APPENDIX A Traffic Monitoring Equipment Certification

FLORIDA
LAWTON CHILES
GOVERNOR

DEPARTMENT OF TRANSPORTATION
605 Suwannee Street, MS-27, Tallahassee, Florida 32399-0450
(850)488-4111/ext.103, SunCom 278-4111/ext.103, FAX (850)488-4752

Thomas F. Barry, Jr.
Secretary

MEMORANDUM

DATE: Wednesday, October 22, 1997
TO: District Planning Managers
FROM: Gordon R. Morgan, Transportation Statistics Office GRM
SUBJECT: Traffic Monitoring Equipment Certification

As you know, the new objective evaluation process will include points based on when (or if) certification is provided that traffic monitoring equipment is proper and functioning correctly. We now have a certification process and form that can be used for this purpose. The attached sheet has the Traffic Monitoring Equipment Certification Guideline on one side, and the Traffic Monitoring Equipment Certification Form on the other side.

Please review the Guideline and the Form, and let me know if you have any suggestions for improving either of them. If you have questions about the details of them, please contact Harshad Desai at SunCom 278-4111, extension 104, or e-mail him at pl934hd.

Bruce Gordon will be taking copies of the Guideline and Form with him to discuss at the October 28 meeting of the District Directors of Planning and Programs; if you have a chance, you may want to discuss these materials with your Director before then.

GRM

Attachment

cc: Ysela Llort, Bruce L. Gordon

TRAFFIC MONITORING EQUIPMENT CERTIFICATION FORM

Test Date:	Test Begin Time: AM/PM	Test End Time: AM/PM
Test Site Location:	Traffic Monitoring Equipment Being Tested	
	Make:	
Test Site Direction:	Model No.:	Serial No.:

COMPARATIVE ANALYSIS

Results of Equipment Tested				TTMS or Visual Test Results			
Total Vehicles Counted:				Total Vehicles Counted:			
Vehicle Counts (By Class) If Applicable:				Vehicle Counts (By Class) If Applicable:			
Class 1:		Class 1-3		Class 1:		Class 1-3	
Class 2:				Class 2:			
Class 3:				Class 3:			
Class 4:		Class 4-8		Class 4:		Class 4-8	
Class 5:				Class 5:			
Class 6:				Class 6:			
Class 7:				Class 7:			
Class 8:				Class 5:			
Class 9:		Class 9-13		Class 9:		Class 9-13	
Class 10:				Class 10:			
Class 11:				Class 11:			
Class 12:				Class 12:			
Class 13:				Class 13:			
Class 15:		Class 15		Class 15:		Class 15	
Total:				Total:			

This is to certify that the portable traffic monitoring equipment listed above was tested in accordance with the guideline on the reverse of this form (to be incorporated in a procedure currently being developed), and meets the accuracy requirements needed for traffic data programs. Otherwise, the equipment is "REJECTED" as reflected in the comments section below.

Test Performed By:

Name Title

Organization Signature

Test Monitored/Analyzed By:

Name Title

Organization Signature

COMMENTS:

REJECTED WHEN THIS BOX IS CHECKED: ➔

TRAFFIC MONITORING EQUIPMENT CERTIFICATION GUIDELINE

Once a year, all portable traffic volume counters and portable automatic vehicle classification counters used by the Department or used by consultants for general data collection activities or other Department projects must be certified for accuracy in data collection.

The testing of portable traffic volume counters will consist of setting the portable counters sequentially at a selected location and then comparing their counts with reference counts taken at the same time from an adjacent telemetered traffic monitoring site or a manual count. Ten to fifteen machines can be set at one time for a minimum of one hour data collection. If the count for a portable machine is within ten percent (10%) of the reference volume count, then the equipment is considered to be functioning properly.

For portable automatic vehicle classification counter operation, two tests are used for certification:

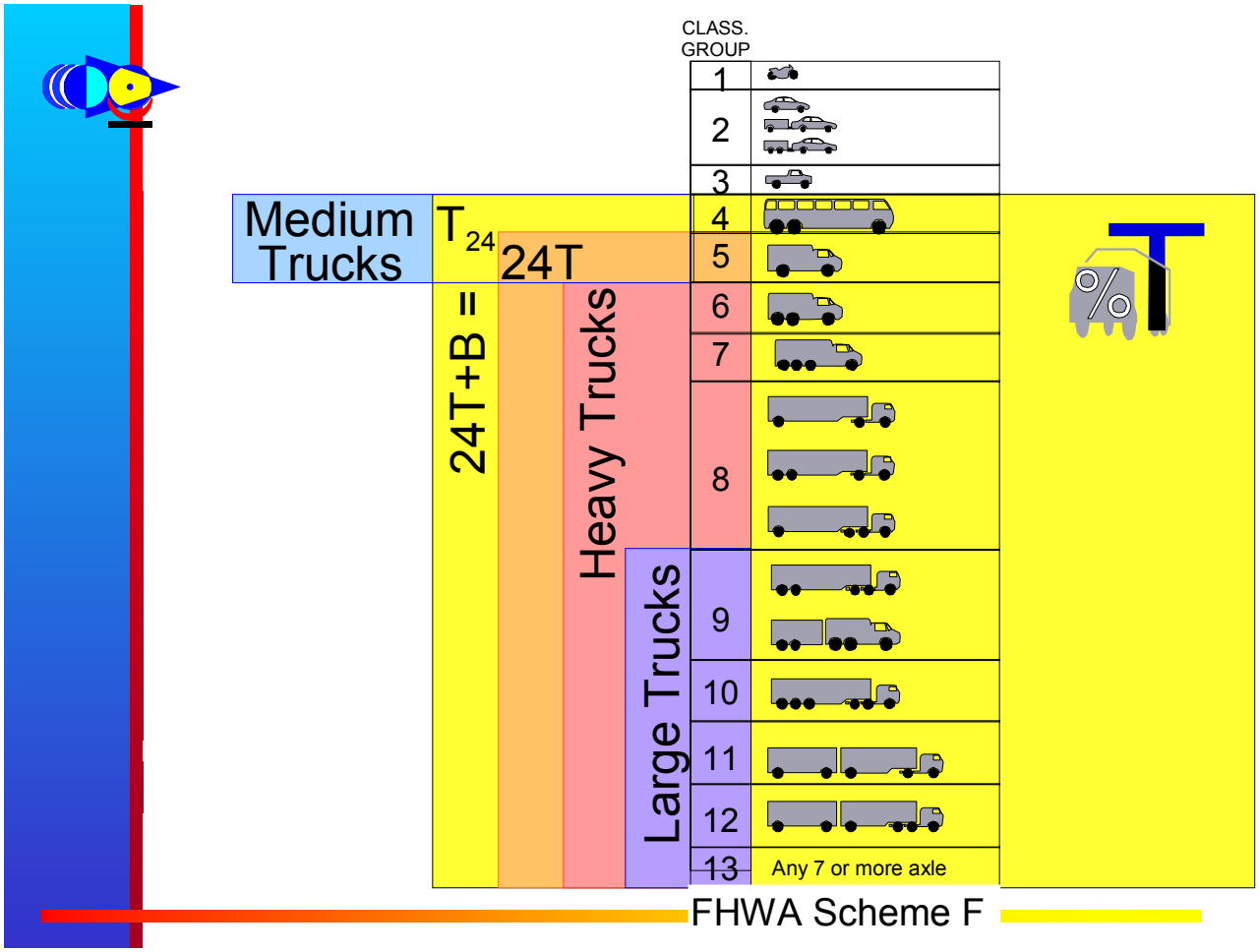
1. The total volume is compared to the total reference volume. If the portable automatic vehicle classification counter total counts are within ten percent (10%) of the reference volume, then the accuracy test is met.
2. The counts for each of the 14 classes will be grouped for comparison to make sure that an anomaly in one class with a very low volume, for instance, does not disqualify a machine. The groupings will be: (a) Classes 1 through 3; (b) Classes 4 through 8; (c) Classes 9 through 13; and (d) Class 15 (unknown vehicle types). If the difference in any of the first 3 group totals for the classification counts compared to the reference data do not exceed ten percent (10%), and the class 15 counts are less than 10% of the total counts, then the test is met.

