

machinery; our time; and, in fact, our entire lives and living environments. Because man is an intelligent, inventive, acquisitive, ambitious, and--all too often--a greedy creature, by his very existence, he scratches the surface of the earth much more deeply than any other animal. It is for this reason that he should both understand and cooperate technologically and spiritually with nature.

The monotonous conformity of concrete forms combined with man's answer to nature, uniform grass, seemed to be a totally inadequate solution aesthetically and economically. This juxtaposition of concrete and grass does little to challenge the human spirit. I voiced the idea of transposing both the appearance and significance of the flat man-made areas of my paintings with similar shapes or roadway and airport runways and, in addition, planting the otherwise grass-covered areas with color: wildflowers arranged according to my design. The concept amounted to an actualization of what I had been painting only on somewhat of a grandiose scale in a three-dimensional context. The aesthetic would be the same, but the opportunities for human participation would be greatly enhanced. The contract between slabs of austere concrete designed by airport engineers for traffic pattern purposes and shapes of color defined with waving fields of wildflowers might stir individuals to consider that opposites can coexist for the benefit of both. The lyricism and beauty of wildflowers would be a challenge to our sense of design.

In working with the administration of the Dallas-Fort Worth Airport, phase one of the Dallas-Fort Worth Wildflower Works was launched. Literally tons or hundreds of millions of seeds have been planted along the International Parkway as part of this project. In endeavoring to cover thousands of acres of land, with 12- to 15-in leafy material, there are bound to be ecological and economic impacts. We are continually seeking answers to such diverse questions as, What kind of impact would wildflowers have on modifying or cushioning sound? Which plants would require less water? and How can native materials be planted with root systems at different levels, thereby better using soil nutrients, eliminating the need for costly fertilizers, and aiding soil erosion?

A big advantage of native materials is their economic saving in mowing. Through the use of chemicals applied by the ropewick system, taller competitors can be virtually eliminated without the expense of mowing. Findings indicate that it would cost from two to three times as much energy to plant and maintain the average suburban lawn as it would a comparable-sized food crop. If I could start with this aesthetic challenge, foresee ecological benefits, and wind up with a savings in the cost, how could parks, highways, transportation corridors, other airports, and public places afford not to be composed into wildflower works of art?

REHABILITATION OF INTERSTATE SAFETY REST AREAS IN IOWA Harold Dolling

Four pairs of safety rest areas on Iowa's Interstate Highway System were constructed and available for public use during 1966. These rest areas were built before a design guide was available. In upgrading these facilities, they had to be completely accessible to the handicapped and, in addition, were to provide additional parking, ground lighting, waste

water dump for recreational vehicles, waste water pond or lagoon improvements, sidewalks to tables, rest room upgradings, additional landscaping, and general upgrading of outdated items.

In the first contract, the design guide indicated that an additional parking facility was needed for 52 cars and 22 trucks at each site. This was not practical based on existing topography. The final design provided for 36 cars, 10 recreational vehicles, and 16 trucks at each site. The parking was less than desirable because of the topography. The high price tag of \$1 000 000 for modifications was high compared with the original \$250 000 to construct the entire complex. The lagoons needed to be improved as part of the total contract, which originally cost \$14 500 to build. Due to changes in the environmental requirements, the refurbished lagoons cost \$199 000.

In subsequent improvements, it was noted that the lagoons would require enlargement and appropriate arrangements would have to be made. An alternate solution considered was the replacement of the five conventional water closets with microphor low-water-volume toilet fixtures in each building. This was done in subsequent rest areas and water use has been reduced 45 percent or more. Rest area rehabilitation is a challenge, particularly when total costs are considered. For future rest area rehabilitation, I recommend the Federal Highway Administration Technical Advisory Publication T-5140.8 (August 10, 1979), Rest Area Design Charts, which is based on data developed by Minnesota officials. This is an excellent planning and design tool.

DEVELOPMENT OF THE McALLISTER FREEWAY--SAN ANTONIO Mel Steinberg

Steinberg made a presentation on the development of the McAllister Freeway as it relates to the roadside. His presentation indicated that the freeway was a showplace for roadside development.

INTERRELATIONS OF VEGETATIVE MANAGEMENT AND EROSION CONTROL FOR A SOUND ROADWAY ENVIRONMENT Sam Garrett

(Garrett's presentation was not available for publication.)

COMPARISONS OF AGRONOMIC AND ECOLOGICAL APPROACHES TO ROADSIDE MANAGEMENT L.E. Foote

Roadside management came into existence gradually over time as a scientific and administrative approach to roadside maintenance. In the 18th and 19th centuries, roadside vegetation was generally cut by hand (and later by machine) for forage. Roadsides were pastured by staked or free-roaming animals, burned, farmed, or neglected. Often, the roadsides were cut to avoid fire hazard or to provide good visibility against lurking highwaymen, to clear brush, and to provide a neat appearance.

With the scientific agriculture movement of the