



**Consulting Engineers & Scientists, Inc.**

# **The Expert Approach to Roadway / Highway Related Liability Matters**

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## **ROADWAY / HIGHWAY RELATED LIABILITY MATTERS**

### **INTRODUCTION**

This document was developed to aid the attorney in assessing and preparing roadway liability matters. Each matter will be unique and require an individualized approach. The information contained herein is of a general nature and will require adaptation for each matter. Early review of the matter by an expert will provide the client with a technical view of the merits and pitfalls of the individual matter and allow the client to make a more informed assessment of the matter.

### **THE ACCIDENT**

Over 40,000 people die in accidents on our nation's highways each year. Many more are injured. These accidents are tracked by the National Center for Statistics and Analysis and are categorized into accidents involving alcohol, excessive speed, cars, light trucks, heavy trucks, drivers, passengers, restrained, unrestrained, etc. These statistics do not identify the condition or characteristics of the roadway where the accidents occurred.

Based on this national database, one would think that the roadway itself was never the cause nor even a contributing factor to an accident. Certain highways, interchanges and intersections are deficient based on established criteria. Certain new highways are designed and built with both the designer and owner knowing that they are not in full compliance with established criteria.

Many existing roadways were simply trails once followed by horse and rider and in recent times have simply had a new surface added. Some modifications to the roadway have not stayed in compliance with criteria in existence at the time the roadway was modified. Sometimes disregarding criteria is warranted, sometimes it is not. An engineer can help the client determine what and when compliance would have been warranted.

Many accidents occur primarily at the intersections of roadways. Intersections are a natural point of conflict for vehicles. Vehicles want to get from one point to another, and the line between these two points intersects with the travel path of other vehicles creating an area where accidents will occur.

The American Association of State Highway and Transportation Officials (AASHTO) publishes documents that provide criteria for roadway geometrics and appurtenances to allow vehicles to operate safely on this nation's highways and their intersections. AASHTO is comprised of the heads of each state's Highway/Transportation and Bridge Departments, as well as top officials from the Federal Highway Administration and private consulting firms. Each state's roadway and bridge design criteria are based on documents produced by AASHTO. Additionally, the Federal Highway Administration and Transportation Research Board provide publications for signing and traffic capacities that provide criteria for these items.

An expert in roadway design and traffic engineering is essential to assist the attorney in weaving through past and present design/construction/maintenance criteria and to help them determine compliance of the accident site with the appropriate criteria.

## ROADWAY / HIGHWAY RELATED LIABILITY MATTERS

### THE INVESTIGATION

Accident sites may remain unchanged for years; however, some sites may change quickly if construction is scheduled or ongoing or if an agency reacts quickly to a problem. A site examination performed by a qualified engineering expert as close to the time of the accident is helpful to establish and document the conditions that existed at the time of the accident. Critical evidence can be lost when the site investigation is delayed. A prompt, thorough examination defines the accident site conditions, reduces assumptions, and minimizes speculation.

When the attorney needs to evaluate the nature and cause of an accident, limited information of the incident circumstances may exist. Witnesses are sometimes confused and provide conflicting or erroneous information; however, the engineering investigation can be helpful in the evaluation of this information. The accident scene should be documented by measuring, mapping and photographing the area to help assess the accident. Pertinent information should be carefully gathered and preserved for subsequent study and evaluation. When additional testing and analyses are warranted, the extent of an evaluation is often dependent upon securing evidence before the evidence is altered, lost or destroyed.

Information that can be determined from a site investigation may include the following:

#### Evidence

- Broken components
- Contaminants
- Contradictory conditions
- Debris
- Guide/guard rail
- Lighting
- Locations
- Measurements
- Sight lines
- Signing
- Striping

#### Roadway Components

When investigating the roadway at an accident site various roadway components may need to be evaluated based on the particular accident. Several of these components are listed hereafter:

- Barriers
- Bridges
- Curbing
- Drainage
- Interchange type & geometry
- Intersection configuration / geometry
- Intersection traffic control devices
- Items adjacent to roadway, i.e. vegetation, buildings, signs, fences, etc.
- Lines on pavement
- Roadway configuration / geometry
- Roadway cross section
- Roadway pavement
- Sign location
- Signing

Each of these components and others not listed may be checked for its location, condition, visibility, discernability, appropriateness, etc.

