

Multnomah County Youth Tobacco Access Report

Prepared by Portland State University Senior Capstone Students
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Asset Mapping with GIS

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Abstract

Multnomah County requested that the Summer 2009 Asset Mapping Capstone Group gather data relating to the proximity of tobacco advertising to Portland Public Schools. The group's underlying objective was to create an accurate data set that may be used by Multnomah County public health officials to assess the possible effects of tobacco advertising on school-aged children with an eye to influencing policy. The data set was created using a number of tools in conjunction with primary data retrieved from field observation; great care was taken to ensure accuracy and objectivity. The findings, which may be used to inform future research, highlight clear trends in tobacco advertising near Portland public schools.

Background on Tobacco Policy

Tobacco related illnesses claim the lives of more than 400,000 Americans each year. This number exceeds the combined fatalities from alcohol, AIDS, car accidents, illegal drugs, murders and suicides combined. Of current smokers in the U.S., 90% began smoking before age 19 (CTFK, 2009).

Adolescents have historically been a key target market for the tobacco industry. Studies show that children are three times more vulnerable to advertising than adults and can be measurably



Source: The New York Times Online

influenced by marketing pressure. A 2005 study by the Center for Tobacco Control Research and Education showed a preventive effect; a decrease in incidence of new adolescent smokers who had been previously exposed to anti-tobacco advertising (Ling, et al., 2009). The study concluded that anti-tobacco policies and campaigns de-normalize tobacco use and aid in decreasing incidence rates. In addition, a CDC review of existing data supports this finding (MMWR, 2009).

Attempts to restrict adolescent-targeted advertising found some success within the 1997 Master Settlement Agreement (MSA). This agreement, reached between the four largest U.S tobacco companies (at the time) and 46 states, created new parameters and limitations for cigarette marketing. In accordance with the MSA, the tobacco companies agreed to discontinue direct advertising to youth and stop the promotion of items with "youth appeal." The MSA prohibits cigarette advertising at events frequented by adolescents and in publications with high youth readership (CTFK, 2009).

In 1999 the Massachusetts attorney general moved to implement regulations limiting tobacco advertising near schools (Lorillard Tobacco Co. v. Reilly). Boundaries of 1,000 feet were established around schools, public parks and public playgrounds as "tobacco advertising- free" zones. Point-of-sale advertising was also prohibited



within the boundaries. Several tobacco companies challenged the constitutionality of the restrictions. The appeals process resulted in a hearing before the U.S. Supreme Court (FirstAmendmentCenter, 2009). The U.S. Supreme Court ruled 5-4 in favor of the tobacco companies, citing the state's inability to meet the standards established by the Central Hudson test (FirstAmendmentCenter, 2009) which established criteria for legislation limiting advertising. The Central Hudson test requires that the desired regulation directly advances the government's interest, that the interest is substantial, the advertising is not misleading, and concerns lawful activity. The Massachusetts limits were determined to lack specificity and were too broad in their scope of regulation. Subsequently, few states have attempted to curtail tobacco advertising and sales near schools and other public use areas.

Recent activity at the federal level may aid in anti-tobacco legislation at the State and local levels. Bill H.R. 1108, approved by the House of Representatives in 2008, introduced the possibility of transferring authority over tobacco advertising from the Federal Trade Commission to the Food and Drug Administration (GovTrack, 2009). Although this bill has currently stalled, its quick advance through Congress is indicative of current political ideology.

Oregon Legislation and Policy

Current policies in Oregon establish parameters regarding the sale, advertisement and distribution of tobacco products. Laws directly affecting the adolescent target market include limitations on vending machine locations and the criminalization of sales to minors. Broader health based policies include the recently initiated smoke-free workplace laws and policies which guarantee smoking cessation resources for recipients of the Oregon Health Plan (ODHS, 2009).



Source: Shaping
Youth Online

Oregon policies or legal agreements that support limiting adolescent exposure to tobacco advertising and products are primarily the result of the Master Settlement Agreement. Additionally, Oregon prohibits smoking in or near schools and care facilities that service children and families.

Recent data collected by the Oregon Healthy Teens Survey (OHT) and the CDC shows that adolescent smoking rates are declining. In the time period from 1996 to 2007 the number of 8th graders that reported having smoked in the last 30 days decreased by 58%. However, approximately 2% more of Oregon's 8th graders are smoking than the national average (ODHS, 2009).





Smokeless Tobacco

As cigarette sales continue to drop and the number of new smokers dwindles, tobacco companies are finding new methods to get people to initiate and continue use of their products. New types of tobacco products, such as SNUS and Camel's dissolvable tobacco, are becoming more common as they are aggressively marketed and distributed. Public smoking bans continue to be implemented across the country, furthering tobacco companies' interest in offering smokeless methods of tobacco delivery (Koch, 2007). David Sutton, spokesman for the Altria Group which owns Philip Morris USA, says that smokeless tobacco products are increasing in popularity, as their sales are climbing 6-8% each year while cigarette sales drop 2-3% annually (Koch, 2008).

Historically, marketing and consumption of smokeless tobacco products have been positively correlated. In the United States, smokeless tobacco began decreasing in popularity in the 1920s and neared extinction by 1970. In the early 1970s, smokeless tobacco use began to increase again as the U.S. Tobacco Company developed new products

that would appeal to novice users and marketed them extensively (Tomar, 2007). The increased marketing of these products increases the risk that young people will begin using tobacco. With cigarette smoking in decline and public smoking bans now in vogue, tobacco companies are desperate to find new ways to keep their profits up. Hence the above scenario is being played out again in the present, with tobacco companies heavily marketing new lines of smokeless tobacco products.

Some smokeless tobacco products, especially those that do not require spitting, have a unique appeal to youth. They are more easily concealed from parents and teachers, allowing covert use at home and school. These products are often flavored and presented in a manner similar to candy, furthering their appeal with the adolescent demographic. The deliberate youth appeal of these products is largely unregulated, an issue examined in a recent report by the American Cancer Society Cancer Action Network, American Heart Association, American Lung Association and Campaign for Tobacco-Free Kids. This report calls for more regulation in the tobacco industry that would "allow the FDA to limit the industry's ability to use product design to recruit youth, create and sustain addiction, and discourage smokers from quitting" (Big Tobacco's Guinea Pigs, 2008, p. 45). The report states that tobacco companies "design and manipulate their products to make them more appealing, more addictive, and more deadly. The resulting carnage will only continue if their special protection from government oversight is not addressed" (Big Tobacco's Guinea Pigs, 2008, p. vii).

With the increase in marketing of smokeless tobacco products, it is crucial that the government step up regulation, particularly with respect to the targeting of youth. New policies limiting the power that tobacco companies have in marketing and manufacturing their products should be encouraged as we attempt to limit the exposure of young people to these harmful products.



Methodology

The Summer 2009 Asset-Mapping Capstone Group's methodological decisions were made in acknowledgement of certain shortcomings and ambiguities that resulted from previously conducted fieldwork and analysis. A brief explanation of the steps the group took and tools it used in order to compile and organize the data set is provided below:

Step One: Arc GIS

The initial objective of the project was to use Arc GIS in order to create a list of at-risk schools within a working study area. After reviewing previously conducted fieldwork, the scope of the project was narrowed to the City of Portland, as opposed to the whole of Multnomah County. Furthermore, focus was limited to Portland Public Schools, exclusive of private institutions. First, a list of Portland Public Schools (PPS schools) that are potentially at risk of exposure to tobacco advertising was compiled. Arc GIS was used to geocode the addresses of tobacco retailers provided by ReferenceUSA. After providing spatial reference to this tabular data and continuing to use Arc GIS, Metro's Regional Land Information System (RLIS) was used to export and create a unique feature class containing all PPS schools. After assigning a half-mile buffer to the PPS feature class and conducting a series of GIS-related applications, quantification of the exact number of tobacco retailers (according to the ReferenceUSA database) located within one half-mile of each PPS and creation of a spreadsheet to be used for fieldwork observation (Maps 3-5) was possible. Based on a metric suggested by Multnomah County public health officials, the group then chose to observe .

Step Two: Fieldwork Observation

The potential fallibility of information derived from static data sets, such as ReferenceUSA, was recognized and rectified by conducting primary data collection. Thus, it was possible to obtain a first-hand understanding of the buffer zones generated in Arc GIS. Using a spreadsheet derived from Arc GIS, a list of PPS schools that fall into a number of specific categories (Table 1) was created in compliance with the wishes of Multnomah County. To limit human error, buffer zones were observed in groups (generally two or three people) rather than allowing unaccompanied students record data alone. The group used uniform fieldwork data record sheets to organize specific details regarding visible signage on the outside of tobacco retailers, such as overall sign counts and tobacco-related sign counts. In addition to this quantified data, group members made note of any qualitative information they found to be pertinent to the research, such as whether or not the tobacco retailer seemed to be privately owned as opposed to corporate. The outside of each tobacco retailer storefront was then photographed using digital cameras. The objectives of the photography included: 1) accountability for recorded data, 2) accurate analysis of storefront signage at a later date and 3) visual reference for the GoogleEarth portion of the project. As fieldwork observations were completed, data was entered into a single Excel spreadsheet.

Step 3: Photo Analysis

The accurate assessment of a storefront's coverage in signs was one of the foremost challenges of this project. A Likert scale



Photo Analysis: Adobe Illustrator Measurement and Analysis



■ Primary store-front

■ Primary store-front window

■ Primary store-front tobacco advertisingP

Field Work Examples



categorizing storefront coverage on a scale of 1 to 5 did not seem appropriate given the number of individuals conducting fieldwork, and the inherent variability of such a method (Wakefield et al, 2002). Nor could consistency be expected from asking individual group members to assign a numeric percentage based on perceived storefront sign coverage. Therefore, a more systematic approach to the problem was devised; storefront photographs were exported into Adobe Illustrator (AI) where overall coverage could be more accurately assessed. Using uniform settings in AI, it was possible to assign measurements to storefronts and signs and to calculate store-to-sign ratios. In addition to providing these accurate measurements, photo analysis in AI also allowed group members to comfortably isolate certain storefront attributes that Multnomah County may wish to assess at a later date. For instance, photo analysis distinguishes between primary and secondary storefronts, primary and secondary windows, and signs on windows as opposed to non-transparent surfaces. All photo analysis data could be appended to the fieldwork observations spreadsheet in the future in order to create a master spreadsheet that could be further refined, sorted, queried, and expressed with the use of Excel.

Step 4: Data Analysis

From the compiled master spreadsheet containing fieldwork observations, as well as photo analyses conducted with the assistance of AI, a pivot table was generated in Excel that will allow Multnomah County to further explore specificities of the data stored therein. In addition to the pivot table, and in recognition of the possible fallibility of static data sets such as ReferenceUSA, the group has also devised a rubric which will provide

perspective for measuring a school's relative exposure to tobacco ads. Using three evenly-weighted criteria (the number of tobacco retailers within ½ mile of the school, the total number of tobacco signs at those retailers, and the square footage of those tobacco advertisements) the rubric allows the schools to be evenly distributed into low-, medium- and high-exposure bins.

Step 5: GoogleEarth

The inherent power of maps led to the decision to spatially represent the results of the previously detailed fieldwork. Certain technological limitations and the relative esoteric nature of its software preclude Arc GIS's usefulness in this capacity. Therefore, a GoogleEarth tool was created to provide accessibility to the non-GIS user. Photos that were taken on site were used to illustrate this project. After organizing these fieldwork photos into albums, the 'Output to KML' feature of Arc GIS was used to create certain layers appropriate for the project, such as the municipal boundary of Portland, half-mile buffers around schools and the tobacco outlets located within these buffers. The GoogleEarth interface was then used to symbolize all the map data, except the tobacco outlet photos that were stored in Picasa and uploaded using HTML code. After compiling all GoogleEarth data, it was saved as a single .kmz file, which allows the project to be seen by anyone using the latest version of GoogleEarth.



