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Harvard University DCE
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Climate Action Plan
Town of Walpole
Transportation Sector`

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Preface

I would like to thank Jim Johnson, Town Administrator, Town of Walpole, Ma and his staff for their support with this project and Prof. Will O'Brien, Harvard Extension School for an inclusive, engaging and supportive learning environment.

Background

The Town of Walpole, Massachusetts will benefit from a Climate Action Plan (CAP) for its transportation sector to as it prepares to safeguard the interests of the town and its community from climate change. The town was settled in 1659 and incorporated in 1724 (Galvin, n.d.). Located 19 miles south of Boston and 26 miles north of Providence, Rhode Island, it encompasses a land area of 20 square miles (Walpole, n.d.-a). The United States Census Bureau estimated the population at 25,200 citizens in 2019 (U.S. Department of Commerce, n.d.). The Walpole School District has an enrollment of 3,972 students in eight Walpole Public Schools (WPS) (WPS, 2019). In the 2019 calendar year there were 1216 municipal employees; 271 full time employees, 332 part time employees and 613 seasonal or temporary employees (Walpole, 2019a).

The town is home to nearly two thousand acres of permanently protected land (CGI Comms., 2019); including the Trustees of Reservations (TOR) owned and maintained 89-acre Francis William Bird Park which was designed by John Nolen, a disciple of Frederick Law Olmsted (TOR, 2020). The town's landscape contains many ponds and several conservation areas as well as Great Cedar Swamp and the 365-acre Town Forest which is used for recreation and forestry production (Walpole, n.d.-b). The town is bisected by the Neponset River making it one of the 14 cities and towns which drain into the Neponset Valley Watershed (Neponset, n.d.). The downtown area (Figure 1) offers neighborhood-oriented retail shops, dining and services (MAPC, 2017) while two supermarkets, numerous shopping plazas and a shopping mall known as the Walpole Mall are in other areas of town. Massachusetts Correctional Institution at Cedar Junction is situated in South Walpole (CoM, 2020a).

The community is served by the Massachusetts Bay Transportation Authority (MBTA) commuter train and bus (MBTA, n.d.). Projects for multifamily development complexes totaling 822 units, including 291 age qualified units, are active or recently completed (Walpole, 2020b, p.19) while 300 more units are planned for South Walpole (Walpole, 2020a). The 2019 Update of the Housing Production Plan highlights an increase in the 65+ cohort from 15% of total in

2010 to 24% in 2030 and a dramatic shift in development from single-family to multifamily units (Walpole, 2020b).

In its Annual Report, the town is billed as ‘The Friendly Town’ (Walpole, 2019a) and in the 2004-2024 Master Plan as ‘Green – Livable – Business-Friendly’ (Walpole, 2004). Walpole seeks to apply to become a designated Green Community under Massachusetts Green Communities Act of 2008. Transportation is one of five Criterion under the application (CoM, 2020b). The client recently began working with the Metropolitan Area Planning Council (MAPC) to facilitate the application under a limited grant awarded earlier in 2020. The Town Administrators office has a staff of three and is appreciative of services to study the transportation sector as the town is currently experiencing staffing and budgetary concerns due to the pandemic.

Figure 1.

Walpole Town Common



Note. Photograph by Author. (October 17, 2020).

Client Requirements

- Transportation Sector Survey
- Fleet Vehicles Inventory (to be submitted as Attachment A to the Green Communities Application)
- Fleet Vehicles Greenhouse Gas (GHG) Emissions Baseline
- Fleet Vehicle Pricing & Costs
- Sustainable Low (LEV) or Zero Emissions Vehicle (ZEV) Infrastructure
- Sustainable LEV/ZEV Vehicle Procurement Fuel Efficiency Guidelines
- Transportation Demand Management Planning
- Sustainable Transportation Education and Communication

This project surveys the town's transportation sector with a focus on the areas where the town has the greatest potential to have the broadest impact for positive climate impact. The United States Environmental Protection Agency reports that the United States transportation sector generates more GHG emissions (28% share) than either electricity (27%), industry (22%), commercial & residential (12%) or agriculture (10%) (USEPA, 2018). Transportation on the state highways and CSX freight trains operating across town boundaries and any other mode not specifically mentioned is beyond the scope of this report. Recommendations to improve the sustainability of transportation for fleet vehicles, employees, contractors, schools and community are included. The section on fleet considers the town owned and operated vehicle fleet of vehicles operated by seventeen municipal offices and departments.

The project estimates the baseline GHG emissions of the Fleet Vehicles using the equity share approach, meaning it attempts to account for 100% of the transportation related greenhouse gas emissions over which the town has operational control according to its share of equity (World Resources Institute, 2004, p.17). With this approach the town takes full ownership of all GHG emissions that it can directly track, influence and reduce (The Climate Registry, 2016). Calendar year reporting permits year over year comparisons and ensures conformance with the General Reporting Protocol (GRP) standards; specifically, the emissions year (EY) is defined as the calendar year in which the emissions occurred (The Climate Registry, 2016). In this case, the baseline EY for GHG emissions reporting is selected as the period from January 1, 2020 to December 31, 2020 and is hereinafter referred to as FY2020. The report relies on fleet vehicle

fuel consumption data sets for gasoline (2020 YTD) and diesel (Oct 2020) to make a projection of FY2020 fuel consumption values.

Opportunities & Risks

An analysis of the opportunities and risks associated with the town's transportation sector has been conducted using a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis (Figure 2). Strengths of the sector include the town's planned application to the Massachusetts Green Communities (GC) Designation and Grant Program and the decision support guidance provided by the designated Green Community Coordinator along with the Massachusetts Department of Energy Resources (DOER). Another strength is the regional level collaboration of the Transportation Climate Initiative (TCI) offered by the Massachusetts Department of Environmental Protection (MassDEP). The transportation sector is strengthened by the planned growth described in the town's Housing Production Plan-2019 Update. The willingness of the Board of Selectmen and the office of the Town Administrator to plan for the future round out the strengths.

Weaknesses of the transportation sector include a need to update the vision statement for transportation in the Town's Master Plan (2004) as suggested in the Five-Year Update (2009). Transportation sector policy and guidance including action and success criteria and planning for adaptive responses in relation to climate change are areas with room for improvement.

Walpole has an opportunity to prepare its transportation sector for transformation, lead others by example, and improve social equity for its community members while increasing resiliency. Climate Change impacts are threats to the community as discussed in the towns Municipal Vulnerability Preparedness (MVP) Community Resilience Workshop Summary of Findings (Walpole, 2019b) which noted an increase in road closures due to flooding and windstorm felled trees, greater use of heating and cooling shelters and an interest in ensuring that more residents, particularly the elderly, can access shelters during an emergency. The MVP also noted that two public pools and one splash pad serve as cooling centers in excessive heat. (2019b). The need to provide shelters and cooling centers presents an opportunity to improve social equity by means of improved transportation access to both.

Figure 2.

Source: SWOT Analysis Template adapted from TemplateLab.com (November 2020)

SWOT ANALYSIS



Key Stakeholders

Key personnel from the Town who are stakeholders in this green initiative and will be key to carrying it out include:

- Jim Johnson – Town Administrator
- Aoife Kelly - TA Executive Assistant
- Jodi Cuneo – Town Accountant and in-coming Finance Director
- Don Anderson – Building Maintenance Superintendent
- Lisa Sinkus – Asst. Treasurer Collector and in-coming Treasurer/Collector
- Marilyn Thompson - Finance Director
- Patrick Shield – Assistant TA
- Rick Mattson – DPW Director
- Mark Reich – KP Law Town Counsel
- Bridget Gough – School Superintendent
- Mike Friscia – School Business Manager
- Building Commissioner - Mike Yanovitch
- Walpole Green
- Residents, contractors, employees, students

Recommended Initiatives

Recommended initiatives have been grouped by fleet, employees, contractors, schools and community.

Fleet

A fleet vehicle inventory in the form of a spreadsheet of insured vehicles was provided to the author by the town. The fleet of 173 vehicles was tabulated by vehicle type and department (Table 1). The vehicles for each department were categorized as other (>8500 lbs. Gross Vehicle Weight (GVW) or otherwise specifically excluded by GC Criterion 4) and non-exempt (<8500 lbs. GVW). Exempt refers to vehicles which are exempt from the GC application vehicle MPG guidelines and non-exempt refers to vehicles which must abide by the GC MPG guidelines. A majority (137, 79%) of the fleet vehicles are exempt from the GC Guidelines (Table 2).

The Fleet Vehicle Inventory was formatted to satisfy the requirements of GC Criterion 4 (Appendix 1) and is attached as Appendix 2. The average MPG for each vehicle was obtained from www.fueleconomy.gov using the *Find a Car* feature, in combination with each vehicles’ make, model and year of manufacture; and is listed in a separate column of the inventory. Note that motorcycles, off road vehicles, trailers and specialized vehicles such as sweepers, sidewalk plows and leaf vacuums are specifically excluded from the inventory per Criterion 4 guidance (Appendix 1).

Table 1.

Fleet Vehicles by Type and Department

	Administration		Building Maintenance		Building/Inspect.		BOH		Cemetery		COA		DPW		Emergency Management		Engineering		Fire		Highway		Inspections		Municipal		Parks		Police		School		Water		Subtotals		
	O	NE	O	NE	O	NE	O	NE	O	NE	O	NE	O	NE	O	NE	O	NE	O	NE	O	NE	O	NE	O	NE	O	NE	O	NE	O	NE	O	NE	O	NE	
Other (O) or Non-exempt (NE)																																					
Vehicle Type																																					
Sedan		1				1		1									1								1				2						1	8	
SUV		1				1											4								1			16			2					25	
Truck		2	4	1					2			1				1	4		11	2		1				6	2	2				6	11	1	4	52	
Van or Bus			1							2	1			1																						23	
Specialized																	12									1										14	
Motorcycle																																				3	
Off road																																				2	
Trailer		2										5		3				1									8	2							2	16	
Subtotals	2	4	5	1	0	2	0	1	2	0	2	1	6	0	4	0	0	2	21	0	23	2	0	1	0	2	22	2	29	0	7	13	14	5			
Totals	6	6	2	1	2	3	6	4	2	21	0	23	2	0	1	0	2	22	2	29	0	7	13	14	5									173			

Note: NE=Non-Exempt from GC Guidance

O= Other; Exempt from GC Guidance by GVW, or excluded as Emergency, Specialized, Motorcycle, Off-road or Trailer Vehicle

Data source: Auto Fleet Schedule received by email communication from the Town of Walpole on Sept. 15, 2020.

Table 2.

