



Leveraging Health
and Traffic Big Data

EXECUTIVE SUMMARY

The US drugstore industry is undergoing revolutionary changes that force the major players to explore innovative tools for network restructuring, which is necessary to remain viable and competitive in the coming years.

CVS, in particular, is revamping its retail strategy and embracing three new distinct store models¹, in addition to its traditional stores:

- Locations that offer primary care services;
- "HealthHub" stores that have on-site dietitians, nurse practitioners and lab services;
- On-site treatment for chronic conditions such as diabetes and asthma.



1 - <https://edition.cnn.com/2021/11/20/business/cvs-closings-pharmacy-retail/index.html>

*Picture source - Unsplash

The number of store visits remains one of the key indicators of store performance. This indicator in large degree depends on accurate selection of the store location with **the right amount of convenient access and traffic volumes on nearby streets and travel intentions of the drivers.**



In addition to conventional traffic analysis, which Ticon does with unsurpassed accuracy in its **C-Site Insight™ product**, pivoting and leaning into healthcare aspects of the business demands a multi-faceted approach to meet consumers where they are. **Knowledge of customers located nearby is essential for the enterprise in the selection of a distinct model of a store** as some of the “HealthHub” stores might be transformed into destination places.

Ticon provides information on **the competitive landscape of the site of your interest** for accurate decision-making on destination places. Information on competitive landscapes includes data on the degree of saturation of the area with similar services.

Data provided by Ticon is mined from high-quality and **reliable /verified** sources to enhance the business benefits for a client. In combination with other integrated data sourced by the **customer -> client** it would streamline the decision-making process for analysts helping them to make accurate judgement on the site selection. We provide **trusted** data solutions, but it always takes your expertise to make the executive decisions.

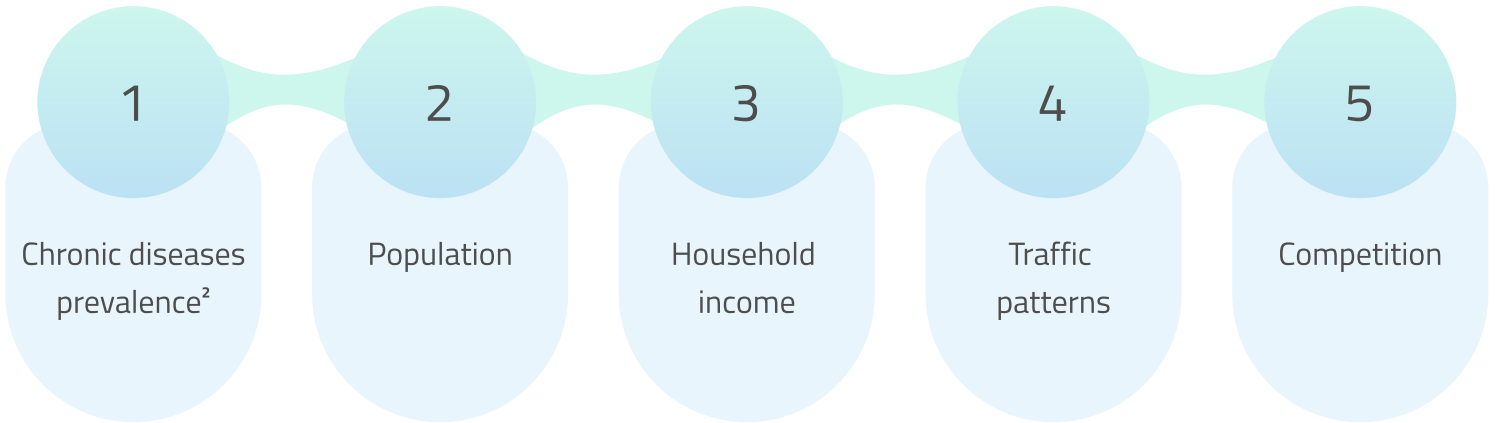
Upon considering these reasons, Ticon determined the need to explore the possibilities that Big Data and new hardware-free technologies provide to data-driven solutions for selection of new distinct drugstore business models.

The following Case Study had been conducted as a Proof of Concept.



DATA

For the Case Study we randomly **selected 12 existing** CVS locations in the state of Pennsylvania. The comparison was based on five factors:



The goal of the analysis is to conclude which operating CVS stores would be more suitable and profitable to transform to the “HealthHub” stores, and which stores may show better growth within existing business models.

