



DATE: February 27, 2018
CATEGORY: New Business
DEPT.: Community Development
TITLE: **Personal Delivery Device Pilot Program**

RECOMMENDATION

Approve the creation of a pilot program to allow the use of Personal Delivery Devices (PDDs) for delivery of goods in Mountain View for a period of nine (9) months. The program will be implemented through permit issuance establishing terms and conditions for a company to participate in the program and allow the use of their devices on City sidewalks and streets for deliveries.

BACKGROUND

PDDs are autonomous robots powered by an electric motor and designed to deliver goods to customers. PDDs will have human handlers present initially and will incorporate remote operators that monitor all goods delivery activity thereafter. They use several cameras and lidar sensors to navigate sidewalks and cross streets on their delivery runs and are programmed to stop at driveways and crosswalks.

The PDDs deliver groceries, restaurant take-out items, and more. It can carry approximately three grocery bags worth of goods and can weigh up to one hundred (100) pounds when fully loaded. The PDD travels approximately four (4) miles per hour, which is similar to a typical pedestrian. At street crossings, it is assisted by a human controller to ensure it is safe for the PDD to cross the street and not impede traffic. The PDDs travel throughout a one- to two-mile radius from their docking point or station. Customers can establish their delivery times, track their items while in transit on a mobile application at all times, and securely retrieve their items with their unique code that opens the cargo box. The technology may maximize the efficiency of goods movement while working to minimize related environmental impacts such as reduction in vehicle trips associated with deliveries for local businesses.

Since 2014, PDDs have been used in various cities throughout the United Kingdom, Germany, and United States. In the Bay Area, the following cities have completed or are in pilot phases: Redwood City, Foster City, San Carlos, Palo Alto, Sunnyvale,

Concord, Walnut Creek, San Francisco, and San Jose (soon). Several Bay Area cities have used the City of Redwood City's PDD program model since they launched the initial pilot. Mountain View is a suitable pilot area because of the City's layout, pedestrian density, and number of potential business and community partners, and if the PDD pilot program is approved by Council, it will mirror portions of the City of Redwood City's model.

ANALYSIS

In November 2016, TeleRetail approached staff seeking permission to utilize City sidewalks for delivery of goods. At the time, staff lacked the resources to pursue a program. Since then, however, staff has been approached by other PDD industry sector leaders, including Starship Technologies, Robby Technologies and Marble Robotics. Staff has learned that the City of Mountain View does not have provisions that prohibit the use of PDDs on sidewalks. These businesses seek permission and regulation to deploy PDDs for goods movement City-wide through a pilot program. Staff believes this is the appropriate time to regulate the use of PDDs through the pilot program with various terms and conditions ensuring public health and safety as outlined below.

On December 7, 2017, staff from the City Attorney's Office, Code Enforcement, Public Works/Traffic Engineering, Risk Management, Police, and Economic Development met with Starship Technologies to learn more about the technology. The purpose of the meeting was to ensure that staff had the opportunity to gain a better understanding of the technology with human encounters and prioritizing public health and safety at all times. It was suggested that a Mobile Vending Permit be the most suitable permitting instrument for the pilot program, based on the City's existing permitting procedures for commercial activities occurring primarily on City sidewalks, and that staff present to the Bicycle/Pedestrian Advisory Committee (B/PAC) to obtain feedback on the proposed pilot program. Because PDDs are a new technology, a Mobile Vending Permit is thought to be the most suitable permitting instrument for this use, but will need to be modified accordingly with operational requirements added, to include safety and liability protections for citizens and the City. On January 31, 2018, staff presented the pilot program to the B/PAC, and they provided the following feedback:

- Conduct a survey or poll of downtown visitors and nearby residents to learn about their experiences with PDDs and satisfaction of food deliveries through PDDs;
- Two-Phase Pilot Program—Phase I: nine (9) months with a human handler present, and Phase II: nine (9) months without a human handler, for a total of eighteen (18) months;

- Establish metrics to evaluate the performance of the PDD pilot program;
- Obtain data to better understand sidewalk environment and impacts the PDDs may have during the pilot program; and
- Revisit the Sidewalk Ordinance prior to completion of Phase II of the pilot.

Furthermore, the Downtown Committee voted to add the Personal Delivery Device Pilot Program under its Fiscal Year 2017-18 Work Plan, which Council approved on September 12, 2017. The Downtown Committee is interested in promoting technology services in downtown to assist businesses with food and goods deliveries through PDDs to reduce parking demand and congestion downtown. On February 6, 2018, the Downtown Committee met and approved staff's recommendation for a nine (9) month pilot program that consists of the first four (4) months of operation with a human handler at all times and the remaining five (5) months without a human operator. It is important to note that while a human handler may not be present during the latter part of the pilot program, PDDs will be monitored by a remote operator at all times. The Downtown Committee was also interested in incorporating the delivery and pick-up of Library books, which may be a future use of the technology depending on Council interest and staff resources. Staff's pilot program recommendation incorporates most of B/PAC's feedback, which the Downtown Committee accepted and agreed that the operation of PDDs shall not commence on or over the surface of any right-of-way or City property without first complying with terms, conditions, and required permits to operate in Mountain View.

