The accurate and comprehensive documentation of a serious traffic accident forms the basis of the investigation conducted by the respective law enforcement authority and the accident insurance companies, for determining the factors and causes leading to a traffic accident. The investigation of any traffic accident essentially consists of the collection and interpretation of information from the scene, evidence, and the causes of the accident.

For the most faithful representation of a traffic accident, and in order to clearly define the conditions and causes, it is necessary to gather as many metric elements as possible (photos, distances, etc.). The collection of this data should be done as quickly as possible in order to reopen the road to traffic, but without losing or destroying valuable evidentiary elements.
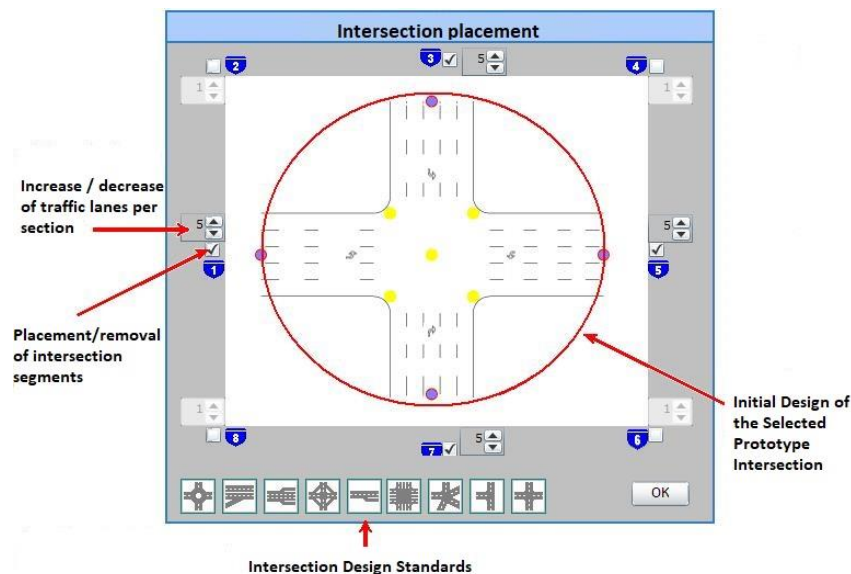
The design of the accident scene (diagram) by the police officer or the accident insurance company employee is done with specialized software, which as a significant part of the integrated information system, will model the accident as a concise visual information in the form of a diagram. This visual information will remain available for any search.

All these new standardization procedures in drafting reports (accident inspections) will offer extremely significant legal benefits. The diagrams from the application will provide a realistic image and the ability for a correct interpretation of all available information from the accident scene.

1. Ready-made Intersection Design Templates

The integrated platform includes dozens of ready-made templates for road intersections, uneven junctions, highways, as well as other complex road structures. The police officer or the accident insurance company employee can easily select the template that matches the accident, modify it in any way, and easily place it with a simple click within the diagram. The integrated platform also features a specialized tool with which the police officer or the accident insurance company employee can change the number of traffic lanes, the width of each lane, the number of crossings, lane dividers, reverse lanes, bus stops, etc.Any modified template can also be saved and later used as a ready-made "personal" template by the respective user who has utilized it. (police officer or accident insurance company employee)

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2. Design palettes (pre-made design elements)

The integrated platform includes dozens of ready-made elements (symbols) which, through predefined palettes, the police officer or the employee of the accident insurance company can

easily select and place within the diagram. These symbols encompass all the elements that a scene from a traffic accident would require. Furthermore, the symbols are categorized and include passenger cars, trucks, motorcycles, pedestrians, columns, plants, animals, weather symbols, blood splatters, water points, traffic lights, cones, etc.

With a simple click, the police officer or the accident insurance company employee can choose the desired object, "drag" it into the diagram, rotate it in any direction, resize and recolor it, and place it wherever they want within the scene.

3. Measurement and recording of distances on the diagram.

The measurement and recording of a distance can pertain to a segment of a road, the distance between two objects, or even the calculation of the perimeter dimensions of a building or a vehicle.

The platform automatically calculates distances with absolute precision. The distance between any two points is determined exactly as it would be in reality (at a 1:1 scale).

Furthermore, the police officer or the accident insurance company employee can easily add a text note (on top of the distance) and even choose the color of this note.