#### Environmental Conditions

- Day lighting
- Fog
- Night lighting
- Precipitation

## ROADWAY / HIGHWAY RELATED LIABILITY MATTERS

### Site Characteristics

- Contaminants
- Drainage
- Guardrail stability & location
- Ice
- Joints in pavements
- Material types
- Name plates
- Obstructions
- Potholes or openings
- Signs
- Soil type
- Stormwater & drainage
- Subsidence
- Surface treatment
- Surface type
- Warnings
- Water resources

### Measurements & Locations

- Change in elevations
- Contractor layout areas
- Curb heights
- Debris location
- Deteriorated areas
- Dips
- Drainage locations
- Fixed object locations
- Guardrail height
- Markings
- Overhead clearances
- Ramp slopes
- Sight distance
- Signage
- Slip resistance
- Slopes & grades
- Surface texture
- Surface unevenness

### Testing & Analysis

- Air quality
- Chemical analysis
- Concrete testing
- Failure analysis of materials
- Friction factors
- Metal detection
- Soils testing
- Stability
- Steel strength
- Structural analysis
- Timber evaluation
- X-Ray

## DISCOVERY

The discovery of materials for expert technical evaluation should include documents and materials that offer historical insight leading to the incident events and are believed to be associated with the case development. When considering deponents, the owner, engineer, contractors, construction managers, construction inspectors, maintenance supervisors and code enforcement officials may have relevant case information. Dates of design, construction and alteration should be determined to evaluate issues of code and/or OSHA compliance. Based upon the case requirements, the following information may be requested as it is determined to be necessary for the development and support of the case.

### Agreements & Contracts

- Approval agencies
- Approved preliminary engineering documents
- Approved preliminary environmental documents
- Construction manager
- Developers
- Engineers
- General contractor
- Inspectors
- Joint ventures
- Maintenance
- Owners
- Permits
- Subcontractors

## ROADWAY / HIGHWAY RELATED LIABILITY MATTERS

### Code Enforcement File

- Approved drawings
- Code enforcement officer, identification
- Construction applications
- Construction permits
- Inspector, identification
- Inspector's daily reports
- Instruction/direction given to the contractor
- Notes
- Notices
- Permits
- Violations

### Construction

- Accident investigations
- Accident records
- As-built drawings
- Bid packages
- Change orders
- Codes, constructed under
- Construction manager, identification
- Construction packages
- Contractors, identification
- Daily reports
- Diaries
- Drawings
- Final construction drawings
- Foreman, identification
- Gate logs
- Inspection records
- Inspectors, identification
- Job meeting notes
- Job notes & records
- Job schedules
- Monthly reports
- OSHA file
- OSHA violations
- Photographs
- Project mgr., identification
- Safety engineer, identification
- Safety file
- Safety manuals
- Safety meeting minutes
- Safety officer
- Safety records
- Shop drawings
- Shop steward, identification
- Special reports & correspondence
- Specifications
- Subcontractors, identification
- Superintendent, identification
- Test reports
- Tool box meeting records
- Videos
- Work orders

### Engineers & Architects

- As-built drawings
- Change orders
- Codes, designed under
- Construction packages
- Contracts including scope of services
- Final construction drawings
- Preliminary drawings & sketches
- Project engineer, identification
- Project manager, identification
- References, relied on
- Revised drawings
- Shop drawings
- Specifications
- Who sealed drawings

### Maintenance Records

- Agreements
- Alterations after construction
- Cleaning procedures
- Contractors, identification
- Maintenance contractor
- Maintenance records
- Manuals
- Meeting notes
- Methods & techniques
- Personnel names, identification
- Policies
- Procedures
- Purchase orders for products
- Records of repairs
- Schedules
- Signs
- Warnings

**ROADWAY / HIGHWAY RELATED LIABILITY MATTERS**  
**Design & Construction Ordinances in Place at Time of Incident**

- Bridge requirements
- Roadway requirements
- Sidewalks requirements
- Side development requirements

**Plaintiff**

- Accident history
- Age
- Alcohol/drugs
- Attentiveness
- Climbing ability
- Clothing
- Health
- Medical history
- Prior physical conditions
- Running ability
- Statements
- Walking ability

**ENGINEERING ASSISTANCE FOR ACCIDENT INVESTIGATION**

An attorney often encounters technical documents or engineering reports that provide information that is difficult to interpret. Sometimes, an attorney needs assistance interpreting technical information. The expert engineer can provide technical assistance to an attorney in performing tasks including the following:

- Arrange or conduct testing
- Code enforcement law
- Code requirements, code changes & standards
- Complaint review
- Deposition notes
- Engineering & construction general practice criteria
- Evidence storage
- Examination of accident scene
- Exhibit preparation
- Governmental department file review
- Identify useful information
- Inform attorney about technical issues
- Interface & coordinate to obtain the available information
- Interface with other consultants
- Interview witnesses
- Local & state requirements
- Photograph evidence
- Predict opposing liability arguments
- Prepare a report, if warranted
- Questions & technical wording for discovery requests
- Research publications
- Review technical documents
- Review & obtaining records
- Review drawings, contract, & design documents
- Testify, if warranted
- Testing of accident conditions & evidence
- Translate engineering language into common terms
- Trial cross-examination questions
- Trial monitoring
- Trial preparation

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*The information presented in this booklet is intended only to be used as a guide in assisting clients concerned with or involved in the legal process where litigation or potential litigation is an issue. The information is further intended to inform clients that Consulting Engineers & Scientists, Inc. has both the expertise and the capability to provide direction and guidance in the specific disciplines and areas presented in this booklet. It is important to note that the information also is general and is not intended to completely cover the specific nuances of a particular matter. If there are any questions concerning this information, please feel free to contact us.*