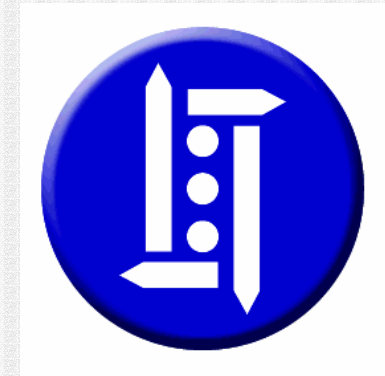


NATMEC 2004



NATMEC 2004

- The
- Infra
- Red
- Traffic
- Logger
- TIRTL
- Visit NATMEC Booth 3
- Visit www.tirtl.com



CEOS History

- CEOS founded in 1996
- Headquartered in Victoria Australia
- Optical Communications and Traffic Products
- World Class Test Facilities
- Partners include CSC, Hitachi, Cisco, Intel, Agilent, Corning,.....



TIRTL History

- Developed alpha TIRTL for RTA/NSW in 1997
- Awarded Federal Government Grant in 1998
- Thirty Five Man-Years of Development
- Commercial TIRTL sales started in 2002
- TIRTL Installations in Australia & Singapore
- TIRTL used by DoTs and toll operators for vehicle data collection and monitoring
- TIRTL used by DoJs & Police for vehicle speed measurement (speed and red light cameras)

Control Specialists & CEOS/TIRTL Partnership

- Control Specialists Company founded in 1965
- Experience with traffic classification dates back to Streeter Amet Traffic Counters (1978)
- Successful Peek Distributor since 1989
- CSC provides award winning sales, maintenance, service and training for turnkey ITS projects
- Formed exclusive partnership with CEOS in early 2004 for TIRTL sales in the USA
- Worked closely with CEOS to specify TIRTL for the US market with a long term partnership

TIRTL Overview

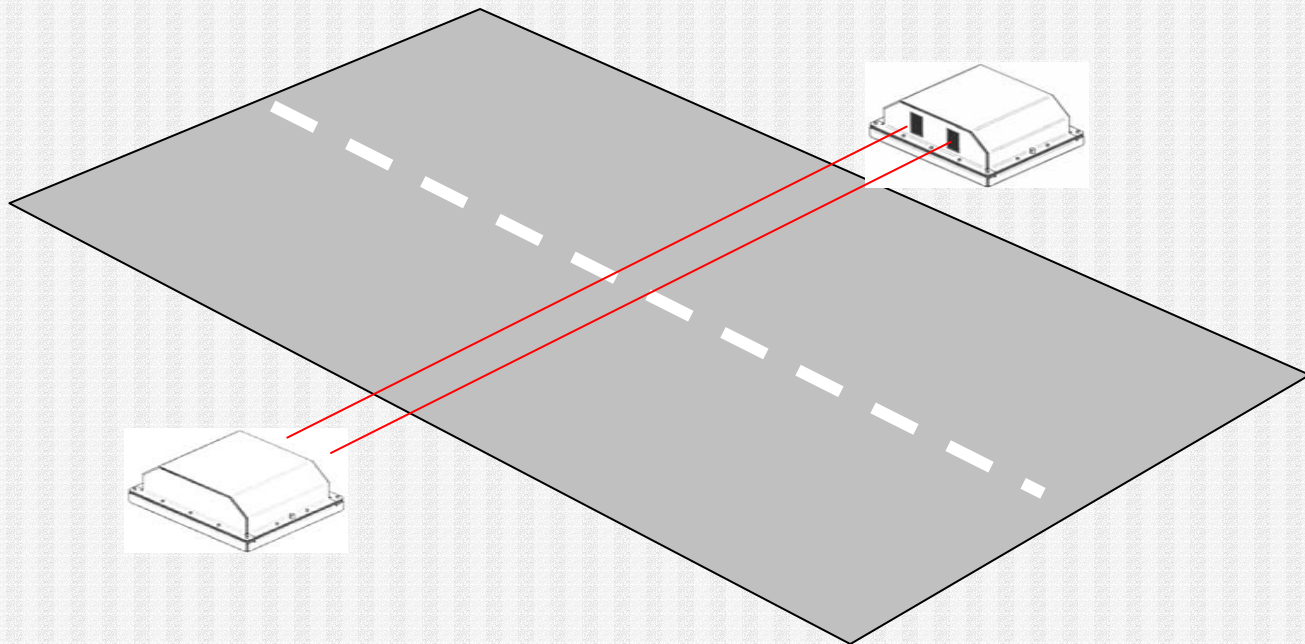
- Noninvasive Infra-Red Technology
- Simultaneously counts, classifies, identifies vehicle lane and vehicle speed
- Ultra high count, classification & lane accuracy
- Speed measurement accuracy of 1% @ 125mph
- Operates: -40 to +85C, IP67 rugged enclosure
- Low power consumption: batteries or fixed power
- Large data storage capacity (128MB to 4GB)
- Portable and easy to install

TIRTL Interfaces

- Two RS232 ports for connecting with a laptop, Palm or other ITS devices
- Ethernet interface for IP connectivity providing multiple users with access to view TIRTL
- Remote communications using an internal GSM, CDMA, PSTN modem or external Satellite modem
- Internal GPS module providing coordinates and satellite time synch to 1uS accuracy
- Automatic monitoring of TIRTL state with alarms including power, light level, memory, temp.....