   Any portable machine that passes the accuracy test for traffic volume and/or vehicle classification can be certified for only the type of count on which it was tested (i.e. volume, classification, or volume and classification).

The test results will be documented for each counter to be used on a Department project. The documentation will be submitted to the district for their working files and must include:

1. Count location and direction of travel
2. Automatic count manufacturer make, model number, and serial number
3. Volume count data and/or classification count data from the automatic counter in tabular form and in fifteen minute intervals
4. Date and times of testing
5. A certification stating that the counter has successfully completed testing for data collection accuracy.

APPENDIX B FHWA Classification Scheme "F"



APPENDIX C Standard Index 17781 Loop Installation Details

GENERAL NOTES

1. If the loop lead-in is 75' or less from the edge of the loop detector or controller cabinet, continue the twisted pair to the cabinet. If the loop lead-in is greater than 75' continue the twisted pair to the specified pull box, splice to shielded lead-in wire and continue to the detector or controller cabinet.

2. The width of all saw cuts shall be sufficient to allow unforced placement of loop wires or lead-in cables into the saw cut. The depth of all saw cuts, except across expansion joints, shall be 3" standard with a maximum of 4".

3. On resurfacing or new roadway construction projects, the loop wires and lead-in cables may be installed in the asphalt structural course prior to the placement of the final asphalt wearing course. The loop wires and lead-in cables shall be placed in a saw cut in the structural course. The depth of the cables below the top of the final surface shall comply with note 2.

4. A nonmetallic hold down material shall be used to secure loop wires and lead-ins to the bottom of saw-cuts. Hold down material shall be placed at approximately 12" intervals around loops and 24" intervals on lead-ins.

5. The minimum distance between the twisted pairs of loop lead-in wire is 6" from the loop to 12" from the pavement edge or curb.

6. Splice Connections in pull boxes with U.L. listed, watertight, insulated enclosures. Place one enclosure over the end of each conductor and place a third enclosure over the exposed end of the shielded cable.

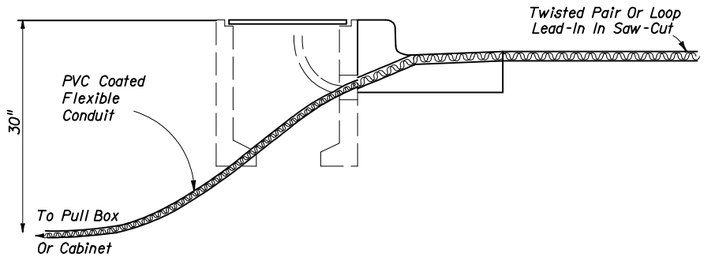
7. As an alternate, a larger diameter enclosure that will accommodate both the splices of the conductors and the exposed end of the shielded cable may be used.

8. The maximum area of asphalt to be disturbed shall be 6"x 6". This area shall be restored as directed by the Engineer.

TWISTED PAIR AND LOOP LEAD-IN INSTALLATION WITH CURB & GUTTER

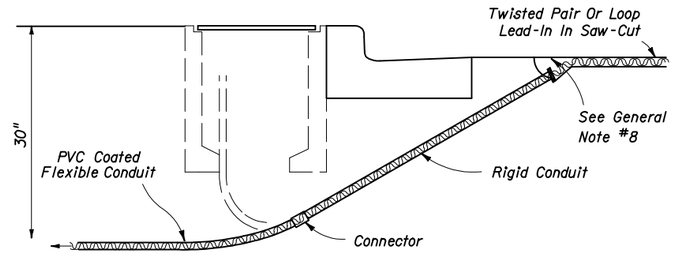
ALTERNATIVE 1

Drill A Hole Through The Curb At The Point Which The Required Saw-Cut Depth Is Obtained Just Prior To Cutting The Top Inside Edge Of The Curb. Slide A Section Of Flexible Conduit At Least 6" Into The Hole From The Back Side Of The Curb But Not Within 2" Of The Top Of The Hole. The Conduit Shall Fit Snug Within The Drilled Hole. Fill The Top Of The Hole With Loop Sealant To The Level Of The Curb Surface. A Nonmetallic Material Should Be Used To Prevent Excessive Loop Sealant From Entering The Flexible Conduit.



ALTERNATIVE 2

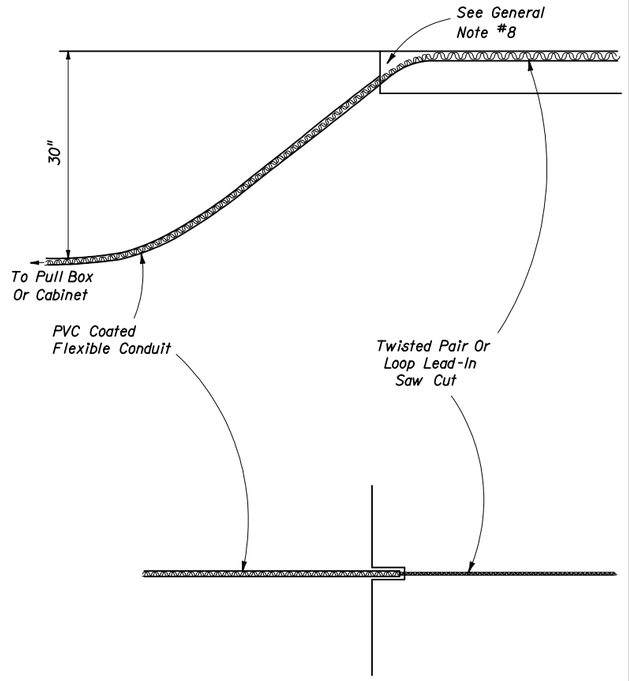
Drill A Hole $\frac{1}{2}$" To 1" Larger In Diameter Than The Rigid Conduit To Be Used Through The Roadway Asphalt (Or Concrete) Surface And Base At An Appropriate Angle To Intercept The Trench Or Pull Box Hole. Place A Predetermined Length Of Rigid Conduit In The Hole And Drive The Conduit Into The Trench Or Hole. Install A Molded Bushing (Nonmetallic) On The Roadway End Of The Rigid, Conduit. The Top Of The Rigid Conduit Shall Be Approximately 2" Below The Roadway Surface. Fill The Hole With Loop Sealant To The Level Of The Roadway Surface. A Nonmetallic Material Should Be Used To Prevent Excessive Loop Sealant From Entering The Rigid Conduit.