Results

While the group's main focus was the compilation and organization of primary data to be used by future researchers, it also investigated two additional topics (the Safe Routes to School program and local signage regulation) that tangentially relate to the purpose of the Capstone project. The following section will first outline the findings of the group's fieldwork observation. It will then briefly explain what the group discovered concerning the Safe Routes to School program and local signage regulation.



Fieldwork Observation

Data analysis was performed to address six key issues: 1) quantity of tobacco signage specifically on glass surface, 2) total quantity of the tobacco outlets' coverage in tobacco ads (regardless of surface type), 3) percentage of tobacco outlets' total signage area relating to tobacco, 4) the presence of commingling (where signage not relating to tobacco is placed amid tobacco-specific signage), 5) placement of ads on surfaces other than on storefront windows and doors and 6) A-Board tobacco advertising. While the group recognizes the pertinence of these issues, it would not suggest that they represent an exhaustive list of possible topics its data set may be used to understand. Rather, the findings described below represent an abbreviated sample of the analytical capabilities of the group's data set and analysis tool.

Review of all tobacco and non-tobacco window coverage reveals that in all ½ mile school buffer zones coverage is less than 30 percent, with the exception of DaVinci Middle School, Beaumont Middle School and Irvington Elementary School. All of these schools are located in Northeast Portland. However, the school with lowest combined signage per window area is Grant High School (7.35 percent), which is also in Northeast Portland. The mean coverage of the 15 sample schools is 24.51 percent. Of the 43 stores surveyed, only 14 exhibited combined tobacco and non-tobacco advertisement window coverage above 30 percent. The majority of these are located in North or Northeast Portland. All 14 appear to be privately-owned businesses; corporate stores consistently fell beneath the 30 percent mark. The outlets observed



in this study display several types of signage. While overall amounts of signage as well as the amount of signage specifically devoted to tobacco products varied from store to store, it is clear that tobacco-related signage makes up a significant portion of overall signage when all tobacco retailers are considered in aggregate. Chart 3 shows all types of signage and advertising on the storefronts' total surfaces, including clear glass and doors, building walls and freestanding signs. Ads for soda, ice cream and potato chips were next to tobacco ads at nearly every store. From a total of 43 tobacco retailers, eight were found to use A-board signs; four had valid permits.

The exposure of school types (i.e. elementary school, middle school, high school, and a fourth category labeled 'odd') to tobacco advertising by school type was evaluated based on the classification system provided by the group's rubric. Table 1 shows the number of schools that fall into the low, medium, and high exposure classifications.

Data Analysis

After sorting all schools by discreet number of tobacco retailers, the Summer 2009 Asset Mapping Group determined that the number of outlets that could be associated with school buffer zones ranged from zero to 33. For the purpose of selecting study schools, those lacking any known tobacco retailers were disregarded. The group determined that the median number of retailers within school buffer zones was six. Therefore, a buffer zone categorized as 'low' has between one and four outlets; an 'average' buffer zone has between five and eight; and 'high' buffer zones are associated with at least nine retailers. The school with 33 retailers was considered a statistical outlier and as such, not appropriate for the study. The schools that were chosen can be seen in table 1.

The group's findings and analysis tool can be used to clarify a wide range of topics that Multnomah County public-health officials may

Table 1¹

Low # of Retailers`	Average # of Retailers	High # of Retailers
1 Elementary School	2 Elementary School	1 Elementary School
1 Middle School	2 Middle School	1 Middle School
1 High School	2 High School	1 High School

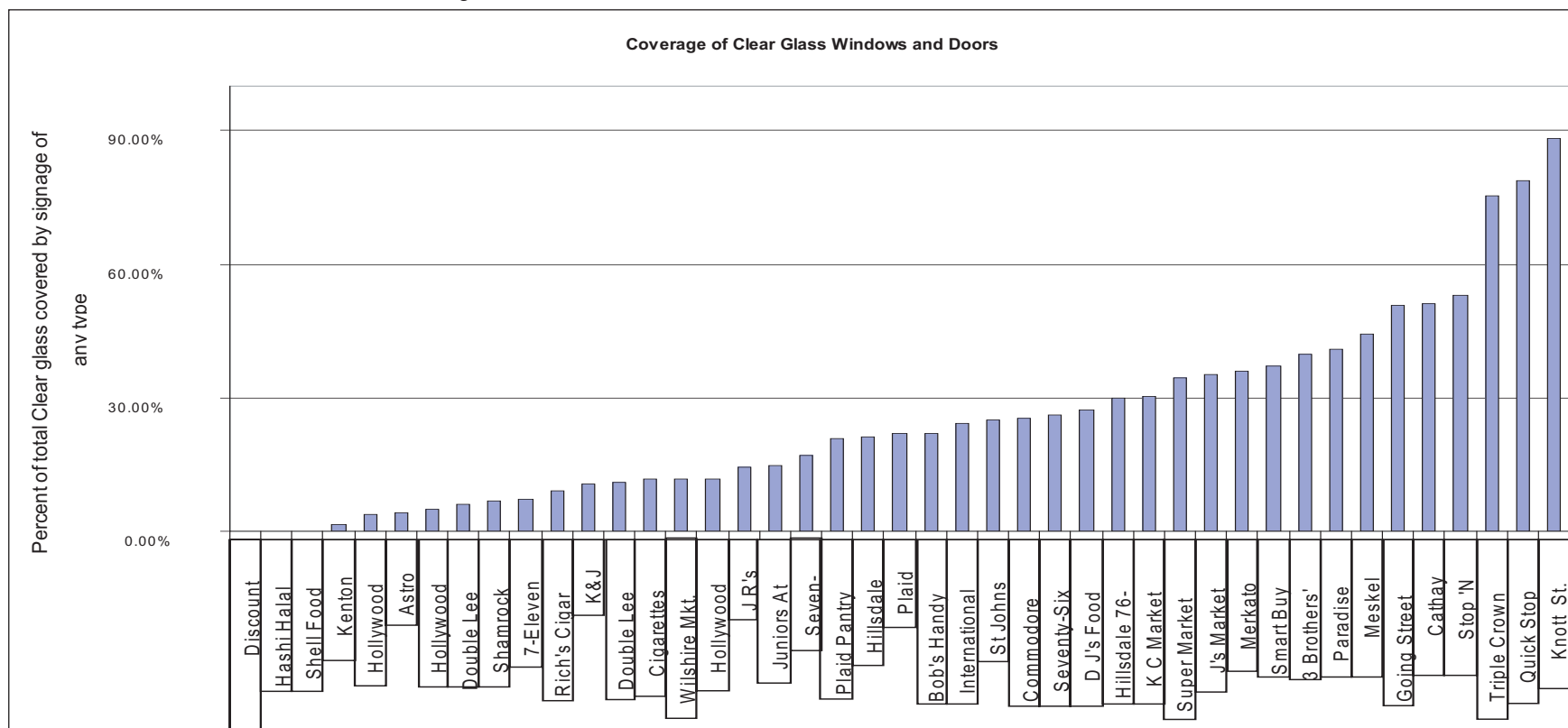
Name of School	Initial Category
Buckman ES	Low ES
East Sylvan MS	Low MS
Wilson HS	Low HS
Irvington Elementary School	Average ES
James John ES	Average ES
Da Vinci MS	Average MS
Winterhaven School	Average MS
Benson Polytechnic HS	Average HS
Grant HS	Average HS
The Portland Village Charter	High ES
Trillium Charter	High MS
Lincoln HS	High HS



wish to explore and has been used to answer the four main questions the group originally set out to address. These questions are: 1) observing the tobacco outlets associated with the buffer zones of the schools listed above, how much of their clear-surface area is covered by signs irrespective of content; 2) what is the square-foot measurement of visible tobacco-specific signage on the outsides of these outlets; 3) what is the portion of tobacco-related signage relative to overall signage.² 4) of all A-board signs observed, what portion are properly permitted?

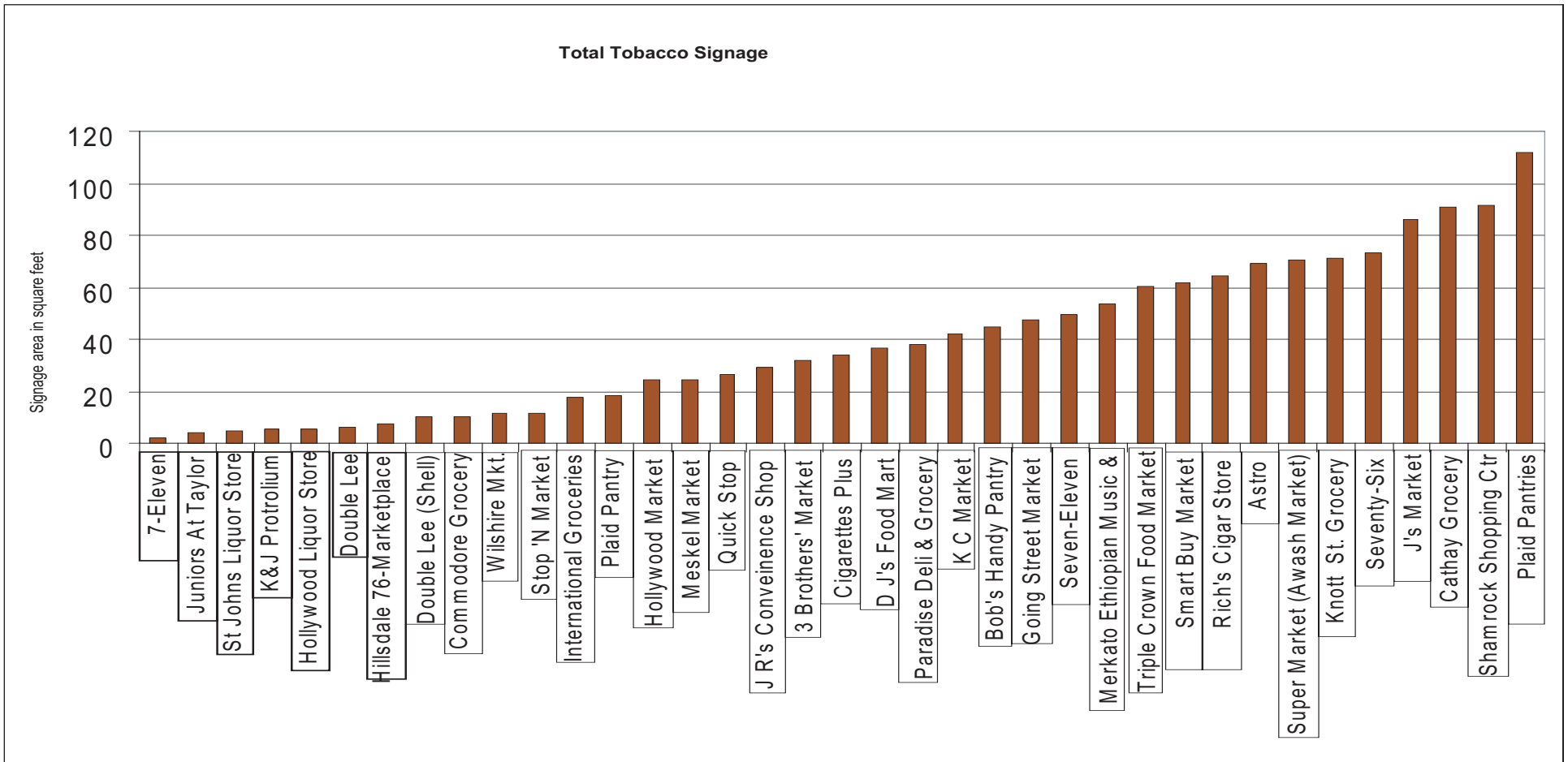
The amount clear-surface coverage varies significantly among retailers; of all observed outlets, fourteen had window coverage greater than 30 percent. All fourteen tobacco retailers with over 30 percent clear-surface coverage are independently owned, as opposed to corporate-branded stores. While half of these “high-coverage” retailers are located in N Portland, the worst offenders are located in SE and NE Portland (Quick Stop and Knott St. Grocery).