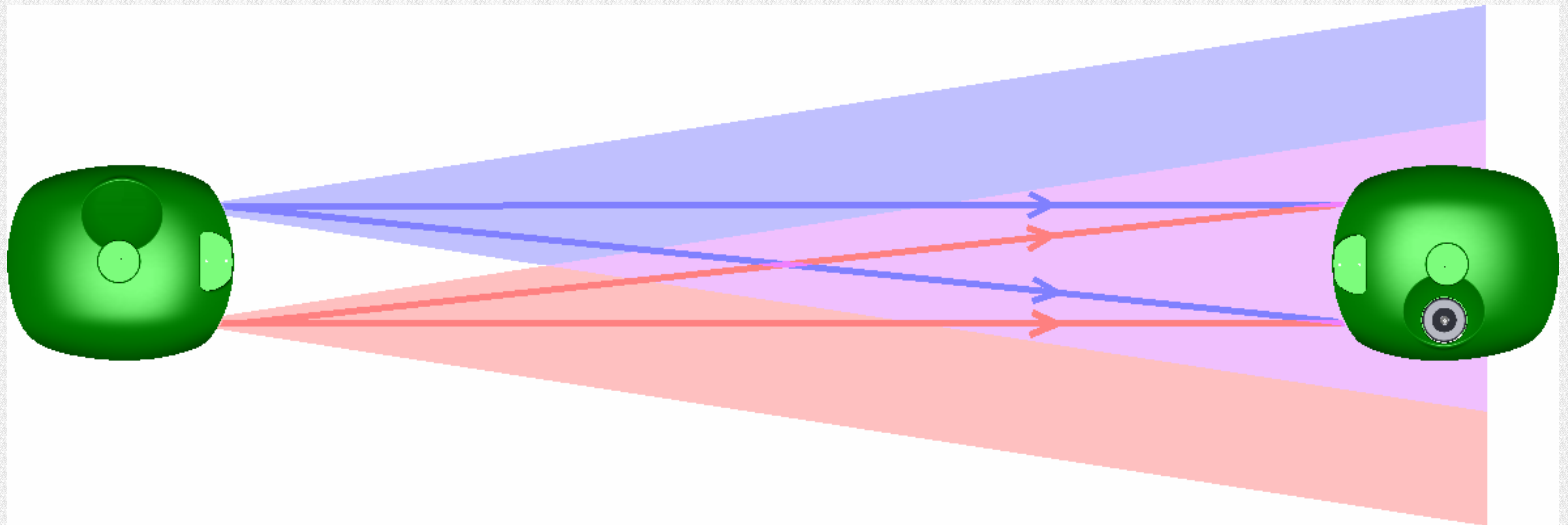
TIRTL Road Geometry

- Beams parallel to the surface of a road,
- Beams perpendicular to the direction of traffic,
- Beams below vehicle body (2 to 4 inches high)



