



## TRAFFIC INCIDENT MANAGEMENT BENEFIT-COST ESTIMATION TOOL

Traffic incident management (TIM) strategies are major approaches to deal with safety and mobility issues resulting from traffic incidents on the roadways. These strategies support quick incident response, thereby shortening incident duration and controlling traffic delays around the occurrence scene. Since resources and funding are often limited for State departments of transportation and local transportation agencies, it is essential to investigate benefits and costs for potential and existing TIM strategies to avoid potentially expensive or ineffective approaches.

Various types of TIM strategies have been implemented worldwide. Some of the most cost-effective and commonly used TIM strategies include:

- Safety Service Patrols.
- Driver Removal Laws.
- Authority Removal Laws.
- Shared Quick-Clearance Goals.
- Pre-established Towing Service Agreements.
- Dispatch Collocation.
- TIM Task Forces.
- Second Strategic Highway Research Program Training.

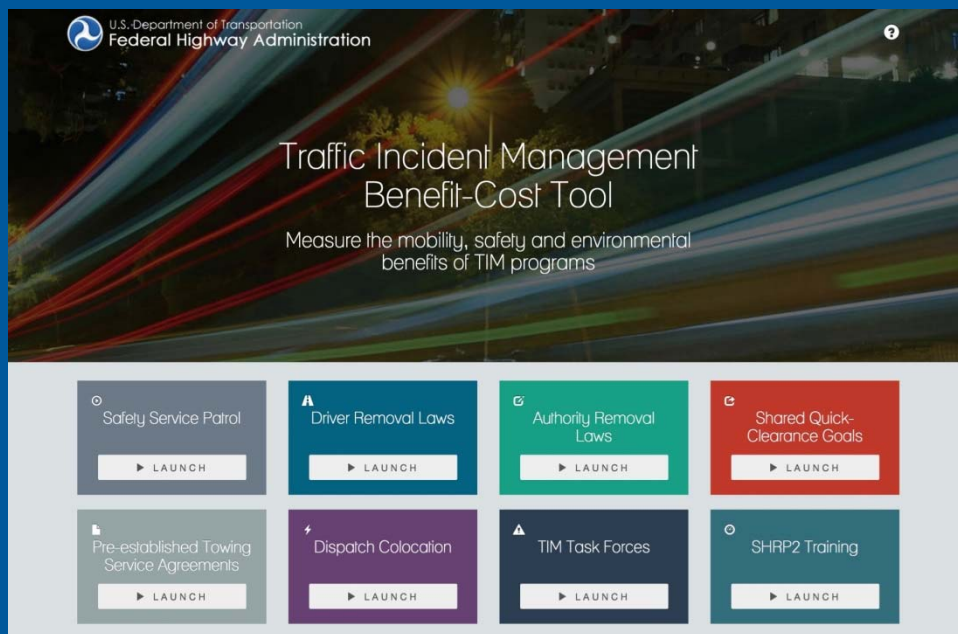
### WEB-BASED TIM-BC TOOL

The research team at Turner-Fairbank Highway Research Center (TFHRC) developed a Web-based Traffic Incident Management Benefit-Cost (TIM-BC) tool with standardized methodology that can be universally employed in benefit-cost ratio estimation for different TIM programs. Standardization benefits the evaluations by creating consistency and therefore greater confidence in the validity of the results. With access to the approach in the form of a user-friendly, less data-intensive tool, TIM programs and taxpayers alike can benefit from cost-effective evaluations.

The tool features different subtools for the eight different TIM strategies described above, and users are able to input their own parameters based on their local experiences and engineering judgment. The tool also provides default values for these parameters to facilitate quick TIM-BC evaluation, particularly for areas where targeted TIM strategies have not been implemented and no relevant data is available. A screenshot of the main navigation page is shown below.

A key user interface of one subtool, SSP-BC (for evaluating Safety Service Patrol), is shown below. Other than basic Safety Service Patrol (SSP) Program information, such as location, number of vehicles, and staff for backend program cost calculation, the user has the flexibility to

**Figure 1.** TIM-BC tool navigation page with panels linking to all eight subtools



input information on roadway geometry, the SSP Program, traffic, weather, and incidents. The tool can also automatically generate an evaluation report that is professionally designed for an effective presentation of evaluation results.

## RESEARCH APPROACH

Existing TIM-BC analysis tools were reviewed in order to document their capabilities, user-defined parameters, and gaps in analytical results. Information gathered from these reviews was then used to develop a comprehensive list of future needs, such as TIM strategies that have not yet been addressed by any Web-based tools, and TIM analysis areas that show inconsistent results among currently utilized tools.

