



CHALLENGE

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

SERVICES

- Bridge Design + Inspection
- Environmental Planning
- Geographical Information System
- Hazardous Waste
- Highway, Roadways + Interstate Design
- NEPA + Environmental Documentation
- Traffic Engineering + Planning
- Water Resource

SOUTHERN BELTWAY PROJECT

The Southern Beltway Project (U.S. 22 to I-79) is a significant element of a major transportation improvement plan for the southwestern Pennsylvania region being administered through the Pennsylvania Turnpike Commission (PTC). A project of massive proportions, ms has been working alongside PTC and

many other consultants on this project for more than 10 years. This project creates 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 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
- Threatened and endangered species investigations

PROJECT ALTERNATIVES

Five new toll road alternatives were evaluated by ms consultants in an Environmental Impact Statement. 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, preferred alternatives, as well as the public and agency involvement. The report was submitted and approved by the Federal Highway Administration.

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

- Socioeconomics
- Natural resources
- Vegetation and wildlife habitat
- Threatened/endangered species, energy, surface waters and aquatic resources with complete physical, biological, chemical analyses and characterizations
- Floodplains
- Wetlands
- Air quality
- Noise
- Municipal, industrial, and hazardous waste studies
- Section 106 Cultural Resource Investigations
- Section 4(f) Resources and Evaluation
- Construction impacts
- Public Involvement

USE OF GEOGRAPHIC INFORMATION SYSTEMS

Geographic Information Systems (GIS) were used to inventory resources, evaluate and compare impacts among alternatives, and to prepare graphics for

presentations to agencies, the public, as well as the Transportation Executive Committee that participated in the project development process.

POST-NEPA SERVICES

ms consultants was retained under a Post-NEPA services contract to coordinate environmental and design commitments with the PTC design manager, section designers, and environmental agencies.

This included:

- Re-evaluation of environmental resources
- Asbestos and lead paint inspections on acquired properties.
- Coordination of design section resource impacts and mitigation strategy.

- Mitigation tracking.
- Preparation of Chapter 105 permits to PADEP.
- Design, permitting and construction consultation of 55-W wetland mitigate site.
- Phased EIS Re-Evaluation approach coordinated so that as design sections completed design, those sections could be environmentally cleared and released for construction bids.
- Three EIS Re-evaluations were completed.

SUBPROJECT 55C2

After issuance of the Record of Decision on the Final Environmental Impact Statement, the project was advanced into Final Design with five design sections.

PTC engaged ms to develop final design for the fifth subproject, 55C2, located in Cecil Township and South Fayette Township, Pennsylvania.

SUBPROJECT 55C2: COMPONENT 1

The first component of 55C2 was a new, four-lane highway with a 60-foot median along the Southern Beltway mainline, state Route 0576.

It includes:

- Approximately 7 million cubic yards of total earthwork excavation
- 354,000 yards of concrete
- 10 ramp alignments
- 2 box culverts
- 4 new bridge structures
- 2 existing bridge structures widened
- 2 interchange exits
- 2 retaining walls

- Multiple stream relocations
- Multiple utility relocations

The design also included widening a three-mile stretch of I-79 from four lanes to six lanes. The widening occurred in the interstate's existing median, both northbound and southbound. The bifurcated roadway required moment slabs with toe walls to support the extra 24 feet of proposed pavement in both directions.

The team implemented a multiple-phase traffic-control plan to maintain two lanes of traffic at all times. The plan protected the traveling public while the construction team widened the two existing mainline structures and built two new multi-span structures, allowing state Route 0576 to pass underneath I-79.

SUBPROJECT 55C2: COMPONENT 2

A second component included relocating 6,500 feet of Morganza Road and 4,800 feet of Morgan Road.

Details include:

- 800,000 cubic yards of excavation
- 2 new bridge structures
- 1 box culvert

The team designed a roundabout at the intersection of Morganza and Morgan Roads. The roundabout provides efficient traffic operations with a smaller footprint—less pavement, less maintenance, and less operation costs—and, ultimately, a safer intersection.

The project reduces congestion, provides safer travel, and increases development opportunities in the area.