Chart 1: Clear Glass Window and Door Coverage



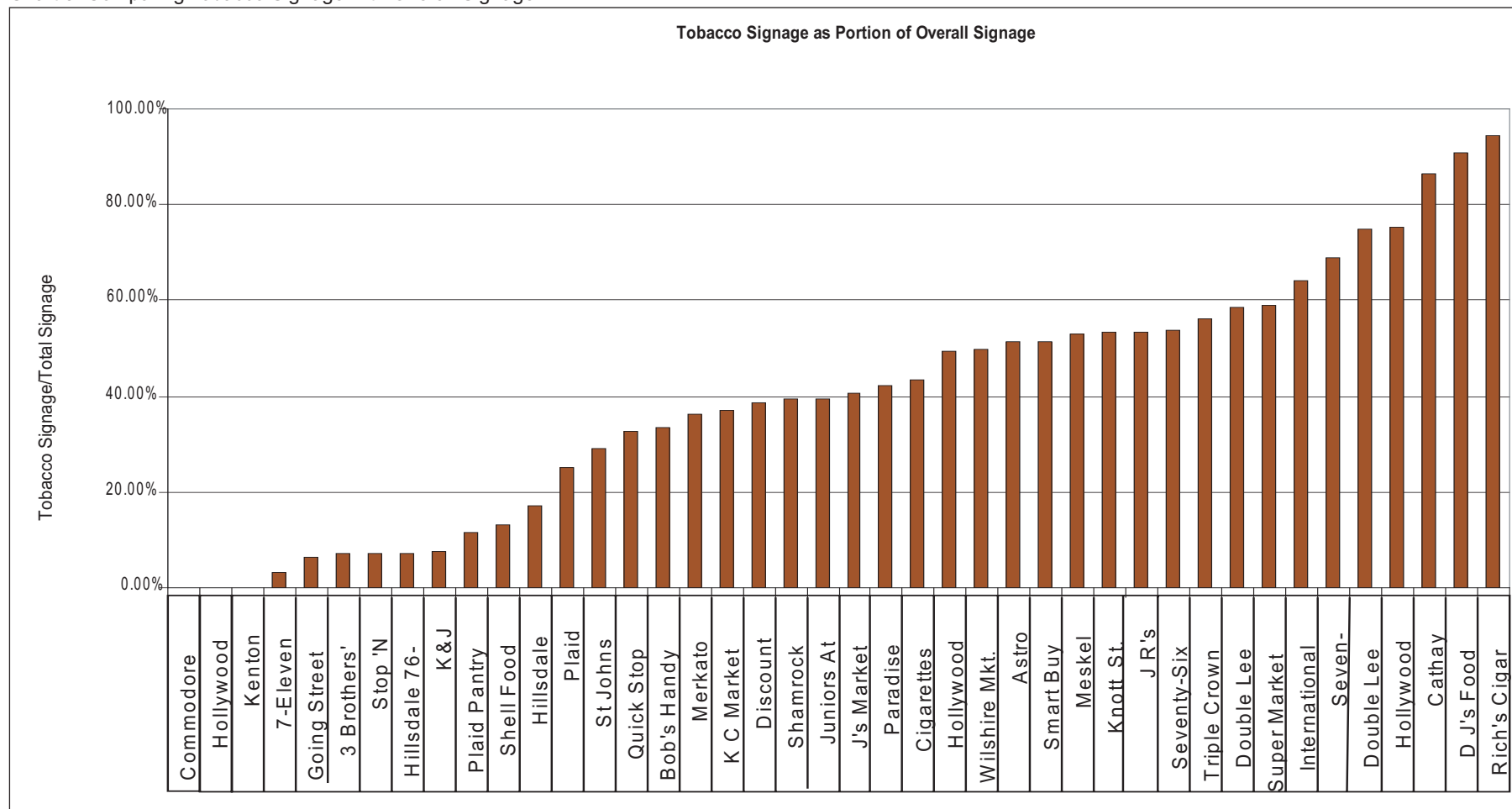
There appears to be a great deal of variation among the observed outlets in the square-foot measurement of tobacco signage—while some outlets have little or no tobacco signage, others seem to focus mainly on this product. The size of the outlets’ storefront plays a role, as do certain design elements such as door and window placements and whether there are any exterior architectural details. In general, corporate-branded outlets appear very uniform and signage is minimal.³

Chart 2: Overall Tobacco Signage



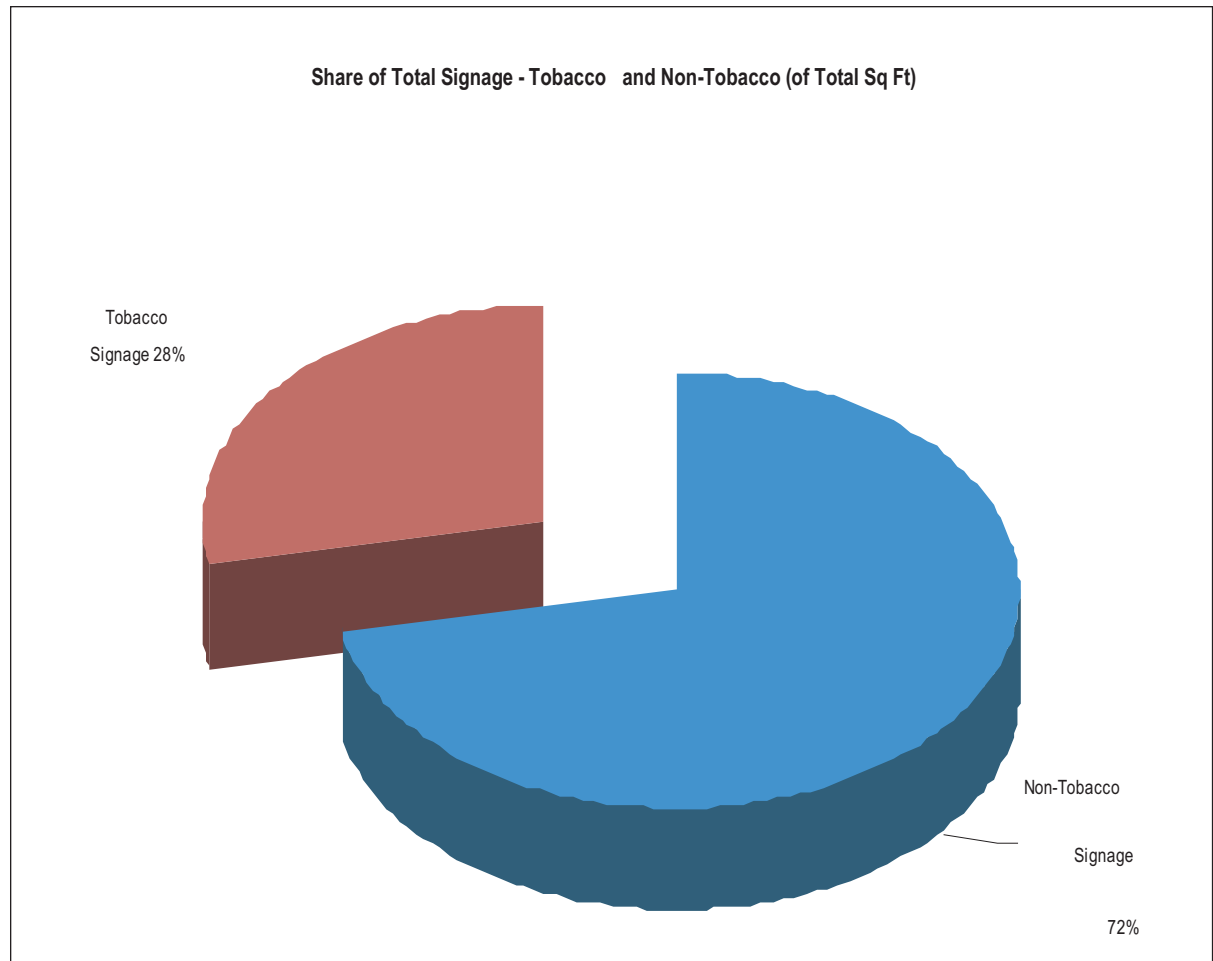
When tobacco-specific signage is seen as a percentage of total signage, it becomes possible to compare the potential impact of small storefronts with large storefronts. With the exception of Astro, corporate-branded stores tend to have less tobacco signage as a percent of total signage.

Chart 3: Comparing Tobacco Signage with Overall Signage



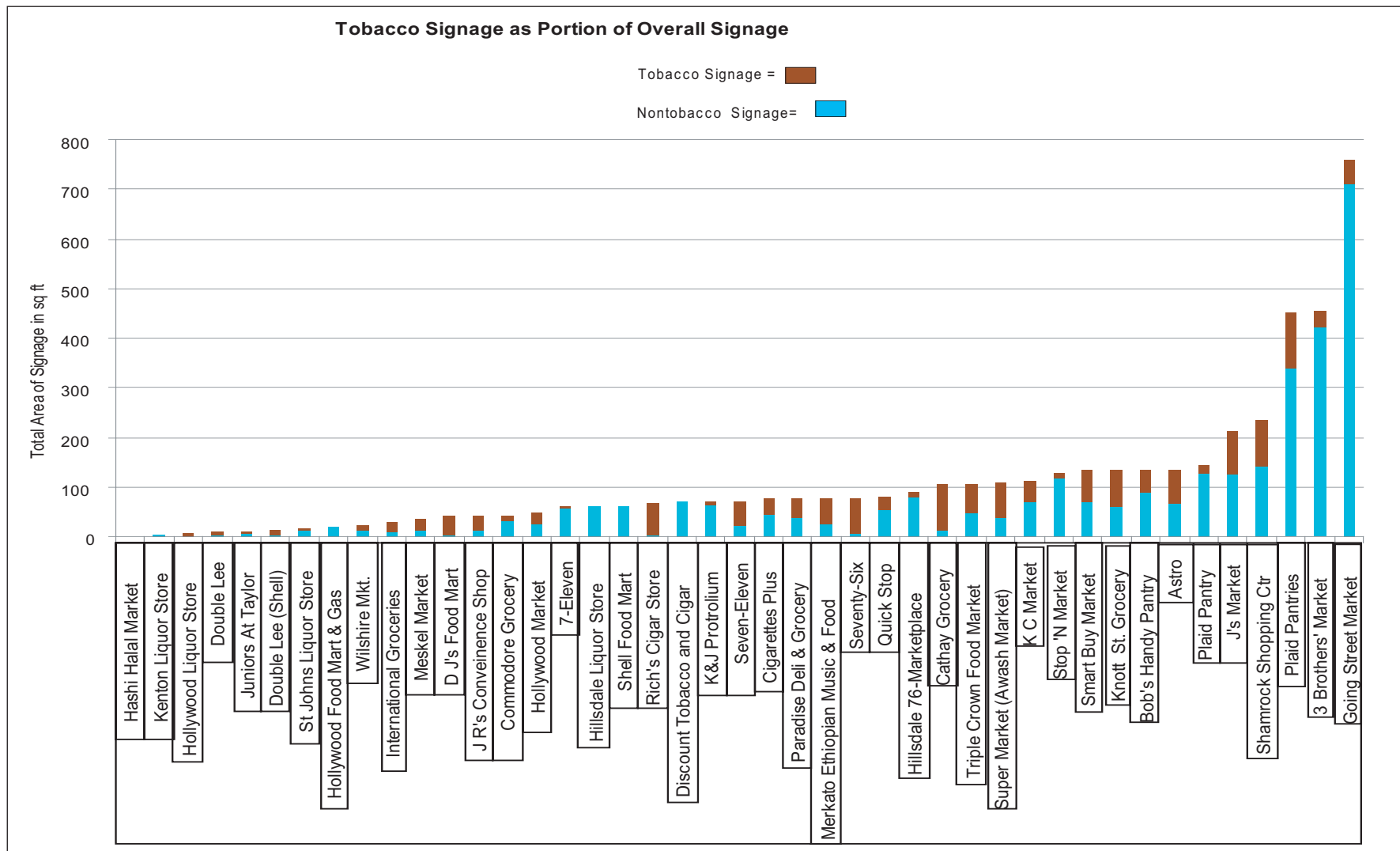
When the total signage areas of individual tobacco outlets and total tobacco signage areas are considered in aggregate, it is clear that tobacco signage makes up a significant amount of overall advertising signage.

