Environmental sustainability has also become a core part of Nova Poshta's identity. Understanding the global shift toward eco-conscious business practices, the company has embraced green logistics. Initiatives such as integrating electric delivery vehicles, reducing packaging waste, and optimizing delivery routes for lower emissions demonstrate Nova Poshta's commitment to reducing its carbon footprint and leading by example in the industry.

Looking to the future, Nova Poshta is not content with regional leadership—it aims to redefine international logistics standards. The company is actively exploring new markets, expanding partnerships with global carriers, and enhancing cross-border delivery networks. It also continues to nurture a culture of innovation within its workforce, encouraging bold ideas and fostering entrepreneurial thinking across all levels of the organization.

In an increasingly interconnected world, logistics plays a critical role in enabling commerce, connecting communities, and driving economic development. Nova Poshta, with its agile mindset and customer-first approach, is well-positioned to become a central figure in this global ecosystem.

The story of Nova Poshta is still being written—but one thing is clear: its legacy will be defined not just by the volume of parcels delivered, but by the positive impact it continues to make on people, businesses, and the environment.

ROAD AUDIT: CHALLENGES AND ISSUES

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Introduction

Road safety is one of the most important elements of public infrastructure, directly affecting the life and health of citizens. In today's world, where the transport system is rapidly developing, the level of population mobility is increasing, and the intensity of road traffic is significantly rising. These factors, in turn, lead to a growing risk of road traffic accidents (RTAs), which result in serious consequences—both socially and economically.

According to the World Health Organization, more than 1.3 million people die annually in road accidents, and tens of millions more are injured. In Ukraine, the situation also remains difficult—a significant share of RTAs occur due to infrastructure deficiencies, traffic rule violations, poor visibility on roads, and the lack of a systematic approach to ensuring safety. This creates an urgent need to implement preventive measures, one of which is the road safety audit.

The road safety audit (RSA) is a comprehensive method of analyzing and evaluating road infrastructure, which allows for the identification of potential risks even before a facility is built or reconstructed. Thus, the audit serves as an effective tool for preventing accidents, reducing the number of fatalities and injuries in RTAs, and saving budget funds. In the European Union, this tool has long been a standard practice in transport planning, while in Ukraine it is only beginning to be actively implemented.

This paper examines the basic principles, stages, and benefits of conducting a road safety audit, as well as practical examples of its implementation. The purpose of the research is to analyze the role of the RSA in shaping a safe road environment and to determine the prospects for its development in Ukraine.

The Concept of Road Safety Audit

A road safety audit is an independent, formalized process that involves evaluating road, street, and other infrastructure projects from the perspective of traffic safety. The main goal of the audit is to identify potential hazards that could lead to road traffic accidents before these hazards become a real threat to human life.

This process is carried out at various stages of road project implementation—from initial concept to the actual commissioning of the facility. The audit is conducted by independent experts or teams of specialists who are not directly involved in the development or construction of the project. This independence ensures objective evaluation and helps avoid conflicts of interest.

The main tasks of the audit include:

• analyzing planned design solutions in terms of safety for all road users (drivers, pedestrians, cyclists, etc.);

• identifying conflict points where potential hazards may arise;

• developing recommendations for eliminating or mitigating risks;

• ensuring compliance of the design solutions with modern safety standards and norms.

The audit may apply to both new projects and existing infrastructure that requires reconstruction or modernization. In particular, RSA practices are used in preparation for road overhauls, intersection construction, pavement marking upgrades, and signage installation.

The key principles of RSA are: auditor independence, systematic approach, thorough documentation, and a focus on accident prevention. It allows for the creation of a safety system that takes into account both technical and behavioral aspects of traffic. As a result, road infrastructure becomes not only functional but also safe for all users.

In many countries, conducting a road safety audit is a mandatory requirement for project approval at municipal, regional, or national levels. In Ukraine, this process is only starting to develop, but it already has a clearly defined regulatory framework based on European standards, particularly Directive 2008/96/EC.

