



On January 20, 2009 in Washington, D.C., history was made when Barack Obama was sworn in as the 44th president of the United States, and its very first African-American chief executive. Considering the unknowns that a passing motorcade is exposed to, and the number of serious threats already on record, authorities knew that security was priority one.

Deploying Optech's Lynx Mobile Mapper

A federal agency tasked with ensuring security approached Optech Incorporated with the challenge. They wanted a spatially

accurate 3D computer model of the presidential motorcade route from Capitol Hill to the White House.

Security personnel would benefit greatly from having such data as it would help them to:

- Check for potential security breaches
- Establish sightlines that could be used by friendly (or other) personnel
- Determine the optimal placement for security personnel
- Identify and register emergency evasion/escape routes
- Add accurate records to a database for future reference.

Lidar data requirements

Data capture method	Maximum coverage in minimum time while being least disruptive to traffic. Two concerns shaped this requirement: the safety of the personnel performing the scan, and the resulting complications caused by diverting traffic flow.
Accuracy	Relative accuracy between points in the point cloud must be maintained. Absolute accuracy with respect to their position on Earth was of less concern than relative accuracy of points within the scan.
Density	Data must be dense enough to extract realistic 3D models of the surrounding area. A high-density scan was required due to the variation in surrounding buildings.
Volume	Collected data should be kept to a manageable size.
Output file formats	Requested file formats that can be brought into PolyWorks software: PIF, IXF, TXT.



X-axis view of two buildings

Maximum coverage, minimum time

The client placed a high priority on acquiring the spatial data as quickly as possible and with minimal disruption to traffic.

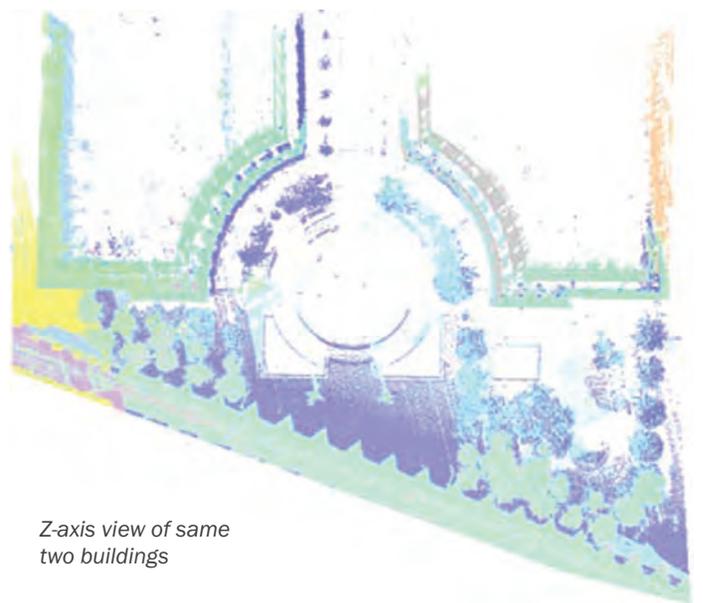
Traveling at an average speed of 60 km/hr, the Lynx Mobile Mapper enabled the survey team to cover the entire motorcade route in a fraction of the time it would take for traditional land-based surveying methods.

The traditional method would involve an exhaustive records search, followed by the use of a Total Station on the street to set up a traverse and collect specific point data to make a topographic map.

To collect this type of data safely would then require lane closures and traffic diversion, resulting in many days of work in both the office and the field.

Multiple perspectives

The 3D point cloud produced by the Lynx Mobile Mapper allowed the security agency to examine the spatial data from multiple perspectives. When a 3D spatial model is panned, zoomed and rotated on 3 axes, it reveals a wealth of information that is not evident in a 2-dimensional photograph.



Z-axis view of same two buildings



Current, accurate, timely

Surveying such areas occurs infrequently, largely because of the time and expense involved. Consequently, many data searches end up with spatial information that is at least several years old. Recent construction, demolition, renovations and rezoning quickly render past spatial data as obsolete. By contrast, the Lynx Mobile Mapper provides up-to-date information quickly.

A 3D point cloud produced from Lynx Mobile Mapper data renders street-level objects such as sewer grates, road surface irregularities and narrow laneways between building edifices in highly visible detail.

The up-to-the-minute, georeferenced 3D spatial data that the Lynx Mobile Mapper provided was one more tool in the extraordinary effort to guarantee that this historic inauguration would also be remembered as one of the safest and most effectively secured mass events ever held.

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