Table 1 presents the primary metrics for all selected stores. One can see significant variations in values of influencing factors among these randomly chosen stores.

Table 1. Parameter values of the CVS stores

Site №	Estimated Diabetes incidence within a 6.2-mile radius	Estimated Newly Diagnosed Diabetes Incidence within a 6.2-mile radius	Demographics within a 6.2-mile radius	Diabetes prevalence (% of population)	Household Income, within a 6.2-mile radius	ADT	Drivers' behavior	Proximity of other CVS stores within a 6.2-mile radius
1	38412	3213	879911	4.4%	51223	16305	shopping	17
2	17309	1193	420071	4.1%	102251	16873	shopping	7
3	8444	572	81282	10.4%	55667	12559	shopping	4
4	2161	138	40310	5.4%	132866	30672	shopping	2
5	12010	906	570335	2.1%	121644	22470	shopping	13
6	15085	904	246914	6.1%	62290	43616	transit	1
7	8618	539	96433	8.9%	65230	12385	shopping	3
8	1389	87	18311	7.6%	70513	18259	transit	1
9	4703	373	145875	3.2%	125313	13480	shopping	4
10	22770	1580	261583	8.7%	91246	26724	shopping	2
11	2127	144	22878	9.3%	62191	13268	transit	3
12	16136	963	143278	11.3%	45321	20270	shopping	3

CONCLUSION

Aggregation of multiple characteristics of CVS stores, including consumer-based characteristics and traffic patterns, allows the user to evaluate the existing sites and optimize their growth by proper site selection and further transformation into modern “HealthHub” stores.

Reports provided by Ticon include broad and comprehensive traffic flow data and information, including by-day and by-month ATV distribution, speed/volume charts, etc.

Also, it is possible to get a comprehensive network-based decision on drugstore operation.

Table 2 presents a clear visualization of a store rank in Pennsylvania based on three business models considered in this Study, where “1” indicates the store which is the most appropriate for the following model and “12” – the least appropriate.

The case study is limited in many aspects, as it doesn’t take into account many crucial business factors, such as personnel characteristics, the history of the enterprise, regular customer base, the sales mix, current profitability, and many others, which are much better known to the customer. Thus, we don’t claim that we intend to find an **“ideal spot” for your company.**

In the process of traffic pattern analysis of the sites, the distribution of traffic volume metrics is usually more or less stable for each site of interest but fluctuates broadly between different areas due to location-specific impacts. Daily and monthly ADTs leveraging provide the company with additional opportunities for optimization of business operations, including revenue and sales, supply chain, inventory stock, and personnel management.



We used multiple criteria for the site assessment of two distinct business models and an option of store closure, to indicate which stores have **the best fit** for one of the presented models.

Table 2. Store ranking by three distinct models

Site №	Business model of a "HealthHub" store	Business model of a Traditional Store	Store closure
1	Site 6	Site 4	Site 11
2	Site 10	Site 9	Site 3
3	Site 12	Site 5	Site 7
4	Site 7	Site 2	Site 12
5	Site 2	Site 10	Site 5
6	Site 1	Site 8	Site 9
7	Site 3	Site 7	Site 1
8	Site 8	Site 6	Site 10
9	Site 9	Site 11	Site 8
10	Site 4	Site 3	Site 4
11	Site 5	Site 1	Site 6
12	Site 11	Site 12	Site 2



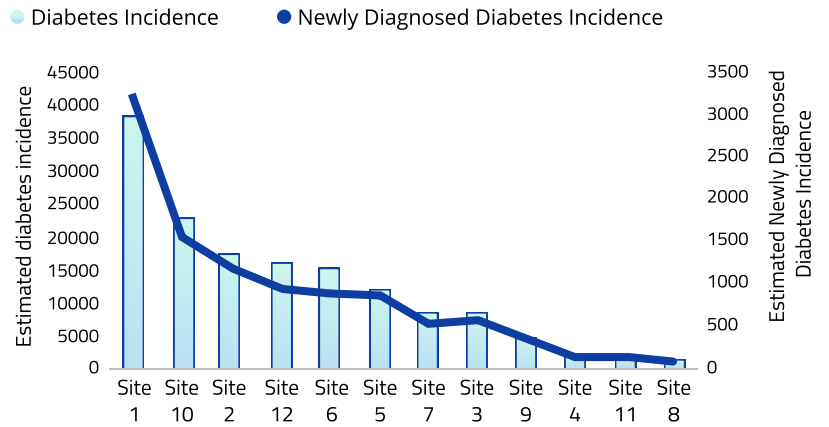
However, being experts in transportation engineering, traffic analytics, traffic data collection, and Big Data science, we will provide you with **reliable information** on traffic volumes, driver behavior, and demographics, including income and health conditions, that will complement your in-depth knowledge of drugstore industry. By aggregating and organizing all relevant data on the site characteristics, our reports would support you in making more accurate and informed **executive decisions.**



