



City of Palo Alto

City Council Staff Report

(ID # 8544)

Report Type: Consent Calendar

Meeting Date: 10/30/2017

Summary Title: Delivery Robot Permitting

Title: Adoption of a Resolution Authorizing the City Manager to Regulate Operation of Personal Delivery Devices, also known as Autonomous Robots within the City of Palo Alto for an Approximately 1-year Period

From: City Manager

Lead Department: Planning and Community Environment

Recommendation

Staff recommends that Council adopt a resolution (Attachment A) authorizing the City Manager to create a pilot program to allow the use of autonomous robots, also known as personal delivery devices (PDDs), in the City of Palo Alto by issuing Encroachment Permits to PDD operators. These Encroachment Permits will be issued by the Public Works Department through the Development Center, and will permit the operation of PDDs within the City right-of-way, subject to terms and conditions set by the City Manager or his designee. This pilot program would expire on December 31, 2018, or upon adoption of permanent regulations by the City Council.

Background

A handful of companies have launched autonomous delivery robots, also known as personal delivery devices (PDDs), in cities throughout the United Kingdom, Germany and United States. In the San Francisco Bay Area, pilot delivery robot programs are underway in Concord, Foster City, Redwood City, San Carlos, Sunnyvale and Walnut Creek. PDDs typically deliver groceries, restaurant take-out items, and other items. They can carry approximately three-grocery-bags-worth of goods and weigh about 50 pounds, when fully loaded. PDDs are autonomous, using on-board cameras to assist in travels along the sidewalks at no more than four miles per hour, which is estimated to be a fast walk. Many PDDs have a human attendant to ensure proper functionality and safety. Over time, they will likely transition to 100% autonomous delivery, with remote human monitoring. PDDs generally run on electric power and have zero emissions. A photo of a typical PDD is included as Attachment C.

At street crossings, PDDs can be assisted by human attendants, if needed. The attendant is able to ensure it is safe for the robot to cross the street and that it will not impede traffic. PDDs are generally capable of traveling within a five-mile radius of their docking points. The actual areas of operation will be approved through the encroachment permit process, but is anticipated to be primarily in business districts. Customers can establish their delivery times, track their items while in transit on a mobile application, and securely retrieve their items with their unique code that opens the robot. Payment for the PDD delivery service is conducted online, similar to Lyft or Uber, so no cash is involved in the delivery transaction.

Discussion

More than one PDD operator has expressed an interest in piloting their devices in the City of Palo Alto. These operators plan to work with existing food delivery service partners to bring goods directly to employees and residents. The operators will assume all liability for the use of the PDDs on City sidewalks and streets. The operators will be permitted through the City's existing Encroachment Permit process, which requires insurance coverage, and will be subject to operating regulations established by the City Manager pursuant to the attached resolution. A draft policy establishing regulations is included as Attachment B. The Encroachment Permits will be issued by the Public Works Department at the Development Center, with review by other departments as necessary. Staff recommends that all Encroachment Permit issued to PDD operators include the following conditions on the operators:

- Assume all liability associated with the use of PDDs
- Provide no less than two million dollars (\$2,000,000) combined single limit per occurrence or four million dollars (\$4,000,000) annual aggregate limit for bodily injury, personal injury, and property damage in insurance
- Monitor PDDs at all times they are operating within the City right-of-way, either through an accompanying robot attendant or remotely
- Report any significant collisions or other operational safety issues to the City within 24 hours
- PDDs cannot travel faster than 3.5 feet per second when on sidewalks, on ADA ramps, or within crosswalks
- PDDs cannot block accessible path of travel for disabled individuals using mobility devices
- PDDs must include the operator's name and phone number in a location visible to the public when in operation
- PDDs may be temporarily prohibited from sidewalks and crosswalks within specific construction and special event areas by the City Manager or his designee at any time (with notice)
- PDDs may be permanently prohibited from sidewalks and crosswalks within business districts by the City Manager or his designee at any time (with notice)

PDDs would be primarily limited to sidewalks, crosswalks and other areas typically used for pedestrian travel rather than streets or areas used for bicycle or motor vehicle travel. The City would retain the ability to cancel the Encroachment Permits with no notice.