Note
Other alternatives may be approved by the State Traffic Operations Engineer.

TWISTED PAIR AND LOOP LEAD-IN INSTALLATION WITHOUT CURB & GUTTER

Cut A Slot In The Edge Of The Roadway Of Sufficient Size And Depth To Snugly Place The End Of The Flexible Conduit. The End Of The Conduit Shall Be At Least 6" Into The Roadway And ≈ 2" Below The Top Of The Roadway Surface. The Departure Angle Of The Conduit From The Roadway Shall Be 30° To 45°.



Note
Other alternatives may be approved by the State Traffic Operations Engineer.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

VEHICLE LOOP INSTALLATION DETAILS

	Names	Dates
Designed By		
Drawn By		
Checked By		

Approved By
Clark A Scott
State Traffic Standards Engineer

Revision	Sheet No.	Index No.
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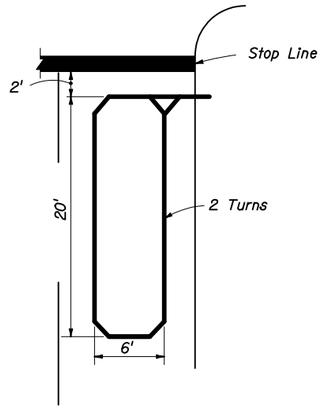
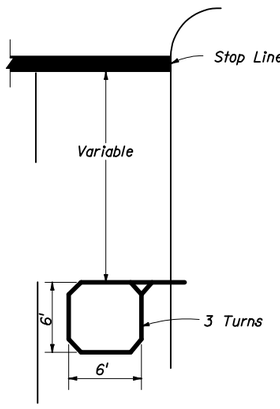


TYPE A



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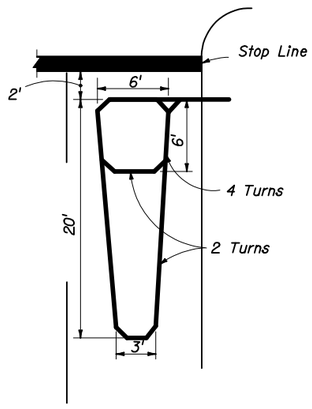

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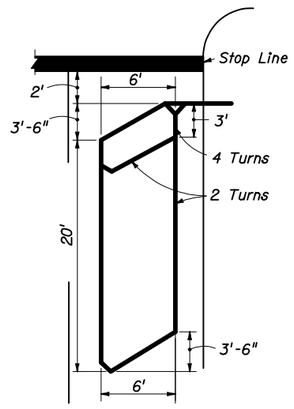
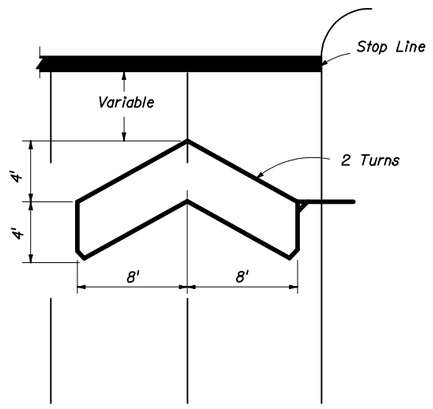
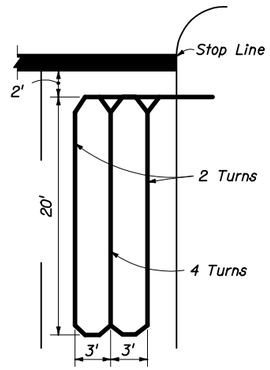


TYPE D

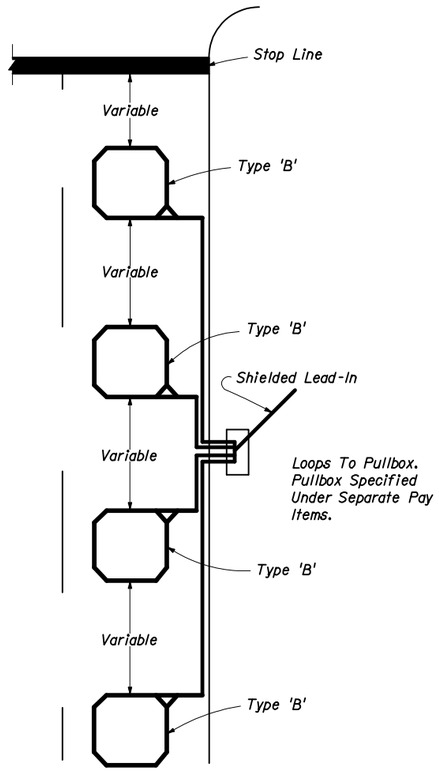


TYPE E

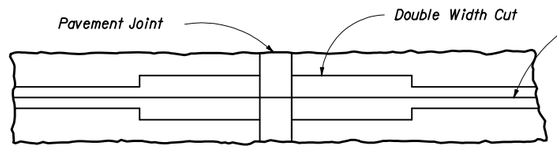


TYPE F

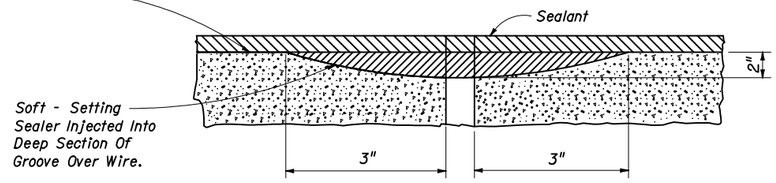
Note: Loop conductors must follow saw-cut to bottom forming slack section at joint.



