STAFF REPORT ON PROPOSED LEGISLATION

To: Mayor Gavin Buckley

From: Michael Mallinoff, City Manager

Date: January 7, 2025

Subject: R-2-25: Demonstration Program to Build Green Roofs on City Bus Shelters

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Purpose of legislation

The purpose of this legislation is to require the City Manager to establish a demonstration program to evaluate the feasibility and effectiveness of achieving environmental benefits from green roof bus shelters; and to include that project in the Fiscal Year 2026 City budget; and generally related to the establishment of eco-friendly bus shelters.

Impact of legislation on operations

There are funds allocated in the FY25 CIP for solar arrays to be placed on approximately half of the City bus shelters. It is possible to install both solar arrays and a green roof on the same shelter, but care must be taken to ensure compatibility. The Director of the Department Transportation (DOT) can identify bus shelters that are available for green roof installation.

Before a green roof may be installed, shelters must be evaluated for structural integrity to support the green roof and what type of retrofit may be needed to support it. Factors such as sun and exposure, ridership, and other factors will need to be evaluated in selecting which shelters receive green roofs so that the most benefits can be derived from the demonstration program. The Department of Transportation will be able to evaluate some of these factors and the Department of Public Works (DPW) will be needed to assess the structural integrity of the shelters.

The legislation requires monitoring and evaluation. Data generated over the one year post-completion of the green roofs will be useful for community education regarding the benefits of

the green roofs and to evaluate whether additional green roofs should be installed on bus shelters or at other areas in the City. Sensors can be used to measure stormwater runoff volume and peak flow reduction (water management) and roof surface temperature (thermal performance). For example, during a pilot project in Boston, thermal imaging cameras recorded the temperature on the roads and sidewalks compared to the green roofs. Funds will be needed for such sensors and/or cameras (unless provided by a consultant as discussed below). Other manual techniques, such as water runoff collection for measuring water clarity, can be utilized. DPW stormwater staff would need to be assigned to this task. However, staff may not have the equipment nor the expertise to perform these tasks and to report on the performance/provide a cost-benefit analysis of the project. It is likely that these tasks can be performed more cost-effectively by a company that offers these services. That company may be the designer/installer or a different company. Further research is needed to make this determination and arrive at an estimate of the cost for such services. Regardless, funds should be allocated for data collection/cost-benefit analysis and reporting.

Green roofs require additional maintenance. Regular inspections of the green roofs will be needed for plant maintenance and structural integrity. The roof membrane should be inspected for signs of damage and the drainage layer checked for clogs and proper function. Maintenance needs will include weed control, plant replacement, and watering. The roofs will likely need attention several times per week during the initial few months while plants become established and then weekly during warm weather months. Spring clean up and replanting will also be needed. These duties would fall on DPW staff, who will require training in maintenance of green roofs.

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The legislation specifies that five green roofs shall be established but does not specify a funding level. Initial research finds that a green roof on a bus shelter costs approximately $500-$1000, depending on its size and the complexity of the design. (A basic green roof can be expected to cost $10-$20 per square foot.) Local labor installation rates will impact the overall cost of a project. It is projected that the total cost for design and installation is $10,000. However, that figure requires further research. Funds should also be allocated for potential structural improvements to bus shelters necessary for green roof installations. That figure will need to be determined by DPW.

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