Appendix B-3
GHG Mitigation Tables

MEMORANDUM

To:	Erica Aguirre, AICP, Principal Planner Los Angeles County Department of Regional Planning
From:	Adam Poll, Air Quality Specialist, Dudek Jennifer Reed, Air Quality Services Manager, Dudek
Subject:	Trails at Lyons Canyon Greenhouse Gas Emissions Mitigation Comparison to CAPCOA GHG Reduction Measures
Date:	November 17, 2023
cc:	Joshua Huntington, AICP, Supervising Planner Los Angeles County Department of Regional Planning

This Memorandum provides a comparison of the greenhouse gas (GHG) emission mitigation measures implemented for the Trails at Lyons Canyon Project (Project) Draft Environmental Impact Report (EIR) analysis to the example mitigation measures detailed in Chapter 3 of the *California Air Pollution Control Officers Association's (CAPCOA's) Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (Handbook).[1] The table below details GHG measures in the emission sectors included in the Handbook: Construction, Energy, Lawn and Landscaping, Natural and Working Lands, Refrigerants, Solid Waste, Water, and Miscellaneous. It should be noted that an evaluation of the Transportation sector measures is included in the Project's Transportation Impact Analysis (Appendix J of the Project's Draft EIR). Per Section 4.8, Greenhouse Gas Emissions, the Project would result in less than significant impacts with mitigation regarding direct and indirect GHG emissions that may have a significant effect on the environment, and the potential to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

[1] 2021. California Air Pollution Control Officers Association (CAPCOA). Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity—Chapter 3, Measures to Reduce GHG Emissions. Final Draft, December 2021. Accessed February 2023. https://www.caleemod.com/documents/handbook/full_handbook.pdf.

Table 1. Greenhouse Gas Emission Mitigation Measure Evaluation

#	Description	Evaluation	
		Construction	
C-1a.	Use Electric or Hybrid Powered Equipment. Utilize electric- or hybrid-powered construction equipment over conventional diesel-fueled counterparts.	Implemented	The Project would implement this measure through mitigation. See MM-4.8-1 (a). "Use electric or hybrid powered equipment for generators and other small pieces of equipment (e.g., forklifts and saws), as commercially available."
C-1b.	Use Cleaner-Fuel Equipment. Utilize cleaner-fueled construction equipment over conventional diesel- or gasoline-fueled counterparts.	Implemented	The Project would implement this measure through mitigation. See MM-4.8-1 (b)."Use cleaner-fuel equipment such as replacing diesel fuel with compressed natural gas (CNG) or renewable diesel, as commercially available."
C-2.	Limit Heavy-Duty Diesel Vehicle Idling. Limit heavy-duty vehicle idling beyond current regulatory restrictions. The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling prohibits diesel fueled commercial motor vehicles of more than 10,000 pounds from idling the vehicle's primary engine for 5 minutes at a single location (13 CCR Section 2485).	Implemented	The Project would implement this measure through mitigation. See MM-4.8-1 (c). "Reduce idling time of heavy-duty trucks either by shutting them off when not in use or reducing the time of idling to no more than 3 minutes (5-minute limit is required by the state airborne toxics control measure 13 CCR § 2485)."
C-3.	Use Local Construction Contractors. Utilize local construction contractors. Contracting construction work with a local company reduces VMT associated with construction employee commute distances and, therefore, reduces emissions from vehicle fuel combustion. Local hire provisions may cover the entire workforce or a percentage of the workforce based on the project size or employment type.	Partially Implemented	The Project would implement this measure through mitigation. See MM-4.8-1. "The Project Applicant must contact at least 3 contractors or vendors within Los Angeles County and submit to the County justification if the specified equipment is not commercially available."
C-4.	Use Local and Sustainable Building Materials. Utilize building materials that are locally sourced and processed (i.e., close to the project site, as opposed to in another state or country). Sustainable building materials may include recycled concrete or sustainably harvested wood.	Partially Implemented	The Project would implement this measure as available during construction. For example, concrete for paving would likely be sourced from vendors proximate to the Project site, as detailed in the California Emissions Estimator Model's (CalEEMod's) default assumption for vendor trip distances of 10.2 miles. Similarly, the Project would source commercially available equipment within 50 miles of the Project site as required in MM-4.8-1.

#	Description	Evaluation	
		Energy	
E-1.	Exceed 2019 Title 24 Building Envelope Energy. New buildings will exceed the energy efficiency requirements of the building energy standards of the 2019 version of Title 24.	Implemented	The Project would be built to meet 2025 Title 24 standards based on anticipated construction start date, which would exceed energy efficiency requirements of the building energy standards of the 2019 version of Title 24.
E-2.	Require Energy Efficient Appliances. This measure requires installation of ENERGY STAR-certified appliances that exceed the energy efficiency of conventional appliances.	Implemented	The Project would implement this measure through mitigation. See MM-4.8-3, Energy Conservation, (a). "Install Energy Star-rated heating, cooling, lighting, and appliances."
E-3a.	Require Energy Efficient Residential Boilers. This measure requires installation of a residential boiler with a higher energy efficiency than what is required by regulation.	Not Applicable	Because the Project would electrify all buildings (see evaluation for Measure E-15, Require All-Electric Development, below, and MM-4.8-2, Electrify Buildings), per CAPCOA's manual, users cannot select measure E-3a if the user selects E-15, given that there will be no gas or oil-fired boilers on-site.
E-3b.	Require Energy Efficient Commercial Packaged Boilers. This measure requires installation of a commercial packaged boiler with a higher energy efficiency than what is required by regulation.	Not Applicable	This measure is not applicable to the Project, as the Project has no commercial component, and would contain no commercial packaged boilers on-site. Additionally, the Project would not contain natural gas (see MM-4.8-2, Electrify Buildings).
E-4.	Install Cool Roofs and/or Cool Walls in Residential Development. This measure requires installation of cool roofs and/or walls in place of dark roofs and/or conventional walls for residential development. Cool roofs have been designed to reflect more sunlight and absorb less heat than a standard roof, keeping buildings cooler in the summertime and thus reducing air-conditioning loads. Complementary to cool roofs, cool walls achieve a similar result through using more reflective paints or materials. This reduces the electricity needed to provide cooling but can potentially increase the energy needed to provide winter heating, thereby reducing associated GHG emissions depending on the project parameters (e.g., climate, level of	Implemented	The Project would be required to comply with the County's Cool roof ordinance, as part of Title 31, Green Building Standards, of the County code. The Project would also install solar panels on roofs of residential buildings in accordance with Title 24 requirements which will provide shading to the buildings, providing a similar cooling effect intended by this measure.