Fleet Vehicles Exempt and Non-Exempt Percentages

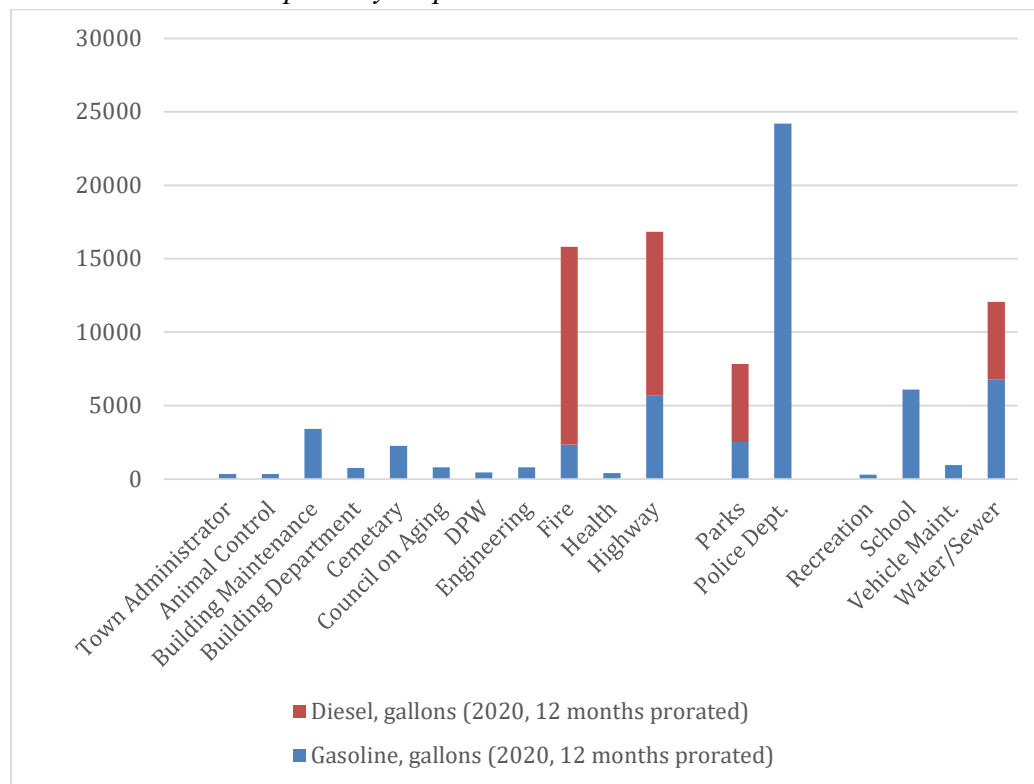
	Count	Percent, %
Non-exempt	36	20.8%
Other	137	79.2%
Total	173	100.0%

Note: Vehicles from Table 1 categorized based on GC Criterion 4 Guidelines.

Vehicle fuel consumption by department was charted (Figure 3) from diesel and gasoline fuel reports provided by the town. The departments with the highest fuel consumption are the Police Department, the Highway Department and the Fire Department. The Police Department fleet has the highest number of vehicles (29) (Table 1) and operates 24 hours/day; both are factors which contribute to its high fuel consumption. The Police Department also stands out because its usage is entirely gasoline as opposed to the diesel-heavy Highway and Fire Department vehicles' consumption.

Figure 3.

Vehicle Fuel Consumption by Department



Note: Gasoline and Diesel Fuel consumption based on Fuel Reports received by email communication from Town of Walpole on Nov. 23, 2020.

- Install Idle Reduction Technology

Police Dept. vehicles are considered for idle reduction technology as the department has the highest fuel consumption and its vehicles are exempt from the Massachusetts Anti-idling law as emergency vehicles. A check of vehicle MPG (Table 3) shows that those in the sample are getting just over half (56%) of their original manufacturers MPG rating on average. It should be noted that the fuel report does not display monthly or YTD mileage when the value is a misread or out of bounds, so mileage information was not available for every vehicle.

Table 3.

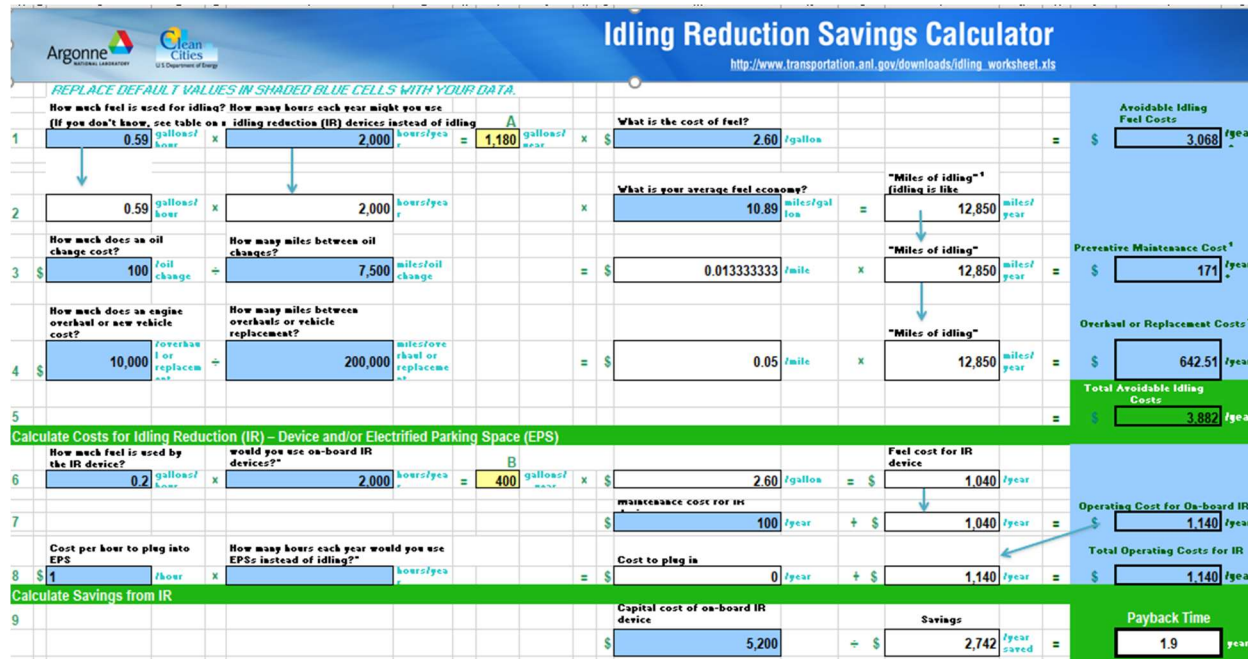
Calculated MPG of Small Sample of PD Vehicles

Vehicle	Reported Mileage	Reported Gallons	Calculated MPG	Report Page No.	Original Manufacturers Combined City/Highway MPG Rating	Actual/Original MPG %
2008 Crown Victoria	2,330	203.02	11.48	36	18	64%
2010 Dodge Charger	1,935	184.31	10.50	39	20	52%
2010 Dodge Charger	1,959	183.10	10.70	46	20	53%
2017 Ford Explorer	995	91.37	10.89	50	20	54%
Averages	1804.75	165.45	10.89		19.5	56%

Note: Gasoline and Diesel Fuel consumption based on Fuel Reports received by email communication from Town of Walpole on Nov. 23, 2020. Original manufacturer combined city/highway MPG Ratings retrieved from fueleconomy.gov.

One possible explanation for the observed low average MPG performance is vehicle idling; vehicles get zero miles per hour while idling. A publicly available idle reduction savings calculator from Argonne National Laboratory was used to calculate the estimated savings and simple payback of idle reduction (IR) technology (Figure 4). Inputs of 0.59 gallons/hour fuel used for idling (IR Savings Calculator Fuel Use Table, Ford Crown Victoria with load), an estimated 2,000 hours/year IR use, combined with MPG of 10.89 from Table 3 above and an average fuel cost of \$2.60/gallon of gasoline result in estimated annual savings of \$2,742. These savings are a combination of fuel savings and reduced engine wear and maintenance costs. The cost of \$5,200 is the sum of typical equipment costs for a police car and includes \$1,200 for a power management system, \$700 for a heat recovery system and \$3,300 for battery auxiliary power unit (Appendix 3). This measure has a simple payback of 1.9 years and as fuel prices rise the calculated payback will decrease.

Figure 4.
Idle Reduction Savings Calculator



Note: Argonne National Laboratory Vehicle Idle Reduction Savings Worksheet accessed 30Nov20 and retrieved from <https://www.anl.gov/es/reference/vehicle-idle-reduction-savings-worksheet-excel>

- Fuel Efficient Lubricants & Fuel Efficient Tires

Using the manufacturers recommended grade of motor oil can improve gas mileage by 1-2%. Motor oils which state ‘Energy Conserving on the API performance symbol contain friction reducing additives which can improve engine performance (USDOE, n.d.). Keeping tires inflated to the proper pressure can improve gas mileage by 0.6% on average while underinflated tires lower gas mileage by ~0.2% for every 1 psi drop in the average pressure of all tires (USDOE, n.d.).

- Install a Fleet Fuel and Maintenance Management System

A system to report and track data on vehicle mileage, fuel, maintenance and performance can provide insights into fuel consumption and issue alerts about vehicle maintenance and performance issues. A car engine which is out of tune may see a gas mileage improvement of 4% on average while fixing serious maintenance issues may improve mileage up to 40% (USDOE, n.d.).

- Procure Vehicles with Higher Fuel Efficiency

GC Criterion 4 (Appendix 1) calls for the Town to develop and maintain a plan for replacing non-exempt vehicles with vehicles which meet the following minimum fuel efficiency standards:

- 2-wheel drive car: 30 MPG
- 4-wheel drive car: 29 MPG
- 2-wheel drive van 22 MPG
- 4-wheel drive van 20 MPG
- 2-wheel drive pick-up truck: 21 MPG
- 4-wheel drive pick-up truck: 18 MPG
- 2-wheel drive sport utility vehicle: 24 MPG
- 4-wheel drive sport utility vehicle: 21MPG

The Fuel Efficient Vehicle Policy (Appendix 5) is to be accepted separately in letters from the town (Appendix 7) and the School Department (Appendix 7) to Massachusetts Department of Energy Resources. Since the fuel standards apply only to the 20.8% (Table 2) of fleet vehicles which are non-exempt, the town should also consider adopting a fuel efficiency policy for all fleet vehicles. The following suggested policy language is excerpted and adapted for the Town from a 2015 Executive Order (The White House, 2015):

As the Town of Walpole operates a fleet of 173 vehicles, improve municipal fleet and vehicle efficiency and management by:

(i) determining, as part of the planning requirements of section of this order, the optimum fleet inventory with emphasis placed on eliminating unnecessary or non-essential vehicles from the town's fleet inventory;

(ii) taking actions that reduce fleet-wide per-mile greenhouse gas emissions from fleet vehicles, relative to a baseline of emissions in fiscal year 2020, to achieve the following percentage reductions:

(A) not less than 5 percent by the end of fiscal year 2022;

(B) not less than 15 percent by the end of fiscal year 2025; and

(C) not less than 30 percent by the end of fiscal year 2030;

(iii) collecting and utilizing as a fleet efficiency management tool, as soon as practicable but not later than 2 years after the date of this order, fleet operational data through deployment of vehicle telematics at a vehicle asset level for all new passenger and light duty vehicle acquisitions and for medium duty vehicles where appropriate;

(iv) ensuring that annual asset-level fleet data is properly and accurately accounted for in a formal municipal Fleet Management System;

(v) planning for fleet composition such that by December 31, 2022, zero emission vehicles or plug-in hybrid vehicles account for 20 percent of all new passenger vehicle acquisitions and by December 31, 2025, zero emission vehicles or plug-in hybrid vehicles account for 50 percent of all new passenger vehicles and including, where practicable, acquisition of such vehicles in other vehicle classes and counting double credit towards the targets in this section for such acquisitions; and

(vi) planning for appropriate charging or refueling infrastructure or other power storage technologies for zero emission vehicles or plug-in hybrid vehicles and opportunities for ancillary services to support vehicle-to-grid technology;

The baseline fleet GHG emissions for FY2020 have been calculated (Appendix 4) and a summary is provided in Table 4 to support item (ii) in the policy language seen above.

Table 4.

Greenhouse Gas Footprint

Fuel	Gasoline	Diesel	Combined
Fuel gallons, 2020 YTD prorated to full year	58260.54	35239.12	93499.66
CO ₂ , metric tons (mt)	511.53	359.79	871.32
CO ₂ e of CH ₄ emissions, mt	0.39	0.27	0.66
CO ₂ e of N ₂ O emissions, mt	5.99	4.21	10.21
Total CO ₂ e emissions, mt	517.91	364.28	882.18
Total Fleet CO ₂ e emissions, mt			882.18

Note: See Appendix 4 for full calculation.

