Thailand Rural Road Safety Audit System Toolkit

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Abstract

The Rural Road Safety Audit System (RSAS) Toolkit has recently been developed by Department of Rural Roads of Thailand. RSAS is an on-line decision-making tool designed for road safety practitioners to systematically conduct rural road safety improvement projects in Thailand. This paper presents the overview of the RSAS Toolkit. It helps identify hazardous locations on rural road networks using crash data and iRAP Star Rating model, determine safety deficiencies on road sections, and recommending possible short-term and long-term treatments. The RSAS Toolkit shall be a useful tool in preparing road safety improvement program funding applications for rural road projects.

Overview of RSAS Toolkit

To improve decision-making process in road infrastructure planning and improvement programs, information technologies have been developed as decision tools to help engineers and practitioners, such as road assessment program, road asset management system, and road safety audit toolkit. The systems are very powerful in collecting relevant data, storing and managing databases, analyzing geospatial and statistical data, and disseminating useful information. (FHWA, 2012)

In Thailand, Department of Rural Roads (DRR) has recently developed the rural road safety audit system (RSAS) toolkit, which is a web-based information technology that help road safety auditors and practitioners to perform road safety improvement projects on a 47,000-kilometer rural road network. The capabilities of RSAS are:

- RSAS can assess the safety of individual road sections. Using road asset databases, it applies the Star Rating method proposed by International Road Assessment Program (iRAP) to calculate the risk scores of individual road segments. (Turner and Smith, 2009; iRAP, 2014)
- RSAS can identify the road safety deficiencies of hazardous locations. Using crash databases and Star Ratings of hazardous locations, road attributes that affected the safety problem are determined.
- RSAS can recommend both short-term and long-term safety treatment at specific hazardous locations.

RSAS encompasses 3 main modules. First, the Safety Assessment module integrates the iRAP Star Ratings model to assess the safety of road segments. Second, the Safety Problem Identification module determines the safety deficiencies by inspecting the road alignment and safety facilities needed to prevent the crash occurrence on each road segment. The module presents the street view ready 360-degree camera and road asset databases. Four types of road segments are considered: straight road sections, curve road sections, intersections, and urban/community road sections. Finally, the Safety Treatment module presents the list of safety facilities needed for short-term solutions and the practical guide for long-term solutions at each hazardous location.

This paper will present the framework of RSAS toolkit and its applications. For example, Figures 1 to 3 presents the user interface of RSAS toolkit. Figure 1 shows the main interface of RSAS toolkit.

It displays route information, 360-degree street view, route map with asset information, and the Star Ratings associated with each route. Figure 2 shows the interface of safety assessment page. It presents the Star Ratings by road segment and the road attributes and asset data associated with each segment. Figure 3 shows the safety treatment page. The recommended safety treatments are listed.
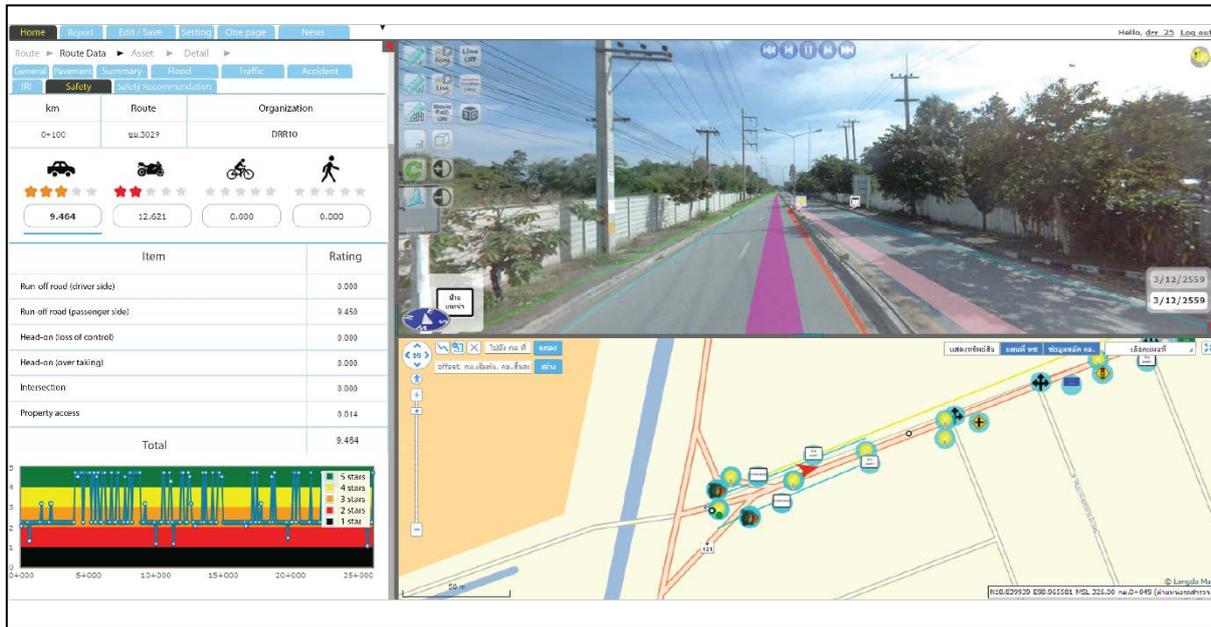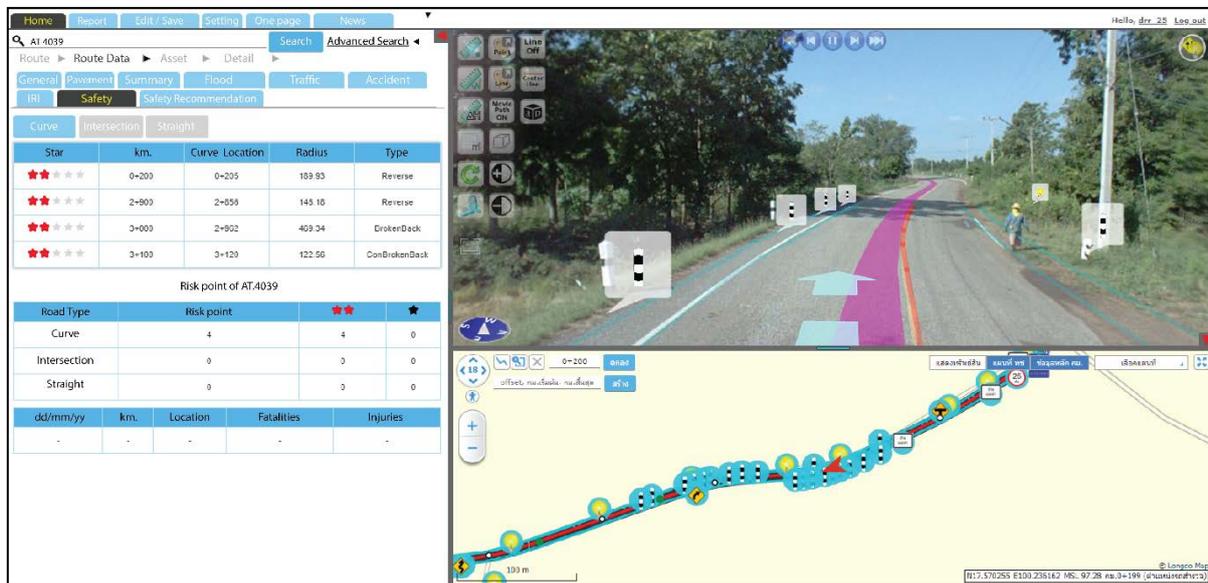

