

**Data Collection  
Traffic Engineering  
Transportation Planning**

**TDI**



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# Memo

**To:** Jim LaValle, The Velmeir Companies

**From:** Mike Spack, P.E.

**Date:** 05/07/04

**Re:** Vehicle Trip Generation Study for proposed CVS Pharmacy in Minneapolis, MN

**cc:** Jon Wertjes, City of Minneapolis

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## **Background**

CVS Pharmacy is proposing to build a 13,013 square foot store with two drive-through windows on the southeast corner of 37<sup>th</sup> Avenue NE and Central Avenue NE in Minneapolis, MN. Standard traffic engineering practice for a new development is to forecast the traffic generated by the development using data contained in ITE's *Trip Generation* report. The ITE *Trip Generation, 7<sup>th</sup> Edition* contains nationally collected traffic data for the Pharmacy/Drugstore with Drive-Through Window land use, but the data indicates that only one of the stores studied had two drive-through windows. City of Minneapolis staff expressed concern that the national data may not be relevant to the proposed CVS store (and future CVS stores in Minneapolis). Staff also expressed concern with the lack of data regarding how many vehicles use the drive-through windows. The purpose of this study is to collect p.m. peak hour trip generation data and drive-through window usage data at pharmacies that have two drive-through windows.

## **Methodology**

There are currently no operating CVS Pharmacy stores in the Twin Cities metropolitan region. City of Minneapolis staff agreed that data collected at urban Walgreens Pharmacy stores that have two drive-through windows would give comparable traffic data.

TDI staff identified six urban Walgreens stores in the Twin Cities that have approximately 14,000 square feet and two drive-through windows. The number of vehicles entering and exiting the Walgreens stores were collected in 15 minute intervals between 4:00

p.m. and 6:00 p.m. The data is attached in Table 1. The peak hour traffic was calculated based on the data in Table 1. Summaries of the peak hour trip generation data is shown in Figures 1 and 2.

The total number of vehicles using the drive through along with the longest queue in one drive through window was collected for each period. The pharmacy traffic is a subset of the number of vehicles entering and exiting the site. The drive-through window data is shown in Table 1.

### **Findings**

The average trip generation rate for Pharmacy/Drugstore with Drive-Through Window (ITE Code 881) is 8.62 trips per 1000 Sq. Feet Gross Floor Area in the ITE *Trip Generation, 7<sup>th</sup> Edition*. The average trip generation rate for the six Walgreens stores surveyed is 15.22 trips per 1000 Sq. Feet Gross Floor Area. The *Trip Generation* data contained one pharmacy that had two drive-through windows and it appears that it generated 17.46 trips per 1000 Sq. Feet Gross Floor Area. The rest of the pharmacies generated significantly less traffic. The average trip generation rate of 15.22 trips per 1000 Sq. Feet Gross Floor Area calculated by this survey seems reasonable.

The drive through window data shows a maximum queue of 3 vehicles waiting at a drive-through lane at any one time.

Customer sale and drive-through data is attached in Table 2 from CVS Pharmacy stores in the Chicago, IL metropolitan area. The trip generation rate from 5:00 p.m. to 6:00 p.m. is approximately 13 trips per 1000 Sq. Feet Gross Floor Area. The average number of vehicles using the drive-through windows during the same period is ten vehicles. This data is consistent with the data collected from the Walgreens Pharmacy stores.

