



# Electric Vehicle Charging Station Security Guidebook





# EXECUTIVE SUMMARY



In March 2021, the United States passed the milestone of 100,000 public chargers, as recorded by the Department of Energy’s Alternative Fuel Data Center. New actions taken by the Department of Transportation, Department of Energy, and General Services Administration will accelerate the accessibility of additional charging stations to make driving an electric vehicle convenient in every part of the country.

The current federal administration has proposed a plan to build a national network of 500,000 charging stations. Through a combination of grant and incentive programs for state and local governments and the private sector, it will support the installation of chargers in a variety of spaces: commercial, public parking, multi-family buildings, rural communities, and fast charging along the nation’s highways.

The coming rapid expansion creates the potential that government and private industry will not be able to identify and address business challenges and security risks. This paper focuses on the Electric Vehicle (EV) charging station market’s unique characteristics and the importance of security practices to aid in the protection of people, assets, businesses, and operators.

The goal of this guidebook is to offer straightforward direction to help planners, regulators, operators, and businesses realize security risks and implement a risk-based security plan for the deployment of EV charging stations. We aim to accomplish this by creating an understanding of how assessment, development, and ongoing review of the security plan, security components/devices and security practices for EV charging stations and supporting equipment are critical for customer safety and business viability.

This paper covers the three phases for developing an EV Charging Station Security Program:



Security Challenges - understand the EV charging security challenges



Security Requirements - define the security requirements of an EV charging station



Security Strategy - have a plan for your security implementation



# Security Challenges

## **Fast-Evolving Market**

There are numerous stakeholders with multiple business needs, each with unique business models and requirements. The situation is further complicated by the increasing variety and volume of chargers made by different suppliers to address the varying charging needs, such as AC, DC, home, public, semi-public, etc. Managing the variety of charging hardware across sites, their readiness, the operating environment, appearance, safety, risk factors, and more, demands enterprise and site-specific risk management solutions.

## **EV Planning**

At present, most state and local governments have not pre-planned the creation of an EV future by incorporating EV infrastructure into city planning initiatives or adopting building codes to ensure supporting infrastructure is installed during initial construction, which is the least costly point in time. Clear planning direction can help station developers with project proposals, just as understanding how station developers choose sites can help inform the permitting process. Proper planning should include a site risk assessment, to help identify location security threats, crime risks, and potential vulnerabilities. Site planning must also include security design considerations to minimize these potential risks. Unfortunately, our research reveals that security considerations are almost completely absent from existing regulations and planning activities. In the absence of security requirements, planning, and designs, we are greatly concerned about the potential explosion of criminal activity, user risks, and property damage as the presence and use of EV charging stations rapidly expands over the next few years.

## **Ensuring Charging Station Security, User Satisfaction, and Loyalty**

EV drivers are key stakeholders in the EV ecosystem. Drivers using charging stations designed for comfort and safety are more likely to become loyal to a brand in turn strengthening a business's ROI and brand reputation. Given the influence of social media, unhappy drivers will likely prove to be a major disruptor to the charging business, especially those a driver deems unsafe, not well-maintained, or not properly illuminated after-hours.

## **No Security Mandate or Industry Standard**

While some states have established ambitious EV-related infrastructure targets and regulations, there are few, if any, requirements regarding safety and security from jurisdictions, regulators, EV station developers, or operators. Moreover, there does not appear to be any consistent security practices or standards within private operators of EV charging stations. As stated above, we believe this void will lead to considerable safety and security risks as the number of EV charging stations greatly expands. To help fill this void, we provide a suite of safety and security solutions – from site evaluation, site layout, lighting, and equipment – to help businesses make strategic decisions regarding the security challenges posed at EV charging stations.



# Security Requirements

## Planning and Site Evaluation

In addition to normal questions, such as “Where are the best locations to place charging stations to ensure ample utilization or ROI?”, there are other non-security factors such as available charging space, permitting, electrical capacity, location of service, and property ownership. Unfortunately, our research reveals that safety and security typically do not factor into the planning, site selection, and design process. Failure to address the total customer experience, including convenient location and placement, visibility, lighting, and user safety and security, is a critical flaw in the planning and site selection strategy. Further, we believe there are additional security risks associated with poorly selected, inadequately designed, and improperly illuminated EV charging stations, including harm to customers and pedestrians and damage to vehicles, charging equipment, and other facilities on the premise.

Once the potential EV charging site has been identified, an independent security consultant should complete a Crime Risk Assessment of the proposed location. During the crime risk assessment, the consultant will provide objective, actionable intelligence regarding the risk of violent and property crime at the location. The data and insights into the crime and loss which could impact the proposed location will allow station developers and operators to make better-informed decisions regarding site suitability and risk-mitigation that may create a deeper impact on the investment.

## Security Strategy

### Security Guidelines

Once the EV charging site has been selected, it must be designed with security and customer safety as primary objectives. EV charging stations may operate around the clock. Extended hours of operation, ease of access and egress, and proximity of major thoroughfares combine to make these locations potentially susceptible to planned and impulsive assaults, robberies, and similar crimes.

During the charging process, car owners are likely to be sitting in their car - tethered to the charging station and essentially inoperable – for anywhere from 10 minutes to much longer. This leaves customers and passengers extremely vulnerable, as they are likely to be distracted using their phone, napping, or otherwise not engaging in situational awareness. Moreover, consumers may be completely unable to operate their vehicle to escape a dangerous situation, as many EVs cannot be driven while connected to a charging station.

Consumers expect safe and secure environments while using publicly accessible charging stations. Without proper security practices implemented at these charging sites, negligence, third-party crime, slip and fall accidents, vehicle accidents, and even fraudulent claims by customers could exponentially increase litigation and reputational risks as the number of EV charging stations continues to increase.

EV Charging Stations should be designed by qualified professionals to include appropriate security elements. To help drive a positive consumer experience and address potential crime risks, GMR 410 has



developed model security guidelines and best practices to address lighting, visibility, and security measures at EV charging stations.

## About GMR

GMR is a diverse supplier, women-owned business, providing inspections, analysis, engineering, project management, installation, scanning, and security consulting services to a wide variety of industries across the United States. Headquartered in the Dallas/Fort Worth Metroplex, GMR has been in business since 1991 and serves clients across all 50 states.

With decades of experience designing and engineering lighting and security solutions, as well as inspecting locations, and identifying and analyzing risk, our experts are uniquely situated to assist EV Charging Station operators and businesses identify potential locations, design lighting, and security plans, install, maintain, and complete on-going inspections and assessments to ensure customer satisfaction, help you realize your return on your investment and minimize risk.

**Contact Mary Gates or Chris Bailey (972-771-6038) to schedule a free consultation.**

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