



Office of the City Manager

SUPPLEMENTAL AGENDA MATERIAL for Supplemental Packet 2

Meeting Date: June 30, 2020

Item Number: 39

Item Description: CycloMedia Technology, Inc. for Geographic Information System Infrastructure Asset Data Acquisition

Submitted by: Savita Chaudhary, Director, Information Technology

Attached please find the following:

- Staff Report -- CycloMedia Technology, Inc. for Geographic Information System infrastructure asset data acquisition (part of the original submittal)
- Street Level Imagery Acquisition Report
- Street Level Imagery Use Policy
- Police Review Commission recommendation
- Copy of Presentation to Police Review Commission

On May 12, 2020, the City Council considered awarding a contract to CycloMedia Technology, Inc. for Geographic Information System infrastructure asset data acquisition. During that meeting, the City Council requested the City Manager to evaluate the award of the contract in accordance with Chapter 2.99 of the Berkeley Municipal Code, known as the Surveillance Technology Use and Community Safety Ordinance ("Ordinance"). The item to consider CycloMedia Technology, Inc. for Geographic Information System infrastructure asset data acquisition was continued to May 26, 2020, again continued to June 14, 2020 and then, upon staff request, was further continued to June 30, 2020.

Pursuant to the Ordinance, a Street Level Imagery Acquisition Report and GIS (Street Level Imagery) Use Policy were presented and discussed at a Police Review Commission (PRC) meeting on June 24, 2020.

The following are highlights of the Street Level Imagery Acquisition and Use Policy:

- Images are captured over a defined time period for purposes of creating an inventory of the City's infrastructure assets in the public right of way;
- The driver of the car performing the image capture does not have access to the data at any time;
- The hard disk in the car cannot be accessed by anyone as it requires proprietary software from CycloMedia;
- Data is encrypted and uploaded to secure servers and Information security is based on the ISO 27002 security controls;
- Unlike Google Maps, the data is not available to nor accessible by the public and only limited CycloMedia staff have access to provide ongoing maintenance and support services;
- Data access is limited to only authorized City staff with strict log in controls, with access permanently removed when an employee separates from the City; and
- CycloMedia processes the street level imagery through an object detection privacy filter to blur faces and license plates and any unblurred images of individuals and license plates are permanently deleted after processing and data is published.

On June 24, 2020, after review and discussion of the Street Level Imagery Acquisition Report and Use Policy, the Police Review Commission unanimously recommended proceeding with the CycloMedia Technology. The PRC's recommendation is attached for consideration by the City Council.



Office of the City Manager

CONSENT CALENDAR
May 12, 2020

To: Honorable Mayor and Members of the City Council
From: Dee Williams-Ridley, City Manager
Submitted by: Savita Chaudhary, Director, Information Technology
Subject: Contract: CycloMedia Technology, Inc. for Geographic Information System infrastructure asset data acquisition

RECOMMENDATION

Adopt a Resolution authorizing the City Manager to execute a contract with CycloMedia Technology Incorporated for Geographic Information System infrastructure asset data acquisition, for an amount not to exceed \$187,401 for the period commencing on May 15, 2020 to June 30, 2022.

FISCAL IMPACTS OF RECOMMENDATION

One time funding for this project in the amount of \$187,401 is available in the Department of Information Technology's Fiscal Year (FY) 2020 IT Cost Allocation and Public Works' Measure BB Local Streets and Roads fund.

\$136,401.00	680-35-362-377-6002-000-472-612990
\$ 51,000.00	134-54-624-695-0000-000-431-612990
\$187,401.00	Total FY 2020 Professional Services

CURRENT SITUATION AND ITS EFFECTS

The City desires to engage CycloMedia Technology, Inc. to acquire current 360-degree street level imagery to provide a single, highly accurate, authoritative source of location based data that can be utilized by all City departments for captured street level imagery. This initiative will extract the following infrastructure assets to create accurate and current Geographic Information Systems (GIS) data inventories:

- Bus pads / stops
- Pavement marking
- Maintenance Access Holes
- Storm drains
- Pavement Striping
- Signs
- Curb paint color
- Street trees
- Parking meters
- Traffic lights
- Pedestrian Signal

Several city projects and strategic initiatives will benefit from capturing high quality and accurate street level imagery including:

- Emergency operations situational awareness
- Improved planning and development using imagery
- Remote asset condition assessment (building faces and road surfaces)
- Improved remediation planning (accurate measurements of repair and replace operations)
- Improved community engagement for planning, proposals and visualization
- Improved communication across internal stakeholders with common access to imagery and associated data

The dataset results in a high definition, three-dimensional map, and related data showing precise measurements for distances, clearances, elevations, and other aspects of critical infrastructure. Staff expects to use the images to perform bike lane assessments, identifying damaged infrastructure, inventory city trees, adjust parking lines and signage, as well as inventory city traffic signals.

