



# E-Site Insight™

Optimized approach to development  
of EV charging network

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# PREFACE



Currently there is a well established trend of adding EV chargers to existing retail locations - gas stations, c-stores, grocery stores, fast food restaurants, etc. As we observe this trend, it is becoming clear that for an investment in EV charger equipment to be profitable, multiple factors need to be taken into consideration when an interested party is evaluating the priorities in rolling out the EV charger stations at select locations of its store network.



The time required to charge an EV is much longer than what it takes to fill up a gasoline-powered car: at least 30 minutes instead of three minutes. Because the EV owners will have time on their hands to spend at the retail establishment while their vehicles recharge, providing them with the amenities and pleasant ways to utilize the extra time could be a win-win for the retailers as well as for their EV-driving customers.

This is why some c-stores and grocery stores are including more dedicated spaces for their EV-driving customers to gather and socialize. These “third spaces” help retailers earn more revenue and entice shoppers to enter their stores and stay longer.



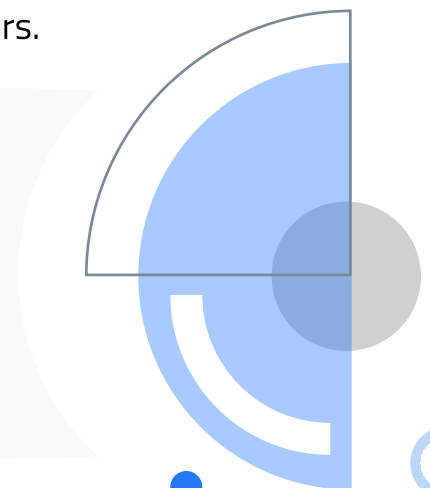
## TICON METHODOLOGY



In order to provide reliable, verified and focused data to the stakeholders in deployment of EV charging networks, Ticon developed proprietary methodology which considers multiple factors to estimate both current size of EV fleet, and probability of rapid growth of their number in the area of interest.

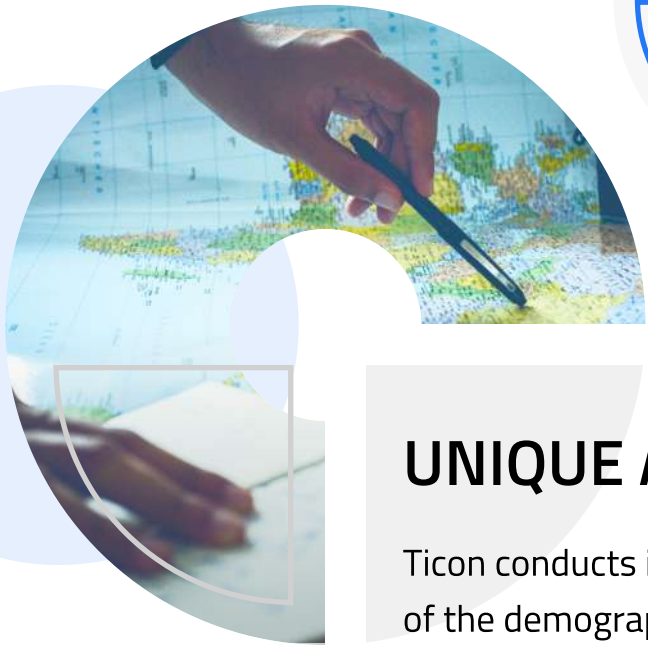
Using both ML and AI methodologies, one can conclude that the latter depends on the specifics of local demographic profiles, income levels and professional occupations of the populations, as well as on the location development prospects that would reflect on the population growth and other factors.

The practical implementation of Ticon methodology is our EV-oriented analytical report, E-Site Insight™. **This report covers all important data sought by the real estate professionals involved in development of the EV Charger roll-out projects.**



Ticon provides almost **100% road network coverage** (more than 97% of roads FRC\* 6 and up) and **100% time coverage collecting all means of information**, including but not limited to permanent and portable traffic detectors, traffic counters, GPS data, connected vehicles data, GIS information, demographics data, traffic organization and events transformation, and other, thereby creating a high-resolution dataset, containing all essential data for **evaluation of traffic flow performance at the place of your interest**.

Through cross verification, filtration, and processing by Ticon proprietary algorithm, all this raw data is transformed into accurate estimation of speeds, volumes, and their derivatives.



We have high-resolution data for all roadways, large and small, for very short road segments (up to 35 feet, about 225 feet on average) and very brief time intervals (up to 5 min, for most cases even up to 15 seconds).

## UNIQUE APPROACH TO AREA ANALYSIS

Ticon conducts its analysis based on **combined consideration** of the demographic characteristics of the area, the characteristics of the transport network and traffic on it, as well as the current state of the EV charger network.