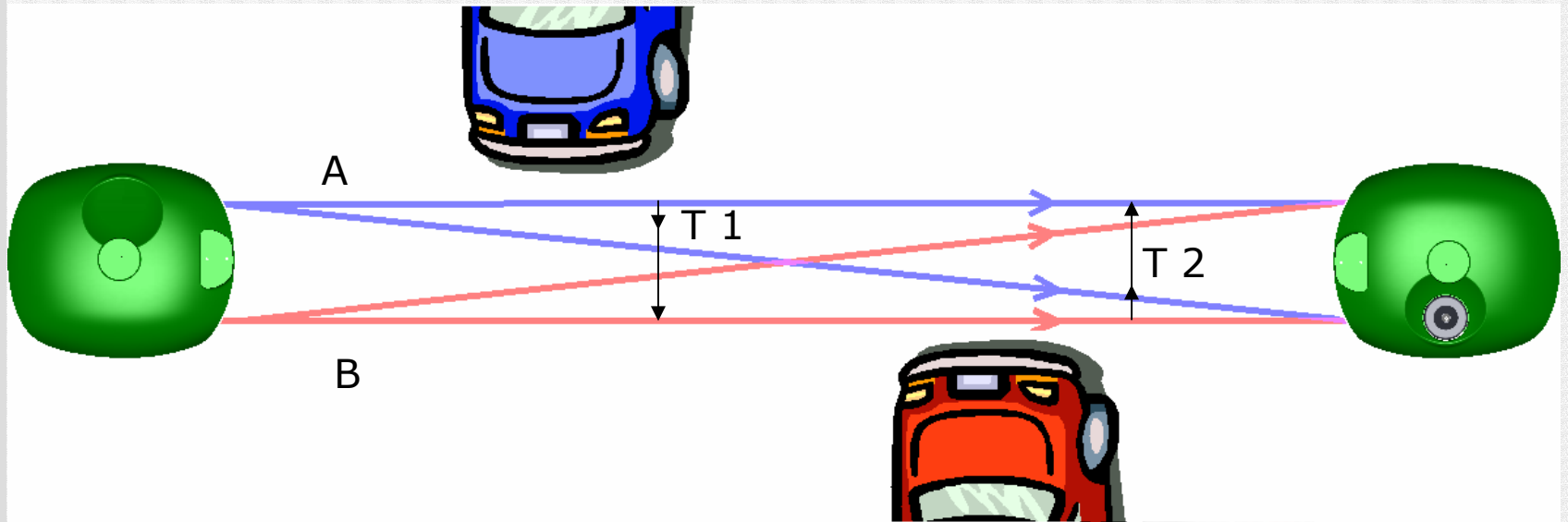
TIRTL Beams

- LED transmitters that are eye-safe
- 2 parallel beams and 2 cross beams



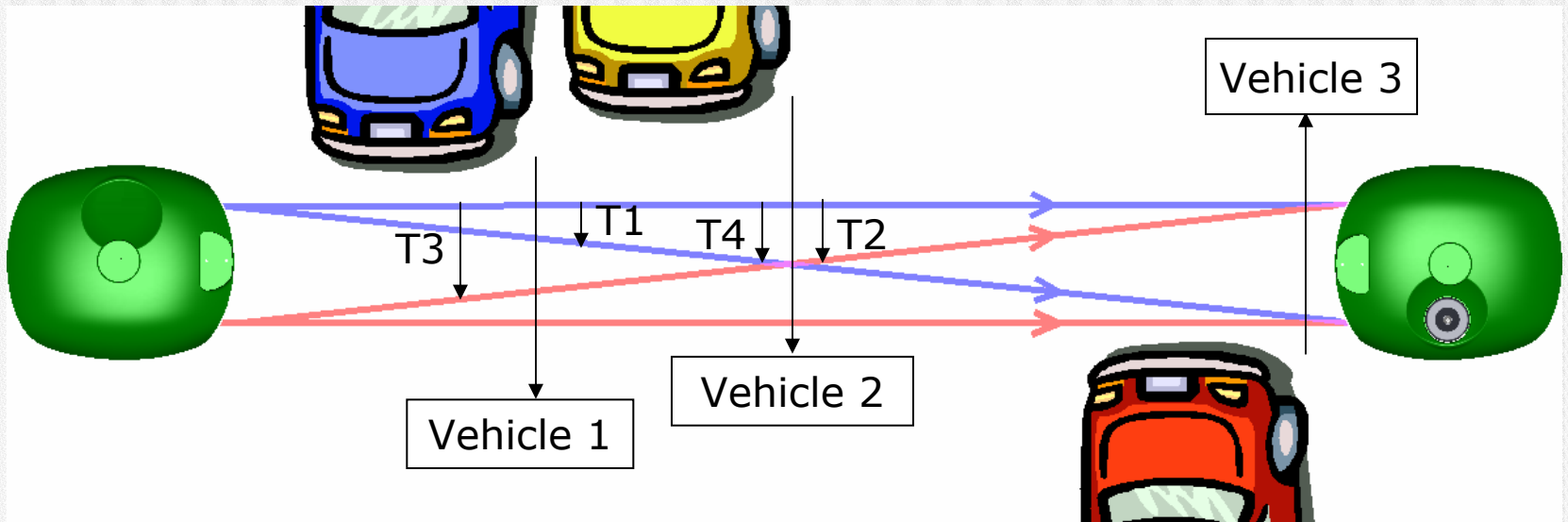
Speed Detection

- Speed is determined by measuring the time taken to break OR make each of the 2 parallel beams and using the known beam separation



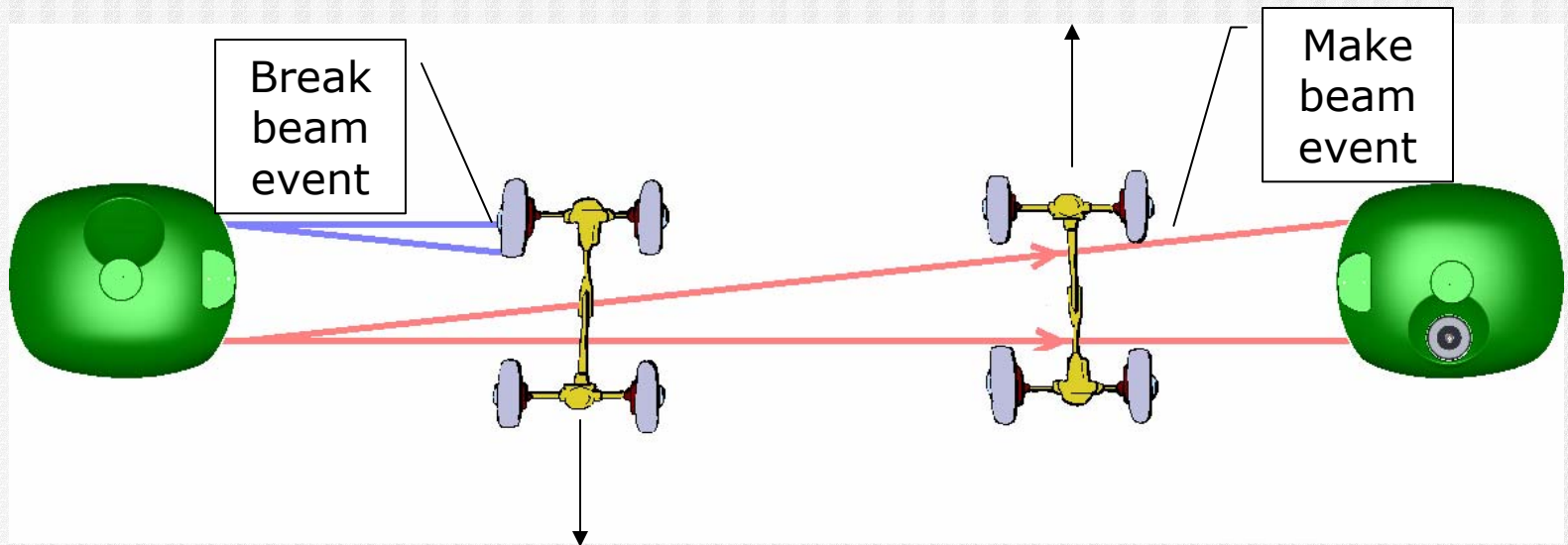
Lane Detection

- Lane is determined using the timing information from the parallel AND cross beams and geometry provides the lateral distance (Lane)