Chart 4: Aggregate Signage



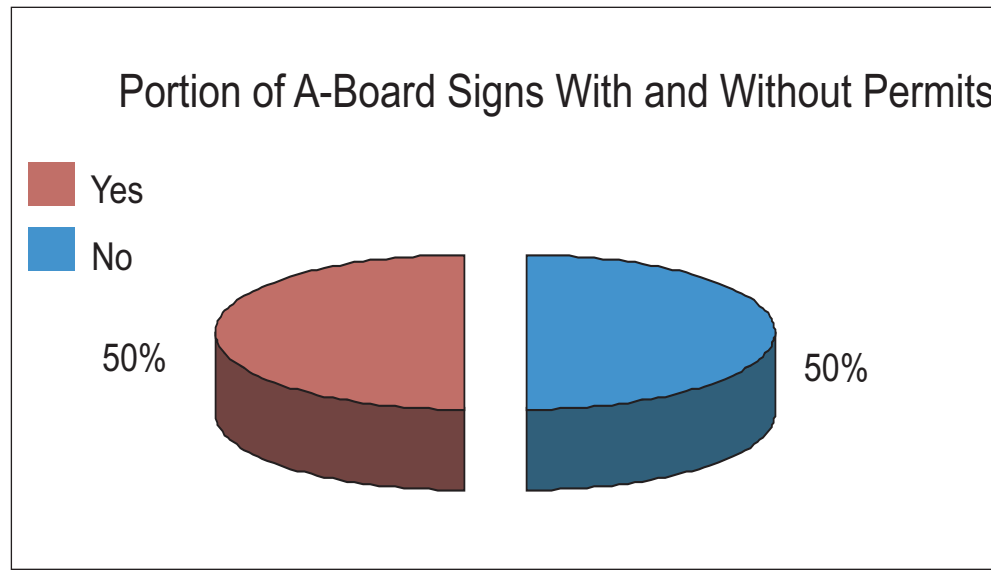
Of the 99 tobacco retailers with visible tobacco advertising, 70 had other advertisements for youth-orientated products also visible. Some times ads were adjacent, other times they shared a window.

Chart 5: Co-Mingling [4]



Precisely half of the observed A-board signs were properly permitted.

Chart 6: A-Board and Other Portables



[1] After performing its initial phase of field observation, the Summer 2009 Asset-Mapping Group added several school buffer zones to the above list. There were two reasons for this amendment. First, because of a restructuring of Portland public schools, some of the above schools did not fit neatly into the traditional elementary (K-5), middle (6-8), and high (9-12) model. Secondly, it became evident after performing field observation that not all retailers listed as vendors of tobacco by ReferenceUSA in fact sold tobacco products. Therefore, some schools no longer fit into their previous categories based on number of retailers associated with their buffer zones. Beaumont Middle School, Harriet Tubman Leadership Academy, and John H. Johnson Leadership Academy were added to the group's study.

[2] The purpose of comparing tobacco-specific signage with all other signage is to provide a basis from which to begin understanding the presence of "co-mingling".

[3] Because Excel aggregates values for the multiple Plaid Pantries, they appear on the high-end of the above chart.

[4] Documenting the presence of "co-mingling" (the intentional or unintentional inclusion of youth-oriented product advertisement among tobacco-specific advertising) depended on a shared understanding of youth-oriented products. Advertisements for beer and the Oregon lottery were heavily mixed with tobacco advertisements and were not considered youth-oriented; however, ice cream, cookies, various soft drinks and candy were considered youth-oriented products.



Safe Routes to School Background

The Safe Routes to School (SRTS) program began in Denmark in the 1970s to provide children with the opportunity to walk and/or bike to school under safe conditions. In 1997, the first SRTS venture in the United States was initiated in New York. Similarly successful programs now operate throughout the country. Today, SRTS is a national program dedicated to providing and maintaining safe pedestrian and bicycle routes for all children (SafeRoutes, 2008).



Source: Safe Routes Org Online

The objective of the SRTS program is to improve the health of children by increasing their level of physical activity; a low percentage of children actually receive the appropriate amount of physical activity for their age (SafeRoutes, 2008). SRTS is also concerned with how the standard method of traveling to school (by automobile) has affected and will continue to affect our environment. Effectively, when fewer children walk or bike to school traffic congestion and vehicle-emission pollution increases.

The SRTS program seeks innovative solutions to the above two problems and has developed activities and programs that focus on what it calls the 4 E's: 'Education', 'Enforcement', 'Engineering' and 'Encouragement'.

'Education' focuses on informing the school community about the broad range of transportation choices, instructing them in important life-long safety skills and offering school-bound and school-area driver safety campaigns. 'Encouragement' makes use of events and activities that promote walking and bicycling. Children, parents, teachers, school administrators and others are all involved in special events like International Walk to School Day and ongoing activities like The Walking School Bus. 'Enforcement' involves partnering with local law enforcement to ensure drivers obey traffic laws, and initiates community enforcement such as crossing guard programs. 'Engineering' relies on city planners to physically improve the infrastructure surrounding schools to reduce speeds and establish safer crosswalks, walkways, trails and bikeways. Portland's Safer Routes to School program has built upon this national matrix by including an additional E. 'Evaluation' was added to monitor and research outcomes and trends relating to how well communities respond to the various SRTS programs (City of Portland Office of Transportation, 2009).



Portland began planning for its pilot program in 2000 and formally initiated the program in 2005. Today, Portland's SRTS program links more than 25 schools with their respective communities using a network of established walking and biking routes identified by Portland Bureau of Transportation (Fig 1). Other data were also utilized, including traffic speeds and volumes, crash data and school community feedback (Graff, 2009). Recommended routes can be accessed online at www.portlandonline.com/TRANSPORTATION/index.cfm?c=40511 (City of Portland Office of Transportation, 2009).

Currently, SRTS focuses exclusively on traffic safety (Graff, 2009) and has not yet analyzed the possible intersection of safe routes with tobacco advertising. However, data included with this report could be used by future researchers wishing to develop deeper understandings of such intersections (Fig 2).

Signage Regulation Background

The City of Portland regulates signs of all kinds, shapes and sizes. Title 32 of the city code applies to signage and related regulations. Interior signs and/or advertising are not currently regulated in Portland (City of Portland, 2009, Millard, 2009). Fieldwork consisted of documenting both exterior advertising for tobacco and coverage of clear windows and doors. Familiarization with sign code was considered an important element because many of the advertisements for tobacco products are exterior signs covered by the sign code. Not all aspects of the code were applicable to our fieldwork; see Appendix for further information on Title 32-Signs and Related Regulation.

Multnomah County representatives expressed particular interest in properly versus improperly permitted A-board signs for tobacco products. The Signage and Related Regulation code is very complex and the

ability to check for compliance requires knowledge of base zones and additional overlay as well as planning district requirements at each individual location. In general, locations of study were assumed to be in commercial (rather than residential) zones, which are more permissive with regards to both the number and types of signs allowed.

Fieldwork revealed that three types of exterior signage were most prevalent: A-board/portable signs, temporary wall signs and temporary freestanding signs. Portable signs have size limits and must be registered with the Bureau of Developmental Services (BDS) and have a visible permit (City of Portland Bureau of Development Services, 2009). Temporary wall signs are allowed for up to two subsequent 180-day periods without registration or permits, although they should still meet permanent sign requirements. Temporary wall signs are restricted to one per site. In the case of freestanding signs, one per site or 300 feet of arterial street frontage is allowed. Temporary freestanding signs are defined as those attached to a pole or other support structure, not including building walls. There is a limit to overall signage allowed based on the size of the primary building wall, with portable signs excluded from that limit. All permanent signs are required to be registered with BDS.

Based on field observations it is doubtful that all tobacco retailers are "up to code" with their signage. For instance, it was noted that several A-board signs around the Portland State University campus did not have visible permits and only half the A-boards documented in this study had visible permits. Furthermore, several privately-owned convenience stores posted more temporary wall or temporary freestanding signs than sign regulations currently allow. Hence, inspection and enforcement of signage may be a regulatory tool Multnomah County may use to control and limit tobacco advertising.



Discussion

The methodological challenges and results of this study point to several topics that require further investigation and clarification. Aside from the inherent challenges of maintaining a consistent level of accuracy and objectivity in any research endeavor, several project-specific obstacles were encountered that should be noted. Additionally, the findings underscore a few generalizations that may help to inform/guide future research.

Challenges

While the outsides of stores are located in the public right of way, several store owners/employees were not comfortable with having their properties photographed. At least one group member was asked to put their camera away and leave.

The Portland Public School (PPS) system is currently undergoing a dynamic phase of restructuring. Since RLIS data has not been updated in tandem with this restructuring, some inaccuracies were encountered during the field-observation portion of the research. Furthermore, because of structural shifts currently taking place in PPS, it was difficult to find maximum, minimum and mean values for traditional elementary, middle, and high schools.

On balance, ReferenceUSA provided relatively accurate locations of tobacco outlets. However, field observations revealed some inaccuracies (such as unlisted outlets, outlets that did not sell tobacco, closed outlets, etc.) that further convoluted the attempt to locate maximum, minimum and mean values for elementary, middle, and high schools.

The complex nature of municipal coding made it difficult to understand which outlets were in violation of sign regulations.

Recommendations for Future Research

Spatial trends in our sample suggest that schools in North, Northeast and Downtown Portland experience greater exposure to tobacco advertising than those located in SW and SE Portland. The group recommends that future research focus specifically on these areas.

Since signage area exceeds 30 percent of storefront area of outlets surrounding Irvington Elementary and DaVinci, Trillium, and Beaumont Middle schools the group recommends that future research be focused in these areas.

Because of the difficulty of defining both impact and type of individual schools, this information does not seem to fit well with the original classification of schools. As schools in Portland tend not to fit in consistent type and impact categories, the process of choosing schools for those categories proved somewhat arbitrary.

