Tort Liability: Special Problems Encountered by Highway Agencies and Contractors in Designing Work Zone Layouts

David C. Oliver, Federal Highway Administration

The principles of tort liability apply generally, whether the case is one of design, maintenance, or construction. All case principles are, therefore, applicable and lessons may be learned from nonconstruction zone cases. In another sense, however, construction zones present special problems in that they are at variance with the motorist's normal expectations. Thus, adequate warning devices and barrier safeguards are required. The question of adequacy in tort law discussion usually takes place in the negative, which further complicates the subject. That is to say, most of the cases discuss what is not adequate; what is adequate remains a vague item in terms of legal discussion. In light of this, this paper discusses some general principles, some considerations involving federal regulations or programs, and some recent cases that provide first-hand knowledge of judicial treatment of the topic at hand.

Lawsuits arising out of accidents as a result of alleged defects in a highway generally have four principle issues:

1. Did a potentially dangerous defect exist?
2. Was that defect the proximate cause of the accident?
3. Did the defendant have actual or constructive knowledge of the hazardous condition?
4. Was there any contributory negligence on the part of the plaintiff?

In seeking to answer these questions, the courts have established some guidelines, which are helpful in indicating general responsibilities.

1. The state is not an insurer of the roads or a guarantor of absolute safety.
2. The motorist has a right to presume and to act on the presumption that a highway is safe for usual and ordinary traffic, both in the daytime and at night. He or she is not required to anticipate extraordinary dangers, impediments, or obstructions to which attention has not been directed or of which he or she has not been warned.
3. Public highways must be maintained in a way that is reasonably safe for travel. What is reasonable? An acceptable definition is, "That is reasonable which is expected in a given circumstance." A road reasonably safe for travel is one that is maintained within accepted and understood criteria, under generally promulgated engineering standards, or subjected to generally promulgated engineering attitudes.
4. Maintenance of the highways in a manner that is reasonably safe for travel leaves wide latitude for the exercise of administrative discretion, but continual supervision and inspection are axiomatic. It is in the area of this general principle that a noticeable connection exists between positive administrative attitudes and negligence cases.
5. The courts recognize modifying factors in establishing what is reasonably safe, among them the terrain encountered and traffic conditions.
6. Recovery is predicated on more than the presence of hazardous conditions.
7. The authorities must provide proper safeguards or adequate warnings of such conditions; these warnings must be commensurate with danger. For example, an oil film on a highway has been held to be more than a slippery condition and warning signs or speed advisory signs are necessary to alert motorists.
8. Negligence is predicated on knowledge or information of the existence of a dangerous or defective condition and a subsequent failure to safeguard such condition.

These are only general principles because there is no legal rule by which to measure conditions and determine precisely whether a condition in a highway constitutes a defect.

FEDERAL SAFETY PROGRAMS AND REQUIREMENTS

The federal-aid highway program is a state program, federally assisted. The courts have interpreted this historical development to mean that the primary role of the federal government is to safeguard the expenditure of federal funds. This interpretation has successfully protected the federal government from judgment in most liability actions.

The passage of the Highway Safety Act of 1966 indicated that the congress desired that the federal government play a stronger role in the creation of a safe highway environment. This act was followed by the Highway Safety Acts of 1973 and 1976.

One interesting development was highlighted in a press release on March 3, 1977, which publicized the limitation on timber barricades on federal-aid projects. The policy resulted from a testing program that confirmed that timber barricades fail to retain and redirect colliding vehicles traveling in excess of 56 km/h (35 mph). The new instructions require that where positive barriers are needed to control traffic in construction zones, concrete safety-shape barriers or metal-beam systems should be used. Further, for purposes of marking traffic lanes or channeling traffic, a variety of temporary devices are listed in the Manual on Uniform Traffic Control Devices (MUTCD).

This new policy is of interest because the common law has established that where there is a question of barriers, as a general rule, they should be erected where necessary to provide a reasonably safe road for travel. Generally speaking, the character and strength of the barriers are usually left to the judgment of engineers. The only judicial rule of sufficiency is that barriers must make the road reasonably safe for travel. Barriers must be proved to meet the tests of (a) strength to carry out their purpose and (b) strength to withstand ordinary weights and forces to which they may be subjected.

In light of supportive research that indicates that

timber barricades fail to retain and redirect colliding vehicles traveling in excess of 56 km/h, the states appear to have been less than diligent in protecting themselves from liability. It is to be hoped that the new federal policy will improve the defensibility of the states in barrier collision cases in the future.

