	11%	5%	85%	12%	3%
Eastside	79%	10%	11%	79%	11%	10%
Proctor	80%	12%	9%	79%	11%	10%
Sixth	84%	7%	9%	85%	7%	8%
South Tacoma	79%	9%	12%	80%	8%	13%
All City	79%	10%	11%	79%	10%	11%

Table 6. Percent of population by simple race categories for each market and service area.

Market	20 minute walk				10 minute walk			
	White	Black	Asian	Other	White	Black	Asian	Other
Broadway	67%	15%	7%	12%	67%	15%	6%	11%
Eastside	68%	9%	6%	17%	72%	7%	6%	15%
Proctor	89%	2%	3%	7%	88%	2%	3%	7%
Sixth	79%	8%	3%	11%	80%	8%	2%	10%
South Tacoma	60%	14%	6%	19%	55%	17%	6%	22%
All City	65%	11%	9%	15%	65%	11%	9%	15%

Land Use

20 Minute Walking Area

For all markets, at the 20 minute scale residential is the dominant use by area (25 to 90 percent, Broadway and Proctor, respectively) (Table 7), so excluding residential use allows for better assessment of difference. Not surprisingly, services (e.g., banks, salons, medical offices) and transit/utilities/communications (largely parking) are dominant uses around Broadway. At Sixth Avenue, government/education is the dominant use including the campuses of Bryant, Grant and Franklin Elementary Schools, Jason Lee Middle School, and the University of Puget Sound. At Proctor, parks and recreation (largely Puget Park) is the dominant use. At South Tacoma, both vacant land (largely south of the market) and commerce (on South Tacoma Way) are dominant land uses. At Eastside, government/education uses including a number of schools (Mann, Lyon, and Fawcett Elementary schools, Stewart Middle School, and Concordia Lutheran) and commerce (largely on Pacific Avenue) are equally dominant land uses.

Market Pedestrian Areas

At Broadway, particularly west of 9th, there are professional and personal services and a diverse retail community. Sixth Avenue has a restaurant scene as well as retail and services. Proctor is largely retail, including two large grocery stores, with government/education (e.g., Washington-Hoyt Elementary, post office, fire station) and mixed use, largely retail and restaurant or retail and personal services.

Eastside and South Tacoma market pedestrian areas are different in that they are in areas not dominated by commerce. South Tacoma has a large proportion of government/education-related land use

where the Gray Middle School campus also houses the new Metro Parks STAR Center, the Boys and Girls Club, and other community organizations. Eastside’s area is similarly dominated by Stewart Middle School. In both cases, this is by design: the markets are (or will be) located on these campuses. Eastside also has the largest proportion of residential use within the market pedestrian area (29 percent), largely due to a very large senior housing complex located immediately across from Stewart Middle School.

Table 7. Dominant land uses in 20 minute service areas by market.

Market	Top 3 Uses	Percent by Area	Top 3 Non-Residential Uses	Percent by Area
Broadway	Residential (all)	25	Prof./Pers. Services	22
	Prof./Pers. Services	16	Transit/Util./Communications.	19
	Transit/Util./Commun.	14	Vacant	15
Sixth	Residential (all)	76	Government/Education	55
	Government/Education	13	Commerce	15
	Commerce	4	Prof./Pers. Services	9
South Tacoma	Residential (all)	55	Vacant	20
	Vacant	9	Commerce	20
	Commerce	9	Prof./Pers. Services	15
Eastside	Residential (all)	86	Government/Education	25
	Government/Education	4	Commerce	24
	Commerce	4	Vacant	17
Proctor	Residential (all)	90	Recreation/Parks	31
	Recreation/Parks	5	Vacant	27
	Vacant	4	Government/Education	19

Table 8. Dominant land uses in market pedestrian areas by market.