OBSERVATION

As the mission of CVS hubs is to expand regular and routine medical access, particularly for people with chronic illnesses, the chronic disease prevalence in close proximity to drugstores becomes an essential parameter of the customer base (Fig. 1).

Figure 1. Diabetes incidence at the sites



Knowledge of population health is vital for consumer-centric business strategy promoted by the CVS. For this case study, we have selected diabetes. However, Ticon technology supports mining data on other health conditions of interests.

According to Fig. 1, it is possible to assume that Site 1, having the largest estimated chronic diseases incidence in the area, is the best location for the transformation into a “HealthHub” store.

However, to confirm such an assumption, it is necessary to conduct a more complex and detailed analysis of all influencing factors.

SITE ANALYSIS

SITE 1

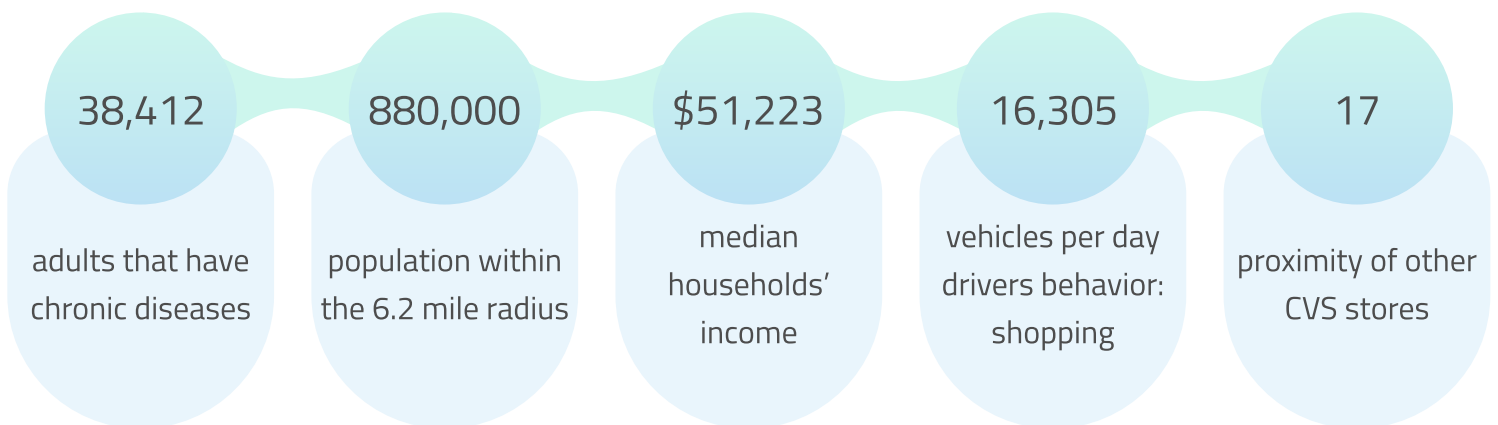
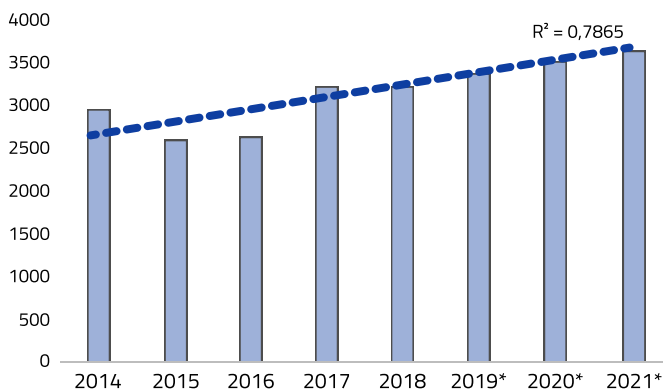


Figure 2. Estimated newly diagnosed chronic diseases incidence within a 15-minute drive from the site (6.2-mile radius) by year for Site 1

* - estimated



Within a 15-minute drive radius, there are **38,412 adults** aged 18 years or older (or 4.4% of the population) – that have chronic diseases. In 2014-2021, the number of estimated newly diagnosed chronic diseases incidence increased, presenting an upward trend for new disease cases.