On October 10, 2019, the City Manager executed a contract with NEXGEN Asset Management for software hosting, implementation, maintenance and related services for a Computerized Maintenance Management System and Enterprise Asset Management (CMMS/EAM) system. Geographic Information System (GIS) provides the digital asset inventory necessary for an effective CMMS/EAM.

The imagery and extracted data will provide many tools, enable our city staff to better serve the public and the efficiency gains expected are as follows:

- Save time, effort, and money by doing virtual inspections and automated asset management
- Optimize asset inventory & condition assessment (Public Works)
- Optimize and update building and zoning review processes (Planning)
- Respond to emergencies with knowledge and confidence through better situational awareness (Public Safety)
- Monitor, analyze and document existing street conditions (Transportation)

The contract with CycloMedia supports the City Strategic Plan goal of providing state-of-the-art, well-maintained infrastructure, amenities, and facilities.

BACKGROUND

On November 02, 2016, the City Manager signed the original contract with Geographic Technologies Group (GTG) to develop a GIS Master Plan. On September 08, 2017, the City Manager amended the original contract to include additional tasks including to conduct a comprehensive GIS data assessment.

On August 15, 2019, the City issued a Request for Proposals (RFP) for 360-degree street level imagery under Specification No.19-11279-C. CycloMedia Technology, Inc. met the City's operational, technology, and fiscal requirements.

Geographic Information Systems (GIS) supports the activities of the City and its community. The City of Berkeley Enterprise GIS empowers staff and the community to make decisions that impact the future of the City of Berkeley in a conversant and logical approach.

The City maintains a vast portfolio of public infrastructure assets in the public right-of-way: 134 traffic lights, over 8,000 street lights with 3,200 city-owned street light poles, 653 miles of streets, 388 miles of sanitary sewers, 78 miles of storm sewers, 2500 street signs, 35,000 trees, 300 miles of walkways, 325 retaining walls, and over 2000 parking meters. The 2017 GIS Master Plan and 2018 GIS Data Assessment report both found that many of these assets are not represented or are not current in the City's GIS.

The mapping functionality also addresses a series of requirements from the City's insurer, California Joint Powers Insurance Authority. The City needs comprehensive plans and periodic inspections for its signage, trees, and traffic signals.

The 360-degree imagery data and the data extracted will feed the asset inventories for the NEXGEN work order and asset management system. These asset inventories will then be maintained in the NEXGEN System and integrated with GIS data layers.

The asset information collected will create an inventory for reporting, maintenance and future planning requirements. The data can also be used for activities such as making accurate and precise measurements for distances, clearances, elevations, surface areas and other aspects of critical infrastructure.

ENVIRONMENTAL SUSTAINABILITY

An improved GIS will enable staff to view detailed images from throughout the city on their computers rather than going out into the field thus saving significant time and reducing the number of trips field employees have to visit a site to address an issue which reduces greenhouse gas emissions associated with travel time. The data is hosted remotely so there is no hardware overhead. This supports the reduction of carbon footprint and the goals of the City's Climate Action Plan.

RATIONALE FOR RECOMMENDATION

CycloMedia Technology, Inc. has over 30 years of professional experience and innovation in street level imagery collection and analysis, including Light Detection and Ranging (LiDAR) and asset extraction, and with hundreds of satisfied customers in the US and worldwide. CycloMedia Technology, Inc. has served clients similar in population to the City of Berkeley, including the City of Redlands, the City of Torrance, and has provided statewide services to Pacific Gas & Electric (PG&E).

Additionally, improving the quality and accuracy of the City's GIS information will support the implementation of the new CMMS/EAM system. The data collected will be used to create new asset layers in GIS which the NEXGEN CMMS/EAM system will utilize and allow work orders to be tracked against these assets and allow for new preventative maintenance schedules.

ALTERNATIVE ACTIONS CONSIDERED

Staff considered hiring contractors to use GPS in the field to create and update the infrastructure asset GIS data. This method is costly and time consuming. Cyclomedia's unique and patented processing techniques allow positionally-accurate GIS data to be collected in a cost-effective way and over a shorter period of time than a "boots on the ground" GPS field survey.