#	Description	Evaluation	
	implementation, carbon intensity of local electricity provider).		
E-5.	Install Green Roofs in Place of Dark Roofs. This is measure requires installation of green roofs in place of dark roofs. Green roofs consist of a layer of vegetation on top of buildings, which provides natural insulation and climate control benefits. This reduces the electricity and natural gas needed to provide cooling and heating, thereby reducing associated GHG emissions	Not Applicable	This measure is not applicable, as it conflicts with the Title 24 requirement to provide solar photovoltaics on rooftops for single family residential uses. The Project has included other comparable measures that are readily implementable and would quantifiably reduce GHG emissions such as installing cool pavement, utilizing 100% zero-carbon electricity, and encouraging electric vehicles. This Project would not result in quantifiable GHG emission reductions.
E-6.	Encourage Residential Participation in Existing Demand Response Program(s). This measure will require marketing and promotion of the local utility's manual (i.e., behavioral) demand response program(s) to encourage participation from residents in the project area. Buildings contribute to GHG indirectly through electricity consumption. During demand response events, program users shift or conserve electricity, thereby reducing the associated indirect GHG emissions. Methods of engaging customers in demand response efforts include offering time-based rates, such as time-of-use pricing, critical peak pricing, variable peak pricing, real-time pricing, and critical peak rebates. Users are encouraged to respond to time-based rates or other forms of financial incentives with smart phone app, email, phone call, and/or text notifications.	Partially Implemented	The Project would implement a comparable measure to influence residential consumption of energy. The Project shall implement MM-4.8-3, Energy Conservation, which would provide information to residents on energy efficiency, energy efficient lighting and lighting control systems, energy management, and existing energy incentive programs.
E-7.	Require Higher Efficacy Public Street and Area Lighting. This measure will require the installation of higher efficacy public street and area lighting in place of typical or existing lamps.	Implemented	The Project shall implement MM-4.8-3, Energy Conservation. MM-4.8-3 (c) requires that "Outdoor lighting shall be light emitting diodes (LED) or other high-efficiency lightbulbs."
E-8.	Replace Incandescent Traffic Lights with LED Traffic Lights. This measure will replace incandescent traffic lights with more energy-efficient LED traffic lights.	Not Applicable	The Project does not have authority or jurisdiction over traffic lights outside of the Project site. The Project would not require improvements to existing traffic lights. However, all outdoor lighting at the Project site,

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	Installing LEDs reduces electricity demand and thus results in a reduction in indirect GHG emissions.		including streetlights, will use LED or other high-efficiency lightbulbs (see MM-4.8-3(c)).
E-9	Utilize a Combined Heat and Power System. This measure requires installation of combined heat and power (CHP) systems in place of separate heat and power (SHP) systems. For the same level of power output, CHP systems use less input energy than traditional SHP generation, resulting in lower CO_2 emissions. In traditional SHP systems, heat created as a by-product is wasted as it is released into the surrounding environment. CHP systems harvest the thermal energy and use it to heat onsite uses or for processes in proximity, which reduces the amount of natural gas or other fuel that would otherwise be combusted for heating or for use in those processes. CHP systems also result in a reduced demand for electricity from the grid, which displaces the CO_2 emissions from the production of electricity from the grid.	Not Applicable	This measure would not be applicable, because the Project shall use 100% electrical energy, per MM-4.8-2, Electrify Buildings. Furthermore, this measure does not apply to residential projects that rely on smaller unit-specific heating systems.
E-10a	Establish Onsite Renewable Energy Systems (Generic). Establish electricity generation from an onsite renewable or zero-emission power system to displace the electricity demand that would ordinarily be supplied by the local electricity provider. Onsite renewable systems could include PV systems, wind power systems, or other.	Implemented	The Project would be required to comply with Title 24 standards to include solar, on-site photovoltaic energy. Additionally, the Project shall install a 7-kilowatt (kW) solar photovoltaic electric generating system at the recreation center (per MM-4.8-3(b), Energy Conservation).
E-10b	Establish Onsite Renewable Energy Systems (Solar Power). This measure requires electricity to be generated from onsite PV systems, displacing the electricity demand that would ordinarily be supplied by the local electricity provider.	Implemented	The Project would be required to comply with Title 24 standards to include solar, on-site photovoltaic energy. Additionally, the Project shall install a 7-kilowatt (kW) solar photovoltaic electric generating system at the recreation center (per MM-4.8-3(b), Energy Conservation).