**Table 1 – Walgreens Pharmacy Store Data**

| LOCATION               | DATE    | TIME PERIOD  | STORE TRAFFIC |     |       | PHARMACY TRAFFIC |               |
|------------------------|---------|--------------|---------------|-----|-------|------------------|---------------|
|                        |         |              | In            | Out | TOTAL | Total            | Longest Queue |
| 540 Blake Road         | 4/7/04  | 4:00-4:15 PM | 37            | 44  | 81    | 6                | 2             |
| St. Louis Park, MN     |         | 4:15-4:30 PM | 40            | 37  | 77    | 8                | 2             |
| 14,000 Sq Ft Estimated |         | 4:30-4:45 PM | 34            | 34  | 68    | 6                | 1             |
|                        |         | 4:45-5:00 PM | 28            | 28  | 56    | 5                | 2             |
|                        |         | 5:00-5:15 PM | 36            | 40  | 76    | 9                | 3             |
|                        |         | 5:15-5:30 PM | 27            | 32  | 59    | 5                | 2             |
|                        |         | 5:30-5:45 PM | 36            | 37  | 73    | 8                | 2             |
|                        |         | 5:45-6:00 PM | 26            | 31  | 57    | 4                | 1             |
| 3700 Silver Lake Rd    | 4/8/04  | 4:00-4:15 PM | 25            | 22  | 47    | 5                | 2             |
| St. Anthony, MN        |         | 4:15-4:30 PM | 35            | 26  | 61    | 4                | 2             |
| 14,490 Sq Ft           |         | 4:30-4:45 PM | 25            | 32  | 57    | 6                | 2             |
|                        |         | 4:45-5:00 PM | 27            | 21  | 48    | 1                | 1             |
|                        |         | 5:00-5:15 PM | 30            | 25  | 55    | 3                | 1             |
|                        |         | 5:15-5:30 PM | 29            | 25  | 54    | 2                | 1             |
|                        |         | 5:30-5:45 PM | 15            | 18  | 33    | 3                | 2             |
|                        |         | 5:45-6:00 PM | 16            | 21  | 37    | 2                | 1             |
| 1401 E Maryland Ave.   | 4/8/04  | 4:00-4:15 PM | 24            | 29  | 53    | 6                | 1             |
| St. Paul, MN           |         | 4:15-4:30 PM | 28            | 23  | 51    | 3                | 1             |
| 14,000 Sq Ft Estimated |         | 4:30-4:45 PM | 26            | 24  | 50    | 3                | 2             |
|                        |         | 4:45-5:00 PM | 24            | 27  | 51    | 8                | 3             |
|                        |         | 5:00-5:15 PM | 26            | 31  | 57    | 5                | 1             |
|                        |         | 5:15-5:30 PM | 35            | 34  | 69    | 4                | 2             |
|                        |         | 5:30-5:45 PM | 35            | 31  | 66    | 4                | 1             |
|                        |         | 5:45-6:00 PM | 21            | 22  | 43    | 6                | 2             |
| 1768 Old Hudson Road   | 4/8/04  | 4:00-4:15 PM | 23            | 21  | 44    | 1                | 1             |
| St. Paul, MN           |         | 4:15-4:30 PM | 20            | 25  | 45    | 3                | 1             |
| 14,000 Sq Ft Estimated |         | 4:30-4:45 PM | 10            | 20  | 30    | 1                | 1             |
|                        |         | 4:45-5:00 PM | 19            | 15  | 34    | 2                | 1             |
|                        |         | 5:00-5:15 PM | 17            | 15  | 32    | 2                | 1             |
|                        |         | 5:15-5:30 PM | 25            | 26  | 51    | 0                | 0             |
|                        |         | 5:30-5:45 PM | 20            | 21  | 41    | 2                | 1             |
|                        |         | 5:45-6:00 PM | 10            | 14  | 24    | 2                | 1             |
| 1665 White Bear Ave.   | 4/13/04 | 4:00-4:15 PM | 13            | 10  | 23    | 1                | 1             |
| St. Paul, MN           |         | 4:15-4:30 PM | 13            | 13  | 26    | 1                | 1             |
| 14,000 Sq Ft Estimated |         | 4:30-4:45 PM | 10            | 15  | 25    | 0                | 0             |
|                        |         | 4:45-5:00 PM | 11            | 11  | 22    | 2                | 2             |
|                        |         | 5:00-5:15 PM | 9             | 14  | 23    | 1                | 1             |
|                        |         | 5:15-5:30 PM | 11            | 10  | 21    | 1                | 1             |
|                        |         | 5:30-5:45 PM | 10            | 9   | 19    | 1                | 1             |
|                        |         | 5:45-6:00 PM | 10            | 12  | 22    | 1                | 1             |
| 4547 Hiawatha          | 4/13/04 | 4:00-4:15 PM | 33            | 37  | 70    | 5                | 2             |
| Minneapolis, MN        |         | 4:15-4:30 PM | 26            | 36  | 62    | 3                | 1             |
| 13,900 Sq Ft           |         | 4:30-4:45 PM | 31            | 22  | 53    | 5                | 2             |
|                        |         | 4:45-5:00 PM | 28            | 28  | 56    | 3                | 1             |
|                        |         | 5:00-5:15 PM | 34            | 40  | 74    | 5                | 1             |
|                        |         | 5:15-5:30 PM | 40            | 43  | 83    | 7                | 3             |
|                        |         | 5:30-5:45 PM | 31            | 32  | 63    | 5                | 1             |
|                        |         | 5:45-6:00 PM | 35            | 29  | 64    | 8                | 3             |

