# Using GIS to Analyse Road Light Detection and Ranging (LiDAR) Data for Roadway Settlement and Asset Detection



This poster demonstrates how these elements of GIS, represented by the GIS Lifecycle Loop, can be used to analyze road LiDAR data for roadway settlement detection and asset identification.

### **Data Collection & Input**

A robust state-of-the-art mobile collection platform, featuring a fully integrated, spatially referenced 360° LiDAR system, ensures quality input and usable product throughout the GIS lifecycle.



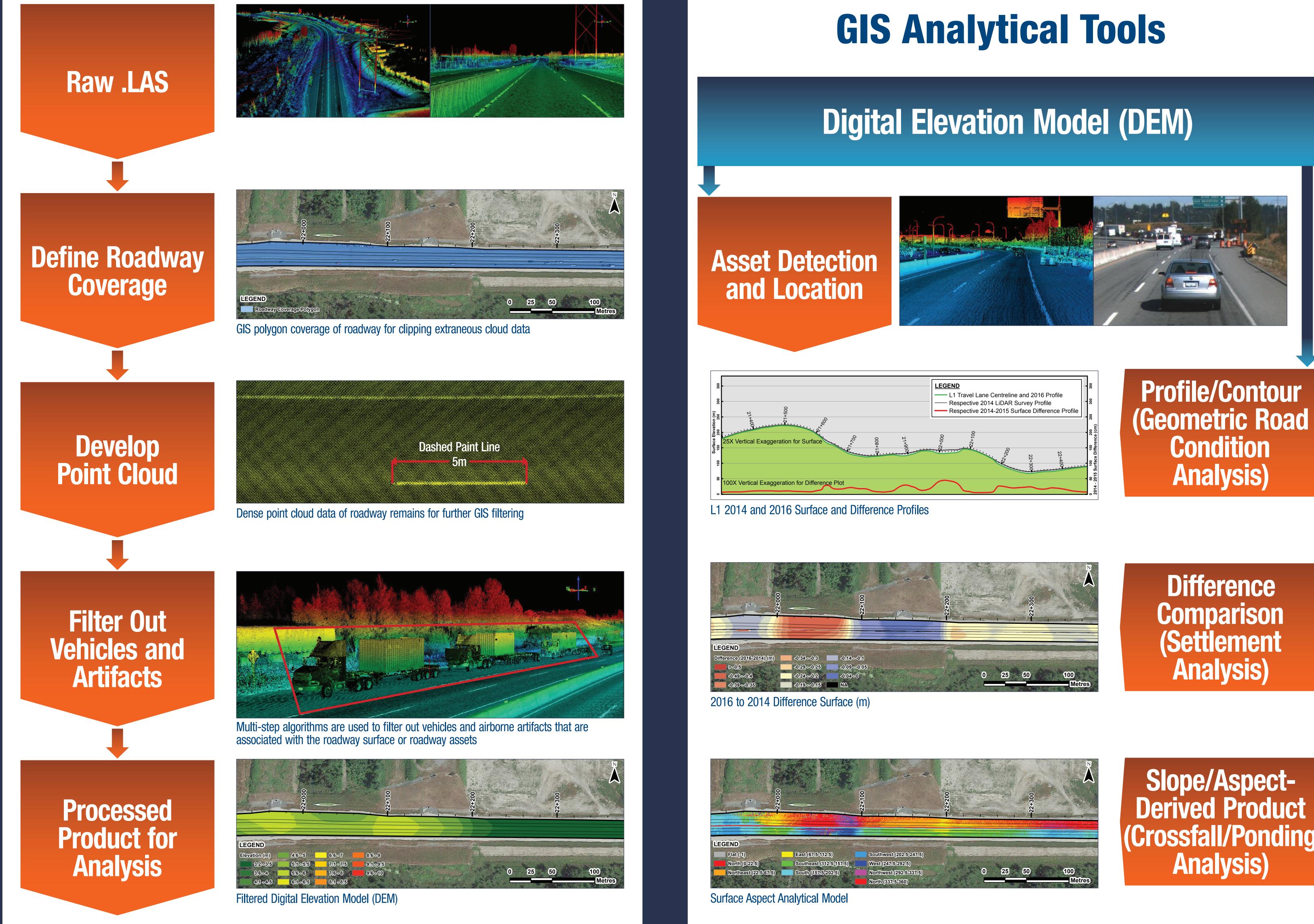


### **37 km of Roadway Data = 100 GB** of Raw LAS Point Cloud



### Processing

Effective processing of input data will allow the data to be reliably used for Data Analysis. A multi-step process prepares the data for this Analysis.





# Data Analysis

A processed DEM can be filtered for Asset identification or road surface condition and grading analysis, as demanded by workflow needs.



