Synopsis:

This presentation provides a case study review of the rehabilitation of the McKinley Avenue Bridge over the Norfolk-Southern Railroad in the Village of Endicott, New York. The rehabilitation of this nine (9) span, combination concrete tee beam and steel rolled multi-beam, and concrete deck bridge should have been a routine project based on the proposed repairs and upgrades. Routine - it was not. This presentation provides insights into the challenges and complexities that the owner, engineer and contractor dealt with including:

- The bridge deck on seven of the spans serves as a roof for building spaces owned by IBM that contained expensive equipment and provided a workspace for some manufacturing employees performing operations that could not be closed down.
- One of the spans crosses a loading dock.
- One of the spans crosses an active railroad line.
- Fourteen (14) different types of utility lines are either immediately adjacent to, or supported by, the bridge including a high voltage power transmission line, fiber optic data transmission line, and a main trunk phone line – to name a few.
- The difficulties related to gaining access to work areas due to the high level of security that IBM requires in its workspaces and due to equipment that was in the way.
- Some decisions were complicated due to the unclear lines of responsibility and authority between the Village of Endicott and IBM.

About the Presenters:

**Rick Miller** is the Village of Endicott Public Works Director and was involved with the McKinley Avenue Bridge project. He has close to 40 years working experience in a public works or Utility field, starting with the U. S. M. C. Construction Engineers in Vietnam in 1966 and 1968 building and maintaining Roads and Bridges. He has managed to stay in a closely related field ever since.
Ralph Verrastro is the President of Delta Engineers and serves as the Principal-In-Charge of the firm’s bridge design projects for State DOT’s, local municipalities, and private land developers. His primary duties include strategic planning, operations management, administrative supervision, marketing, sales, client relations, project teaming, project management, technical supervision, and quality assurance. Ralph graduated from Cornell University with a BS in Civil Engineering in 1976 and he is a licensed professional engineer in 37 states. He is a technical expert on small and medium span bridges, the rehabilitation of historic truss bridges, and the design of precast concrete structures. Ralph has provided technical presentations, on these topics, to industry groups that include: New York State Association of Transportation Engineers, New York State County Highway Superintendents Association, National Association of County Engineers, American Public Works Association, Association of Bridge Construction and Design, American Society of Civil Engineers, National Precast Concrete Association, Precast Concrete Association of New York and the International Bridge Conference. He has also published technical articles in industry publications that include: *Proceedings of the International Bridge Conference, MC Magazine, Revitalization, Land Development Today* and *CPI – Concrete Plant International*. Ralph has served on the Editorial Board for *STRUCTURE* magazine and as an Adjunct Professor for engineering courses at Broome Community College in Binghamton, NY.

Rick Trebilcock is a Senior Engineer in the Transportation Department at Delta Engineers. He was the consultant Project Engineer during design and Engineer-In-Charge during construction of the McKinley Avenue Bridge project. He has worked for Delta Engineers, P.C. for 15 years performing design and construction inspection on many NYSDOT, County and local municipality bridge projects.
Rehabilitation of McKinley Avenue Bridge over the Norfolk-Southern Railroad
The Project Team

Owner: Village of Endicott
Sponsor: NYSDOT, Region 9
Prime Consultant: Delta Engineers, PC
Subconsultants: Shumaker and LU Engineers
“Squatter”: IBM
Contractor: A.J. Cerasaro
Bridge Description

Original Construction 1946
Nine (9) Spans
8 - Concrete Tee Beam Spans
1 - Steel Beam Span
Cantilever Abutments
8 - Concrete Piers - Columns and Caps
IBM Building Nos. 41 and 45
Scope of Work

Replaced Asphalt and Concrete Wearing Surface
Replaced Protective Screening
Replaced Sidewalks
Replaced Concrete Parapets
Replaced Deck Expansion Joints
Scope of Work

Concrete Patching Repairs

• Diaphragms
• Pier Caps and Columns
• Tee Beams

Replaced Telephone Lines
Refurbished Bearings
Removed Blast Protection
Painted Steel Beams
Steel Beam Typical Section

AT MID-SPAN

PROPOSED TYPICAL
SECTION @ SPAN 4
(LOOKING UPSTATION)

AT END OF SPAN

“We Are A Seamless Extension Of Our Clients’ Organizations”
Norfolk-Southern Railroad Span
IBM Building No. 41

“We Are A Seamless Extension Of Our Clients’ Organizations”
IBM Building No. 41

“We Are A Seamless Extension Of Our Clients’ Organizations”
## Utilities

<table>
<thead>
<tr>
<th>OWNER</th>
<th>QTY.</th>
<th>DESCRIPTION</th>
<th>LOCATION</th>
</tr>
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<tbody>
<tr>
<td>IBM</td>
<td>8</td>
<td>4” DIA. ELECTRIC CONDUITS</td>
<td>EAST SIDEWALK</td>
</tr>
<tr>
<td>IBM</td>
<td>4</td>
<td>8” DIA. ELECTRIC CONDUITS</td>
<td>PIER 4</td>
</tr>
<tr>
<td>IBM</td>
<td>4</td>
<td>WATER &amp; STEAM LINES</td>
<td>PIERS 7 &amp; 8</td>
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<tr>
<td>IBM</td>
<td>2</td>
<td>HVAC DUCTS</td>
<td>PIER 8</td>
</tr>
<tr>
<td>IBM</td>
<td>MULTIPLE</td>
<td>LIGHTING CONDUITS &amp; SPRINKLER PIPES</td>
<td>SPANS 1-3 &amp; 5-9</td>
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<td>MULTIPLE</td>
<td>CHEMICAL CONDUIT TRESTLE</td>
<td>UNDER SPAN 3</td>
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<td>4</td>
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<td>WEST SIDEWALK</td>
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<tr>
<td>NYSEG</td>
<td>1</td>
<td>4” DIA. GAS LINE</td>
<td>BETWEEN BEAMS 2 &amp; 3</td>
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<td>FIRE ALARM SYSTEM DUCT</td>
<td>WEST SIDEWALK</td>
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<tr>
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<td>2” DIA. BRIDGE LIGHTING CONDUIT</td>
<td>EAST &amp; WEST PARAPETS</td>
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</tbody>
</table>

“We Are A Seamless Extension Of Our Clients’ Organizations”
Occupied Space Protection

- Separate Items for Each Abutment & Pier
- Lump Sum Price
- Special Specifications
- Special Notes
- Mandatory Pre-Bid Meeting & Site Tour
Bridge Deficiencies - Wearing Surface
Bridge Deficiencies - Wearing Surface
Bridge Deficiencies - Deck Joints
Bridge Deficiencies - Deck Joints
Bridge Deficiencies - Diaphragms
Bridge Deficiencies - Bearings
Bridge Deficiencies - Bearings
Bridge Deficiencies - Pier Cap/Columns
Bridge Deficiencies - Pier Cap/Columns
Bridge Deficiencies - Blast Protection on Steel Beams
Painted Steel Beams
Bridge Deficiencies - Parapets
Bridge Deficiencies - Parapets
New Aesthetic Barrier/Fencing
Project PITA #1

Fuzzy ROW Easement Rights between Endicott and IBM
Project PITA #2

- Security issues
- Badges required
- Too many lawyers
- Pending sale
- No single point of contact
Project PITA #3

- Not responsive
- Not cooperative
- Non-local decisions
- Too many lawyers
Telephone Line Replacement

“The Hard Way”
Lessons Learned

Be Prepared

No Utility Agreement – No Project