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E-10c	Establish Onsite Renewable Energy Systems (Wind Power). This measure requires electricity to be generated from onsite wind power systems, displacing the electricity demand that would ordinarily be supplied by the local electricity provider.	Not Applicable	Due to the nature of the Project area parcels and surrounding land uses, wind turbines are generally anticipated to not be feasible as it represents an incompatible use due to the height of the wind turbine blades and the need to avoid nearby obstacles. Wind turbines may also result in other potential issues such as bird strikes in an area with high surrounding biodiversity (i.e., open space).
E-11.	Procure Electricity from Lower Carbon Intensity Power Supply. Commit the project to procuring electricity with a lower carbon intensity than the primary product offered by the local provider (often an investor-owned utility). This would displace the electricity demand that would ordinarily be supplied by the local electricity provider's energy mix. Green power supply options include utility green power products, community choice aggregation, shared renewables (e.g., community solar), and power purchase agreements.	Implemented	The Project would implement this measure. See MM-4.8-4, Utilize 100% Zero-Carbon Electricity. Through MM-4.8-4, "the Project shall require, through the Covenants, Conditions and Restrictions (CC&Rs), enforced by the homeowners' association, the use of 100% zero-carbon electricity procured through Southern California Edison (SCE) (SCE Green Rate) or other electricity provider for residences and the recreational center. This requirement shall be enforced until which time the electricity provided is 100% carbon-free for all accounts by default."
E-12.	Install Alternative Type of Water Heater in Place of Gas Storage Tank Heater in Residences. This measure requires installation of a water heater that is less emissions intensive than a natural gas conventional storage tank water heater in residential units. Prior to the issuance of building permits, the applicant or its designee shall submit building plans illustrating that electric or alternatively fueled water heating system(s) (e.g., solar thermal water heater, tankless electric water heater, storage electric water heater, electric heat pump water heater, tankless gas water heater, other technology with an equivalent level of energy efficiency) shall be installed.	Implemented	The Project would implement this measure through MM-4.8-2, Electrify Buildings. Water heating would be powered through electric heating, as "all the Project's buildings shall be powered fully by electricity, with no natural gas infrastructure or appliances."
E-13.	Install Electric Ranges in Place of Gas Ranges. This measure requires installation of electric range (i.e., cooktop plus oven) in place of gas ranges where applicable.	Implemented	The Project would implement this measure through MM-4.8-2, Electrify Buildings. Water heating would be powered through electric heating, as "all the Project's buildings shall be powered fully by electricity, with no natural gas infrastructure or appliances, including no fireplaces."

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E-14.	Limit Wood Burning Devices and Natural Gas/Propane Fireplaces in Residential Development. This measure requires committing to not installing any wood burning devices (i.e., woodstoves and fireplaces) or natural gas or propane fireplaces in proposed residential developments.	Implemented	The Project would implement this measure through MM-4.8-2, Electrify Buildings. Water heating would be powered through electric heating, as "all the Project's buildings shall be powered fully by electricity, with no natural gas infrastructure or appliances, including no fireplaces."
E-15.	Require All-Electric Development. This measure requires that the development use all-electric appliances and end uses. Using electric instead of natural gas-powered appliances and end uses replaces a more emissions-intensive fossil fuel source of energy with a less emissions-intensive source of energy, electricity from the grid that is increasingly transitioning to renewable sources.	Implemented	The Project would implement this measure through MM-4.8-2, Electrify Buildings. Specifically, "All the Project's buildings shall be powered fully by electricity, with no natural gas infrastructure or appliances, including no fireplaces. Prior to the issuance of building permits, the Project Applicant or its designee shall provide evidence to the County that the building design plans include no natural gas infrastructure."
E-16.	Require Zero Net Energy Buildings. Prior to the issuance of residential building permits, the Proposed Project applicant or its designee shall submit building plans illustrating compliance with the zero net energy (ZNE) design standards defined by the California Energy Commission. The project applicant shall submit a ZNE Confirmation Report prepared by a qualified building energy efficiency and design consultant to the County of Los Angeles Planning & Development Services Department for review and approval.	Not Implemented	The Project has included other comparable measures that are readily implementable and would quantifiably reduce GHG emissions. For example, the Project shall require that all buildings are electrified (MM-4.8-2, Electrify Buildings), install solar photovoltaics on residential and the recreation center (MM-4.8-3), and that all electricity on-site uses 100% Zero-Carbon Electricity (MM-4.8-4, Utilize 100% Zero-Carbon Electricity). However, the Project would not be considered zero net energy.
E-17.	Require Renewable-Surplus Buildings. Proposed development shall install onsite renewable energy in an amount that offsets more emissions than the amount generated from the development's electricity use and onsite fuel consumption. Installing zero-emission renewable energy displaces emissions from grid electricity that would otherwise be used, thereby reducing GHG emissions. Implementation of this measure would result in buildings that reduce more GHG emissions than they generate through surplus	Not Implemented	The Project has included other comparable measures that are readily implementable and would quantifiably reduce GHG emissions. For example, the Project shall require that all buildings are electrified (MM-4.8-2, Electrify Buildings), and that all electricity on-site uses 100% Zero-Carbon Electricity (MM-4.8-4, Utilize 100% Zero-Carbon Electricity). However, the Project would not generate more energy than it uses.