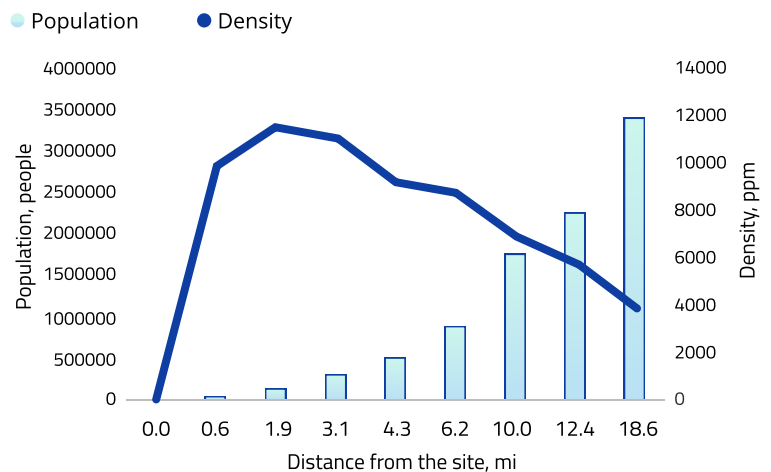
However, Site 1 is characterized by high proximity of other CVS stores within a 6.2-mile radius, accounting for 17 operating CVS stores. Based on this, the location has just **2,260 chronic diseases incidence per single CVS store.**

Site 1 is defined by:

- Abundant population within the 6.2 mile radius – approximately **880,000**;
- Sufficient median households' income – **\$51,223**;
- High proximity of other CVS stores – **17**.

Site 1 is characterized by a low average daily traffic (ADT) flow – **16,305 vehicles**. But it is important to note that wide distribution of vehicle speed for both primary and secondary roads suggests a high likelihood of vehicles stopping at the site for shopping, at least 10 am and 4 pm. Site 1 seems to be adjacent to destination points for large numbers of potential customers, as significant number of cars move at low speed.