In a recent case in Kansas, the plaintiff placed heavy reliance on the federally inspired program to upgrade safety. In this case, Martin v. State Highway Commission [518 P.2d 582 (Kan. 1970)], the court affirmed the positive intent of the federal program in such a manner as to alleviate states' fears of litigation originating in the federal requirements.

The court discussed the availability of federal money for federally approved projects, which require as a first step the submission of a statewide inventory of hazardous locations. Of course, Kansas was just as reluctant as any other state to concede that it had any such locations in its highway system. Kansas was using the tried and true technique of ducking anytime something new and strange appears on the horizon. In order to ensure its share of federal funds, however, the highway commission did prepare and submit an inventory for the state.

The federal project called for such items as removal of roadside signs; replacement of break-away supports, edging, striping, and wrong-way signs; and the installation of guardrails. It was a 3-year project, expected to be completed in 1969. As part of its participation, in June 1968, the commission let a contract to place guardrails at 59 locations on I-70, including the intersection involved in this accident. Work on the project began in fall 1968, and the guardrails at this intersection were completed the following spring, some months after the accident.

The plaintiff introduced this evidence on the theory that it showed the required notice of the defect. In fact, the court held that it had no probative value. There was no question of notice as the commission had known all along that there were no guardrails at this intersection. The real thrust of the evidence showed that the absence of the guardrails was recognized by the commission as hazardous, and thus defective. The court said, "But... changing standards and wholly laudable efforts to improve the safety of our highways does not make 'defective' that which has long been considered adequate."

The court also referred to the problem of upgrading and modernizing older designs, as well as the financial burden that would result from upgrading simply because newer and better designs are used in construction today. The most important point in the case is that a decision to upgrade a highway system does not render defective those portions that the program has not yet reached.

The message is that there are certain duties to be met. The choice is whether to victimize a state's program through fear of change or to identify the problem areas and begin a remedial action program. Nothing short of a perfect system will prevent legal suits; therefore, the state should opt for the most defensible posture. The avoidance alternative can be very expensive.

RECENT CASES

The case of Brock v. State [396 N.Y.S. 2d 282(N.Y. 1977)] involved a wrongful death action arising out of collisions that occurred after a truck driver crossed a bridge in the rain. Three accidents occurred at the same place under the same conditions. The bridge is located at the bottom of two steep grades, 7 percent on the west side and 5 percent on the east side, with curves on the east side of the bridge.

The vehicles skidded and jackknifed at approximately the same speeds, weather, and highway conditions; each trailer was empty and the accidents occurred within 18 m (60 ft) of each other. No signs warned of slippery-when-wet conditions at the site. The construction of the highway called for an 80-km/h (50-mph) limit, which had just been raised to 97 km/h (60 mph) and then to 105 km/h (65 mph), ostensibly because of police inability to enforce the lower limit. Prior to these accidents, over a period of 34 months, there were 34 accidents within several hundred meters of each other and under similar circumstances.

The state was aware of this situation. Citizens had complained and there had been at least one on-site safety inspection. The state had conducted numerous tests, such as the ball-bank indicator and coefficient friction tests, but the friction tests were made during dry weather. Other tests made during wet weather were disregarded since no readings were obtainable.

The trial court found that the curve was not built to permit reasonably safe travel at high speeds and that the increase in the speed limit without warning or regulatory devices was only an accommodation for speeders that evidenced an indifference to the available indicia bearing on the causes of the accidents.

The appellate court agreed with the trial court. In the words of the court, "The unusual rate of accidents, the worn riding surface of the bridge and roadway, the complaining letters, the community meetings and the mountainous terrain all combine to charge the state with actual knowledge of the dangerous condition." Even state witnesses conceded that there should have been warning signs.

The lesson of this case is that it is necessary to post signs affording timely warning to motorists that they are approaching a segment of the road where uncommon dangers exist. Further, the posted speed was far in excess of the safe speed under certain conditions and led drivers to believe that their speed was reasonably safe when evidence indicated it was only marginally safe at best under the conditions then existing.

Beardsley v. State [395 N.Y.S. 2d 848(N.Y. 1977)] arose out of a two-automobile head-on collision at a construction site where a culvert pipe was being installed under the road. The duty of the state to construct and maintain its highways in a reasonably safe condition includes giving adequate warning, by sign or otherwise, of dangerous conditions on the highway. The evidence in this case indicated that the portion of the highway involved was unpaved, on a lower grade than the paved roadway north and south of it, and of insufficient width to accommodate the simultaneous passage of two automobiles traveling in opposite directions. The state had erected only two signs for warning purposes, both far removed from the reconstruction area. No signs directed a reduction in speed or warned of a narrowed road. The road was inadequately lit at night and also inadequately guarded and barricaded. The award was for $100 000 to the motorist and $20 000 to his wife for loss of services.