TYPE G

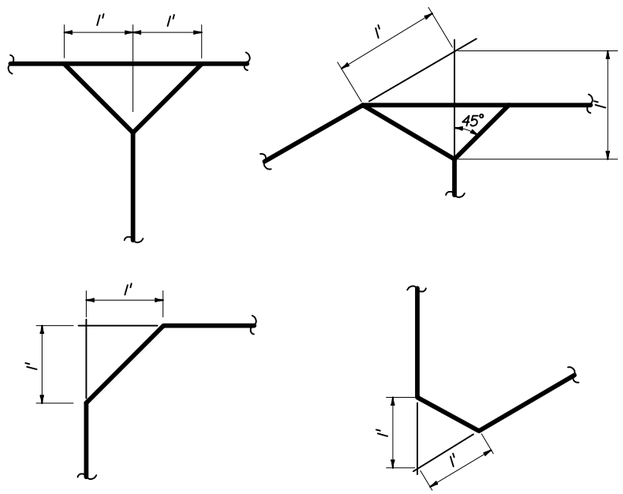


PLAN



VERTICAL SECTION

CONCRETE PAVEMENT EXPANSION JOINTS



LOOP CORNER AND LEAD-IN DETAILS

Notes:

1. The "number of turns" indicated at the specified point on the loop refers to the number of passes of loop wires which are placed in the saw-cut forming the complete loop.
2. Loop types or details not drawn to scale.
3. Loop Types are centered in a single lane except Type E which is centered on two lanes.
4. The number of individual loops in the Type G loop may vary up to a maximum of four (4).
5. Lead-in may be connected to either end of loop.
6. The leading edge of loop Types A,C,D,& F may extend past the stop line a maximum of 10'. The length of these loops may be extended to a maximum of 60'. Each intersection should be individually designed and if the modifications noted above is required it must be noted or detailed in the plans.
7. Loop lead-in wires should not be installed in the same pull box with signal power cable.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

VEHICLE LOOP INSTALLATION DETAILS

	Names	Dates
Designed By		
Drawn By		
Checked By		

Approved By: Clark A Scott
State Traffic Standards Engineer

Revision	Sheet No.	Index No.
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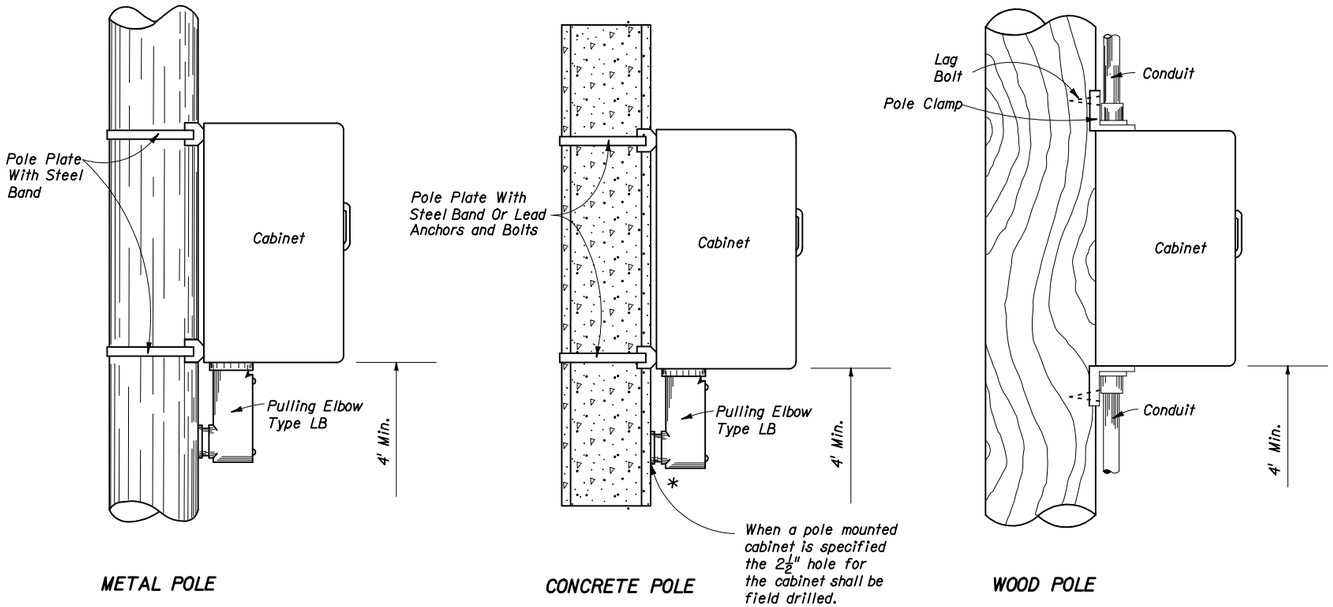
APPENDIX D Standard Index 17841 Cabinet Installation Details

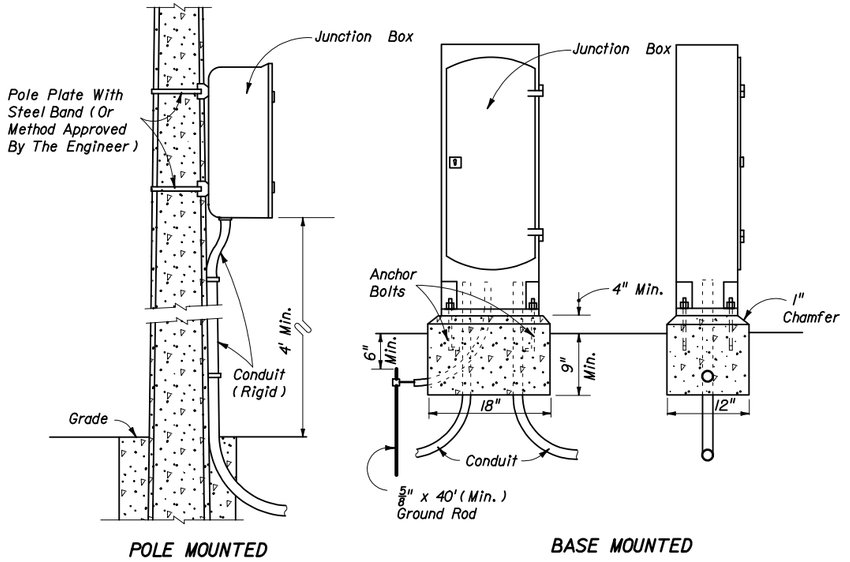


METAL POLE | CONCRETE POLE | WOOD POLE

Liquid tight flexible conduit is approved for use from the electrical disconnect to the cabinet when both are installed on the same pole.