Future researchers should keep in mind that corporately-owned outlets generally have fewer signs than privately owned outlets.

As updated census data becomes available, future research should attempt to incorporate socioeconomic information into the research described in this report to determine if specific groups may be disproportionately targeted.



Summer 2009 Asset-Mapping Capstone Policy Brief

- The findings of the Summer 2009 Asset-Mapping Capstone Group (SAMCG) highlight some clear trends in tobacco advertizing around Portland public schools which may be used to inform future research/policy goals.

Since SAMCG employed a unique methodological system, its findings may not always be consistent with those gleaned from prior research.

After sorting all schools by discreet number of tobacco retailers, SAMCG determined that the number of outlets that could be associated with school buffer zones ranged from zero to 33.

The determination of statistically-low, -median, and -high numbers of outlets associated with each school in its study may be used to assist some initial decisions of future researchers.

However, as schools in Portland tend not to fit in consistent type and impact categories, the process of choosing schools for those categories proved somewhat problematic. Future researchers should avoid organizing Portland public schools in traditional categories (i.e. elementary, middle, high).

The amount of clear-surface coverage varies significantly among retailers. Of all observed outlets, fourteen had window coverage greater than 30 percent. All fourteen tobacco retailers with over 30 percent clear-surface coverage are independently owned, as opposed to cor-

porate-branded stores. While half of these “high-coverage” retailers are located in North Portland, the worst offenders are located in Southeast and Northeast Portland (Quick Stop and Knott St Grocery). SAMCG feels it would be appropriate for future researchers to further examine the spatial dynamics of this relative clustering.

Since signage area exceeds 30 percent of storefront area of outlets surrounding Irvington Elementary and DaVinci, Trillium, and Beaumont Middle schools, SAMCG recommends that future research focus on these areas.

There appears to be a great deal of variation among the observed outlets in the square-foot measurement of tobacco signage—while some outlets have little or no tobacco signage, others seem to focus mainly on this product. The size of the outlets’ storefront plays a role, as do certain design elements such as door and window placements and whether there are any exterior architectural details. Looking for patterns in area consumed by tobacco signage may be the topic of future research.

Based on the observations of SAMCG it appears that corporate-branded outlets (with the exception of Astro) are relatively uniform and signage is minimal. Future researchers may wish to further examine this issue.

When the total signage areas of individual tobacco outlets and total tobacco signage areas are considered in aggregate, it is clear that tobacco signage ranks significantly within overall advertizing area. Fu-



ture policy makers may wish to examine the possibility of capping the presence of tobacco-specific signage in relation to all other signage as a means of limiting its potential impact.

Of the 99 tobacco retailers with visible tobacco advertising, 70 had visible advertisements for products that may be considered youth-oriented. While SAMCG understands the theoretical basis for the argument against “co-mingling,” it firmly believes that locating incidences of youth-oriented advertising among tobacco-specific advertising may paint a misleading picture; proving or disproving the possible impact of “co-mingling” would require enormous research efforts.

With regards to signage regulation and code, municipal authorities are interested in exterior signs only. Future research may wish to explore the possible impact of interior-display signage.

With the exception of portable signs, the Bureau of Developmental Service (BDS) registers, permits and, enforces signage code.

Inspection and enforcement of signage may be a regulatory or outreach tool for Multnomah County to control and limit tobacco advertising.

Enforcement of signage-code infraction is complaint driven and it is questionable whether all tobacco retailers are currently “up to code” with their signage; SAMCG sees this as a unique challenge for future policy makers who may wish to create additional sign-related regulations.

While the Safe Routes to School (SRTS) program is primarily concerned with the physical health of school-aged children, there has been little research devoted to the incidence and possible impact of tobacco advertising along the program’s designated routes. Future researchers could specifically examine these routes in order to quantify the presence of tobacco-specific signage.



City of Portland. Title 32 Signs and Regulations. June 30 2009.

<HYPERLINK "http://www.portlandonline.com/Auditor/index.cfm?c=28196" http://www.portlandonline.com/Auditor/index.cfm?c=28196>

City of Portland Bureau of Developmental Services. Signage and Awning Permits. June 29 2009.

<HYPERLINK "http://www.portlandonline.com/bds/index.cfm?c=36686" http://www.portlandonline.com/bds/index.cfm?c=36686>

City of Portland Office of Transportation. Kuck, Cheryl Emma. 2009. City of Portland. June 30 2009. <http://www.portlandonline.com/TRANSPORTATION/index.cfm?c=46019>.

Graff, Gabriel. Email. July 10 2009.

Millard, A. Personal Interview. July 16 2009

SafeRoutes. Daul, Micheal and Gillenwater, Zoe. 2008. National Center for Safe Routes to School. June 30 2009. < HYPERLINK "http://www.saferoutesinfo.org/index.cfm" http://www.saferoutesinfo.org/index.cfm>

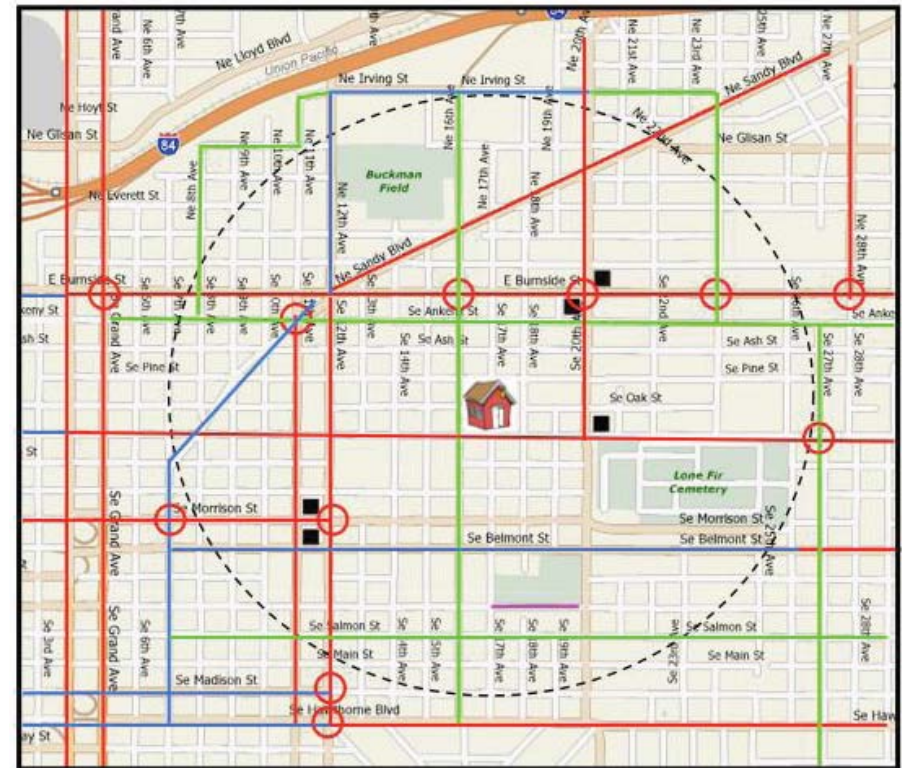
Wakefield, Melanie A, Terry-McElrath, Yvonne M, Chaloupka, Frank J, Barker, Dianne C, Slater, Sandy J, Clark, Pamela I and Giovino, Gary A. "Tobacco Industry Marketing at Point of Purchase After the 1998 MSA Billboard Advertising Ban." American Journal of Public Health (2002): 937-40.



Figure 1: Criteria Informing Safe Routes to School Maps

CITY of PORTLAND BIKE MAP CRITERIA	CITY COMMUTER MAP	NEIGHBORHOOD MAPS	SW Map in SW Walking Map				
category & approx color	general criteria	general criteria	general criteria				
Off-Street Paths Multi-Use, no motorized traffic	paved sidewalks unless indicated otherwise; occasionally indicated to make short connexions			fairly low traffic	moderate traffic	high traffic	very high traffic
Shared Roadway on lower traffic street	streets less than 5,000 ADT (approx); other factors (parking use & turnover, traffic calming/speeds, etc.) considered	streets less than 3,000 ADT (approx); less than 2,000 preferred	streets less than 2,000 ADT	streets 2,000-2,999 ADT	streets 3,000-3,999 ADT	streets 4,000-4,999 ADT	streets over 5,000 ADT
Bike Lanes or wide shoulders on higher traffic streets	shoulders 4+ feet (approximate)						
Shared Roadway with wider outside lane on moderate and higher traffic streets	outside lane 12+ feet (20+ feet with parking). Amount of on-street parking use & turnover considered.	Same as left, but only streets with volumes approx 8,000 or less used	wider outside lane indicated by solid black line adjacent to appropriate street color				
Difficult Connections in areas with higher traffic, minimal lane widths, or other problems	use only when map connection needed & no alternative available	use only when map connection needed & no alternative available; use only for very short segments	use only when map connection needed & no alternative available, or if wider outside lane available				
Shared Roadway / Difficult Connection	lower traffic street (<4,000 ADT) with sight distance problems and higher speeds	lower traffic street (<3,000 ADT) with sight distance problems and higher speeds	NOT DEFINED				
			NOT DEFINED				

Figure 2: Buckman Elementary School Safe Routes Map Coincident with Tobacco Retailer Locations