Stages of Road Safety Audit

The road safety audit is carried out in clearly defined stages, allowing for a systematic identification of potential risks at the design stage, during construction, or during the operation of road infrastructure. According to the “Road Audit” presentation, four main stages of the audit are distinguished.

The first stage is the Feasibility Stage Audit. This is conducted before the final project documentation is developed. The main objective at this stage is to identify potential safety hazards before they are embedded into the fundamental design of the road project. This helps to prevent design errors that could be difficult and costly to fix later. During this stage, auditors analyze the route alignment, preliminary traffic schemes, proposed intersection types, design speed, and planned solutions for pedestrians and cyclists. Visibility at key sections, curve smoothness, road slopes, and

other factors that directly affect safety are considered. This stage is crucial as it allows the most effective and economical changes before any detailed design is done.

The second stage is the Preliminary Design Stage Audit. It involves checking all the technical documentation developed after the initial planning is completed. The main task is to identify mistakes or risks in the design drawings and technical decisions that may affect the safety of road users. Auditors study traffic organization plans, lane arrangements, pedestrian crossings, public transport stops, bicycle lanes, traffic lights, road signs, and lighting systems. Compliance with current norms and safety standards is also verified. If deficiencies are found, they can be eliminated without needing to alter already constructed objects. Thus, the audit at this stage ensures higher quality of project implementation and prevents safety hazards before the road becomes operational.

The third stage is the Pre-Opening Stage Audit. This is performed after construction work is completed but before the road is officially opened for use. The aim is to verify that all project decisions have been correctly implemented and that an adequate level of safety has been ensured.

During this stage, a detailed on-site inspection is conducted. Auditors assess the road's geometric characteristics, the presence and correctness of road signs, markings, traffic lights, lighting, barriers, safety islands, and other infrastructure. Special attention is paid to visibility at intersections and curves, the safety of public transport stops, and accessibility for pedestrians and cyclists.

This stage is critical for identifying construction-related deviations from the design and any safety issues that may have arisen during implementation. If dangerous elements are discovered, auditors provide recommendations to address them before traffic is allowed, thus avoiding risks in the early days of operation when drivers are still unfamiliar with the new infrastructure.

The fourth stage is the Operational Stage Audit. This is the final stage and is conducted after the road has been opened and traffic is already in operation. Its purpose is to analyze the effectiveness of design and construction decisions in real-world conditions.

During this stage, statistical data on road accidents is collected. Auditors observe the behavior of drivers, pedestrians, and cyclists, and study conflict situations during peak hours or poor weather conditions. Sometimes, local residents and road users are surveyed to gather additional insights about safety issues.

The outcome of this stage is the identification of infrastructure elements that, despite compliance with standards, cause inconvenience or provoke unsafe behavior. Auditors suggest improvements, including modernization or installation of additional control devices. Thus, operational audits contribute to the continuous improvement of road safety based on real experience.

Tools and Methods of Analysis

A wide range of methods is used during a road safety audit to deeply and comprehensively assess safety conditions, both at the design and operational stages. The effectiveness of the audit largely depends on selecting proper analytical techniques and maintaining objective evaluation. All tools and approaches are aimed at identifying potential crash causes and proposing solutions to eliminate them.

One of the key tools is the on-site inspection. Auditors visit the location, perform visual inspections, and document hazardous elements of road infrastructure. They assess pavement conditions, visibility, road signs, markings, lighting, bus stops, and pedestrian crossings. Particular attention is given to conflict points between different road users.

Another important method is the analysis of project documentation. This includes a thorough review of drawings, traffic organization schemes, intersection layouts, stop placements, lane configurations, signage, and safety features. Compliance with safety regulations is assessed, and errors are identified before construction begins. Checklists are commonly used. These are standardized lists of typical issues and risks, helping auditors systematically review elements such as pedestrian crossings, intersections, signage, barriers, and geometric features.