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	generation of energy from renewables, sometimes known as carbon-negative buildings. (Note: The amount of renewable energy required for a building to have net negative GHG emissions is largely determined by the number of emissions from onsite fuel consumption and the carbon intensity of the local electricity provider.)		
E-18.	Establish Methane Recovery in Landfills. This measure involves the capture and treatment of landfill gas (LFG) emitted from decomposition of organic waste in landfills.	Not Applicable	The Project does not contain landfills, and therefore, this measure is not applicable.
E-19.	Establish Methane Recovery in Wastewater Treatment Plants. This measure requires capturing CH4 from an existing wastewater treatment plant and either (1) combusting or flaring it to prevent escape into the atmosphere or (2) combusting or flaring it and using the heat to generate electricity for onsite energy needs.	Not Applicable	The Project does not contain an existing wastewater treatment plant, and therefore, this measure is not applicable.
E-20.	Install Whole-House Fans. This measure requires installation of whole-house fans in residential development. Whole-house fans draw cooler outdoor air through open windows, exhaust the warmer air into the attic, and then expel the air outside through attic vents. Whole-house cooling using a whole house fan can substitute for an air conditioner most of the year in most climates, resulting in a reduction in emissions associated with building energy use.	Not Implemented	The Project has included other comparable measures that are readily implementable and would quantifiably reduce GHG emissions. For example, the Project shall install Energy Star-rated heating, cooling, lighting, and appliances (see MM-4.8-3(a), Energy Conservation).
E-21.	Install Cool Pavement. Prior to the issuance of building permits, the Proposed Project applicant or its designee shall submit building plans illustrating installation of cool pavements in place of dark pavements. Outdoor pavements, such as walkways and patios, shall use paving materials with three-year SRI of 0.28 or initial SRI of 0.33.	Implemented	See MM-4.8-3(d). "Install Cool Pavement. Prior to the issuance of building permits, the Project applicant or its designee shall submit building plans illustrating installation of cool pavements in place of dark pavements. Outdoor pavements, such as walkways and patios, shall use paving materials with three-year SRI of 0.28 or initial SRI of 0.33."

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E-22.	Obtain Third-party HVAC Commissioning and Verification of Energy Savings. This measure requires third-party review of heating ventilation and air conditioning (HVAC) systems to ensure proper installation and construction of energy reduction features. A user can obtain HVAC commissioning and third-party verification of energy savings in thermal efficiency components including HVAC systems, insulation, windows, and water heating.	Not Implemented	The Project has included other comparable measures that are readily implementable and would quantifiably reduce GHG emissions. For example, the Project shall install Energy Star-rated heating, cooling, lighting, and appliances (see MM-4.8-3(a), Energy Conservation). Additionally, the Project would comply with Title 24 Building Energy Efficiency Standards, CALGreen Green Building Standards Code, and would install equipment, including HVAC, pursuant to building permits and other permits demonstrating that the Project follows applicable requirements.
E-23.	Use Microgrids and Energy Storage. This measure requires management of a microgrid. Microgrids offer the opportunity to deploy more zero-emission electricity sources, thereby reducing GHG emissions. The microgrid manager (e.g., local energy management system) can balance generation from non-controllable renewable power sources, such as solar, with distributed, controllable generation, such as natural gas-fueled combustion turbines. They can also use energy storage and the batteries in electric vehicles to balance energy distribution and usage within the microgrid	Not Implemented	The Project has included other comparable measures that are readily implementable and would quantifiably reduce GHG emissions. For example, the Project shall require that all buildings are electrified (MM-4.8-2, Electrify Buildings), and that all electricity on-site uses 100% Zero-Carbon Electricity (MM-4.8-4, Utilize 100% Zero-Carbon Electricity). The Project would also include battery storage in accordance with the 2022 Title 24 building code. However, the Project would not be part of a microgrid.
E-24.	Provide Battery Storage. This measure requires strategically deployed battery storage. Energy storage has no direct emissions effect. When deployed strategically, energy storage can make the grid more flexible, unlocking renewable energy and reducing GHG emissions. When deployed non-strategically, owners of energy storage assets are more likely to charge their facilities during off-peak periods when power prices are lower, in order to supply power during more expensive peak hours.	Not Implemented	The Project would include battery storage in accordance with the 2022 Title 24 building code. Further, the Project has included other comparable measures that are readily implementable and would quantifiably reduce GHG emissions. For example, the Project shall require that all buildings are electrified (MM-4.8-2, Electrify Buildings), and that all electricity on-site uses 100% Zero-Carbon Electricity (MM-4.8-4, Utilize 100% Zero-Carbon Electricity). Note that this is not considered quantifiable per CAPCOA.
E-25.	Install Electric Heat Pumps. This measure requires installation of electric heat pumps as alternatives to conventional furnaces or air conditioners.	Implemented	While implemented per MM-4.8-2, Electrify Buildings, note that this is not considered quantifiable per CAPCOA.