CONTACT PERSON

Savita Chaudhary, Director, Information Technology, 510-981-6541

Attachments:

1: Resolution

RESOLUTION NO. ##,###-N.S.

CONTRACT: GEOGRAPHIC INFORMATION SYSTEM (GIS) INFRASTRUCTURE
ASSET DATA ACQUISITION

WHEREAS, the City of Berkeley identified the need create accurate and current Geographic Information Systems (GIS) infrastructure asset data inventories; and

WHEREAS, the City of Berkeley desires to acquire current 360-degree street level imagery and extract infrastructure assets to create GIS data inventories; and

WHEREAS, on August 15, 2019, the City issued a Request for Proposals (RFP) for 360-degree street level imagery under Specification No.19-11279-C and the RFP review committee evaluated the proposal and determined that the Cyclomedia Technology, Inc. proposal met the City's operational, technological, and fiscal requirements; and

WHEREAS, funding for this project in the amount of \$187,401 is available in the Department of Information Technology's Fiscal Year (FY) 2020 IT Cost Allocation and Public Works' Measure BB Local Streets and Roads fund.

NOW THEREFORE, BE IT RESOLVED by the Council of the City of Berkeley that the City Manager is hereby authorized to execute a contract with CycloMedia Technology, Inc. for Geographic Information System (GIS) infrastructure asset data acquisition, for amount not to exceed \$187,401 for the projected period commencing on May 15, 2020 to June 30, 2022.

SURVEILLANCE ACQUISITION REPORT -- STREET LEVEL IMAGERY PROJECT JUNE 2020

A. INTRODUCTION AND BACKGROUND

The City requires an accurate and complete inventory of its infrastructure assets in the Public Right of Way (i.e., pavement markings, trees, signs, parking meters, etc.) to provide for efficient urban planning and cost effective maintenance of those assets. This need was identified in the City's Geographic Information System (GIS) Master Plan.¹

The City spends significant staff time and monetary resources to identify and determine the condition and the need for maintenance of its infrastructure assets in the Public Right of Way. Currently, information about infrastructure assets in the Public Right of Way is obtained by City staff driving around the City collecting data and then manually inputting that information into spreadsheets. Information that is collected by City employees is limited to street address or intersection. Additionally, the City is in the process of implementing a new work order and asset management system, NEXGEN, where work orders are linked to and displayed on a GIS map which requires precise location and attribute data of each asset. Without accurate asset location and condition information, the work order system will not have high quality data that will lead to inefficiencies and increased staff time and costs.

After thorough evaluation, city staff determined that CycloMedia has the technology needed to collect street level imagery in a manner that enables the City to have an accurate and thorough inventory of its infrastructure assets in the Public Right of Way.

Pursuant to Berkeley Municipal Code chapter 2.99, below is the Surveillance Acquisition Report for contracting with CycloMedia.

B. DESCRIPTION

The Street Level Imagery Project has three (3) components:

1. Capture of 360-degree street level imagery;
2. Extraction of city infrastructure assets; and
3. Street Smart™ Web Application.

Capture of 360-degree street level imagery. The first component is the collection of street level imagery of City infrastructure assets in the Public Right of Way. This information is collected by an employee of CycloMedia who drives down each public street with a five-camera and sensor system. The technology used by CycloMedia provides a seamless, high-definition 360° by 180° street level view of the City's infrastructure assets. The information that is collected includes

¹ <https://www.cityofberkeley.info/it/gismasterplan.aspx>

location, height, recording date and time when the image was captured, and other items such as curb color for the curb data layer.

Extraction of City Infrastructure Assets. After the street level imagery of the City’s infrastructure assets is collected, CycloMedia applies software to identify the location and condition of the City’s infrastructure assets and processes the street level imagery through a privacy filter to blur faces and license plates. Street level imagery is then provided to the City in a format that allows it to be integrated into existing software platforms such as the City’s work order and asset management system.

Street Smart™ Web Application. The third component is called Street Smart, where the collected street level imagery is accessible only to the City through a web application that is hosted in the cloud. Street Smart allows authorized City employees to not only view the street level imagery but to perform ad-hoc measurements and overlay data layers.

