



## Project Summary

### Organization

PT. FKA Global

### Solution

Roads

### Location

Sumatera Island, Indonesia

### Project Objectives

- Develop the Trans Sumatera Toll Road to enable commerce among seven provinces and one autonomous province on Sumatera Island.
- Provide a centralized data repository for BIM-enabled design and technical data management.

### Products Used

Power InRoads®, ProjectWise®, ProjectWise Explorer, OpenRoads® Navigator, gINT®, LEAP® Bridge, and STAAD®.Pro

## Fast Facts

- Bentley technology enabled BIM advancements in detailed design to better enable construction, operation, and maintenance activities.
- ProjectWise hosted the centralized data repository, which enabled accurate project collaboration.
- Mobile apps such as OpenRoads Navigator enabled team members to easily interact with the managed content and stay up to date.

## ROI

- The ability to share large, geographically distributed files reduced the frequency of inter-site meetings, saving travel time and costs.
- Delivering project data that accurately aligns with the tollway's physical assets makes operation and maintenance more efficient and less costly.
- By connecting seven provinces and one autonomous province, the tollway will improve transportation, development, and commerce for Sumatera islanders over the next 50 to 100 years.

# PT. FKA Global Cuts Sumatera Tollway Costs for Indonesian Government

ProjectWise and Power InRoads Propel Development and Interconnection among Sumatera Island's Seven Provinces

## Tollways Connect Rural Sumatera

The Trans Sumatera Toll Road is a 2,770-kilometer tollway being developed by state-owned EPC contractor PT. Hutama Karya (HK) for the Indonesian Government. Extending from Aceh to Lampung, this ambitious USD 21.4 billion project will accelerate economic development in Sumatera (known as Sumatra in English), the sixth largest island in the world. HK's team of contractors includes IT service provider PT. FKA Global, a Bentley Channel Partner uniquely qualified to set up the BIM technology, centralized data repository, and collaboration platform. In addition to significant project delivery time and cost savings, Bentley applications produced the intelligent data HK required for asset lifecycle management upon turnover.

## Planning Project Handover

One of 13,466 tropical islands in the Indonesian archipelago, Sumatera is heavily forested with mountainous terrain and smoldering volcanos. The mostly rural population of roughly 50.4 million people stretches across seven provinces and one autonomous province. The Government of Indonesia undertook the Trans Sumatera Toll Road project as part of a large-scale road construction program to spur development on the island. The Public Works and Public Housing Ministry appointed owner-operator HK to develop the tollway and launch operations in sections, including 17 main lines and seven connecting lines.

The tollway consists of four main corridors, plus three priority corridors that are part of the Sumatera road network. The four main corridors include sections connecting Lampung and

Palembang (358 kilometers), Palembang and Pekanbaru (610 kilometers), Pekanbaru and Medan (548 kilometers), and Medan and Banda Aceh (460 kilometers). The three additional priority corridors connect Palembang and Bengkulu (303 kilometers), Pekanbaru and Padang (242 kilometers), and Medan and Sibolga (175 kilometers).

Jakarta-based HK has a history of developing high-priority infrastructure projects for the government and is known as a pioneer in construction technology and methods. To deliver the Trans Sumatera Toll Road, HK was challenged to exercise a collaborative approach with a team of contractors implementing the latest BIM technology. Upon project handover, it was essential for the team to deliver complete and accurate asset lifecycle data to inform HK's operation and maintenance of the tollway.

## BIM Methodology Delivers Intelligent Data

As a leading technology service provider throughout Indonesia, PT. FKA Global has designed and implemented complex IT solutions for seamless collaboration on government projects. For the Trans Sumatera Toll Road project, FKA Global deployed two Bentley applications and associated mobile apps that became the foundation of HK's BIM-enabled project delivery methodology.

OpenRoads applications enabled construction-driven engineering from basic design through construction and asset handover by contractors. Team members used the full breadth of modeling capabilities, including design modeling, analytical modeling, reality modeling, and hybrid modeling. The innovative 3D technology streamlined traditional engineering workflows to produce high-quality, integrated designs.

ProjectWise provided project collaboration and technical data management from engineering and construction through as-built drawing and commissioning. The platform provided a centralized repository for the project's BIM data management and supported mobile workflows, and enabled collaboration among the owner, contractors, and subcontractors. ProjectWise allowed stakeholders with role-based privileges to share information from any location.

