Purpose

The overall purpose of this project is to address structural, geometric, carrying capacity, and operational deficiencies of the Central Avenue Bridge (Structure 0700-N06) over the City Subway and to provide safe, efficient, and reliable passage for all modes of transportation.

Identified Needs

Bridge and Roadway Deficiencies

The Central Avenue Bridge is structurally deficient and functionally obsolete. Built in 1908, the bridge requires extensive ongoing repairs to remain functional. The overall condition of the bridge is serious, the superstructure is poor, the deck is fair, and the substructure is fair based on the latest bridge inspection report.

Based on inventory ratings, the overall condition of the Central Avenue Bridge is deemed serious. The bridge has a sufficiency rating of 31, on a scale of 0 to 100. The bridge's weight limit has been posted at 10 tons on a high priority basis given the condition. The structure is also functionally obsolete due to inadequate underclearances.

The superstructure is in poor condition due to section loss in several truss members, floorbeams, and girders. There is a 2 ½" x 36" area of 100% material loss to the horizontal angle leg edge. Also, a 1" x 3" hole exists with a crack extending from the hole to the edge of the vertical angle leg. Several floor beams exhibit moderate to heavy laminar rust to the top and bottom flanges, holes to the vertical interior stiffeners, and several holes to the bottom flanges at the connection trusses. The concrete encasement at the stringers exhibit medium to wide random cracks with water and efflorescence stains throughout.

The deck is in fair condition due to several spalls on the underside of the deck with exposed reinforcing bars. There are several random small to large spalls, areas of delaminated concrete, and fine to medium cracks with efflorescence on the underside of the deck. There is a large hole with exposed rusted rebar near the east sidewalk which is partially covered with a steel plate. There is an 8" x 18" uncovered hole adjacent to the steel plate. The sidewalks exhibit several areas of moderate to heavy scaling. There are several areas of uneven asphalt patches and medium to wide random cracks partially sealed on the roadway surface.

The substructure is in fair condition due to the missing mortar at several joints in the masonry abutments, large spalls in the concrete pedestals and at the southwest wingwall, as well as several medium to wide random cracks in the abutments, pedestals, and pier columns.

Several Controlling Substandard Design Elements (CSDE) exist within the study limits, including Minimum Grade, Cross Slope and Vertical Clearance.

System Linkage

The Central Avenue Bridge is a critical piece of Newark's infrastructure and provides an important multimodal link within the regional transportation network. Central Avenue (CR 508) is a major east-west arterial roadway utilized by cars, pedestrians, and commuter bus operators. Its location is immediately adjacent to the thriving University Heights section of the city, and is a high pedestrian activity area. The bridge spans the Newark City Subway, which provides city and regional transit connections.

Goals & Objectives

- Avoid delays or disruptions caused by aging infrastructure.
- Avoid or minimize impacts to social, economic and environmental resources.
- Provide bicycle compatibility and connectivity within the project limits.
- Provide ADA compliant pedestrian facilities and crossings within the project limits.
- Accommodate public access and parking where feasible.
- Avoid or minimize complete or long-term roadway closures during construction.
- Minimize subway disruptions.
- Implement context sensitive design solutions.