

# **Economic Impact and Grocery Store Leakage Study**

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Prepared for

**Brookings Economic Development Corporation**



Prepared by



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# 1 Introduction

The Brookings Economic Development Corporation (BEDC) approached Dakota Institute for an analysis relating to the opening of a new grocery store in Brookings, SD. The study would quantify the market potential for a grocery store and assess the economic impact of opening a new grocery store.

This report summarizes Dakota Institute's analysis of these questions. It provides evidence that the market would support adding a new grocery store and that an Aldi grocery store would generate several positive economic benefits to the community.

This report begins by analyzing the economic impact of a new Aldi by studying the economic outcomes associated with the opening of an Aldi in Watertown during 2021. Section 3 uses a leakage analysis to demonstrate the market potential for a new grocery store.

## 2 Economic Impact of New Aldi

This section explores the potential economic impacts of a new grocery store entering Brookings. We first discuss the impacts of a new Aldi store opening in Watertown in December 2021. This analysis uses municipal sales tax data to estimate the potential monthly sales at the new Aldi store and the resulting impact on local sales tax revenues. Using these findings, we constructed an economic impact model using IMPLAN to estimate the additional economic impacts of a new Aldi in Brookings under the assumption that a new store in Brookings would generate economic activity similar to that of the store in Watertown.

### 2.1 The Watertown Story

A new Aldi store opened in Watertown in December 2021. This store was the first South Dakota Aldi to open outside the Sioux Falls market. Using municipal sales tax data reported by the South Dakota Department of Revenue, we find that the Watertown Aldi had a statistically significant impact on grocery sales in Watertown. Based on our estimates, Watertown's monthly taxable sales in the grocery store industry increased by \$661,750, and monthly sales tax increased by \$13,235. On an annual basis, we estimate that the new Aldi store generated \$7,941,000 in *new taxable sales* and \$158,820 in *new tax revenue*.

Additionally, using our findings from analyzing Watertown's municipal sales tax data, we constructed an economic impact model using IMPLAN. The model estimates the potential economic impact of a new retail grocery store in Brookings County with annual sales of \$7,941,000. The model suggests that the new store could create up to 38, generate \$1,404,238 in Labor Income, and increase total Economic Output in the region by \$4,020,912 annually. The new store could also generate an additional \$114,318 in property taxes for the county and other taxing authorities.

## Figure 1 - Watertown Municipal Sales Tax Due - Grocery Stores

Inflation Adjusted 2022 Dollars



Source: Dakota Institute, SD Department of Revenue

### 2.1.1 Impact on Taxable Sales and Municipal Sales Tax Revenue

Dakota Institute collected Watertown's municipal sales tax data for the period of January 2020 through November 2023 from the monthly reports of Municipal Taxable Sales per City by SIC Code published by SDDOR.<sup>1</sup> Specifically, Dakota Institute collected monthly taxable sales and sales tax due for the Grocery Stores (SIC 5411) and Miscellaneous Food Stores (SIC 5499) industries. We adjusted the data to account for seasonal variations and further adjusted the data for inflation using the Consumer Price Index (CPI) for the Midwest region.

Figure 1 displays the seasonally and inflation-adjusted taxable sales series in green. The blue line in the graph above shows the fitted regression, or trend, line from our econometric model. Our econometric model included controls for a time trend, annual effects, monthly effects, and an indicator for the opening of the new Aldi. While the store opened in December 2021, our Aldi indicator was timed for January 2022 to account for the delays between sales activity and when businesses file taxes with the state.

