

STATE CAPITOL COMMITTEE

JULY 20, 2015

USE OF LEAF BLOWERS ON CAPITOL CAMPUS GROUNDS – STATUS UPDATE

PURPOSE: ACTION

Background

On March 20, 2014, the State Capitol Committee (SCC) passed a motion directing the Department Enterprise Services (DES) to phase out the use of gas-powered leaf blowers by the end of June 2014 to ensure the tranquility of the campus. DES briefed the SCC on the proposals and plans to lessen the impact of the leaf blowers at the SCC meeting in June, 2014. A motion was passed by the SCC to extend the use of gas powered leaf blowers for six months to allow DES to research and test the latest battery and low noise leaf blower equipment and to implement new leaf management strategies. The SCC requested a follow on briefing of the results of this testing and research.

Results of Testing and Research

During the past 12 months DES has worked with the local vendor community to test alternative equipment to manage the leaves and cleanliness of the campus and has tested and implemented different strategies to mitigate the impacts of leaf blower use on the Capitol Campus.

Handheld Battery and Gas Powered Backpack Blowers –Parameter	Stihl BGA 85 (battery)	Stihl BR 500 (gas with muffler)	Stihl BR 600 (gas with no muffler)
Air velocity	46 m/sec. (102 mph)	81 m/sec. (181 mph)	90 m/sec (201 mph)
Air volume	650 m ³ /h	1380 m ³ /h	1720 m ³ /h
Sound pressure rating	64 dB(A)	65 dB(A)	75 dB(A)
EPA standard for unburned hydrocarbons	N/A	72 g/kWhr	72 g/kWhr
Actual unburned hydrocarbons	N/A	20 g/kWhr	15 g/kWh

Note: Information based on manufacturers specifications.

- Handheld Battery powered leaf blowers
 - Through onsite testing of the battery powered leaf blowers, it was determined that they do not have enough power or battery life to be used effectively for management of leaves and debris in a commercial setting such as the Capitol Campus. At this time the industry has not developed a commercial grade battery powered leaf blower. In addition, due to the lack of power and battery life cycle, the battery powered blowers are not ergonomically designed for long-term use on a daily basis. While only functional under limited circumstances (dry conditions with minimal amounts of leaves or debris) DES will make use of the battery powered blowers when viable.

- Muffled Gas powered leaf blowers
 - Usage testing and comparison of the existing BR600 (un-muffled) and new BR500 (muffled) lower noise emitting gas powered leaf blowers was performed. While the BR500 (muffled) leaf blowers were considerably quieter than the existing BR600 (un-muffled) leaf blowers, the muffled blowers took three times as long to accomplish the same work when they are used for major leaf cleanup that we see here on the Capitol Campus. While the muffled gas blowers are less effective, they do have applications and areas for use on the campus, which DES has integrated into our campus leaf management plan.

Campus Area	Application	Time with un-muffled blower	Time with muffled blower	Time Difference
East	Lawn under linden trees (4,900 sq. ft.)	18 minutes	51 minutes	2.8 x longer
East	Maple Park island	98 minutes	234 minutes	2.4 x longer
West	Pleasant Lane (9,000 sq. ft.)	15 minutes	45 minutes	3.0 x longer
West	Legislative Building esplanade	15 minutes	45 minutes	3.0 x longer

- Alternative Equipment Tested
 - DES tested four pieces of alternative equipment during this period. Below are the results of that testing.

Equipment Tried	Results/Analysis/Outcomes	
Angle broom attached to front of mower – For use on sidewalks and paved surfaces	<ul style="list-style-type: none"> • Staff reported very satisfactory results. • This equipment was quieter, faster and easier to use than a backpack leaf blower. • The broom left the surfaces clean. • One unit was purchased during fall, 2014. • One more unit will be purchased prior to the leaf cleanup season. 	
Toro ProForce self-propelled blower	<ul style="list-style-type: none"> • Satisfactory results for large turf areas with limited use in confined areas. • Rated at 89 dB(A) at the operator ear and 94 dB(A) at 25 ft. • Significant cost (\$60K). • Further analysis is necessary to determine if this equipment would be effective for campus use. 	

<p>John Deere commercial leaf vacuum attachment for mowers</p>	<ul style="list-style-type: none"> • Poor design that resulted in frequent clogging of tubes. • Difficult to clean and keep functioning. • Unsatisfactory, not purchased. 	
<p>Toro Raco-vac large scale, pull behind commercial vacuum</p>	<ul style="list-style-type: none"> • Too large and heavy to use in most areas of campus. • Separate suction tube lacked capacity to vacuum debris. • Results not satisfactory for streets or turfgrass. • Unit not purchased. 	

Modified Leaf Management Practices Adopted

- Noise sensitive zones were implemented on campus, defining what type of leaf equipment could be used, and limitations on hours of use to reduce noise impacts.



Zone	Hours of BR 500 Use (May – December)	Hours of BR 500 Use (January – April)
Cherberg/O’Brien/Leg./Temple of Justice/Insurance/Newhouse/Press Houses	Open use, except when special activities require blowers not being used	6:00-7:30 am (Coordinated with Legislative Support Services/House/Senate). Other times if coordinated.
NRB/OB2 courtyard	5:00-7:30 am	5:00-7:30 am
Maple Park	after 8:00 am	after 8:00 am
Lower DOT parking lot	after 7:00 am	after 7:00 am

- Based on the time and motion study performed by DES, the BR 600 blowers shall be used from mid-October through the end of December for expedited cleanup of leaves.
- Outside the leaf season, staff would be limited to using BR 500 blowers in the noise sensitive areas during the hours listed below.
- Other blowers and leaf management equipment could be used at any times in the areas outside the noise sensitive areas.

DES Actions

Based on the research and testing that DES has performed, DES will:

- Continue to observe the established noise sensitive areas.
- Continue to use muffled and battery powered leaf blowers when conditions allow for their usage.
- Continue to test and implement new strategies and adopt the use of time efficient and environmentally friendly leaf management practices, to include:
 - Mulching of leaves on turf grass areas when mowing.
 - Using leaves on site for mulching beds and tree rings. This practice was tested in 2014 and will be expanded in 2015.
- Continue to work with the local and national vendor community to test and utilize new products as they become available.
- Purchase and use of a second roller broom.

Recommendation to the State Capital Committee

- Based on the testing, research, and leaf management practices implemented by DES, we recommend the SCC support the continued use of gas powered leaf blowers until such time that viable alternatives are available for commercial settings. DES is directed to continue to pursue alternative leaf management strategies to further reduce the effects of leaf blower noise on the Capitol Campus.

For more information

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