

## ELECTRIC VEHICLE INFRASTRUCTURE

### Amendment to the Zoning Ordinance

Electric vehicles (EVs) have entered the market and will soon be available to consumers in all 50 States. As the home of Chrysler Group, LLC and numerous automotive suppliers, the City of Auburn Hills recognizes the importance of supporting this emerging innovation in the industry.

Automakers have clearly identified that to support the mass production of EVs, municipalities will need to enable and promote the necessary charging infrastructure demanded by potential customers. Thus, advanced planning at all governmental levels is critical to support the early adoption of EVs and spur private sector investment.

The City has learned that EVs need a much different type of fueling network than gasoline engine vehicles. This new fueling system will be based on a clustering of strategically placed charging stations at homes, workplaces, and retail stores, in lieu of the traditional quick 'in and out' fueling system used with gas stations today. This will be quite a paradigm shift for most American consumers and we have talked to many skeptics.

However, companies like GM, Ford, and Nissan believe the market will develop over time and all three have made bold public predictions that at least 10% of their Y2020 overall sales will be comprised of EVs. That is just eight years away. What will the EV market be like in 20-30 years? No one really knows. However, we do anticipate that higher gas prices, advancements in battery storage, lower vehicle costs, and significant public/private investment in technology and infrastructure will greatly influence EV market share over time.

We envision EV charging stations becoming as commonplace as ADA barrier free spaces at major workplaces and retail centers. **The ordinance below is a small step that the City of Auburn Hills has taken to prepare for the future by setting policy and removing the red tape and bureaucratic uncertainty involved with installing a network of public and private EV charging stations throughout the community.**



PHEV Dodge Ram Truck at Auburn Hills City Campus Charging Station

#### SECTION 1834. ELECTRIC VEHICLE INFRASTRUCTURE

1. Intent.

The intent of this section is to facilitate and encourage the use of electric vehicles and to expedite the establishment of a convenient, cost-effective electric vehicle infrastructure that such use necessitates.

2. Definitions:

For the purposes of this Section, the following definitions shall apply.

- A. Accessible electric vehicle charging station means an electric vehicle charging station where the battery charging station is located within accessible reach of a barrier-free access aisle and the electric vehicle.

- B. Battery charging station means an electrical component assembly or cluster of component assemblies designed specifically to charge batteries within electric vehicles.
  - C. Battery electric vehicle means any vehicle that operates exclusively on electrical energy from an off-board source that is stored in the vehicle's batteries, and produces zero tailpipe emissions or pollution when stationary or operating.
  - D. Charging levels means the standardized indicators of electrical force, or voltage, at which an electric vehicle's battery is recharged. The terms 1, 2, and 3 are the most common charging levels, and include the following specifications:
    - 1. Level-1 is considered slow charging. Voltage including the range from 0 through 120.
    - 2. Level-2 is considered medium charging. Voltage is greater than 120 and includes 240.
    - 3. Level-3 is considered fast or rapid charging. Voltage is greater than 240.
  - F. Electric vehicle means any vehicle that is licensed and registered for operation on public and private highways, roads, and streets; either partially or exclusively, on electrical energy from the grid, or an off-board source, that is stored on-board via a battery for motive purpose. "Electric vehicle" includes: (1) a battery electric vehicle; and (2) a plug-in hybrid electric vehicle.
  - G. Electric vehicle charging station means a public or private parking space that is served by battery charging station equipment that has as its primary purpose the transfer of electric energy (by conductive or inductive means) to a battery or other energy storage device in an electric vehicle. An electric vehicle charging station equipped with Level-1 or Level-2 charging equipment is permitted outright as an accessory use to any principal use.
  - H. Electric vehicle charging station – private restricted use means an electric vehicle charging station that is (1) privately owned and restricted access (e.g., single-family home, executive parking, designated employee parking) or (2) publicly owned and restricted (e.g., fleet parking with no access to the general public).
  - I. Electric vehicle charging station – public use means an electric vehicle charging station that is (1) publicly owned and publicly available (e.g., Park & Ride parking, public library parking lot, on-street parking) or (2) privately owned and available to visitors of the use (e.g., shopping center parking).
  - J. Electric vehicle infrastructure means conduit/wiring, structures, machinery, and equipment necessary and integral to support an electric vehicle, including battery charging stations and rapid charging stations.
  - K. Electric vehicle parking space means any marked parking space that identifies the use to be exclusively for the parking of an electric vehicle.
  - L. Non-electric vehicle means any motor vehicle that does not meet the definition of electric vehicle.
  - M. Plug-in hybrid electric vehicle means an electric vehicle that (1) contains an internal combustion engine and also allows power to be delivered to drive wheels by an electric motor; (2) charges its battery primarily by connecting to the grid or other off-board electrical source; (3) may additionally be able to sustain battery charge using an on-board internal-combustion-driven generator; and (4) has the ability to travel powered by electricity.
3. Permitted Locations
- A. Level-1 and Level-2 electric vehicle charging stations are permitted in every zoning district, when accessory to the primary permitted use. Such stations located at one-family, multiple-family, and mobile home park dwellings shall be designated as private restricted use only. Installation shall be subject to permit approval administered by the Community Development Department.
  - B. Level-3 electric vehicle charging stations are permitted in the B-2, T&R, I-1, and I-2 districts, when accessory to the primary permitted use. Installation shall be subject to permit approval administered by the Community Development Department.
  - C. If the primary use of the parcel is the retail electric charging of vehicles, then the use shall be considered a gasoline service station for zoning purposes. Installation shall be subject to Special Land Use approval and located in zoning districts which permit gasoline service stations.
4. Readiness Recommendations
- A. Residential  
In order to proactively plan for and accommodate the anticipated future growth in market demand for electric vehicles, it is strongly encouraged, but not required, that all new one-family and multiple-family homes with garages be constructed to provide a 220-240-volt / 40 amp outlet on a dedicated circuit and in close proximity to designated vehicle parking to accommodate the potential future hardwire installation of a Level-2 electric vehicle charging station.

