

DATE: February 25, 2022
TO: Council Members, City of Falls Church
FROM: Environmental Sustainability Council (ESC), Joseph Schiarizzi, Chair
Energy Transition Subcommittee (ETS), Jon Ward, Chair
SUBJECT: Proposed 'One City Center' Project

The Environmental Sustainability Council (ESC) and its Energy Transition Subcommittee (ETS) have reviewed the Special Exception application materials for One City Center and hosted the Applicant at our January 20, 2022 joint ESC/ETS meeting. We are encouraged by the sustainability features of the proposed Mixed-Use Building including: LEED Gold certification; minimum 20% improvement in energy performance; electrification of all building systems; and 5% electric vehicle (EV) charging stations.

At the conceptual development stage we do not have sufficient information to fully evaluate the environmental sustainability of the project. We look forward to receiving the Applicant's preliminary LEED scorecard detailing the credits to be pursued and an explanation of how they will be achieved, as well as a preliminary energy analysis outlining the building's baseline energy and greenhouse gas (GHG) emissions performance and opportunities for energy efficiency improvements and GHG emissions reductions.

Comprehensive Plan and Greenhouse Gas Emission Goals

The City's 2040 Vision affirms that the City will strive to be a leader in environmental sustainability. The Environment for Everyone chapter of the Comprehensive Plan, adopted in February 2020, set the following goal for Climate, Air and Energy: "Enhance livability, sustainability and resilience. Protect the community from air pollution and the effects of climate change, while reducing pollution and greenhouse gas emissions in the City."

Section 48-90. - Special Exception of the City code states "All applications for special exceptions shall result in development that promotes the health, safety, and welfare of persons living and working in the area ... Residential uses will be considered if they ... create a vibrant, walkable, environmentally sustainable and inclusive community."

The City has committed to GHG emissions reduction goals to lessen our impact on the changing climate. In 2017, City Council resolved to reduce GHG emissions below 2005 levels by 20 percent by 2020, and 80 percent by 2050. In 2020, the City supported the adoption of a regional interim goal of a 50% reduction in regional GHG emissions by 2030. Unfortunately, the City has achieved only a 2% reduction in GHG emissions between 2005 and 2018.

Guided by the City's 2040 Vision, the Comprehensive Plan, the Special Exception Criteria and the City's GHG emission reduction goals, the ESC/ ETS provide our recommendations below, with a primary focus on reducing GHG emissions. We strongly emphasize that any new building

that fails to certify as zero carbon - for both operational and embodied carbon emissions - moves the City further away from achieving its adopted GHG reduction goals.

OPERATIONAL GHG/CARBON EMISSIONS RECOMMENDATIONS

For a building to be operationally zero carbon (i.e., zero GHG emissions), requires three things:

1. High energy efficiency;
2. Full electrification (all electric systems and appliances with no fossil fuel use); and
3. 100% renewable electricity from on-site and off-site sources.

Below are recommendations that would achieve the first two bullet points and make modest progress toward the third.

1. Energy Efficiency

Target 25% Energy Efficiency Improvement - We encourage the Applicant to target 25% energy efficiency improvement, which is the requirement for Zero Carbon certification by the International Living Future Institute, and is comparable to requirements that go into effect next year in neighboring jurisdiction, Arlington County. A highly energy efficient building reduces energy use and GHG/carbon emissions. It also lowers utility costs for tenants and the landlord. Lower utility costs make housing more affordable for tenants and the building more valuable for its owner.

The Applicant indicates they will try to exceed 20%, but the high energy use intensity (EUI) of the grocery store tenant may make that goal challenging to achieve. Given the grocer's high EUI, some ESC members question the desirability of the grocery tenant, especially in light of the potential for over-saturation of grocery stores in the immediate area.

Add New VC for Post-Occupancy Energy Performance Certification – LEED utilizes an energy model to predict improvement in energy performance. Special Exception secondary criterion j. encourages a development to deliver a minimum 20% improvement in energy performance. A mechanism is needed to confirm that the completed and occupied building has delivered on its predicted energy performance goal. We recommend a new VC that commits the Applicant to demonstrating that it has met its energy performance goal by obtaining post-occupancy Energy Star certification with a minimum score of 75. The VC should require the posting of a bond or letter of credit to assure the City that the Applicant has satisfied its obligation.

Provide City with Annual Utility Data – The Applicant should utilize EPA's online benchmarking tool, Energy Star Portfolio Manager, to provide annual energy and water usage data to the City. This aligns with the City's 2022 Virginia legislative priorities in support of legislation that would enable jurisdictions to establish programs that require building owners to report and disclose building energy use intensity (benchmarking). https://fallschurch-va.granicus.com/MetaViewer.php?view_id=2&clip_id=1808&meta_id=109000

Pursue Energy Efficiency in George Mason Square and 110 S. Washington St. - The Applicant plans to upgrade the façade and windows of George Mason Square. We recommend prioritizing energy efficiency when making those upgrades. We also recommend conducting an energy audit on the existing buildings to identify potential energy efficiency opportunities.

2. Electrification

Fully Electrify Building - The Applicant plans to fully electrify except for natural gas for cooking in residential and commercial kitchens. Incorporating natural gas will result in GHG emissions for the entire life of the building, whereas an all-electric building will automatically and steadily reduce GHG emissions to zero as the electric grid shifts to 100% renewable energy sources. In addition, an all-electric building will improve public health and safety by eliminating a major source of indoor air pollution and the risk of fire and explosion. Also, the cost to run natural gas lines throughout the building for just cooking is expensive. We recommend equipping the building with all electric induction stoves and ovens.

