Climate Emergency Response Resolution Strategy Evaluation									
Climate Emergency Response Proposal Area	**Category**	**Anticipated Annual Emissions Impact**	**Description**	**Time-line**	**Notes on Applicability to Takoma Park**	**Cost**	**Program Considerations**	**Co-Benefits**	**Research and Examples**
Benchmarking commercial, non-residential and multifamily buildings	Maximize Efficiency	High, up to 6,000 MTCO2; based on an estimated 20% savings	Develop an energy use reporting requirement (benchmarking) for multifamily buildings with 20 units or more, and non-residential, and commercial buildings in Takoma Park. Dozens of cities and states have benchmarking requirements and there are many best practices Takoma Park can draw upon when creating its ordinance and implementation plan. Montgomery County has a benchmarking requirement for commercial buildings 50,000 square feet and above. In 2020 it is likely the County will lower the square footage to 25,000 square feet, and include multifamily buildings. When this occurs about 18 of Takoma Park's multifamily buildings will be required to benchmark with Montgomery County. The County uses EnergyStar Portfolio Manager, which is a free platform to use, to facilitate their benchmarking law. If the City adopts the benchmarking law then Takoma Park would only be responsible for administering the program for the buildings that fall under the Montgomery County reporting size. Takoma Park's program could capture smaller commercial buildings under 25,000 square feet and multifamily buildings not covered Montgomery County's benchmarking law.	Med: 5 years	High, commercial building energy use is a primary emissions contributor. Research shows that benchmarking alone results in energy use decrease. In Chicago benchmarking has lead to a 22% decrease in energy use in buildings that participated. If Takoma Park requires benchmarking for its buildings that are not covered by Montgomery County's law it is expected to have a positive impact as buildings get direct and free feedback on their energy use and opportunities for improvement.	Building owners the cost: minimal, administrative time to collect and disclose energy and utility use and building characteristics. City of Takoma Park budget costs include administration of the program, approximately 1/3 FTE or contractor $50,000/yr.	Benchmarking through the most commonly used platform, EnergyStar Portfolio Manager, is free. Property owners would need to provide details about their energy and water use, and property characteristics. For small building this may require administrative effort they do not budget for, however it is not expected that there are significant costs or hardships associated with a stand alone benchmarking program.	Benchmarking brings building owners' attention to energy and water efficiency, resulting in behavioral and operational changes that spur immediate and low-cost reductions in energy consumption. These policies also provide the opportunity for overall improved quality and durability of buildings and indoor air quality.	https://www.montgomerycountymd.gov/green/energy/benchmarking.html https://www.buildingrating.org/graphic/us-benchmarking-data-and-data-visualization-links https://www.imt.org/resources/the-benefits-of-benchmarking-building-performance/
Requiring the establishment of minimum energy efficiency standards for non-residential and commercial properties and multifamily buildings	Maximize Efficiency	High. 6,600 MTCO2 based on 20% of commercial emissions	The data collected from benchmarking would be used to establish a city-specific minimum energy efficiency standard for each type of business. Available resources include Pepco rebate program, Energy Saving Companies that perform energy and water saving work with no upfront cost, CPACE, and the Montgomery County Green Bank. Exemptions will need to be defined and considered.	Long: 10 - 12 years	High. Commercial buildings including multifamily buildings make up 25.7% of emissions city-wide. Requiring the poorest performing buildings to improve efficiency could have a large positive impact. If the County's law passes, then Takoma Park would only need to administer the program for any building smaller than the County's requirement.	It is estimated the total cost over time to meet the minimum will be $1,500 - $100,000 for the lowest performing buildings depending on size and business type. Energy service companies (ESCOs) can be used to develop, design, build, and fund projects that save energy, reduce energy costs, and decrease operations and maintenance costs at their customers' facilities. When an ESCO implements a project, the company's compensation is directly linked to the actual energy cost savings, often with no out of pocket expense for the business. Staff or contractor time to administer the program is estimated at 1/2 FTE.	Small businesses in Takoma Park may have a hard time retrofitting their buildings for energy efficiency. ESCOs may not accept very small jobs. While energy efficiency projects have a "pay-back", any project with an up-front cost could pose a significant hardship, especially for businesses in the Purple Line construction zone.	