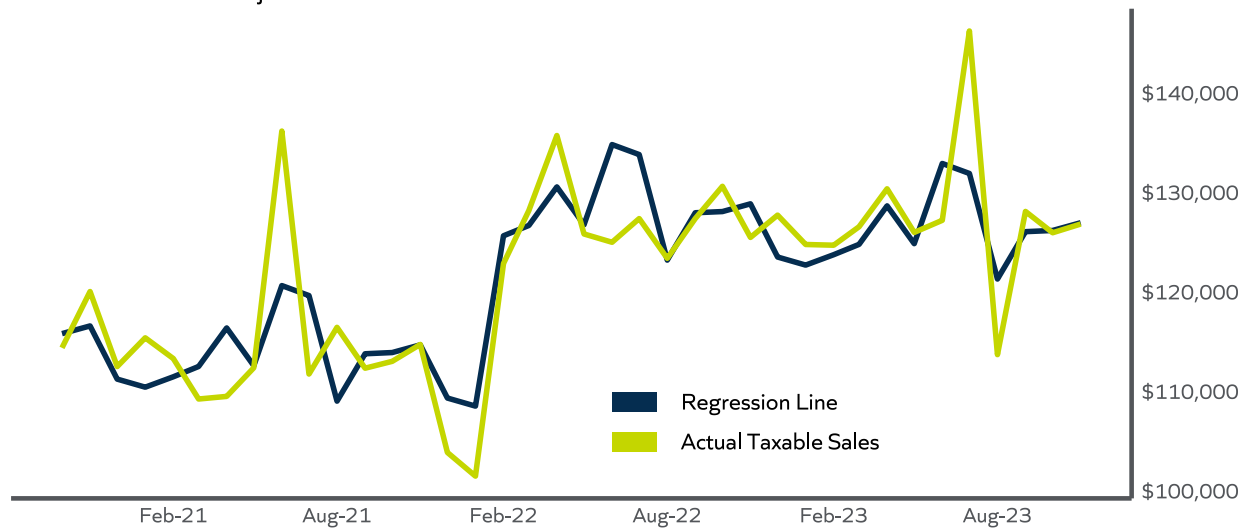
Our findings indicated that the ALDI was associated with a \$661,750 increase in monthly taxable sales and \$13,235 in monthly sales tax due to the city. Our finding was statistically significant at the 5% level. On an annual basis, our results indicate that the Watertown Aldi generated \$7,941,000 in *new* taxable sales and \$158,820 in *new* tax revenue.

Figure 1 gives the impression that Watertown's sales tax collections for the Grocery Stores industry have been falling over the last three years. This is, in fact, true once the effects of inflation are taken into account. Due to historically high inflation over the last three years, the tax dollars collected today have less purchasing power than those collected previously. While it is more correct to perform the analysis in real terms, Figure 1 obscures the tax impact of the new Aldi store.

<sup>1</sup> <https://dor.sd.gov/businesses/taxes/sales-use-tax#reports>

## Figure 2 - Watertown Municipal Sales Tax Due - Grocery Stores

Nominal Dollars not Adjusted for Inflation



Source: Dakota Institute, SD Department of Revenue

Figure 2, while technically less accurate, nevertheless provides a more readily apparent depiction of Aldi's impact on local tax revenues. Figure 2 shows a noticeable increase in nominal tax revenues beginning in early 2022, just after the Aldi's opening. The ultimate conclusion of Figures 1 and 2 is that Aldi did increase baseline, or trend, tax collections, but high inflation has eroded much of the tax impact.

Our analysis did not consider any taxable sales or tax due from Gross Receipts taxes on alcohol sales in the grocery store industry. Aldi typically sells beer and wine, so including these taxes would potentially increase the estimated impact by some small amount.

### 2.1.2 Economic Impact of new Aldi Store

Using our findings from the analysis of sales tax data, we constructed an economic impact model to estimate the impact of a new grocery store opening in Brookings. Two important notes must be shared before presenting these results.

1. The impact model is entirely based on our estimate of the increased taxable sales in the grocery store industry in the Watertown market following the opening of an Aldi in 2021. Dakota Institute has no direct knowledge of Aldi's actual annual sales, and the estimate used here could differ significantly from the store's actual sales.
2. Brookings and Watertown are similar communities in terms of population, demographics, and economic activity. For these reasons, Dakota Institute believes it is reasonable to assume that a Brookings Aldi would perform similarly to the Watertown Aldi. Still, several factors could materially impact this assumption.
  - a. Any difference in square footage could impact the number and types of goods sold and the store's revenues.

- b. The Watertown Aldi is near Walmart, Target, and Hy-Vee. Consequently, Aldi benefits from its location within a retail cluster with other grocery options.
- c. The proposed Brookings Aldi location is further from other retail stores and significantly further from the primary grocery store in Brookings, Hy-Vee. Given its proposed location and distance from other retail stores, the Brookings Aldi might see less foot traffic and sales volume than the Watertown location.