- Require E85 (flex fuel) be Used for Flexible Fuel Vehicles

A small number of fleet vehicles were determined to have been originally offered in a flexible fuel configuration option, although no flex fuel consumption was observed in the fuel reports. Flex fuel vehicles may use either gasoline or E85 fuel but will have lower emissions (*and lower MPG*) with E85.

- Consider a Variety of Alternative Fuels for Vehicles & Procure Alternative Energy Vehicles

A survey of local providers of alternative vehicle fuels (Table 5) shows that there is an in-town CNG fuel station and that a Hydrogen fuel station (for hydrogen fuel cell vehicle fuel) is located several towns away. It is suggested that the town focus on Hybrid (gas-electric) or electric vehicles (EVs) as there are current state and federal incentive available for many models (Table 6). These vehicle classes will also meet the GC Criterion 4 minimum fuel efficiency MPG standards and both gasoline and electricity are locally available. EVs have advantages over hybrids in that they are cleaner, quieter and do not require oil changes, spark plugs, fuel air filters or annual emissions testing. EVs and PHEVs do require brake. coolant and windshield wiper fluids.

Table 5.

Local Providers of Alternative Vehicle Fuels

Source of Energy	Local Supplier	Location	Type	Hours	Note
E85 Biodiesel	Canton Wash and Gas	683 Turnpike St. Canton	Public	6a-9p daily	1.
CNG	Alternative Vehicle Service Group	533 High Plain St. Walpole	Public	24 hours/day	2. Fast fill, 3600 psi.
Electricity	Eversource (prev. NSTAR)	Customer Care, Westwood	Public	24 hours/day	3.
Hydrogen	Air Liquide	8 MA-128, Newton	Public	24 hours/day	4.

Notes. 1. Ethanol Fueling Station Location near 02081 zip code retrieved from

https://afdc.energy.gov/fuels/ethanol_locations.html#/station/104493

2. Natural Gas Fueling Station Location near 02081 zip code retrieved from

https://afdc.energy.gov/fuels/natural_gas_locations.html#/station/30355

3. Electric Utility Provider for Walpole retrieved from <https://eeaonline.eea.state.ma.us/DPU/Fileroom/CityUtilities>

4. Hydrogen Fueling Station Location near 02081 zip code retrieved from

https://www.google.com/search?q=hydrogen+fuel+near+me&rlz=1C1GCEB_enUS917US917&oq=hydrogen+fuel+near+me&aqs=chrome.69j59j0i22i30i3.4601j0j9&sourceid=chrome&ie=UTF-8

Table 6.

Comparison of Gasoline, EV and PHEV Vehicle Net Cost After Incentives

Vehicle	MSRP	Federal Incentive	MassEVIP Incentive	Net Cost
2020 Chevrolet Bolt EV	\$36,620 ¹	\$1,875 ⁶	\$7,500 ⁸	\$27,245
2020 Ford Fusion	\$23,170 ²			\$23,170
2020 Ford Fusion Energi PHEV	\$37,000 ³	\$4,609 ⁷	\$5,000 ⁸	\$27,391
2020 Ford Escape	\$24,885 ⁴			\$24,885
2020 Ford Escape PHEV	\$28,265 ⁵	\$6,843 ⁷	\$5,000 ⁸	\$16,422

Notes. 1. 2020 Chevrolet Bolt EV MSRP retrieved from

https://www.chevrolet.com/?ppc=GOOGLE_70000001942090_71700000069547738_58700006149870727_p55581479657&gclid=aw.ds&&d_src=313715&d_adsrc=3876783&d_campaign=71700000069547738&d_site=GOOGLE&d_adgroup=58700006149870727&d_keyword=chevrolet&gclid=EAAlaIQobChMhOPu05yy7QIVigilCR1d1At-EAAYASAAEgKMz_D_BwE&gclid=EAAlaIQobChMhOPu05yy7QIVigilCR1d1At-EAAYASAAEgKMz_D_BwE

2. 2020 Ford Fusion MSRP retrieved from

<https://shop.ford.com/build/fusion/#/select/Config%5B%7CFord%7CFusion%7C2020%7C1%7C1.%7C.....NRD.NONFLEET.SCC.%5D>

3. 2020 Ford Fusion Energi PHEV MSRP retrieved from

https://www.google.com/search?q=2020+ford+fusion+energi+msrp&rlz=1C1GCEB_enUS917US917&oq=2020+ford+fusion+energi+msrp&aqs=chrome.69j57j0i22i30i45j7j0i22i30i6.7052j0j7&sourceid=chrome&ie=UTF-8

4. 2020 Ford Escape MSRP retrieved from <https://www.ford.com/suvs-crossovers/escape/>

5. 2020 Ford Escape PHEV MSRP retrieved from <https://www.ford.com/new-hybrids-evs/>

6. Federal Incentive value retrieved from: <https://www.fueleconomy.gov/feg/taxevb.shtml> Mfr: Chevrolet

7. Federal Incentive value retrieved from: <https://www.fueleconomy.gov/feg/taxevb.shtml> Mfr: Ford

8. MassEVIP Incentive value retrieved from: <https://www.mass.gov/doc/massevip-fleets-requirements/download>

A vehicle cost calculator from the U.S. Department of Energy was used in combination with the net vehicle costs after incentive shown in Table 6 and inputs of 34 miles/day, 5 days/week, 49 weeks/year, plus 3596 ‘other’ miles, 20% highway driving, and charging in Massachusetts

(Figure 5). The results show that the 2020 Chevrolet Bolt has the lowest cost per mile (\$0.24) and annual emissions (2,939 lbs. CO₂) while the 2020 Ford Fusion FWD gasoline fueled vehicle has the highest cost per mile (\$0.31) and annual emissions (11,955 lbs. CO₂) (Appendix 9). The graph in Figure 5 shows that the four vehicles have similar costs of ownership until around year 5, after which the Chevrolet Bolt has a lower cost. After year 7.5, the Chevrolet Bolt EV and the Ford Fusion PHEV both show lower cumulative costs of ownership than either of the gasoline fueled vehicles.

Figure 5.

Vehicle Cost per Mile and 15-year Cumulative Cost of Ownership AFDC Calculator Results



Notes. 1. Alternative Fuels Data Center Vehicle Cost Calculator retrieved from USDOE at <https://afdc.energy.gov/calc/>
 2. 2020 Ford Escape PHEV vehicle information data not available

- Install Electric Vehicle Charging Stations for Hybrid and Electric Vehicles

The town should contact its electric utility provider, Eversource, about its EV Charging Station Program (Appendix 10). The program offers funding for 100% of infrastructure costs to install EV charging stations (Figure 6). The program is nearing full enrollment for the current round of

funding, but the town should apply (Appendix 11) as soon as possible for approval to secure a place on the waitlist for the next round of funding. The town should also consider locating the initial charging stations at high visibility locations such as the Library and Town Hall.

- Target High Visibility Alternative Energy Vehicle with Labeling

The town should apply high visibility labeling to its EVs to communicate a commitment to cleaner emission vehicles and raise the profile of EVs within the community. Consider placing initial EVs in service where they will serve and been seen by the greatest number of people such as the Council on Aging or School Department.

Employees

- Driving Information and Communication

Create an initiative to communicate tips on savings money on gas to employees. Speeding, rapid acceleration and hard braking can lower highway and city mileage by 33% and 5% respectively (USDOE, n.d.-a).

- Allow Employees to Work Remotely 20% of the Time & Encourage Carpooling

Remote work and carpooling enable employees to save on vehicle fuel and reduce vehicle emissions.

- Promote Alternative Energy Vehicle Adoption

Designated parking and workplace charging increase the convenience of employee vehicle charging while demonstrating the towns commitment to the climate (USDOE, n.d.-b).

- Encourage Virtual Meetings & Reduce Business Travel

Virtual meetings and reduced business travel save vehicle fuel and reduce vehicle emissions while reducing reimbursable expenses.

Figure 6.

EV Charging Station at Retail Location, Walpole, MA

Note. Photograph of Big Y Supermarket Charging Station by Author. (October 17, 2020).

Contractors

- Promote Alternative Energy Vehicle Adoption

Request information about the composition of contractor vehicle fleets in vendor contracts and bids to communicate the town's interest in alternative energy vehicles.

- Request Contractors Report Vehicle Emissions Annually

Vehicle carbon footprint can be tracked with phone apps and reported to the town. Year over year reporting will raise awareness and allow for quantifying emissions reductions.

Schools

- Utilize Walpole High School Green Team as a Resource

Request the team's assistance with designing and producing 'I Pledge not to Idle cards' in support of the Massachusetts Anti-idling Law prohibiting extended idling on school grounds; Mass. General Laws, chapter 90 sec. 16b.

- Increase Compliance with the Massachusetts Anti-idling on School Grounds Law

Inquire if the Police Department would consider offering a pledge card to drivers in lieu of a citation as a leave behind to encourage anti-idling compliance and in keeping with their public safety role. Consider periodic reporting on the effort to the Board of Selectmen.

- Electric School Buses

Engage with Metropolitan Area Planning Council (MAPC) which has received state funding to develop a regional procurement model supporting expansion of electric school buses in MA.

- Examine Bus Fee vs. Parking Fee for Students

Set the fee structure to encourage bus transportation and discourage student parking. The 2018-19 parking fee was \$200 while at the same time the 2019-20 bus fee was \$275.

- Implement an Electric Vehicle Curriculum

Engage with the non-profit ecoRise for their free curriculum to enable students to learn about transportation electrification. The town's utility provider, Eversource, is a featured partner of the organization.

Community

- Increase Compliance with the Massachusetts Anti-idling Law, Mass. General Laws, chapter 90 sec. 16a.

Same as for schools, above. Both efforts may be formalized in an anti-idle policy (Appendix 8).

- Promote Alternative Energy Vehicle Adoption

Designated parking and EV charger availability increase awareness and convenience for drivers. EV charging stations are a suggested added requirement for multi-family new construction projects (Figure 7).

Figure 7.

EV Charging Station at Multifamily Housing, Walpole, MA



Note. Photograph of Audubon Easterly Charging Station by Author. (October 17, 2020).

Fostering Sustainable Behavior of Leadership, Staff and the Community

a. Vision of Sustainability

A vision statement which includes a vision of sustainability provides a useful framework to remind participants of the Town's values and intentions. It is recommended that the towns Master Plan Vision be reviewed and the section on Municipal Walpole be revised to include the following sentence adapted by the author from 'Greening Your Business' (Sitarz, 2008, p.259).

We will reduce fleet energy consumption and improve fleet vehicle efficiency while making continual progress toward eliminating the release of any substance that may cause environmental damage to air, water, the earth or its inhabitants.

b. Leadership's Role and Recommended Actions to Engage the Staff

The Town's leaders play an important role in launching this CAP. In his article, *Accelerate!*, Kotter outlines ways leadership may advance on today's strategic challenges (Kotter, 2012).

They are adapted here specifically for the Town of Walpole by the author.