Business energy efficiency is directly linked to indoor air quality, utility expenses, and comfort. Improving efficiency improves all three areas, often significantly. This has large impacts on health, financial well being. It also improves the resiliency of a business to withstand more extreme weather in the face of climate change.	Montgomery County is planning to pursue minimum energy efficiency standards for large commercial buildings, likely either 25,000 square feet or 50,000 square feet in late 2020. DC passed a law requiring benchmarking and minimum energy efficiency standards for building as small as 10,000 square feet. https://www.montgomerycountymd.gov/green/energy/benchmarking.html https://emp.lbl.gov/sites/default/files/lbnl_benchmarking_final_050417_0.pdf https://www.buildingrating.org/graphic/us-benchmarking-data-and-data-visualization-links https://www.imt.org/resources/the-benefits-of-benchmarking-building-performance/
Requiring a Home Energy Score for all homes	Maximize Efficiency	Med. 3,481 MTCO2 based on 10% of residential emissions	Require energy efficiency assessments for single family homes. Phase-in could begin with new real estate listings, and then expand to all homes. Home Energy Score is a national Department of Energy program, and rates a home's energy efficiency on a scale of 1-to-10, with the rating independent of occupant behavior. This helps residents understand how to improve the efficiency of their home.	Med: 5 - 10 years	High, would aid residential energy use reduction, which makes up 27% of the city's emissions	Property owner cost: $150-$200 per home. City cost: Staff administration or contractor of 1/3 FTE	In addition to the cost of getting a home energy score, it takes approximately 3 hours. Scheduling the inspection may pose a hardship to some families. In addition, the fear of having an inspector come into a home may be an issue for immigrants and other residents.	Having an energy audit with home energy score can lead to residents making immediate improvements to their home, reducing energy costs and improving indoor air quality and comfort of their homes.	Precedent: Milwaukee, OR; Berkeley, CA; Portland, OR; Austin, TX; https://rpsc.energy.gov/energy-data-facts https://www.aceee.org/blog/2019/09/listen-2020-candidates-energy
Requiring the establishment of minimum energy efficiency standards for all homes	Maximize Efficiency	Med. 3,481 MTCO2 based on 10% of residential emissions	The data collected from the home energy score requirement would be used to establish a minimum HES for all homes. On a scale of 1-to-10, the minimum would likely be a 3 or 4, requiring approximately 400 homes in Takoma Park to make energy efficiency improvements. The typical improvements would be attic insulation and air sealing.	Long: 10 -12 years	High. Precedent: Berkeley, Portland, and several other cities already require a HES at time of real estate transaction or listing. HES is a Department of Energy program, and home energy labeling has been well studied. Making it mandatory for all homes with a pathway to require a minimum score would be a first in the nation program.	Subsidies and grants are currently available for energy efficiency improvements for low income homeowners from state, county and city resources. Further assistance and exemptions will need to be considered. Property owner cost: $1,500 - $4,000 for the lowest performing homes. City cost: Staff or contractor time to administer the program is estimated at 1/2 FTE.	The time and cost of improvements will fall disproportionately on homeowners with older homes that have had minimal renovations and few upgrades.	Home energy efficiency is directly linked to indoor air quality, utility expenses, and comfort a home. Improving efficiency improves all three areas, often significantly. This has large impacts on health, financial well being, and the ability of people to stay in their homes. It also improves the resiliency of a home to withstand more extreme weather in the face of climate change.	https://mygreenmontgomery.org/2020/montgomery-energy-connection/ https://rpsc.energy.gov/energy-data-facts https://www.naseo.org/issues/buildings/home-energy-labeling https://www.aceee.org/blog/2019/09/listen-2020-candidates-energy

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Requiring LED upgrades, with specific guidelines, in all rental and commercial properties. Does not apply to private non-rental residences.	Maximize Efficiency	Medium. Approx. 1,500 MTCO2 based on 5% of commercial building electricity load	All rental units licensed in Takoma Park, commercial, and non-residential buildings must upgrade their lighting to LED. Acceptable exterior LED qualities could be defined. Exemptions and specifications could be made for special scenarios such as medical lighting or laboratory setting. Where appropriate timers and motions sensors should be installed. Personal lamps belonging to residents in rental units would be exempted. Enforcement would be based upon the model used to enforce Safe Grow, which was an initial period of outreach followed by complaint-based inspections and violation notices.	Short: 1-2 years	High. LED lighting makes up approximately 5% of building energy use, and is one of the cheapest, fastest, and easiest ways to reduce carbon emissions from electricity in buildings.	