C. PURPOSE

The primary objective of collecting street level imagery is to obtain information and create an inventory of the City’s infrastructure assets located in the Public Right-of-Way. More specifically, information about the following infrastructure assets will be obtained:

- Bus pads / stops
- Pavement marking
- Maintenance Access Holes
- Storm drains
- Pavement Striping
- Signs
- Curb paint color
- Street trees
- Parking meters
- Traffic lights
- Pedestrian Signals

Street level imagery will be incorporated into the City’s work order and asset management system and will consist of GIS data layers (points, lines and polygons that represent real world features in a map) to support infrastructure planning and maintenance activities. In addition to providing precise location data of City infrastructure assets located in the Public Right of Way, the information will be used for activities such as making accurate and precise measurements for distances, clearances, elevations, and surface areas.

D. LOCATION

CycloMedia will collect street level imagery by driving through the entire community over a defined period of time.

E. IMPACT

As explained in section A, CycloMedia deploys a proprietary privacy filter to ensure that all images of people in the right of way and license plates are blurred. CycloMedia also deploys a team of employees to perform quality control to ensure that images have been blurred.

Once an image is blurred, the unblurred image is permanently deleted. This ensures that the street level imagery cannot be associated with any individual or group by the City. Thus, there should not be any impacts to anyone's civil liberties or civil rights.

F. MITIGATION

There is a multi-pronged approach to safeguard the public from any possible impacts to civil liberties and civil rights. First, any unblurred images of individuals and license plates are permanently deleted. Second, the only manner to access the street level imagery is through proprietary software that is maintained in a secure, non-public location that requires security access or logins. Third, the following procedures will govern the use of the street level imagery:

1. Data will be retained or released only in accordance with applicable state and federal laws and will be protected by confidentiality laws and City policy; and
2. Pursuant to Administrative Regulation 4.2, City employees are prohibited from using the data for personal use and making personal copies of data. Additionally, City employees are prohibited from retaining, duplicating or distributing infrastructure asset data, except for official City business.

G. DATA TYPES AND SOURCES

The street level imagery data that is captured is intended solely for infrastructure planning and maintenance activities. The imagery data that is captured is high-resolution and geometrically accurate panoramic images and point clouds. Point clouds are a collection of points captured that represent a 3D shape or feature. The images are "stitched" together to create a continuous, seamless image called a GeoCyclorama. The data is then processed to create the final 3D GeoCyclorama and point cloud file.

H. DATA SECURITY

After the street level imagery is collected by CycloMedia, the information is transferred and stored on secure servers that can only be accessed by a limited number of CycloMedia employees. Information security is based on the ISO 27002 Code of practice for information security controls. Data security and encryption are supported by Microsoft Azure services and their standard security protocols.

Only authorized City employees with proper login credentials will have access to street level imagery that is available on CycloMedia's Street Smart™ web application. The system will use Active Directory single sign on, administered by the City's IT Helpdesk. All access is monitored

by CycloMedia's logging system which provides an audit trail to keep track of who accessed the system.

In addition, within the Street Smart™ application, there is a button to report blurring issues. If any issue is identified after the street level imagery is made available to the City, city staff will immediately report such issue to CycloMedia's Quality Assurance Team to promptly correct the issue.

I. FISCAL COST

One time funding for this project in the amount of \$187,401 is available in the Department of Information Technology's Fiscal Year (FY) 2020 Cost Allocation Plan and Measure BB Local Streets and Roads Fund. The total cost to collect the street level imagery of the City's infrastructure assets is \$48,000 and the remainder of the costs (\$139,401) is for the infrastructure data asset extraction.

Ongoing costs will start two (2) years after the street level imagery is made available to the City and are estimated to be \$3,000 annually.

J. THIRD PARTY DEPENDENCE AND ACCESS

Other than CycloMedia, no third parties will handle or have access to the imagery of the City's infrastructure assets. CycloMedia will be contractually precluded from selling or sharing the City's street level imagery.

K. ALTERNATIVES

An alternative to deploying CycloMedia to collect street level imagery is to deploy individuals into the field to inventory the City's infrastructure assets. This is resource-intensive and time-consuming. Currently, the City does not have any staff dedicated to collecting GPS data and attributes for assets. It may be done on an ad-hoc basis in advance of Capital Improvement Projects to validate asset locations, but there is no systematic process for collecting and adding asset data to GIS. Thus, the use of street level imagery will serve as an important tool for improving the high-quality public service by improving the City's ability to properly maintain City Assets and plan for the future.

L. EXPERIENCE OF OTHER ENTITIES

CycloMedia serves clients similar to the City of Berkeley, including New York City, the County of Los Angeles, City of Redlands, the City of Torrance, and has provided statewide services to Pacific Gas & Electric (PG&E) to support their 2020 Wildfire Mitigation Plan.