The case of Smith v. Cook [361 N.E. 2d 197 (Ind. 1977)] is an interesting case involving the MUTCD and a construction site. In this case, the accident involved a vehicle proceeding along a road under construction and a vehicle crossing that road. The road in question was US-31, a north-south highway, which was in the process of conversion to a four-lane, divided highway. The western southbound lanes were being used to conduct traffic in both directions until the other lanes were completed. The defendant approached on a crossroad and, at the intersection, observed approaching traffic from the south but was unaware of the closed lanes. As he

attempted to cross the lanes to reach the median, he was struck by a northbound automobile in the western lane.

The contention was that the state had negligently failed to mark the intersection and approaches thereto in a manner sufficient to warn of the construction and that the southbound lanes were being used for two-way traffic. It was alleged that this was in violation of the Indiana MUTCD. The specific alleged omissions were a type A barricade, no ROAD CLOSED sign, no TWO-WAY TRAFFIC signs at the intersection, and no signs warning of possible obstructions or restrictions due to highway construction.

This case is interesting because it was not tried on the basis of reasonable care but on the basis of statutory negligence—a violation of a specific requirement of the law. Thus, the court analyzed the MUTCD extensively, and the court held that the manual is not sufficiently specific to impose an absolute duty.

The court treated the manual as a whole and because this was a statutory negligence case did not dissect and individually determine whether the placement of each kind of traffic-control device is or is not governed by a specific and absolute duty. The manual, for example, makes the decision to use many devices a discretionary decision. Also, the use of most, if not all, traffic-control devices involves some measure of independent judgment. The court referred to the manual language, referencing the manual as a guide with flexible qualities. Thus, the court did not find the requisite specificity or absoluteness to meet the statutory negligence test. The court said that the manual is only evidence bearing on the general duty to exercise reasonable care.

In any event, the court's opinion was that the signs and illustrations in the manual, such as ROAD CLOSED, TWO-WAY TRAFFIC, and ROAD CONSTRUCTION AHEAD, and type A barricades are intended to warn oncoming drivers of hazards. The court found no indication that the devices are intended to warn laterally approaching drivers of hazards on an intersecting road. The court said, "Indeed, to warn motorists of hazards that do not exist on their route would likely be confusing and engender disregard for all traffic control devices."

Another interesting case occurred in Ohio. The case of Knickel v. DOT [361 N.E. 2d 486 (Ohio 1976)] involved a $4000 award for damage suffered as a result of injury caused by a blow-up of the pavement. It is interesting because it indicates the catch-22 nature of maintenance in the courts. The vehicle involved was proceeding over a four-lane, reinforced cement, straight section of divided highway at between 75 and 90 km/h (47 to 55 mph) on a bright, clear, dry day. The pavement was in a state of deterioration. Repairs were constantly being made and a rehabilitation project, involving resurfacing with blacktop at a cost of $3.5 million, had been bid at the time of this accident.

The problem of blow-ups was recognized by the state, which had issued a design policy memorandum on the subject. Much research has been done and the court recognized Ohio as a leader in this research. But much is still unknown, for example, when or where a blow-up will occur and of what magnitude it will be. Blow-ups occur in concrete, at the joints of concrete squares, and are more frequent in the summer. They generally do not occur in newly built stretches of concrete. They can be minimized but at high economic cost.

The court had all this information before it—the technology and research, the awareness of economic factors, and the knowledge that generally few accidents of minor severity result from this condition. But the court asked a question of great significance: Who will bear the loss from sudden blow-ups—the state, which has the duty to maintain reasonable safety, or the general public, who uses the highway? The court decided that the state should bear the loss.

The court considered whether the state had done all that a reasonable person could have done. The absolute elimination of this condition would require the destruction of concrete highway and the substitution of asphalt or macadam roads, and this would be too costly to be borne by the state. The installation of pressure relief joints on all concrete highways would be equally costly. The court expressed awareness of the dilemma that it might be less expensive to pay the cost of damages caused by the hazard than to pay the cost of eliminating the hazard. But the court felt that this was a policy and an economic question to be solved by the legislative and administrative bodies of the state.

The case points to the dilemma of the 1980s—an aging road system shows stress, and less money is available to provide for all highway needs. The real question is, can the money be better spent for repair of the highways on a systematic basis, or will it be parceled out to injured individuals? If the latter choice is made, there is not any possible social return. The choice is judicial action, which is leading the way. The roadmap the judiciary is setting out should be obvious to all by now.