Business cost: Typical payback is 1 – 2 years, with subsidies available from Pepco, and lighting contractors who will perform the upgrade at no upfront cost. City of Takoma Park staff time of 1/8 FTE for 1 year.	Some small businesses in Takoma Park may have a hard time retrofitting old fixtures to accommodate LED bulbs. For small businesses lighting contractors may not accept very small jobs. While LEDs have a fast "pay-back", several hundred dollars to several thousand worth of new lighting could pose a significant hardship, especially for businesses in the Purple Line construction zone.	LED lighting with proper color temperature , lumens, and wattage can greatly improve lighting quality. Lighting quality is directly linked to healthy indoor environments and business. Reduced electricity use save money.	Precedent: New York City and Los Angeles are requiring all large buildings, including multifamily, to upgrade to LED. https://www.eia.gov/tools/faqs/faq.php?id=96&t=3 https://homeenergysavings.pepco.com/business/BID?utm_source=Google&utm_medium=Search&utm_campaign=Pepco_CI_BID&gclid=EAIaIQobChMI7J_8mcW45wIVi5-fCh3kuQ7vEAAYASAAEgITu_D_BwE
Elimination of fossil fuel-based lawn care equipment	Electrifi-cation	Low. Estimated 0.65 MTCO2 (1.495 grams NMHC/min x 600 blowers x 60 minutes/wk x 12 weeks)	All fossil fuel-based lawn care equipment operating in the city would be phased out. This would need to be phased in slowly with voluntary incentive programs. Beginning in 2030 all private and commercial equipment must be electric or non-powered. Exemptions will be necessary.	Long: 10 years	Medium. The noise of gas leaf blowers is a major factor and complaint leading to the development of this strategy. Dozens of cities, including DC, have banned gas leaf blowers. California is exploring banning gas mowers.	New electric leaf blower $50 consumer; $315 commercial New commercial grade electric mower $700-$4,000 New residential grade electric mower $85 - $500	Low income property owners will be affected by the cost of new lawn care equipment. Lawn care professionals, especially small sole proprietorships may be negatively impacted, although those that operate in DC will already have to comply with DC's ban.	Health benefits include reduced hearing damage from reduced noise, improved health from the removal of noxious fumes.	https://www.edmunds.com/about/press/leaf-blowers-emissions-dirtier-than-high-performance-pick-up-trucks-says-edmunds-insidelinecom.html
Community Choice Energy	Utilize Renew-ables	Very High - 36,683 MTCO2 or 27% of city-wide emissions	Advocate for state enabling legislation HB730. Encourage Montgomery County/Maryland to pursue community choice aggregation (CCAs), allowing the City to procure power on behalf of residents and businesses, increasing purchasing power for renewable options	Short: 2-3 years	Medium, this strategy would best be implemented by the County. Would enable residents and business to select more renewable power options to reduce stationary energy emissions.	CCE should only be considered if the negotiated rates are comparable to Pepco's standard offer service, or if any extra expense is subsidized by the County or City. In states with CCA, negotiated rates typically result in savings for consumers (at least 2-5%). In Maryland, savings could be even greater because of the increasingly competitive price of solar and wind.	If negotiated to match Pepco's standard offer service, there are few concerns to CCE. Low income people pay a greater percentage of their income on energy (13% or more) so the economic equity of lower cost energy will be substantial.	Matched or lower costs to standard Pepco service plus healthier environment and improved air quality since CCE energy will be cleaner than the grid.	Source: Maryland CCA Legislation https://aceee.org/blog/2019/09/listen-2020-candidates-energy
Eliminate Fossil Fuel Sales	Electrifi-cation Initiatives	Very High - 31,500 MTCO2 or 23% of city-wide emissions; based on total elimination of emissions from stationary fossil fuels in buildings	All fossil fuel based systems including space heating, water heating, and cooking equipment city-wide would be slowly phased out as the equipment needs to be replaced. There would be voluntary incentive programs and active public education and contractor education programs during phase-in. Beginning in 2030 replacements of water heating and space heating equipment would be required to be non-fossil fuel based. By 2045 all equipment should have exceeded its natural useful life and have been replaced. Unless exempted, gas stations and restaurants would need to eliminate fossil fuel use by 2045. A full list of exemptions and alternative compliance would need to be identified. This timeline works within the natural replacement cycle of major equipment. However, many people use equipment decades longer than expected, and financial assistance and financing mechanisms will be necessary. Resiliency considerations include building capacity for non-fossil fuel based backup power. Precedent: Berkeley has banned natural gas in new construction. Bellingham, WA council is exploring requiring all homes to electrify their heating. Takoma Park would be the first in the nation to ban the sales of all fossil fuels. Launch of a "solarize"	Long: 25 years	High, given proportion of natural gas consumption in the residential sector and growing commercial natural gas emissions. With the EXISTING standard electricity mix from Pepco there is a net decrease in carbon emissions when replacing end-of-useful-life equipment with new efficient non-fossil fuel equipment. The benefit will increase as Maryland's Renewable Portfolio Standard increases to 50% by 2030. If Community Choice Energy passes, the City could achieve elimination of all emissions associated with electricity by 2030.	