1. Create a sense of urgency about the topic of transportation and the opportunity to effect change.
2. Build and maintain a guiding coalition through volunteer efforts such as Walpole Green.
3. Formulate a strategic vision and develop change initiatives capitalizing on the anticipated Green Communities Designation and beyond.
4. Communicate the vision and strategy to create buy-in among town officials, volunteers and the community at large.
5. Accelerate movement toward the vision and the opportunity for change by reducing barriers to participation.
6. Celebrate visible, significant short-term wins at Town Meetings and using local media.
7. Never let up. Keep learning from experience. Create new initiatives as the transportation landscape shifts.
8. Incorporate strategic changes both large and small into the transportation sector and thus set the town up for better future.

c. Communication and Marketing

Communication and marketing will generate enthusiasm and raise awareness throughout the town. Signage displaying GC designation and preferred EV parking will increase visibility of the town's commitment. Enlisting the assistance of the Walpole High School Green Team

will permit communication and marketing materials to be designed for a low cost. The previously mentioned pledge card could communicate the emissions avoided by not idling and offer reminders of the benefits of regular car engine tune-ups and proper tire inflation. Obtaining the buy-in of the Police Department to offer cards to the drivers of idling vehicles in place of a citation is a peaceful way to seek compliance and in line with the departments mission to protect people (and property) (by protecting the environment).

d. Educational Programs

Materials and resources from the ecoRise program will provide education and raise awareness of sustainable transportation among students in Walpole schools. Once the town has acquired its first electric vehicles, and had them labeled as such, they may be used to raise awareness while they are driven and parked around town and at community events.

e. Tactics Enabling Behavioral Change

McKenzie-Mohr's community based social marketing (CBMS) model is a useful guide for planners (McKenzie, 2011). The CBSM model suggests identification of barriers and strategies as a useful framework for fostering sustainable behavior. A summary of barriers and strategies is presented in Table 4.

Table 7.

Fostering Sustainable Behavior in the Transportation Sector

Barrier	Strategy
Structural	Commitment
	Adoption of Fuel-Efficient Vehicle Policy
	Expand public transportation by adding local bus route
Lack of Motivation	Incentives
	Provide preferential parking for EVs
Forgetting to Act	Commitment
	An 'I Pledge Not to Idle' card serves as a reminder to drivers
	Make EV charging a requirement of multifamily new construction
Lack of Social Pressure	Build Community Support/Social Norming
	Provide information in the Town Hall entry on the number of staff who use mass transit, carpooling, biking or walking to get to work
Lack of Knowledge	Communication
	Establish a community focus group to generate ideas

f. Organizational Structure in Support of Sustainability

The town can benefit from an adding a Manager of Municipal Sustainability to its organizational structure. As this is unlikely at the present time due to budgetary and hiring constraints, it is suggested that this suggestion be revisited in the future. A volunteer employee led Green Team composed of cross-functional groups of employees is recommended to inspire, empower and source sustainability ideas from employees.

Sustainability Capital Reserve

Establish a capital reserve account to capture resultant cost savings from implemented measures. Use the reserve account to fund additional measures which will add further to the account and perpetuate the process.

Performance Metrics & Reporting

The proposed fleet fuel and maintenance management system will allow reporting and tracking of data on driver habits and vehicle maintenance and performance. The system will permit the collection of trend data and performance metrics.

Typical performance metrics include fuel type, fuel consumption, fuel cost, mileage, MPG, engine run time, idle time, idling %, idling cost, GHG emissions, preventative maintenance, maintenance costs, repair costs and asset utilization (Fleetio, 2020).

Recommendations for Future Initiatives

Green Community Signage at key transportation points Promote the town as a clean energy leader and a better place to live, work and play to visitors and people passing through.

Install Rooftop Solar Rooftop solar offers reduced energy bills and provides a tax credit (22% in 2021) without taking up valuable land. It may also provide power to charge fleet vehicles.

Install Solar Parking Canopy A solar parking canopy offers reduced energy bills, provides a tax credit and shades parked cars. The canopy's support columns can be configured for vehicle and device charging stations.

Install Battery Storage Battery storage provides a finite capacity of backup power when sun is not shining, along with a tax credit. Battery storage is also useful during a power outage.

Participate in Net Metering Net metering allows excess electricity to be sent to the electric grid. Monthly bill credits are earned and may accrue.

Participate in Solar Massachusetts Renewable Target (SMART) Incentive Program Monthly incentive payments (not credits) are earned for customer owned solar with storage sending excess power to the electric grid.

Participate in both SMART Incentive Program and Demand Response Program Monthly incentive payments (not credits) are earned for customer owned solar sending excess power to the electric grid, plus the customer is contracted to be paid to reduce power demand at the occurrence of a set range of events during high demand days (usually the hottest Summer days).

Local Bus Route A local bus route is proposed serving the entire community, but targeting lower income residents, to link high density development and services in South Walpole to popular community destinations as well as the MBTA bus and commuter rail station (Figure 7).

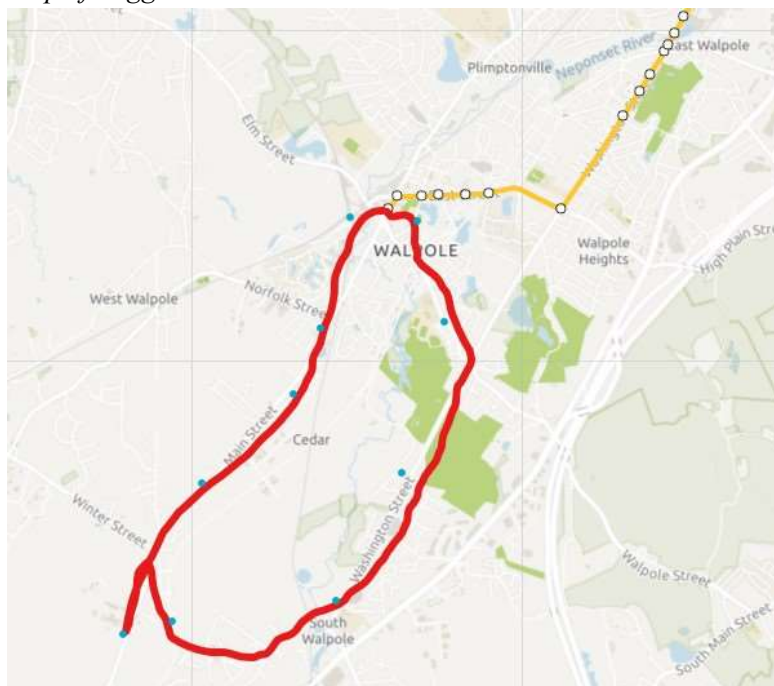
Suggested bus stops include:

Center/MBTA Bus 34E/MBTA Train
 Main Street Merchants (South of center)
 Southwood/Cedar Junction
 Rt. 1A Sports Fields
 Cedar Crossing and Cedar Edge-40B
 Boyden School and Sports Fields
 South Pool
 Walpole Town Forest
 Walpole Community Food Pantry

Senior Center
 Walpole High School and Sports Fields
 Memorial Playground, Center Pool, Splash Pond & Morgan Field
 Town Hall
 Blackburn Hall
 Library
 Old Town Hall

Figure 8.

Map of Suggested New Local Bus Route



Note. Map of Suggested New Local Bus Route edited and adapted by author from Massachusetts Bay Transportation Authority Bus 34E Schedules & Maps. Accessed 29Oct20 and retrieved from <https://www.mbta.com/schedules/34E/line>

Roadmap

A Climate Action Plan Roadmap is attached offering a one sheet summary of the recommended climate action measures and their suggested sequence as Walpole prepares for the next decade and beyond.

Figure 9.

Army 1st Lt. Andrew J. Bacevich Memorial Fountain



Note. Photograph of Army 1st Lt. Andrew J. Bacevich Memorial Fountain (Formerly the C.S. Bird Fountain) by Author. (October 17, 2020).

Climate Action Plan Road Map

2020

- Apply to the Massachusetts Green Communities Designation & Grant Program
- Update Town's Master Plan Vision Statement for Circulation and Transportation
- Submit Eversource application for Electric Vehicle Charging Infrastructure Program (waitlist)
- Engage with Walpole High School Green Team on designing anti-idling pledge materials

2021

- Seek 2021 GC grant funding for electric vehicles and electric vehicle charging stations
- Request the School Committee consider the ecoRise Curriculum for students
- Bring a resolution requiring EV charging for new multi-family developments
- Planning Committee to study and plan for EV charging infrastructure, parking and Local Bus
- Monitor EV trends in neighbouring communities and discuss at town meeting
- Bring a resolution to adopt Obama era Federal Policy on Fleet vehicle efficiency
- Create a digital vehicle dashboard to track vehicle fuel and maintenance management
- Install GC signage at town line and train station
- Obtain an informed opinion of rooftop solar feasibility for town hall

2022

- Seek 2022 GC Grant funding rooftop solar at town hall for town vehicle charging
- Issue request for proposals to install rooftop solar at town hall for town vehicle charging
- Install rooftop solar at town hall for town vehicle charging
- Check analytics from vehicle dashboard and consider needed adjustments to scheduling, etc.

2023

- Seek 2023 GC Grant funding for solar canopy at town hall or other municipal building
- Initiate new local bus route to link with the Walpole MBTA Station
- Install solar parking canopy with charging for visitor and town employee vehicles
- Review new strategies-integrate winning attempts and discard those that didn't get results

2024-2030

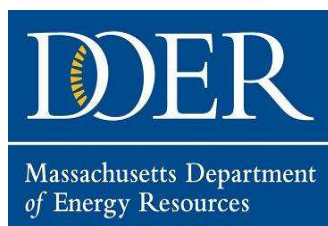
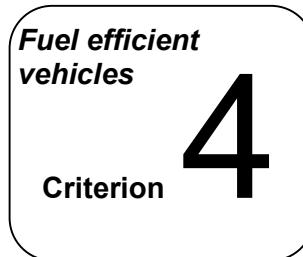
- Seek GC Grant funding for Battery Storage in Town Hall
- Install Battery Storage in Town Hall
- Participate in Demand Response Program

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Appendix 1 Green Communities Fuel Efficient Vehicles Criterion 4



INTRODUCTION

Criterion Four of the Green Communities Program states that communities must purchase only fuel-efficient vehicles for municipal use whenever such vehicles are commercially available and practicable. The purpose behind this criterion is to reduce carbon dioxide emissions by municipal vehicles, which has a positive impact on the environment and saves municipalities money.

As background, the US Environmental Protection Agency's Green Vehicle Guide states that:

Vehicles with lower fuel economy create more carbon dioxide – the most prevalent greenhouse gas – than vehicles with higher fuel economy. Every gallon of gasoline your vehicle burns puts about 20 pounds of carbon dioxide into the atmosphere because air has weight and mass, and it takes a lot of it to burn a gallon of gasoline. One of the most important things you can do to reduce your contribution to global warming is to buy a vehicle with higher fuel economy. The difference between 25 miles per gallon and 20 miles per gallon can amount to the prevention of 10 tons of carbon dioxide over a vehicle's lifetime. Buying a more fuel-efficient vehicle will also help to reduce our nation's dependence on fossil fuels. And of course, you will save money by having to fuel up less often.

COMPLIANCE

To meet this criterion, municipalities need to adopt by action of the local official or body with authority to enact municipal policies a written Fuel-Efficient Vehicle Policy that requires municipal departments and divisions to purchase only fuel-efficient vehicles (**See Appendix A, model policy**). Both general government and school districts are required to enact a fuel-

efficient vehicle policy for a municipality to meet this requirement, and letters documenting adoption must be provided and signed by the appropriate municipal authorities, as noted below. Letters from other municipal officials are not acceptable.

For letters from the general government and school district:

- **General Government** – The general government must provide a letter from the Chief Executive Officer of the city or town stating that it has adopted the Fuel-Efficient Vehicle Policy. The Chief Executive Officer is defined as the manager in any city having a manager and in any town having a city form of government, the Mayor in any other city, and the Board of Selectmen in any other town unless some other officer or body is designated to perform the functions of a Chief Executive Officer under the provisions of a local charter or laws having the force of a charter.

- **Public School Districts** – For a municipality to meet this requirement, its public school district must provide a letter from the School Superintendent stating that it has adopted the Fuel-Efficient Vehicle Policy. Please note that even if the school has no vehicles, or only has vehicles that are exempt from the Policy, adoption of the Policy by the school must be provided since the school may acquire non-exempt vehicles in the future.