Another case involving a manual, the Iowa highway maintenance manual, resulted in a $501 750 judgment against the state. In that case, Hunt v. State [252 N.W. 2d 715 (Iowa 1977)] the plaintiff was injured when his automobile skidded on a frost-covered bridge in the early morning during clear and calm weather. The question was one of the constructive knowledge of the state of the frost condition on the bridge and compliance with manual procedures. It is another case of economic judgments and manual directions.

The court discussed the obligation of maintenance personnel to make reasonable use of weather information. In this case, the maintenance manual, if followed, would have disclosed a probability of frost on the bridge. The manual was explicit in describing policy and procedure regarding bridge deck frosting. The court found that the availability of the procedure coupled with the weather conditions favorable to frost gave constructive notice of the hazard in time to guard against or eliminate it. The court found that the existence of the maintenance procedure in itself was evidence that the state knew that frost conditions are predictable.

The procedure in question requires the maintenance supervisor to contact a weather station and obtain a dew point and forecast. If the dew point is 0°C (32°F) or lower, if the forecast temperature less 6 degrees is lower than the dew point [i.e., colder than -3°C (26°F)], and if there is little wind and no low clouds, frost on bridge floors is likely. Here, there was a weather station less than 1.6 km (1 mile) from the bridge and the other conditions were met. The state, however, contended that it is wasteful and sometimes hazardous to apply sand or salt to a dry roadway as a preventive measure. But expert testimony and a state maintenance directive on the use of salt to prevent icing contradict this approach.

The procedures actually followed did not include the use of weather forecasts. Random frost checks were the only method of ascertainment and such visual checks were not made until after 6:00 a.m. during the frost season. Earlier information was to be provided by law officers on an informal basis, and this apparently was not reliable. The court felt that this method, random observation, did not permit anticipatory remedial action, and that the failure to follow the manual procedure was actionable negligence.

A Louisiana case, Graham v. Rudison [348 So. 2d

711 (La. 1977)], resulted in a judgment totaling $170 000. A collision occurred as a result of a decedent's efforts to avoid a large hole, which covered practically the entire northbound lane of a narrow, two lane road. There was prior notice to the state, but no attempt at repair had been made except an earlier placement of shells in the hole. There was no attempt to mark the road to warn motorists of the hazard.

The case of Woolie v. City of Baton Rouge [348 So. 2d 747 (La. 1977)] involved a breach of duty to adequately warn oncoming traffic of a construction site. The plaintiff drove through a barricade and into a large hole. Witnesses for the city testified that the hole had been dug about 2 h before the accident, and that five barricades, three smudge pots, and a sign warning that the lane was closed 152 m (500 ft) ahead had been put out. The trial court, however, found that the warning sign was much closer than contended, the witnesses saw no smudge pots, and the only barricade was 23 to 31 m (75 to 100 ft) from the hole. The trial court decided that in view of the nature of the road, its heavy traffic, and speed limit of 80 km/h (50 mph), there was no adequate warning. In this case, as is often the situation, the issues are factual in nature and often involve credibility of witnesses. Thus it is important to document actions that have been taken in order to support them at a later time.

An award of $150 000 was given in the case of Warning Safety Lights, Inc. v. Gallor [346 So. 2d 92 (Fla. 1977)], which involved an action against a contractor and subcontractor. The plaintiff crashed into a median wall while attempting to avoid hitting traffic cones, which were in her lane of traffic. The contract between the state and the contractor and the subcontractor imposed a duty to maintain proper traffic control for the safety of the public during construction work. The minimum traffic-control safety standards provided by the Florida safety manual were to be observed. This manual provided for placement of cones 0.6 m (2 ft) from the edge of the traveled way and that the cones should be weighted or fastened down so as not to tip or move. The evidence indicated that lane closure was by placement of single cones, weighing about 4.5 kg (10 lbs) each, on the stripline, which divided the closed lane from the adjacent lane of moving traffic. Cones were blown and knocked over. The defendant contended that there was no evidence as to how misplacement occurred and that automobiles may have hit and misplaced them. But the testimony indicated misplacement to begin with, not in conformity to the manual. The jury finding of negligence was supportable.

In Mora v. State [369 N.W. 2d 868 (Ill. 1977)], suit was brought to recover damages for injuries sustained in an automobile collision on a dark and rainy morning. One of the automobiles was a passing vehicle. At the scene of the accident the road makes a double-S blind curve as it goes up a small hill. Liability in this case would have to be predicated on the lack of signs or markings on the highways, which would have advised that passing at that point would be hazardous. The accident site was a construction area, just recently repaved.