Prevent Refrigerant Leakage – Refrigerants used by electric heat pumps and refrigeration equipment are a highly potent source of GHG emissions. To reduce refrigerant leakage, Applicant should retain a third-party expert to: oversee on-site refrigerant charging; confirm the as-built piping conforms to design; and review testing reports and charge-confirmation documentation. CFC and HCFC refrigerants should be avoided per the LEED v4.1 Fundamental Refrigerant Management prerequisite. Applicant should strive to achieve the LEED Enhanced Refrigerant Management Credit.

Revise VC 33 Electric Vehicle Charging Stations - A conduit-routing and transformer plan should be established to minimize the costs of adding EV chargers in the future (e.g., minimizing long conduit runs, x-ray, drilling, demolition, etc.). For example, Founders Row II is proposing routing conduit to 50% of residential spaces. The ESC has provided City Council and staff with a memo on this VC revision.

<https://www.fallschurchva.gov/DocumentCenter/View/14769/2021-06-EV-Charging-Station-Recommendations-210602>

3. Renewable Energy

Revise VC 32 Future Solar Panels – We strongly encourage all rooftop areas not used for amenities, vegetated roof and mechanical equipment be maximally used for PV (solar) panels, including the existing buildings, with the Applicant retaining all renewable energy certificates (RECs). The ETS has provided the City Planning Department with a memo on this VC revision.

<https://www.fallschurchva.gov/DocumentCenter/View/15753/2022-02-ETS-to-Planning-re-Rooftop-PV-VC>

If the Applicant elects not to install solar panels after completing the four step process outlined in the above memo, we recommend that the Applicant earn a minimum of one LEED v4.1 Energy and Atmosphere point for procuring Tier 2 renewable energy from off-site sources (10% of building energy use for 10 years).

EMBODIED GHG/CARBON EMISSIONS RECOMMENDATION

Minimize Embodied Carbon – The Applicant should prioritize reducing the project’s embodied carbon. Embodied Carbon (i.e., greenhouse gas emissions associated with the manufacturing, transportation, installation, maintenance, and disposal of construction materials, and with the construction process itself) represents a substantial share of the carbon emissions from a building during its lifetime. Low-carbon concrete, high recycled content rebar, and low- or no-embodied-carbon insulation are materials that can reduce embodied carbon. Software tools such as the Embodied Carbon in Construction Calculator (EC3) are helpful in evaluating the carbon impact and cost of building materials. We are pleased Applicant plans to divert at least 75% of the total construction and demolition materials. We encourage Applicant to conduct a Whole-Building Life-Cycle Assessment and meet the criteria that would earn the project at least two points for LEED v4.1 Materials and Resources credit, Building Life Cycle Impact Reduction.

ADDITIONAL ENVIRONMENTAL SUSTAINABILITY RECOMMENDATIONS

Revise VC 30 Green Building Criteria – Special Exception secondary criterion j. encourages a development to achieve LEED Gold or greater ratings. Recent projects pursuing special exception approval (e.g., Founders Row II, Broad & Washington, West Falls) all intend to certify LEED Gold. With the City’s benchmark certification now clearly LEED Gold, we recommend eliminating the provision in VC 30 that releases 50% of the bond or letter of credit if the building does not achieve LEED Gold certification but falls within five points of LEED Gold certification.

Pursue Reduced Parking – We encourage further reductions in parking. As Robert Puentes, City Planning Commissioner and CEO of the Eno Center for Transportation recently wrote in the Falls Church News Press, “At an average cost of approximately \$50,000 per underground space, the over-requirement of parking leads to economic inefficiencies and a reduction in community benefits that could otherwise result from a project, such as better environmental sustainability, more affordable housing, or greater commercial commitments.”

Ensure Indoor Air Quality - To ensure fresh air is provided to all tenant spaces, especially in light of the Covid-19 pandemic, all ductwork should be sealed with aerosolized duct sealant. Enhanced central ventilation exhaust testing to confirm performance should also be performed.

Increase Storm Water Capacity - Data used to design storm water infrastructure is decades old. Recent studies show it underestimates current actual rainfall by approximately 20%. The Applicant should take into account the 20% increase in rainfall when sizing storm water infrastructure for the entire site (the mixed-use building and the existing buildings).

Provide Composting – Provide composting to all tenants.

Reduce Light Pollution - Use only exterior fixtures that are Dark-Sky Approved by the International Dark-Sky Association. To reduce energy consumption, fixtures should use timers, PV cells, motion sensors, or similar.

Use Bird Friendly Materials and Features – Incorporate bird-friendly materials and features into the Mixed-Use Building and George Mason Square. Earning one point using LEED Pilot Credit 55: Bird Collision Deterrence is a possible strategy.

City Center Park - Use only native plants and natural leaf mulch for ground cover and do not use turf or artificial grass. Consider planting a beech tree at the park's center, with understory trees and native plantings around it until the beech tree has grown to its full size.

Bicycling Infrastructure – We suggest: an interior entrance for bicycles that is separate from the car garage in order to make it safer and easier to bike; locating exterior bicycle spaces under an overhang or providing other protection from the weather; and locating at least 12 Capital Bikeshare docking stations on two sides of the building.