Market	Top 3 Non-Residential Uses	Percent by Area
Broadway	Prof./Pers. Services	29
	Mixed	15
	Recreation/Parks	12
Sixth	Restaurant	28
	Retail	28
	Prof./Pers. Services	21
South Tacoma	Government/Education	60
	Prof./Pers. Services	16
	Residential (all)	8
Eastside	Government/Education	38
	Residential (all)	29
	Prof./Pers. Services	13
Proctor	Retail	28
	Government/Education	16
	Prof./Pers. Services	11

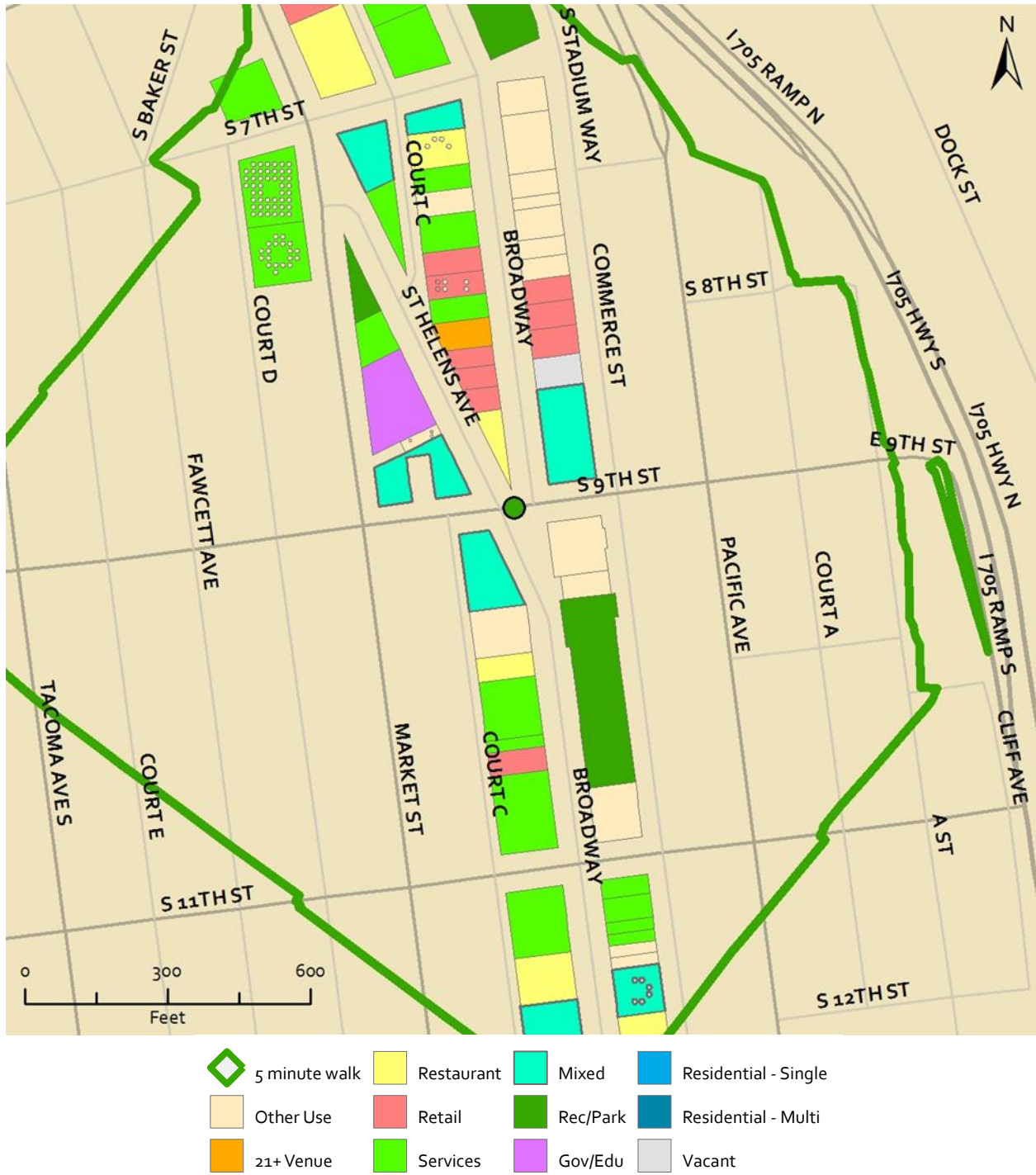


Figure 7. Ground Floor Uses in the Broadway Market Pedestrian Area

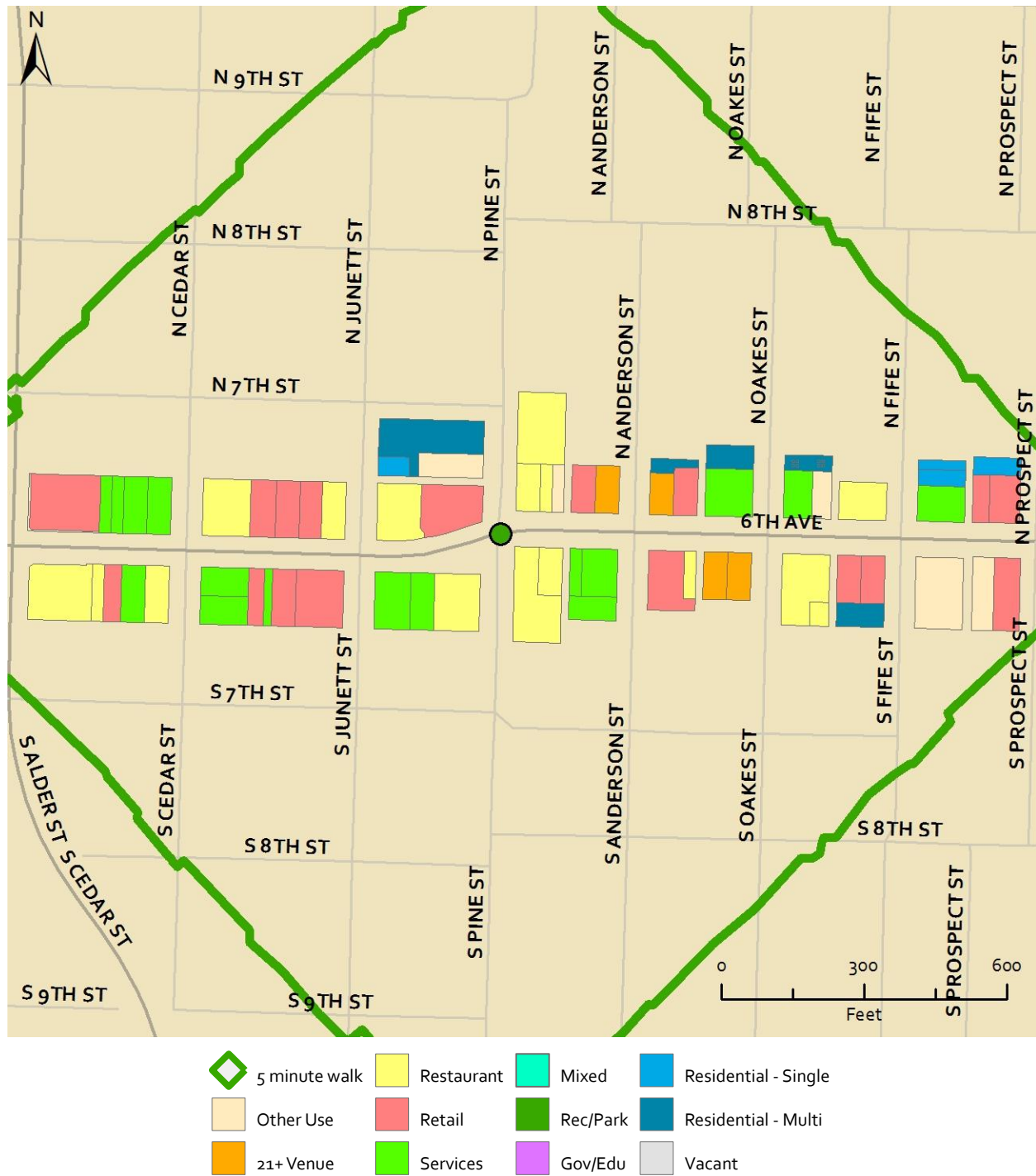