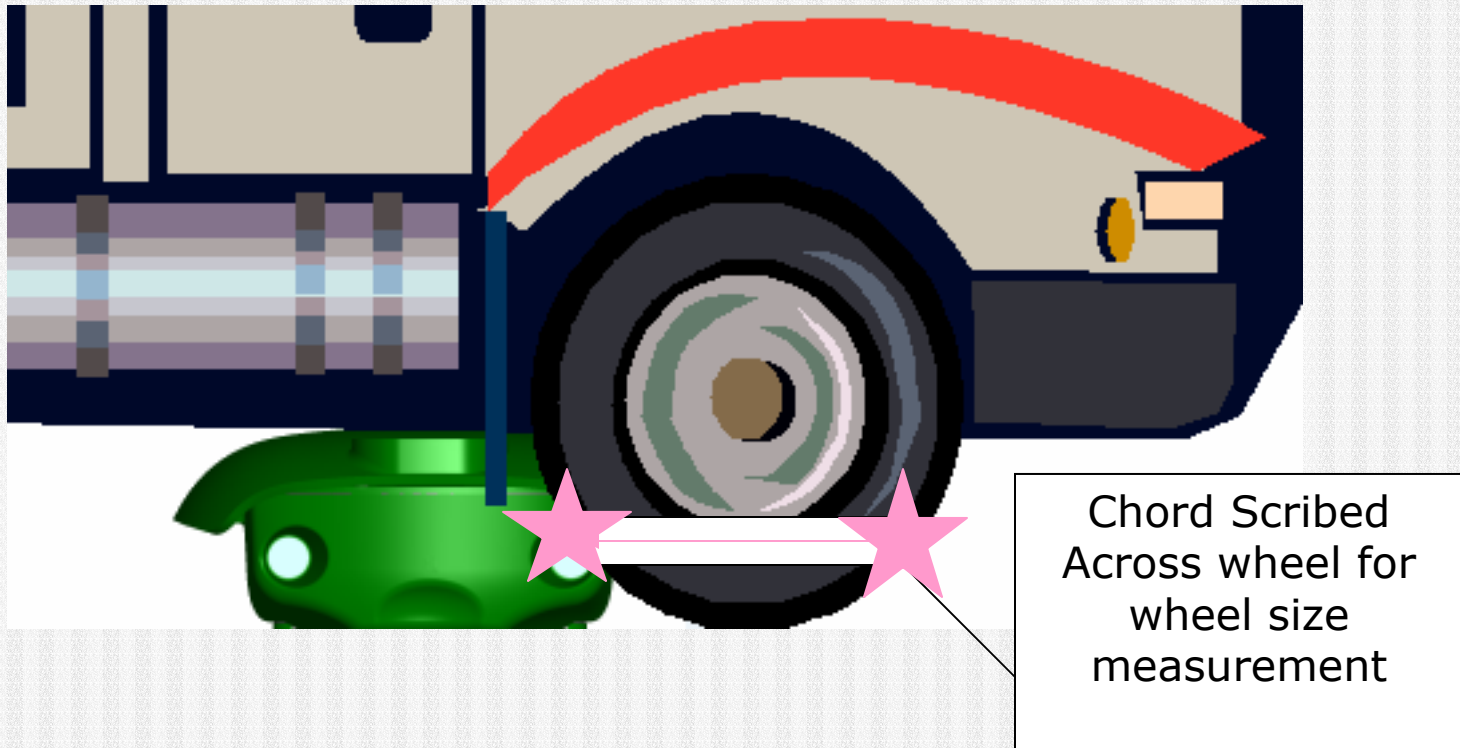
Axle Detection

- TIRTL detects beam make and break events



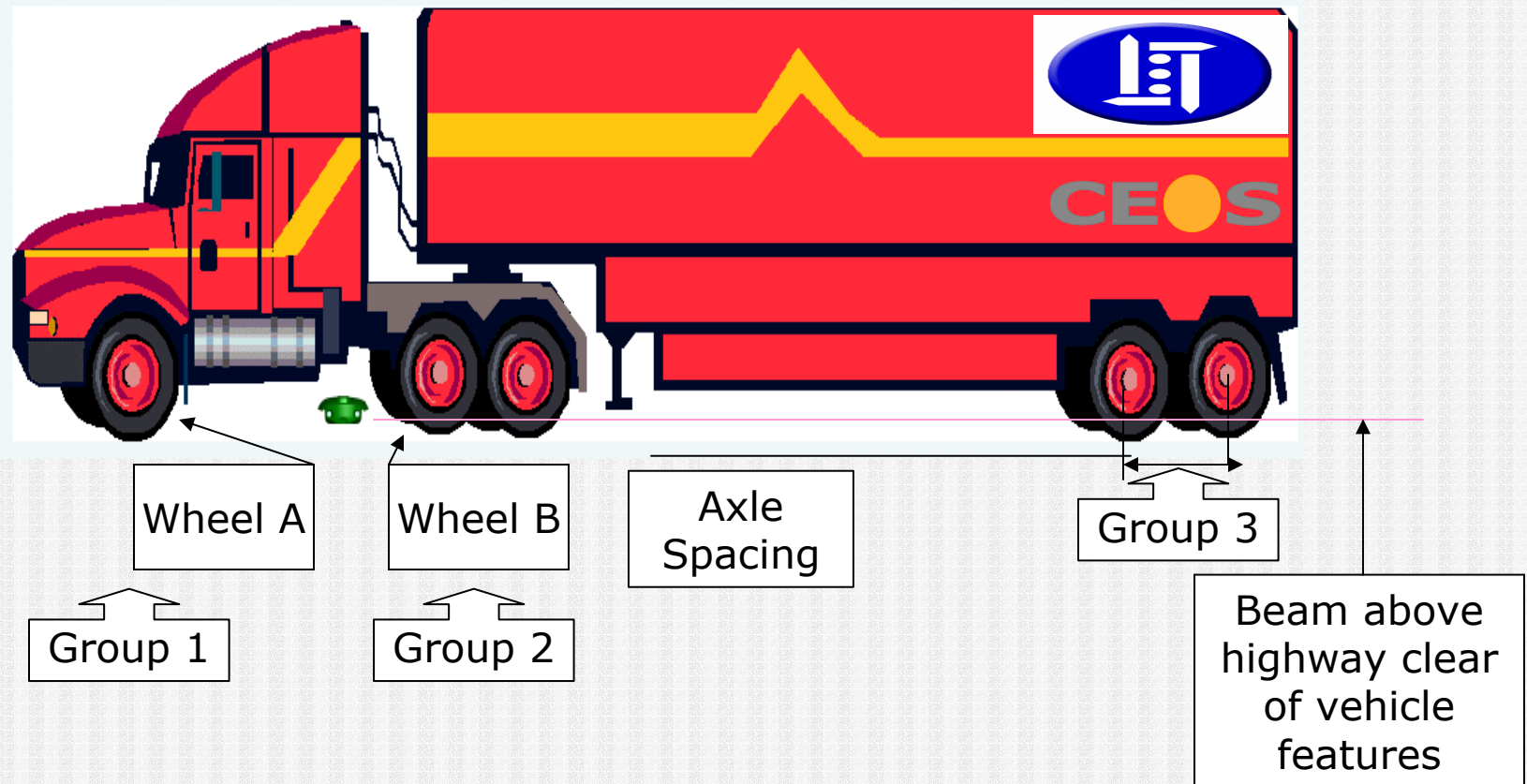
