People have a tendency to take things for granted. Such things as health and freedom are generally not appreciated until they are gone. Several years ago there seemed to be an unlimited, inexhaustible supply of oil until the petroleum exporting countries generated a great oil shortage in the early seventies and American domestic oil supplies were inadequate to support the demand. This was accompanied by long lines at the gas pumps and sharp increases in price. Today, that situation is just an unpleasant memory which seems to have been forgotten by the general public, in spite of continued warnings from knowledgeable people. There is no question that physical requirements for the concrete are limited numbers of natural oil deposits on this earth, only part of which can be recovered. Once they are gone, alternate kinds of fuels and materials will have to be developed.

There is another finite resource, although much more plentiful than oil, the depletion of which would have a very great impact on our society, and transportation in particular. This resource is sand and gravel. The average person comes in contact daily with many types of sand and gravel without even realizing it. Portland cement is a house that is resting on concrete footings with a concrete foundation. The walls are concrete or blacktopped street, perhaps with concrete curb and gutter. We drive to work on concrete or blacktopped roads over blacktopped driveway, past a concrete sidewalk onto a gravelled, concrete, or blacktopped street, perhaps with concrete curb and gutter. Sand and gravel are part of the physical requirements for the concrete. The average person arises in the morning in a house that is resting on concrete footings with a concrete basement floor. The basement walls are poured concrete or concrete block. Water that flows from the house runs through concrete sewer pipe.

One goes out to the garage with a concrete floor and back out on a gravel, concrete, or blacktopped driveway, past a concrete sidewalk onto a gravelled, concrete, or blacktopped street, perhaps with concrete curb and gutter. We drive to work on concrete or blacktopped roads over concrete bridges, and park the car in a concrete parking lot. The workplace may be partially or almost entirely constructed of concrete. During this time, one probably doesn’t think of, or realize the role that ordinary sand and gravel play in daily life.

Year after year, decade after decade, sand and gravel continue to be the construction material used in greatest quantity throughout the nation. The Michigan Department of Transportation specifications list 26 different classes of gravel and 12 different classes of sand which are used in building roads, bridges, docks, airports, railroads, and other structures. The physical requirements for the aggregates are constantly being changed, refined, and fine-tuned to meet today’s transportation needs. And yet, sand and gravel, like oil, are finite resources. Michigan owes much of its surface configuration to continental glaciation. The last glaciers started melting about 17,000 years ago in the southern part of the State, receding northward until they disappeared around 10,000 years ago. The aftermath of the glaciers’ initial southward movement, coupled with the enormous quantity of meltwater, was the deposition of many sand and gravel deposits which are located in various parts of the State in a variety of different geological formations.

One example of such a geological formation is the Mason Esker. The surface appearance of an esker is that of a long, winding hogback ridge. Eskers are elongated hills characteristically formed in stagnant ice by rivers which flowed in tunnels under the ice. Surface meltwaters flowing on top of the ice found its way to the bottom of the ice through crevasses and cracks. Once on the glacial drift floor beneath the ice, they began to erode downward until they were impeded by the underlying bedrock. Eventually these channels began to fill with sand, gravel, and cobbles. They actually filled the eroded drift channel and continued to fill above the drift floor, the water and deposited granular materials being confined by the surrounding ice. When the ice melted, the sand and gravel deposited above the drift floor collapsed into a hogback ridge. The Mason Esker can be traced from north of Lansing, through Holt, and ends just south of Mason. Its length of 22 miles makes it one of the longest eskers in the United States.

The first settlers coming into the Lansing area began to dig into the Mason Esker as a source of sand and gravel for building materials. Over the decades, the Lansing, Holt, and Mason areas have largely been built from the sand and gravel in the esker. Today the esker is almost entirely gone and although some minor excavation is still going on, it is no longer a viable source of sand and gravel. It is now a long, winding, water-filled excavation. Parts which were not disturbed because they contain cemeteries, or a few fragments existing in farmer’s fields, remain as mementoes of its original form. Sand and gravel to supply the area now are hauled by truck from sources many miles distant. All over the State, the major sand and gravel deposits continue to be filled with sand, gravel, and cobblestones. The Northern Midwest has continued to fill above the drift floor, the water and deposited granular materials being confined by the surrounding ice. When the ice melted, the sand and gravel deposits above the drift floor collapsed into a hogback ridge. The Mason Esker can be traced from north of Lansing, through Holt, and ends just south of Mason. Its length of 22 miles makes it one of the longest eskers in the United States.

What is then to take their place? There are still many untapped deposits around the State, but the majority are becoming untouchable. Many have been built upon by suburban sprawl, shopping malls, golf courses, and industrial expansion. Sand and gravel pits are not the most popular venture in the eyes of the surrounding community. They are generally rated alongside sanitary landfills, and yet their product is part of the lifeblood of the community.

The age in which we now live may become known as the NIMBY (not in my back yard) era. Organizations and groups emerge like mayflies to oppose almost everything from wars, pollution, economic or industrial expansion, incinerators, atomic plants, landfills, military exercises, to yes—sand and gravel pits.

It is interesting to observe that land use studies and committees which generate elaborate colored maps outlining grand land-use plans for the following 20 to 50 years rarely, if ever, take into account the utilization of local sand and gravel deposits as sources of the material that is one of the most basic building blocks of the master plan. Some township zoning boards and commissions have made an exercise of generating complicated requirements and restrictions as prerequisites for opening or enlarging a sand and gravel operation. These are basically formulated not to achieve an operation more sensitive to environmental and personal needs, but to discourage its operation at all.

Modern coarse and fine aggregates (processed gravel and sand) are designed to include specific quantities of different sized particles. Specific quantities of certain...
The cumulative effect of depleting aggregate sources, coupled with zoning restrictions that prevent mining, can eventually have a tremendous impact on society. The greatest expense in the supply of quality sand and gravel in many areas of the State is transportation, which can equal several times the cost of the original product. And who will ultimately pay? The one who always does, the consumer, the average person. It is, therefore, of utmost importance in planning for the future development of the State, that aggregate deposits be located, protected from alternate land usage, and harvested in environmentally sound ways, to provide the basic building blocks of future prosperity.

-Don Malott