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Planning and Building Department
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MEMORANDUM

To: Transportation Commission

From: John Starbard, Deputy Director of Public Works Department
Scott Guter, AICP, Senior Planner

Date: April 20, 2022

Subject: Autonomous Personal Delivery Devices, File No. CAM22-00195

RECOMMENDATION:

Receive a briefing on Autonomous Personal Delivery Devices (APDDs) and their dispensers and provide input on potential regulations.

BACKGROUND:

APDDs are automated or remotely controlled wheeled machines designed to deliver products to customers. These machines are “intended to help businesses cut costs on deliveries, reduce delivery vehicle congestion, and cut greenhouse gas emissions from delivery vehicles” ([MRSC Insight, September 2, 2021](#)).

In 2019, the Washington State Legislature passed HB 1325, enacted as Chapter 46.75 RCW, allowing for the operation of APDDs in Washington. The regulations allow operation of the devices within minimum operating parameters for APDDs, which include requirements that operations are in accordance with all ordinances, resolutions, rules, and regulations established by the jurisdiction governing the rights-of-way within which the personal delivery device is operated (see regulations in Attachment 1).

In late 2021, the City received four incomplete building permit applications to construct and maintain four Amazon APDD dispensers. Staff also discovered that an operator or operators had been testing APDDs in various locations in the City without any notice to the City and without any authorization or permission from the City.

On January 18, 2022, the City Council passed an emergency moratorium on accepting, processing, or issuing building permits for APDD and their dispensers within the City. This moratorium allows the City time to study and address concerns over the technology such as:

- Identifying basic facts about the technology;
- Addressing concerns over safety and privacy;
- Identifying any public benefits; and
- Researching other cities that allow and regulate this technology.

On March 1, 2022, City Council held a public hearing on the moratorium and adopted a preliminary scope of work to evaluate the use of APDDs with Resolution 5521 (see

Attachment 2). The Houghton Community Council approved the moratorium with the adoption of Resolution R-2022-3 on March 28, 2022.

ANALYSIS:

Following Council’s adoption of the moratorium, an interdepartmental team met with representatives from Amazon and some of its subcontractors to gain a better understanding of the technology, its deployment in other locations, Amazon’s plans for Kirkland, and both current and potential operational issues. This was followed by small group meetings with members of the Kirkland community and a demonstration of the technology at one of the testing locations in Snohomish County.

Staff is seeking input from the commissions, the Houghton Community Council, and the public about this new technology, such as interests, concerns, and identifying any special challenges. Staff is briefing the Houghton Community Council and Planning Commission on APDDs at their April 25th and 27th meetings, respectively. Staff will discuss with topic with the City Council on May 3.

‘Scout’ (APDD)

Amazon’s proprietary name for both its APDDs and the program that facilitates them is called “Scout.”

The Scout devices, as pictured to the right, measure about 30 inches long by 24 inches wide; weigh about 100 pounds excluding cargo; and can travel up to 15 miles per hour. However, as regulated in State law, they may not exceed six miles per hour in Washington. They are powered by rechargeable batteries, and have wireless and other technologies for guidance, sensing of obstacles, and communication. State law requires APDDs to have lights on the front and back if they are to be used between sunset and sunrise.



Packages are loaded into Scouts at local dispensers by a human acting on behalf of the delivery company. Once the Scout reaches its destination, the recipient must meet the APDD and remove the package; Scouts cannot unload themselves.

The devices currently can fit up to six small, flat packages and can transport a payload of up to 50 pounds, which could be one or more packages delivered to one or more locations per delivery round trip. The Scout’s payload is about nine inches deep and about eighteen inches long.

APDDs must be licensed by the State according to its requirements.

Dispensers

Amazon Scouts are loaded in, stored in, and travel to and from dispensers. Dispensers are about 18-feet long by 8-1/2-feet wide by 11 feet tall. They are about the length and width of a parking stall. They have concealed or shaded exterior lights above roll-up

doors on the end(s) and side(s). They require communication and electrical (single-phase 120/240, such as is used for most homes) connections, but not domestic water or sanitary sewer. They house up to twenty Scouts.

Dispensers ideally are located as close to the "origin point" as possible. The "origin point" is a point on the sidewalk where the autonomous system starts. After its package(s) has/have been loaded and the lid secured, a Scout travels to the origin point by having a person control it with a handheld joystick and walk near the Scout to accompany it to the origin point.



Amazon representatives stated the company is planning to automate this process in the future.

Operationally, Amazon employees drive up to a dispenser location in a delivery van (e.g., a Mercedes-Benz Sprinter) and opens up the dispenser. One or more Scouts are moved out of the dispenser using a joystick, the employee loads the package(s), accompanies the Scout to the origin point, and once it syncs with the autonomous technology it rolls to its destination. City staff is unclear how operations work when customers in the same delivery area prefer different delivery times.

Delivery

Scouts travel from their dispenser to their programmed destination(s) then return to their dispenser.

Traveling on sidewalks and crosswalks, Scouts deliver packages within a maximum 1.25 miles from their dispensers, though the APDD can have a maximum round trip of five to seven miles. Representatives from Amazon said deliveries are only within a small radius from the dispensers, and that there would not be circumstances of a Scout "traveling across the city" to make a delivery.

A remote operator, or Ambassador (see Ambassadors section, below), is available when the APDD runs into an obstacle and when it is crossing the street or intersection. Remote operators are located in an undisclosed location.