Figure 8. Ground Floor Uses in the Sixth Ave Market Pedestrian Area

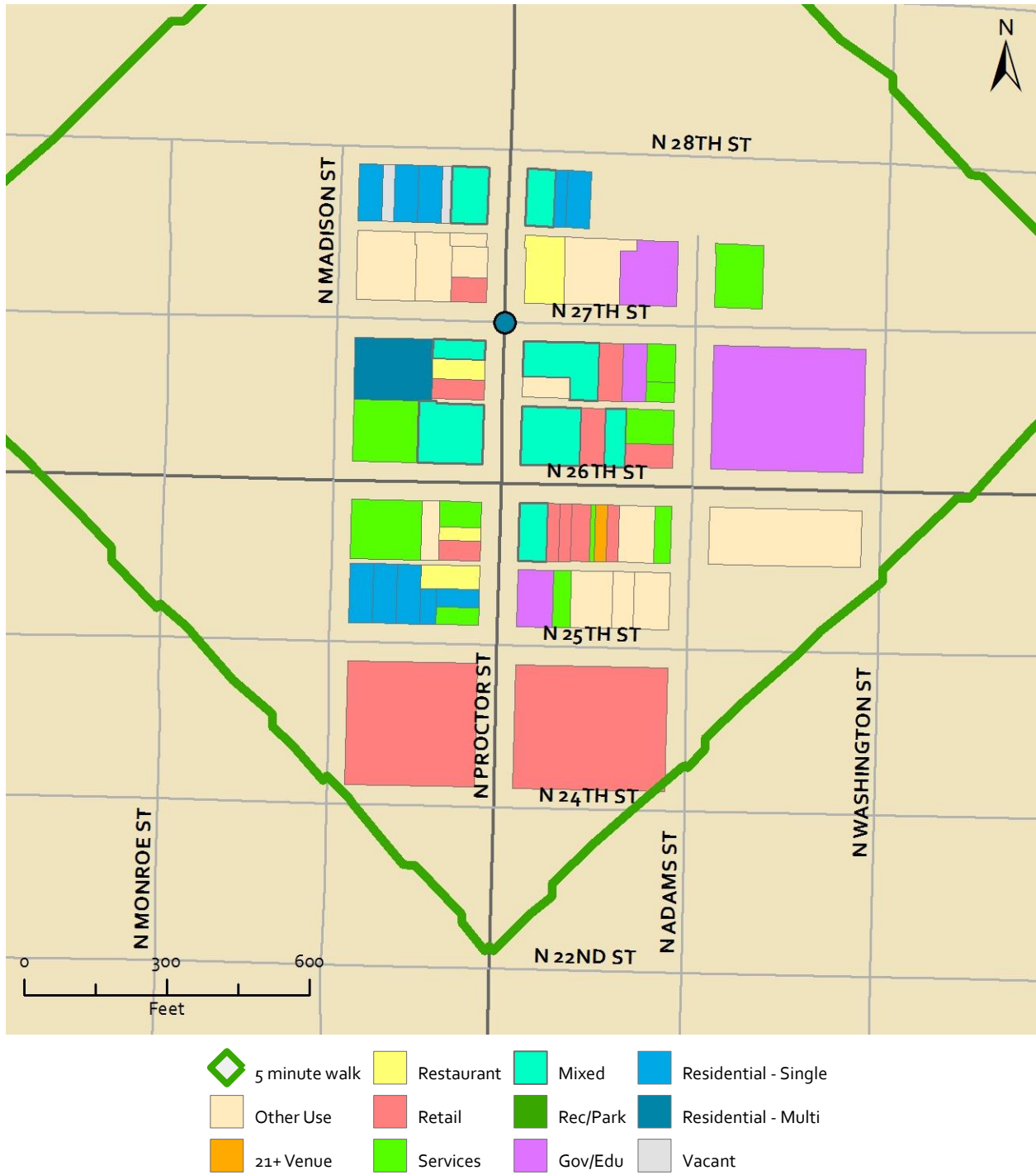


Figure 9. Ground Floor Uses in the Proctor Market Pedestrian Area

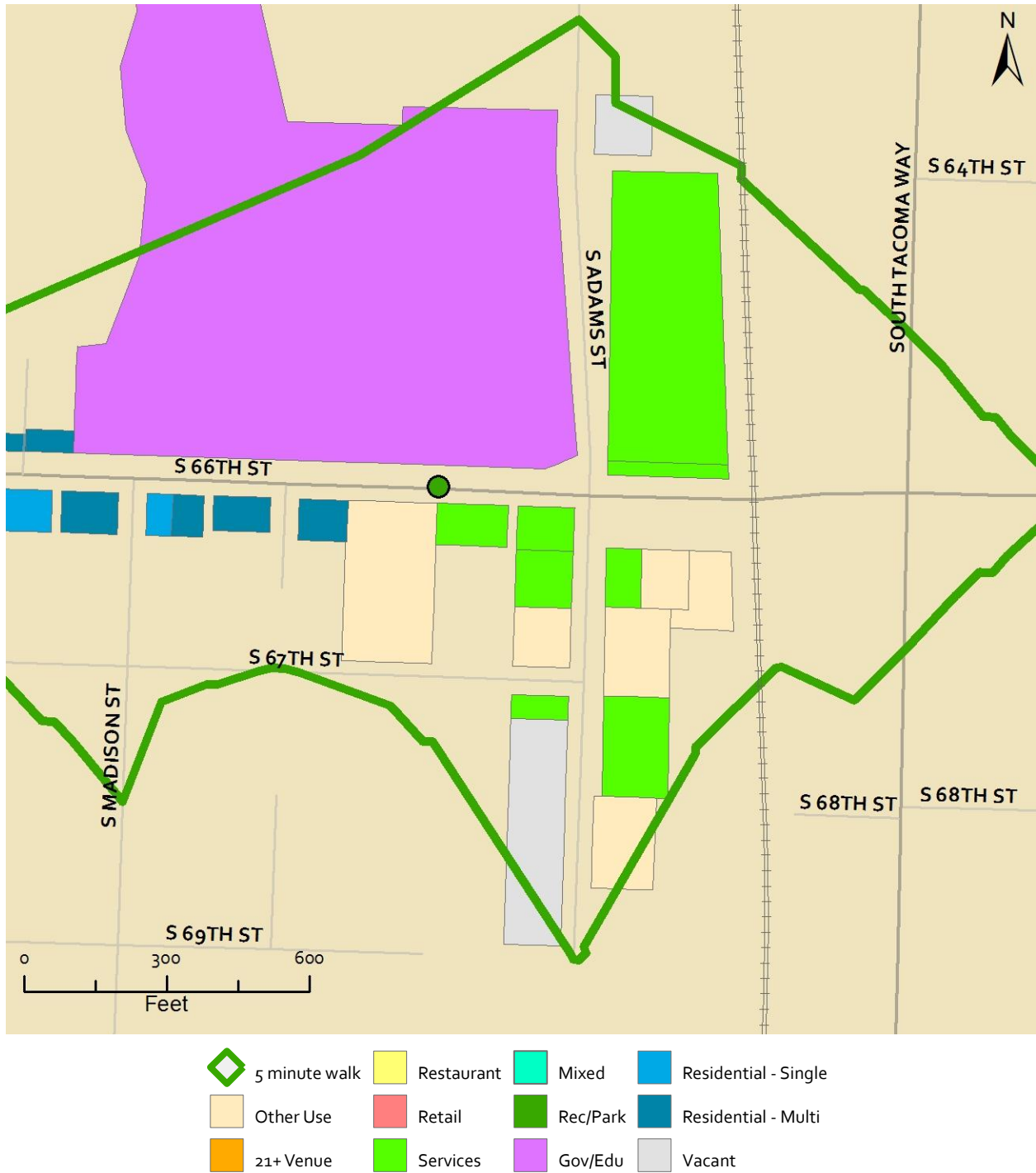


Figure 10. Ground Floor Uses in the South Tacoma Market Pedestrian Area

