

December 11, 2018

To Whom it May Concern:

CycloMedia Technology Inc., is the only street / ground level imagery supplier that has the following capabilities and therefore qualifies for sole source method of procurement.

- Patented Recording Process. CycloMedia Technology has patented capabilities that create unique products. In particular, Patent #US007961979 enables CycloMedia to create metric, parallax-free, panoramic street-level imagery with a Absolute (location) Accuracy (X, Y & Z) of 10 cm, plus or minus one standard deviation and a Relative (measurement) Accuracy of 2 cm.
  - This is achieved through a patented process that leverages the forward momentum of the vehicle's movement when panoramic images are taken.
  - Certain photogrammetric principals used by CycloMedia Technology for measuring may be similar to other mobile mapping solutions, but because of CycloMedia Technology's patented panoramic data collection approach mentioned above, other solutions will find it impossible to recreate the accuracy of large area collection achieved by CycloMedia's technology at a similar cost and time frame.
- CycloMedia is the only street level imagery provider in North America that integrates completely across the ESRI product line that provides high definition, seamless, 360-degree, non-blurred imagery, georeferenced with measuring capabilities. Over the past 18 months, Esri and CycloMedia's R&D organizations have worked together to integrate our imagery as a native file format across their entire product family.
- Highly Accurate Measurements can be taken without the need for LiDAR. However, LiDAR captured simultaneously with the imagery and is perfectly georeferenced with it for advanced data analytics and semi-automated extraction capabilities.
- Precise GIS Overlay Capability, utilizing absolute X, Y & Z
- Imagery can be viewed in ArcPro, ArcGIS Online, ArcGIS Desktop and in CycloMedia's Proprietary viewing and editing software, Street Smart.
- Parallax-Free, 100 Megapixel Resolution with absolute location accuracy, (absolute X, Y & Z), average standard deviation of 4 inches. Every pixel within a panoramic image has a known spatial orientation (XYZ) and angular direction.
- Integration with ERP and E911 CAD software.
- 360 by 180 degrees, 100 megapixel, high definition panoramic view and analysis environment for infrastructure management.



- Linkage to other imagery or data sources captured/collected by means other than CycloMedia
- Report creation from the image location that can be pushed out for collaborative purposes, mobile devices, etc. Exchange of measurements, drawings, markings, files, etc.
- No sunlight impact (Smearing /Blooming)
- The ability to link historical documents and all forms of data to the imagery through CycloMedia's "Content Collaboration" tool.
- Data Analytics/ Feature Extraction of capabilities inherent within the imagery and integrated LiDAR database for the efficient and accurate extraction and analysis of key citywide assets, such as pedestrian ramps for ADA compliance, traffic signs and road markings for traffic safety monitoring, to name a few notable areas for cost effective infrastructure management.

Sincerely,

A handwritten signature in black ink that reads "Joe Astroth". The signature is fluid and cursive.

Joseph Astroth  
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