

City of Culver City, California
City Council Agenda Item Report

Meeting Date: 11/14/05		Item Number: <u>C-4</u>	
AGENDA ITEM: Authorization to Execute a Memorandum Of Understanding (MOU) with the County of Los Angeles to Obtain Citywide Aerial Photography.			
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Fiscal Impact: Yes ☒ No ☐		General Fund: Yes ☒ No ☐	
Public Hearing: ☐		Action Item: ☒ Attachments: ☒	
Public Notification: Master E-Mail Notification List on 11/10/05; And Mate Gaspar, Engineering Services Manager on 11/3/05.			
Department Approval: John Richo 11/03/04		CAO Approval: Jerry Fulwood 11/9/05	
City Controller Approval: Marlee Chang 11/9/05			

RECOMMENDATION:

Staff recommends that the City Council execute a Memorandum of Understanding (MOU) with the County of Los Angeles (Attachment A) to authorize an expenditure not to exceed \$23,479 to support the update and expansion of Culver City aerial photography and supplementary deliverables (LiDAR Digital Terrain Model data, 2 foot elevation contours, oblique aerial imagery and infrared imagery).

BACKGROUND

The Culver City Geographic Information Systems program manages and publishes multiple data layers of City information for staff and the public. The most critical layer is aerial orthophotography. This imagery provides an important base upon which we build other GIS layers; and can be utilized as an analysis tool and resource by most departments in the City, as well as citizens. Aerial photos are frequently used for location information, Community Development, Code Enforcement, Public Works and occasionally, emergency response.

Culver City has historically updated these aeriels every four to five years. Although we received updated imagery last year, we have the opportunity to take part in an aerial imagery acquisition consortium with Los Angeles County and twenty eight other public agencies within the LA County region. As a cost-saving measure (for the City and in terms of public funds), the Information Technology Department supports collaboration with other public agencies for large scale projects such as aerial photography acquisitions. This is the first time such an extensive group of local agencies have banded together to form such a consortium.

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DISCUSSION:

Agencies involved in the consortium such as Santa Monica, Beverly Hills, City of Los Angeles, Torrance, LAUSD and CalTrans (For complete list, see Attachment B) are collaborating with highly recommended aerial imagery companies (VARGIS LLC – Attachment C, and Pictometry – Attachment D) to have their regions flown. Furthermore, Culver City will receive imagery updates every 2 years at a progressively decreased cost. This arrangement is possible due to the fact that the City would be joining the consortium. County representatives have stated that monetary penalties will apply to agencies who wish to join the consortium at a later date.

The following table illustrates the additional value and benefits of the Los Angeles County Aerial Consortium compared to the City's previous aerial acquisition project:

	LA County Aerial Imagery Consortium	Previous Aerial Imagery Acquisition
Project Extent	5 miles beyond the City boundary	2,000 feet beyond the City boundary
Imagery Resolution for Culver City	4 Inch Pixels *	3 Inch Pixels
Imagery Resolution <i>Beyond the City Boundary</i>	4 Inch Pixels	2 Foot Pixels
Photography Format	Digital Imagery	Scanned Film
Additional Deliverables	▪ Oblique Aerial Imagery ▪ LiDAR (Digital Terrain Model) ▪ Infrared Imagery ▪ 2 foot elevation contours	None

* Although the resolution for Culver City will decrease from 4 inch pixels to 3 inch pixels, quality and clarity will actually be enhanced due to the use of digital photography rather than scanned film.

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Details about the LA County Consortium deliverables are described as follows:

Coverage: In order to provide City staff with expanded planning and analysis tools, the deliverables will include aerial imagery 5 miles beyond the City boundary.

This will be beneficial for use in viewing all routes of *Culver CityBus*, and landmarks such as the new Playa Vista development. The coverage (Attachment E) will extend West of Marina Del Rey, South of LAX, North of Westwood and East to downtown Los Angeles. Currently, the City has aerial imagery for the West Los Angeles region, but the resolution (the ability/capability to resolve objects as being separate, unique features) is lower and the coverage is not as extensive. Therefore, the resolution will be upgraded from the existing 2 foot pixels to 4 inch pixels, providing 6 times the increase in clarity.

Digital Imagery: The aerial acquisition project uses new digital technology (rather than film) to capture the aerial imagery. The use of digital technology significantly reduces the time, effort and cost needed for data acquisition while dramatically improving the quality and accuracy of the imagery.

Oblique Aerial Imagery: Oblique aerial imagery is an aerial photograph that is taken at an angle rather than the traditional straight down view (Attachment F). It is far more intuitive and useful in many situations where more information is needed. Oblique imagery will allow City staff to calculate length, distance, height, acreage, and other measurements more accurately for City properties and buildings. Furthermore, the imagery provides a vital benefit for first responders as they can more easily and quickly understand the area and surroundings in an emergency.

LiDAR (Digital Terrain Model): Light Detection and Ranging (LIDAR) technology is universally used as a tool to measure elevation change. The LiDAR collection system uses a powerful laser sensor mounted on the underside of an aircraft to emit infrared laser light that measures the distance to the ground. LIDAR technology can be utilized as a source for highly accurate digital elevation/terrain models (DEM/DTM), to create precise elevation contours and to enhance orthoimagery. Furthermore, the data can be used for enhanced 3-D visualization, disaster management purposes, and mapping applications (i.e. flood mapping, drainage of streams, and water tables contamination). See Attachment G for LiDAR DTM sample.

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Infrared Imagery: Infrared film is sensitive to green, red, and near-infrared portions of the spectrum. As such, the colors on the imagery appear un-natural, but they show information about vegetation health, water and water content, and other information not visible to the eye. Infrared imagery can be used to assess soil moisture and seepage patterns, differentiating deciduous and coniferous tree species, and identify areas of "stressed" vegetation. See Attachment H for an infrared imagery sample.

2 Foot Elevation Contours: Accurate 2 foot elevation contours from LiDAR DEM points will be included as a deliverable.

The aerial flyover required to obtain the imagery listed above is planned for the end of this year (A December/January timeframe). The City is scheduled to receive the deliverables in June/July of 2006.

FISCAL ANALYSIS:

Although the City spent \$21,823 on an aerial photography project in 2004, the number and quality of deliverables was substantially limited. Furthermore, Culver City will be getting on "cycle" with the County Consortium project from this point forward. Finally, the City is avoiding the monetary penalties should we decide to join the consortium at a later date.

The authorization to execute an MOU with The County of Los Angeles would result in an expenditure not to exceed \$23,479. Sufficient funds have been allocated in the Aerial Photography CIP budget (42000456) for this purpose.

ATTACHMENTS:

- A. MOU
- B. Participating Agencies
- C. VARGIS LLC
- D. Pictometry
- E. Aerial Coverage Map
- F. Oblique Aerial Imagery Sample
- G. LiDAR DTM Sample
- H. Infrared Imagery Sample

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MOTION:

That the City Council:

- 1) Authorize the execution of the MOU with The County of Los Angeles to obtain aerial photography and additional deliverables for an expenditure not to exceed \$23,479;
- 2) Direct the City Attorney to prepare the necessary documents obtaining Citywide Aerial Photography and the Chief Administrative Officer to execute the agreements; and
- 3) Authorize the Chief Administrative Officer to increase the agreement with The County of Los Angeles by an amount not to exceed 10% of the agreement, if deemed advisable by the CAO.