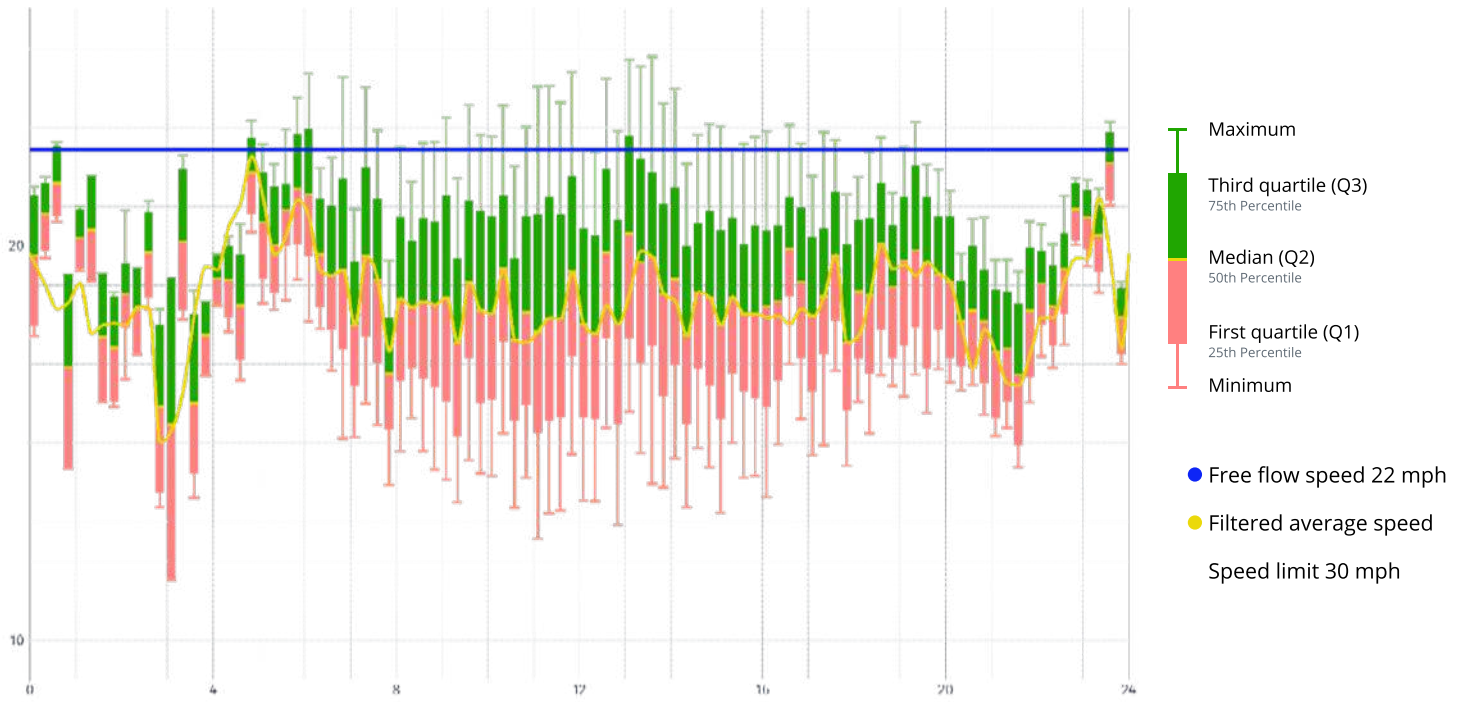
Figure 3. Demographics: Site 1



At the same time, sufficient number of cars moving at high speeds leads to a conclusion that the slowdown in traffic flow reflects drivers' travel intentions and is not caused by traffic congestion.

*Picture source - Ticon Inc.

Figure 4. Candlestick speed chart for Site 1 – Primary road



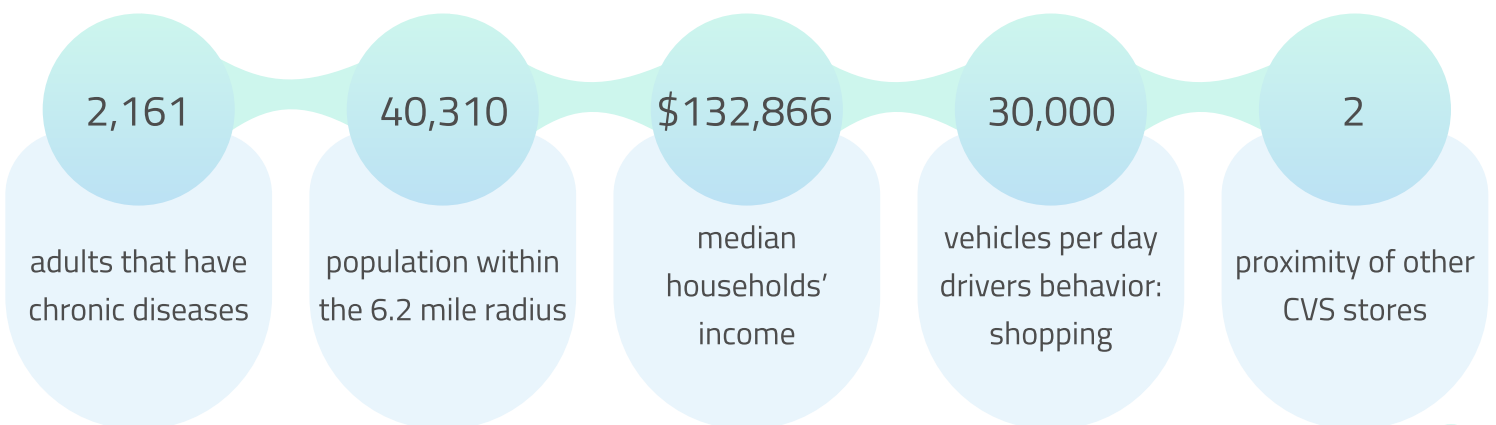
Observing location parameters, site 1 is characterized by good visibility and sufficient parking space.

Nevertheless, considering high proximity of other CVS stores within a 6.2-mile radius, it's reasonable to reduce the store density within the area of Site 1 to meet current goals of CVS business model.