The difference in price between fossil fuel based appliances and non-fossil fuel based appliances is not a simple comparison. In many cases the comparison is favorable. Some of the factors to consider include if a building has sufficient electric capacity to handle additional electric load; retrofit applicability in the case of legacy systems; and the operating costs. Exemptions based upon financial infeasibility will be necessary. Homeowner Costs: In many cases there is no cost difference, some electric options cost less. However, some homes may need to spend an additional $10k - $20k to make a switch to cover electrical and retrofit work. Business Costs: For large commercial spaces the costs must be studied on a case by case basis. City Cost: will include incremental voluntary incentives, robust community and contractor outreach and education. Outreach is estimated to be $15,000 - $25,000 per year. Incremental costs for incentives and grants estimated at the $25,000 to start for small residential incentives, increasing to $300,000 - $500,000 to assist businesses and	Not all systems will need to be replaced within the next 25 years. For residents and businesses with equipment that is still functional it may not be economically feasible to make the transition away from fossil fuels. The economic impact may be most faced by residents and business owners not qulaifying for low income grants, but cannot afford any additional costs. Owners may also face difficult retrofits due to aging structures, which will increase the cost burden upgrading equipment. Some business rely on natural gas for essential function, such as some restaurants, and exemptions may be necessary. While improving infrastructure may need to be addressed no matter what, the timeframe and the requirements may increase the burden.	The combustion of fossil fuels inside buildings is detrimental to human health and safety. It exacerbate asthma, allergies, chronic conditions, and can even lead to death via CO poisoning. Eliminating the sale of fossil fuels will improve indoor air quality and to a much lesser extent local air quality as flue gasses are no longer emitted from each building.	Examples of programs: HeatSmart/CoolSmart Somerville; Berkeley Natural Gas Ban; Mandatory Electrification of Heating Systems: Bellingham, WA Further Information: https://www.cob.org/Documents/council/Climate%20Action%20TF/New%20 Buildings%20Slides%2010-16-19%20Final.pdf https://rmi.org/our-work/buildings/residential-energy-performance/city-support/ https://ww2.arb.ca.gov/resources/documents/indoor-air-pollution-cooking https://www.epa.gov/indoor-air-quality-iaq/sources-combustion-products-introduction-indoor-air-quality#Health_Effects

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Requiring all multifamily buildings with parking lots to install accessible outlets for vehicle charging	Transpor-tation	Medium. If 150 chargers are installed, and 300 EVs displace 300 fossil fuel vehicles, approx. 1,400 MTCO2 / year	Pass ordinance requiring multifamily buildings to provide outlets for EV charging. The number of outlets and type would be determined by parking lot size and details of the implementation planning process.	Med: 2 - 5 years	High, almost half of all emissions come from transportation sector.	Building owner cost: $75 - $500. The cost of the electricity used can be passed on the end user via a monthly fee, sub-metering, or other agreement. A Level 2 charger costs approximately $2,00 - $8,000 installed with a credit card or other payment system.	This would enable more people in Takoma Park to access charging and drive an electric vehicle. The majority of residents of multifamily housing are people of color, and they currently have no opportunity to charge a vehicle where they live. With low vacancy rates, landlords have little to no incentive to install outlets for charging. Impact to rent stabilized buildings needs to be addressed.	Reduced localized air pollution.	Source: Atlanta EV Ready Ordinance; https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator
Full implementation of the Bikeways Plan	Transport ation	Low	Promote bicycling within Takoma Park by making the city easily navigable by bicycle via installation of protected bike lanes and/or cycle tracks, and making whole areas only accessible by bike or foot	Med: 2- 5 years	High, almost half of all emissions come from transportation sector. Takoma Park has increased the availability of bike share and bike lanes, but additional infrastructure, including full implementation of the bikeways plan, will help make cycling a more inclusive option for transportation	https://takomaparkmd.gov/government/housing-and-community-development/community-development/bikeways-program/	Connecting transit centers with bicycle infrastructure directly benefits people who most use public transportation in Takoma Park which are majority people of color.	Better bike infrastructure and links to improved access, health, traffic and safety	Source: Montgomery County Bicycle Master Plan; https://www.sciencedirect.com/science/article/pii/S2352146516302538