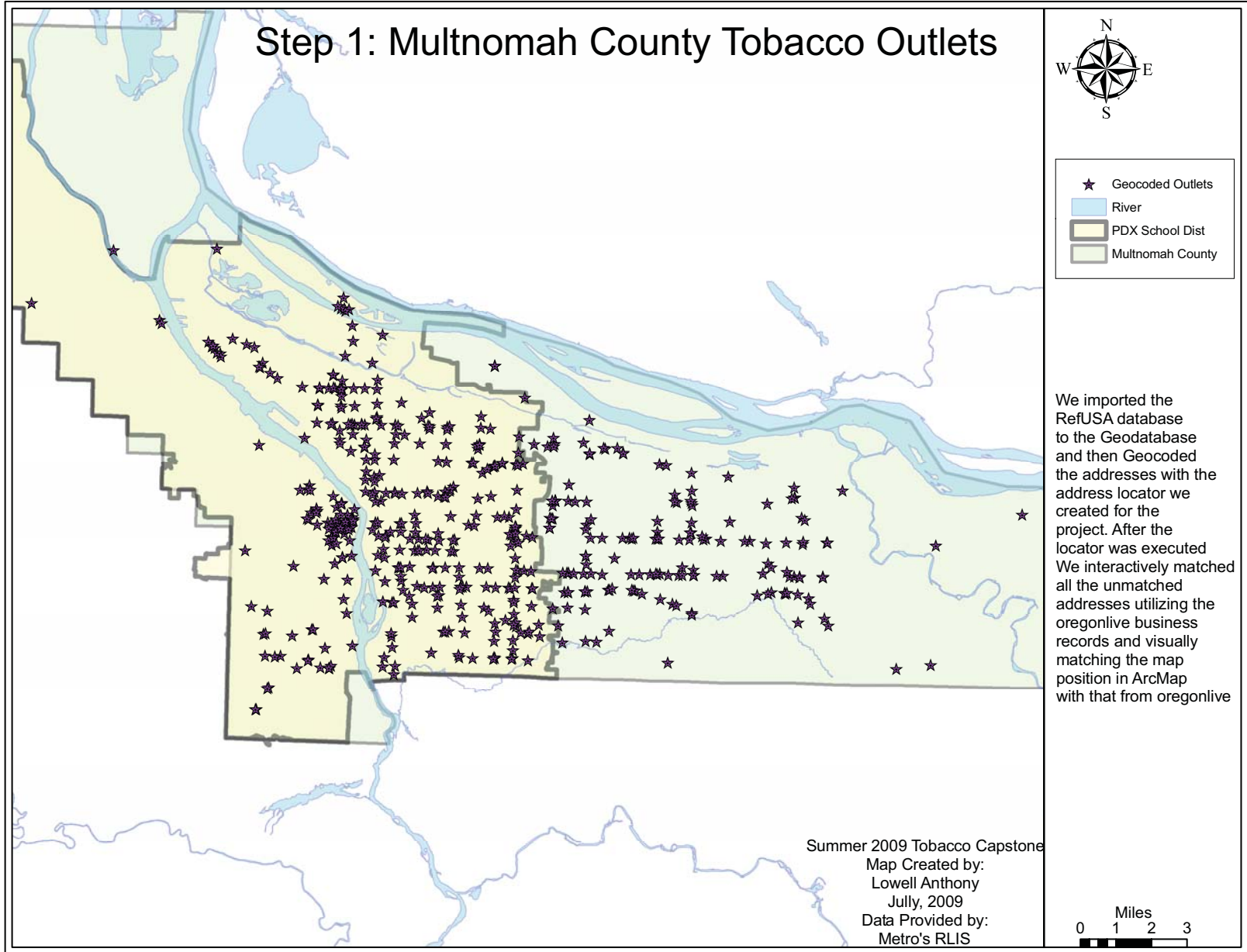


BUCKMAN ELEMENTARY SCHOOL

- RECOMMENDED ROUTES TO SCHOOL
- OFF-STREET PATHS (No Motor Vehicles)
- BIKE LANES (Painted lanes on higher traffic streets. Adult supervision is recommended.)
- STREET WITH MORE TRAFFIC (Adult supervision is recommended for younger children)
- CONVICIENCE STORE LOCATIONS
- DIFFICULT INTERSECTION



Step 1: Multnomah County Tobacco Outlets

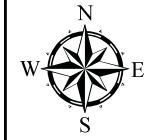
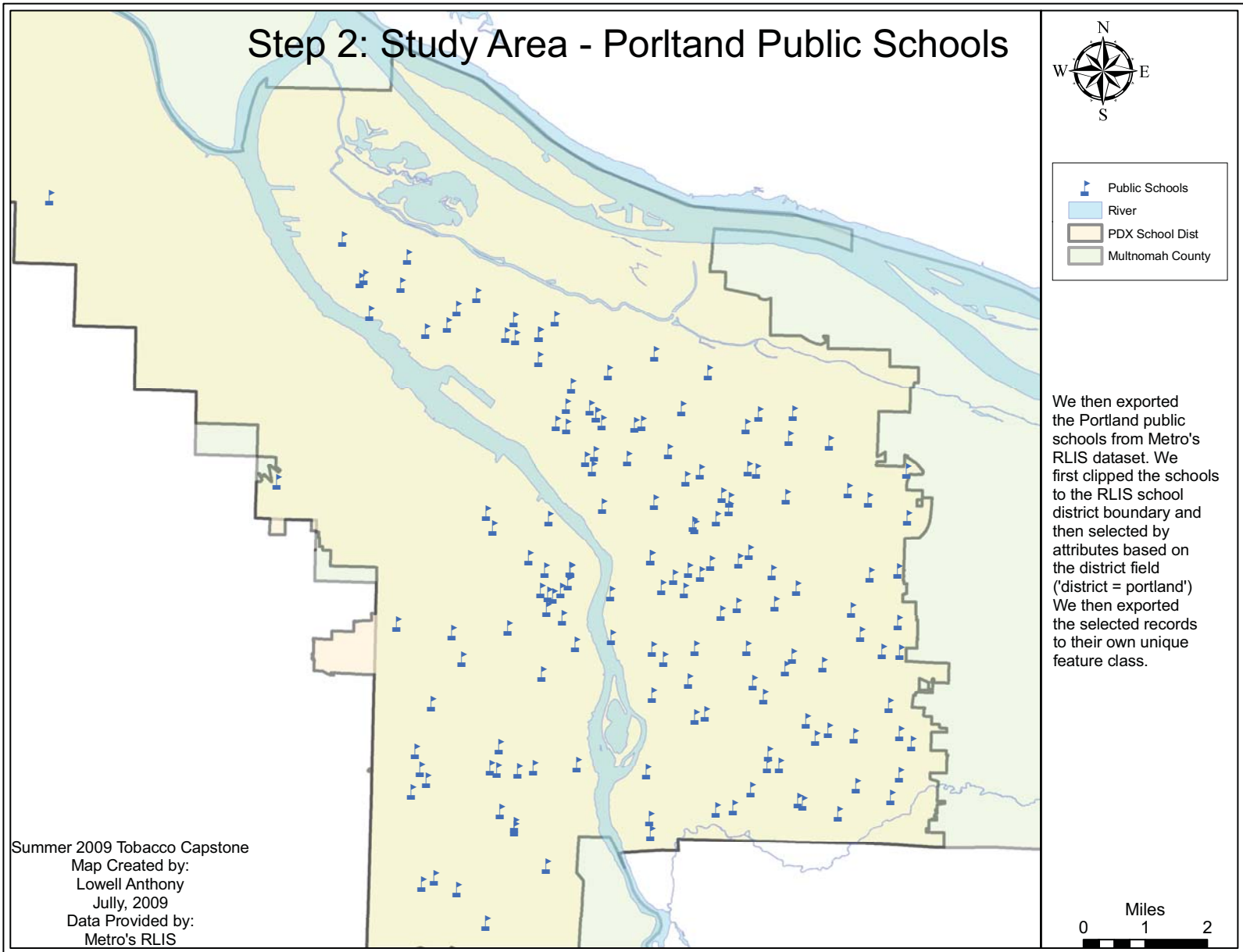






We imported the RefUSA database to the Geodatabase and then Geocoded the addresses with the address locator we created for the project. After the locator was executed We interactively matched all the unmatched addresses utilizing the oregonlive business records and visually matching the map position in ArcMap with that from oregonlive

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Step 2: Study Area - Portland Public Schools