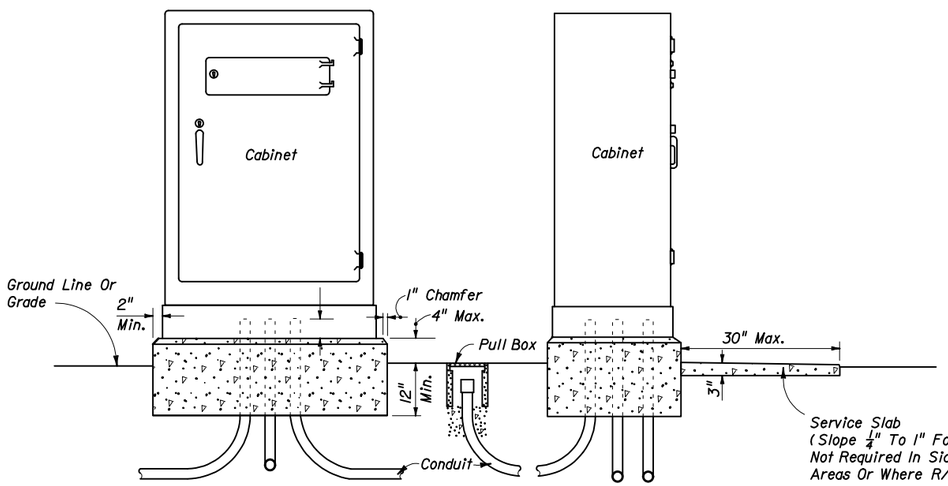
POLE MOUNTED CABINET

* If holes for cabinet mounting require relocation, original holes shall be filled in with concrete or covered with a non corrosive cover plate.



POLE MOUNTED | BASE MOUNTED

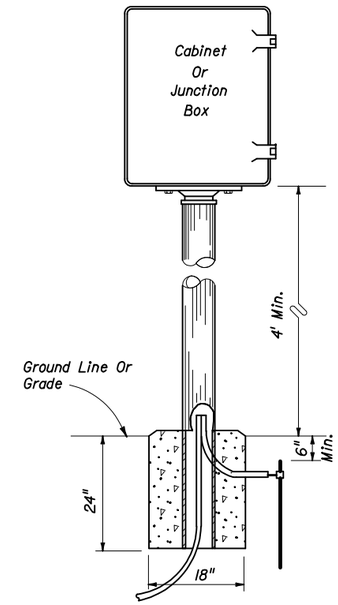
INTERCONNECT JUNCTION BOX



BASE MOUNTED CABINET

Notes:

1. The number, size and orientation of conduit sweep will vary according to site condition or locations. Two spare 2" PVC conduits shall be provided in all bases. The spares shall exit in the direction of the center rear of the cabinet base, into a pull box and capped with a weather tight fitting. If obstructions prevent the spare conduit from exiting to the rear, or the rear of the cabinet is located on the R/W line, a side exit of the spare conduits will have to be approved by the project engineer. All spare conduit sweeps shall be capped with a weather proof fitting.
2. Meet all grounding requirements of Section 620 of the Standard Specifications.



PEDESTAL MOUNTED

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

CABINET INSTALLATION DETAILS

	Names	Dates
Designed By		
Drawn By		
Checked By		

Approved By Clark A Scott
State Traffic Standards Engineer

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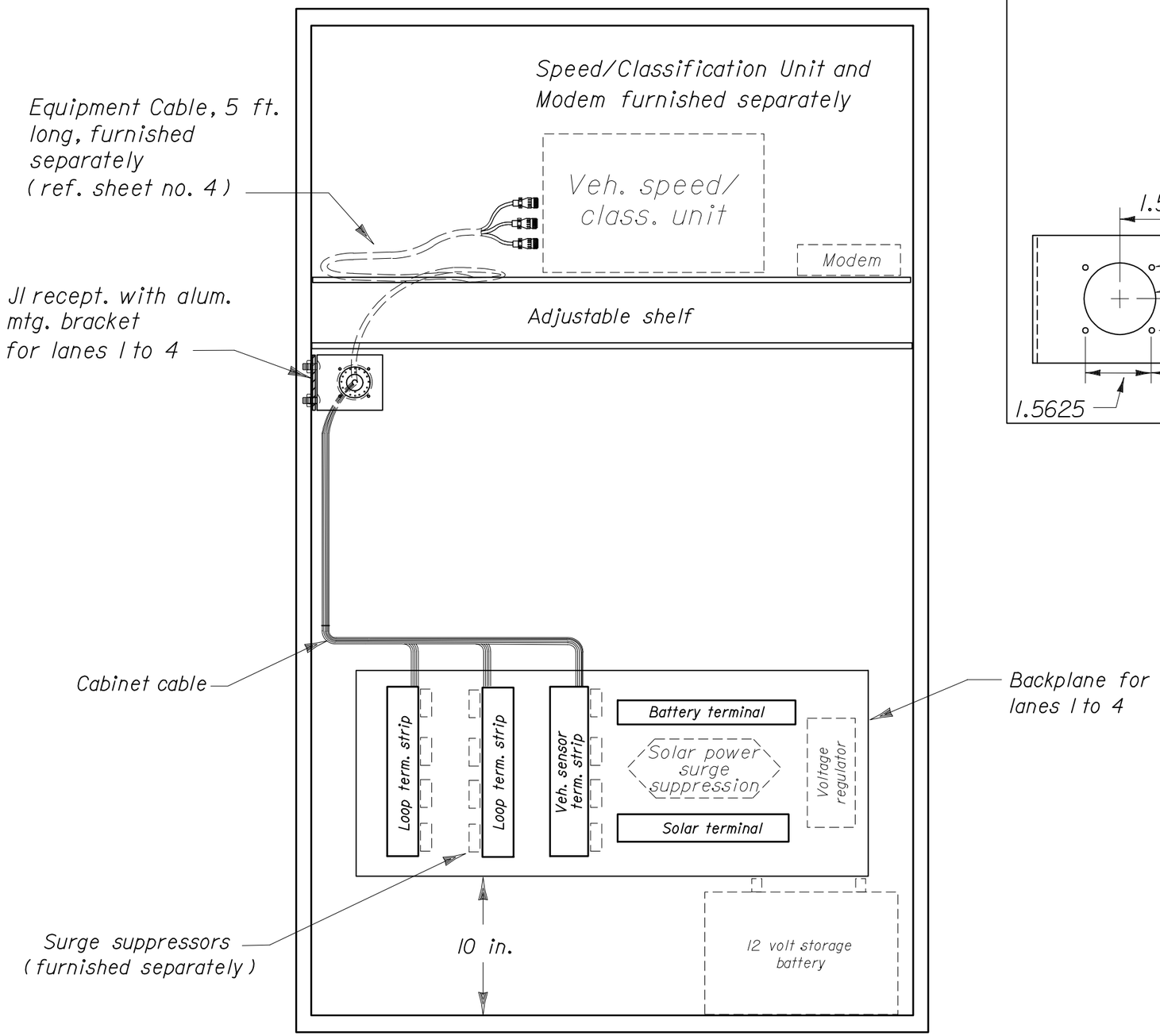
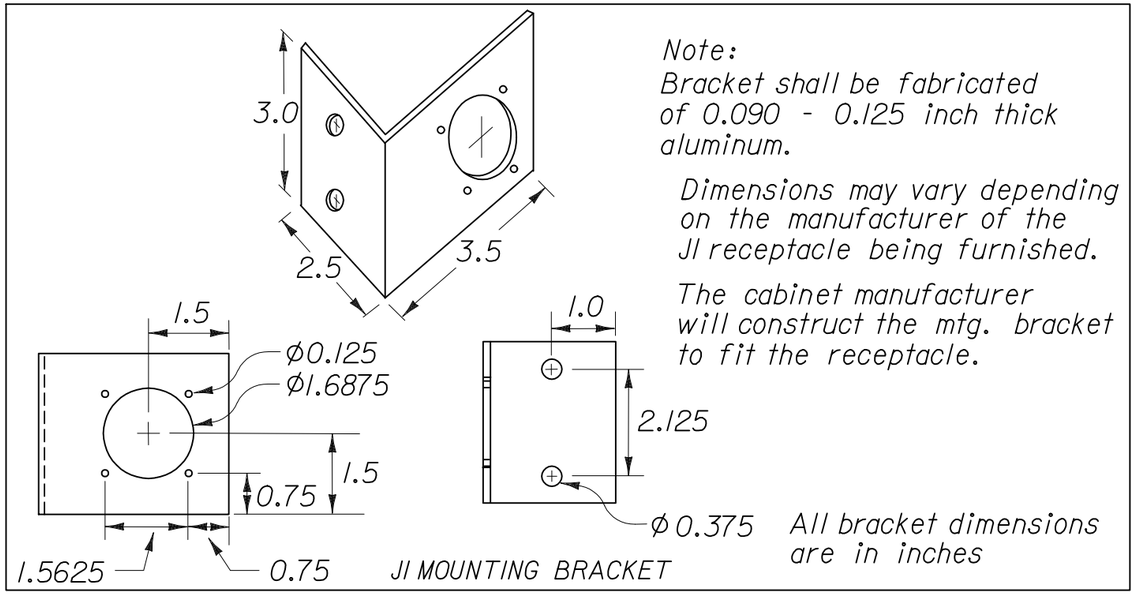
APPENDIX E Standard Index 17900 Traffic Monitoring Site Details





