STAFF REPORT

DATE: January 16, 2024

TO: City Council

FROM: Stan Gryczko, Director - Public Works Utilities and Operations
Adrienne Heinig, Deputy Director

SUBJECT: Update on Leaf Blower/Small Off-Road Engine Use

Recommendations

1. Receive update from staff on testing of battery-powered equipment to replace or augment the use of gas-powered small off-road engines, specifically in City operations; and
2. Consider directing staff to return with a timeline to discuss recommended updates to the City's current ordinance governing the use of leaf blowers (Section 24.02.040(b) of the Davis Municipal Code), along with any additional information the Council wishes to receive in their future deliberation of the topic.

Fiscal Impact

The cost to prepare this informational report is within the existing City budget. Direction from Council on permanent modifications to the City's ordinance could result in the need for additional resources, particularly in the Parks Division of Parks and Community Services, and Streets Division of Public Works Utilities & Operations.

Council Goal(s)

This item is consistent with the Council Goals to Pursue Environmental Sustainability and Ensure a Safe, Healthy, Equitable Community.

Commission Input

The City Council has requested this update on the review of use of equipment powered by small off-road engines within the City. Previous discussions at Council around leaf blowers in 2020 and 2021 included meeting with the Natural Resources and Recreation and Park Commissions for recommendations on modifying the use of leaf blowers. In addition, staff worked with a subcommittee of the Natural Resources Commission on the data gathering process in 2020.

Background

While the use of leaf blowers within the City of Davis has been a topic of discussion for a number of years, a substantial fire season from August to October 2020 (across California) severely impacted air quality within the City of Davis, and brought focused attention to the use of leaf blowers in the community, particularly during periods of significant air quality impacts. Ash particulates on the ground, which could become airborne, further contributed to concerns with leaf blower use.

In response to the air quality deterioration and concerns, and the continued COVID-19 pandemic, the Council ultimately adopted a resolution proclaiming a local air quality emergency, and authorized the Public Works Director Utilities and Operations to enact a temporary ban on the use of leaf blowers depending on air quality conditions, the presence of wildfire ash, future air quality forecasts, and/or forecasted smoke conditions for the region. The local air quality emergency expired in February 2023.

As directed by Council, staff also worked with City Commissions to discuss potential changes to the City's ordinance section that pertains to leaf blower use. In addition to the discussions at City Commission meetings, surveys were released in spring 2021 to collect responses from the community and commercial operations on the use of leaf blowers, the concerns the community has regarding their use, and possible modifications to their usage. Comments and feedback were also collected from City staff and other jurisdictions that modified or banned the use of leaf blowers in their community. The summary of the discussions, recommendations, public comments and survey responses were provided to Council in January 2022.

Assembly Bill (AB) 1346 and California Air Resources Board Action

Authored by Assemblyman Marc Berman (D-Menlo Park) and Assemblywoman Lorena Gonzalez (D-San Diego), and signed into law in October 2021, AB 1346 directed the California Air Resources Board (CARB) to adopt "cost effective and technologically feasible" regulations to "prohibit engine exhaust and evaporative emissions from new small off-road engines." This action requires that small off-road engines for sale in California manufactured after January 2024 be zero-emission motor equipment, and effectively bans the sale of new gas-powered small off-road engines, including leaf blowers. The bill applies to engines produced on or after January 1, 2024 (or as soon as is determined to be feasible). Rulemaking for this law was completed, and effective as of January 1, 2023[1].

The bill does not restrict purchase of existing gas-powered equipment manufactured before 2024. From the California Air Resources Board: "The new requirement, an amendment to CARB's existing small off-road engine regulations first adopted in 1990, applies to manufacturers and will impact new equipment (Model Year 2024 and later) only. Californians can continue to operate their current CARB-compliant gasoline-powered SORE equipment; there will be no "ban" on using older models or used equipment purchased in the future. Older models on store shelves can also be purchased even if they are gasoline-powered."

