

Costco Wholesale Corporation Site Suitability in the Seven-County Metro Area of the Twin Cities, Minnesota USA

Barbara L. Wolff

Department of Resource Analysis, Saint Mary's University of Minnesota, Minneapolis, MN 55404

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Abstract

Costco Wholesale Corporation operates six warehouse locations in the seven-county metro area of the Twin Cities, identified as Minneapolis and St. Paul, Minnesota USA. The main objective of this study was to collect data about the existing six Costco Wholesale Corporation (herein after referred to as Costco) warehouse locations and its customers. These data were used to perform analyses to determine suitable location(s) in the seven-county metro area for Costco for expansion. This was accomplished by undertaking analysis of the current store locales to see if a pattern emerged as to why current store locations were initially placed where they are. This paper looks at Costco as a company, their goals and products, and provides insight as to what constitutes a Costco customer. Geographic Information Systems (GIS) were used to visually display store locations as well as to plan a tour of prospective areas to assess availability, land-use, and zoning to determine the best area in the seven-county metro area for Costco to locate their next warehouse store.

Introduction

Costco opened their first warehouse in Seattle, Washington in 1983. Today they have grown to 608 warehouses, operating in the United States (U.S.), Puerto Rico, Canada, the United Kingdom, Taiwan, Korea, Japan, and Australia. Costco retains 66.5 million card holders with annual revenue of \$88.9 billion. It employs 160,292 full-time and part-time employees (Costco, 1998-2012).

Costco offers high-quality, brand name merchandise including jewelry, apparel, housewares, major appliances, electronics, office and automotive supplies, packaged and fresh foods, tobacco, cleaning and institutional supplies, and alcoholic beverages. Additional services include pharmacy,

optical, one-hour photo, hearing aids, and gas stations.

In addition, Costco offers small business services including payroll processing, web site hosting, small business loans and lines of credit, health insurance and logo merchandise (Morris, 2004).

Three types of membership are offered: Business (small business owners, \$55), Gold Star (individual consumer, \$55), and Executive (business owners receive an annual 2% reward, \$110).

Costco's business model is to sell a limited number of items, keep costs down, rely on high volume, pay workers well, have customers buy memberships, and aim for upscale shoppers, especially small-business owners. In addition, Costco does not advertise (Cascio, 2006).

To turn inventory quickly, a typical Costco stocks 4,000 items: 3,000 “need based” items such as food, deli, bakery, and pharmacy; and 1,000 “want-based” items such as books, seasonal, home décor, and electronics. In addition to offering high-quality, brand name merchandise, Costco also offers their signature private label, Kirkland, accounting for 20 percent of total sales (Morris, 2004). Costco sets a strict cap on its profit margin per item: 14 percent for all goods except Kirkland-brand items, which have a 15 percent cap (Cascio, 2006).

Costco’s working capital model allows it to be successful with razor-thin overall profit margins while earning an attractive return on investment. Their investment is near zero (negative working capital) and accomplished with very modest profits. Costco passes on the benefit of lower prices to the customer. Operating with negative working capital, Costco has 11 days of free customer cash amounting to \$3.6 million per store, more than enough to build a new store for each one currently open (Mullins, 2009).

Cascio (2006) states the average annual income of Costco’s customers is \$74,000. Costco also targets college educated households consisting of two or more people (Morris, 2004).

Operating six warehouse store locations in the seven-county metro area: Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington, Costco is competing against discount retailers, Sam’s Club and Walmart. This paper concentrates on the seven-county metro area for analysis, although all three retailers operate store locations both nationally and internationally.

Background

The phenomenon of discount retailing is not a new concept with the first discount stores appearing in the 1950’s. A modern discount store is defined as a departmentalized retail establishment that makes use of self-service techniques to sell a large variety of hard and soft goods at uniquely low margins. Over the span of several decades, the sector has emerged from the fringe of the retail industry to becoming one of the major sectors (Jia, 2008).

The impacts of store locations are long-lasting and may impact future operational and logistical decisions. Coupled with the high cost associated with property acquisition and facility construction, store location projects are long-term investments.

Operational factors include store management, customer service, merchandise mix, cleanliness, displays, decoration, and layout. Logistical factors include parking spaces, signage, square footage, landscaping, and accessibility (ESRI, 2007).

Success at expanding operations requires intuition as well. The look and feel of a property and neighborhood cannot be discounted. Most businesses that deal with site selection issues include management’s intuitive expertise as well as a broad range of modeling techniques.