Our approach is distinguished primarily by the application of a **specialized algorithm for multifactor analysis** that allows concurrent review of specific features of various components that impact the ROI (return on investment) of the business site development.

As applied to EV chargers it means considering not only the potential customer base that is fully defined by the intensity of traffic along the adjacent roads, but also the behavioral characteristics of the traffic participants, e.g., their desire and their ability to stop / exit at a particular road segment to access the available service(s), as well as the store features that influence the length of the customer stay for shopping.

- It also includes demographic characteristics in the area directly adjacent to the location, as well as in the definitive radius of influence, and Service Equity Factor.

As a result of this process, Ticon AI algorithm finds the value of the Location Attractiveness Index (LAI) that is applied to ranking the stores within an individual Chain. After the Client selects the best locations throughout the Chain based on his in-depth business experience and the LAI ranking, we can proceed with the next step of the process, which involves optimization by geographic areas.

To do this, Ticon AI algorithm will define individual regions with specific characteristics, and in each of these regions shall consider the locations in a given area, considering traffic activity and behavior, specific features of the area, and Service Equity Factor.

We offer the example of traffic analysis to underscore that we conduct our own multifactor analysis in each Big Data segment we analyze, and we verify each data source to filter out any doubtful, unreliable, or biased data that may enter the pool, as it often happens with Big Data.

This verification process mitigates the possibility of polluting the analyzed data pool with information that may be unreliable due to insufficient competence, preparedness, or awareness of the supplier of this source data.

For example, even such a simple type of data as traffic volume, up to this day either comes from spotty network of sensor hardware with sparse spatial coverage, such as traffic detectors and video surveillance – or, from GPS-based informational systems, which deliver broader area coverage but with unknown levels of accuracy.

These systemic shortfalls impact all applications of traffic data. To avoid such mistakes, Ticon combines multi- **source GPS and GIS data** with information on traffic organization, events, and more – all of which we correlate and consolidate into the products that uniquely **satisfy your needs**.





As a result, Ticon offers traffic data products with significantly **higher accuracies and vast historical volumes of data** – the ideal basis for comprehensive traffic analytics. This allows Ticon to provide over **95%** spatial coverage – typically to the exact address and up to **10 years** of forensic capabilities.



The key to our unmatched performance is the application of artificial intelligence and scientific computing techniques to **Big Data**.

Ticon uses the same approach for all the components of our data.

## E-SITE INSIGHT™ REPORT ORGANIZATION

### Traffic Flow

The Site Traffic Map (Fig. 1) shows a general traffic flow pattern at the site of your interest. High-resolution data is generated from the observation of continuous year-round traffic precisely at the address provided by the customer.



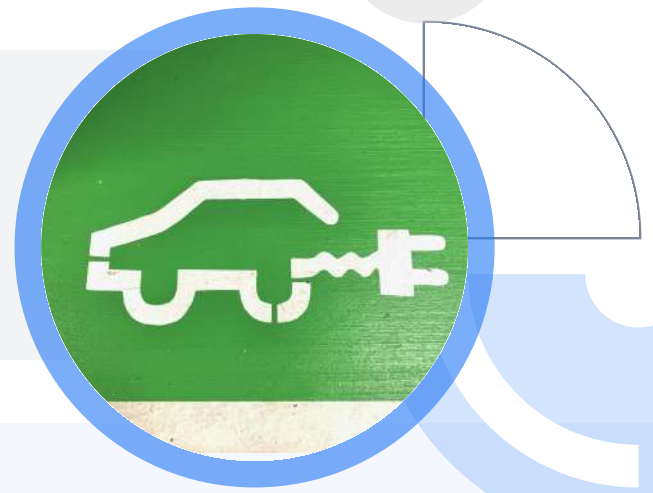
Figure 1. **Site Traffic Map\***



Each white arrow represents AADT—average annual daily traffic volume for each direction of traffic. Yellow boxes indicate the hours of maximal load on a road segment, identifying the periods of intensive vehicle traffic for each direction.

\*All figures are copied from real reports, street names changed for DEMO purposes  
 \*\*Picture source - Freepick, Unsplash, Ticon Inc.

Ticon's advantage lies in providing focused data for precise location expressed in geographic coordinates, rather than averaged over a street block or large section of the road.