#	Description	Evaluation	
		Lawn and Landscaping	
LL-1.	Replace Gas-Powered Landscape Equipment with Zero-Emission Landscape Equipment. This measure requires use of zero-emission landscaping equipment over conventional gasoline-fueled counterparts. Equipment types historically powered by gasoline engines covered by this measure include chainsaws, chippers, lawn mowers, leaf blowers/vacuums, riding mowers, tillers, and trimmers (CARB 2020).	Partially Implemented	The Project has included other comparable measures that are readily implementable and would reduce GHG emissions from landscape equipment. The Project would require implementation of MM-4.8-8, Landscape Maintenance Equipment Emission Reduction, which shall (a) provide outdoor electrical outlets to facilitate the use of electrical lawn and garden equipment (which is zero-emissions), and (b) encourage utilization of existing yard equipment exchange and rebate programs. Further, the Los Angeles County Board of Supervisors adopted a motion toward banning gas-powered leaf blowers in unincorporated communities and incentivizing the adoption of alternative equipment. Similarly, at the state level, CARB has banned the sale of gas-powered small-offroad equipment (including landscaping equipment) starting in 2024.
LL-2.	Implement Yard Equipment Exchange Program. This measure requires the project to participate in an established yard equipment exchange program, supplement an established program, or implement a new program. When conventional gasoline-powered yard equipment (e.g., lawn mowers, leaf blowers and vacuums, shredders, trimmers, and chain saw) are exchanged for electric and rechargeable battery-powered yard equipment, direct GHG emissions from fossil-fuel combustion are displaced by indirect GHG emissions associated with the generation of electricity used to power the equipment. Commercial users of yard equipment should be targeted for this measure given their comparatively low adoption rate of electric yard equipment relative to residential users.	Implemented	See M-4.8-8 (b). "Encourage Utilization of Existing Yard Equipment Exchange and Rebate Programs. The Project's future homeowners' association shall educate future residents about the South Coast Air Quality Management District (SCAQMD) Electric Lawn Mower Rebate Program and the Commercial Electric Lawn and Garden Equipment Exchange Program. When conventional gasoline-powered yard equipment (e.g., lawn mowers, leaf blowers and vacuums, shredders, trimmers, and chain saw) are exchanged for electric and rechargeable battery-powered yard equipment, direct GHG emissions from fossil-fuel combustion are displaced by indirect GHG emissions associated with the generation of electricity used to power the equipment."
LL-3.	Electric Yard Equipment Compatibility (Outdoor Electrical Outlets). Prior to the issuance of building permits, the applicant or its designee shall provide evidence to the County of Los Angeles that the design plans include	Implemented	See M-4.8-8 (a). "Outdoor Electrical Outlets. Prior to the issuance of building permits, the Project Applicant or its designee shall provide evidence to the County that the design plans include electrical outlets on the exterior of the structure to facilitate use of electrical lawn and garden equipment."

#	Description	Evaluation	
	electrical outlets in the front and rear of the structure to facilitate use of electrical lawn and garden equipment.		
	Natural and Working Lands		
N-1.	Create New Vegetated Open Space. This measure would convert previously developed areas to vegetated open spaces. By creating new vegetated areas from previously settled land, the project would sequester CO_2 that would not have been captured without the land conversion. Trees and other vegetation also incorporate carbon into their biomass during their growth phase (stored carbon).	Not Applicable	The Project site does not have previously developed areas that can be converted to vegetated open space. However, the Project will preserve approximately 148.11 acres of open space and will manage 16 acres of HOA open space.
N-2.	Expand Urban Tree Planting. This measure requires tree planting in urban areas. Planting trees sequesters CO_2 while the trees are actively growing, thereby reducing GHGs. The amount of CO_2 sequestered depends on the type of tree and the duration of the active growing period. Urban trees may also provide shade, which can reduce the urban heat island effect and building cooling demands. Buildings that use less electricity for air conditioning reduce energy consumption and associated indirect GHG emission.	Implemented	The Project will plant 1,510 trees, through Project design and mitigation measures (MM-4.4-2, Habitat Mitigation and Monitoring Plan, and MM-4.4-12, SEA-Protected Trees Replacement).
N-3.	Implement Management Practices to Improve the Health and Function of Natural and Working Lands. This measure covers a broad range of management strategies aimed at improving the overall health and functionality of natural and working lands as a mechanism for increasing carbon sequestration and reducing GHG emissions. Management practices may include those that change ecosystem carbon exchange rates (e.g., cultivated land soil conservation, use of biochar) and those that involve land cover changes.	Partially Implemented	The Project will preserve approximately 152.36 acres of open space and will manage approximately 20 acres of HOA open space. Additionally, the Project will plant 1,510 trees, through Project design and mitigation measures (MM-4.4-2, Habitat Mitigation and Monitoring Plan, and MM-4.4-12, SEA-Protected Trees Replacement).

#	Description	Evaluation	
N-4.	Require Best Management Practices for Manure Management. This measure will require best management practices for the management of manure from livestock. Well-managed pasture systems and aerobic dry composting systems tend to have lower emissions, while anaerobic wet handling systems generate more CH_4. This measure is thus intended for manure collection systems that are currently managed by anaerobic decomposition of manure volatile solids stored in a lagoon or other predominantly liquid anaerobic environment. Utilizing alternative practices to manage manure results in reduced agriculture emissions from livestock by decreasing the amount of volatile manure solids that are stored in wet, anaerobic conditions.	Not applicable	The Project would not involve livestock management. Manure management practices is not applicable to residential land use development.
N-5.	Establish a Local Farmer's Market. This measure would establish a local farmer's market to provide project residents with a more local source of food, potentially reducing the number of trips and VMT by both consumers and food distribution to grocery stores and supermarkets.	Not Implemented	The Project would not establish a local farmer's market. However, there is an existing farmers market less than 2 miles from the Project Site (Old Town Newhall Farmers Market). Further, the Project shall implement MM-4.8-8, Landscape Maintenance Equipment Emission Reduction, which could encourage gardening for residences.
N-6.	Establish Community Gardens. This measure would establish a community garden to provide project residents with locally sourced food, potentially reducing the number of trips and VMT by both consumers and food distribution to grocery stores and supermarkets. Work with community residents and community-based organizations to make sure the gardens are designed inclusively and are open to all residents	Not Implemented	The Project would not establish community gardens. However, the Project shall implement MM-4.8-8, Landscape Maintenance Equipment Emission Reduction, which could encourage gardening for residences.
	Refrigerants		
R-1.	Use Alternative Refrigerants Instead of High-GWP Refrigerants. This measure requires replacement of high-GWP refrigerants with lower-GWP refrigerants (e.g., natural refrigerants such as CO2, ammonia [NH3], and	Not Implemented	The Project has included other comparable measures that are readily implementable and would quantifiably reduce GHG emissions. For