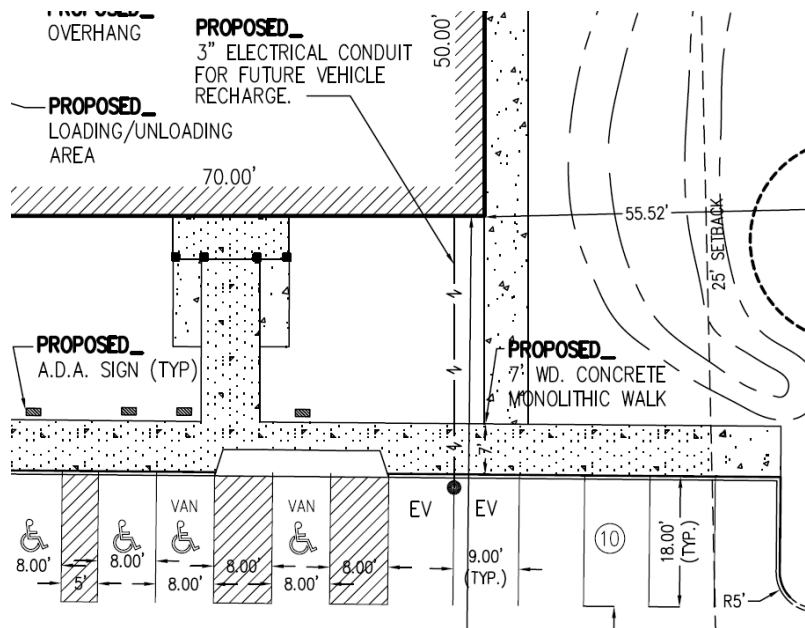
*Commentary: Industry experts have advised the City of Auburn Hills that 60% to 70% of electric vehicle charging will occur at the owner's home at night. Retrofitting a home for electric vehicle charging is considerably more expensive than the cost of including the capacity at the time of construction. To minimize the unnecessary cost to retrofit a home, the City considers electric vehicle readiness in new home construction a high priority.*

**B. Non-Residential**

In order to proactively plan for and accommodate the anticipated future growth in market demand for electric vehicles, it is strongly encouraged, but not required, that all new and expanded non-residential development parking areas provide the electrical capacity necessary to accommodate the future hardwire installation of Level-2 electric vehicle charging stations. It is recommended that a typical parking lot (e.g., 1,000 or less parking spaces) have a minimum ratio of 2% of the total parking spaces be prepared for such stations.

It is noted and understood that large-sized parking areas (e.g., Chrysler Group, LLC Headquarters, Great Lakes Crossing Outlets, The Palace of Auburn Hills, Oakland University, etc.) may require less electric vehicle charging stations than recommended above to accommodate the anticipated market demand.

*Commentary: If the property owner decides not to install the battery charging stations at the time of initial construction, this approach allows for the stations to be installed in the future without costly or cost-prohibitive retrofits. The intent of this subsection is encourage sites to be "roughed-in" with the installation of electrical stubs at planned electric vehicle charging station locations and conduit run from the power source to the station location to support future installation.*



**Example Site Plan - "Rough-In" of Electric Vehicle Charging Stations**

**6. General Requirements for Multi-Family Residential and Non-Residential Development**

**A. Parking**

1. An electric vehicle charging station space may be included in the calculation for minimum required parking spaces required in accordance with Section 1804.
2. Public electric vehicle charging stations are reserved for parking and charging electric vehicles only. Electric vehicles may be parked in any space designated for public parking, subject to the restrictions that would apply to any other vehicle that would park in that space.