- **Regional School Districts** – Regional School Districts are not required to be part of a municipality's Green Communities designation application. However, for regional school districts that wish to be part of a municipality's Green Communities designation (with approval by the municipality), the regional school district must also adopt the Fuel Efficient Vehicle Policy and provide a letter from the Superintendent stating that it has adopted the Policy.

Sample adoption letters are provided in Appendices B and C.

In addition, the municipality is required to develop and maintain a vehicle inventory for all four-wheeled vehicles, both exempt and non-exempt. A plan for replacing non-exempt vehicles with vehicles that meet the fuel efficiency ratings below must also be developed and maintained. This inventory of all vehicles and replacement plan for non-exempt vehicles must include school vehicles. The fuel efficiency ratings are set to ensure that at least five or more automatic transmission models of mass production are available for sale in Massachusetts (all from affordable brands; no luxury brands). Based on 2020 EPA data, vehicles are to have a combined city and highway MPG no less than the following:

- 2 wheel drive car: 30 MPG
- 4 wheel drive car: 29 MPG
- 2 wheel drive van 22 MPG

- 4 wheel drive van 20 MPG
- 2 wheel drive pick-up truck: 21 MPG
- 4 wheel drive pick-up truck: 18 MPG
- 2 wheel drive sport utility vehicle: 24 MPG
- 4 wheel drive sport utility vehicle: 21MPG

Hybrid or electric vehicles in these vehicle classes will meet these criteria.

To inform your purchasing decisions, information on makes and models of vehicles, including fuel economy comparisons, can be found at: <http://www.fueleconomy.gov> We encourage use of this valuable resource for informing decisions.

In addition, many vehicles that meet the above criteria can be found on statewide contract VEH98,

“Purchase of Light Duty Vehicles – Passenger Cars, SUVs, Trucks, Vans, SSVs and PPVs,” located in www.commbuys.com

***NOTE:** The EPA maintains a database on vehicle fuel efficiency that is updated occasionally throughout the year, as new models are released. As increasing numbers of fuel efficient vehicle models are released, the minimum combined MPG requirements of Criterion 4 will be revised upwards. **Thus, cities and towns must check the Criterion 4 Guidance for updates prior to ordering new vehicles.**

In order to encourage efficient driving practices, municipalities should implement a monitoring system to record miles driven, fuel consumption, etc. for each vehicle in every department. A monitoring system will help facilitate the municipality’s reduction in aggregate energy consumption. If a municipality provides fuel for fleet vehicles, it should consider using a universal fleet card that provides a monitoring system for tracking fuel use.

VEHICLE RECYCLING

Recycling of vehicles – i.e., moving a previously purchased and used vehicle from one municipal department to another municipal department in need of a vehicle is only allowed if the vehicle being recycled to a new department is more fuel efficient than the vehicle it is replacing.

EXEMPTIONS

Vehicles that are exempt from the municipal Fuel Efficient Vehicle Policy include off-road vehicles, motorcycles and heavy-duty vehicles. Heavy-Duty vehicles are defined as having a manufacturer’s gross vehicle weight rating (GVWR) of more than 8,500 pounds. Examples include fire engines, ambulances, and some public works vehicles.

In addition, police cruisers are exempt from this criterion due to market availability; however, **municipalities must commit to purchasing fuel efficient cruisers when they become commercially available.** Police and fire department administrative vehicles **MUST** meet fuel efficient requirements.

Emergency Response vehicles that are under 8,500 pounds and for which fuel efficient models are available are NOT exempt.

PLEASE NOTE: *If a vehicle is found on www.fueleconomy.gov, then it has a GVWR of less than 8,500 pounds, is **NOT** a heavy-duty vehicle and is **NOT** exempt.*

ALTERNATIVE COMPLIANCE

If a municipality has a vehicle fleet composed of all exempt vehicles (e.g. heavy-duty vehicles and/or police cruisers), it must propose alternative means of reducing vehicle fuel consumption in order to comply with this criterion. Examples of Alternative Compliance include having in place policies and programs that reduce vehicle fuel consumption such as: the installation of idle-reduction devices on police cruisers and/or trucks, installation of electric vehicle charging stations, after-market hybrid conversion of existing vehicles, fleet right-sizing, adoption of an anti-idling policy, and/or use of alternative fuels such as biodiesel blends from B-5 to B-20 for heavy duty fleets. While DOER encourages policies such as these for all municipalities, cities and towns that do not have any vehicles in their fleet subject to the MPG criteria **MUST** provide some form of Alternative Compliance. In addition, a municipality must note that, should it acquire non-exempt vehicles in the future, it is committed to purchasing non-exempt vehicles that meet the most recent guidance for Criterion 4 published by the MA Department of Energy Resources' Green Communities Division. See Appendix D for a model Fuel Efficient Vehicle Policy for Alternative Compliance.

An inventory of all vehicles must be provided.

Please note: Even if a municipality has only one non-exempt vehicle, it must have a Fuel Efficient Vehicle Policy in place. Alternative Compliance for meeting Criterion 4 can only be used if ALL vehicles in the fleet are exempt.

APPLICABILITY

All communities seeking Green Communities designation must adopt a fuel efficient vehicle policy that reflects the most recent MPG criteria published in this Guidance. If a municipality has adopted a policy that reflects old MPG criteria, it must have done so within the six months immediately preceding issuance of revised Guidance in order to qualify for credit under this criterion when applying for designation.

All designated Green Communities must review their Fuel Efficient Vehicle Policy on an annual basis and ensure that their policies reflect DOER's most recently published MPG minimums. The Annual Reporting required of Green Communities will include this information.

Future Financial Considerations

Contingency language regarding potential future budgetary constraints in Fuel Efficient Vehicle Policies will not be accepted. DOER recognizes that predicting and committing future budgets is difficult and will work with municipalities on a case-by-case basis should they encounter difficulty complying with their Fuel Efficient Policy due to a budget issue in a particular year.

FOR MORE INFORMATION

Websites:

www.mass.gov/energy/greencommunities

www.fueleconomy.gov

Statewide contract **VEH98**,

“Purchase of Light Duty Vehicles: Passenger Cars, SUVs, Trucks, Vans, SSVs and PPVs”

located on <https://www.commbuys.com> .

Contact your [Regional Coordinator](#)

Appendix 2 Walpole Vehicle Inventory List for GC Application

Make	Model	Model Year	Year/Month Purchased	Drive System 2WD, 4WD or AWD	>8500 lbs.? (Y or N)	Exempt or Non-exempt (NE)	MPG Rating	Vehicle Function
FORD	RANGER	2007	12/2007	4WD	N	NE	16	ADMIN
FORD	EXPLORER	2008	11/2008	4WD	N	NE	15	ADMIN
FORD	F150 PICKUP	2008	3/2008	4WD	N	NE	14	ADMIN
FORD	FUSION	2011	4/2011	2WD	N	NE	24	ADMIN
FORD	F150	2018	11/2018	4WD	N	NE	22	BLDG. MAINT.
FORD	FUSION	2013	4/2013	2WD	N	NE	26	BLDG/INSPECT
FORD	EXPLORER	2015	6/2015	2WD	N	NE	20	BLDG/INSPECT
FORD	FUSION	2014	5/2014	2WD	N	NE	26	BOH
FORD	E350 VAN	2011	9/2011	2WD	N	NE	12	COA
FORD	F150 PICKUP	2010	2/2010	4WD	N	NE	16	ENGINEERING
FORD	FUSION	2016	3/2016	2WD	N	NE	26	ENGINEERING
FORD	PICKUP	1992	5/1992	2WD	N	Exempt	18	FIRE
FORD	EXPLORER	2013	4/2013	AWD	N	Exempt	19	FIRE
FORD	EXPLORER	2015	3/2015	AWD	N	Exempt	19	FIRE
FORD	EXPLORER	2017	9/2017	AWD	N	Exempt	19	FIRE
FORD	EXPLORER	2019	9/2019	AWD	N	Exempt	19	FIRE
FORD	F150 PICKUP	2010	10/2010	4WD	N	NE	16	HIGHWAY
FORD	PICKUP	2012	2/2012	4WD	N	NE	17	HIGHWAY
FORD	RANGER	2007	3/2007	4WD	N	NE	15	INSPECTIONS
FORD	EXPLORER	2007	5/2007	4WD	N	NE	16	MUNICIPAL
FORD	TAURUS	2012	5/2012	4WD	N	NE	20	MUNICIPAL
FORD	PICKUP	2001	3/2001	2WD	N	NE	17	PARKS
FORD	F150 PICKUP	2013	2/2013	4WD	N	NE	17	PARKS
FORD	TAURUS	2012	3/2012	2WD	N	Exempt	21	POLICE
FORD	TAURUS	2015	9/2015	AWD	N	Exempt	21	POLICE
FORD	EXPLORER	2015	5/2015	AWD	N	Exempt	19	POLICE
FORD	EXPLORER	2016	9/2016	AWD	N	Exempt	19	POLICE
FORD	EXPLORER	2016	7/2016	AWD	N	Exempt	19	POLICE
FORD	EXPLORER	2016	1/2016	AWD	N	Exempt	19	POLICE
FORD	EXPLORER	2016	5/2016	AWD	N	Exempt	19	POLICE
FORD	EXPLORER	2017	5/2017	AWD	N	Exempt	19	POLICE
FORD	EXPLORER	2017	5/2017	AWD	N	Exempt	20	POLICE
FORD	EXPLORER	2017	9/2017	AWD	N	Exempt	21	POLICE
FORD	EXPLORER	2017	4/2017	AWD	N	Exempt	22	POLICE
FORD	EXPLORER	2017	6/2017	AWD	N	Exempt	23	POLICE
JEEP	GRAND CHEROKEE	2017	6/2017	4WD	N	Exempt	15	POLICE
FORD	EXPLORER	2018	5/2018	AWD	N	Exempt	18	POLICE
FORD	EXPLORER	2019	12/2019	AWD	N	Exempt	19	POLICE
FORD	EXPLORER	2019	9/2019	AWD	N	Exempt	20	POLICE
FORD	F-150	2019	11/2019	4WD	N	Exempt	21	POLICE
FORD	EXPLORER	2019	7/2019	AWD	N	Exempt	20	POLICE
FORD	ESCAPE	2013	1/2013	2WD	N	NE	25	SCHOOL
FORD	E250 WHEELCHAIR VAN	2013	5/2013	FFV	N	NE	14	SCHOOL
FORD	ESCAPE	2014	1/2014	2WD	N	NE	24	SCHOOL
DODGE	CARAVAN VAN	2014	8/2014	2WD	N	NE	20	SCHOOL
DODGE	GRAND CARAVAN	2016	9/2016	2WD	N	NE	20	SCHOOL
FORD	TRANSIT VAN	2016	7/2016	2FV	N	NE	22	SCHOOL
FORD	TRANSIT VAN	2016	12/2016	2FV	N	NE	22	SCHOOL
FORD	TRANSIT VAN	2017	3/2017	2WD	N	NE	22	SCHOOL
DODGE	CARAVAN	2017	10/2017	2WD	N	NE	20	SCHOOL
DODGE	GRAND CARAVAN	2018	10/2018	2WD	N	NE	21	SCHOOL
DODGE	GRAND CARAVAN	2019	12/2019	2WD	N	NE	20	SCHOOL
DODGE	GRAND CARAVAN	2019	12/2019	2WD	N	NE	20	SCHOOL
DODGE	GRAND CARAVAN	2019	6/2019	2WD	N	NE	20	SCHOOL