#	Description	Evaluation	
	hydrocarbons, or next generation low-GWP synthetic refrigerants like hydrofluoroolefin-1234yf) in refrigeration and A/C equipment.		example, the Project shall install Energy Star-rated heating, cooling, lighting, and appliances (see MM-4.8-3(a), Energy Conservation).
R-2.	Install Secondary Loop and/or Cascade Supermarket Systems in Place of Direct Expansion Systems. This measure replaces conventional direct expansion systems in supermarkets with indirect systems such as secondary loop and cascade systems. As opposed to direct expansion systems, which circulate one refrigerant from the machinery room out to the store and back to the machinery room, indirect systems employ a primary and secondary refrigerant or heat transfer fluid.	Not Applicable	This measure is applicable to supermarkets; as such, it does not apply to the Project.
R-3.	Install Transcritical CO_2 Supermarket Systems in Place of High-GWP Systems. This measure replaces conventional direct expansion systems in supermarkets with CO_2 transcritical systems. Whereas direct expansion systems typically use a high-GWP refrigerant, CO_2 transcritical systems use CO_2, which has a GWP of 1 and a lower leakage rate than typical conventional direct expansion systems.	Not Applicable	The Project would not develop supermarkets.
R-4.	Install Micro Channel Heat Exchangers in A/C Equipment in Place of Conventional Heat Exchanger. This measure requires use of microchannel heat exchangers (MCHX) instead of conventional heat exchangers in A/C equipment (e.g., unitary A/C). Whereas conventional heat exchangers use single or multiple large-diameter tubes to transfer heat in A/C equipment, MCHX use a series of small tubes. A/C equipment using MCHX require 35 percent to 40 percent less refrigerant than those using conventional heat exchangers (U.S. EPA 2019). The reduction in refrigerant charge in A/C equipment results in a reduction of potential GHG emissions.	Partially Implemented	The Project has included other measures that are readily implementable and would quantifiably reduce GHG emissions. For example, the Project shall install Energy Star-rated heating, cooling, lighting, and appliances (see MM-4.8-3(a), Energy Conservation). Further, the Project is all-electric per MM-4.8-2 and would rely on heat pumps for heating and cooling. Heat pumps inherently use less refrigerant than a typical air conditioner and provide both heating and cooling.

#	Description	Evaluation	
R-5.	Reduce Service Leak Emissions. This measure reduces emissions of refrigerants during equipment servicing by employing improved refrigerant servicing technologies and practices.	Not applicable.	However, the Project shall install Energy Star-rated heating, cooling, lighting, and appliances (see MM-4.8-3(a), Energy Conservation). Additionally, the future residents would not be precluded from employing improved refrigerant servicing technologies and practices in their own home. Ultimately, the Project Applicant does not have the authority or mechanism to ensure compliance to this measure above and beyond U.S. EPA Regulations (40 C.F.R 82(F)) under Section 608 of the Clean Air Act, as well as under California's Refrigerant Management Program, as the Project would consist of residential uses.
R-6.	Reduce Operational Leak Emissions. This measure requires implementation of leak detection technologies and preventative maintenance measures, to reduce leakages before reaching trigger rates.	Not Applicable	This measure applies to food retail stores and comparable uses. The Project is a residential project, and does not include commercial or industrial-grade refrigerants.
R-7.	Reduce Disposal Emissions. This measure requires consistency with safe disposal requirements to minimize refrigerant emissions after equipment is disposed.	Not Applicable	The Project Applicant does not have the authority or mechanism to ensure compliance to this measure above and beyond U.S. EPA Regulations (40 C.F.R 82(F)) under Section 608 of the Clean Air Act, as well as under California's Refrigerant Management Program, as the Project would consist of residential uses.
Solid Waste			
S-1.	Institute or Extend Recycling Services. This measure requires instituting or extending recycling services to reduce volume of landfilled waste. Decomposition of certain types of landfilled waste produces CH_4. Increasing waste diversion from landfills therefore reduces GHG emissions. The recycling process generates some emissions, but also reduces upstream emissions from the manufacturing and production of new raw materials and goods.	Implemented	MM-4.8-7, Solid Waste Reduction, requires the following: "Prior to the issuance of building permits for the Project, the Project Applicant shall provide building plans that include the following solid waste reduction measure: a) Provide storage areas for recyclables and green waste in new construction, and food waste storage, if a pick-up service is available."
S-2.	Implement Organics Diversion Program. This measure requires implementation of an organics diversion program (compost) to reduce the volume of organic waste sent to landfills.	Partially Implemented	This is handled through the County's Senate Bill 1383 compliance program, which requires communities to reduce organic waste disposal 75% by 2025.The County is required to implement an organics waste (including food waste) diversion program which the Project will be subject to.

