# Department of Transportation – Roadway Safety: Technical Overview

2021-10-06

## Deliverables

This project will supply the Department of Transportation with 1) a nationwide catalogue of intersections, 2) several datasets of vehicle crashes, and 3) an analysis of intersection risk profiles. The intersection catalogue will be enriched by satellite imagery, other data sources, and AI/ML processes. Customers will access intersection and crash data through localized pipelines, bulk exports, and layers in the CASSE visualization tool.

## Architecture

Diagram

Description automatically generated

This project will leverage U.Group Engineering standards for 1) microservice architecture, 2) automated deployment, and 3) automated orchestration. Cloud deployment architecture and services may vary.

## Technology

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| **Technology** | **Purpose** |
| Java (Spring Boot) | Data ingestion |
| OSM2PG | OSM data ingestion |
| Python | Data ingestion |
| PostgreSQL | Initial OSM outputs, structured characteristics catalogue, initial crash CSVs |
| ElasticSearch | Data science data retrieval and analysis, source data merging, CASSE |
| DVC | Data science model tracking |
| PyTorch (?) | Data science analysis |
| S3 (cloud only) | Cloud file storage |
| Docker | Containerization |