With the above considerations in mind, we constructed an economic impact model for Brookings County to estimate the impact of a new retail grocery store with annual sales of \$7,941,000. The IMPLAN model simulated a \$7,941,000 increase in output for the Retail Food and Beverage Stores industry (IMPLAN industry 406)

The results of this impact analysis are summarized below. Notably, the direct impact on economic output is less than the store's estimated sales because, especially with Aldi, nearly all products sold in the store are produced outside of the region. The estimated direct impact on economic output accounts for these leakages. The IMPLAN model also estimates an Aldi would generate \$114,318 in additional property taxes annually.

Table 1 – Economic Impact Summary				
	Jobs	Labor Income	Value Added	Economic Output
Direct	31	\$1,080,590	\$1,631,536	\$2,734,462
Indirect	3	\$190,479	\$357,561	\$762,005
Induced	3	\$133,169	\$300,299	\$524,445
Total	38	\$1,404,239	\$2,289,396	\$4,020,912

### 3 Leakage Analysis

This section assesses whether current supply and demand conditions in the grocery market would support the opening of a new Aldi in Brookings. Central to this analysis is a description of current consumer demand for groceries (demand) and grocery store sales (supply) in Brookings and the surrounding region. This analysis defines the core and surrounding regions using a drive-time metric. We define the region within a 10-minute drive-time of Brookings as the core, or local, Brookings' market. The broader region within a 30-minute drive time is considered the regional market. See Figure 3 for a visual representation of these two regions.

#### 3.1 Brookings as Retail Hub for Groceries

Brookings is a market town serving as a retail and shopping hub for the surrounding region. This is especially true for groceries. The market for grocery stores cannot be adequately understood by looking at Brookings alone. Grocery stores in Brookings serve many people in surrounding towns and farmsteads.

According to Placer.ai (Placer) location analytics data, Brookings Hy-Vee has had 859,200 consumer visits in the last 12 months. Most of these visits (462,500) were from locals living within five miles of the Hy-Vee, and the remaining 396,700 were from people living more than five miles from the Hy-Vee.

Table 2 – Summary Of Hy-Vee Visit Patterns by Visitor’s Home Location			
	Home < 5 Miles from Brookings	Home > 5 Miles from Brookings	Total
Visits	462,500	396,700	859,200
Visitors	32,2000	97,500	129,800
Visit Frequency	14.35	4.07	6.62
Source: Placer.ai			

In contrast, Table 2 shows that there were roughly three times as many visitors living more than five miles from the Hy-Vee than those living within five miles. Customers living more than five miles from the store also tended to shop less frequently. Their average visit frequency is only 4.07 times per year compared to 14.35 times for people living within five miles.

## 3.2 Regional Demand and Supply for Groceries

Having established that Brookings is a regional retail hub, especially for groceries, it remains to quantify the market demand in both Brookings and the surrounding area. This report uses data from Placer.ai, ESRI, and a 2018 Buxton Leakage study to analyze current supply and demand conditions and draw conclusions regarding the viability of an additional grocery store in Brookings.

### 3.2.1 Important Terms and Concepts

A short description of key terms may be helpful to best understand the results that follow.

Table 3 – Key Terms	
Supply	Market supply within a region, whether a community or a drive-time radius, is a measure of sales activity. For example, grocery supply is an estimate of total sales at grocery stores in the region.
Demand	Market demand within a region, whether a community or a drive-time radius, is a measure of consumer spending. For example, demand for groceries is an estimate for total consumer expenditures at grocery stores in the relevant region.
Surplus	A surplus exists within a given region if the supply exceeds demand. The surplus can be an indicator of an export industry. For example, much of the corn grown in South Dakota is exported. A surplus can also exist in communities with retail hubs that attract consumers from outside communities.
Leakage	Another name for leakage is shortage. In this case, consumer demand within a region exceeds the local supply. When this happens, consumers may travel to other areas to buy products they need or purchase them online and have them shipped.