The TIM-BC tool can estimate travel delay, fuel consumption, emissions, and secondary incidents. The data and

equations encompassed in the database are derived directly from well-designed simulation experiments, which consider various incident information (i.e., number of lanes, lane blockage, duration, and location) under different traffic conditions. The computations employ a hybrid statistical-simulation methodology in which parameters from regression analysis are combined with results from simulation runs to improve the fit of the regression model.

The tool can be used on any updated Web-standard Web browser, and can be downloaded as a zip file from FHWA's Web site at <http://www.fhwa.dot.gov/software/research/operations/timbc/>.

For additional information on the TIM-BC tool, contact Taylor Lochrane at [taylor.lochrane@dot.gov](mailto:taylor.lochrane@dot.gov) for tool-related issues and Paul Jodoin at [paul.jodoin@dot.gov](mailto:paul.jodoin@dot.gov) for TIM-related questions.

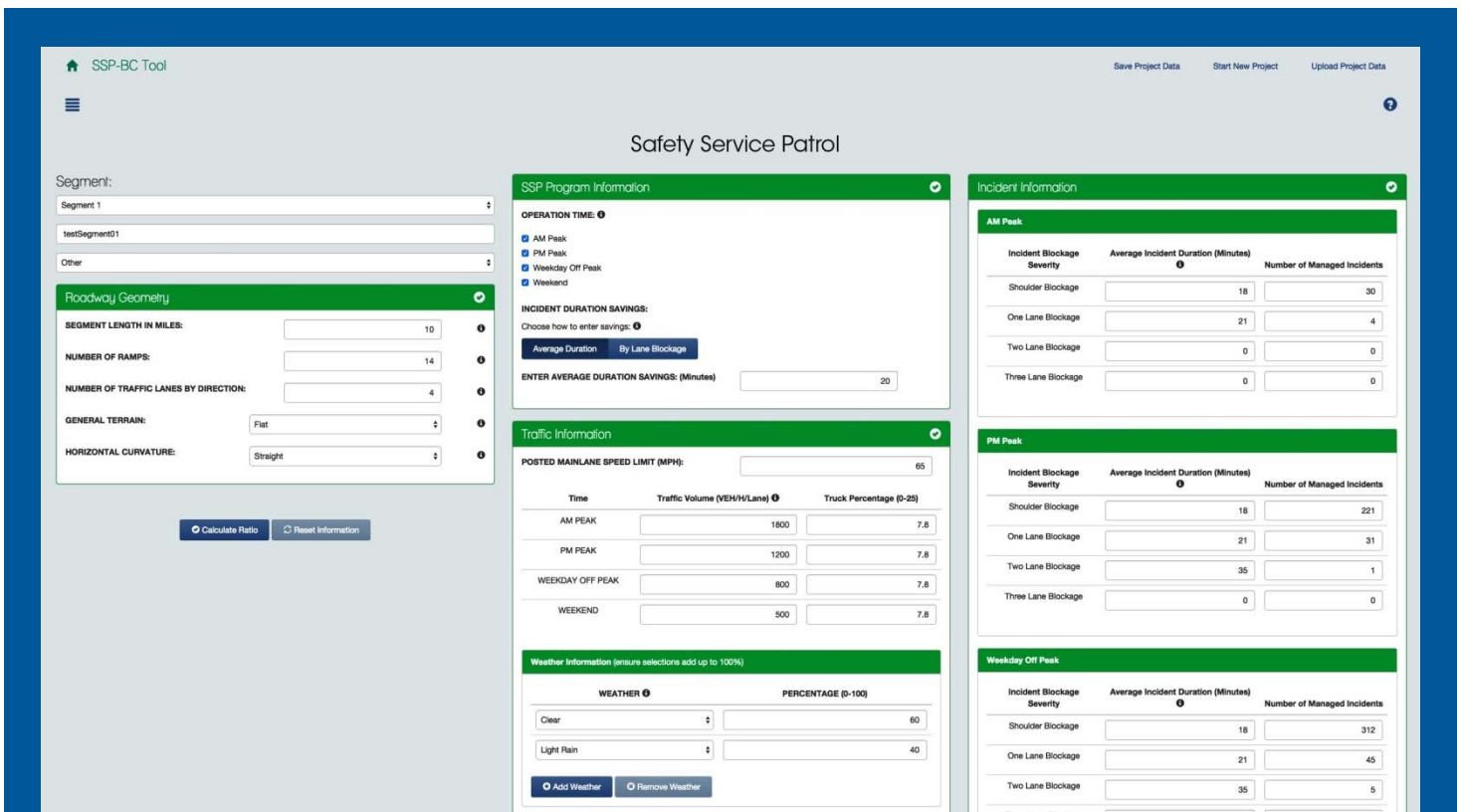


Figure 2. A screenshot of the Web-based tool shows the different options available, such as location, traffic information, and physical roadway characteristics.