

ELECTRIC VEHICLE INFRASTRUCTURE PLAN IN TOMPKINS COUNTY

ELECTRIC VEHICLES

Electric vehicles (EV) charge their battery by plugging into an outlet which makes them **more energy efficient**, have **no tailpipe emissions**, and **cost 50-70% less to operate** per mile.



Chevrolet Volt at Taitem Engineering



Nissan Leaf at Cornell's Forest Home Garage

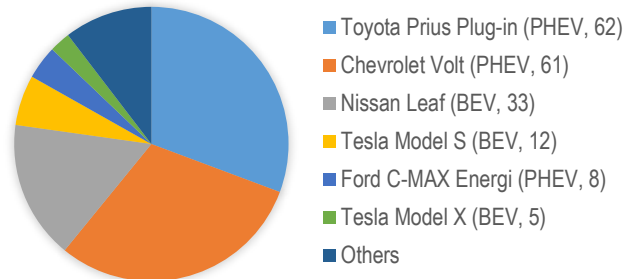
Plug-in Hybrid Electric Vehicles (PHEV) have a battery-powered electric motor to drive 15-80 miles then use an internal combustion engine powered by another fuel such as gas or diesel.

Battery Electric Vehicles (BEV) only have an electric motor, but with a larger battery pack that provides a range of 60-250 miles. Require no petroleum fuel or oil changes.

There were 202 EVs registered in Tompkins County as of March 31, 2017, which represents 0.42% of all registered vehicles (second highest in the entire state).

EVs can use a Federal Tax Credit up to \$7,500 and the New York State [Drive Clean Rebate](#) up to \$2,000 to reduce the purchase price of an EV by up to \$9,500!

EV MODELS IN TOMPKINS COUNTY



EVs replenish their batteries with **charging stations at home, work, or public locations**. Charging stations are classified by their charge rates and form of power delivered (alternating current [AC] or direct current [DC]). Charging times depend on the vehicle's power electronics, battery capacity, and the current state of charge. **Networked stations** add capabilities such as tracking usage, accepting payments, and sharing real-time status.

CHARGING STATIONS

Diane's Automotive



DC Fast Charger

- 480V input power
- Very fast charging, 40-80 miles in 20 min.
- Used for longer distance travel along major highways
- Installed Cost \$40,000 - \$80,000

Cayuga Medical Center



AC Level 2

- More features offered
- 240V input power
- Faster charging, 10-20 miles per hour
- Common for public parking settings
- Installed Cost \$2,000 - \$30,000

NYPA (White Plains)



AC Level 1

- LED status indicator
- 120V input power
- Slow charging, 4-6 miles per hour
- Best in garages for weather protection
- Installed Cost \$1,000 - \$3,000

Cornell Business Park



GFCI Outlet

- Must use own cord
- 120V input power
- Very slow charging, 2-4 miles per hour
- Occasional use only, will wear over time
- Installed Cost \$500 - \$1,000

New York State has a **tax credit** for installing commercial and workplace EV charging stations. Several other organizations also have funding opportunities for charging stations including: **New York State Energy Research and Development Authority**, **New York Power Authority**, and **New York State Department of Conservation**.



The EV Infrastructure Plan in Tompkins County was supported by the New York State Energy Research and Development Authority.

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EV drivers often seek out charging locations at downtown parking garages, entertainment venues, restaurants, stores, and recreational facilities. Offering charging can help businesses **attract new clientele** or **keep customers for longer durations**.

Over the past year, an EV Infrastructure Plan for Tompkins County was coordinated by the Ithaca-Tompkins County Transportation Council and has produced several reports and tools to guide the expansion of EV infrastructure in the County. These can be found on the Clean Cities of Central New York Webpage — <http://www.tompkinscountyny.gov/itctc/projects#EV>.

Existing Conditions and Best Practices summarizes the current status of EVs in Tompkins County.

An EV charging station **Site Suitability Criteria Tool** was developed to help compare the viability for installing AC Level 2 EV charging stations at various locations in Tompkins County.