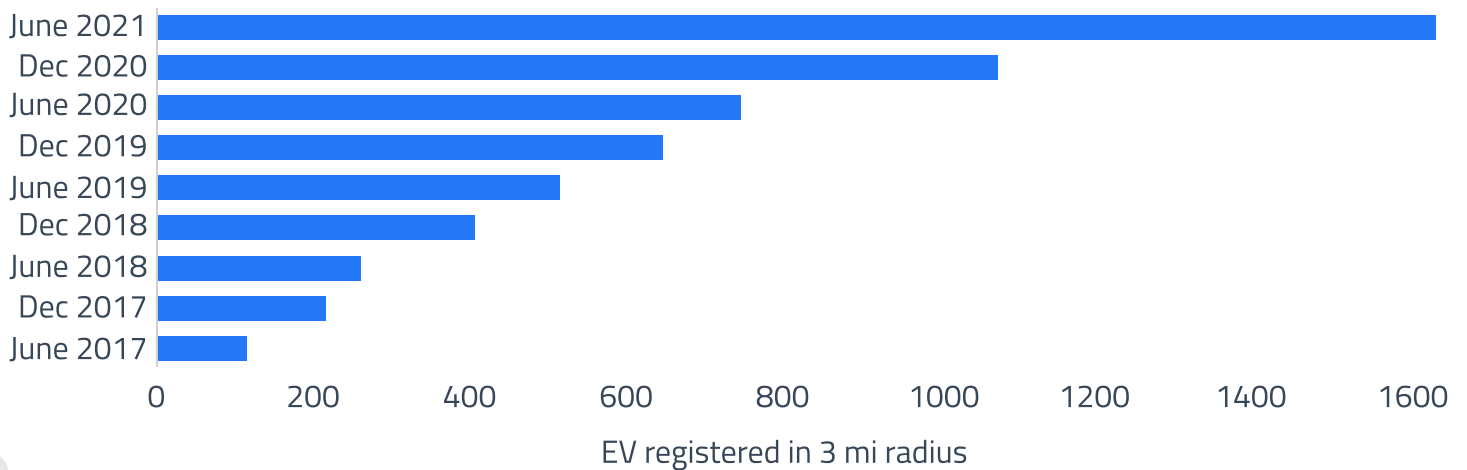


## EV Statistics for the Area

To evaluate the potential EV charger station's location, it is important to know where the current and future owners of electric vehicles are located today, and how their number will change in the future.

The current statistical data on the number of EVs registered in the location of interest, for a 5-year period, is provided by a diagram on Fig. 2.

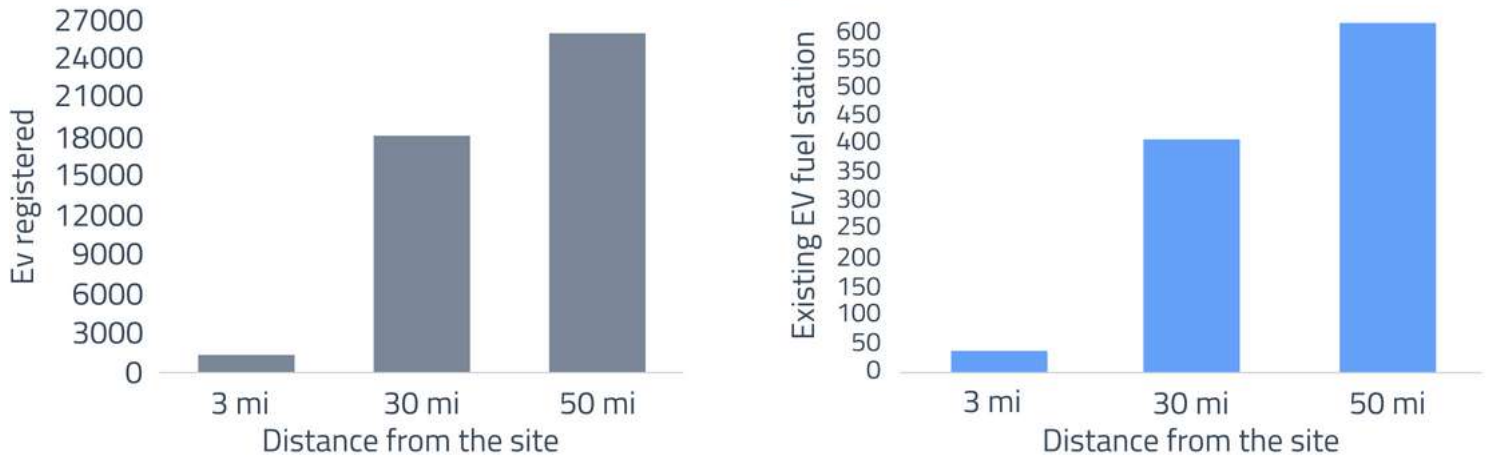
Figure 2. **EV Statistics for the Location. (Number of EVs registered in the 3-mile radius from the location)**