**Figure 3 – Drive Time Market Area**

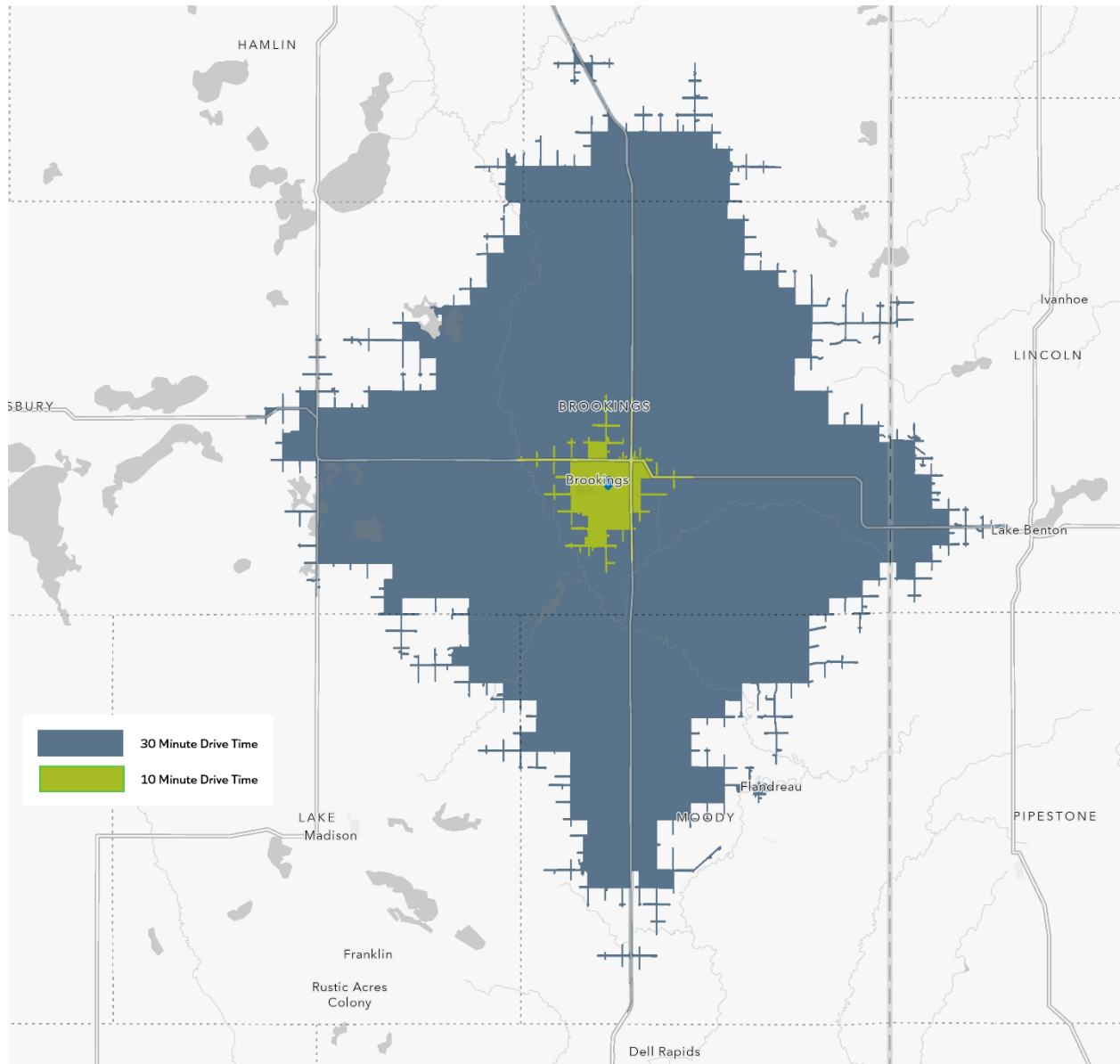


Table 4 – Market Demand by Region Size			
	Consumer Demand for	10 Minute Drive Time*	30 Minute Drive Time*
Placer.ai	Grocery Stores	\$54,280,000	\$100,740,000
ESRI	Food at Home	\$45,604,285	\$79,678,731
Buxton	Grocery Stores	\$71,610,666	\$109,435,399
The Buxton Estimates are for a 15- and 25-mile ring radius outside Brookings. These are largely similar to 10- and 30-minute drive times. Buxton estimates were also inflation-adjusted to account for price changes since 2018.			

### 3.2.2 Consumer Demand for Groceries

Table 4, on the following page, displays two current and high-quality estimates of consumer demand for 10- and 30-minute drive times from Brookings from Placer.ai and ESRI. Table 4 also reports inflation-adjusted demand estimates from a 2018 Leakage Study completed by Buxton. The estimates from Placer.ai and Buxton report a slightly broader measure of consumer demand than the ESRI estimate, though all three estimates are useful.

