

## 1.1.2

### Bridge Inventory Using Geographic Information Systems (GIS)

#### Presenter

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Municipal governments are often challenged by the responsibility to maintain safe and reliable infrastructure within limited budgets. Bridge inventories and assessments are often used to prioritize critical improvements.

The project scope included a comprehensive inventory and assessment of all bridges in New Haven (CT) which the City either owned or maintained, and the development of a program to aid the City in managing its infrastructure resources. Historical inspection reports were reviewed prior to scheduling site visits. Site visits included photo documentation and visual condition inspection. Data collected from the records research, review of inspection reports, and field visits was compiled into a Bridge Inventory Report.

The Bridge Inventory Report consisted of a two-page summary of each bridge providing information on the bridge features, condition, short-term maintenance and repair recommendation, long term rehabilitation or replacement needs and sources of available funding. A red flag system was incorporated to aid the City in quickly identifying those bridges needing immediate attention.

GIS was used to store, manipulate and analyze the data collected for the inventory and assessment. ArcGIS was utilized to assess and analyze the field data collected at each bridge. GIS integrates and inter-relates geographic data (including locations, land use, municipal boundaries, natural resource data and aerial photos) with database information. Users view and analyze the inter-related data in a way that would be impossible by studying stand-alone maps and spreadsheets. Bridge conditions were prioritized and visualized using GIS. Delivering the report and recommendations in a GIS "digital map" format enabled the City to click through to digital photography and access the key data for each bridge.

Finally, statistical data was collected, evaluated, and presented which illustrated how the City of New Haven's bridge infrastructure compared to other peer cities in the state.