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## **INFORMAL STAFF REPORT TO MAYOR AND CITY COUNCIL**

### **SUBJECT:**

On October 25, 2024, Council Member Beck submitted a two-minute pitch to explore implementing rooftop and wall gardens as well as solar/battery installations on existing and future City buildings. increase Denton's tree canopy by 5% by 2040 and use the Tree Mitigation Fund for additional staff. On December 3, 2024, the Council provided consensus to require an Informal Staff Report to address feasibility of the pitch.

### **DISCUSSION:**

#### **Rooftop and Wall Gardens**

Installation of roof or façade improvements require engineering work, feasibility studies, and retrofitting. Currently, 28 of the City's 206 facilities have roof structures potentially suitable for roof gardens. These facilities would require structural modifications and engineering surveys to support the additional weight and systems, with an estimated cost between \$50,000 to \$200,000 to assess each building. When considering new construction, the addition of rooftop or wall gardens adds an estimated \$143 to \$250 per square foot.

#### **Solar/Battery Installation**

In addition to the structural requirements, solar panels with battery storage require additional considerations. Most facilities lack the necessary electrical infrastructure to support renewable energy, which requires upgrades to distribution systems, panels, wiring, circuit breakers, dedicated space for battery storage, ventilation, and fire safety measures. The cost of these improvements is estimated to be between \$100,000 and \$1,800,000 depending on facility size and energy use.

The estimated annual energy cost savings from solar panels is variable, but estimates range from \$2,500 to \$25,000 for each facility based on energy consumption. The City would expect to see a return on investment from energy cost savings in approximately 20 to 30+ years.

### **CONCLUSION:**

Staff recommends that the existing facilities are not the best option for prioritizing the addition of roof or wall gardens along with solar panels due to the significant structural and electrical modifications required. However, these options will be considered for inclusion in the design and planning of new construction projects, where such features can be integrated more cost-effectively and efficiently from the outset. With this recommendation, the pitch does not require additional board vetting or a work session at this time.

If the Council would like to proceed with exploring retrofitting existing facilities, the request can be considered as part of the FY 2025-26 Budget process.

### **STAFF CONTACT:**

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**REQUESTOR:**

Council Member Beck

**STAFF TIME TO COMPLETE REPORT:**

Total of 31 hours between four departments. A breakdown is listed below.

**PARTICIPATING DEPARTMENTS:**

Facilities Management – 22hrs.

Environmental Services – 1hr.

Capital Projects – 4hrs.

Denton Municipal Electric – 4hrs.