FORD	FUSION	2010	10/2010	2WD	N	NE	21	WATER
FORD	FORD - F150 PICKUP	2013	4/2013	2WD	N	NE	18	WATER
FORD	F150 PICKUP	2014	11/2014	2WD	N	NE	19	WATER
FORD	F-150	2019	2/2019	2WD	N	NE	21	WATER
FORD	RANGER	2019	1/2019	4WD	N	NE	22	WATER
FORD	F250 PICKUP	2008	1/2008		Y	Exempt	N/A	BLDG. MAINT.
FORD	F250 PICKUP	2012	7/2012		Y	Exempt	N/A	BLDG. MAINT.
FORD	F250 PICKUP	2015	6/2015		Y	Exempt	N/A	BLDG. MAINT.
FORD	F-350	2019	3/2019		Y	Exempt	N/A	BLDG. MAINT.
FORD	TRANSIT	2019	10/2019		Y	Exempt	N/A	BLDG. MAINT.
FORD	F-350	2019	5/2019		Y	Exempt	N/A	CEMETERY
FORD	F250	2020	9/2020		Y	Exempt	N/A	CEMETERY
FORD	E450	2017	6/2017		Y	Exempt	N/A	COA
FORD	E350	2019	6/2019		Y	Exempt	N/A	COA
FORD	F-350	2019	2/2019		Y	Exempt	N/A	DPW
INTERNATIONAL	STEP VAN	2000	8/2000		N	Exempt	N/A	EMERG. MGMT
MACK	FIRE TRUCK	1985	5/1985		Y	Exempt	N/A	FIRE
FEDERAL MOTORS	LADDER FIRE TRUCK	1989	2/1989		Y	Exempt	N/A	FIRE
INTERNATIONAL	UTILITY TRUCK	1995	12/1995		Y	Exempt	N/A	FIRE
E ONE	CYCLONE FIRE TRUCK	1999	12/1999		Y	Exempt	N/A	FIRE
E ONE	CYCLONE PUMPER	2009	3/2009		Y	Exempt	N/A	FIRE
FORD	AMBULANCE	2012	7/2012		Y	Exempt	N/A	FIRE
FORD	AMBULANCE	2014	2/2014		Y	Exempt	N/A	FIRE
KME	PREDITOR FIRE TRUCK	2014	11/2014		Y	Exempt	N/A	FIRE
FORD	F550 AMBULANCE	2017	6/2017		Y	Exempt	N/A	FIRE
E-ONE	CYCLONE	2019	7/2019		Y	Exempt	N/A	FIRE
E-ONE	TYPHOON	2019	11/2019		Y	Exempt	N/A	FIRE
FORD	FIREMATIC BRAT	2019	3/2019		Y	Exempt	N/A	FIRE
FORD	F550 AMBULANCE	2019	6/2019		Y	Exempt	N/A	FIRE
FORD	F250 PICKUP	2002	5/2002		Y	Exempt	N/A	FIRE
FORD	F350 PICKUP	2003	7/2003		Y	Exempt	N/A	FIRE
STERLING	DUMP TRUCK	2006	6/2006		Y	Exempt	N/A	HIGHWAY
STERLING	DUMP TRUCK	2008	5/2008		Y	Exempt	N/A	HIGHWAY
STERLING	DUMP TRUCK	2009	12/2009		Y	Exempt	N/A	HIGHWAY
INTERNATIONAL	DUMP TRUCK	2012	12/2012		Y	Exempt	N/A	HIGHWAY
INTERNATIONAL	TRUCK	2013	2/2013		Y	Exempt	N/A	HIGHWAY
FORD	F350 DUMP TUCK	2015	1/2015		Y	Exempt	N/A	HIGHWAY
MACK	GU432	2018	6/2018		Y	Exempt	N/A	HIGHWAY
MACK	GR42F9	2019	10/2019		Y	Exempt	N/A	HIGHWAY
FORD	F-350	2019	11/2019		Y	Exempt	N/A	HIGHWAY
MACK	GR42F9	2019	10/2019		Y	Exempt	N/A	HIGHWAY
FORD	F350	2019	9/2019		Y	Exempt	N/A	HIGHWAY
FORD	F350 DUMP TRUCK	2012	1/2012		Y	Exempt	N/A	PARKS
FORD	F350	2015	3/2015		Y	Exempt	N/A	PARKS
FORD	F350	2016	9/2016		Y	Exempt	N/A	PARKS
FORD	F750	2017	6/2017		Y	Exempt	N/A	PARKS
FREIGHTLINER	M2106	2020	11/2020		Y	Exempt	N/A	PARKS
FREIGHTLINER	M2106	2020	9/2020		Y	Exempt	N/A	PARKS
FORD	F550 TRUCK	2011	10/2011		Y	Exempt	N/A	POLICE
FORD	INTERCEPTOR	2018	11/2018		N	Exempt	N/A	POLICE
FORD	E250 WHEELCHAIR VAN	2004	1/2004		Y	Exempt	N/A	SCHOOL
FORD	E250 ECONOLINE VAN	2012	8/2012		Y	Exempt	N/A	SCHOOL
FORD	E-250 W/C VAN	2013	11/2013		Y	Exempt	N/A	SCHOOL
FORD	E250 VAN	2014	11/2014		Y	Exempt	N/A	SCHOOL
FORD	E250 ECONOLINE VAN	2006	7/2006		Y	Exempt	N/A	SCHOOL
CHEVROLET	MICRO BIRD BUS	2018	12/2018		Y	Exempt	N/A	SCHOOL
FORD	F350 UTILITY	2006	2/2006		Y	Exempt	N/A	WATER
FORD	UTILITY	2009	5/2009		Y	Exempt	N/A	WATER
FORD	F450	2011	8/2011		Y	Exempt	N/A	WATER
FORD	F250 PICKUP	2016	8/2016		Y	Exempt	N/A	WATER
FORD	F350	2017	6/2017		Y	Exempt	N/A	WATER
MACK	GU432 TRUCK	2018	12/2018		Y	Exempt	N/A	WATER
FORD	F-250	2019	8/2019		Y	Exempt	N/A	WATER
CAM	UTILITY	2019	10/2019		Y	Exempt	N/A	WATER
FORD	TRANSIT	2019	12/2019		Y	Exempt	N/A	WATER
FREIGHTLINER	11450	2020	8/2020		Y	Exempt	N/A	WATER

Appendix 3 Idling Reduction for Emergency and Other Service Vehicles



Idling Reduction for Emergency and Other Service Vehicles

Emergency vehicles, such as police cars, ambulances, and fire trucks, along with other service vehicles such as armored cars, are often exempt from laws that limit engine idling. However, these vehicles can save fuel and reduce emissions with technologies that allow them to perform vital services without idling.

Police Vehicles

Police cruisers spend much of their time parked and running while officers monitor traffic, help at accident scenes, write reports, and wait to be called. Officers commonly require lights, radios, computers, radar, and video cameras.

In one recent report about police vehicle fuel consumption, the cruiser studied was found to idle 60% of the time during normal operation and used 21% of its total fuel while parked.¹ While the engine provided 250 horsepower (hp), together all of the accessories needed less than 2 hp. (Air conditioning consumed the most power, followed by external lighting.)

Several idling-reduction systems, with varying capabilities and costs, are available for police vehicles. Power-management systems may significantly reduce (but not eliminate) idling. They allow the vehicle's battery to power auxiliaries in engine-off mode and monitor the battery's state-of-charge. When the battery charge falls below a preset threshold, the system restarts the vehicle's engine to recharge the battery.

Another option is a heat-recovery device, which uses a small pump to circulate coolant from the warmed engine, providing heat to the passenger compartment after the engine has been turned off.

Battery auxiliary power units (APUs) are another option for police vehicles. These units store power when the engine is running and supply it to the vehicle's electrical devices for 4 hours or more when the engine is off.



Police vehicle auxiliaries can be powered by a battery pack that fits in the trunk. Used with permission of ZeroRPM, Inc.

Ambulances

Ambulance engines are idled to maintain lighting, communications equipment, computers, refrigeration for medication, and life-support equipment, as well as the vehicle's heating and cooling systems. Idling these diesel engines outside hospital emergency rooms while the drivers complete paperwork and await their next call not only wastes fuel but produces significant air pollution that can exacerbate respiratory or cardiovascular problems in sensitive populations.

On-board battery-powered APUs that can supply power for all needed functions are available for ambulances. Drivers can plug in the APU to charge at the hospital, or the vehicle engine can charge it while the ambulance is being driven. Solar panels can be installed on the roof to provide additional power. Stationary systems can be installed near the emergency room to enable ambulances to plug in for power and receive conditioned air through a window duct.



Ambulance hooked up to a MediDock, which provides power and conditioned air. Used with permission of American Idle Reduction, LLC.

VEHICLE TECHNOLOGIES OFFICE

Fire Engines and Trucks

Only about 20% of fire dispatch calls are for fires; most are for medical emergencies or accidents. For any call, the vehicle is often idled to provide power for emergency lights and other accessories. Both battery-powered and diesel APUs can reduce fuel use, emissions, and noise for nonfire calls. These APUs, which can be factory-installed or installed as a retrofit, can supply power for all services, except for water pumping, which requires additional power.

Armored Cars

Armored cars make frequent stops for pickups and deliveries. Because the vehicles cannot be left unattended and the windows do not open, drivers generally leave the engine idling at stops to provide climate control. Battery-powered air-conditioning systems are available as an alternative to idling.

Power Sources Available for Stationary Emergency and Other Service Vehicles

Vehicle	Power Source	Services	Fuel Use* gal/h	Typical Equipment Cost (\$)	Added Maintenance (\$/yr)	Payback (yr)
Police Car	Idling ¹	All	0.5-1.0	0	350	
	Power Management System ¹	Restarts engine if battery low	0.02-0.38	1,200	0	0.2
	Heat Recovery System ²	Heat	0	700	0	0.1
	Battery APU ³	Power	0.6	3,300-4,300	0	0.6
Fire Truck/Engine	Idling ^{4,5}	All	1.25-1.5	0	600	
	Diesel APU ^{4,5}	All but pumping	0.25	14,000	200	2.9
Ambulance	Idling ⁶	All	1.5	0	1,000+	
	Battery Power Pack ⁷	All	0.9	16,000	0	2-8
	Electrified Parking Space ^{8**}	All	0	0	30	2.5
Armored Car	Idling ⁹	All	0.5-1.5	0	200	
	Battery APU ⁹	All	0.4	15,000	0	3.8

APU = auxiliary power unit; gal = gallon(s); h = hour(s); IR = idle reduction; yr = year(s).
 * Fuel use is lowest for low idle with no accessories on and rises with RPM and load.
 ** Infrastructure cost per space is ~\$17,500.

1. Eric Rask, et al., Argonne National Laboratory, *Final Report: Police Cruiser Fuel Consumption Characterization*, for the Illinois State Toll Highway Authority (February 2013).
 2. Mike Trickey, Autotherm, personal communication with L. Gaines (5/6/2014).
 3. Bastien Buchaca, Stealth Power, LLC, personal communication with P. Welkersheimer (11/25/2014).
 4. GreenStar, http://www.rosenbaueramerica.com/green_star (accessed 11/6/2014).
 5. Neli Chaney, Rosenbauer America, personal communication with L. Gaines (6/10/2014).
 6. Power Pack Aims to Reduce Engine Idling, *American City & County*, October 19, 2012, <http://americancityandcounty.com/meets-content/power-pack-aims-reduce-engine-idling-related-video> (accessed 1/05/2015).
 7. Bastien Buchaca, Stealth Power, LLC, personal communication with L. Gaines (11/20/2014).
 8. Medic Aire, LLC, letter to Community Hospital, Munster, Indiana, quote no. 313113 (10/31/2013).
 9. Garek Ford, Griffin, Inc., personal communication with L. Gaines (5/15/2014).



