

APPENDIX C-6

Toll Barrier Electrical Requirements

I. GENERAL

The electrical requirements discussed herein are based on the preferred toll plaza configuration (i.e., Exterior Plaza w/ Toll Booth Access Options via Tunnel or Overhead Corridors). Primary electric service to the toll barrier will support all power requirements for buildings, toll booths, canopy lighting and signage, and site/highway lighting. Since power is an essential component in toll barrier operations, an emergency standby diesel generator and an uninterruptible power supply will be provided to supply emergency power to critical electrical systems. The major electrical systems and/or components consist of the following:

- Power Distribution, Motor Controls and Grounding
- Emergency Standby Diesel Generator and Uninterruptible Power Supply (UPS)
- Interior, Canopy and Site lighting
- Fire Detection
- Security
- Communications
- Electronic Toll Collection (Only electrical service to the equipment)
- Pavement Snow Melting

II. PRIMARY ELECTRIC SERVICE TO THE OPERATIONS BUILDING

Primary electric service to the Operations Building will require coordination with local electric utility company. Electrical service will be sized to meet the electrical demands of this 24-hour a day operation. The main electric power distribution equipment includes a main switchboard, motor controllers, local panelboards, service meters, transformers and control transformer (CT) cabinets.

Electrical service is provided to the building for the following systems:

- Lighting System
- Heating System
- Air Conditioning System
- Ventilation System
- Fire Alarm and Detection System
- Security Alarm Systems, including:
 - CCTV Surveillance
 - Intrusion Alarm
- Communication Systems, including:
 - Public Address
 - Intercom
 - Telephone (Coordination with telephone utility company)
 - Police Radio
- Grounding System

III. POWER TO TOLL BOOTHS

Power to the toll booths will be supplied from the Operations Building main switchboard via transformers to local panelboards located in the tunnel or overhead utility corridor. Toll booth lighting, HVAC Systems and electronic toll collection equipment will be on emergency circuits.

Power is provided to toll booths for the following systems:

- Heating System
- Air Conditioning System
- Ventilation System
- Electronic Toll Collection Equipment
- Security System

IV. SITE LIGHTING

Power for site lighting will be supplied from a local panelboard in Operations Building. The site lighting will be photocell/timer controlled. Partial lighting at the plaza and parking lot areas will be on emergency circuits. Illumination levels will be based on NYSTA, AASHTO and IES recommendations.

Site Lighting includes the following systems:

- Plaza Lighting
- Roadway Lighting
- Parking Lot Lighting
- Photocell Control/Timers

V. CANOPY LIGHTING

Power for canopy lighting will be supplied from a local panelboard located in the tunnel or overhead utility corridor. The lighting will be controlled by switches located in the toll booths. Canopy lighting will be on emergency circuits. Illumination levels will be based on NYSTA, AASHTO and IES recommendations.

Canopy Lighting includes the following:

- High Intensity Discharge (HID) Lane Lighting System
- Sign Lighting
- Traffic lights

VII. PAVEMENT SNOW MELTING SYSTEM

The pavement snow melting system will be placed under the sidewalks adjacent to the buildings and in the toll lanes. Power to the snow melting system will be provided from a control panel in the Operations Building.

VIII. ELECTRICAL EQUIPMENT SPACE IN OPERATIONS BUILDING

Electrical equipment will be located in the main electrical distribution room, emergency generator room and the Toll Operations Manager's Office. The Main Electrical Distribution Room will contain the main switchboard, motor controllers, panelboards, transformers, utility meter and CT cabinet. Emergency diesel generator, automatic transfer switch, batteries and battery charger will be located in the emergency generator room. The Toll Operations Manager's Office will contain traffic control consoles, security alarm control panel, fire alarm control panel, and communication consoles.

IX. ELECTRICAL EQUIPMENT SPACE IN THE TUNNEL OR OVERHEAD UTILITY CORRIDOR

The electrical equipment space in the tunnel or overhead toll booth access and utility corridor will contain: toll booth power panelboards; toll booth lighting panelboards; electronic toll collection equipment; utility tunnel lighting; cable trays and conduits; and communication systems equipment.