The main objective of this study was to collect data about the existing six Costco warehouse locations and customers and using that data to perform analyses. The goal is to determine the best area in the seven-county metro area to locate the next warehouse store. This was accomplished by analyzing current store locales to see if a pattern emerged as to why current stores are located where they are. This paper looked at the locations of Costco’s main competition, nearby Sam’s Club and Walmart stores, for interest.

Acquisition of Data

Data needed for this study included U.S. census data. Data examined were population numbers, household size, families, economic status, employment status, education level, and proximity to major roads. The data were used to identify demographics of Costco customers.

The bulk of the data was acquired from the U.S. Census Bureau. These included year 2010 Summary File 1 (SF1) data collected from the short form and Summary File 3 (SF3) data collected from the long form. SF1 has the most geographic detail, with data for census block groups and blocks. SF3 includes data on block groups (U.S. Census Bureau, n.d.). These data were used because of their easy access and high reliability.

Census tract summary data were also obtained from the U.S. Census Bureau. A tract is a small relatively permanent statistical subdivision of a county designed to be comparatively consistent units in regards to population characteristics, economic status, and living conditions. Census tracts generally contain between 1,000 and 8,000 people with an optimum size of 4,000 people. Census tract boundaries are delineated with the intention of being stable over many decades so they generally follow relatively permanent visible features (U.S. Census Bureau, n.d.).

Company information and existing site addresses of Costco, Sam's Club, and Walmart locations were obtained from company websites. Municipality planning and land use information was obtained from the City of Eagan and City of Woodbury websites.

Major roads, metro county boundaries, and the state boundary were obtained from the Minnesota Department

of Natural Resources (MN DNR, 2012).

Software used for this analysis study was Environmental Systems Research Institute (ESRI) ArcGIS 9.3. Microsoft Excel was used to store and manage site locations and demographic data before exporting to GIS.

GIS was used to visually represent store locations in the seven-county metro area, consisting of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington counties (Figure 1). Figure 2 shows the seven-county metro area with its geographic placement in the State of Minnesota.



Figure 1. Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties.

Methods

Manipulation of Data

Store locations for Costco, Sam's Club, and Walmart were entered into separate Excel databases. Table 1 depicts a portion of the Costco location spreadsheet. The database file was added to ArcGIS Map and each store's address was geocoded by location using an address locator. The geocoding resulted in a point shapefile representing the geographic location of

each Costco, Sam's Club, and Walmart store in the seven-county metro area (Figure 3).

Demographic 2000 census data were obtained from the U.S. Census Bureau and were converted into geodemographic data through a join operation and exported as a new shapefile.

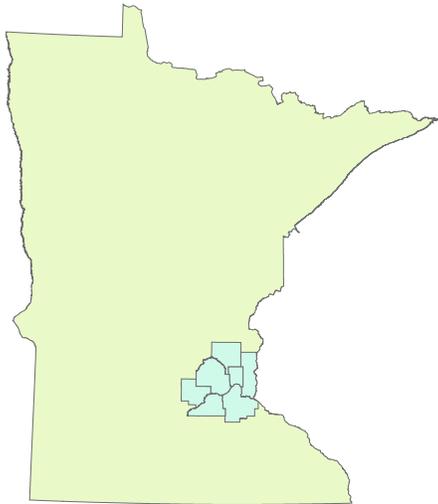


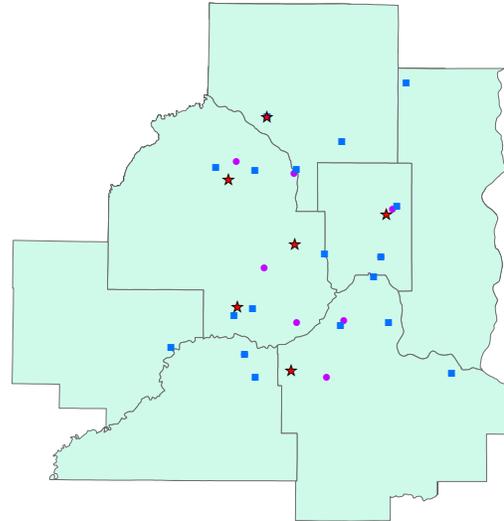
Figure 2. Location of the seven-county metro area in the Twin Cities within the State of Minnesota.

Table 1. Portion of Excel database representing Costco locations.

Address	City	State
5801 West 16th St	St Louis Park	MN
14050 Burnhaven Dr	Burnsville	MN
12547 Riverdale Dr NW	Coon Rapids	MN
12011 Technology Dr	Eden Prairie	MN
11330 Fountains Dr	Maple Grove	MN
1431 Beam Ave E	Maplewood	MN

Analysis

The first part of the analysis examined the 2010 geodemographic data of the six Costco locations. A one-mile buffer for each Costco location was created. The demographic data from each of the intersecting census tracts was included for analysis.