In today's retail space, most grocery stores sell many non-food items. This is also true of Aldi, which is known for its rotating selection of household goods known as "Aldi Finds". Consequently, the ESRI estimate for consumer demand for Food at Home falls underneath, or within, the broader category of consumer demand for Grocery Stores, which Placer.ai and Buxton report.

Based on a review of the many data points available through Placer.ai, ESRI, and other sources, such as IMPLAN, our guidance is that the Placer.ai and ESRI estimates for consumer demand are likely more accurate than the inflation-adjusted estimates from Buxton.

Table 5 – Market Supply for Groceries by Region Size			
	Consumer Demand for	10 Minute Drive Time*	30 Minute Drive Time*
Placer.ai	Grocery Stores	\$85,530,000	NA
Buxton	Grocery Stores	\$86,695,566	\$97,349,999
The Buxton Estimates are for a 15- and 25-mile ring radius outside Brookings. These are largely similar to 10- and 30-minute drive times. Buxton estimates were also inflation-adjusted to account for price changes since 2018.			

### 3.2.3 Market Supply for Groceries

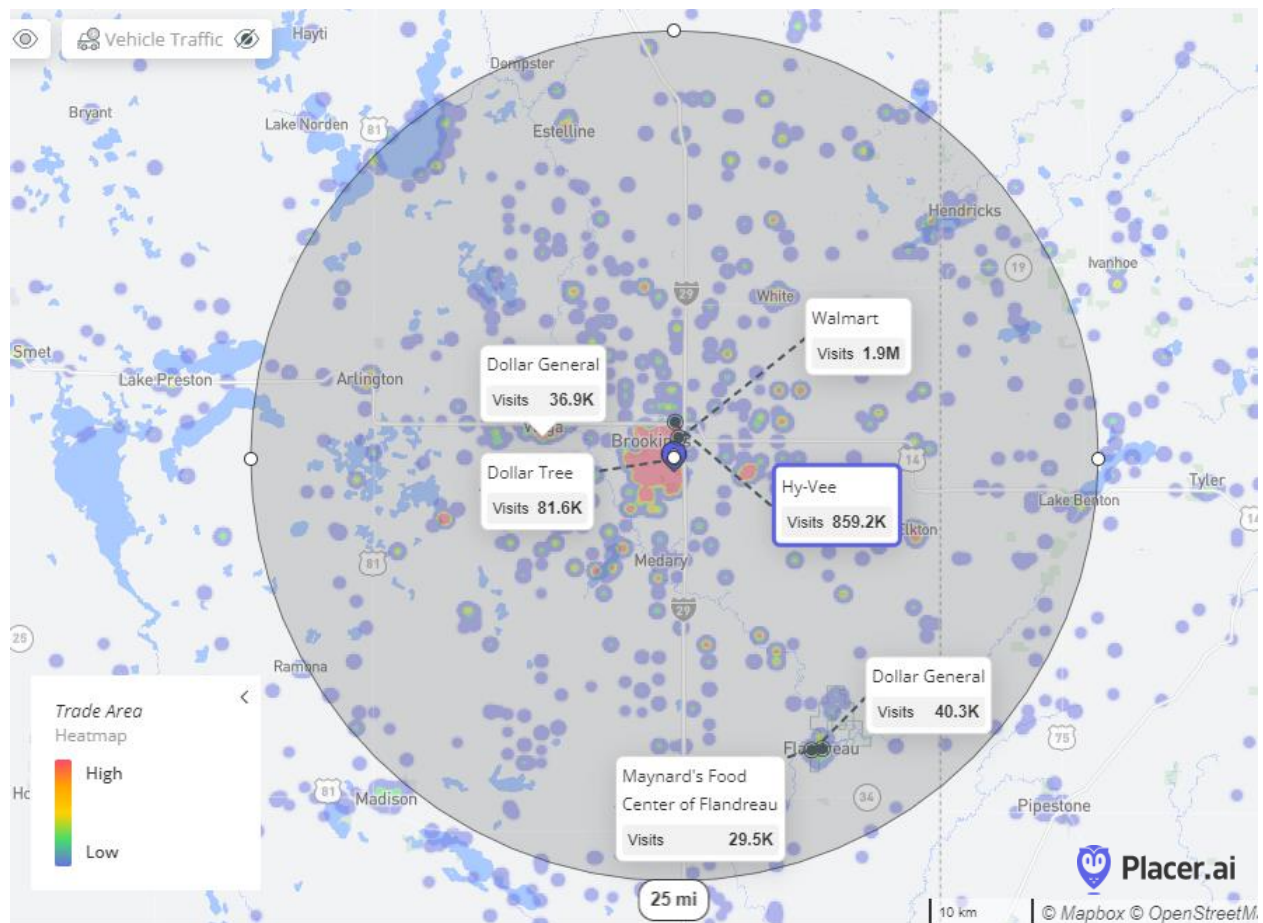
Market supply is more difficult to ascertain than demand. Many entities, both public and private, closely track consumer demand and expenditures. On the other hand, supply is essentially a measure of firm sales and is generally proprietary information. While public companies report high-level sales and revenue figures, it is not possible to determine sales of a specific store or even several stores within a region.