Staff has outreached to Redwood City and Sunnyvale to determine how the PDDs have been received. Staff from both cities reported no major issues with the operation of PDDs. However, Redwood City has experienced minor issues with robot-pedestrian and robot-motorist interactions, where the robots failed to take the right-of-way when appropriate.

Policy Implications

The following Comprehensive Plan goals, programs and policies are relevant to the permitting of PDDs:

- **POLICY T-39:** To the extent allowed by law, continue to make safety the first priority of citywide transportation planning. Prioritize pedestrian, bicycle, and automobile safety over vehicle level-of-service at intersections.
- **POLICY B-4:** Nurture and support established businesses as well as new businesses.
- **POLICY B-7:** Encourage and support the operation of small, independent businesses.
- **POLICY B-9:** Encourage new businesses that meet the City's business and economic goals to locate in Palo Alto.
- **POLICY B-10:** Promote Palo Alto's image as a business-friendly community. Assume an active role in fostering new business, particularly small, start-up businesses in emerging industries.
- **POLICY B-16:** Encourage streamlining of City administrative and regulatory processes wherever possible. Reduce inefficiencies, overlap, and time delays associated with these processes.

Resource Impact

The issuance of Encroachment Permits for PDDs will be done through the Development Center, and require resources from the Development Services Department, Public Works Department, Planning and Community Environment Department, Police Department and other departments. Ongoing monitoring for compliance will also require the use of existing departmental resources. A portion of these costs can be recouped through the Encroachment Permit application fee.

Timeline

Staff recommends an initial pilot period of approximately one year, during which staff will evaluate the possibility of more permanent regulation in the Palo Alto Municipal Code.

Environmental Review

This program is exempt from the requirements of the California Environmental Quality Act (CEQA) pursuant to Section 15061(b)(3) of Title 14 of the California Code of Regulations since it can be seen with certainty that there is no possibility the adoption and implementation of this program may have a significant effect on the environment and Section 15301 in that this proposed resolution will have a minor impact on existing facilities.

Attachments:

Attachment A - Draft Resolution Authorizing Personal Delivery Devices Pilot Program (PDF)

Attachment B - Draft Personal Delivery Devices Policy (PDF)

Attachment C - Stock Photo of Personal Delivery Device (PDF)

Resolution No. _____

Resolution of the Council of the City of Palo Alto Authorizing the City Manager to Establish a Pilot Program for the Operation of Personal Delivery Devices, also known as Autonomous Robots in the Public Rights of Way

The Council of the City of Palo Alto RESOLVES as follows:

SECTION 1. Findings and Declarations.

- a. The City of Palo Alto desires to implement a pilot program to temporarily allow the use of Personal Delivery Devices (PDDs), also known as Autonomous Robots for the purpose of delivering goods from Palo Alto businesses to Palo Alto customers.
- b. The use of the PDDs, activated by customers' smartphones, will initiate the delivery of purchases when convenient for the customer and the robots will deliver the items directly to the customer's location.
- c. PDD technology may reduce the inefficiencies associated with failed deliveries, facilitate the return of unwanted goods, and reduce the number of vehicle trips and the resultant emissions associated with the delivery of goods from local establishments.
- d. Palo Alto Municipal Code Chapter 12.09 sets forth regulations applicable to the operation and maintenance of equipment in the public rights of way and Chapter 12.12 authorizes the City Manager to issue permits for structures encroaching on public rights of way, but the City does not currently have a regulation that specifically addresses the operation of PDDs on City sidewalks, crosswalks and other public rights-of-way.
- e. PDDs are an emerging technology with an unproven track record with respect to public safety and impacts on the flow and circulation of pedestrian, bicycle, and vehicle traffic. Additional regulation is necessary to ensure the safe and harmonious use of sidewalks and public rights of way in the City of Palo Alto consistent with the public health and welfare.

SECTION 2. Pilot Program Regulations.

- a. PDD means a motorized device used to transport items, products, or any other materials, and that is guided or controlled without a human operator sitting or standing upon and actively and physically controlling the movements of the device.
- b. The City Manager or his designee is hereby authorized to adopt, and from time to time amend, regulations governing the operation of PDDs within the City of Palo Alto. Such regulations shall address, at a minimum, the following topics:
 1. Maximum speed;
 2. Areas of operation;
 3. Paths of travel;
 4. Additional precautions to ensure safe and convenient pedestrian circulation.