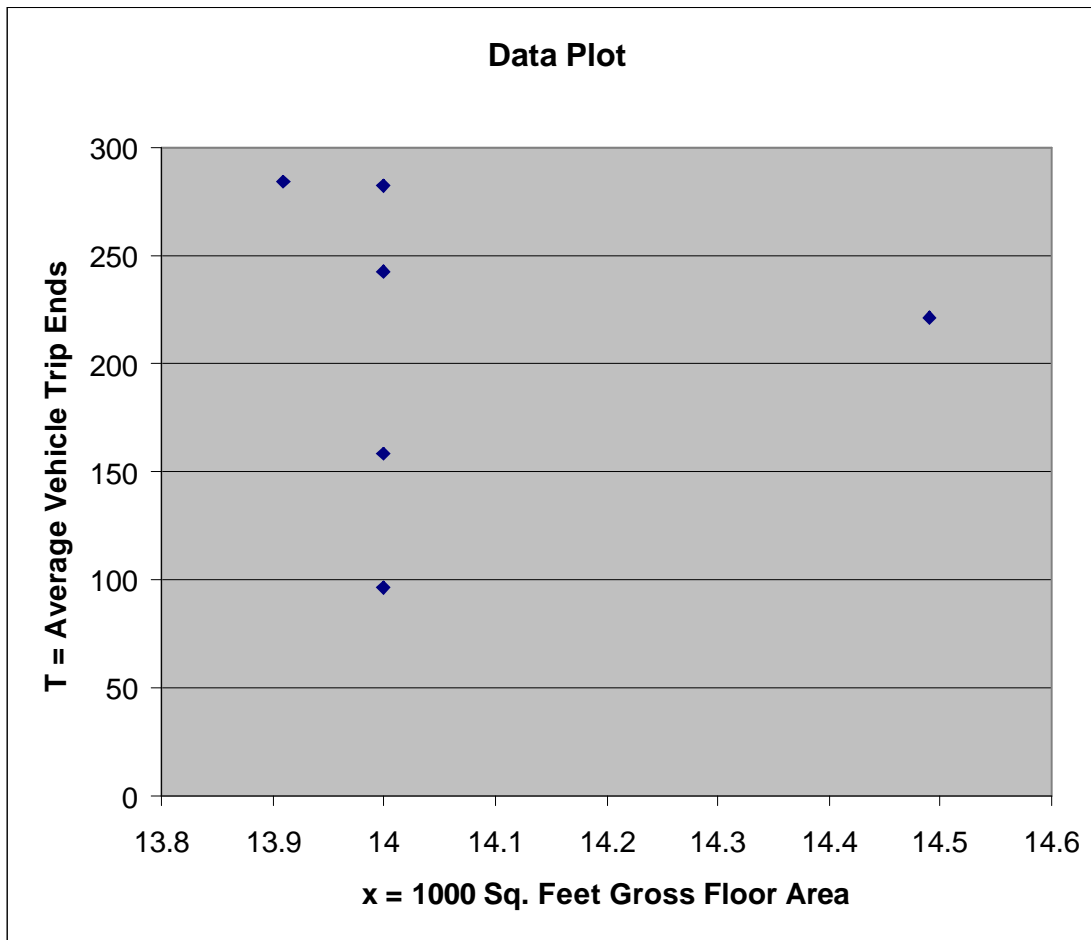
**Pharmacy/Drugstore with Drive-Through Window (ITE Code 881)**

Average Vehicle Trip Ends vs: 1000 Sq. Feet Gross Floor Area  
On a: Weekday,  
Peak Hour of Adjacent Street Traffic  
One hour Between 4 and 6 p.m.

Number of Studies: 6  
Average 1000 Sq. Feet GFA: 14  
Directional Distribution: 50% entering, 50% exiting

**Trip Generation per 1000 Sq. Feet Gross Floor Area**

| Average Rate | Range of Rates | Standard Deviation |
|--------------|----------------|--------------------|
| 15.22        | 6.86 - 20.42   | 5.31               |



