



STATE ROUTE 161 AND SUNBURY ROAD INTERCHANGE

CHALLENGE

WHEN A CRITICAL INTERSECTION CREATED CONGESTION ISSUES, A SOLUTION WAS NEEDED TO IMPROVE TRAFFIC FLOW WHILE KEEPING NEARBY PROPERTY IMPACT IN MIND.

SERVICES

- Bridge Design
- Highway Lighting
- Noise Analysis
- Retaining Wall Design
- Right-Of-Way
- Roadway Design
- Signal Design
- Signing
- Single-Point Urban Interchange
- Survey

STATE ROUTE 161 AND SUNBURY ROAD INTERCHANGE

The state Route 161 (SR 161) and Sunbury Road interchange project was the second completed single point urban interchange (SPUI) in Ohio. The first SPUI was completed at the interchange of I-270 and Sawmill Road, also in Columbus.

As part of a \$280 million transportation system upgrade design, the SR 161 and Sunbury Road interchange project improves traffic flow along the east side of the Columbus outerbelt, Interstate 270. ms consultants supplied comprehensive design for the reconstruction of state Route 161 and Sunbury Road.

BRIDGE ANALYSIS AND REPLACEMENT

The SR 161 and Sunbury Road interchange project included hydraulic analyses of the existing SR 161 bridges over Big Walnut Creek. Those bridges were replaced with roadway and interchange improvements, including ramp bridges to enter and exit from SR 161.

For the bridge replacements, ms consultants conducted pre- and post-project analyses to ensure that the final design would not increase flood elevations or significantly change the stream channel velocities.

NOISE IMPACT STUDIES

Environmental assessments were also conducted for the SR 161 and Sunbury Road interchange project. Assessments included ambient noise monitoring and noise impact studies for more than 240

adjacent residences. ms used the Federal Highway Administration's Traffic Noise Model to conduct noise mitigation analysis and barrier design at 12 separate locations in the project area.

SINGLE POINT URBAN INTERCHANGE (SPUI)

SPUIs minimize the space needed for an interchange, in addition to simplifying traffic signal operations at crossroad ramp terminals.

Less right-of way reduces the cost of property acquisition and business relocation down, along with required approval procedures.

SPUIs improve traffic flow by combining two ramp intersections along the crossing street to one intersection that is either over or under the freeway. This results in requiring only one traffic signal for the entire interchange.

SPUIs also provide increased capacity but are capable of being constructed within the footprint of most standard diamond interchanges. This may be why they are seen as a more viable option in some regions. SPUIs are more often considered in urban areas where traditional diamond interchanges are congested.

The outcome? A more efficient crossroad and improved opportunities to coordinate traffic signals along the crossroad. Using a SPUI also has the advantage of needing less right-of-way than other possible solutions.