#	Description	Evaluation	
S-3.	Require Edible Food Recovery Program Partnerships with Food Generators. This measure requires food service, wholesale, and retail sources of edible food partner with food recovery programs. Food recovery programs collect edible foods from commercial production and distribution channels that would otherwise be transported to a landfill and redistribute them for consumption. This measure would avoid emissions from the decomposition of non-diverted organic material in landfills.	Not Applicable	The Project is not a food service, wholesale, or retail source of edible food.
S-4.	Recycle Demolished Construction Material. This measure requires diversion and recycling of construction waste. Recycling demolished construction material reduces GHGs by displacing new construction materials, thereby reducing the need for new raw material acquisition and manufacturing. Using local recycled construction material would also reduce emissions associated with the transportation of new construction materials, which are typically manufactured farther away from a project site. Finally, recycling avoids sending materials to landfills.	Partially Implemented	The Project would comply with applicable CALGreen demolition and building material requirements. Note that this is not considered quantifiable per CAPCOA. Further, the County requires construction waste reduction, disposal, and recycling per its Green Building Code in Title 31 Section 5.408.
S-5.	Source Wood Materials from Urban Wood Re-Use Program. This measure requires projects to source wood materials from urban wood re-use programs. Wood re-use programs extend a tree's lifetime by converting it into a range of products and prolonging the sequestration benefit. Re-uses range from logs, lumber, woodchips, mulch, compost, biochar, animal fuel, paper products, engineered wood, furniture, and cellulosic ethanol.	Not Implemented	Not implemented. Note that this is not considered quantifiable per CAPCOA.

#	Description	Evaluation	
		Water	
W-1.	Use Reclaimed Non-Potable Water. This measure requires use of reclaimed water for outdoor uses. Reclaimed water is water reused for non-potable uses (e.g., landscape irrigation) after wastewater treatment instead of returning the water to the environment (i.e., discharging into rivers and other bodies of water).	Not Implemented	The Project would not use reclaimed water at the site. However, the Project shall require implementation of MM-4.8-6, Water Use Efficiency and Water Conservation, that outlines several measures, including water efficient landscapes, planting of drought-tolerant plants, and high-efficiency water fixtures.
W-2.	Use Grey Water. This measure requires the use of grey water for outdoor uses (e.g., landscape irrigation). Grey water is water from sinks, showers, tubs, and washing machines that has not contacted biological pathogens. Grey water offsets freshwater that would need to be extracted or sourced for the same demand, resulting in water and GHG emissions savings.	Not Implemented	The Project would not use reclaimed water at the site. However, the Project shall require implementation of MM-4.8-6, Water Use Efficiency and Water Conservation, that outlines several measures, including water efficient landscapes, planting of drought-tolerant plants, and high-efficiency water fixtures.
W-3.	Use Locally Sourced Water Supply. This measure requires use of local water supplies instead of more distant water supplies. Locally sourced water is typically less energy intensive because it does not need to be moved across long distances (unless locally sourced water requires extensive pretreatment to address water quality concerns).	Partially Implemented	The Project's water supply would be sourced from the Santa Clarita Valley Water Agency (SCV Water). SCV Water's existing supplies include imported water, local groundwater, recycled water, and water from existing groundwater banking programs.[2]
W-4.	Require Low-Flow Water Fixtures. This measure requires use of low-flow or high-efficiency water fixtures in residential and non-residential buildings. Low-flow and high-efficiency fixtures may include toilets, urinals, showerheads, faucets, clothes washers, and dishwashers. These fixtures use less water than their traditional counterparts and, therefore, reduce energy and indirect GHG emissions that result from sourcing and transporting fresh water.	Implemented	See MM 4.8-6, Water Use Efficiency and Water Conservation (b). "Low-flow or high-efficiency water fixtures."

[2] 2022. SCV Water—Water Supply Assessment for the Trails at Lyons Canyon Project. April 13, 2022 (Appendix L-2 of the Draft EIR)

#	Description	Evaluation	
W-5.	Design Water-Efficient Landscapes. This measure requires the use of landscapes that are water efficient, with lower water demands than required by the DWR 2015 Model Water Efficient Landscape Ordinance (MWELO) (California Code of Regulations [C.C.R.], Title 23, Division 2, Chapter 2.7). Designing water-efficient landscapes for the development will reduce water consumption and thus the corresponding energy and indirect GHG emissions that result from sourcing and transporting fresh water.	Implemented	See MM 4.8-6, Water Use Efficiency and Water Conservation (c). "Water-efficient landscapes with lower water demands than required by the California Department of Water Resources (DWR) 2015 Model Water Efficient Landscape Ordinance (MWELO)."
W-6.	Reduce Turf in Landscapes and Lawns. This measure requires the removal or avoidance of turf grass. Turf grass (i.e., lawn grass) has relatively high-water needs compared to most other types of vegetation. Lowering landscaping water demands by reducing turf size would reduce water consumption and thus the corresponding energy and indirect GHG emissions that result from sourcing and transporting fresh water.	Partially Implemented	Although the Project does not specifically ban turf grass, the Project shall require implementation of MM-4.8-6, Water Use Efficiency and Water Conservation, that outlines several measures, including water efficient landscapes, planting of drought-tolerant plants, and high-efficiency water fixtures. Additionally, the Project would conserve approximately 148.11 acres of on-site natural open space, which would not be replaced by more water intensive uses, such as turf and lawns.
W-7.	Adopt a Water Conservation Strategy. The proposed project shall include a Water Conservation Plan that will reduce outdoor water usage by 30%, when compared to existing outdoor water usage for typical residential homes. The Water Conservation Plan will require compliance with the County's Water Conservation in Landscaping Ordinance (Model Landscape Ordinance) for all outdoor landscapes in the Project, including common areas, public spaces, parkways, medians, parking lots, parks, and all builder or homeowner installed private front and backyard landscaping. As such, the Water Conservation Plan goes beyond the County's Ordinance by applying to all landscaping installed in the Project. Consistent with the County's Model Landscape Ordinance, the Water Conservation Plan requires the use of a water allocation-based approach to landscape zones, use of drought-tolerant,	Partially Implemented	See MM 4.8-6, Water Use Efficiency and Water Conservation (c). "Water-efficient landscapes with lower water demands than required by the California Department of Water Resources (DWR) 2015 Model Water Efficient Landscape Ordinance (MWELO)."