SECTION 3. Environmental Review. The Council finds that the adoption of this resolution is exempt from review under the California Environmental Quality Act because it can be seen with certainty that there is no possibility of a significant effect on the environment as a result of the PDD pilot program.

INTRODUCED AND PASSED:

AYES:

NOES:

ABSENT:

ABSTENTIONS:

ATTEST:

City Clerk

Mayor

APPROVED AS TO FORM:

APPROVED:

Deputy City Attorney

City Manager

Director of Development Services

Director of Public Works

INTERIM AUTONOMOUS ROBOT REGULATIONS

I. Scope

Consistent with Palo Alto City Council Resolution No. _____, this policy applies to any proposed deployment of an autonomous robot in public spaces, sidewalks, and public rights of way within the City of Palo Alto's jurisdictional boundaries. For the purposes of this policy, autonomous robot means a motorized device used to transport items, products, or any other materials, and that is guided or controlled without a human operator sitting or standing upon and actively and physically controlling the movements of the device.

II. Procedures

- a. Any person seeking to operate an autonomous robot within the City of Palo Alto shall first obtain an encroachment permit conditioned on compliance with the Operating Regulations contained in this policy. No person shall operate an autonomous robot in public spaces or in public rights of way within the City except pursuant to such permit.
- b. The City Manager, in consultation with the City Engineer and Chief Transportation Official, shall establish Operating Regulations governing the operation of autonomous robots. All Permittees shall be required to comply with these regulations as they may be amended from time to time.

III. Operating Regulations

- a. **Maximum speed.** When operating on public sidewalks, ADA ramps or within crosswalks, robots shall not travel faster than 3.5 feet per second.
- b. **Paths of Travel.** Autonomous robots shall yield to pedestrians and other users of sidewalks and public rights of way. Robots shall not block accessible paths of travel for disabled individuals using mobility devices or otherwise interfere with accessibility features in the public rights of way. Robots shall not travel on roadways except in designated crosswalks.
- c. **Area of operation.** Permittees shall operate autonomous robots only within the operating areas described and shown in Exhibit A. These operating areas are subject to change by the City Manager or his designee upon 24 hours' notice. In addition, robots may be temporarily prohibited from sidewalks and crosswalks within business districts, specific construction areas, and special event areas at any time.
- d. **Visibility.** Permittees shall ensure adequate visibility of all autonomous robots during daytime and nighttime hours of use, including but not limited to, the use of flags and flashing lights in order to increase the visibility of the robot. During night time operations robots shall have reflectors at least in front and back, and lights that cover the direction of movement, including white lights in front and red lights in the back, that are visible up to 300 feet away under normal weather and operating conditions. Robots must include the operator's name and phone number in a location visible to the public when in operation.
- e. **Human Monitor or Attendant.** Permittees shall monitor autonomous robots at all times that they are operating in the public rights of way, either through an attendant who accompanies the robot or through real-time, remote monitoring. For first 30 days that

any model of robot is operated in the City of Palo Alto, Permittees shall provide a human attendant to travel with the robot.

- f. **Reporting.** Permittees shall report any significant collisions or other operational safety issues to the City within 24 hours of the incident.