Wheel Size Detection

- Wheel size is measured to assist in classification

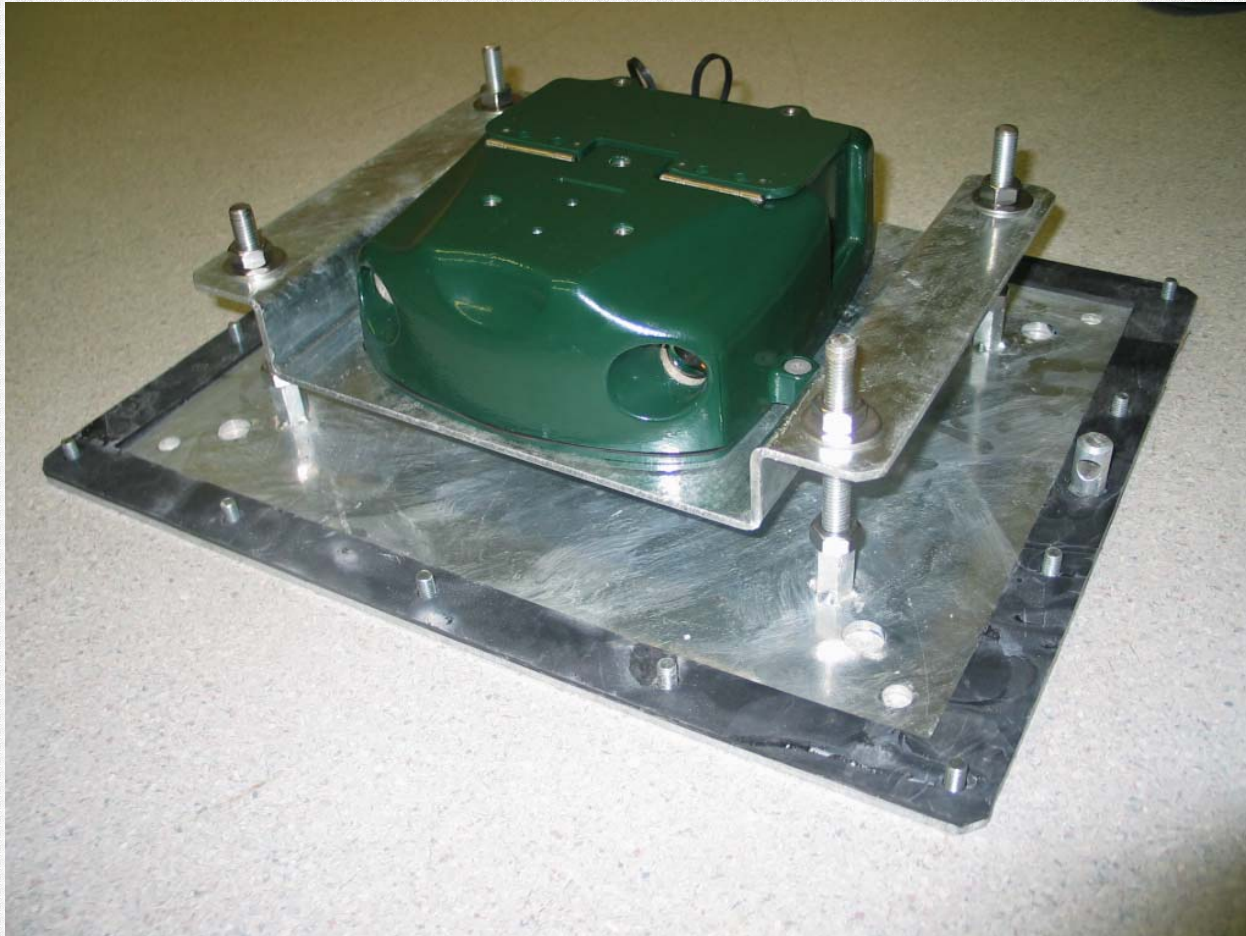


Vehicle Classification