Note:
Bracket shall be fabricated of 0.090 - 0.125 inch thick aluminum.

Dimensions may vary depending on the manufacturer of the Jl receptacle being furnished.

The cabinet manufacturer will construct the mtg. bracket to fit the receptacle.

All bracket dimensions are in inches

Jl MOUNTING BRACKET

1. Traffic monitoring site cabinet includes:
   - A. One adjustable shelf;
   - B. One backplane ass'y;
   - C. One Jl receptacle with mounting bracket;
   - D. All associated wiring and wiring harnesses.

2. Basic backplane assembly consists of:
   - A. Two inductive loop terminal strips;
   - B. One vehicle sensor terminal strip;
   - C. One battery terminal strip;
   - D. One solar panel terminal strip.

3. When piezoelectric axle sensors are used, the shields must be connected to earth ground.

CABINET LAYOUT DETAIL
(For Up To Four Lanes)

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

TRAFFIC MONITORING SITE

	Names	Dates
Designed By		
Drawn By		
Checked By		

Approved By
Mgr Of Transportation Statistics

Revision	Sheet No.	Index No.
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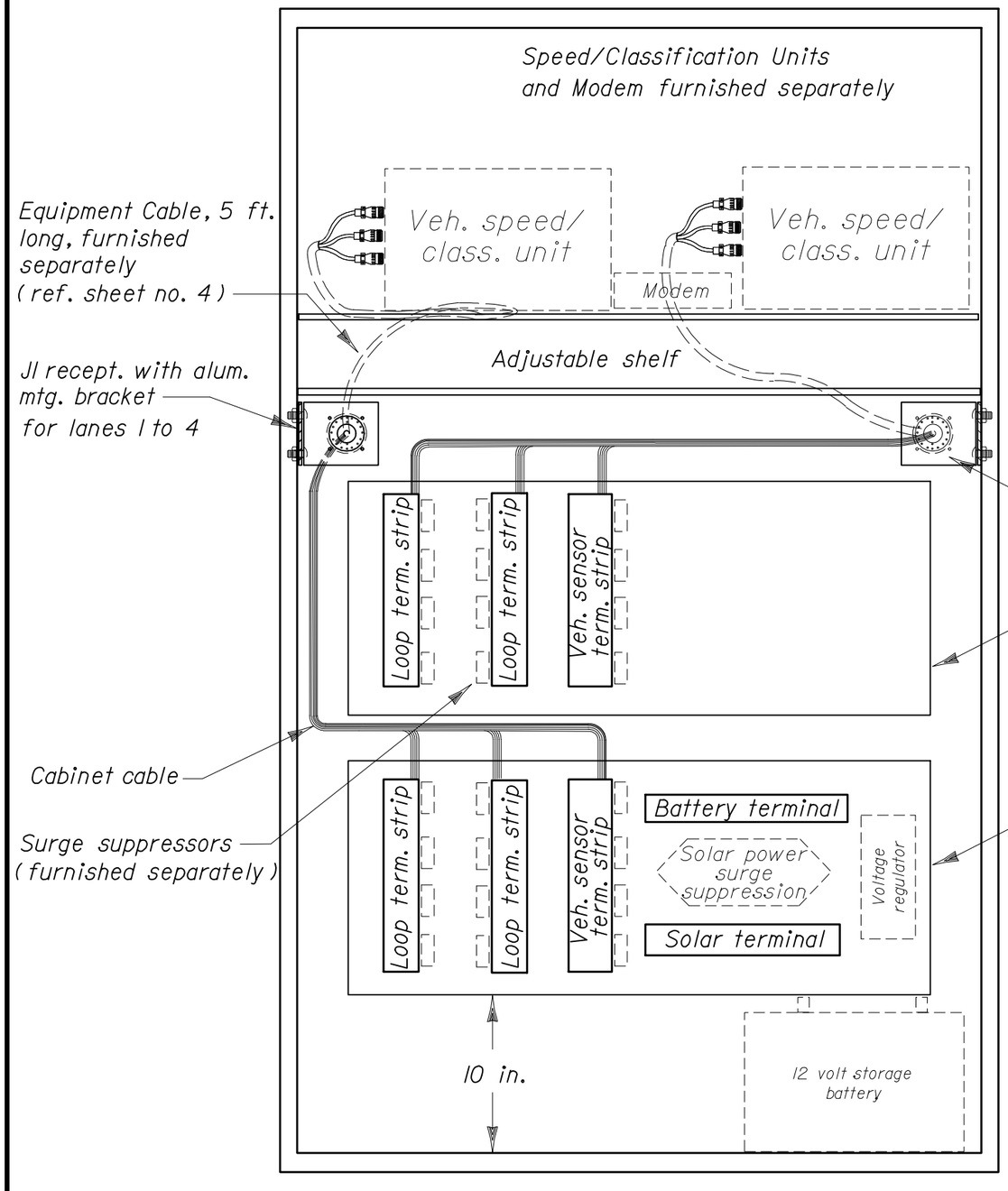