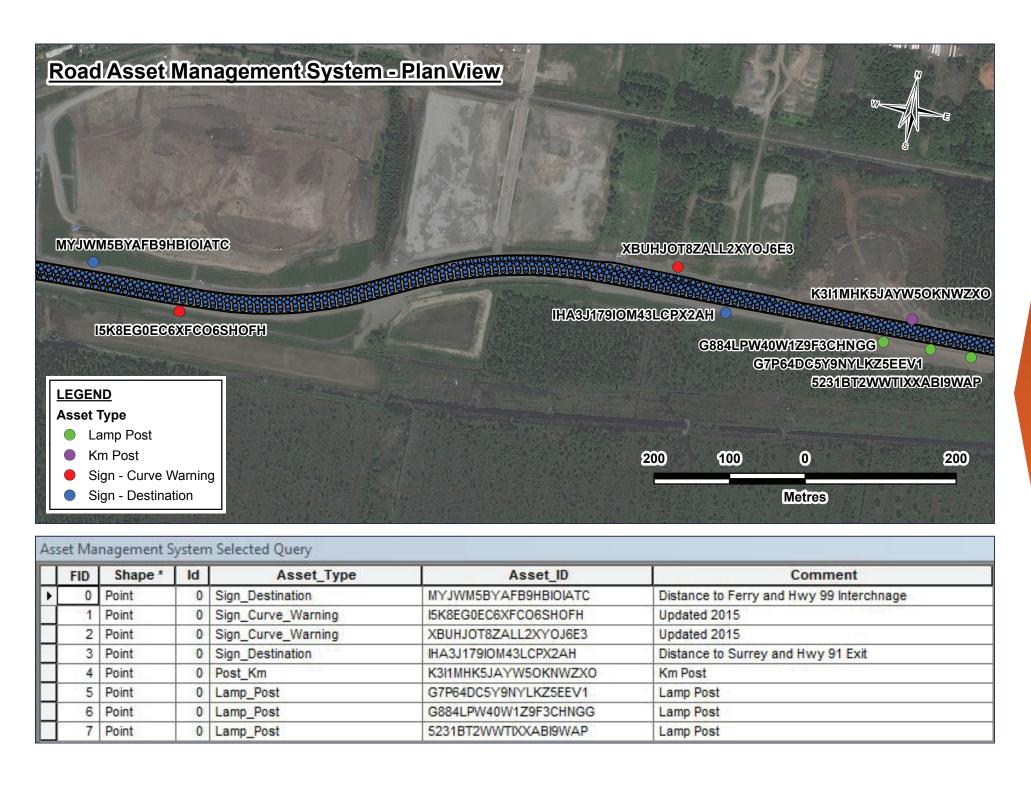
Bryan Palsat, P.Eng. – Materials and Pavement Engineer York Law, B.A. – Senior GIS Technician Martina Riessner, E.I.T. – Pavement Engineer



### Output

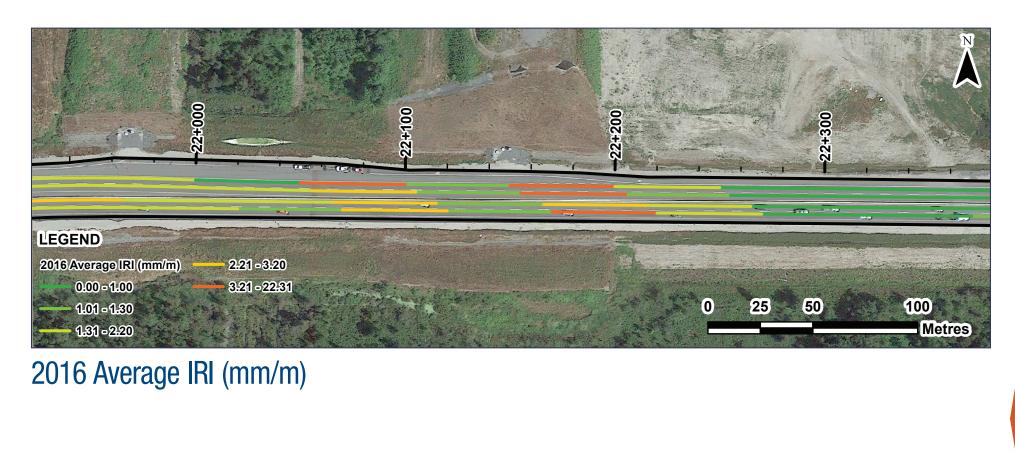
Output is provided in various formats including digital and hard copy for reporting, presentation, and further analysis.

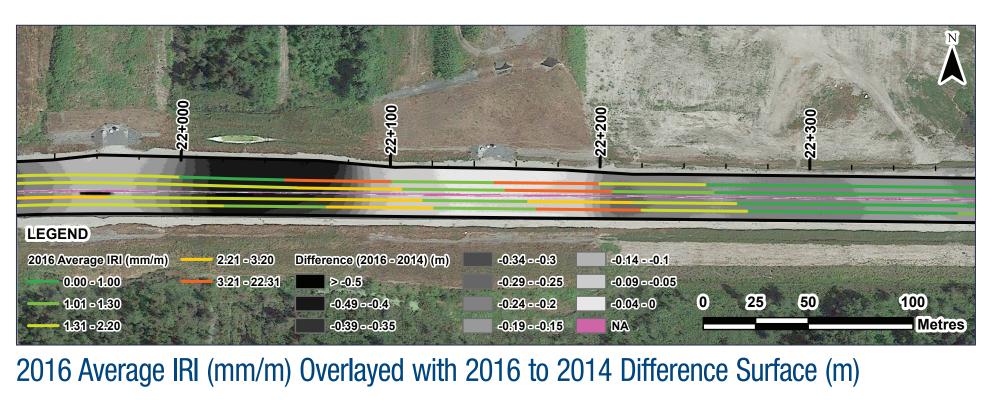
## **Asset Management System**



**Develop and** maintain a roadway asset condition database that is summarized and can be queried in the GIS

### **Pavement Management Systems**





Using the **GIS tools to** process, analyze and summarize roadway conditio data from the LiDA allows for more effective, efficie and detailed Ass Management Systems

### **Project Level Implementation**