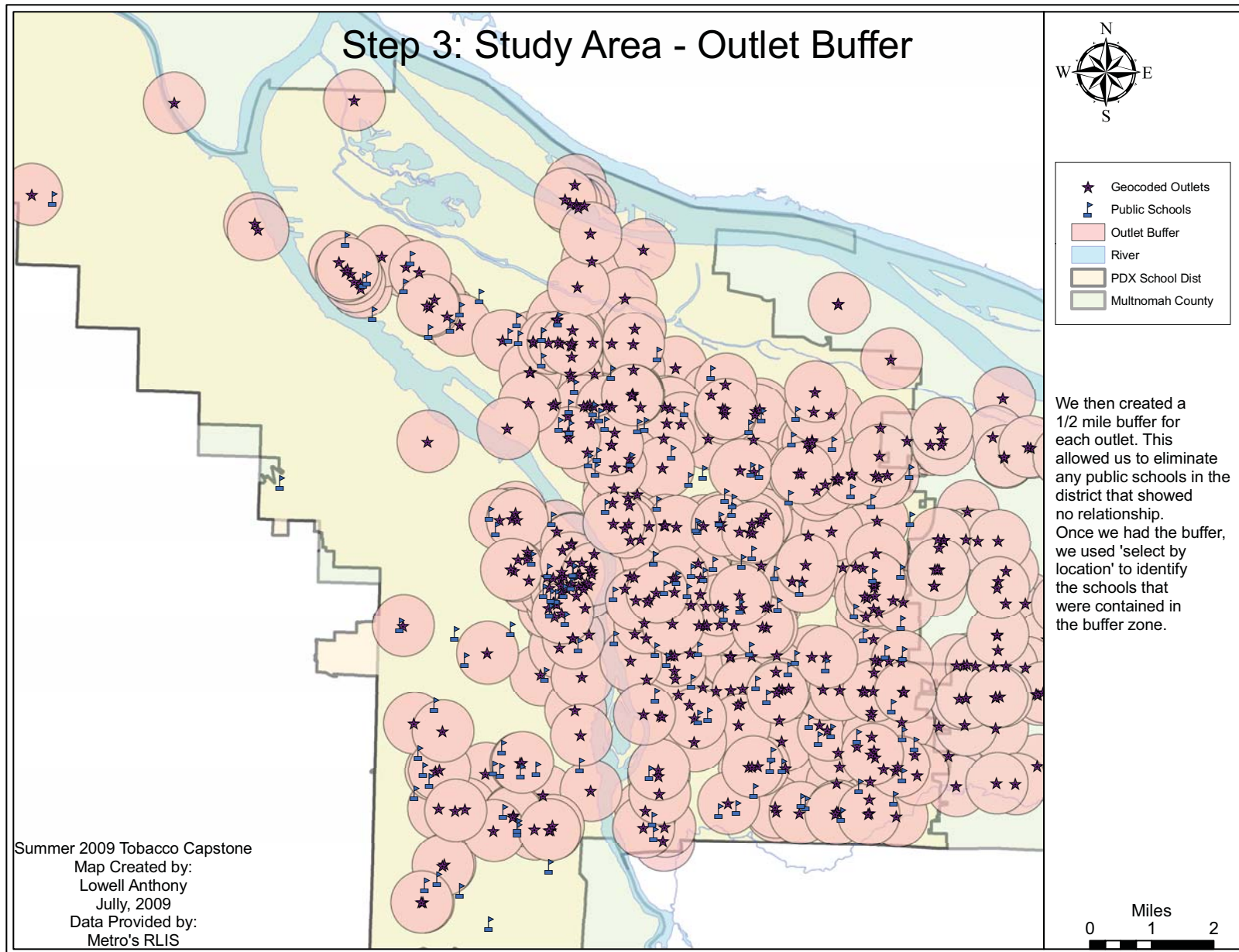


-  Public Schools
-  River
-  PDX School Dist
-  Multnomah County

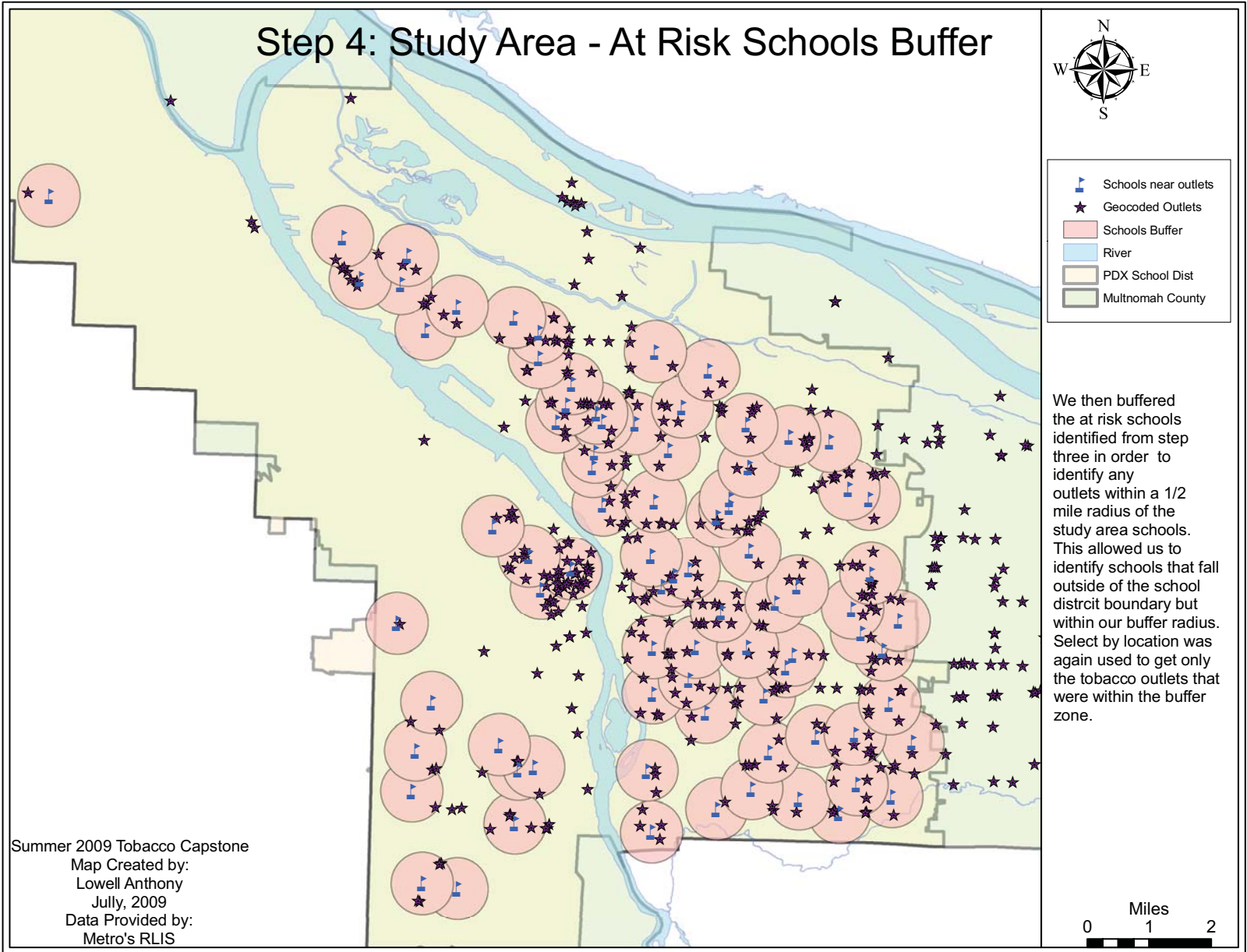
We then exported the Portland public schools from Metro's RLIS dataset. We first clipped the schools to the RLIS school district boundary and then selected by attributes based on the district field ('district = portland'). We then exported the selected records to their own unique feature class.

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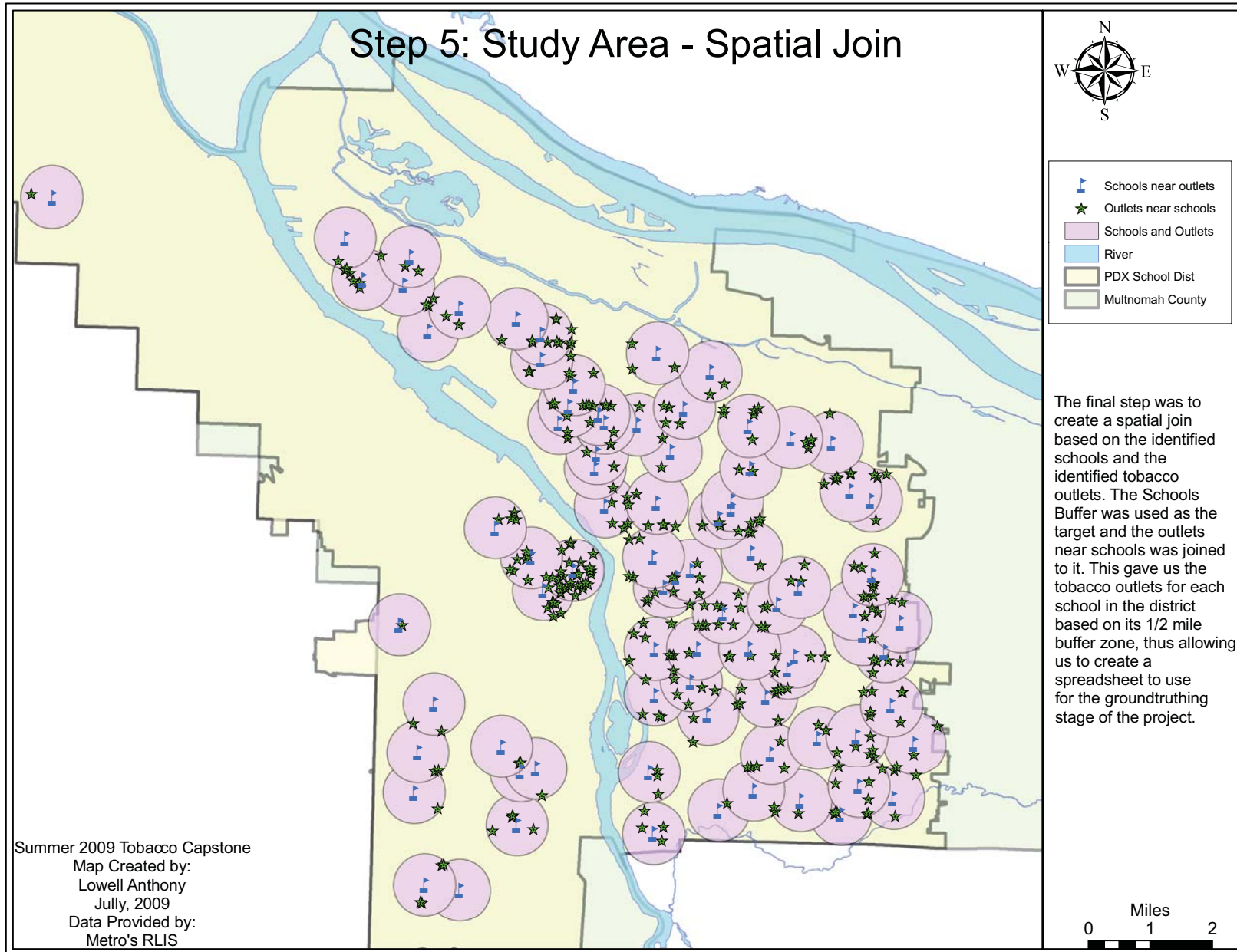
Step 4: Study Area - At Risk Schools Buffer



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Step 5: Study Area - Spatial Join

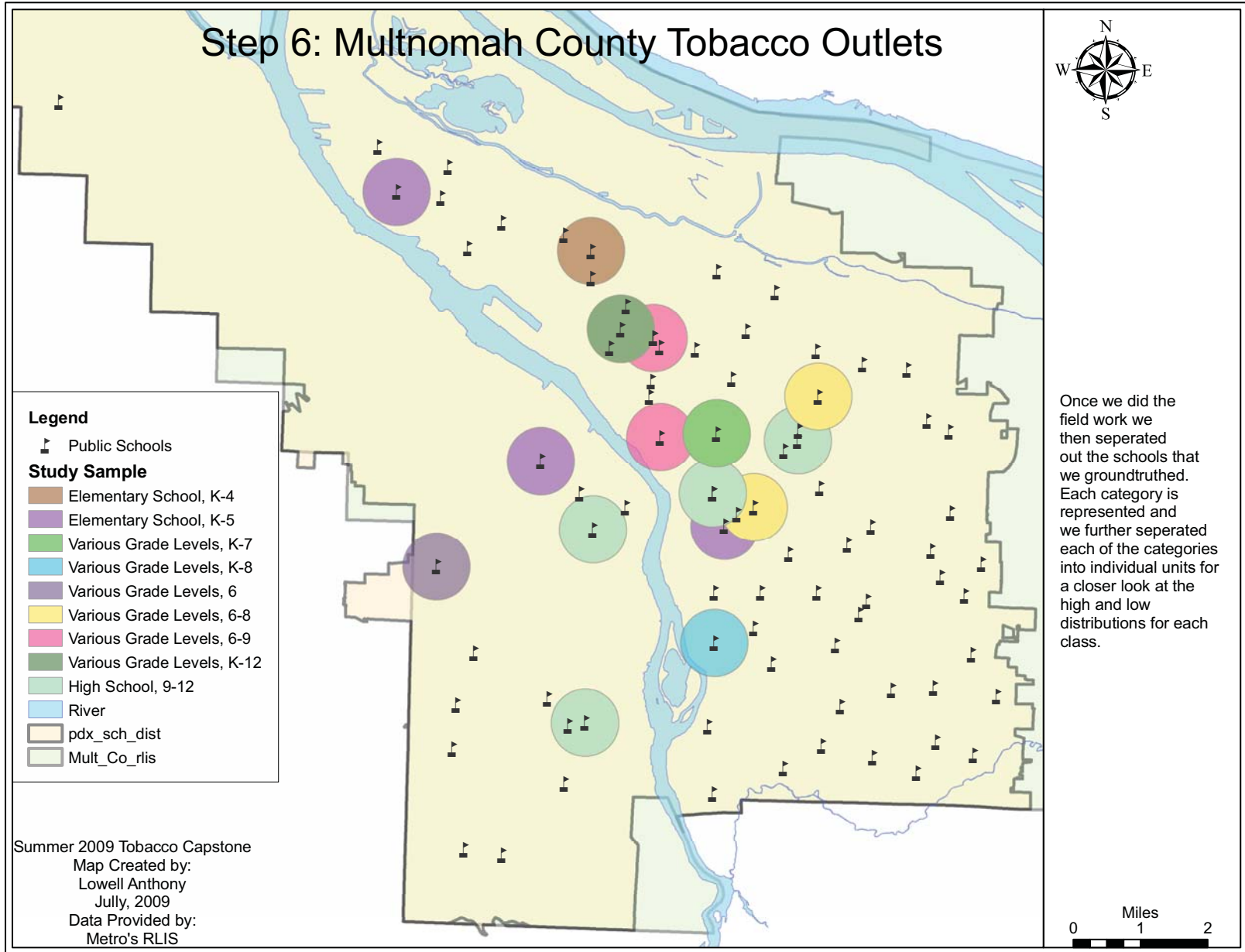


The final step was to create a spatial join based on the identified schools and the identified tobacco outlets. The Schools Buffer was used as the target and the outlets near schools was joined to it. This gave us the tobacco outlets for each school in the district based on its 1/2 mile buffer zone, thus allowing us to create a spreadsheet to use for the groundtruthing stage of the project.