Amendment to the City Right of Way Permit to allow for the installation of curbside electric vehicle charging equipment.	Transpor-tation	Low. If 200 permits are issued for 200 new EVs displacing ICE vehicles, 926 MTCO2	The City Right of Way Permit will be expanded to allow curbside placement of EV charging equipment on residential streets for residents who do not have off-street parking. The cost of installation and operation would be the responsibility of the applicant. In accordance with county law, any electric vehicle would be allowed to park in front of a charging station, however if an official sign is installed, any non-electric vehicle blocking a station may be ticketed. Further detail will be available in the Charging in the Public Right of Way fact sheet.	Short: 6 months	High. Many homes in Takoma Park do not have driveways, and a lack of place to charge at home is a limiting factor preventing residents from switching to electric vehicles. Tacoma, WA has piloted a ROW permit for charging equipment, no applicants yet. DC is currently working on a similar permit. Takoma Park already has one applicant in the queue ready for it to be officially available.	All costs born by the owner, $800 - $3,000	Only residents who can afford an EV and can afford to install a charger benefit. Depending on cost of gasoline the affordability of EVs changes.	Reduced local air pollution as the number of internal combustion vehicles decreases.	https://www.tacomapermits.org/tip-sheet-index/evcs; https://www.cityofberkeley.info/EVcurbside/
Increase in the number of bus shelters.	Transpor-tation	Low. If bus riders displace 75 ICE vehicles, 347 MTCO2	In an effort to encourage alternative modes of transportation, and to support of the Council's goals of sustainability and equity, staff has developed a plan for bus shelter installations with prioritized locations. This work coordinates with the City's current Bus Stop accessibility project, funded through a grant from the MWCOG Transportation-Land Use Connections (TLC) Program.	Short: 1-2 years	High. Research indicates that better amenities at bus stops (particularly shelters) make public transportation more appealing and in turn increase ridership and decrease the number of cars on the road. According to Ride-On and WMATA, stops with 50 or more boardings a day should be equipped with a bus shelter. The average bus stop in Takoma Park experiences 30 boardings per day, therefore staff recommends that any bus stop with at least 30 boardings be considered for bus shelter installation.	The City's current contract with Insite requires the installation of shelters at three of the sites with the highest ridership as well as the maintenance or replacement of existing shelters. For locations that Insite does not deem suitable, the City has the option to purchase shelters from Insite (approximately $12,500 each) or to develop creative alternatives where the standard shelter isn't suitable.	According to a survey by Metrobus, riders on the K6 route are 79% black, Hispanic or mixed race and on the F4 line, 89% people of color. Generally, bus riders in the region are disproportionately people of color. We believe this Council action will improve access for people of color, including immigrants and refugees, and improve public transit by making the experience a better option.	Protection from the elements may help reduce stress.	https://takomaparkmd.gov/initiatives/project-directory/bus-stop-improvements/
Preparation of an ordinance requiring participation in food waste collection for all to be adopted once sufficiency capacity and budget is met	Waste	Low. 83 MTCO2, assuming double city food waste collections.	After formally contracting for additional capacity at the Prince George's Food Waste Processing Facility, prepare ordinance mandating food waste composting for all in Takoma Park. As with recycling, the City would collect from single family homes and small rental buildings of 12 units or less, and commercial and multifamily buildings would be required to contract with a waste hauling company to collect their food scraps.	Short: 1- 2 years	Medium, while the City is well positioned to expand food waste collection to all homes and to follow the same model as the recycling law with businesses and multi family buildings, waste as a whole is a small portion of the city's emissions.	City cost: $180,000 for new truck; Additional FTE $70,000 / year Business Cost unknown.	Waste pickup is an added expense for any business property owner and multifamily building owner. While the weight reduction from food waste would decrease the weight from trash, it is still expected to add significant cost.	Additional finished compost available for residents to enrich their garden soil.	Precedent: San Francisco, Seattle, New York, and Austin