



## CITY OF BEVERLY HILLS STAFF REPORT

**Meeting Date:** December 18, 2012  
**To:** Honorable Members of the City Council  
**From:** Alan Schneider, Director of Project Administration   
**Subject:** Crescent Drive Retractable Street Bollards  
**Attachments:** 1. Pre-Design Report – Executive Summary  
2. Proposed Design Photos

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### **INTRODUCTION**

This staff report presents the detailed findings of a proposed retractable street bollard system to facilitate street closure events on Crescent Drive and seeks direction to proceed.

### **DISCUSSION**

At the July 3, 2012 Parking Authority meeting the contract with Matt Construction for Part 4 of the Crescent Garage project was approved. The contract work under this final portion of the project reconstructs the streets and sidewalks around the Annenberg Center, which are the City's responsibilities under the lease agreement.

Included in the guaranteed maximum price (GMP) contract is an allowance to construct retractable street bollards in Crescent Drive at North and South Santa Monica Boulevards to facilitate street closure for events. A civil engineering firm, Psomas was engaged to investigate and research available bollard systems for this application, and prepare a Pre-Design Report (PDR). The executive summary of the PDR is attached for reference.

The consultant's recommendation as detailed in the report is for a manually operated, counterweighted bollard system. The basis for evaluation of the bollard system was considered as a temporary barricade to allow closure of Crescent Drive to vehicular traffic for various potential uses. The system is not intended to act as a high-security access prevention installation to stop a potential intentional/malicious "crasher". After consideration of project factors including operating speed, observed roadway usage, and similar local installations a minimum of a Department of State (DOS) K8 rated bollard

system (15,000 lb. vehicle travelling at 40 mph) is recommended. For illustration purposes, a Ford F450 truck is an example of a vehicle that weighs 14,000 lbs. (photo attached)

Review of the recommendation by staff, including the Police and Fire Departments are supportive. Staff also met with the City Council's Traffic and Parking Commission liaisons, Vice Mayor Mirisch and Councilmember Gold, in May 2012 to discuss the preliminary cost estimate and how to proceed. The consensus was to proceed but to return to the full Council before authorizing the contractor to include this work. The liaison committee also asked what it would cost to increase the safety rating of the bollards to withstand a higher speed crash, and suggested adding the City shield to the face of the bollards. Increasing the bollard rating from a K8 to a K12 is further recommended by staff, which would stop a 15,000 lb. vehicle traveling at 50 mph. The added safety rating adds approximately 8% to the bollard cost.

In conjunction with the bollard system traffic control signage and delineators at the intersections of Crescent Drive and Santa Monica North/South are included in the scope of work.

#### *Bollard Design*

The detailed design of the bollard system calls for manually operated, counterweighted bollards permanently installed system within the roadway. The foundations, ground/counterweight tubes, counterweight system and bollards are all installed below grade. To deploy manual bollards they are lifted from a locked-closed (locking pin assembly) to a locked-deployed (locking pin assembly) condition with an effective lifting weight of 35 to 40 lbs. The bollards are 15" diameter, 35" high and spaced 48" on centers.

The proposed bollard system is manufactured by Delta Scientific Corporation in Palmdale. The bollard structure is a structural steel tube with a cover of stainless steel for strength, durability and aesthetics. The stainless steel finish is brushed, as illustrated in the attached photo and requires no frequent maintenance. Attachment of the City shield to each bollard is suggested as shown in the attached drawing.

#### *Budget*

The GMP contract allowance for the bollard system is \$1,000,000. Based on the detailed plans prepared by Psomas, Matt has secured subcontract costs not to exceed \$640,000 and a contingency of \$60,000. The difference between the actual cost of the work and the contract allowance are savings to be returned to the City.

#### *Schedule*

Subject to the City Council's approval the installation of the bollard system will be coordinated with the street improvements under Matt's contract. The work would be anticipated to occur in May 2013.

#### **FISCAL IMPACT**

The total cost of the bollard system including all related traffic modifications are covered in the current GMP contract with Matt Construction.

**RECOMMENDATION**

At the City Council's direction staff is prepared to authorize Matt Construction to proceed with procurement and installation of the K12 retractable street bollard system as proposed at Crescent Drive and Santa Monica Boulevard North and South.



David D. Gustavson

Approved By

# **Attachment 1**

## 1.0 EXECUTIVE SUMMARY

This Pre-Design Report (PDR) was prepared by request of the City of Beverly Hills Public Works and Transportation Department via Agreement No. 446-11. The purpose of the report is to evaluate the technical feasibility of installing bollards within Crescent Drive for the purpose of temporary or event-related street closure between the Wallis Annenberg Center for the Performing Arts and City Hall.

Based on the criteria developed as a part of the report, two (2) candidate types\* of bollard systems were evaluated for potential installation:

- Manually Operated, Counterweighted - a permanently installed system within the roadway including foundations, ground/counterweight tubes, counterweight system and bollards installed below grade. Bollards are raised and lowered manually via lifting handles.
- Hydraulically Operated - also a permanently installed system within the roadway including foundations, ground tubes, hydraulic cylinder basket assembly and bollards installed below grade. Bollards are raised and lowered by a set of hydraulic power units (HPU) that each operates one or more bollards.