Washington, DC's Department of Transportation, a customer since 2013, also uses CycloMedia imagery for traffic asset inventory updates, road maintenance and inspection, and street tree and furniture inventories. They experienced improved asset inventories along streets and a reduction in the field visitations.

Surveillance Use Policy Street Level Imagery Project

A. PURPOSE

The City desires to hire a contractor, CycloMedia, to provide the City with location based 360-degree street level imagery of the City's infrastructure assets in the Public Right of Way including, but not limited to, street signs, traffic signals, pavement marking, trees, and storm drain infrastructure. CycloMedia will also provide the City with an application, Street Smart™, to access the street level imagery that is collected.

Street level imagery will be utilized exclusively by authorized City staff for infrastructure asset management and planning activities. The street level imagery of City infrastructure assets in the Public Right of Way that is provided to the City will not consist of information that is capable of being associated with any individual or group.

This policy identifies the information that is collected, how it will be used, by whom, and what precautions will be taken to ensure that any information that is capable of being associated with any individual or group is properly disposed of or protected.

B. AUTHORIZED USE

The 360-degree street level imagery that will be provided to the City will be used exclusively only by authorized City staff to create an accurate and current inventory for the following infrastructure assets:

- Bus pads / stops
- Pavement marking
- Maintenance Access Holes
- Storm drains
- Pavement Striping
- Signs
- Curb paint color
- Street trees
- Parking meters
- Traffic lights
- Pedestrian Signal

The information that is provided to the City consists of a high definition, three-dimensional map that provides precise measurements for distances, clearances and elevations to enable the City to remotely inspect the City's infrastructure assets in the Public Right of Way. Street level imagery will be incorporated into the City's Geographic Information System (GIS) and work order and asset management system and can be viewed from the desktop of only authorized City staff through the Street Smart™ application.

The following are planned uses and benefits of this data:

- The street level imagery that is collected will be used to create GIS data layers (points, lines and polygons that represent real world features in a map) that follow the Local Government Information Model (LGIM), which is widely supported by applications across the industry. The street level imagery that is captured will be placed into a database format and contain attributes (i.e. location, condition, color) associated with each City asset.
- Street level imagery will be integrated into the City's work order and asset management system for planning activities and to document repair and maintenance.
- Planners can use the street level imagery provided to the City to take measurements remotely, such as sidewalk width and public right of way impacts at proposed development locations.
- City Staff can use the street level imagery to plan the location of road markings for pedestrian crossings, bike lanes or other striping.
- City staff can remotely take accurate measurements of infrastructure assets to adequately plan for repair and replacement.
- City staff can use the street level imagery to enhance community engagement. The street level imagery can be used to identify and depict the impact of development such as an intersection restriping plan in order to article before and after conditions.
- The street level imagery will allow for improved interdepartmental coordination and communication as departments can share information simultaneously and virtually without needing to be in one location.

The street level imagery that is captured will also be used to:

- Create a street sign GIS layer with condition assessment to support compliance with the Manual on Uniform Traffic Control Devices Code and provide an accurate inventory of City signs. The existing sign inventory is contained in a spreadsheet that does not have accurate location data.
- Create a curb color layer with condition assessment to indicate where there are red, yellow, blue, white and green colors. This is critical to support Public Safety.
- Create pavement striping and paint symbol layers to support Transportation Planning and Vision Zero.

The City will access street level imagery through proprietary software that is maintained in a secure, non-public location. The following procedures will govern the use of the street level imagery:

1. Data will be retained or released only in accordance with applicable state and federal laws and will be protected by confidentiality laws and City policy; and
2. Pursuant to Administrative Regulation 4.2, City employees are prohibited from using the data for personal use and making personal copies of data. Additionally, City employees are prohibited from retaining, duplicating or distributing infrastructure asset data, except for Official City business.

C. DATA COLLECTION

The City is using a third-party contractor, CycloMedia, to capture street level imagery of City infrastructure assets. The City does not have the technology to gather street level imagery on its own. CycloMedia will capture 360-degree street level imagery in the field through cameras installed on cars that drive the entirety of the City. The street level imagery is then uploaded to a secure cloud server. The images are available to the CycloMedia's production department for post-processing that includes the application of a privacy filter to blur faces and license plates. Unblurred street level imagery is permanently deleted prior to being made available to the City. Once blurred, images cannot be unblurred to identify an individual or license plate.