For more information, visit: cleancities.energy.gov

Prepared by Argonne National Laboratory, a U.S. Department of Energy laboratory managed by UChicago Argonne, LLC.

DOE/CHO-AC02-06CH11357-1501 • May 2015

Appendix 4 Fleet GHG Calculation

Global Warming Potentials		
Gas	GWP	Source
CO ₂ (AR5)	1	Table B.1. (The Climate Registry 2018)
CH ₄ (AR5)	28	Table B.1. (The Climate Registry 2018)
N ₂ O (AR5)	265	Table B.1. (The Climate Registry 2018)
Unit Conversion Factors:		Source
1 metric ton		1000 kg Google conversion tool
Fleet Emmissions from Gasoline		
Year	Data	Source
2020		
Annual Consumption, gallons	58260.54	Gasoline consumption based on Fuel Report received by email communication from Town of Walpole on Nov. 23, 2020
CO ₂ emission Factor, kg CO ₂ /gallon	8.78	Table 13.1 US Default CO ₂ Emission Factors for Transport Fuels (The Climate Registry 2018)
kg CO ₂	511527.54	
mtCO ₂	511.53	
mt of CH ₄ per mt of CO ₂	0.00003	Table 13.9 Factors for Estimating CH ₄ and N ₂ O Emissions from Gasoline and Diesel Vehicles (The Climate Registry 2018)
mt of CH ₄	0.01381	
CO ₂ e of CH ₄ emissions, mt	0.38671	
mt of N ₂ O per mt of CO ₂	0.00004	Table 13.9 Factors for Estimating CH ₄ and N ₂ O Emissions from Gasoline and Diesel Vehicles (The Climate Registry 2018)
mt of N ₂ O	0.02261	
CO ₂ e of N ₂ O emissions, mt	5.99152	
Total Fleet CO₂e emissions from gasoline, mt	517.906	
Fleet Emmissions from Diesel		
Year	Data	Source
2020		
Annual Consumption, gallons	35239.12	Diesel Fuel consumption based on Fuel Report received by email communication from Town of Walpole on Nov. 23, 2020
CO ₂ emission Factor, kg CO ₂ /gallon	10.21	Table 13.1 US Default CO ₂ Emission Factors for Transport Fuels (The Climate Registry 2018)
kg CO ₂	359791.37	
mtCO ₂	359.79	
mt of CH ₄ per mt of CO ₂	0.00003	Table 13.9 Factors for Estimating CH ₄ and N ₂ O Emissions from Gasoline and Diesel Vehicles (The Climate Registry 2018)
mt of CH ₄	0.00971	
CO ₂ e of CH ₄ emissions, mt	0.27200	
mt of N ₂ O per mt of CO ₂	0.00004	Table 13.9 Factors for Estimating CH ₄ and N ₂ O Emissions from Gasoline and Diesel Vehicles (The Climate Registry 2018)
mt of N ₂ O	0.01590	
CO ₂ e of N ₂ O emissions, mt	4.21424	
Total Fleet CO₂e emissions From Diesel, mt	364.278	
Total Fleet CO₂e emissions, mt	882.18	

Appendix 5 Fuel Efficient Vehicle Policy

Town of Walpole / School District FUEL EFFICIENT VEHICLE POLICY	
Effective Date	
Revisions	
Board of Selectman Approval Date	
School Superintendent Approval Date	

DEFINITIONS

Combined city and highway MPG (EPA Combined fuel economy): Combined Fuel Economy means the fuel economy from driving a combination of 43 percent city and 57 Percent highway miles and is calculated as follows:

$$=1/((0.43/City\ MPG)+(0.57/highway\ MPG))$$

Drive System: The manner in which mechanical power is directly transmitted from the drive shaft to the wheels. The following codes are used in the drive field:

- AWD = All Wheel Drive: 4 -wheel drive automatically controlled by the vehicle power train system
- 4WD = 4-Wheel Drive: driver selectable 4-wheel drive with 2-wheel drive option
- 2WD = 2-Wheel Drive

Heavy-duty vehicle: Vehicles with a manufacturer’s gross vehicle weight rating (GVWR) of more than 8,500 pounds

POLICY STATEMENT

In an effort to reduce the (city/town/school district/other local entity)’s fuel consumption and energy costs the (policy making body) hereby adopts a policy to purchase only fuel efficient vehicles to meet this goal.

PURPOSE

To establish a requirement that the (city/town/school district/other local entity) purchase only fuel efficient vehicles for municipal/school use whenever such vehicles are commercially available and practicable.

APPLICABILITY

This policy applies to all divisions and departments of the (city/town/school district/other local entity). It applies to road-worthy passenger vehicles, pick up and utility trucks, and SUVs. It does not apply to specialized equipment or off-road vehicles.

GUIDELINES

All departments/divisions shall purchase only fuel efficient vehicles for municipal use whenever such vehicles are commercially available and practicable.

The (city/town/school district/other local entity) will maintain an annual vehicle inventory for ALL vehicles and a plan for replacing any non-exempt vehicles with vehicles that meet, at a minimum, the fuel efficiency ratings contained in the most recent guidance for Criterion 4 published by the MA Department of Energy Resources' Green Communities Division.

It is the responsibility of the (city/town/school district/other local entity) to check the Green Communities Division's Guidance for Criterion 4 for updates prior to ordering replacement vehicles.

Exemptions

- Heavy-duty vehicles: examples include firetrucks, ambulances, and some public works trucks that meet the definition of heavy-duty vehicle.
- As of the adoption date (above) police cruisers are exempt from this criterion due to lack of widespread availability. However, we commit to purchasing fuel efficient police cruisers, when they become commercially available. Police and fire department administrative vehicles are NOT exempt and must meet fuel efficient requirements.

Inventory

The following information shall be included in a vehicle inventory list and said list shall be updated on an annual basis and provided to the Green Communities Division:

Model	Make	Model Year	Year/month Purchased	Drive System: 2WD, 4WD or AWD	> 8500 pounds ? (Y or N)	Exempt or non-exempt	MPG Rating	Vehicle Function
Ford	F250	2016	08/2017	4WD	Y	Exempt	N/A	DPW - Maintenance
Ford	Focus	2014	07/2014	2WD	N	NE	32	Assessors
International	Dump Truck	2011	09/2011	RWD	Y	Exempt	N/A	Sander/Snowplowing

NOTE: Departments/Divisions may use EPA combined MPG estimates or actual combined MPG.

FUEL EFFICIENT VEHICLE REPLACEMENT PLAN

All non-exempt vehicles shall be replaced with fuel efficient vehicles that adhere to the most recent Green Communities Criterion 4 Guidance. Vehicles shall be replaced when they are no longer operable and will not be recycled from one municipal department to another unless the recycled replacement is more efficient than the vehicle it is replacing. In addition, when replacing exempt vehicles, the function of the vehicle will be reviewed for potential replacement with a more fuel efficient vehicle, including a fuel efficient non-exempt vehicle.

(city/town/school district/other local entity) will review on an annual basis the Vehicle Inventory, along with the Green Communities Criterion 4 Guidance, to plan for new acquisitions as part of planning for the new fiscal year budget.

QUESTIONS / ENFORCEMENT

All other inquiries should be directed to the department/division responsible for fleet management and/or fleet procurement. This policy is enforced by the Chief Administrative Officer and/or his/her designee(s).

Appendix 6 Town Adoption Letter

(Letter to be printed on Town of Walpole Letterhead)

MA Department of Energy Resources
Green Communities Division
100 Cambridge Street – Suite 1040
Boston, MA 02114

{date of letter}

At a public Board of Selectmen meeting held on [DATE], the Board of Selectmen voted to adopt the attached Fuel Efficiency Vehicle Policy.

Thank you.

Signature and Typed Name of Chair

Appendix 7 School Department Adoption Letter

(Letter to be printed on Walpole School Dept. letterhead)

MA Department of Energy Resources
Green Communities Division
100 Cambridge Street – Suite 1040
Boston, MA 02114

{date of letter}

Please be advised that the Public Schools of Walpole hereby adopted the attached Fuel Efficiency Vehicle Policy.

Thank you.

Signature and Typed Name of Superintendent of Schools

Appendix 8 Anti-Idling Policy

This sample policy was taken from the MA DEP's idling reduction toolkit, found at <http://www.mass.gov/dep/air/community/depikit.doc>.

Walpole ANTI-IDLING POLICY

This policy applies to residents, municipal fleet, and school vehicles operated by or within the town of Walpole

OBJECTIVES

- 1) To eliminate unnecessary idling of vehicles in order to reduce the community's exposure to exhaust from gasoline and diesel engines.
- 2) To educate and inform municipal employees and residents about the health and environmental effects of gasoline and diesel exhaust.

PURPOSE

Idling vehicles pollute the air and present several health and environmental hazards. Gasoline and diesel vehicles produce carbon monoxide, carbon dioxide, volatile organic compounds (VOCs) and oxides of nitrogen (NOx). Carbon monoxide causes respiratory distress and in high concentrations can be lethal; carbon dioxide is a primary contributor to global warming; and VOCs and NOx and form ozone, ground-level smog and impair lung function. In addition, diesel exhaust contains fine particulate matter, which the U.S. Environmental Protection Agency has designated as a likely carcinogen. The elderly, chronically ill and children are all particularly vulnerable to these health effects because their lung function is respectively decreased, impaired or still in development.

In addition, Massachusetts General Law (MGL Chapter 90, Section 16A) and the Massachusetts Department of Environmental Protection (DEP) idling reduction regulation (310 CMR 7.11(1)(b)) both prohibit unnecessary vehicle idling by stating that the engine must be shut down if the vehicle will be stopped for more than five minutes. Exemptions include: 1) the vehicle is being serviced and the idling is required to repair the vehicle; or 2) the vehicle is making deliveries and needs to keep its engine running (to power refrigerators, for example); and, 3) the vehicle's accessory equipment needs to be powered, such as a fork lift or a truck's rear dump bed, or a wheelchair lift in a bus or van. To provide additional protections for children, MGL Chapter 90, Section 16B further restricts unnecessary idling in school zones.

In order to reduce the health and environmental effects of vehicle exhaust, comply with the state's idling reduction regulation and law, and decrease our use of fuel by reducing unnecessary idling, the following actions shall be implemented to the maximum extent practicable:

[Walpole would insert specific actions it will implement in its Idling Reduction Campaign such as: posting of signs in public areas, educating municipal employees and residents, establishing best management practices for municipal vehicle operations, etc.]

This policy is hereby approved by the [Governing Body], this [date], to eliminate unnecessary idling.

Signature: _____

Appendix 9 Alternative Fuels Data Center Calculator Inputs & Results

U.S. Department of Energy - Energy Efficiency and Renewable Energy
Alternative Fuels Data Center

Vehicle Cost Calculator

This tool uses basic information about your driving habits to calculate total cost of ownership and emissions for makes and models of most vehicles, including alternative fuel and advanced technology vehicles. Also see the [calculator website](#).

Normal Daily Use

Average daily driving distance: miles

Days per week:

Weeks per year:

Percent highway:

Annual Driving Distance: 19200 miles
City Distance: 7380 miles
Highway Distance: 4543 miles

Other Trips

Annual mileage: miles

Percent highway:

Electricity Use
Select a state so we can find the electricity price and calculate the emissions from generating electricity in your area.