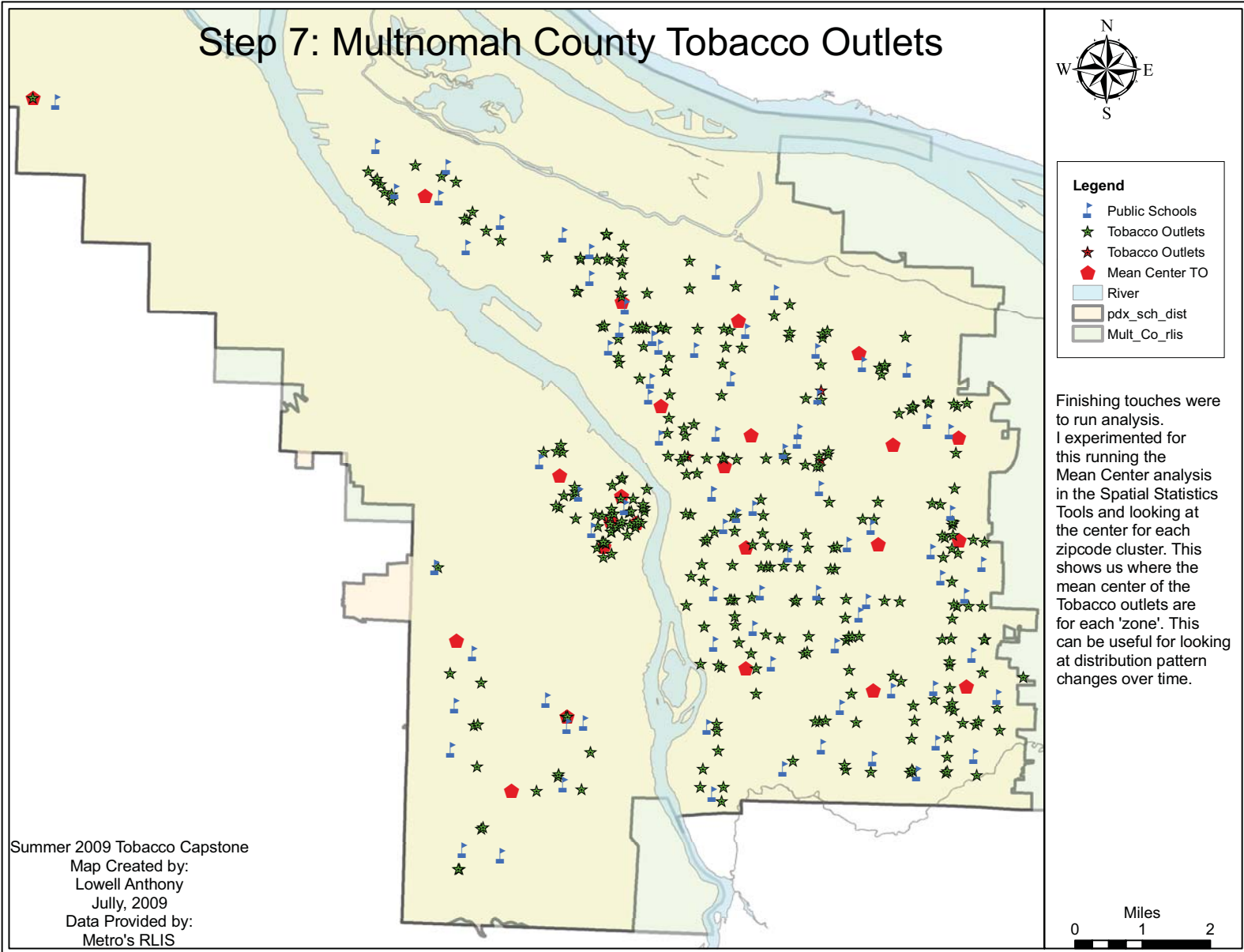
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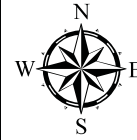
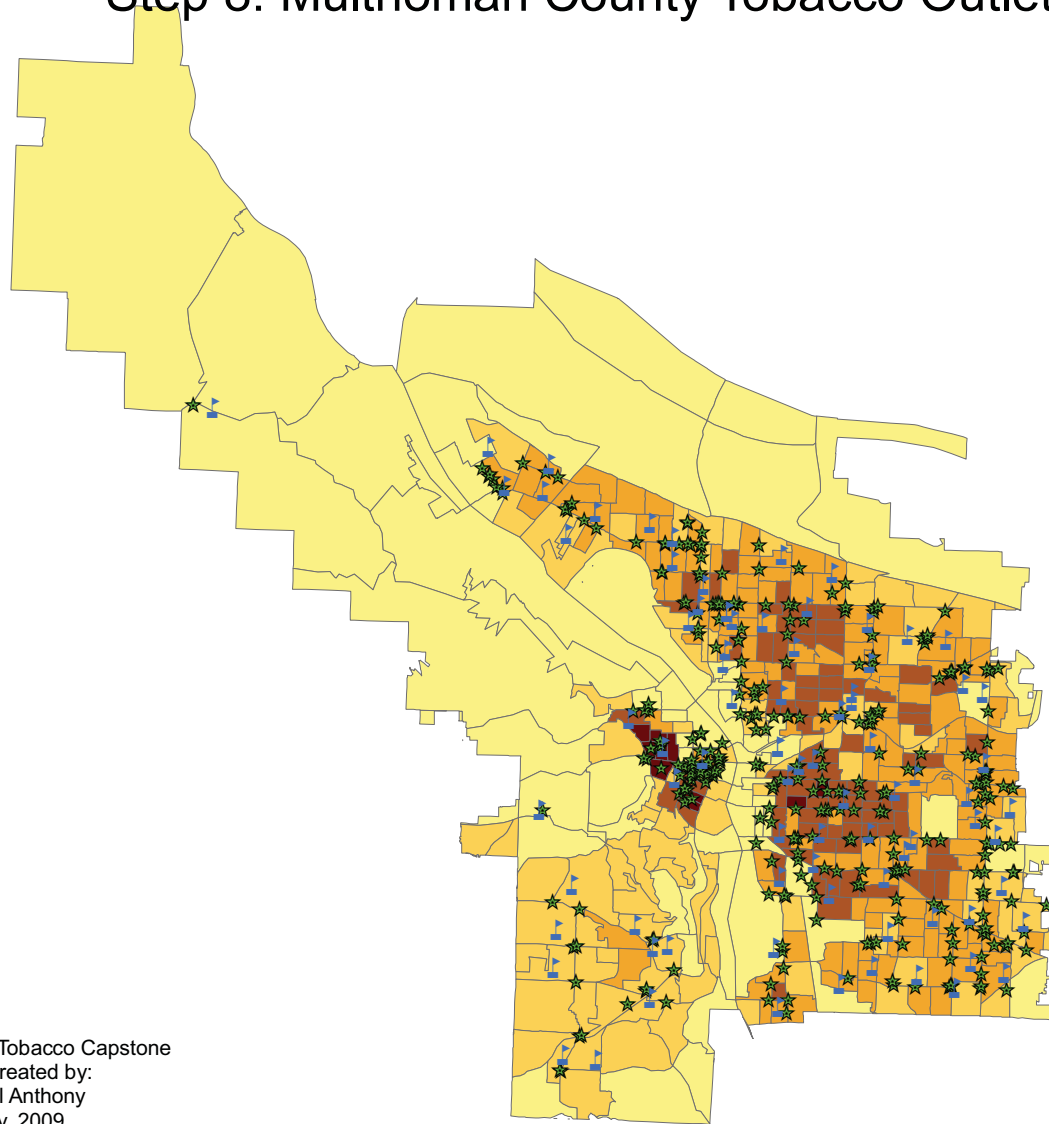
Step 6: Multnomah County Tobacco Outlets





Step 7: Multnomah County Tobacco Outlets



Step 8: Multnomah County Tobacco Outlets



Legend

-  Public Schools
-  Tobacco Outlets

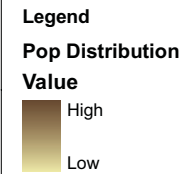
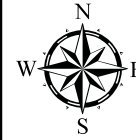
Another question that usually comes from doing research such as this is can any association be made between the distribution of the data and the distribution of the population itself? Traditional methods of looking at population distribution usually involves the census block data, the problem that arises from this is that aggregate census map data doesn't reflect the actual distribution of population as we can see here.



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Step 9: Multnomah County Tobacco Outlets



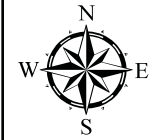
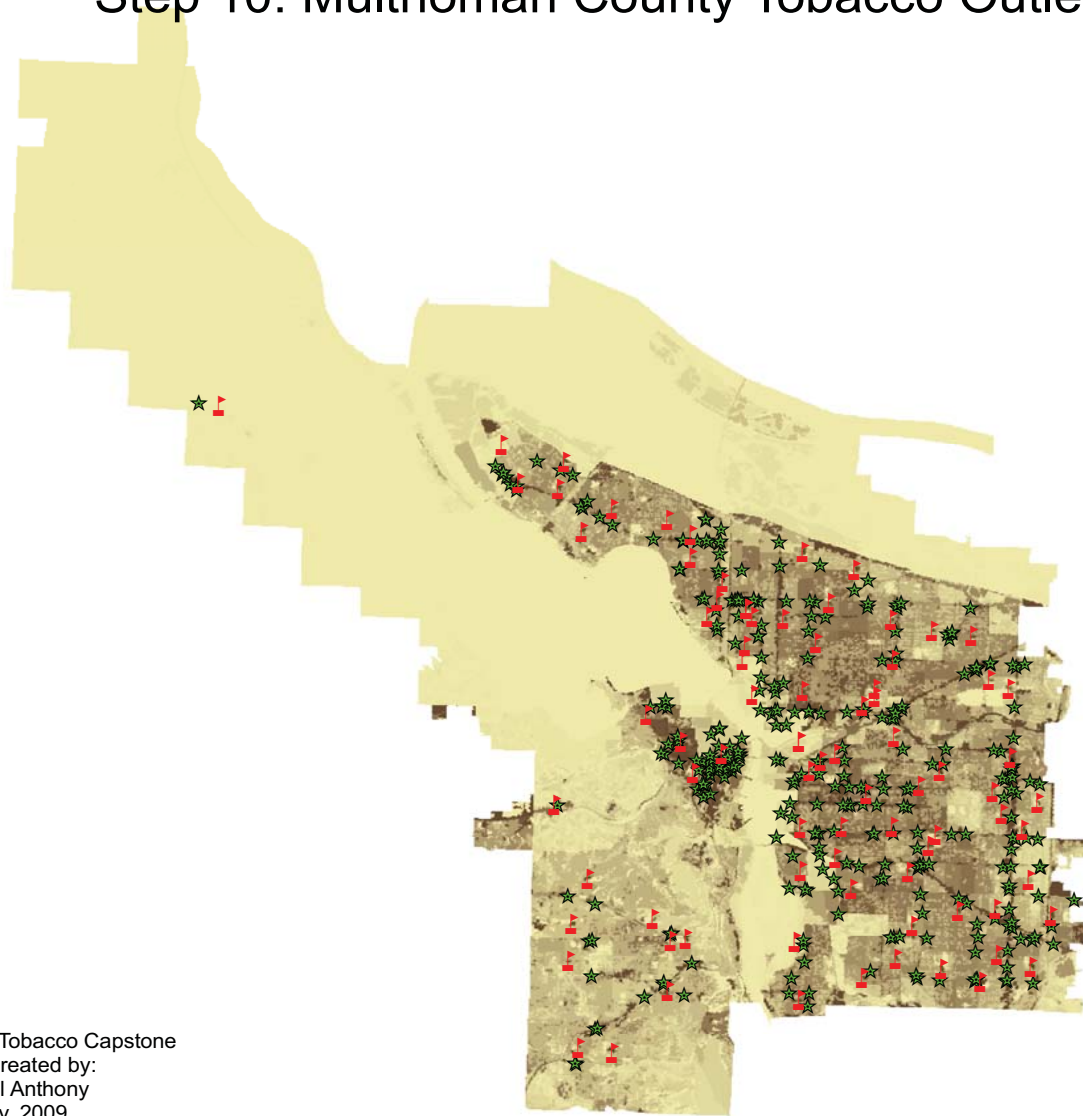
Daysmetric mapping is one method used to disaggregate the census data in order to better represent population distributions. To accomplish this the MRLC (Multi-Resolution Land Characteristics Consortium) land cover data was reclassified and weighted based on its relative impact and density.





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Step 10: Multnomah County Tobacco Outlets



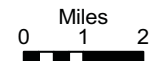
Legend

-  Public Schools
-  Tobacco Outlets

Pop Distribution Value

-  High
-  Low

Calculating the difference between the population and landuse allows use to better visualize distribution relationships within our data.



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