The state and one contractor were dismissed as parties. Eaton Asphalt Company had done the repaving and its responsibility was at issue. Prior to the repaving, this section of the highway was not a no-passing zone nor were there any advisory signs warning of the curve and hill. The Illinois Manual of Uniform Traffic Control Devices for Streets and Highways was introduced. It provides for a no-passing zone to be established in any area where a motorist's ability to see ahead falls below a specified minimum. Surveys were taken after the accident and it was contended that the roadway in question would qualify for posting as a no-passing zone under the manual standards.

Eaton had placed strips of reflecting tape to indicate the center line after the repaving. This was required by the contract. But the repainting of the permanent lines was a function of the state. It could not be done until the asphalt had cured, and at the time of the accident neither the center line nor the edge lines had been repainted.

The rule is that a contractor has a duty to give warnings of dangers created by it. Here, the danger of the curve was not a consequence of the contractor's conduct—the contractor did not create the topography of the land, nor did repaving change the configuration of the roadway or remove any warnings indicating the presence of a danger zone.

In all cases of contractor liability, the contractor has created the hazard. In this case, the danger arose out of the very nature of the roadway as it had existed long before the contractor came on the scene. Hence, he or she could not be saddled with what was the duty of the state.

With respect to the individual state highway department employees, none were in the traffic division, which is in charge of line painting. One was the head of the district in which the accident occurred and it was contended that he should have established a no-passing zone at the site. The hill and the curve were gentle and the sight distance deficiency was not visible to the naked eye.

The claim was that defendant should have directed that a survey be made—there are 1930 km (1200 miles) of state roads in his district. A description of the activity involved must be characterized as discretionary not ministerial, and so he could not be personally liable.

Duties of contractors take many forms and shapes. They must (a) adequately mark highway detours they have constructed; (b) warn of excavations they have created or exposed; (c) warn of obstructions, uneven surfaces, and other dangers they place in road surfaces; (d) warn drivers of an abrupt narrowing of the road at a bridge; and (e) warn of lane changes required by their work on the highway. Contractors have a duty to warn where there is unequal knowledge, actual or constructive, of a dangerous condition and the contractor knows or should know that harm may occur if no warnings are given.

The case of Cummins v. Rachner [257 N.W. 2d 808 (Minn. 1977)] was unusual in that the negligence of the state was in question even though the state was not a party. A $225 000 judgment was returned against a contractor and driver for the death of a passenger. The accident occurred at nighttime in the snow. In a bypass area the driver became confused by lane markings painted on a road surface in an area of construction and drove her vehicle over a median into oncoming traffic, where a collision occurred.

The highway was being upgraded to Interstate standards. The work was being done in stages, using bypasses, so that a four-lane divided highway would remain open to the public while the new freeway was under construction. This segment was 2.9 km (1.8 miles) in length. To delineate the driving surface, the state painted new white lines on the highway and the newly constructed portions of the bypass and at the same time applied a coat of black paint to obliterate the old markings, which if not completely obliterated would direct an unsuspecting motorist directly into the oncoming lane of traffic. The state had also placed a barricade, which consisted of three crossmembers painted alternately with white and orange diagonal stripes, adjacent to the position

where the old highway lane markings and the newly painted markings intersected. There were no overhead lights or flashing warning signals in the immediate area.

A state highway patrolman retraced the route of the accident and found the original pavement markings as bright and as white as the new lane markings. These markings led directly into the oncoming lane. Thus, despite the attempted obliteration of the old lane markings through the application of a coat of black paint, they remained visible.

The contractor sought to avoid liability by contending that the primary responsibility was on the state to provide traffic-control devices and markings on its highways. But the court found this was not so under the provisions of the state manual for construction. Not only are there manual provisions, but case law as well, to establish that when a contractor enters into a road construction contract, he or she assumes a general duty to protect the public from hazards or traps within the construction zone.

In this case, the construction site supervisor admitted that while he did not feel the state's painting job was inadequate, he could still plainly see the old lane lines, even after the attempted obliteration. He did not inform the state of this condition. A safety engineer, whose job was to ensure that the segments of the highway within the construction site would be completely safe for the general public, did not testify. However, there was testimony that he did not notify the state of its failure to completely obliterate the old lane lines.

The court held that the contractor shared a mutual duty with the state and failed to notify the state of the obvious danger created by the inadequate obliteration. The contractor also did not erect any signs to warn motorists of the condition when he had a duty to do so under the contract. This was a breach of its mutual duty. The judgment was affirmed.

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