- Vehicle classification using axles + other



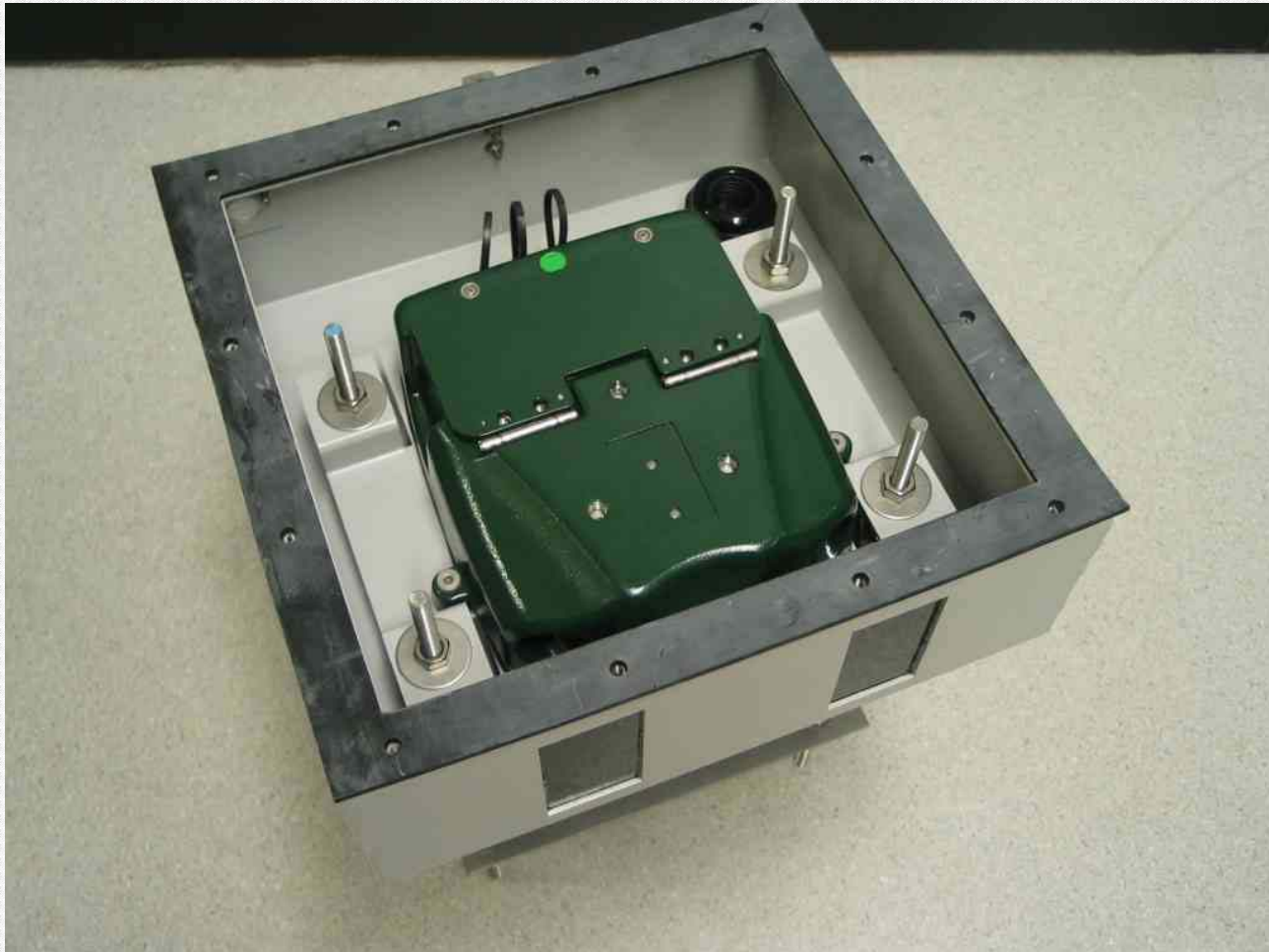
TIRTL Freeway Housing Mounting Bracket