How often do you plug in your vehicle during normal daily use?
 Twice a day
 Daily
 Every other day

GET RESULTS

Results

Vehicle	Annual Fuel Use	Annual Electricity Use	Annual Fuel/Elec Cost	Annual Operating Cost	Cost Per Mile	Annual Emissions (lbs CO2)
2020 Ford Fusion FWD Gasoline	498 gal	0 kWh	\$1,425	\$3,992	\$0.31	11,905
2020 Ford Fusion Energi Plug-in Hybrid Plug-in Hybrid	72 gal	2,872 kWh	\$837	\$3,094	\$0.28	4,224
2020 Ford Escape FWD Gasoline	411 gal	0 kWh	\$1,184	\$3,442	\$0.29	9,667
2020 Chevrolet Bolt EV	0 gal	3,379 kWh	\$741	\$2,846	\$0.24	2,959

Cumulative Cost of Ownership by Year (Dollars)

This graph shows the cumulative cost of ownership by year for each vehicle, including fuel, tires, maintenance, registration, license, insurance, and loan payment. The tool assumes a five-year loan with a 10% down payment. Year one on the graph represents the 10 percent down payment plus the first year's total operating costs. For more information on this graph and other calculations, see the [calculations \(calculator_methodology\)](#) page.

Disclaimer:
The U.S. Department of Energy (DOE) and the National Renewable Energy Laboratory (NREL) do not endorse any companies or products described on the Vehicle Cost Calculator. Vehicle prices and specifications change frequently. Not all data have been verified by DOE or NREL, which manages the site. Consult a dealer or vehicle manufacturer before making purchasing decisions.

(mailto:technicalresponses@efc.com) Need project assistance?
 Email the Technical Response Service
 (mailto:technicalresponses@efc.com) or call 800-294-8746
 weekdays 9am-5pm

The AFDC is a resource of the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy's Vehicle Technologies Office (<https://www.energy.gov/eere/vehicle-technologies-office>).
 Contacts ([contacts.html](#)) | Web Site Policies (<https://www.energy.gov/efc/vehicle-technologies-office>) | U.S. Department of Energy (<https://www.energy.gov>) | USA.gov (<https://www.usa.gov>)

Appendix 10 Eversource's EV Charging Station Program

CHARGING STATIONS

Join the EV charging revolution by taking advantage of Eversource's EV Charging Station program.



Through the program, Eversource is helping increase access to electric vehicles by supporting 100 percent of the infrastructure costs for thousands of new charging stations across Massachusetts.

Learn more about how you can support electric vehicles, or apply to be an EV Charging Station host site. Contact evcharging@eversource.com for more information.

[DOWNLOAD APPLICATION](#) 

Please note that we are nearing full enrollment for our current round of funding for this program. We are still accepting applications, but approved projects will be put on a waitlist until additional funding is available.

Appendix 11 EV Make Ready Application with Instructions



Electric Vehicle (EV) Make Ready Application Instructions

Please follow these instructions to complete the attached Eversource EV Make Ready Program Application.

Section 1: Applicant Information

Customer responsible for Payment of Monthly Electric Bills (Company or Organization)

Enter full name of Customer

Existing Eversource Electric Account Number

If you are an existing Eversource electric customer, please provide an appropriate Corporate electric account number.

Fed Tax ID#:

Enter your organization's Federal Tax ID #. Enter 99-9999999 if you do not have a Federal Tax ID#

Corporate Address, City, Zip Code and Phone

Please provide Corporate contact information here.

Contact Person Name, Phone, email

Enter the name and information of the primary contact representing your organization for this program application. The contact person should be the primary contact for our Account Executives as part of the Make Ready Program

Eversource Account Executive (optional)

If you have been in contact with an Eversource Account Executive on the Make Ready Program, please put their names here.

Section 2: Site Information

Site Description

Briefly describe the site where you are looking to deploy charging stations through the Make Ready Program. Please include Latitude/Longitude coordinates if possible. If you have a sketch of the site plan, you can attach that as well.

Site Address, City, State and Zip Code

Please provide Site locational information here.

Tax Assessor Parcel #: (optional)

Enter the number of the designated parcel assigned by the tax assessor of your local jurisdiction.

Total Parking Spaces at Site

Enter the total parking capacity for light-duty vehicles at the Site. This includes parking spaces reserved spaces and those for specific uses (visitor, tenants/residents, fleet, employee/contractor).

Number of Charging Ports Desired at Site

The number of charging ports you would like to have at the site. Generally speaking, 1 port = 1 parking space.

Existing Eversource Electric Account Number at Site (if any)

If there is an electric account number specific to the site, enter it here.

What is the primary utilization for the requested charging ports (select one)

Please select the option that best describes the primary use type of the charging station site.

Proposed Charging Station Location Type: (select one)

Please select the option that best describes the parking lot type.

Does the site have access restrictions that require scheduling visits by Eversource or its contractors?

If yes, please describe.

Indicate if Eversource representatives or contractors can freely access the site including parking spaces. There may need to be multiple visits to determine proper siting of charging station infrastructure through the Make Ready Program. If yes is selected, we will schedule all site visits with the listed contact person.

Section 3: Property Owner Contact Information

Does Applicant have legal ownership of the site?

If the Customer listed in Section 1 has legal ownership of the site, select "yes". This will complete this section.

If the Customer listed in Section 1 does not have legal ownership of the site, select "no" and fill out the remainder of this section.

Section 4: Other Information

AHJ (Authority Having Jurisdiction) for the Site

Enter the name of the city, county or special entity that issues building construction permits for the site. Enter N/A if you are a governmental agency with no AHJ.

Section 5: Signatures

If the applicant is not the property owner, the property owner is also required to sign the application.

Upon completion of the document, please scan and send it to the email address below with the subject
EV Make Ready Program Application: EVmakeready@eversource.com

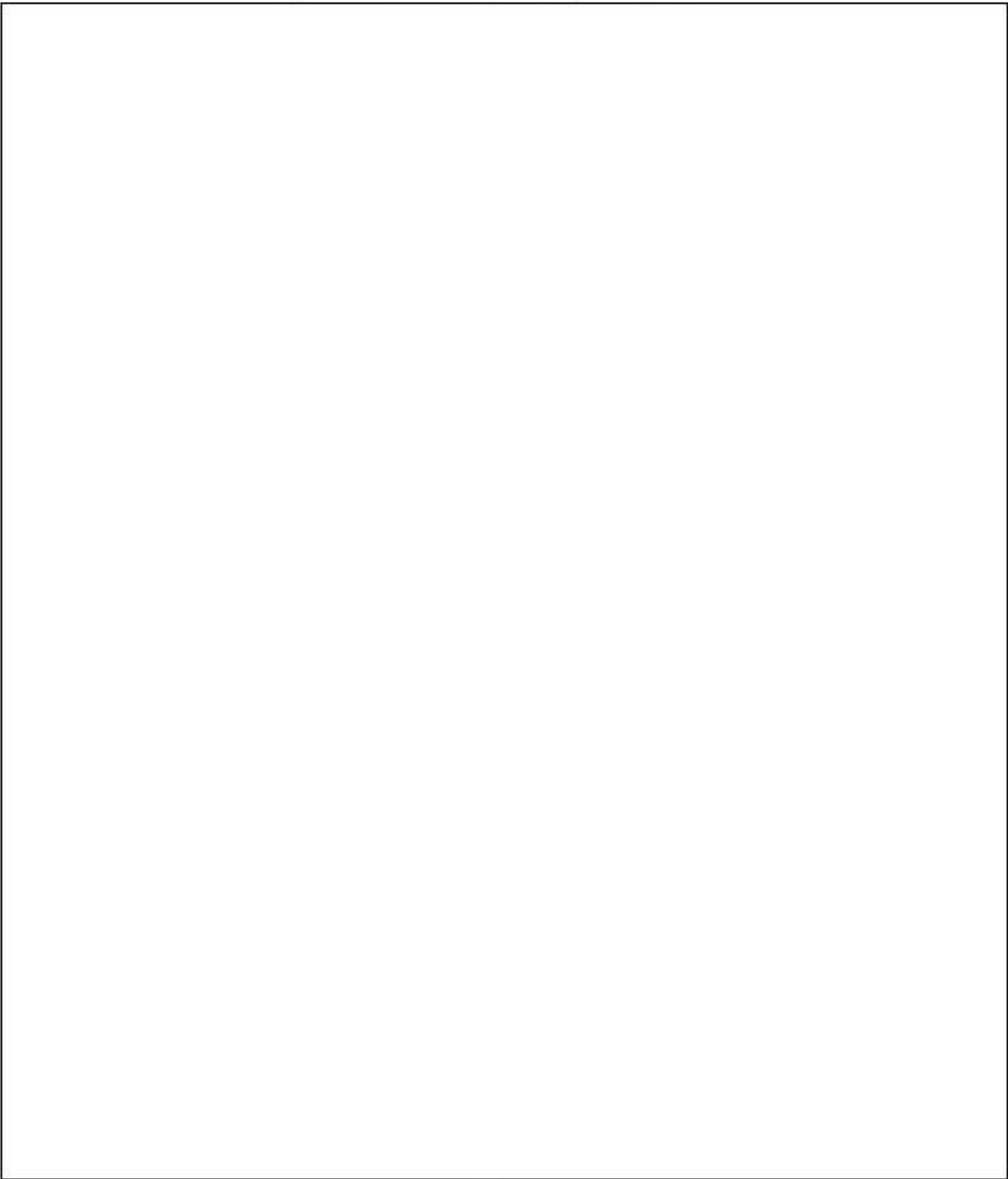
You will receive correspondence that your application has been received along with further instructions.



APPLICATION FOR MAKE READY PROGRAM				
SECTION 1: APPLICANT INFORMATION				
Customer Responsible for Payment of Monthly Electric Bills (Company or Organization):				
Existing Eversource Electric Account Number:			Fed Tax ID #:	
Corporate Address:		City:	State:	Corporate Phone:
Contact Person's Name:		Contact Person's Phone:	Contact Person's Email:	Eversource Account Executive (optional):
SECTION 2: SITE INFORMATION				
Site Description: Please briefly describe the site. If you have drawings of the site plan, please attach them to this document.				
Site Address:		City:	State:	ZIP Code:
Tax Assessor Parcel #:	Total Parking Spaces at Site:	Number of Charging Ports Desired at Site:	Existing Electric Eversource Account Number on site (if any):	
What is the primary utilization for the requested Charge Ports? (select one)				
<input type="checkbox"/> Workplace	<input type="checkbox"/> Multi-Unit Dwelling (Apartment, Townhouse, Condo)	<input type="checkbox"/> Fleet	<input type="checkbox"/> Destination Parking (Public Lots)	
Proposed Charging Station Location Type: (Select one)				
<input type="checkbox"/> Grade Level Parking Lot	<input type="checkbox"/> Above Grade Multi-Story Parking Structure	<input type="checkbox"/> Subterranean Parking Structure	<input type="checkbox"/> Other	
Does the site have access restrictions that require scheduling visits by Eversource or its contractors? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, please describe:				
Charging station vendor you are currently working with (if any):				
SECTION 3: PROPERTY OWNER CONTACT INFORMATION				
Does Applicant have legal ownership of the site? <input type="checkbox"/> Yes <input type="checkbox"/> No				
If no, please indicate Property Owner name:				
Property Owner Address:			Phone:	
City:		State:	ZIP Code:	
SECTION 4: OTHER INFORMATION				
AHJ (Authority Having Jurisdiction – City, County or Special Entity Issuing Building Permits and Certificates of Occupancy) for the Site: (Enter the name of the city, county or special entity issuing building construction permits for the site. Enter N/A if you are a governmental agency with no AHJ.)				
SECTION 5: SIGNATURES				
Signature of applicant:		Title:	Date:	
Signature of Property Owner (if applicable):		Title:	Date:	

SITE SKETCH

If you have any as-built drawings that contain the location of the proposed charging stations, please include these as well with your submission.



Upon completion of the document, please scan and send it to the email address below with the subject
EV Make Ready Program Application: EVmakeready@eversource.com