

Warrant Article 25

Building for the transition to EVs

Big Picture

- Transportation: largest category of GHG emissions / toxic pollutants
- GHG reduction goals: 45%-50% by 2030, 100% by 2050
- Requires both shifting away from automobiles AND toward EVs (WA31-2019)
- Even our Republican Governor says **it should be illegal to buy a new gasoline car**; order bans sale in MA by 2035
- Under current regulations, even our *newest* buildings won't have necessary charging infrastructure for widespread EV adoption
- Planning ahead is cheaper and easier than retrofitting afterwards

Net zero by 2050: vehicle electrification timeline

- **100% of MA vehicle sales EV by 2035** (2020 Governor's order)
- **1 million EVs in MA by 2030** to meet emissions target (likely to be revised upward, per 2021 climate law)
- 2021 law “requires utilities to expand electric vehicle infrastructure”

Mass. to require all new cars sold to be electric by 2035 as part of climate-change measures

By [Naomi Martin](#) Globe Staff, Updated December 30, 2020, 6:37 p.m.



Planning to meet the need

In 2019, Brookline adopted 15% EV Ready requirement for parking lots with 15 or more spaces

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Anticipating 100% EV adoption within the lifespan of new buildings, this article requires...

1. All residential parking spaces to support EV charging
2. Medium-sized non-residential lots (7-14 spaces) to support charging in for least 1 “EV-Ready” space (currently, 15% requirement begins at 15+ spaces)

Costs

- Modest relative to price of building parking (~3% increase)
- Modest for new construction relative to retrofitting
- Article includes possible exemption by special permit to alleviate onerous applications

Recently permitted projects in Brookline include 100% EV Ready spaces

- e.g., 209 Harvard St. and 14 Green St.
- BHA project at 32 Marion St. also expected to include 100% EV Ready spaces

Costs

Denver's EV infrastructure building code proposal included the following cost estimates for EV-Capable and EV-Ready parking spaces during new construction and stand-alone retrofit:

EV Infrastructure Requirement	During New Construction	During Retrofit	Savings
EV-Capable (panel capacity + raceway)	\$300 per space	\$2,500 per space	\$2,200 per space
EV-Ready (full circuit)	\$1,300 per space	\$6,300 per space	\$5,000 per space

Source: Southwest Energy Efficiency Project, "EV Infrastructure Building Codes: Adoption Toolkit"

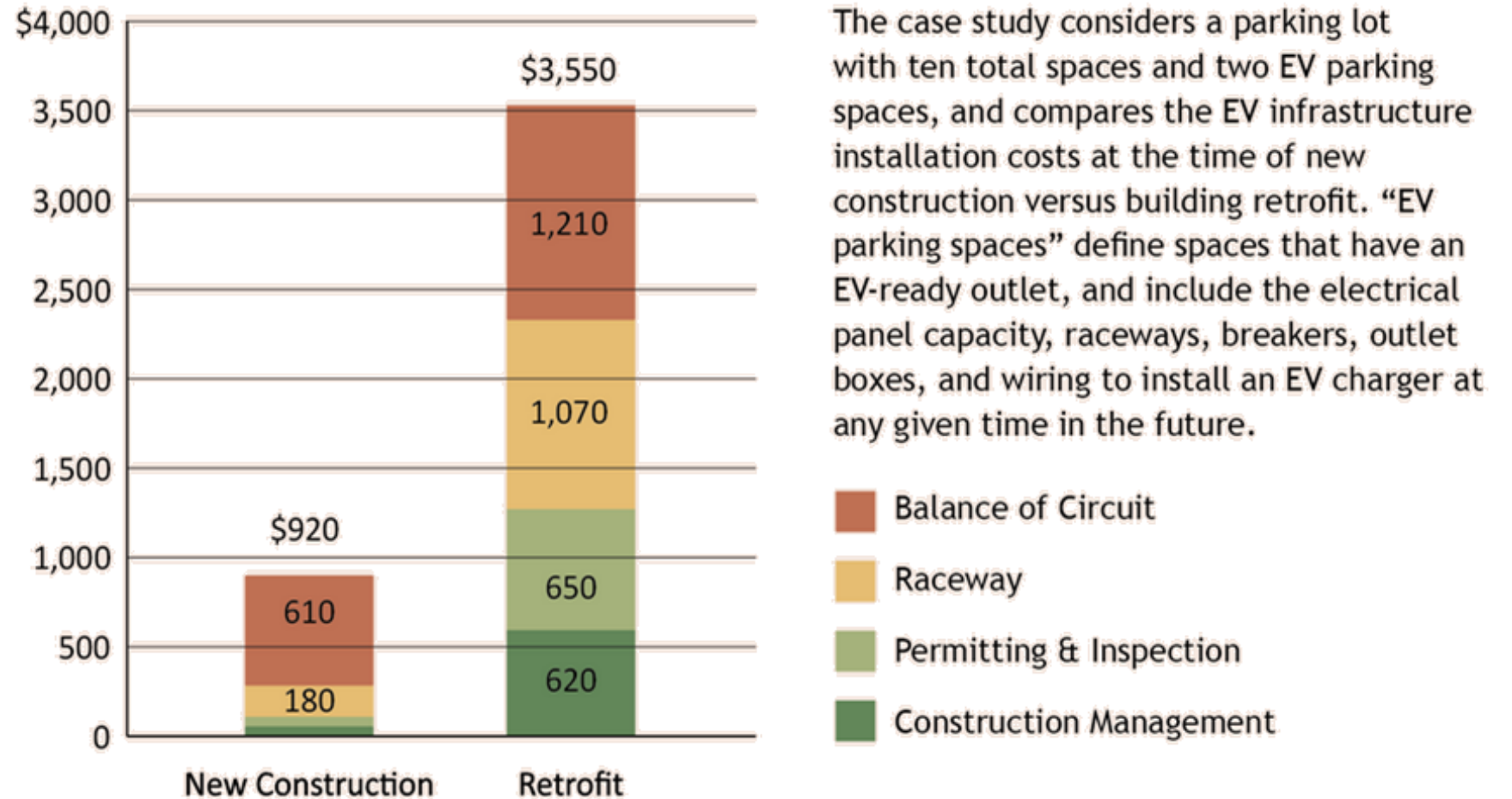
Increased cost of building parking by approximately 2.9%

Source: EPA Webinar March 24, 2021, "An Introduction to Electric Vehicle-Ready Buildings," p. 38

Costs

Cost per EV Parking Space: New Construction vs Retrofit

Case Study prepared for the City and County of San Francisco (2016)



Update: Revisions to address feedback so far

- “EV Ready” as defined in electrical code is problematic
 - **Excessive:** At high penetration rates, would result in excessive circuit capacity
 - **Inflexible:** Doesn’t recognize role of industry innovations for more efficient use of circuit capacity
 - We’re working on a performance-based requirement that would allow for less circuit capacity, more flexible compliance
- Original article ambiguous re applicability in renovation projects
 - Working on explicit triggers and exemptions
- Carve-out for Waldo-Durgin

Conclusion

- Emission reduction goals demand rapid vehicle electrification within the lifespan of new buildings
- Adding EV charging capability modestly increases construction cost but prevents more costly retrofits later