Placement of distances with absolute precision with one click at a scale of 1:1.

4. Design layers/levels.

The integrated platform offers the capability to design in multiple horizontal "design sections" or "design layers". This feature aids both novice police officers and accident insurance company employees who create complex diagrams with numerous objects. Depending on their category (e.g., distances, pedestrians, vehicles, buildings, and architectural structures), these various objects can be placed in different "design layers". In this manner, even in a cluttered diagram, the police officer or accident insurance company employee can temporarily "hide" unnecessary "layers" and work with ease on a primary design layer.

The separation of "horizontal sections of design" - Layers
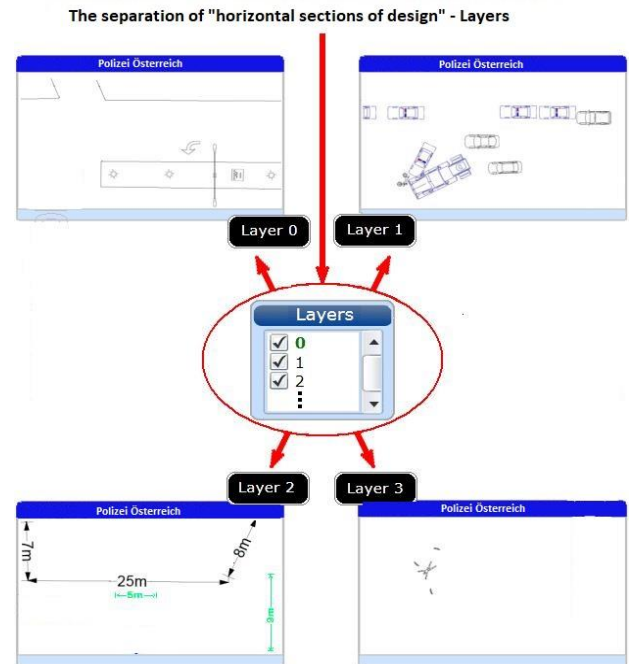
5. Georeference/Geographic Location Search/Address Search

An easy and quick way to create a diagram is by using a satellite image. The integrated platform has the capability to import photos and satellite images through Microsoft's Bing™ Maps or Google's™ Maps. The police officer or the employee of the accident insurance company can import and use any available satellite image from any accessible geographical area. The search for a satellite image can be done either from the satellite coordinates of the accident site (e.g., latitude 37.98765 and longitude 23.756124) or simply by entering the address details of the location (e.g., the street name, the name of a hospital, etc.)

Geographic Location Search 37.98765, 23.756124

Type the address of a location or a geographic waypoint

APPLICATION SUMMARY

I. Integrated Platform Specifications

The system includes specialized software for designing the detailed representation of the accident scene (diagram). Based on the preliminary (hand-drawn at the scene of the incident) representation of the accident scene, the investigating officer will create a more detailed plan:

- Using design templates (with the ability to make modifications), which can represent roads and their layout (e.g., intersections) at the scene of the incident.
- For the representation of all the objects that need to be recorded (e.g., vehicle paths, vehicles and their parts, victims, bloodstains, etc., which will be fully determined in the analysis and application study phase), the investigator must have at his disposal design palettes from which he will select the aforementioned objects.
- There is the capability to record distances between the designed objects (without the need for these designed distances to be in relative scale compared to other objects in the diagram, e.g., cars, victims, etc.).
- The design outcome takes the form of a digital file that can be modified (after successive temporary saves) and can be printed as an image in all available formats (e.g., PDF, BMP, WMF, and JPEG).
- There is the capability to georeference the design result at the level of the accident scene, in the geographic visualization subsystem of the project.

The design result of the representation software can be linked to the corresponding case, making it available for printing in various workflows during the management of the traffic accident.

II. Technical Specifications

- The software is web-based, user-friendly, and compatible with at least three popular web browsers.
- The software allows users to record the representation of the accident scene using:
  - ✓ Templates for design (with the ability to make modifications), which can represent roads and their layout (e.g., intersections) at the accident scene.
  - ✓ Design palettes for representing elements of the accident.
  - ✓ Measurements of distances between the designed objects.
  - ✓ Possibility to design on different layers.