Fitted Curve Equation: Not given  
 $R^2 = ****$

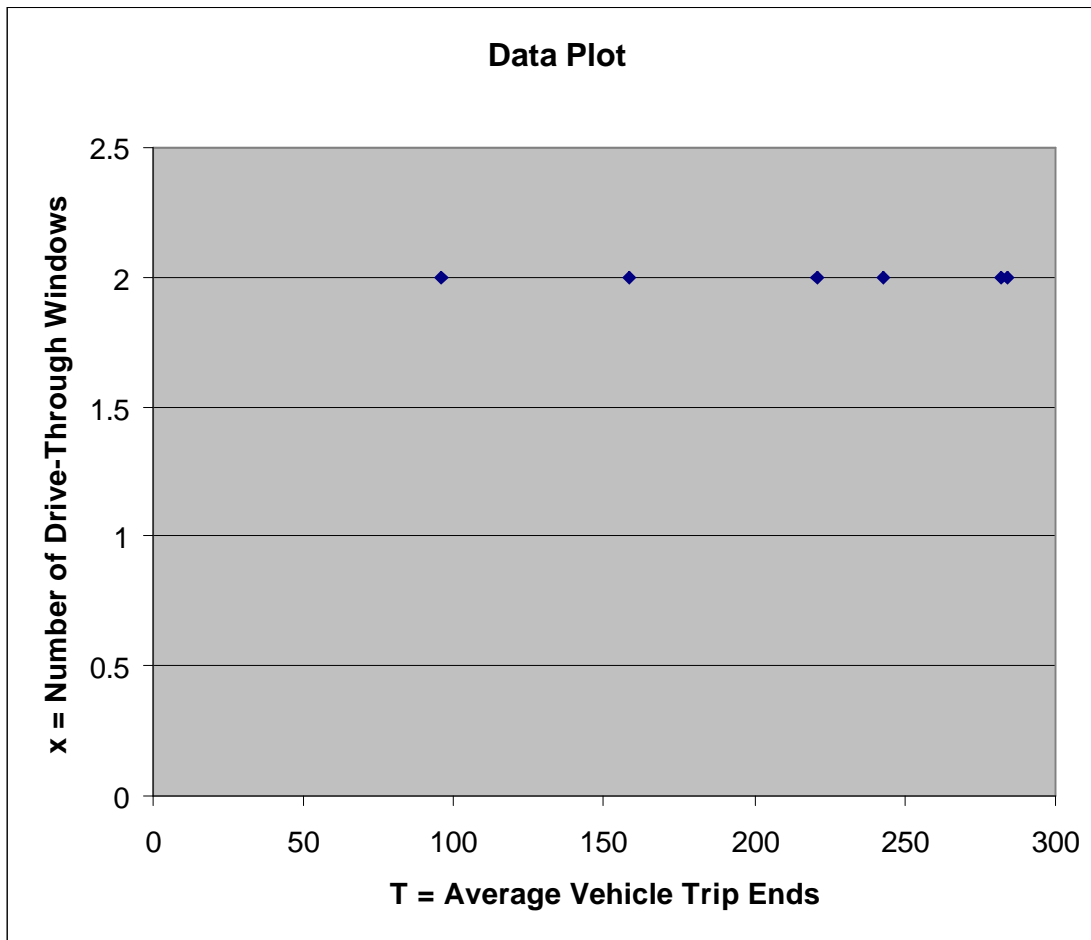
### Pharmacy/Drugstore with Drive-Through Window (ITE Code 881)

Average Vehicle Trip Ends vs: Drive-Through Window  
On a: Weekday,  
Peak Hour of Adjacent Street Traffic  
One hour Between 4 and 6 p.m.

Number of Studies: 6  
Average Number of Windows: 2  
Directional Distribution: 50% entering, 50% exiting

#### Trip Generation per 1000 Sq. Feet Gross Floor Area

| Average Rate | Range of Rates | Standard Deviation |
|--------------|----------------|--------------------|
| 107.00       | 48.00 - 142.00 | 37.06              |



Fitted Curve Equation: Not given  
 $R^2 = ****$

**Table 2– CVS Pharmacy\* Trip Generation Data**

| City, State | Urban City or Suburb | Number of cars using drive through between 4 p.m. and 5 p.m. | Number of cars using drive through between 5 p.m. and 6 p.m. | Number of in store transactions** between 4 p.m. and 5 p.m. | Number of in store transactions** between 5 p.m. and 6 p.m. |
|-------------|----------------------|--|--|---|---|
| Chicago, IL | Urban                | 5  | 8  | 37  | 74  |
| Chicago, IL | Suburb               | 7  | 11   | 45  | 86  |
| Chicago, IL | City                 | 4  | 10   | 60  | 91  |
| Chicago, IL | Urban                | 3  | 7  | 53  | 84  |
| Chicago, IL | Suburb               | 6  | 9  | 42  | 68  |
| Chicago, IL | City                 | 9  | 12   | 51  | 102   |
|             | <b>Averages</b>      | <b>6</b>   | <b>10</b>  | <b>48</b>   | <b>84</b>   |

\* Each store is approximately 13,000 square feet and has two drive-through windows.

\*\*Each transaction is one payment, i.e. someone buys gum, shampoo, prescription and pays with one check, that is one transaction. Neither the total dollar amount nor the number of items purchased matters. This data assumes each person buying something equals one car in the parking lot.