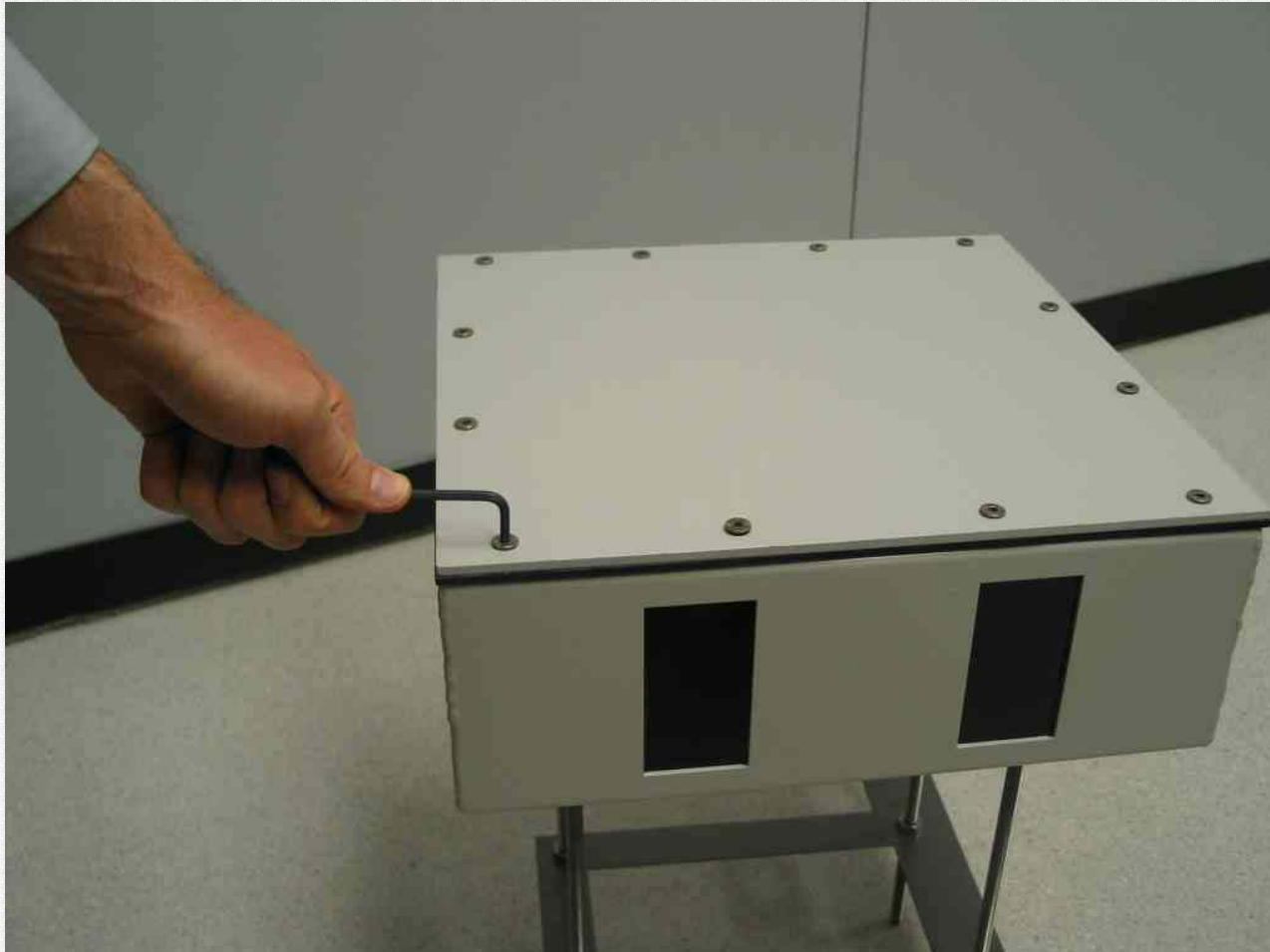
TIRTL Freeway Housing



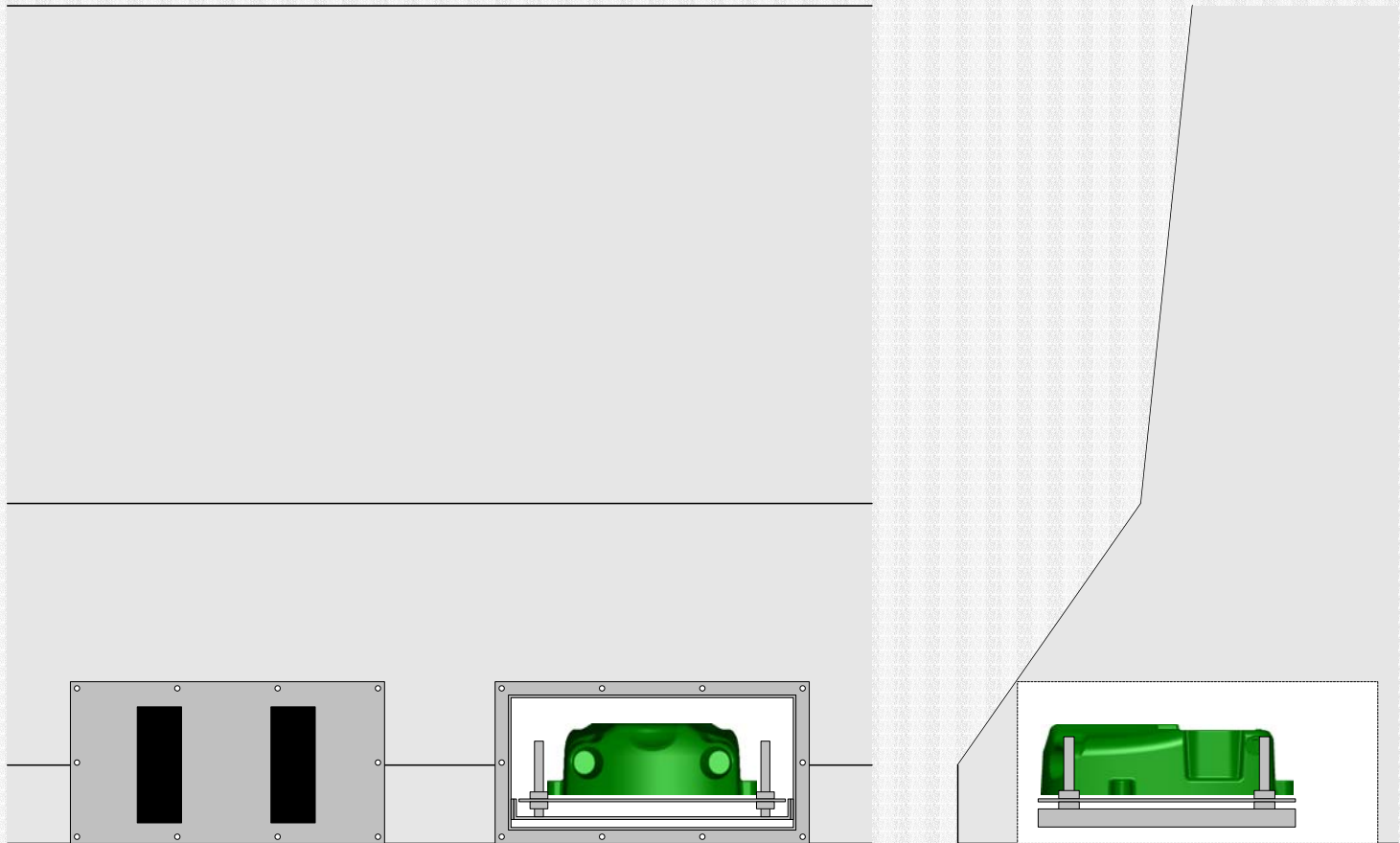
TIRTL Curbside Housing with Mounting Bracket



