

# Nancy's Shuttle Control System – Software Requirements Specification

## Vehicle Movement

When a vehicle currently occupies a segment in the Show Area, the system shall energize the bus-bars for both this segment and the segment immediately downstream of the currently of this segment except when one or more the following conditions are true:

1. the bus-bar is immediately upstream of a currently occupied segment
2. this would result in the bus-bar for Segments 1, 3 or 37 being energized when the track switches are not locked in position
3. this would result in the bus-bar for Segment 3 being energized when the track switches are in the “in” position or the bus-bar for Segment 37 being energized when the track switches are in the “main” position.
4. this would result in bus-bars for Segments 12 and 22 to be simultaneously energized

The system shall dispatch a vehicle from the Loading Zone into the Show Area when the following conditions are satisfied:

1. there is a vehicle in the Loading Zone
2. the gate is closed
3. Segment 1 is not currently occupied
4. the LoadAdvance button has been pushed
5. neither the Dispatch Inhibit nor Station Stop buttons have been pushed

The system shall advance a vehicle from the Unloading Zone into the Loading Zone when the following conditions are satisfied:

1. there is a vehicle in the Unloading Zone
2. the gate is closed
3. the Loading Zone is not currently occupied
4. the LoadAdvance button has been pushed
5. the Station Stop button has not been pushed

### **Track Switch Movement**

The system shall move the track switch to the position selected by the operator only when none of the surrounding segments are occupied by a vehicle.

The system shall engage the track switch locking pins whenever the track switch is not being moved.

### **Curtain Movement**

The system shall activate the hydraulic pump when a sudden increase in pressure is detected on either of the two pressure pads. The pump shall remain engaged for 6 seconds beyond the detection of a sudden decrease in pressure.

### **Gate Control**

The system shall release the gate locking mechanism allowing the gate to spring open whenever a vehicle enters the Loading Zone. The system shall allow the gate to be closed as soon as the entering vehicle is stopped in the Loading Zone.

### **Primary to Secondary Control Switchover**

The secondary node of the system shall monitor the output of the primary node for conditions indicating a loss of active control. When loss of active control is detected by the secondary node, the secondary node shall assume active control of the system.