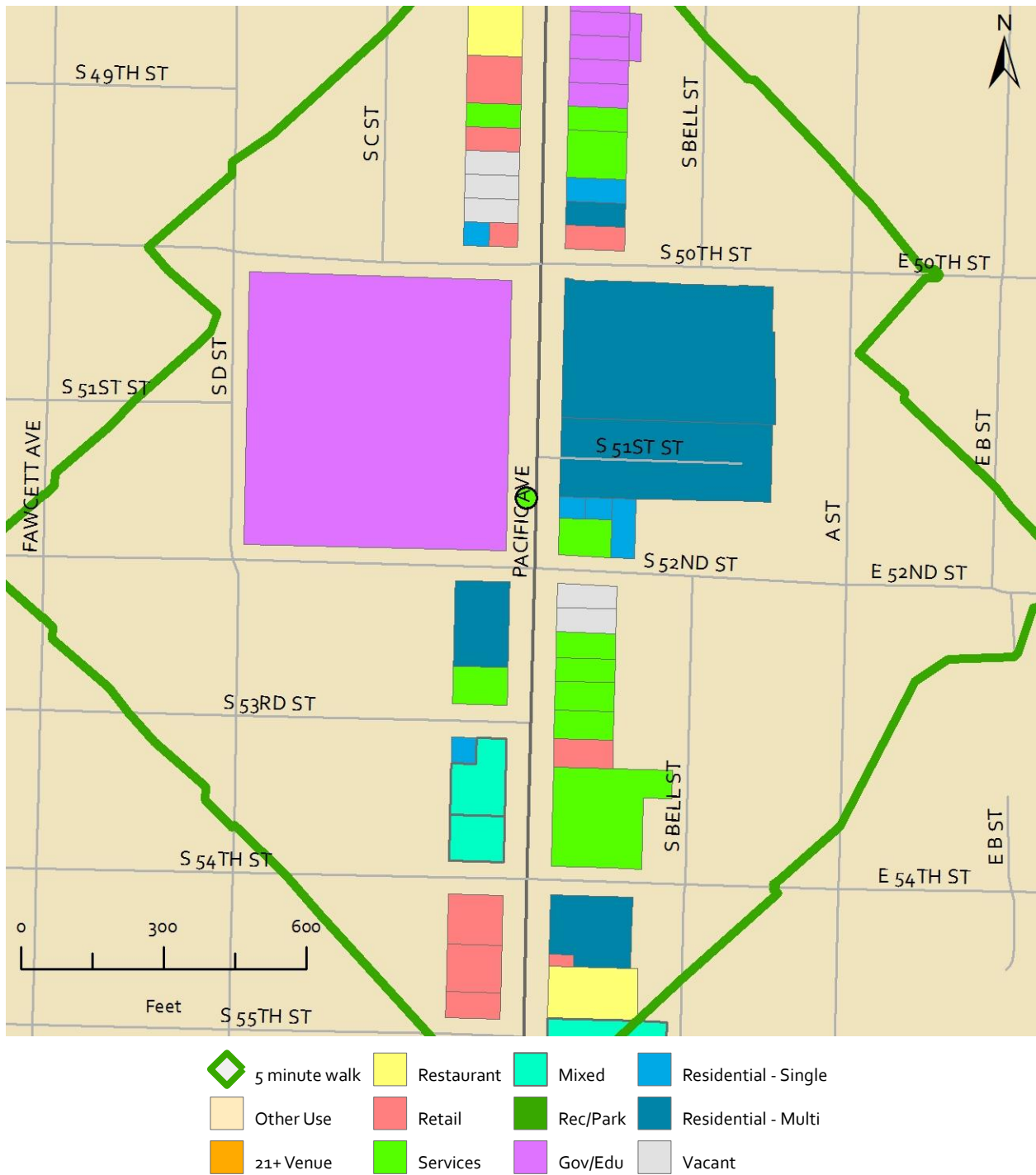


Figure 11. Ground Floor Uses in the Eastside Pedestrian Area

DISCUSSION

TFM may be able to increase its neighborhood participation by considering the unique demographics around each of its markets. As expected, the markets are currently underutilized. Based on TFM surveys and this analysis, less than 7 and 4 percent of people within 1 mile of the Broadway and Sixth Avenue markets (respectively) attend on any given day. At Broadway, that is about 800 people, and 600 at Sixth Avenue.