*\* A third system type (Removable Fixed Post – RFP) is discussed in the body of the report but was not selected as a candidate type based upon operational considerations and relative cost vs. the considered options*

The basis for evaluation of the bollard system was considered as a temporary barricade to allow closure of Crescent Drive to vehicular traffic for various potential uses. The system is not intended to act as a high-security access prevention installation to stop a potential intentional/malicious “crasher”. After consideration of project factors including operating speed, observed roadway usage, and similar local installations a minimum of a Department of State (DOS) K8 rated bollard system (15,000lb vehicle travelling at 40 mph) is recommended.

Similarly, after review of the City’s operational requirements, similar existing installations, and construction cost we recommend a manually operated, counterweighted bollard system.

Construction cost for the recommended alternative is estimated at approximately \$775,000.

## 2.0 INTRODUCTION

The City of Beverly Hills requested a Pre-Design Report (PDR) from Psomas to evaluate potential installation of retractable or removable bollards in the public right of way (ROW). The City wishes to understand the considerations related to installation of bollards on Crescent Drive between the Wallis Annenberg Center for the Performing Arts and City Hall at both Santa Monica Boulevard North and South to allow for temporary closures of Crescent Drive on this block.

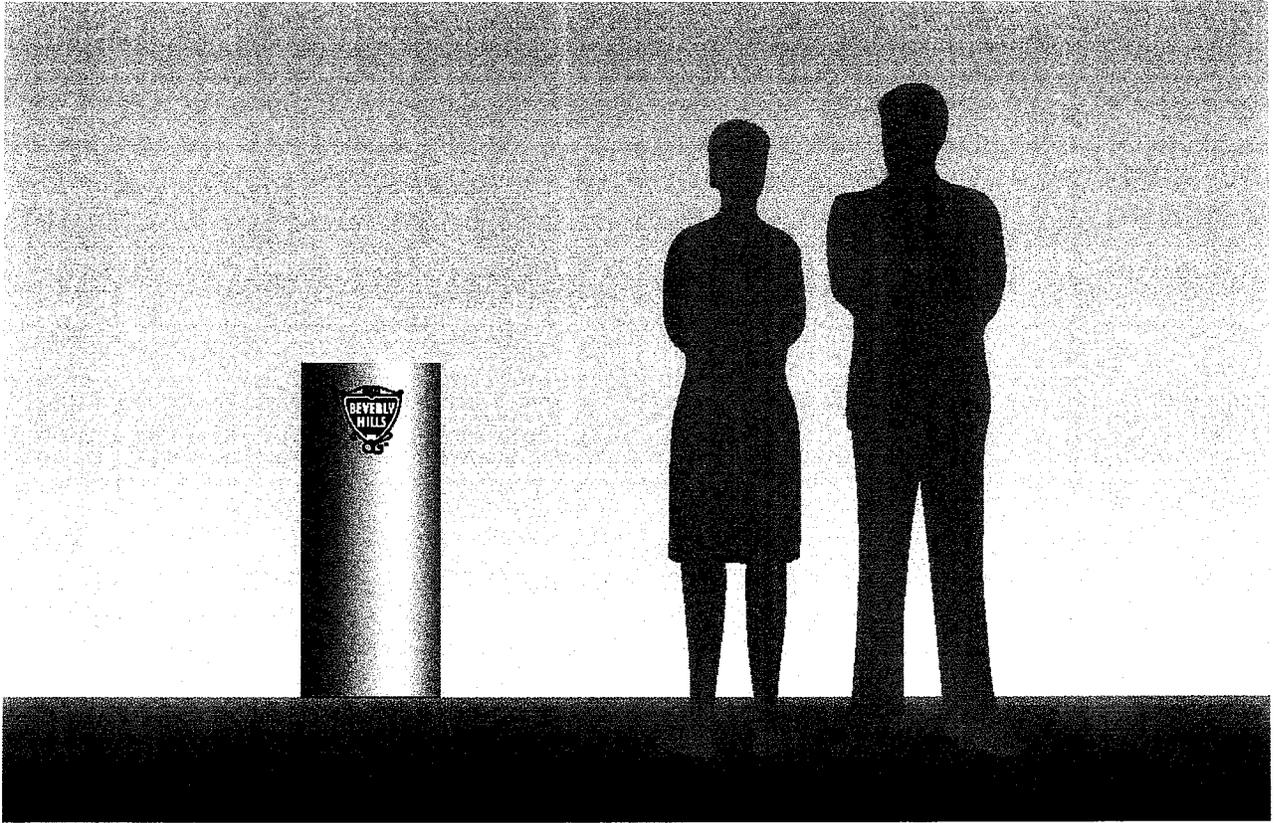
February 2012

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# **Attachment 2**



Ford F450 – Sample 14,000 lbs. vehicle



Graphic Image of Proposed Stainless Steel Bollard with City Shield