- ★ Costco Locations
- Sam's Club Locations
- Walmart Locations

Figure 3. Costco, Sam's Club, and Walmart locations in the seven-county metro area.

Results revealed that four of the six locations had 2.5 or more people in each household and 45% of the population held an associate degree or higher. Five of the six locations had an average median household income of \$55,000 or more as well as an average median family income of \$65,000 or more. Additionally all locations had a 52% or higher percentage of the population aged 25-64. Four out of the six locations also had 75% or higher of the population over the age of 16 in the workforce.

Using this data, the criteria chosen for this study included the following:

1. Family households ≥ 2
2. Associate degree or higher $\geq 45\%$
3. Median household income \geq \$55,000
4. Median family income \geq \$65,000
5. Population aged 25-64 $\geq 52\%$
6. Population aged 16 or older in the workforce $\geq 75\%$

The above criteria were used to identify census tracts in the seven-county metro area that contained demographic data matching all six of the criteria. A polygon layer was created that identified each census tract selected (Figure 4). This polygon layer represented areas that matched the identified criteria and was designated for further study.

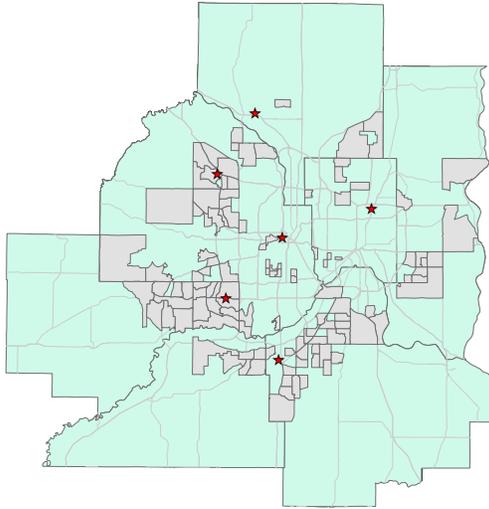


Figure 4. The shaded census tracts represent the areas that matched all six selected criteria. Also shown are the locations of each current Costco warehouse store and major roads.

A one, three, and five-mile multiple-ring buffer was created around each store; the three to five mile range representing the area of convenience and the point of destination for a consumer to travel (Figure 5).

Taking into consideration the identified census tracts containing the six criteria of a Costco consumer and the maximum five-mile buffer ring, areas to consider as candidates for a new Costco warehouse location were identified and included Eagan in Dakota County and Woodbury located in Washington County.

Ground Study Analysis

Targeting the central area of the previously identified census tracts and the retail areas of both Eagan and Woodbury through GIS and the use of the internet, the next part of the study took to the street for ground analysis.

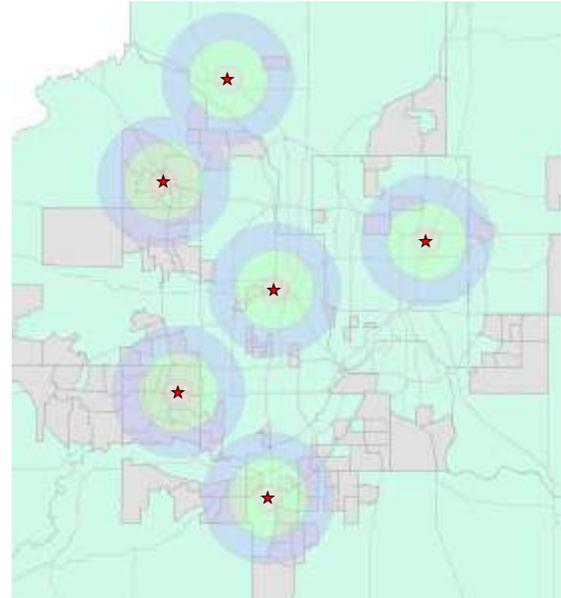


Figure 5. Twin Cities Costco locations with a 1, 3, and 5-mile multiple-ring buffer.

The ground analysis consisted of driving the chosen areas and documenting land and/or buildings for sale with photos and notes. According to property tax records of the existing Twin Cities Costco locations, the minimum land needed for a new location would be 15 acres and approximately 160,000 square feet for the building site. Both metro areas (Eagan and Woodbury) had numerous available locations as their cities continue the trend of urban sprawl.

The ground analysis led to more online research of land holding companies, city comprehensive plans, zoning and land use maps, county property records, general background history and future planning for each city and prospective sites within.