Photo and video documentation is used to capture deficiencies on site and support further analysis. This visual material is included in audit reports.

Sometimes, behavioral modeling is applied to predict how road users will interact in particular conditions—at intersections, narrow sections, or near bus stops. This helps foresee potential hazards before the road is opened.

During the operational stage, direct observation of road user behavior is vital. Auditors watch traffic or review footage from surveillance cameras or drones to detect unexpected dangers or traffic violations.

Surveys of local residents and road users are another valuable method, especially during operational audits. They provide information on daily difficulties that are not visible from project documents or technical data.

By combining on-site observation, technical analysis, modeling, and user feedback, auditors gain a complete understanding of the road's safety level and propose substantiated improvements.

Examples of Infrastructure Solutions

Road safety audits frequently identify common deficiencies in infrastructure that affect the safety of all road users. Based on the audit findings, recommendations are made to introduce targeted infrastructure changes aimed at reducing crash risks and improving the overall safety environment.

One common problem is poorly located pedestrian crossings, which may lack proper lighting, signage, or markings. They are sometimes placed near curves with limited visibility or on high-speed sections. Solutions include relocating crossings to safer areas, improving lighting, using raised crosswalks, or applying high-contrast markings.

Another typical issue involves complicated intersection geometry or unclear traffic priorities. These can be resolved by simplifying layouts, introducing traffic signals, marking guide lines, or implementing roundabouts to minimize vehicle conflicts.

Public transport stops are often located without adequate space for buses to pull out of traffic, creating congestion and potential rear-end collisions. Recommended solutions include dedicated bus bays, raised curbs, shelters, and pedestrian crossings nearby.

Cyclist and pedestrian infrastructure is frequently absent or unsafe. Bicycle lanes may abruptly end before intersections or run too close to transit stops. Improvements involve physically separated lanes, smoother routing, and clear markings for vulnerable users.

Poor nighttime visibility is another serious safety concern. Installation of LED streetlights in critical areas—intersections, crossings, bus stops—can significantly improve safety.

Other typical solutions include rumble strips, safety barriers, traffic islands, reflective road studs, convex mirrors, and directional bollards. These help guide drivers and reduce the risk of crashes, particularly in complex environments or low-visibility conditions.

Thus, the implementation of infrastructure solutions based on audit results leads to measurable improvements in traffic safety and reduces the number of potential accident hotspots.

Conclusions The road safety audit is a key tool in the modern management of road infrastructure. Its primary goal is to detect potential hazards that may cause accidents—at the planning, design, or operational stage—and prevent them before they materialize.

The audit is a step-by-step process that includes the entire life cycle of a road project: from conceptual design through construction and into real-world use. At each stage, auditors have the opportunity to provide specific recommendations to improve safety.

Various analytical tools are used: field inspections, documentation review, checklists, photo and video analysis, behavioral modeling, direct observation, and user surveys. These methods provide a comprehensive picture of safety conditions.

The results of audits lead to tangible technical and organizational changes—such as improved lighting, safer crosswalks, better signage, and reconfigured intersections. These not only enhance safety but also help reduce maintenance costs, increase public trust, and ensure effective use of public funds.

In Ukraine, the practice of road safety audits is still emerging. However, experience from EU countries where such audits are mandatory shows clear benefits: lower crash rates, safer designs, and improved mobility. Therefore, audits should become a standard requirement for all road construction and reconstruction projects.

Ultimately, road safety audits are not just a technical formality—they are a strategic tool for protecting lives, ensuring mobility, and creating a sustainable, user-friendly transport system.

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DETERMINING THE DANGER LEVEL OF A COMPLEX CROSSROAD IN THE CITY

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Currently, there are several approaches to studying intersections, among which the most common are the office and field methods. Each of them has its advantages and disadvantages, depending on the tasks set and the resources available.

The desk-based method of intersection research involves analyzing data, statistics, and traffic modeling in an office setting, while the field method involves