Aggregating multiple criteria for Site 1, including lower chronic diseases incidence per store, lower traffic volumes, shopping behavior only during limited daytime hours, and lower household income, **we might suggest finding more suitable candidates for transformation into a "HealthHub" store.**

SITE 4 (rank#1 for traditional business model)



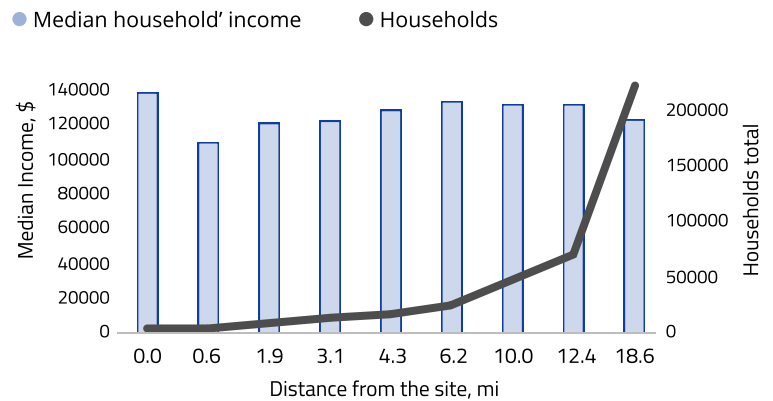
*Picture source - Unsplash, Ticon Inc.

Aggregating parameter's values for Site 4 shows that it is better to keep the **existing business model** of a traditional CVS store.

Firstly, estimated chronic diseases incidence within a 6.2-mile radius from Site 4 is **2,161**. Considering low number of drugstores in the area, there are only **1,081 chronic diseases incidence per one CVS store**.

Secondly, in a 15-minute drive from the site (6.2-mile radius) there are upper-middle income population with median household income of **\$132,866**.

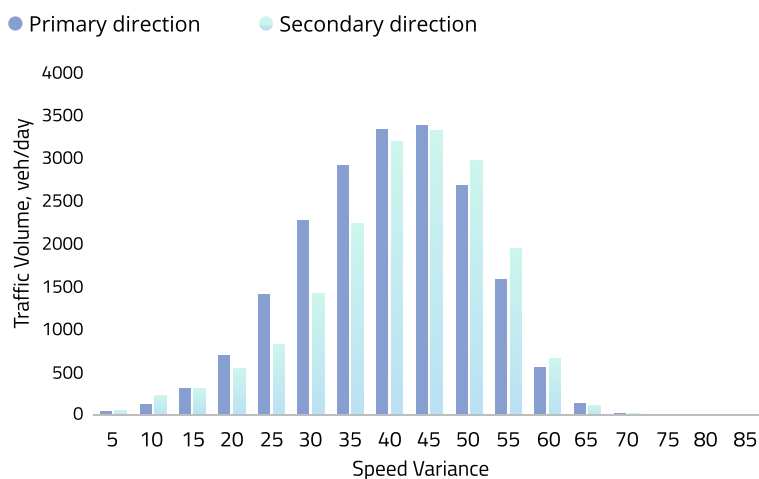
Figure 5. Average median households' income of Site 4



Traffic patterns evaluation of Site 4 indicates high average daily traffic (ADT) volumes accounting for nearly **30,000 vehicles**. Substantial traffic flow near the site increases the probability of customer visits.

Local traffic flow fluctuations at Site 4 indicate considerable speed variance in the primary direction. That suggests that the business site is adjacent to destination points for a large numbers of potential customers.