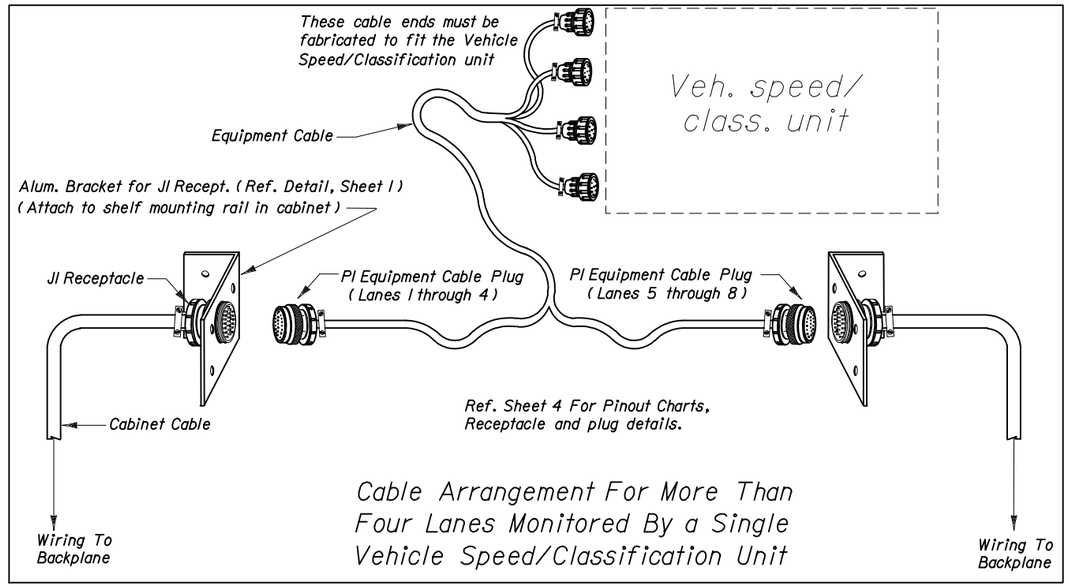

Cable Arrangement For More Than Four Lanes Monitored By a Single Vehicle Speed/Classification Unit

1. Traffic monitoring site cabinet includes:
   - A. One adjustable shelf;
   - B. Two backplane assemblies (equipped as shown);
   - C. Two Jl receptacles with mtg. brackets;
   - D. All associated wiring and wiring harnesses.

2. Basic backplane assembly consists of:
   - A. Two inductive loop terminal strips;
   - B. One vehicle sensor terminal strip;
   - C. One battery terminal strip;
   - D. One solar panel terminal strip.

3. When piezoelectric axle sensors are used, the shields must be connected to earth ground.

CABINET LAYOUT DETAIL

(For More Than Four Lanes And Up to Eight Lanes)

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

TRAFFIC MONITORING SITE

	Names	Dates
Designed By		
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Checked By		

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Mgr Of Transportation Statistics

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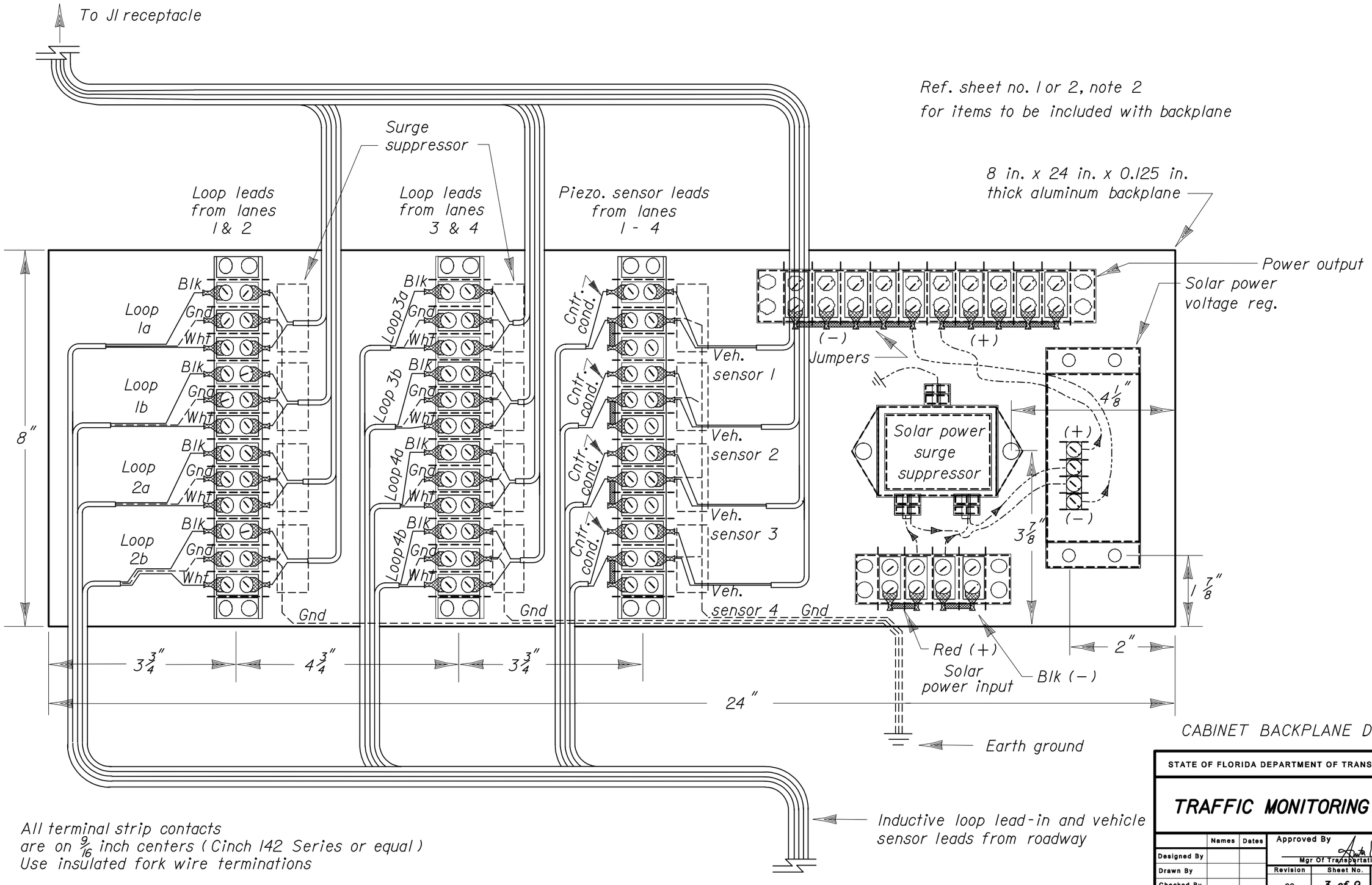