D. DATA ACCESS

Access to street level imagery of City infrastructure assets in the Public Right of Way will only be granted to City of Berkeley employees as approved by City department directors. Access requests will be inputted and tracked in the Department of Information Technology helpdesk software, Service Now (SNOW), and will require pre-approval. Access to street level imagery will require appropriate single sign on network login credentials to access this data.

External users will not have access to street level imagery data.

A limited number of CycloMedia employees will have ongoing access to the final published imagery for the purpose of providing application support.

E. DATA PROTECTION

Once the street level imagery is appropriately blurred (e.g. faces and license plates are not identifiable), the street level imagery will be uploaded to a secure server that is only accessible to approved City staff and assigned CycloMedia employees for the purposes of application support.

Street level imagery is accessible to the City through a proprietary third-party application, Street Smart™.

Also, within the Street Smart™ application, there is a button to report blurring issues. If any issue is identified after data is provided to the City, city staff can report the issue to CycloMedia. The request is forwarded to the CycloMedia Quality Assurance Team that will respond to the matter promptly. Image Quality Control (QC) is also conducted on blurred imagery by a team of experienced CycloMedia analysts.

CycloMedia, as part of the contract with the City, will be required to sign a Security and Resiliency

appendix used for all Information Technology contracts. All changes to this appendix must be approved by the Director of Information Technology, or his/her designee, and the City Attorney's office.

F. CIVIL LIBERTIES AND RIGHTS PROTECTION:

The street level imagery software compiles information on the City's infrastructure assets in the Public Right of Way from all neighborhoods and streets in the entire City and thus there is no disparate impact to any particular community. Additionally, to the extent a person's face or a vehicle license plate is captured, the images are blurred so that they cannot be identified or associated with any individual or group. Thus, there are not any impacts to civil liberties or civil rights.

The City recognizes the need to protect the information provided to the City and thus strictly limits access to this information to authorized City staff. As described above, the City shall institute procedures to ensure the street level imagery is not used in a way that would violate or infringe upon anyone's civil rights and/or liberties, including but not limited to, potentially disparate or adverse impacts on any communities or groups.

G. DATA RETENTION

The City's third-party consultant, CycloMedia, will capture street level imagery and will blur out potentially sensitive data such as a person's face or a license plate. Once that has been completed, information regarding the City's infrastructure assets in the Public Right of Way is extracted into GIS layers that includes the following attributes -- date, time, latitude, longitude, and map address. Once the imagery is blurred, the original unblurred imagery is permanently deleted. Blurred street level imagery is stored indefinitely by CycloMedia. The street level imagery does not contain any names of subjects, vehicle information, etc.

The blurred imagery and corresponding information that is extracted as GIS layers is accessible only by authorized City personnel and will be kept until the information can no longer provide utility to the City in planning and maintaining its infrastructure.

H. PUBLIC ACCESS

The Public will not have access to the street level imagery that is provided to the City. GIS data will be made available to the public in accordance with department policy and applicable local, state or federal laws such as the Public Records Act.

I. THIRD-PARTY DATA-SHARING

The City will share street level imagery with third party contractors that are hired to perform maintenance activities (e.g. painting curb colors or applying striping) on behalf of the City. The City will only share imagery that has been blurred.

J. TRAINING

Training for the usage of street level imagery shall be provided by personnel in the Department of Information Technology. All City personnel who utilize the street level imagery collected by CycloMedia will be provided a copy of this Surveillance Use Policy.

K. AUDITING AND OVERSIGHT

City management staff shall ensure compliance with this Surveillance Use Policy.

L. MAINTENANCE

After the street level imagery is collected by CycloMedia, the information is transferred and stored on secure servers that can only be accessed by a limited number of CycloMedia employees. Information security is based on the ISO 27002 Code of practice for information security controls. Data security and encryption are supported by Microsoft Azure services and their standard security protocols.

Only authorized City employees with proper login credentials will have access to street level imagery that is available on CycloMedia's Street Smart™ web application. The system will use Active Directory single sign on, administered by the City's IT Helpdesk. All access is monitored by CycloMedia's logging system which provides an audit trail to keep track of who accessed the system.

In addition, within the Street Smart™ application, there is a button to report blurring issues. If any issue is identified after the street level imagery is made available to the City, city staff will immediately report such issue to CycloMedia's Quality Assurance Team to promptly correct the issue.



Police Review Commission (PRC)

June 26, 2020

To: Honorable Mayor and Members of the City Council
From: Kitty Calavita, Chairperson, Police Review Commission
Re: Review of Surveillance Acquisition Report and proposed Surveillance Technology Report for the Street Level Imagery Project (Action Calendar Item #39 on the City Council's June 30, 2020 agenda.)