*"The innovative 3D modeling technology streamlined traditional engineering workflows to produce high-quality, integrated designs."*

— Idwan Suhendra, senior technical advisor,  
PT. Hutama Karya

*“Bentley technology provides advanced tools and facilities for infrastructure development within Indonesia. Proper infrastructure asset data management will secure the future of life on Sumatera Island”*

*– Idwan Suhendra,  
senior technical advisor,  
PT. Utama Karya*

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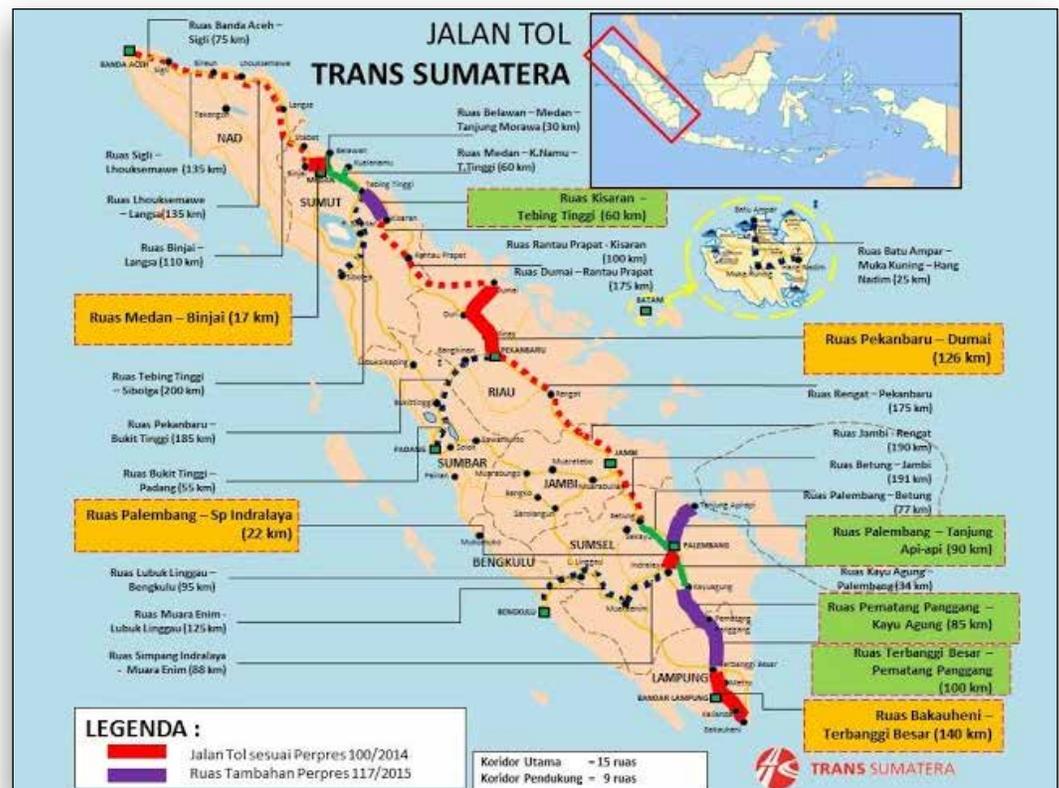
## Supporting Lifecycle Operations and Management

Bentley technology enabled project team members to share project information across teams, locations, and disciplines with precision and security. Accurate and timely engineering content management facilitated the team’s technical communications, design reviews, revision control, and asset data handover. The ProjectWise collaboration platform will carry over into asset lifecycle management, enabling continued centralized control of the intelligent project data.

Bentley’s BIM advancements saved project delivery time and costs by enabling the project team to establish faster, more transparent communication among stakeholders. Dynamic 3D

modeling enhanced the geometric design process, allowing HK’s team to find the most effective geometry for the complex tollway. The 3D model reviews helped to avoid interferences among disciplines, while the easy conversion of models to shop drawings helped reduce resource hours and errors. Using ProjectWise to give regulators restricted access to safety review documents made for seamless compliance management and fewer delays.

As part of the Masterplan for Acceleration and Expansion of Indonesia’s Economic Development (MP3EI), the Trans Sumatera Toll Road will improve access to remote sectors of the second largest island in Indonesia. From its ambitious start in 2015 to its expected completion in 2025, the tollway’s four main corridors and three priority corridors will improve connectivity and development for the next 50 to 100 years.



The USD 21.4 billion project will trigger development in the seven provinces of Sumatera Island, improving transportation connectivity for the next 50 to 100 years.