EV Charging Station Site Suitability identified a set of optimal locations, shown in the map below, for EV charging stations in Tompkins County using the Site Suitability Criteria Tool.

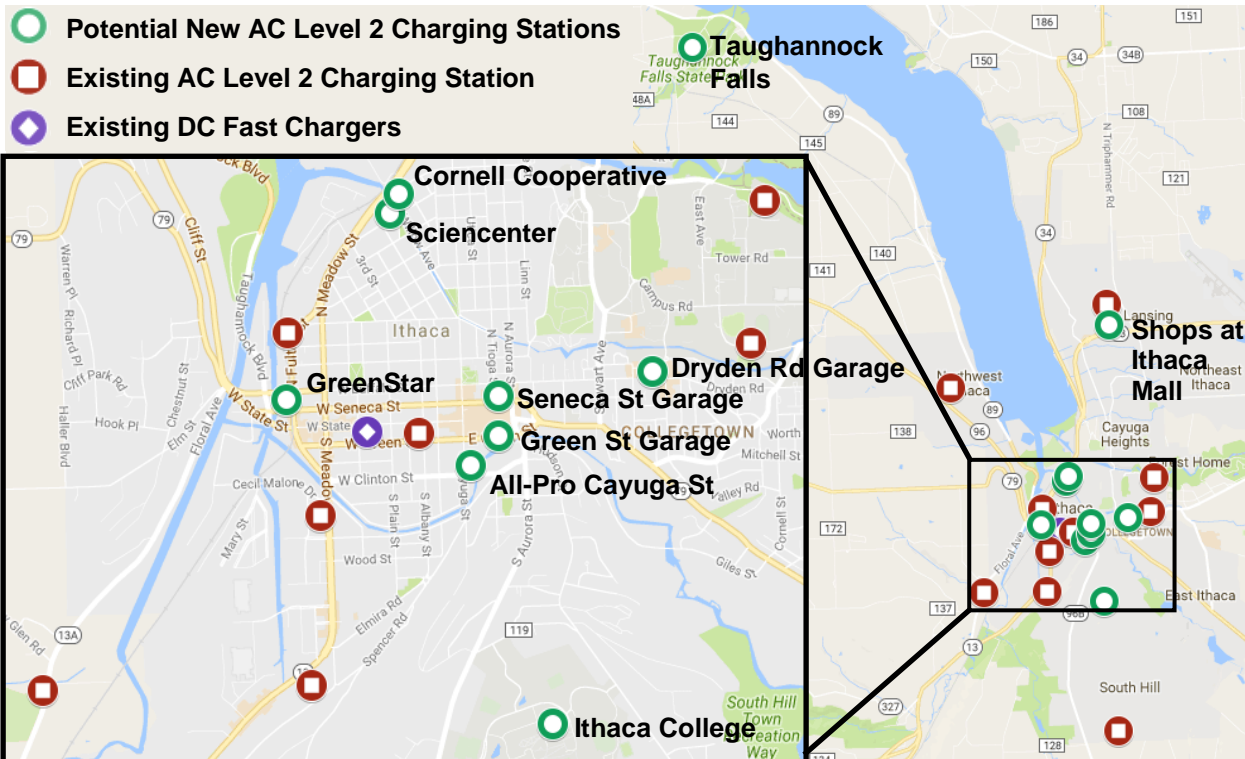
Preliminary Engineering and Cost Analysis for EV Charging Stations documented the recommended strategy for installing new EV charging stations at seven different locations in Tompkins County that represent a range of site characteristics.

Charging Station Implementation Strategies summarizes opportunities to expand the EV charging station network.



BJ's Wholesale Club

TOMPKINS COUNTY AREA EV CHARGING STATIONS



EV CHARGING STATION DEPLOYMENT AND EV AWARENESS INITIATIVE UPDATE

This EV infrastructure planning project's success and support from Tompkins County stakeholders has secured funding from NYSERDA through Energetics Incorporated that will help fund several new charging stations and an outreach campaign in 2018 to promote EVs and raise awareness about this technology.



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