Figure 6. Traffic volume by speed for primary and secondary directions: Site 4

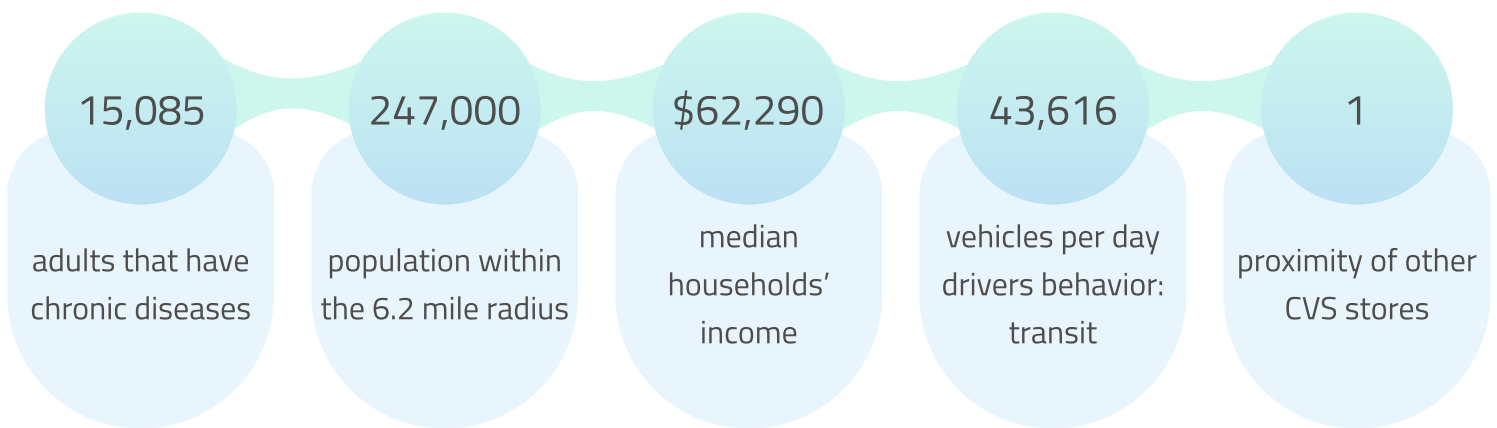


Site 4 is defined by sufficient number of cars moving at both high and low speeds.

Percentage of low-speed travelers in the secondary direction is smaller, presenting fewer chances of drivers stopping at the location. Still, shopping behavior prevails in both directions, especially in the primary one.

Thus, assuming multiple characteristics including a decreasing trend of chronic diseased incidence, high median household income, low proximity of other CVS stores, and shopping behavior of drivers, Site 4 presents an example of a site with high potential to grow as a C-Store. It would be acceptable **to keep the existing business model** of a traditional CVS store at the Site 4.

SITE 6 (rank#1 for HealthHub" business model)



15,085 of adults aged 18 years or older, or 6.1% of the population within a 15-minute drive from the Site 6, have chronic diseases.

Compared with other CVS stores, site 6 is characterized by:

- Sufficient population in the area – nearly **247,000**;
- Significant median households' income – **\$62,290**;
- Low number of other CVS stores in proximity – **1**.

Site 6 is located near the highway with high average daily traffic (ADT) volumes of **43,616 vehicles**. Assessing the hourly speed variance of the vehicles passing by the site in primary direction, we discern rather strong shopping behavior.



Also, high ADT, good visibility, ease of access with a traffic signal, and sufficient parking space increase the chances for a store to attract the drivers to stop for shopping or service.



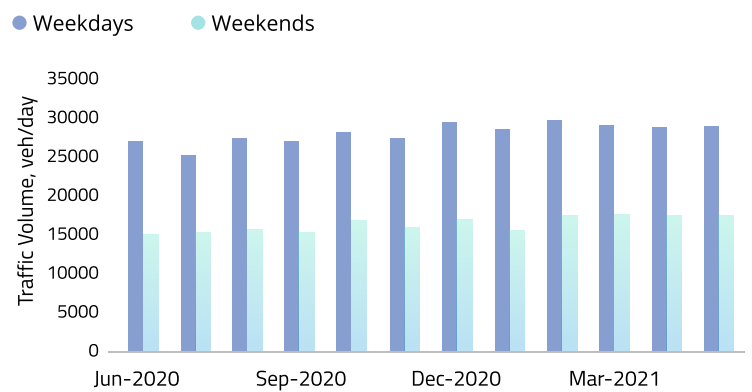
Figure 7. Candlestick speed chart for Site 6 – Primary road



Analyzing traffic patterns of Site 6, we might see that seasonal traffic changes are quite low, presenting no significant fluctuations. For many scenarios, and certainly depending on the area of interest, seasonal fluctuations and variations should be examined.

Knowledge of monthly ADTs is extremely valuable for optimization of business operations, including revenue and sales, supply chain, inventory stock and personnel management.

