

The Interstate at 50

**Paul Gray's Personal Account
of Working on the Interstate System
in the late 1950s and early 1960s
for the Iowa Highway Commission's Soils Section
Recorded: February 2006**

My full-time employment with the Iowa Highway Commission began in 1957 when I joined one of the agency's soils surveying crews. It was a positive experience that I had while working one summer for the Colo maintenance garage that inspired me to contact my former supervisor, J.H. "Pete" Peterson, to seek full-time employment with the Highway Commission upon my return from military duty. That summer I spent mowing weeds and being a flagman on a patching job north of Ames on U.S. 69 was pretty exciting for a kid still in high school.

The starting pay in 1957, well that was another matter. The monthly salary was \$175 or \$8.75 a day. It was really difficult to live on that level of income. I give my wife a lot of credit for finding ways to stretch every nickel to feed our family and pay the rent during those first few years.

We did receive "living" expenses while on the road. When we filled out our timecards each day our crew chief was always reminding us that we were only going to get reimbursed up to \$7 a day for our room and meals, so we had to watch our expenses VERY carefully.

While not a practice that would be used today, we often stayed two guys to a motel room to control our expenses. There were no Super 8's in the late 1950s so we stayed at roadside motels or cabins, when we couldn't get home at night.

One of the places we enjoyed eating meals when working in eastern Iowa was at Bill Zuber's Restaurant at Homestead in the Amana Colonies. Bill had played for the Indians, Senators, Yankees, and Red Sox during his professional baseball career in the 1930s and 1940s.

The Highway Commission was hiring lots of guys in the 1950s to work on the interstate. We were anxious to work, but had no idea what the work entailed.

Most of the training the new 19- and 20-year-old recruits, like me, received was in the field from working with more experienced, older guys. There was a "kid" in the office who had written a book on how to use instruments to take elevations. That's the only written instruction we were provided. So I never was very good at using the instruments.

There were many four-person soils crews assembled during that period. Each crew had a party chief, assistant party chief and two crewmen.

Several crews were overseen by a field supervisor whose role it was to keep the crews operating by answering any questions, providing supplies and talking to landowners in advance of our arrival. They were your connection to central office. I can remember our crew working under the supervision of Red Adams and Al Bucholtz.

Overseeing much of the soils survey work from central office was Glen Deal, whose career with the Highway Commission spanned 47 years. He laid out the boring locations and provided instructions on how deep to drill. We used his plans in the field.



In those years, the term “field” literally meant someone’s soybean or corn field. We tried to do most of our soil surveying so that we would have minimal impact on crops. If the plants were young, we could do most of our work between the rows. Sometimes we were forced to cut cornstalks so that we could determine our exact location or to make a work area big enough for our equipment. Before we disturbed any crops the field supervisor talked to the farmer and made arrangements to pay for any damages. We always tried our best to keep that cost to a minimum.

Generally speaking, most landowners were friendly under the unpleasant situation of the state taking their land for a roadway. Most understood we weren’t in charge of the project and we were simply doing our job. There were a few occasions when farmers got angry at us. For instance, if we didn’t get the sample holes well compacted, they could collapse and leave a treacherous hole in the field. If it happened, we simply went back and fixed the problem.

There were a few other times when landowners were not happy with us. I remember a couple of instances where we left a tool or something else behind or a gate unlatched. Then there were a few times when we drove our panel van into the field to haul the sampling equipment to the work site and got caught by the rain and couldn’t get back out; or when we did, left big ruts.



Panel van buried up to the axles, circa May 1961.

There was another time when it started snowing so quickly we had a difficult time getting out of the field. We worked year round. Frost was never a barrier since either the frost bar tool or drill could get through easily.

We also tried to be good to the landowners. Once we helped a farmer who got his nice tractor stuck. We had a winch on the front of our panel van that we used to pull him out. It was the least we could do after he let us on his property. He really appreciated the help.

Equipment during those first few years was outdated, well used and sparse. Our crew was assigned two vehicles and a portable drilling rig. The first vehicle was an old panel truck that pulled our drill, transported two men and hauled all of our equipment, supplies and filled sample bags. Equipment included hand spades, shovels, rods, bags, drills, and other equipment.

The second vehicle we were assigned was a car or station wagon. The first state car we had, in which I and the other crewman drove or was a passenger, was a 1952 Ford with 190,000 or 200,000 miles.

It was our responsibility to keep everything running and clean. We took a lot of pride in our stuff. When the van or station wagon needed an oil change, we went to the nearest Highway Commission maintenance shop and changed the oil using the stock oil and filters. When we used anything out of the shop, we had to mark down what we used so that they could get the items restocked and charged to the right account.

When you needed gas, you would go to the shop and pump your own gas. If you got 3.6 gallons we would round it up to 4 gallons so that the shops always got a fair amount of gas back in return.

The working conditions in the field were considerably different than those today. For instance, each crew was provided a large metal container filled with water (no ice) to use for breaks. You always had to keep it in the shade to prevent it from heating up. It got pretty warm in the summer, but on a real hot day after digging several sample holes by hand anything wet tasted great. The winters were also unforgiving, often bitterly cold and blustery.