In Washington, APDDs may not transport hazardous materials or alcohol.

Ambassadors

State law requires an APDD entity to have a "personal delivery device operator" who can control or monitor the navigation of an APDD per RCW 46.75.020(3). Amazon calls such an employee an "Ambassador." During test periods, Ambassadors are in the field and may accompany a Scout all the way to the destination (see Delivery Section above). However, as Scouts proliferate that will not be practical or economical. Staff has more to learn about the future roles of Ambassadors, but at this point staff understands they will be the employees who respond to issues or conflicts with Scout devices in the field that need human attention. It is possible some of that work may be conducted remotely, but again the City needs to learn more about this aspect of the program.

Limitations

According to Amazon representatives with whom staff met virtually in February, Scouts do not operate in snow or threat of snow, severe rainfall, or on steep hills. The representatives said they would not operate on most roads that do not have adjacent sidewalks (e.g., Goat Hill, where they are few to no sidewalks). However, State law allows APDDs to operate on certain areas without sidewalks, such as shoulders where pedestrians may travel.

Representatives also stated Scouts do not operate on narrow or crowded sidewalks, and they would not be testing in the Kirkland downtown core.

Noting that the APDDs need a person to unload them, and that some multifamily buildings are staffed and others are not, representatives stated the Scouts would not deliver to multifamily homes but only single-family homes.

Dispersion

Though staff asked what Amazon foresaw as the proliferation of dispensers, representatives stated they were uncertain but have not ruled out expansion of Scouts operating in other urban areas. Below are links to other companies that have developed APDD technology. Any new regulations should consider the potential market dispersion introduced by this new technology.

- [FedEx](#)
- [Starship Technologies](#)
- [Coco](#)
- [Nuro](#)
- [Udely](#)
- [Kiwibot](#)
- [Postmates Serve](#)
- [Robby Technologies](#)

Safety

This new technology raises several safety questions, especially since the primary travel routes for Scouts is on public sidewalks. Staff needs to study the safety implications to vehicular traffic, pedestrians (including those with mobility challenges or Americans with Disabilities Act needs), bicyclists, emergency response, and potential conflicts with other users.

Amazon is conducting accessibility testing with the World Institute on Disability (WID) to address issues with the disabled community and the Scout program.

See Public Outreach section below on additional community comments on public safety.

Other Locations

Amazon representatives have indicated that Scout has been tested locally in, Everett, Lynnwood, Mukilteo, and Snohomish County. Elsewhere, it has been implemented in Irvine, California; Nashville, Tennessee; some cities in Georgia, including Atlanta. Staff is aware it is being used for prepared food delivery on the Oregon State University campus in Corvallis. Below is a summary of what staff has collected from other cities that are regulating APDDs and their dispensers.

Everett: Allows for APDD operation and treats dispensers as “accessory outside storage.” Regulations are a stop gap measure, the City hopes to create a better ordinance in the future, specifically for neighborhood distribution.

Lynnwood: Has minimal regulations because of staffing constraints; service area only allowed in Industrial and Commercial zones, not Residential.

Mukilteo: Has permitted one dispenser; no regulations; did not know the dispensers would be deploying ADPPs.

Auburn: Recently adopted a detailed code that allows for the APDDs to operate on sidewalks or road shoulders with at least 5 feet in width. They must provide written notification annually to all property owners and residents in the area the personal delivery devices are intended to operate, and they must notify the City Engineer with detail on their operation schedule and map at least annually. The devices can't be within 50 feet of each other while in operation on the same sidewalk or same side of the road.

San Francisco: Adopted code that authorizes and regulates APDDs on sidewalks for the purpose of testing for research and development. The permits are temporary (valid for 180 days) and must go through a public noticing and commenting period as well as a public hearing. The permittee is required to disclose data regarding the device testing to the City on a monthly basis. The devices are only permitted for sidewalks that are in zones for Production, Design, and Repair uses, aren't in a high-injury corridor, and areas that can accommodate both ADPPS and persons with disabilities or have an effective sidewalk width of six feet.

Potential for Other Providers

Amazon is but one package delivery service. There are other package delivery companies that may desire to deploy this or other technology in the City, not to mention the possibility of the United States Postal Service exploring such options or alternatives. Additionally, grocery stores and certain restaurants also provide deliveries and may seek alternatives and new technologies.

PUBLIC OUTREACH:

City staff conducted two small community outreach meetings on APDDs. See Attachment 3 of staff's notes from these meetings. Some of the public input is summarized here.

- Would like to know the public benefit to City as a whole
- Concerned about impacts on those who are disabled. Ensure no American Disability Act violations
- How does this align with the City's Sustainability Master Plan?
- Concerned about traffic incidents at blind driveways
- Would Police Department resources be disproportionately used on policing APDDs?
- Privacy concerns over video recording and who has access to this information
- How are we defining if the program is “bad?” What rate of incidents would be good/bad?

NEXT STEPS:

City staff is working with Amazon to obtain more information on APDDs and their dispensers and will continue public outreach to gain more community input on this new technology. Staff is providing a briefing to the City Council on May 3, 2022.

More information on the project timeline can be viewed on the City's project [webpage](#).

ATTACHMENTS:

1. Chapter 46.75 RCW – Personal Delivery Devices
2. Resolution 5521 – Preliminary Scope of Work
3. Community Outreach Meeting Notes

cc: File Number CAM22-00195

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