At Broadway, approximately 4,000 people live within a half-mile (10 minute walk) of the market, which is a surprisingly high number. Within a mile that increases to 12,000 people. Many of these people may be unable to attend a midday weekday market due to work schedules, but there is a relatively large proportion of seniors in this community and other people may have non-traditional work schedules. Because Broadway in generally is a more economically depressed area, there is great opportunity for people including seniors to participate in the EBT program. TFM reports very low rates of EBT exchange at this market, less than \$150 on one recent day (J. Morris, personal communication, May 28, 2012). This could be improved through increased awareness of the program or perhaps incentives such as subsidies to increase affordability of market products. The market pedestrian area offers a variety of additional activities for all people attending the market, including specialty retail and free cultural activities like the rotating SpaceWorks art installations on exhibit in a number of the vacant storefronts.

TFM also has opportunity to improve EBT participation at its other markets through outreach and creative incentive or subsidy programs. They can continue to promote opportunities within the market pedestrian areas, for instance restaurants and shopping at Sixth Avenue and the STAR Center and the Boys and Girls Club at South Tacoma. At both Sixth Avenue and South Tacoma, and eventually Eastside, TFM provides additional music and entertainment programming as well as education (such as cooking demonstrations) to enrich the market experience regardless of participants ability to spend additional money on shopping or prepared food. Perhaps targeting this programming to each community, for example with more opportunities for children at South Tacoma and Eastside, can begin to increase neighborhood participation.

TFM has an excellent opportunity to fulfill the beneficial urban service described by Shakow (1981), perhaps particularly at Broadway but also at its other locations. The EBT program is a good start, the benefits of which have been realized at other urban markets (Jones and Bhatia, 2011). It rests with TFM to determine ways to improve outreach and perhaps to additionally incentivize EBT users. While direct subsidies coordinated through a granting organization (e.g., \$1 EBT dollar exchanged for \$1.25 in market tokens) maybe one means of increasing participation, TFM may be even better served by reaching out to existing EBT users for ideas. This holds for general neighborhood participation as well. Reaching out to all members of the host neighborhoods may be the best way to improve their participation and continue building a welcoming and inclusive market space that provides both beneficial cultural elements (e.g., Jones and Bhatia, 2011) and the urban service of fresh, fairly priced food and farm products (e.g., Shakow, 1981).

CRITICAL ANALYSIS

While I believe this analysis will be beneficial to TFM in its efforts, it is (necessarily) built upon a number of assumptions. These include technical assumptions, for instance what constitutes walkable areas and distances, and theoretical assumptions such as what may be acting as draws or detractors to the market for various components of the population, and perhaps the biggest theoretical (and personal) assumption of all, that farmers' markets are a beneficial service as opposed to an elite socio-cultural grocery experience. Beginning with Pickles (1995) and continuing through many of our readings was the theme of the "objective observer" being a falsehood, and that a researcher always brings some bias to their work. These assumptions illustrate some of mine.

Another critique of my work is that it (again, necessarily) generalizes both demographic and land use information. In Chapters 3 and 10, Monmonier (1996) discussed potential for bias as well as for losing context when generalizing information. My very surface-level assessment of race categories within service areas is a prime example of this, as is one reason why I am hesitant to draw any conclusions based on those data. My use of poverty rate in addition to median income was one way in

which I tried to account for this, but certainly some stories of both people and land use have been lost in this analysis.

Finally, there are many elements of this project that, given available time, could have been improved through more participatory measures. I engaged TFM about what information they thought would be helpful to improve their neighborhood participation. However, engaging members of the communities themselves could have resulted in a much more meaningful analysis, particularly in terms of EBT participation but also in terms of those very basic assumptions regarding walkability and access.

CITATIONS

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