IDAHO PORT-OF-ENTRY RAMP MONITORING

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OVERVIEW OF PRESENTATION

- Need
- Locations
- Alternatives / Solution
- Project Process
- Requirements
- Technology
- Construction
- Testing & Commissioning
The Problem

- Provide a means to monitor and respond to truck traffic queuing on Port-of-Entry intake ramps and exceeding ramp capacity – truck queue backs onto freeway mainline.
THE PROBLEM

- Increasing Heavy Truck Traffic
- Larger Trailer Combinations
- Dated Infrastructure
TRUCKS QUEUING ON INTAKE RAMP
TRUCKS BLOCKING VIEW OF THE QUEUE
CRITICAL POE LOCATIONS

1. Huetter East Bound (I-90)
2. Cotterel East Bound (I-84)
3. Cotterel West Bound (I-84)
4. Inkom North Bound (I-15)
5. Inkom South Bound (I-15)
1. Huetter East Bound
2. Cotterel East Bound
3. Cotterel West Bound
4. Inkom North Bound
5. Inkom South Bound
SOLUTION TO MANAGE THE PROBLEM

- Provide inspectors with queuing information via speed detection and cameras.
- Provide a means to close the POE before queue backs onto the freeway.

Within the Context of POE Operations
PROJECT DEPLOYMENT PROCESS

- Project team
- Formalized concept of operations
- Develop requirements/specifications
- Conduct detailed design
- Fold specifications into procurement document
- Contract with selected vendor
- Complete pilot site and monitor construction
- Testing and acceptance
PROJECT TEAM

- Port-of-Entry Supervisors
- Commercial Vehicle HQ Management
- ITS Engineering
- Enterprise Architect
- Procurement Specialist
CONCEPT OF OPERATIONS

1. Detection unit set to monitor ramp backup trigger zone detects slow moving trucks.

2. System logic determines when slow speed threshold is met, sends message to system computer in POE.

   a) System computer sounds alarm in POE, inspectors verify ramp back-up and initiate a “Closed” message on sign.
   b) POE officers monitor ramp condition, verify clearance and initiate an “Open” message on sign.

   Automated
   a) System computer sounds alarm in POE and automatically initiates “Closed” message on sign.
   b) “Open” and normal operations resume.

4. POE sign is changed to
   a) “Closed” preventing further intake ramp backup.
   b) “Open” and normal operations resume.
**CONCEPT OF OPERATIONS DIAGRAM**

A – Port status sign – open/closed  
B – Gore point  
C – Sensors – radar based speed detection and CCTV camera  
D – Scales
SYSTEM REQUIREMENTS

* 66 requirements in 9 categories

1. General
2. Radar Detection Subsystem
3. Verification Camera
4. Computer/Software Subsystem
5. Digital Video Recorder
6. “Open/Closed” Sign Controller
7. Communication/Integration Infrastructure
8. Equipment Cabinet
9. Mounting Subsystems Requirements
TECHNOLOGY

- Queue sensing
  - Loop Detection
  - Optical
  - Radar
- Queue verification
  - CCTV
- Communication
  - Wired
  - Wireless
- Automated closure decision software
HARDWARE SPECIFICATIONS

- PTZ Camera*
- Mounting Pole*
- Cam Lowering Mechanism*
- Equipment Cabinet*
- Foundations*

*ITD Specifications
PROCUREMENT

- Developing the procurement document turned the 66 requirements into 88 specifications with many multi-part specifications
- Three responses to the Invitation to Bid
- Selection based in part on perceived software development capabilities
CONSTRUCTION

- Approximately 8 Months Construction Period
  - Pilot
  - Phasing
    - Construction
    - Electrical
    - Communication
    - System Integration
      - Sign Controller
      - Camera
      - DVR
TESTING AND ACCEPTANCE

- Physical Installation
- Network Functionality
- System Functionality
- Detection, Alarm & Sign Control
LESSONS LEARNED

- Site Communications
- Site-Specific Constraints
- Sign Verification
- Value of Pilot Installation
Idaho Port-of-Entry Ramp Monitoring Project

“Integration of technology to solve a unique problem... within the context POE operations.”
Thank-You!

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