



## City of Columbia Heights

590 40<sup>th</sup> Avenue NE, Columbia Heights, MN 55421-3878 (763) 706-3600

Visit our website at: [www.columbiaheightsmn.gov](http://www.columbiaheightsmn.gov)

### **Mayor**

*Donna Schmitt*

### **Councilmembers**

*Robert A. Williams*

*John Murzyn, Jr.*

*Connie Buesgens*

*Nick Novitsky*

### **City Manager**

*Kelli Bourgeois*

## NOTICE OF WORK SESSION

Meeting of:	Columbia Heights City Council
Date of Meeting:	May 6, 2019
Time of Meeting:	7 pm
Location of Meeting:	City Hall-Conference Room 1
Purpose of Meeting:	Work Session

1. Discuss Drone Proposal (Chief Austin and Chief Gorman)
2. Discussion regarding Central Avenue Cleanup (Chief Austin)
3. Firefighters requesting a meeting with City Council (Kelli Bourgeois)



Proposal for  
Columbia Heights Police and Fire  
Drone Program  
April 29, 2019

Prepared by:  
Erik Johnston  
Captain  
Columbia Heights Police Department

This proposal outlines the functional requirements and costs estimates to establish a public safety drone program jointly between the Columbia Heights Police Department and the Columbia Heights Fire Department. The primary goal of the program would be to support public safety efforts in the city of Columbia Heights. There are many examples of successful programs in the metropolitan area, and the estimated cost to establish a program is \$35,000 to \$45,000.00

## **Primary and Secondary uses for Drones**

There are numerous uses for drones in a public safety operation and these include, but are not limited to the following:

### *Primary*

- Suspect searches
- Surveillance
- Search and Rescue
- Emergency Management
- Fire Scene overview
- Disaster Assessment
- Jamboree/Community Events
- Major event overview

### *Secondary*

- Accident/Crime Scene Mapping
- City videography
- Public Works Project Updates
- Fire Investigations
- Building/Cell tower inspection
- Inspection of sites/lots/parks
- Communication Coordinator Project

## **Background**

In looking at current and future public safety operations, the departments were able to identify several instances in which a drone has been or would have been a practical tool for enhancing operations. The current option available to the police department is a drone located with the Anoka County Sheriff's office in the north end of Anoka County. The response time can often be lengthy when the issue is time critical. The Columbia Heights Police Department was assisted by canine units from other agencies 37 times in 2018. In 2017, we requested the ACSO drone once followed by three (3) times in 2018, and two (2) times YTD in 2019. This number would have been higher if there was quicker and easier access to a drone unit. It should also be noted that in many of the canine deployments that occurred in 2018, a drone could have been utilized to supplement those deployments. At times a canine unit is unavailable and quick, accessible drone deployments could be utilized in those situations.

These numbers are comparable to the Lakeville Fire Department who has two (2) fire deployments in 2018 followed by three (3) police and one (1) fire deployment YTD in 2019.

In addition to these primary uses for Columbia Heights, the availability of a drone in southern Anoka County would benefit neighboring cities to include Fridley and Spring Lake Park. We currently rely on partner agencies for assistance with canine needs and this would be an opportunity to share a resource with our partner agencies.

For research, I contacted the Anoka County Sheriff's Office as well as the Lakeville Fire Department for information on the drone program. I obtained cost estimates through Maverick Drone, a MN Vendor. Below is information regarding costs and additional drone information:

## Options

The options for commercial drones are currently quite extensive, and reflect many opportunities to customize a package to suit the mission for which it is intended. The recommendation from both the Anoka County Sheriff's Office as well as Lakeville Fire Department, was to purchase a drone capable of holding two cameras, has swappable batteries for extended run time, can operate in cold weather, and has sufficient payload options available. A DJI Matrice 200 series drone pictured below is one that is recommended.



The enterprise level drone platform is purchased separately and components can be added or subtracted to meet the needed requirements. Other options would include:

A zoom camera for distance viewing (Zenmuse Z30). This camera offers a 30x optical zoom and allows for detailed sight pictures from safe distances. This can help with surveillance, suspect identification, and scene surveys for fires or other dangerous situations where putting a person closer would be hazardous.



This is a high definition camera for use in scene mapping and/or cinematography applications where a high quality image is needed. This camera offers more detail and a higher quality recording, as well as the ability to produce high quality images. (Zenmuse X7)

A thermal imaging camera to aid in night operation as well as search and rescue (Zemrose XT2)



Other accessories include cases, batteries, controllers, charging stations.

In addition, due to the high costs associated with the main drone, it is recommended that a less expensive drone be purchased for both training and indoor search use. There are no currently established industry best practices for training outside of the requirements to be certified as an operator. However, since this would be a critical skill, the department will create a requirement for ongoing training and use to ensure the operators are proficient with this equipment. In addition, a smaller and less expensive drone can be utilized in certain situations where it may be damaged by the environment. The DJI Mavic Air is a recommended drone for this purpose.



*Breakdown of costs:*

Drone chassis	\$10,000	
Cases for drone and batteries	\$1,000	
Spare Batteries (QTY 8)	\$3,000	[batteries are used in pairs for 25-35 minutes of run time]
Charging station	\$1,500	[90 minute charge time in normal mode]
Zoom Camera	\$3,000 to \$4,000	
Thermal Camera	\$15,000	
HD camera and lens	\$4,500	
Training/indoor drone	\$1,000	
Displays, lights, launch pads & accessories	\$2,000	
<i>Total Equipment Cost Estimate</i>	<i>\$42,000</i>	
Training Costs	\$650 per operator initially	(\$150 license fee every two years)

## **Licensing**

The suggested method for certification of operators would be a part 107 license with a night certification. The cost of the licensing is about \$150 and one-day training is about \$500. A plan would be developed to train a sufficient number of police and fire personnel to have an operator available the majority of the time.

## **Operation**

For the operation of the drone, a model policy will be adopted which will include the situations and events the drone can be utilized for. It will include information on conditions as well as the required training and number of operators to deploy in a safe and effective manner. The policy will outline a cooperative training system between the police and fire departments to ensure a strong working partnership and a sufficient number of trained and available operators.