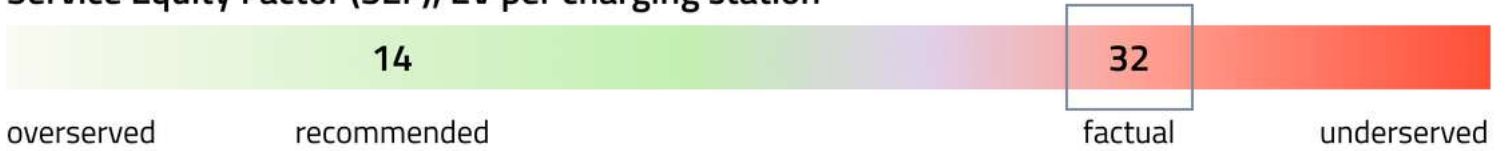
EV statistics for the surrounding area, represented by concentric circles of 3, 30 and 50 miles, are provided in the top part of Fig. 3. In the lower part of this image is another important indicator - Service Equity Factor (SEF) that shows how many EVs are served by a single charging station in the area of interest.

Currently the recommended value of SEF is 14 or less EVs per one charging station. The factual value shall indicate how close the observed number is to the recommended one.

Figure 3. EV Statistics for the Surrounding Area (top diagram shows number of vehicles in concentric radii from the location, bottom diagram shows actual SEF value)



**Service Equity Factor (SEF), EV per charging station**



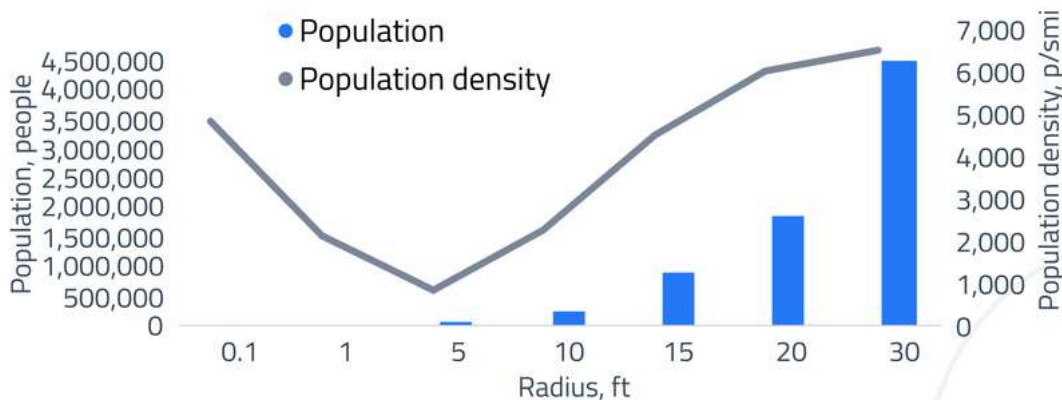
**Demographics for the Area**

In the foreseeable future we have no reason to expect an unattended car to visit the charging station, charge itself and pay for it, even though some long-shot projections say this will one day be possible.



For today, we still can safely assume that people - drivers - shall pay for charging their EVs and for any other purchases they make while their EVs are charging. After all, this process takes about 30 minutes on the average, so keeping the drivers busy at the charging station by providing them food, beverages and other enticements to spend time and money is very important.

Figure 4. Demographics for the Surrounding Area (population numbers and population density at indicated distances from the location)



Thus, the demographic data that show the population numbers, density (and income) is included in the report, as seen in the diagram on Fig. 4.



With our data on population size, growth, and income, your company will be able to **identify areas that fit your target demographic profiles**. This data is valuable for site selection as well as for growth market evaluation.



Ticon provides averaged aggregated data for multiple radii to cover immediate, adjoining, and surrounding distances from the site. Population growth data is provided for the trade area within a 5-mile radius of the site.

## TRACKING THE ENERGY NEEDS

Assuring energy needs of the EV charging stations is another issue that - while not immediately critical - will take immense importance in the near future when the number of electric vehicles will grow dramatically. As California, followed by several other states, just mandated to stop the sales of ICE (internal combustion engine) vehicles by **2035**, the reliance on EV for daily transportation will increase exponentially.



It will become vitally important to assure the adequate supply of electrical power to each charger location, and to know the kWh capacity of the location.



Ticon provides the power consumption trend analysis, using our proprietary algorithm and cross-verified analytical data. With this tool, you can plan ahead and add the power to the location at just the right time, when it will be in demand - without overloading the grid and causing interruption in power delivery.



# ABOUT US

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 a 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 the C-Store industry **trust** our reports for their traffic flow performance evaluation since **2017**.

## CONTACT US



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