- B. Accessible Spaces  
It is strongly encouraged, but not required, that a minimum of one (1) accessible electric vehicle charging station be provided. Accessible electric vehicle charging stations should be located in close proximity to the building or facility entrance and connected to a barrier-free accessible route of travel. It is not necessary to designate the accessible electric vehicle charging station exclusively for the use of disabled persons.
- C. Lighting  
Site lighting shall be provided where an electric vehicle charging station is installed, unless charging is for daytime purposes only.
- D. Equipment Standards and Protection
  1. Battery charging station outlets and connector devices shall be no less than 36 inches and no higher than 48 inches from the surface where mounted. Equipment mounted on pedestals, lighting posts, bollards, or other devices shall be designed and located as to not impede pedestrian travel or create trip hazards on sidewalks.
  2. Adequate battery charging station protection, such as concrete-filled steel bollards, shall be used. Curbing may be used in lieu of bollards, if the battery charging station is setback a minimum of 24 inches from the face of the curb.
- E. Usage Fees  
The property owner is not restricted from collecting a service fee for the use of an electric vehicle charging station made available to visitors of the property.
- F. Signage
  1. Information shall be posted identifying voltage and amperage levels and any time of use, fees, or safety information related to the electric vehicle charging station.
  2. Each electric vehicle charging station space shall be posted with signage indicating the space is only for electric vehicle charging purposes. For purposes of this subsection, "charging" means that an electric vehicle is parked at an electric vehicle charging station and is connected to the battery charging station equipment. Restrictions shall be included on the signage, if removal provisions are to be enforced by the property owner pursuant to Chapter 70. Traffic and Vehicles, Article III. Uniform Traffic Code of the Auburn Hills City Code.
- G. Maintenance  
Electric vehicle charging stations shall be maintained in all respects, including the functioning of the equipment. A phone number or other contact information shall be provided on the equipment for reporting when it is not functioning or other problems are encountered.

*(7-11-11 per Ordinance No. 836)*

## **ELECTRIC VEHICLE INFRASTRUCTURE**

### **Amendment to the Code of Ordinances**

This amendment allows for the removal of vehicles by the City of Auburn Hills that are illegally parked in designated electric vehicle (EV) charging stations.

The amendment to the Code essentially states that the Police Department may provide for the removal of a vehicle if the vehicle is: 1) not an EV, or 2) an EV that is not charging in accordance with the posted signs.

This provision addresses the "worst-case" scenario of a vehicle parked in an EV charging station for a prolonged period. The Police Department, in partnership with the Community Development Department, will utilize informational flyers and notices to educate motorists who mistakenly park in these reserved spaces. Voluntary compliance will be the City's primary goal.



Industry experts have advised the City that these restrictions are important to help the growth of the EV industry and consumer confidence in the product. If these reserved parking spaces are misused, then EV drivers will lose confidence in the reliability of the overall network.

Section 70-63(2.5d) of Chapter 70. Traffic and Vehicles Regulations  
Auburn Hills Code of Ordinances

*Sec. 2.5d. Vehicle removed by police.*

- (1) A police agency or a governmental agency designated by the police agency may provide for the immediate removal of a vehicle from public or private property to a place of safekeeping at the expense of the registered owner of the vehicle in any of the following circumstances:
- (a) If the vehicle is in such a condition that the continued operation of the vehicle upon the highway would constitute an immediate hazard to the public.
  - (b) If the vehicle is parked or standing upon the highway in such a manner as to create an immediate public hazard or an obstruction of traffic.
  - (c) If a vehicle is parked in a posted tow-away zone.
  - (d) If there is reasonable cause to believe that the vehicle or any part of the vehicle is stolen.
  - (e) If the vehicle must be seized to preserve evidence of a crime, or when there is reasonable cause to believe that the vehicle was used in the commission of a crime.
  - (f) If removal is necessary in the interest of public safety because of fire, flood, storm, snow, natural or manmade disaster or other emergency.
  - (g) If the vehicle is hampering the use of private property by the owner or person in charge of that property or is parked in a manner which impedes the movement of another vehicle.
  - (h) If the vehicle is stopped, standing or parked in a space designated for handicapped parking and is not permitted by law to be stopped, standing or parked in a space designated for handicapped parking.

- (i) When a sign provides notice that a parking space is a publicly designated electric vehicle charging station, no person shall park or stand any non-electric vehicle in a designated electric vehicle charging station space. Further, no person shall park or stand an electric vehicle in a publicly designated electric vehicle charging station space when not electrically charging or parked beyond the days and hours designated on the regulatory signs posted. For purposes of this subsection, "charging," means an electric vehicle is parked at an electric vehicle charging station and is connected to the charging station equipment.**