



CHALLENGE

THE PENNSYLVANIA TURNPIKE COMMISSION NEEDED DESIGN CONSULTING AND EXTENSIVE ENVIRONMENTAL DOCUMENTATION FOR A MAJOR TRANSPORTATION IMPROVEMENT.

SERVICES

- Environmental Documentation
- Geographic Information Systems (GIS)
- Water Resources

SOUTHERN BELTWAY PROJECT

The Southern Beltway Project (U.S. 22 to I-79) was a significant element of a major transportation improvement plan for the southwestern Pennsylvania region being administered through the Pennsylvania

Turnpike Commission. This project supplies a toll road system around Pittsburgh to the south and west, connecting the Pittsburgh International Airport with the Monongahela Valley and West Virginia to the south.

ENVIRONMENTAL DOCUMENTATION

ms consultants provided preliminary design and comprehensive environmental documentation for a 116-square-mile project study area for the development of a new toll road expressway, which was to be a four-

lane limited access highway with an anticipated four interchanges.

Preliminary environmental considerations (identification of key environmental constraints and controls) included: special population groups, socioeconomic characteristics, land use, community facilities and services, hazardous waste and materials, vegetation

and wildlife, wetlands, farmlands, surface water resources, drainage and floodplains, cultural resources, noise and air quality, and threatened and endangered species investigations.

PROJECT ALTERNATIVES

Five new toll road alternatives were evaluated in a Phase 1 Alternative Analysis Report. ms consultants conducted evaluations for these five alternatives and presented them in this report. Evaluation was based upon the alternative's ability to meet the project need, environmental and socioeconomic impacts, as well as sound engineering practices. Based on this analysis, ms consultants was able to eliminate two alternatives from further investigation. The report documents the findings of these investigations as well as the public and agency involvement. The report was submitted and approved by the FHWA (Federal Highway Administration).

Key environmental considerations in the development of the evaluation of the project alternatives included:

- Socioeconomics – land use employing Anderson Land Use/Land Cover Classification; displacements; community cohesion; community facilities and services; communities, neighborhoods, and minor groups; businesses; local and regional economy; visual resources; farmlands evaluation, referring to the Farmlands Protection Policy Act/PA-Acts 43, 100, 133, 319, 515; and environmental justice evaluation;
- Natural resources – soils and erosion; groundwater and hydrogeology;
- Vegetation and wildlife habitat, using approved Habitat Evaluation Models (PAM-HEP);
- Threatened/endangered species, Section 7 U.S. Endangered Species Act Coordination and

Pennsylvania Game Commission and the Western Pennsylvania Conservancy procedures for species of special concern (including the Short-eared Owl, Northern Harrier, Henslow Sparrow, Grasshopper Sparrow, and Snow Trillium); energy, surface waters and aquatic resources with complete physical, biological, chemical analyses and characterizations; and floodplains;

- Wetlands – identification and delineation per DEP and Corps of Engineers' procedures; function and values, a WET 2.0 analysis and CDM (Corps' Descriptive Methodologies); and alternative analysis;
- Air quality – using FHWA-approved models CALINE 3/CALINE 4, TEXIN 2.0;
- Noise – noise barrier analysis using STAMINA 2.0, FHWA Highway Traffic Noise Predictive Model (RD-77-108), and OPTIMA;
- Municipal, industrial, and hazardous waste studies – includes Pennsylvania waste site evaluation procedures (PENNDOT Pub. 281 Preliminary Area Reconnaissance, initial site assessment, preliminary site investigations) and ASTM's Standard Practice for Environmental Site Assessment: Phase I ESA Process;
- Section 106 Cultural Resource Investigations;
- Section 4(f) Resources and Evaluation; and,
- Construction impacts.

USE OF GIS

Geographic Information Systems (GIS) were employed to inventory resources, evaluate, and compare impacts among alternatives and to prepare graphics for presentations to agencies (ACM), the public, as

well as the Transportation Executive Committee that participated in the project development process.