#	Description	Evaluation	
	low water usage native plants, high-efficiency weather- or evapotranspiration-based irrigation controllers, soil moisture sensors, and drip emitters, soaker hose, or equivalent high efficiency drip irrigation, and limitations on the use of natural turf in residential development to no more than 30% of the outdoor open space.		
Miscellaneous			
M-1.	Establish a Carbon Sequestration Project. This measure will establish a carbon sequestration project. Carbon emissions are sequestered by embedding the carbon in a structure that will hold the emissions and keep them out of the atmosphere. Sequestration can happen through biological, chemical, or physical processes.	Not Implemented	The Project would not establish a carbon sequestration project. However, the Project would conserve approximately 148.11 acres of on-site natural open space and approximately 16 acres of HOA-managed open space, which would result in carbon sequestration benefits on-site. Additionally, the Project would plant 1,434 trees through mitigation for biological resources (see MM-4.4-2 and MM-4.4-12).
M-2.	Establish Offsite Mitigation. This measure will reduce GHG emissions by funding and implementing emissions reduction actions that are not directly associated with the project or located on the project site. These actions could occur within the surrounding community, or elsewhere in the city, county, state, nation, or globe. This measure should only be pursued when all possible onsite measures have been implemented or deemed infeasible. Local reductions (i.e., reductions from GHG reduction projects nearest to the project) should be prioritized, to the extent feasible.	Not Implemented	The Project would not implement off-site mitigation. Specifically, MM-4.8-1 through MM-4.8-8 would be required for the Project.
M-3.	Implement an Innovative Strategy for GHG Mitigation. This measure will develop and implement a novel strategy to reduce GHG emissions at the project site or off site. This measure may incorporate technologies which have yet to be developed at the time of the publication of the CAPCOA Handbook. Alternatively, this measure may also bring together multiple measures from the CAPCOA Handbook into a cohesive program or mechanism to facilitate the reduction of GHG emissions, such as development of a “VMT bank” that offers	Implemented	Through MM-4.8-4, Utilize 100% Zero-Carbon Electricity, the Project shall require the use of 100% zero-carbon electricity procured through SCE or other electricity provider. This measure shall be enforced until which time the electricity is 100% carbon-free. This measure is not specifically detailed in CAPCOA's Handbook.

#	Description	Evaluation	
	community-scale VMT measures that would not otherwise be available to individual land use projects.		
M-4.	Require Environmentally Responsible Purchasing. This measure requires projects to implement an environmentally responsible purchasing plan. Examples of environmentally responsible purchases include but are not limited to: purchasing products made from recycled materials or with sustainable packaging; purchasing post-consumer recycled paper, paper towels, and stationery; purchasing and stocking communal kitchens with reusable dishes and utensils; choosing sustainable cleaning supplies; purchasing products from restaurants, farms, or ranches that source materials or goods from locations that use soil conservation practices; and leasing equipment from manufacturers who will recycle the components at their end of life.	Not Applicable	The Project does not have the authority or mechanism to require responsible purchasing of its future residents.
M-5.	Fund Incentives for Green Technologies. This measure would fund incentives for green technologies. Examples of green technologies include energy-efficient and zero-emission vehicle fleets and off-road equipment, building electrification upgrades, low-flow fixtures in buildings, or energy-efficient stationary sources. The user may choose to contribute to an existing municipal energy fund or establish a new energy fund for the project. Recipients of energy fund grants could include neighborhood developers, home and commercial space builders, homeowners, and utilities. Energy funds allow recipients flexibility in choosing efficiency strategies while still achieving the desired effects of reduced energy use and associated GHG emissions. If coupled with local apprenticeship and job training, this measure can help provide workforce development in green jobs for the local community.	Not Implemented	While the Project has not implemented funding for green technologies, it has committed to the following on-site measures that would reduce GHG emission: electrifying buildings (MM-4.8-2); installing Energy Star-rated heating, cooling, lighting, and appliances (MM-4.8-3(a)); install a 7-kW solar photovoltaic electric generating system at the recreation center (MM-4.8-3(b)); outdoor lighting shall be light emitting diodes (LED) or other high-efficiency lightbulbs (MM-4.8-3(c)); installing cool pavement(MM-4.8-3(d)); utilizing 100% zero-carbon electricity (MM-4.8-4); encouraging electric vehicles (MM-4.8-5); conserving water through high-efficiency fixtures and appliances (MM-4.8-6(a)), low-flow irrigation (MM-4.8-6(b)), and planting drought-tolerant species (MM-4.8-6(c)(d)); reducing solid waste generation (MM-4.8-7; and encouraging the use of electric landscaping equipment (MM-4.8-8).

#	Description	Evaluation

Source: 2021. California Air Pollution Control Officers Association (CAPCOA). Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity—Chapter 3, Measures to Reduce GHG Emissions. Final Draft, December 2021. Accessed February 2023. https://www.caleemod.com/documents/handbook/full_handbook.pdf.