Analysis of the above information resulted in two viable locations in Eagan and three in Woodbury (Figure 6).

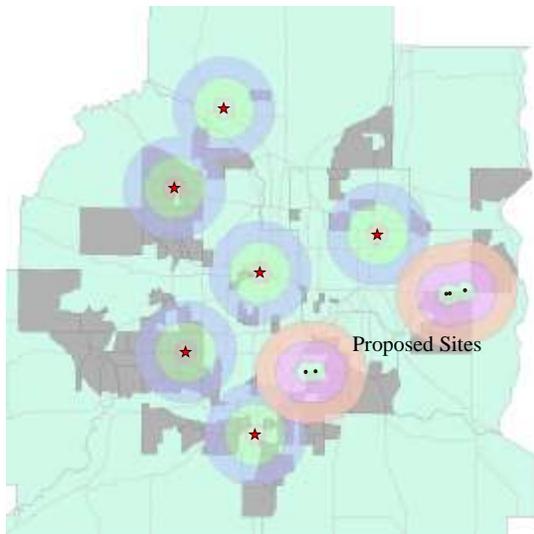


Figure 6. Existing and proposed Costco locations with 1, 3, and 5-mile buffer rings. Shaded areas depict the census tracts that match the six chosen criteria.

Results

The proposed two Eagan locations (Figure 7) are nearby each other and both are inside the northeast section of the Central Commons “special area”. The City of Eagan describes a “special area” in their 2030 Comprehensive Plan as an area envisioned as pedestrian friendly and as a mixed-use area which includes planned access to higher quality transit services. The Central Commons area is seen as an active area with a mixture of uses, including residential, commercial, employment, and park areas. The retail centers range from small scale to large hubs with national retailers including big anchor retailers (City of Eagan, 2011).

The proposed three Woodbury locations are also nearby each other (Figure 8). One parcel has an existing 250,000 square foot warehouse on a 16.56 acre site. Although this is a larger footprint than Costco typically uses, it provides

loading docks and storage that could be used for storage of product for all metro area locations.

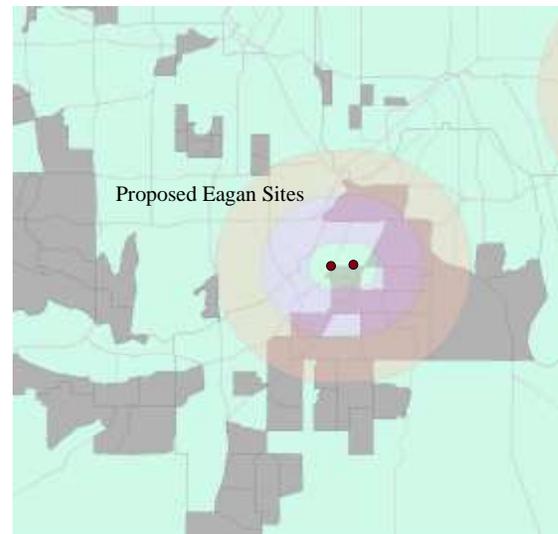


Figure 7. Two proposed Eagan locations with the chosen six criteria and matching census tracts.

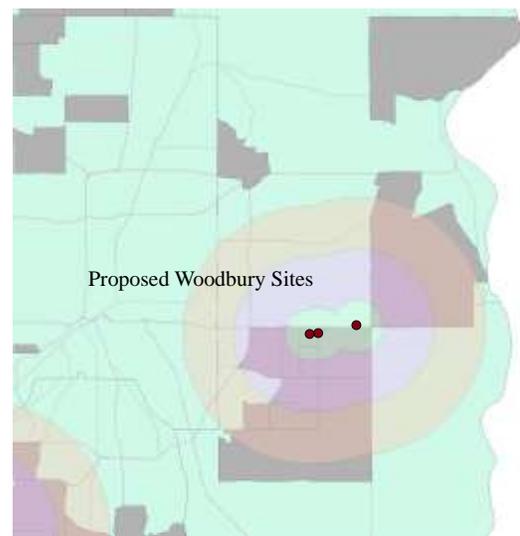


Figure 8. Three proposed Woodbury locations with the chosen six criteria and matching census tracts.

The second and third locations in Woodbury are both parcels of vacant land for sale. The parcels are located in the northeast corner of the city with easy access to Interstates 94, 494, and 694. The second location is zoned as a mixed-use district providing flexibility for residential, commercial, employment opportunities,

transit, and public gathering spaces. The third location is zoned as a planned shopping center district providing a regional shopping destination allowing retail such as grocery stores, general merchandise stores, restaurants, business services, and gas stations.