Paul Gray waiting for a maintenance service bay to open up.

The processes we used in the field for getting the soil samples included either using a hand auger or a single-rod drill powered by a small Briggs and Stratton engine. The shallow holes that were dug by hand were generally 7 to 10 feet deep. We used a four-foot hand auger that consisted of a T-shaped handle, three-foot shaft extensions and auger tip.

We had a LOT of holes to dig and became very efficient doing so. We would have one person digging and the other catching the samples, and then bagging and tagging them. Then switch duties as one man tired.

We used the portable drilling rig when taking stability samples, where you needed to go deep enough to hit something solid. This was a more involved operation.

We started this operation by detaching the portable, three-wheeled and framed drilling rig from the panel van. It was then manually lifted from its horizontal to a vertical position. When the rig was made vertical, the motor sat at the bottom. There were two wheels on each side of the rig that a man on each would turn to elevate the motor to the top of the frame. Once raised, a rod and drill bit were pinned into the attachment. The drilling would then begin. (NOTE: A few years after I started, the outdated drilling rigs were replaced with much better, and easier to use, hydraulic drills.)

We used a single-rod drilling system for collecting samples. This method uses a single string of rods to connect the probe or sampling tool to the rig. The rod diameters are typically 1 to 2 1/2 inches. Once a sample has been collected, the entire string must usually be removed from the probe hole. If subsequent sample collection at greater depths is required, the process must be repeated by reentering with an empty sampler. Three-foot rod extensions were added until the desired depth was reached, which could be 25-30 feet or deeper, especially if you were on the top of a hill.

First you would have a layer of topsoil, followed by different layers of materials such as sand, clay, loam, shale or limestone. After some experience in the field you could easily recognize the material types. However, they would all be confirmed by the materials laboratory. That way the contractor would always know exactly what materials to expect in the field. We were very accurate in our material classifications.

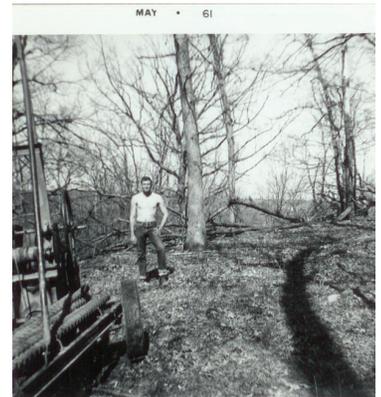
One of the most unusual materials encountered during my years of soils surveying was gumbo till in a thickness of 10 feet in Iowa County. It had been found several times before in four to five feet thicknesses, but never that thick. (NOTE: Gumbo till is a highly-weathered, Paleosol type of soil that is gray colored and from the Aftonian age. The Aftonian Interglacial Age existed 300,000 - 330,000 years ago. An interglacial is a short warming period where the Earth thaws between the icy grips of the glacial periods. The "Aftonian" age is named after sediments exposed near Afton in Union County, Iowa.)

Some of the other unusual encounters we had in the field involved sink holes. Normally, there had been water moving below the surface at these sites that had undermined the soil to the point where it collapsed under its own weight. We found some holes 15 feet wide and 8 to 9 feet deep. Sometimes there were tunnels running below where the water had passed through.

We performed the drill operation so many times that we started challenging ourselves to see how fast we could get the samples out of the ground, the rod cleaned with a rubber glove and the next rod removed.

We would record the location, depth and type of material found in our field books, noting the precise distance from the station on our plans. We would fill out the sample tags and tie off the bags.

On Fridays, or by early Monday morning at the latest, the sample bags were unloaded at the materials laboratory in Ames. We would have a van full of bags from a week's worth of sampling. Some bags were



Backing the portable drilling rig into position, circa May 1961.

fairly light, those full of peat, but if you had it full of wet gumbo till they were heavy. You got a workout unloading the bags.

Because there were so many soils crews working at that time, there was a backlog of testing in the laboratory. It was amazing to see how high and wide the piles of samples got outside the lab entrance.

Once we decided to pull a trick on the laboratory men to lighten things up a bit, since they were under so much pressure. We took an actual sample from the field location. The first layer was cow manure. We bagged and tagged it and threw it into the pile with all of the other samples. I guess the lab supervisor didn't have a sense of humor. He called our supervisor and we all got chewed out.

In addition to completing our field logs, we would occasionally sketch soils profiles in the field or define the limits of the materials we discovered, if we thought it would help central office. The soils section in central office was ultimately responsible for making the final drawings.

After five years in the field working on the interstate, in particular in Iowa County, and on other projects, I transferred into the soils section in central office and became responsible for making those final drawings. Of course, at that time there were no computers or CADD programs. Everything was done by hand. At first they were drawn on paper. Later we started using plastic sheets, which were much more forgiving when you needed to erase something, and it helped that they laid out flatter.

Working for the Soils Section within the Highway Commission (later the Department of Transportation), both in the field and central office was a great experience. The people were great and I really enjoyed my job.



Soils section preparing drawings on paper sheets in central office drafting room (smoking was allowed), circa 1960s