It is important to note that while the initial City Council direction to staff was specific to the review of leaf blowers, the bill includes the prohibition of the sale of new gas-powered lawn mowers, chainsaws, and other gardening and outdoor equipment as well. In preparation for this, as well as Council support to move the City to battery-powered equipment where possible (in keeping with climate action goals), staff in various City departments have been using battery-powered versions of landscape equipment (trimmers, chainsaws, leaf blowers, etc.) to determine what is effective in the field and

[1] Final rulemaking and Office of Administrative Law action: https://ww2.arb.ca.gov/rulemaking/2021/sore2021

what challenges arise with battery-powered equipment that are not in place when gas-powered equipment is used.

Testing

Testing of equipment has been ongoing in City departments, especially in divisions with landscape management and public right of way maintenance responsibilities.

Each division is listed below with the outcome of testing efforts so far:

Parks (Parks and Community Services)

Testing has mostly focused on weed eaters, leaf blowers, and hedge trimmers. Parks staff has tested equipment from a variety of companies and is continuing to test equipment in the field and providing feedback to manufacturers.

Parks staff has purchased battery-powered string and hedge trimmers. Battery-powered leaf blowers have and are being tested, currently staff are testing a prototype backpack blower that is closer in size and power to a gas-powered model.

Benefits

For small areas, it does appear that battery-powered hedgers and trimmers can replace the gas-powered equipment. The battery power lasts for the duration of the job. Staff has also reported greater comfort with the reduced noise level of electric blowers, and the appreciated the ability to quickly turn the equipment on and off (especially in busy areas where they might be turning the equipment off multiple times for passers-by).

Challenges

The run times of the equipment varies from tool to tool, and run time for the types of battery-powered leaf blowers tested so far have been inadequate to accomplish regular maintenance work in current timeframes. With the equipment tested, Parks staff is seeing projects that involve blowers take at least double the time using battery powered equipment. To complete the work in current timeframes, staff are augmenting with other gas-powered equipment, mainly due to a lack of battery backup with the testers.

Additional batteries could address this concern, however the strength of the battery-powered blowers is also at issue. Challenges arise (after it has rained, for example) with the output of the blower itself not being strong enough to move the debris.

For the trimmers, hedgers and other equipment utilizing battery power, additional infrastructure investments will be necessary to ensure adequate power is at hand.

Streets (Public Works Utilities & Operations)

Testing has mostly focused on leaf blowers and chainsaws.

Benefits
For work to clear areas of vegetative debris, the battery-powered leaf blowers are effective, however similar issues to the experience of Parks staff have been highlighted with the battery runtime for larger areas.

Limited chainsaw work on small branches, bushes and other thinner vegetation can be done and the battery-powered chainsaws are effective. Work with larger branches or downed trees still requires a gas-powered chainsaw to fully complete work in a timely fashion.

Challenges
When patches are applied to streets for repair, blowers are used to ensure that small particles and dust are removed prior to the repair. Battery-powered leaf blowers currently being tested by the Streets crew do not have the output power necessary to completely clear the roadway of dust and small particles for the purposes of patching.

Battery-powered chainsaws do not have duration of continuous power required to cut through large trees or branches in the timeframe necessary for Streets crews to clear the material. Without improvements in battery technology and the ability for a battery to sustain a charge when the equipment is in continuous use (when cutting through a large tree trunk, for example), staff would not recommend the replacement of gas-powered chainsaws at this time.

<u>Urban Forestry (Public Works Utilities & Operations)</u>
Testing is on battery-powered chainsaws.

Similar to the findings of the Streets crew testing, the tested battery-powered chainsaws work well for small branches, bushes and other thinner vegetation. Substantial tree work, however required multiple charges to complete the work, with some downtime in swapping out the battery. While not a significant challenge when doing tree work outside of high-traffic areas and with limited timing constraints, during an emergency when debris needs to be cleared quickly, battery-powered chainsaws would not be able to be used reliably to clear the roadway.

<u>Wastewater Treatment Plant (Public Works Utilities & Operations)</u>
Testing included an electric push mower and battery-powered leaf blower. Plans for future testing include a battery-powered weed trimmer.