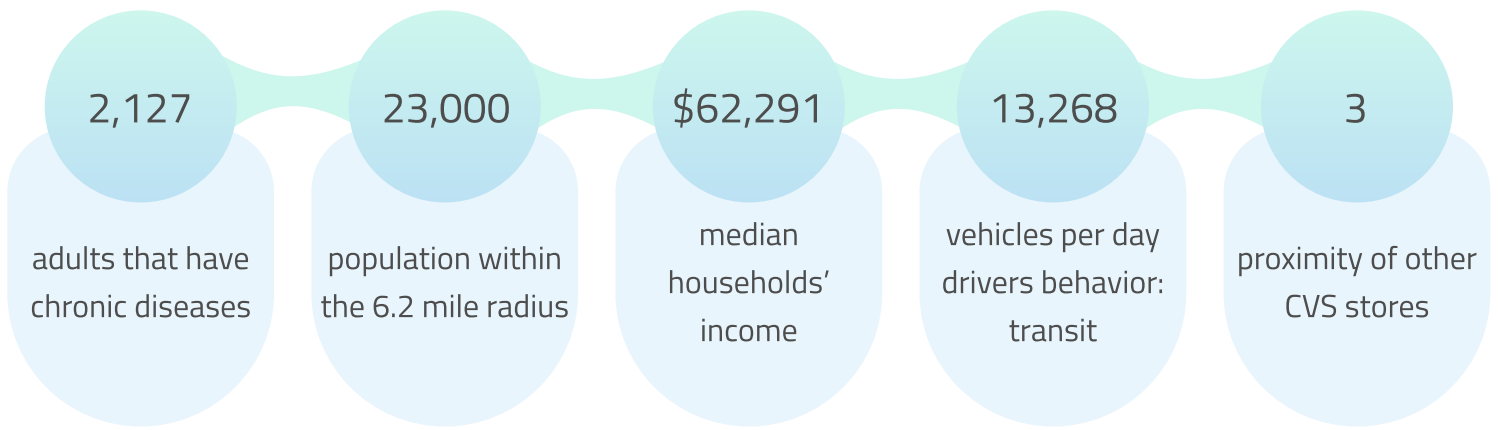
Figure 8. By-month Average Traffic Volume distribution of Site 6



Leveraging multiple criteria for the assessment of Site 6, we may conclude that a traditional CVS store located there might be **transformed into a "HealthHub" store** to meet the local needs of the population with chronic diseases.



SITE 11 (rank #1 for store closure)



There is only **709 chronic diseases incidence per one CVS store** here, which is low for the region. The number of newly diagnosed incidence is rather low (144 cases) compared to other sites.

The main characteristics of the Site 11 are:

- Small population within a 6.2-mile radius – nearly **23,000**;
- Sufficient median household income - **\$62,291**;
- Relatively low number of other CVS stores in proximity – **3**.

Traffic patterns at Site 11 are defined by rather low average daily traffic (ADT) volumes accounting for **13,268 vehicles**.

Analyzing the traffic patterns for Site 11 for both primary and secondary directions, we suggest an absence of strong shopping behavior.

Figure 9. Candlestick speed chart for Site 11 – Primary direction



*Picture source - Ticon Inc.

Leveraging multiple criteria for the analysis of Site 11, including low number of chronic diseases incidence per one CVS store, small population value, and insignificant volume of traffic flow, we suggest that the site **doesn't present** any sufficient reasons to be transformed into a "HealthHub" store or to continue operating within the existing business model of a traditional store.

Based on the abovementioned parameter values, our analysis suggests that **the site could be shut down.**



Therefore, evaluating 12 CVS stores we've chosen which site suites **the best** for transformation into a "HealthHub" store, which one is better to develop within the existing business model, and which site presents no benefits for further operation.

ABOUT TICON

Founded in 2016, Ticon is a leader in site selection and mobility management data services, leveraging an innovative algorithm for analysis of traffic flow data. Ticon delivers accurate traffic maps with dashboards and highly detailed reports containing all relevant traffic data in convenient, easy-to-read format.

Ticon reports are based on in-depth knowledge of traffic engineering and on expert consideration of specific industry requirements, ensuring 100% confidence in the optimal solution.

Major players in C-Store industry trust our reports for their site selection since 2017.

CONTACT US

The logo for Ticon, featuring the word "ticon" in a lowercase, sans-serif font. The letter "i" is stylized with three colored dots (red, yellow, green) above it. The logo is positioned on the left side of a large, light blue circular graphic that partially overlaps the contact information.

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