Table 5 summarizes the available estimates for market supply from Placer.ai and the earlier Buxton Leakage Study. In this case, the Placer.ai and Buxton estimates are similar for the 10-minute drive-time areas. In our analysis, the Placer.ai and Buxton estimates of market supply within a 10-minute drive-time are likely representative of total supply in the wider region and are, therefore, applicable to the entire 30-minute drive-time region. The larger Buxton estimate may be more applicable if the definition of grocery store is relaxed to include other retail types, as discussed below.

Figure 4 supports our conclusion that Brookings effectively represents the market for Grocery Stores in the region. Figure 4 shows that Brookings is home to a Walmart Superstore and a Hy-Vee, both of which have full-service grocery stores. Aside from the Walmart and Hy-Vee in Brookings, the only other traditional grocery store in the drive-time region is Maynard's Food Center in Flandreau. The only other retail locations with similar products to conventional grocery stores are two Dollar Generals, one in Volga, the second in Flandreau, and a Dollar Tree in Brookings. Including some fraction of the sales volume at these dollar and convenience stores could increase the estimated market supply, but we focus here on traditional grocery stores.

**Figure 4 – Brookings Hy-Vee Trade Area and Competing Stores**



One final note regarding market supply. We do not include any estimate for grocery sales at farmer’s markets. Farmer’s markets are becoming increasingly popular and provide value to communities, sellers, and consumers. However, these markets are hard to capture in the data. In any event, the Brookings farmer market is the largest in the region and would tend to emphasize the conclusion that much of the region's grocery sales take place in Brookings. We also do not explicitly mention smaller Grocery stores, such as Wyshbone Market in Brookings, but they are represented in the data.

Table 6 – Grocery Store Market Leakages by Region Size		
	10 Minute Drive Time*	30 Minute Drive Time*
Consumer Demand	\$54,280,000	\$100,740,000
Market Supply	\$85,530,000	\$85,530,000
<b>Leakage</b>	<b>-\$31,250,000</b>	<b>\$15,210,000</b>
Leakage estimates are based on Placer.ai data for market supply and demand.		

### 3.3 Market Leakages

Table 6 combines consumer demand and market supply estimates to describe Grocery Store leakages in the 10- and 30-minute drive-time regions. Based on all available data, we believe the Placer.ai estimates were the most plausible and consistent, and Table 6 uses them to calculate market leakages.

The data indicate a -\$31,250,000 surplus in the 10-minute drive-time region. In other words, we find a 57% surplus of area supply over demand in the 10-minute drive-time region. This *does not* imply that the Brookings market is over-supplied or oversaturated. This result is entirely expected, given the previous analysis and our establishment of Brookings as a grocery store hub for the wider region.

In fact, Table 6 shows that there is a \$15,210,000 spending leakage in the 30-minute drive-time region. The spending leakage in the larger region represents a deficit where consumer demand exceeds area supply by 15%. The \$15 million spending leakage is roughly double our estimate for the annual sales of the Watertown Aldi. Consequently, the data indicate ample room in the market for an Aldi.

## 4 Conclusions

Based on all available data and evidence analyzed in this report. We find evidence that a new Aldi grocery store would positively impact the Brookings economy and local tax revenues. We estimate an Aldi could generate as much as \$158,820 in sales tax and \$114,318 in property taxes. We also find compelling evidence that there is sufficient need in the market for Aldi to capture grocery sales that are currently leaking out to other nearby communities. We estimate the potential leakage in a 30-minute drive-time region around Brookings is nearly \$15 million.