Benefits
The electric push mower has been working well for the Wastewater Treatment Plant staff.

Challenges
The battery charger for the mower was having issues (after a short period of time, 6 months), so a new charger was purchased along with a second battery, to reduce downtime for the equipment as it charges.

The battery-powered leaf blower has been a challenge to keep charged for the duration of the time needed to complete tasks.

Water Distribution (Public Works Utilities & Operations)
Testing included a battery-powered abrasive saw.

Benefits
The team has reported success with the battery-powered saw. The saw does not emit exhaust fumes into the trenches the team works in when repairing water distribution infrastructure. The saw also had more torque than a gas-powered saw.

Challenges
The saw is heavier (by about 5 pounds) than the gas-powered version.

Overall
Some additional general observations around the use of battery-powered equipment is included below:

Battery Run Times
By far the greatest challenge in testing, the battery run times of the equipment are often at a fraction of the capacity of a gas-powered alternative. In some cases, Parks staff have reported runtimes of only 25 minutes for blowers per charge. Blowers tested with larger batteries saw only about double the time of smaller blowers, with about 45 minutes of runtime.

Charging Infrastructure
Testing and reports from other agencies indicate that batteries can take from 1 hour (for the smaller batteries with less runtime) to up to 8 hours to fully charge. To obtain the number of batteries necessary to enable staff to complete their work, additional investment will be necessary to ensure charging infrastructure is at hand (in vehicles, buildings, etc.) to reduce the amount of time equipment is out of commission waiting for a charge.

Battery Storage
Parks staff estimates the battery-powered equipment will require between 4-20 batteries on hand for each unit. The additional batteries would allow for staff to continue to cycle the use of equipment and reduce the amount of the equipment out of commission.

Environment Improvements
Acknowledging the challenges with incorporating battery-powered equipment into the City's operations (especially with equipment not yet fully suited for the current

demands), the reduction in noise associated with battery-powered equipment and elimination of GHG emissions are important benefits to include when discussing pros and cons of the use of the equipment in the field. As noted by the Water Division crew, when working in trenches in the street to address water main repairs, having tools on hand that do not produce exhaust has been highlighted as a particular benefit.

Current Status

The shortcomings of the current technology, and the lack of commensurate alternatives to gas-powered blowers and chainsaws in particular, and the need for charging infrastructure remain the chief challenge to converting City equipment.

Acknowledging these challenges, City staff is working steadily to find battery-powered alternatives wherever possible, and fully supportive of the Council goals associated with the Climate Action and Adaptation Plan implementation. Indeed, having the City as a leader in transitioning to battery-powered equipment, while not a specific direction from Council, was mentioned in the previous discussion as a priority. In addition to the comprehensive testing performed by internal City staff, the Parks Division will be reviewing proposals for Landscape Maintenance contractors in the coming months, and have intentionally included considerations for “Climate Action Development” (section 3.F.3 of the Request for Proposals) in which staff is asking the proposer to review and submit a proposal designating up to 10% of the landscape area to “green” landscape maintenance (e.g. electric equipment), subject to City approval.

Staff are encouraged that manufacturers of battery-powered and other electric landscape maintenance equipment are testing new products in the field and are soliciting feedback from users to ensure that new products are able to meet user’s needs. In the interim, staff will continue to evaluate equipment, and work towards ensuring the necessary charging infrastructure is in place.

Staff Recommendations

At this time, staff are not proposing changes to the City’s ordinance governing the use of leaf blowers (or other equipment powered by small off-road engines), as advancements in technology and additional investments in infrastructure are necessary to ensure that equipment utilizing small off-road engines, and leaf blowers and chainsaws in particular, can be reasonable substitutes for gas-powered versions. Should Council recommend more limited or a cessation of the use of blowers or other gas-powered equipment in City public spaces at this time, the approach of staff would likely be similar to the implementation of the updated integrated pest management practices. Greater investments in resources (in terms of the contract maintenance, City staff resources and charging infrastructure) would be necessary to continue the current level of maintenance, or a reduction in service level expectation would be required.