Mixed-use development is not a new concept. Urban development in the early 1900's often consisted of vertically mixed uses: corner store with the owner's residence in the apartment above. As the automobile increased mobility, suburban development moved away from mixed-use developments and focused on strip commercial development separate from residential areas. Mixed-use development has reappeared as a popular development form using either a traditional vertical mix of uses or a modern horizontally mixed land use pattern (City of Woodbury, n.d.).

Discussion

Based on the identified census tracts that matched the six criteria, a suitable location for an additional Costco warehouse store in the seven-county metro area could be either in Eagan located in Dakota County or Woodbury in Washington County. If two locations were desirable, both cities would be candidates.

Although GIS supports spatial decision making, location is a process where retail strategy, planning regulation, site availability, and consumer behavior combine. Location planning involves numerous factors beyond identifying the most suitable location for a store in relation to its customers (ESRI, 2007).

Consumers' behavior is becoming more difficult to predict with changes in household roles and responsibilities. Consumers are leading increasingly busy lives, with shopping being "fit in" around other responsibilities and commitments. Accessibility is not just the location of the

customers, but also social values, price, and quality of products. It is the location, social, and cultural characteristics of consumers that has to be understood on the ground as well as represented in data (Wood and Tasker, 2008).

This study addresses the seven-county metro area of the Twin Cities. The data acquisition and analyses could be duplicated for any type of business or any community area although many factors must be considered besides just location.

Conclusion

The main objective of this study was to collect data about the existing six Costco warehouse locations and customers in the seven-county metro area of the Twin Cities. This data were used to perform analyses to determine a suitable area for Costco to locate its next warehouse store.

The results of this study identified a customer profile, census tracts that contained the chosen demographics of that profile, and underserved markets in which a Costco warehouse store location might be deemed desirable.

The two areas of suitable location for a Costco expansion were identified as Eagan and Woodbury. If two locations are desirable, both cities would be able to accommodate a warehouse without overlap competition.

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References

- Cascio, W.F. 2006. Decency Means More than “Always Low Prices”: A Comparison of Costco to Wal-Mart’s Sam’s Club. *Academy of Management Perspectives*, 20(3), 26-37.
doi:10.5465/AMP.2006.21903478
- City of Eagan. 2011. 2030 Comprehensive Plan Update. http://www.cityofeagan.com/upload/images/CommunityDevelopment/Planning/CompPlan2030/3%20-%20Land%20Use_low.pdf
- City of Woodbury. n.d. 2030 Comprehensive Plan Update. http://www.ci.woodbury.mn.us/images/stories/planning-docs/comp-plan/6_chapter_4_-_land_use.pdf
- Costco. 1998-2012. Company Information. <http://www.costco.com/>
- Environmental Systems Research Institute (ESRI). 2007. GIS for Retail Business. <http://www.esri.com/library/bestpractices/retail-business.pdf>
- Jia, P. 2008. What Happens When Walmart Comes to Town: An Empirical Analysis of the Discount Retailing Industry. *Econometrica*, 76(6), 1263-1316.
- Minnesota Department of Natural Resources (MN DNR). GIS Coverages of Metro Counties and the State of Minnesota. Retrieved on June 7, 2012 from <http://deli.dnr.state.mn.us/index.html>
- Morris, Tim. 2004. Understanding Costco. Coriolis Research. Retrieved September 11, 2012 from http://www.coriolisresearch.com/pdfs/coriolis_understanding_Costco.pdf
- Mullins, J.W. 2009. Capital is King! *Business Strategy Review*, 20(4), 4-8.
doi:10.1111/j.1467-8616.2009.00622.x
- Sam’s Club. 2000-2012. Company Information. <http://www.samsclub.com/sams/>
- U.S. Census Bureau; Census Tract Coverages. Retrieved September 22, 2012 from <http://www.census.gov/geo/www/tiger/tgrshp2010/tgrshp2010.html>
- U.S. Census Bureau. n.d., www.census.gov; Census 2000, SF1 Tables H001, P001, P017, DP-1; SF3 Tables P037, P053, P077, DP-3; generated by Barbara Wolff; using American FactFinder. Retrieved September 14, 2012 from <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>
- Walmart. 2012. Company Information. <http://www.walmart.com/>
- Wood, S. and Tasker, A. 2008. The Importance of Context in Store Forecasting: The Site Visit in Retail Location Decision-Making. *Journal Of Targeting, Measurement and Analysis for Marketing*, 16(2), 139-155.
doi:10.1057/jt.2008.3