This concerns the City Manager's request for authorization to execute a contract with CycloMedia Technology Incorporated for Geographic Information System infrastructure asset data acquisition, also referred to as the Street Level Imagery Project. On May 26, 2020, you directed the City Manager to provide a Surveillance Acquisition Report and Surveillance Use Policy for this technology. In accordance with the Surveillance Technology Use & Community Safety Ordinance (B.M.C. Ch. 2.99), the City Manager submitted the report and policy to the Police Review Commission for its review. City staff made a presentation about the technology to the PRC at its June 24, 2020 meeting, and addressed questions and concerns the Commissioners raised.

The PRC voted to recommend approval of use policy for the following reasons:

- 1) the CycloMedia vehicle driver has no access to the data;
- 2) a separate team blurs faces and license plates before the data is received by City;
- 3) the information is protected based on the ISO 27002 code of practice;
- 4) the data represents only a single point in time;
- 5) data access is limited to City employees approved by the Directors of both the Public Works and Information Technology Departments;
- 6) there is an audit trail of who is using the data and for what purpose; and
- 7) access is removed when individuals leave employment at the City of Berkeley.

The PRC also recommended that the information to be included in the reporting be defined, and that there be general notification to the public in advance that, for a certain time period, and during specified hours, a CycloMedia vehicle will be

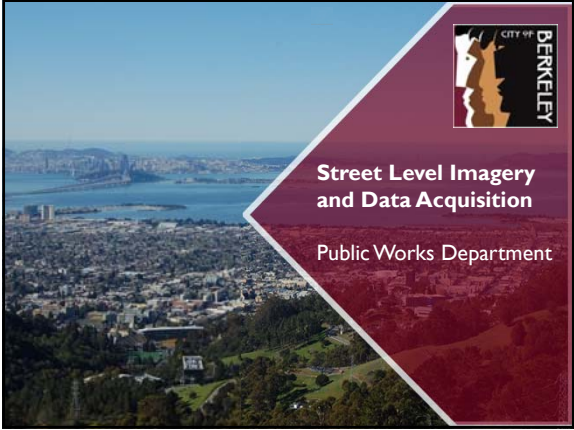
Honorable Mayor and Members of the City Council
Review of Surveillance Acquisition Report and proposed Surveillance Technology Report for the
Street Level Imagery Project
June 26, 2020
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driving around the City collecting images, such notification to appear in several recognized communication methods such as Nixle and BerkeleySide.

Finally, the PRC wishes to convey its concern that the blurring of faces and license plates is not sufficient to remove identity, and for this reason, urges that access restrictions be stringently upheld.

The above recommendations and concern were agreed upon at the PRC's June 25, 2020 meeting by the following vote: Moved/Seconded (Mikiten/Leftwich) – Ayes: Calavita, Chang, Leftwich, Mikiten, Mizell, Perezvelez, and Ramsey; Noes: None; Abstain: None; Absent: Allamby

cc: Dee Williams-Ridley, City Manager
Savita Chaudhary, Director, Information Technology Dept.
Farimah Brown, City Attorney
David White, Deputy City Manager
PRC Commissioners



Street Level Imagery and Data Acquisition

- ▶ Existing Street Level Data
- ▶ Current Process of Street Level Data Acquisition
- ▶ Benefits of Using Cyclomedia for Street Level Data Acquisition
- ▶ How Data and Privacy will be Protected
- ▶ Q&A

How we capture data now – FUND\$

How we capture data now – Excel

▶ 2007-2009 Sign Replacement Project
– Replace ceramic signs with reflective signs

Street Name	Sign Type	Material	Size	Comments
Dought Street	2422	Stop	36"	1000
Dought Crescent	2004	Stop	36"	1000
East Parkmead Ct	75	Parade	36"	1000
Expansive	800	Parade	36"	1000
...

Picture taken 6-22-20

How we capture data now – GIS

Geographic Information System

- Map based electronic inventory of City assets and their attributes
- This one dot represents the stop sign, there is no street sign information

Needed GIS Information / Layers

- ▶ Curb Painting
- ▶ Pedestrian Signals
- ▶ Traffic Signals
- ▶ Street Signs
- ▶ Storm Infrastructure
- ▶ Maintenance Access Holes
- ▶ Bus Pads / Stops
- ▶ Pavement Markings
- ▶ Parking Meters

Benefits of Accurate Location and Asset Information



Each pixel is geolocated – staff will be able to evaluate conditions, make measurements from their desks.