Figure 1. Main interface of RSAS toolkit

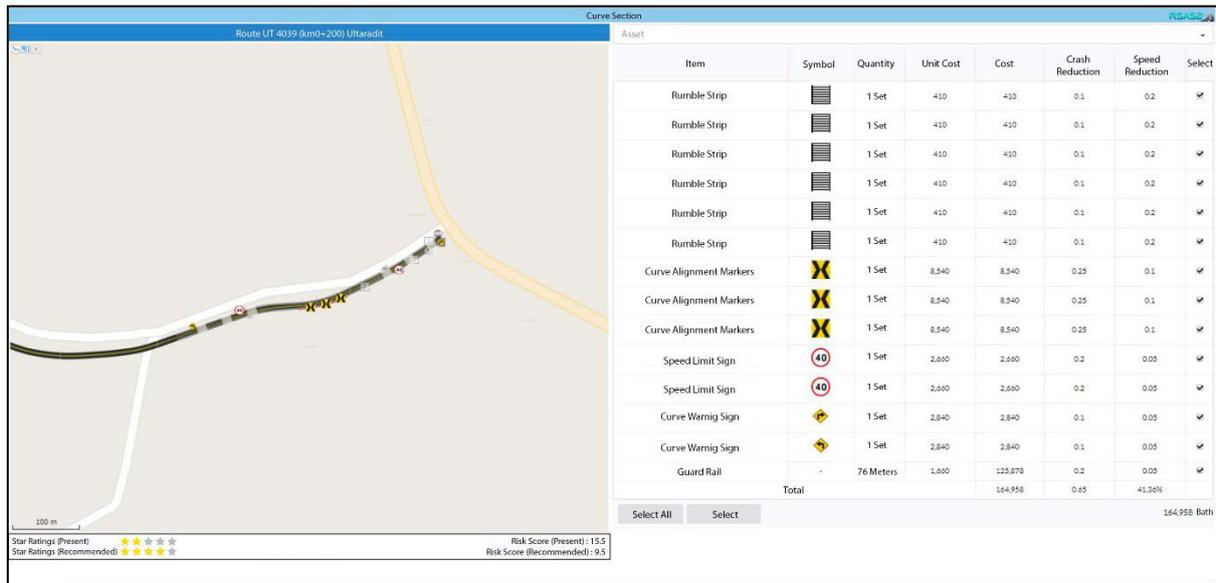*Figure 2. Interface of safety improvement page in RSAS toolkit*

Figure 3. Interface of safety treatment page in RSAS toolkit

References

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