

ANTI-POLLUTION DESIGN

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A simple definition of pollution is to make or render unclean. However, in this day and time, very few things seem simple. An anti-pollution design is certainly not a simple matter.

The first item that comes to mind to many people when considering pollution, as it relates to highway design, is the pollution of streams. Actually, highway design has an effect on surface and underground water, air, noise and visual pollution.

Anti-pollution design has been employed by highway engineers for many years. Just recently, some outside interests, such as the ecologists and conservationists, have been critical of our highway design in regard to pollution. Many of these people do not realize our cognizance of and our efforts to minimize pollution. I will briefly go through some of the steps that we use to minimize pollution.

1. The highway location, both horizontal and vertical alignment, should be located such that it will graciously fit existing terrain conditions with a minimum amount of cut and fills. Some people would say that they agree that it should be so located, but are of the opinion that highway engineers do not comply, as evident by cuts of 200 feet and greater. Highway engineers do consider this in location, however, there are other criteria which must be met in order to provide adequate transportation facilities.
2. The location has an effect on noise pollution, in that relatively flat grades will naturally reduce the noise level of trucks. Further, depressed sections in an urban area confine the noise to an area above the highway rather than spreading it out, which results in an at-grade or raised section. The location also has a bearing on the aesthetics of an area. The highway cross section should be reasonably flat and rounded where possible in erodible soils.
3. It is attempted to cause minimum disturbances to natural water-courses. The water flow system from the high-

way should be discharged into natural areas disturbed during construction.

4. The elimination of every stop condition and minimizing congested intersections tends to reduce air pollution. Stop and go traffic discharges greater volumes of pollution into the air through the vehicles exhaust system than do vehicles that move at a relatively constant speed.

In my opinion, it would be beneficial if we could adopt criteria whereby all frontage roads that serve more than a few private residences be paved in order to reduce air pollution. I have seen frontage roads that create so much dust that the dust accumulated on the leaves and vegetation giving an unpleasant appearance.

Just recently, I read an article about a road project in Florida. The highway engineers were having difficulty controlling water pollution while constructing approaches and structures over the Indian and Banana Rivers. They devised a facility called the Big Diaper. The Big Diaper was made of sail cloth in sections 100 feet long and 7 feet wide. This was just to give you an indication of the various things that highway engineers and industries are doing to try to minimize pollution.

Another interesting fact is that it is very questionable whether or not it is advantageous to have an interim erosion control which requires fertilization of the soil in order to sustain quick growth. The fertilizer causes pollution. In my opinion, the farmer who cultivates his ground using heavy fertilizers year after year contributes more to the contamination and pollution of streams than does highway construction.

At a recent SASHO meeting this year, a representative of the Department of Fish and Wildlife indicated that in his State, highway construction does not cause them any great problem. An example of highway design and construction considering the environment in his State of Alabama was a highway project through the natural breeding area of wildlife - the specifications and proposals required the contractor to shutdown his operation during the mating season. This eliminated the noise or human pollution of the natural environment.

It is believed that the highway construction industry and highway engineers should let the public know that we are conscientious of pollution, have been for some time and are taking positive measures to minimize pollution, while at the same time providing an adequate transportation system for the public.