



The Case Study Workshop

INTERSTATE ENGINEERING

LOSS PREVENTION EDUCATION
FROM THE DESIGN PROFESSIONAL GROUP
OF THE XL INSURANCE COMPANIES

XLINSURANCE

Interstate Engineering

CAST OF CHARACTERS

Interstate Engineering Prime engineering firm
Charlie Jones Interstate project manager
The State..... Project owner
Pasamis Engineering Traffic safety consultant
Terry Tyro..... Interstate staff engineer
Joseph Driver Motorist

THE FACTS

Interstate Engineering was a regionally known highway design engineering company. The firm responded to a state solicitation to design an overpass and associated ramps that would link to a major state highway. Its qualifications were accepted; the company was successful in negotiating its regular fees;

the State executed a Department of Transportation agreement, and Interstate opened a job number.

This was a routine project for Interstate. It had done at least sixty similar projects over the years across two states. Charlie Jones, Interstate’s senior project manager, consulted with the state transportation agency project manager, whom he had known for ten years. He then began to mobilize the designers and subconsultants for the project. The construction contractors were to come from the normal stable of contractors on the state list and be selected on the basis of the lowest responsible bid.

Interstate retained a geotechnical firm to do subsoil investigation, a testing laboratory to confirm compaction and conduct materials testing, and a traffic safety engineer. Interstate included subconsulting fees in its billings and marked them up ten percent. Although Interstate required certificates of insurance from its subconsultants, the company had no follow-up procedures for checking whether the certificates had been received. In fact, most project managers looked on the requirement as administrative busywork.

In Interstate’s view, the project’s design concept was fairly straightforward. Early on, however, the subsurface investigation on both sides of the state highway alerted Interstate to soils conditions requiring more site preparation (over excavation) than had been anticipated by the state budget. This set the project back briefly while additional funding was appropriated. During that period, Interstate presented its construction drawings, which called for a four-lane overpass supported on pre-stressed concrete girders resting on poured-in-place columns.

The project tie-ins to the current state highway required off-ramps with deceleration lanes to allow traffic to slow down when exiting the main highway and on-ramps with acceleration lanes to enable cars to reach highway speeds before merging into traffic.

As a part of the routine work on this project, the state mandated a temporary traffic safety plan to re-route traffic when necessary for construction. For this, Interstate retained a traffic safety engineer who had once worked with the State's Department of Transportation but now worked as a sole proprietor, Pasamis Engineering. This subconsultant could usually complete the required documents with a quick turnaround. Pasamis' documents would then become a part of the project work plan. Pasamis signed a letter agreement, finished the documents and was paid for the traffic safety plan. Pasamis' workscope and fee did not contemplate site inspection, nor did Interstate request a certificate of insurance from him.

The project went well, with no surprises. The subsurface work was completed, the concrete contractor poured the supporting concrete columns, and concrete girders were lifted and placed above the highway lanes. Once the girders were positioned, everyone relaxed; the rest of the work would be increasingly routine for all involved. The earthmoving contractor put in lifts of soil and aligned the on- and off-ramps; a gravel contractor spread sub-base gravel; and the asphalt contractor placed and rolled asphalt on the access ramps.

During this period, Interstate was confined to its role of construction administration. As it had worked with the contractors previously, all the parties knew what to expect from one another. As a result, there were few delays and only a few questions on the drawings and specifications. The weather was good, there were no disputes on the jobsite and the project was on—even a little ahead of—schedule. Interstate's staff visited the site occasionally, usually sending a recent engineering school graduate, Terry Tyro, for the more routine tasks.

The beginning of the deceleration lane needed to have its asphalt level with the adjacent highway. To accomplish this, traffic on the adjacent through lane would have to be kept away from the edge of the lane while the asphalt was placed, rolled and marked with striping. Pasamis had anticipated the need to divert traffic from the temporarily uneven surfaces and had written the requirement for the contractor to place traffic cones every 25 feet for a 500-foot distance, beginning 100 feet before the point of the deceleration lane tie-in. This plan matched the state's cone-configuration requirement for the construction-zone speed of 55 mph.

The general contractor delegated placement of the cones to the asphalt contractor. The asphalt contractor instructed one of its crew, a newly hired worker with limited English, to put the cones along the highway. The worker placed all the cones he was given along the outside lane, approximately 50 feet apart and for about 300 feet, beginning at the point of the tie-in. Afterward, Interstate's newest engineer, Terry Tyro, walked the project site with the contractor but did not pay attention to the traffic cones.

A few days later, at 5:30 p.m., Joseph Driver was driving northbound at about 55 mph in the outside lane of the highway. He was trying to change a CD when he looked up, saw the cones along the highway and swerved to avoid them. Unfortunately, he was too late, and the car's right wheels caught in the uneven asphalt of the unfinished deceleration lane. The car went off the highway and rolled, crushing the driver and rendering him a paraplegic.