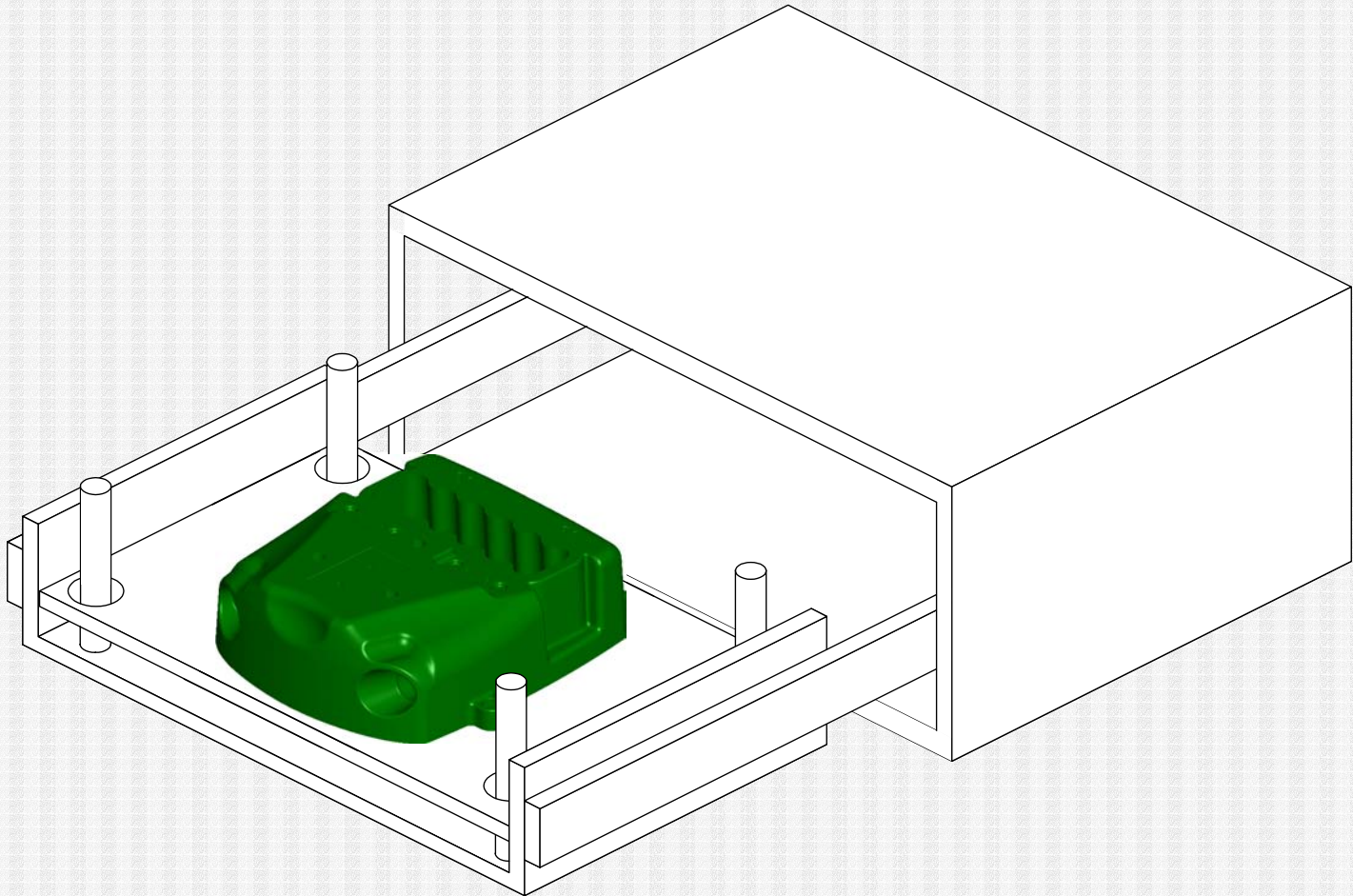
TIRTL Curbside Housing



New Jersey Barrier TIRTL Installation



New Jersey Barrier TIRTL External Housing



TIRTlsoft

Configuration Editor

Site Information | Classification Scheme

| Name | Value |
|-------------------|-------------------|
| Scheme Name | FHWA CSC 20040401 |
| Max. Axle Spacing | 12192 |
| Max Group Spacing | 2100 |

Vehicle Classes

| | |
|---|------------------------|
| <input type="checkbox"/> 4- Axle Single Trailer | 4- Axle Single Trailer |
| <input type="checkbox"/> 4+ Axle Single Unit | 4+ Axle Single Unit |
| <input type="checkbox"/> 3 Axle Single Unit | 3 Axle Single Unit |
| <input type="checkbox"/> 2 Axle Single Unit | 2 Axle Single Unit |
| <input type="checkbox"/> Bus | Bus |
| <input type="checkbox"/> Pickup or Van | Pickup or Van |
| <input type="checkbox"/> Motorcycle | Motorcycle |
| <input type="checkbox"/> 6 Axle Multi Trailer | 6 Axle Multi Trailer |
| <input type="checkbox"/> 5- Axle Multi Trailer | 5- Axle Multi Trailer |
| <input type="checkbox"/> Passenger Car | Passenger Car |
| <input type="checkbox"/> 5 Axle Single Trailer | 5 Axle Single Trailer |
| <input type="checkbox"/> 6+ Axle Single Trailer | 6+ Axle Single Trailer |
| <input type="checkbox"/> 7 Axle Multi Trailer | 7 Axle Multi Trailer |
| <input type="checkbox"/> 8+ Axle Multi Trailer | 8+ Axle Multi Trailer |

Status

General | Alarms | Logging | Modules

Rx Serial No.: RX0022B
Time: 11:19:38
Date: 04/16/2004
Beam Levels: 48 51 49 51
Rx Temperature: 84°F
Rx Battery: Ext: 0.0 V Int: 15.7 V

Tx Serial No.: TX0022B
Tx Temperature: 88°F
Tx Battery: Ext: 0.0 V Int: 10.2 V

Traffic

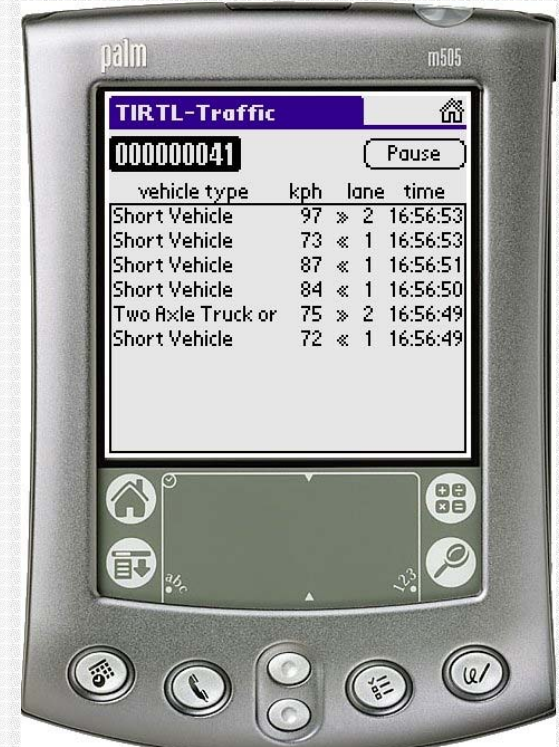
000006 [Reset]

| Vehicle Class | Speed | Lane | Time | # Axles |
|-----------------|----------|------|----------|---------|
| 2 Passenger Car | 24.8 mph | 1 | 11:15:42 | |
| 2 Passenger Car | 25.2 mph | 1 | 11:16:40 | |
| 2 Passenger Car | 10.6 mph | 2 | 11:17:55 | |
| 2 Passenger Car | 21.3 mph | 2 | 11:18:12 | |
| 3 Pickup or Van | 16.7 mph | 2 | 11:18:38 | |
| 2 Passenger Car | 18.0 mph | 2 | 11:19:30 | |

Task Log

04/16/2004 11:09:42 : Connecting...
04/16/2004 11:09:42 : Connected.
04/16/2004 11:09:58 : Site Information transfer completed.
04/16/2004 11:10:10 : Classification Scheme transfer completed.

TIRTL Palm Interface



TIRTL Summary

- World leading non-invasive infra-red technology
- Simultaneously, counts, classifies, identifies vehicle lane and vehicle speed
- Portable, easy to install and rugged
- Communications interfaces provide flexibility
- Ultra accurate vehicle information
- Numerous installations and proven performance

Come See Us At Booth 3



CEOS