IV. Effective Dates

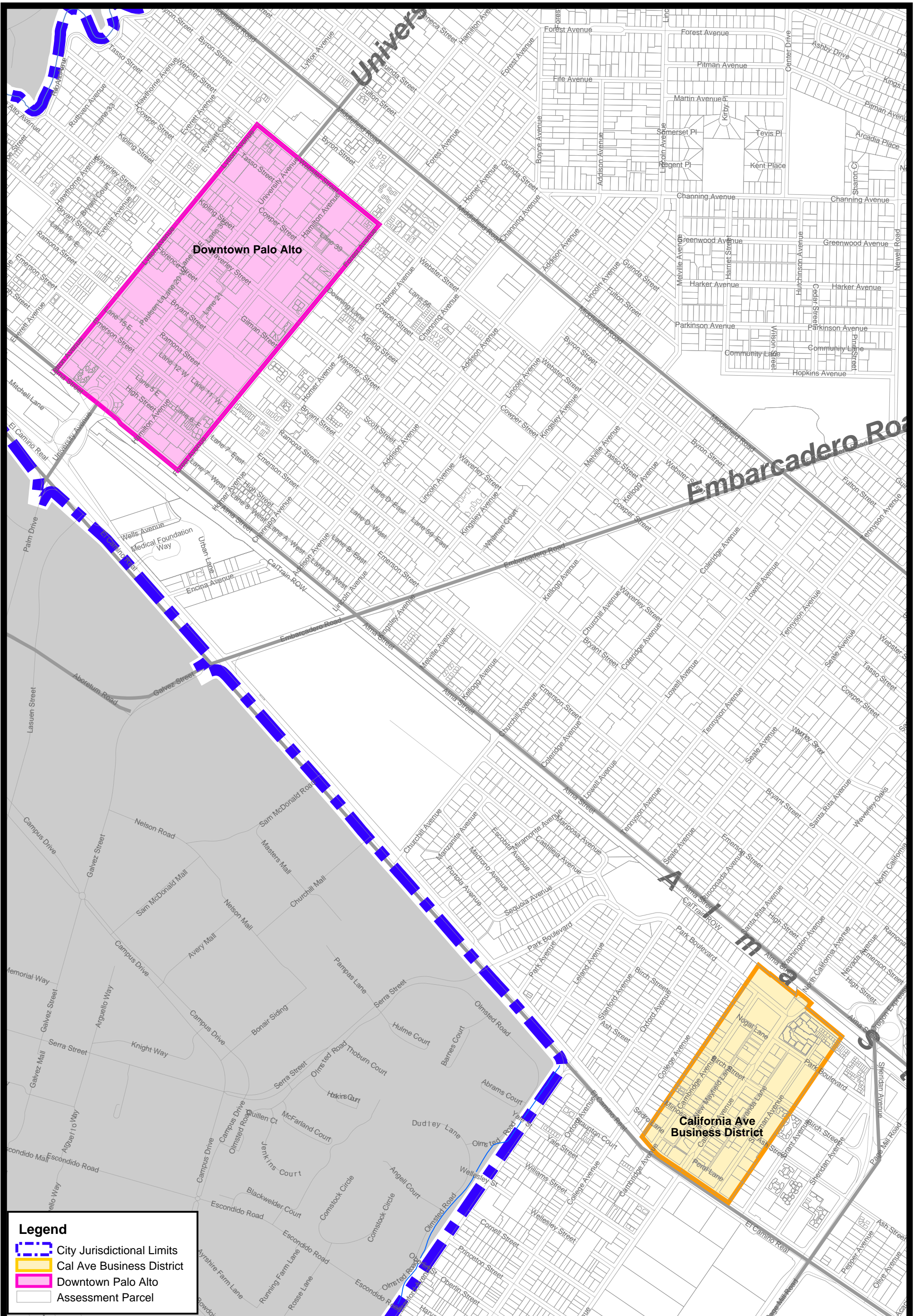
This Interim Autonomous Robot Policy shall be effective from the date of its approval by the City Manager and shall terminate upon the earlier of December 31, 2018 or the adoption of an ordinance regulating autonomous robots by the Palo Alto City Council.

Approved: _____
City Manager James Keene





Date

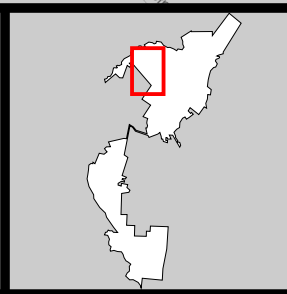
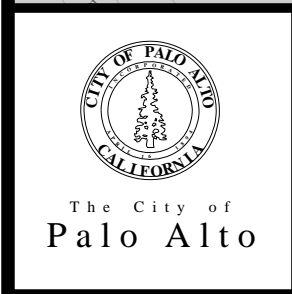
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EXHIBIT A



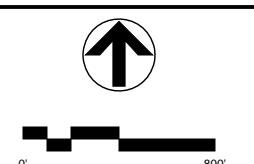
Legend

-  City Jurisdictional Limits
-  Cal Ave Business District
-  Downtown Palo Alto
-  Assessment Parcel



Palo Alto Business Districts

This map is a product of the City of Palo Alto GIS



A north arrow pointing upwards and a scale bar showing 0 to 800 feet.