Benefits of Accurate Location and Asset Information

Bright Streets Initiative

From: Councilmembers Hahn and Harrison

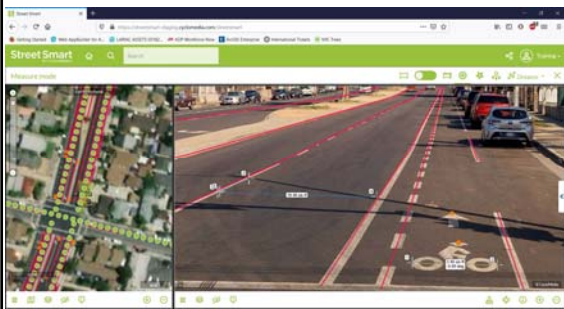
Referred: November 25, 2019 Due: May 24, 2020

Recommendation: 1. Refer to the City Manager to paint all crosswalks, midlines, bike lanes, and other street markings, clarify and/or improve traffic signage, and paint curbs along collector and arterial streets throughout the City of Berkeley, and within a three-block radius of all Berkeley public schools, to improve safety and support Vision Zero goals. Streets, signage, and curbs that have been redone in the past three years and remain in very good condition need not be repainted and/or replaced. 2. Such work to be completed prior to commencement of the 2020-21 Berkeley Public School Year.

Financial Implications: See report

Contact: Sophie Hahn, Councilmember, District 5, (510) 981-7150

Benefits of Accurate Location and Asset Information



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- ▶ We will be able to visualize infrastructure and asset data
- ▶ Prioritize categories and individual assets that need to be maintained or replaced
- ▶ Proactive maintenance instead of reactive
 - Based on need vs. customer complaints
- ▶ Supports successful implementation of NexGen Work Order and Asset Management System lifecycle plans and budgets

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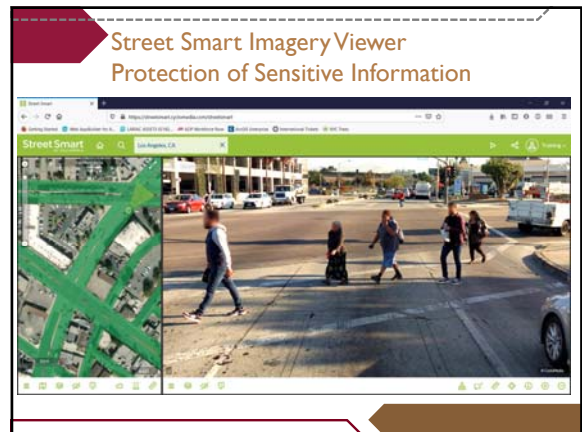
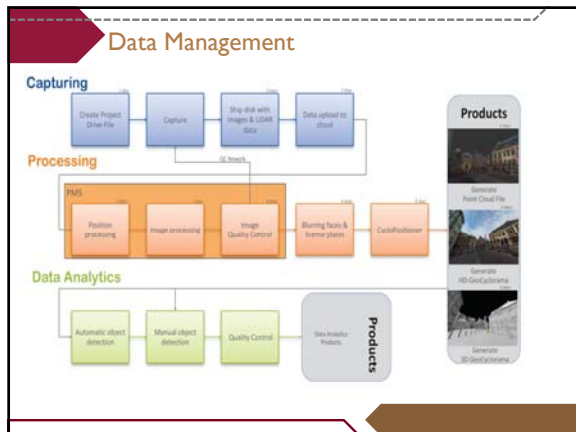
- ▶ We will know:
 - Where we need to go – accurate locations
 - What we need to do – condition assessment
 - How much it will cost – budgeting / planning
- ▶ Proactive maintenance instead of reactive
 - Based on need vs. customer complaints

Data Collection Protection of Sensitive Information

Employee of CycloMedia will drive down each public street with a five-camera and sensor system.

The technology used by CycloMedia provides a seamless, high-definition 360° by 180° street level view of the City's infrastructure assets.





- ### Data Processing Protection of Sensitive Information
- Data is encrypted and uploaded to secure servers
 - Data access is limited to assigned City staff and limited number of CycloMedia employees
 - Information security is based on the ISO 27002 security controls
 - CycloMedia processes the street level imagery through an object detection privacy filter to blur faces and license plates and applies software to identify the location and condition of the City's infrastructure assets
 - Any unblurred images of individuals and license plates are permanently deleted

Thank you!
Questions?