Businesses and/or PDDs shall:

- Be operated in a safe and nonhazardous manner to not endanger pedestrians, bicyclists, and other lawful users of public space or property;
- Pedestrians and users with disabilities shall have priority over public sidewalks and rights-of-way and PDDs will not interfere with pedestrian and bicycle traffic;
- Yield the right-of-way to all vehicles approaching roadway upon entering a crosswalk to the extent necessary to safely cross the roadway, except when crossing pursuant to a crosswalk pedestrian signal;
- Not operate above a maximum speed of five (5) miles per hour;
- Have a gross weight of less than one hundred (100) pounds, excluding cargo;

- Have a system that alerts the operator if a technology failure or loss of communication occurs, and when such alert is given that it requires the operator to assume direct control of the PDD. If the operator is unable to assume control of the device, it shall cause the PDD to safely come to an off-roadway stop and obey all pedestrian and traffic signals;
- In case of technology failure or other circumstances that cause the PDD to come to a stop in a location other than property owned/leased by the owner of the device, the PDD owner shall pick up the device as soon as possible, and not exceed twelve (12) hours;
- PDDs will be charged using a mobile hub (i.e. van), by leasing or owning a facility, or at a partner location. Operation centers shall be from a space not within the public right-of-way;
- Provide indemnity and insurance to hold all City employees and agents harmless (e.g., Commercial General Liability of \$2 million per occurrence and \$4 million in aggregate, Automobile Liability \$1 million per accident, and Workers' Compensation Statutory Limits and Employer's Liability of \$1 million per accident);
- Obtain and pay for business license and Mobile Vending Permit prior to engaging in any commercial activities in Mountain View;
- PDDs will be removed from the public right-of way in Mountain View within one (1) hour of completion of operations; and
- Performance metrics that include a poll/survey of the perceived satisfaction of PDD food deliveries and delivery data (i.e., number and miles of deliveries, PDD safety, social acceptance, and possibly Library books ordered and delivered per day, if the technology is ever used in this manner in the future).

PDDs use cameras and ultrasonic sensors to detect obstacles, and they are programmed to stop at a safe distance. The PDDs pre-map a geographic area before being deployed for goods deliveries utilizing these cameras and sensors to create an intelligent sidewalk environment. Cameras pick up moving and stationary objects with low-resolution to alter faces. Personal information is not kept and stored.

The City of Mountain View 2030 General Plan's "Economic Development and Fiscal Stability" section states that local economy policies support proactive communication and partnerships between the City and the business community to create a strong local

economy. Specifically, Goal LUD 14.4 allows for the creation of partnerships among the City, local businesses, and other organizations to develop emerging technology pilot programs and services. City staff has learned that Starship Technologies has executed agreements with Zume Pizza for food delivery throughout Mountain View and with Intuit for on-campus food deliveries. Staff supports policies for a strong local economy.

Staff recommends approving the creation of a pilot program to allow the use of PDDs for delivery of goods in Mountain View for a period of nine (9) months. After further review and to ensure enhanced public health and safety, staff is now recommending that the first six (6) months of operation include a human handler at all times and the remaining three (3) months proceed without a human operator for a total of nine (9) months. In addition, it is recommended that no more than three (3) PDD businesses participate in the pilot program and that no more than ten (10) units be deployed throughout the city at any one time on the public right-of-way. If approved by Council, the program will be implemented through permit issuance establishing terms, conditions, indemnity, and insurance for a company to participate in the program and allow the use of their devices on City sidewalks and streets for deliveries.

At the conclusion of the nine months, staff shall evaluate the pilot program and recommend to the City Council whether this program should be continued, expanded, or terminated.

FISCAL IMPACT

There is no fiscal impact to the City to participate in this pilot program except for minor fees collected through permits and business licenses as well as staff time to implement and evaluate it. The success of this pilot program could have a positive fiscal impact on the City by increasing potential sales tax dollars from businesses that have been able to expand their delivery service through use of the PPDs.

ALTERNATIVES

1. Modify the nine (9) month term of the pilot program.
2. Revise terms and conditions of the pilot program such as human handler being present, PDD deployment location(s), number of vendors, and/or number of PDDs deployed overall.
3. Do not authorize a PDD pilot program
4. Provide other direction.

PUBLIC NOTICING

Agenda posting. An overview of the pilot program was presented to the B/PAC and Downtown Committee, which includes Executive Directors of the Central Business Association and Chamber of Commerce and a representative of the Old Mountain View Neighborhood Association. A copy of the report was sent to the B/PAC, Downtown Committee, Central Business Association, and Chamber of Commerce.

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