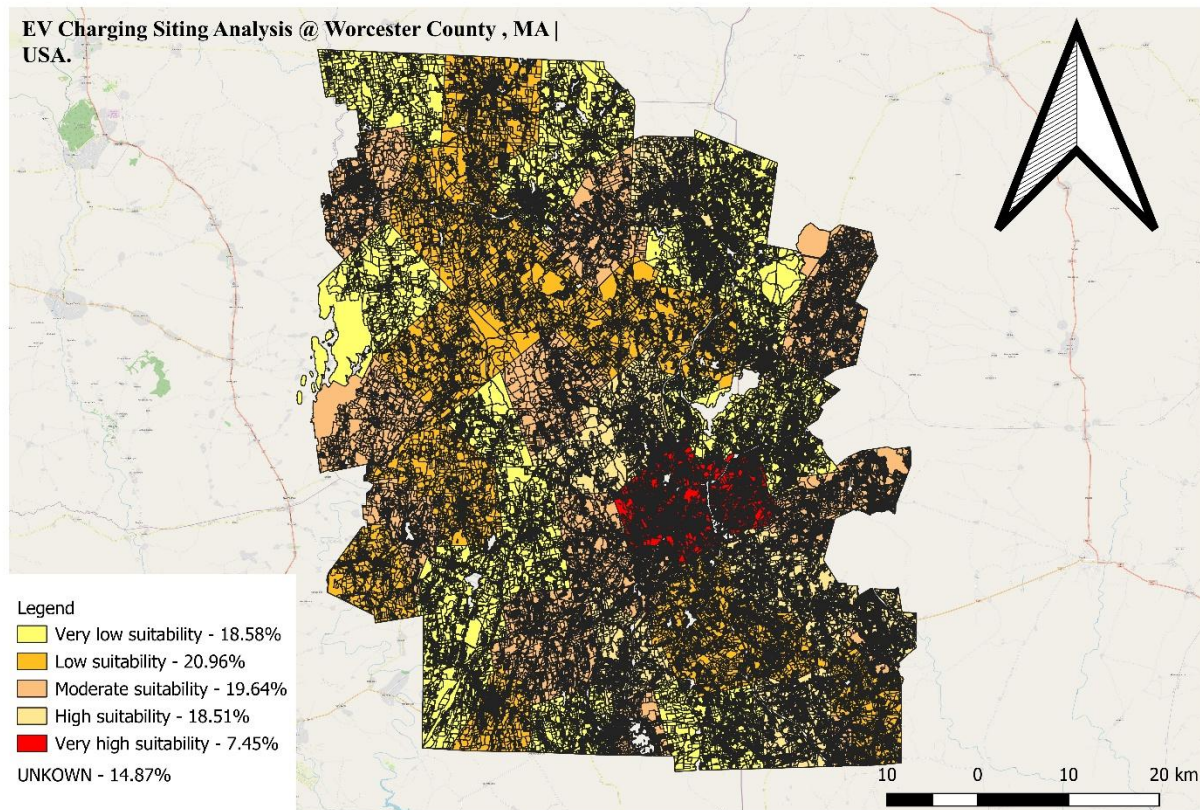


EV Charging Siting Analysis – Map



Interpretation of the EV Charging Siting Analysis Based Solely on Population Density using Worcester County, MA | USA.

High Suitability = (18.51%)

This EV Charging Siting Analysis evaluates the suitability of parcels in Worcester County, Massachusetts for the installation of electric vehicle (EV) charging infrastructure, using population density as the only input factor. By applying a population-based scoring system to each parcel, the analysis identifies areas where demographic concentration indicates stronger or weaker potential demand for EV charging.

1. Why Population Density?

Population density is a powerful proxy for:

- Mobility intensity
- Potential EV ownership
- Demand for public and residential charging infrastructure

Areas with more residents generate more vehicle trips and have higher probability of transitioning to electric mobility. Using population density alone allows a clear, unbiased assessment focused purely on human demand.

2. Spatial Distribution of Suitability

Very High Suitability – 7.45%

These parcels, shown in deep red, are concentrated in dense, urbanized neighborhoods particularly in the south-central and southeastern **zones** of the county.

They reflect:

- Highest demographic concentration
- Strongest mobility and charging demand
- Prime locations for initial EV infrastructure investment

These areas should be prioritized for fast chargers, public charging hubs, and municipal charging stations.

High Suitability – 18.51% (Corrected)

High suitability parcels surround the core high-density zones. These parcels represent:

- Dense but not fully urban neighborhoods
- Strong residential charging need
- Good locations for Level-2 chargers in parking lots, multi-family housing zones, and commercial corridors

These areas constitute the second-priority deployment tier.

Moderate Suitability – 19.64%

Moderate zones form a wide suburban belt across Worcester County. They generally exhibit:

- Mid-level population density
- Regular local traffic flows
- Sufficient demand for neighborhood-level charging expansion

These zones are ideal for expanding the charging network outward from city centers.

Low Suitability – 20.96% & Very Low Suitability – 18.58%

Together \approx 39.54% of the county.

These parcels are mainly located in:

- Rural areas
- Sparsely populated zones
- Large-lot residential or undeveloped land

Short-term EV demand is low here. However, long-term strategies may consider highway corridors, village centers, and emerging residential clusters.

Unknown – 14.87%

This class represents parcels with:

- Missing population data
- Incomplete intersections
- Data gaps between parcel boundaries and population layers

These areas must be reviewed before final planning decisions.

3. Key Spatial Insights

The map reveals a strong demographic gradient:

- Urban core = highest charging demand
- Suburban belt = medium demand
- Rural areas = lower demand

This pattern is consistent with statewide EV adoption and supports a phased, demand-driven approach to infrastructure planning.

4. Implications for EV Charging Planning

Phase 1: Immediate Deployment

Target the 7.45% very high and 18.51% high suitability parcels. These areas will produce the greatest utilization and operational efficiency.

Phase 2: Strategic Expansion

Moderate suitability parcels (19.64%) are ideal for:

- Extending the charging grid
- Supporting suburban households
- Reducing EV access disparities

Phase 3: Equity and Rural Access

Low-density areas remain important for long-term EV transition, especially:

- Along regional travel corridors
- Near rural town centers
- In environmental justice locations (future integration)

Data Improvement

Unknown parcels highlight the need for improved demographic mapping to avoid excluding underserved communities.

Conclusion

Using population density alone, this analysis provides a clear, evidence-based portrait of EV charging needs across Worcester County. The results reveal concentrated demand in urban and dense suburban areas, while also identifying broader regions suitable for gradual expansion. This framework supports informed decision-making and equitable, demand-based planning for EV infrastructure development.