CABINET BACKPLANE DETAIL

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

TRAFFIC MONITORING SITE

	Names	Dates
Designed By		
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Checked By		

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Mgr Of Transportation Statistics

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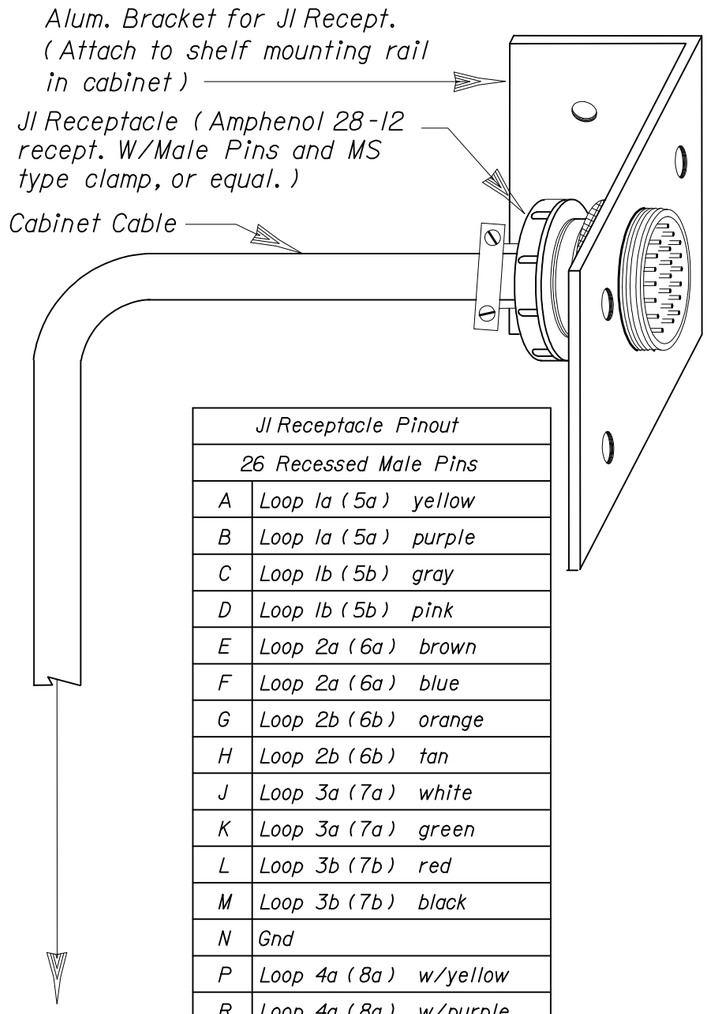
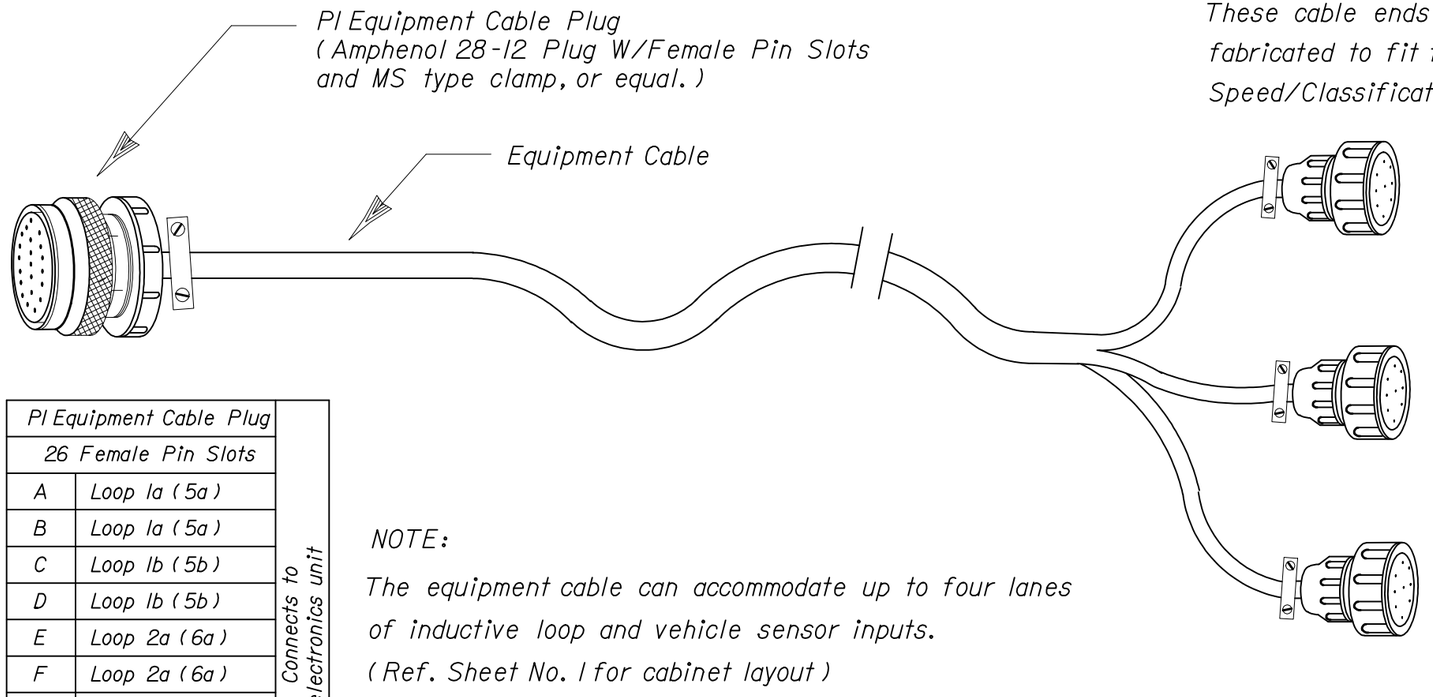


J1 Receptacle Pinout	
26 Recessed Male Pins	
A	Loop 1a (5a) yellow
B	Loop 1a (5a) purple
C	Loop 1b (5b) gray
D	Loop 1b (5b) pink
E	Loop 2a (6a) brown
F	Loop 2a (6a) blue
G	Loop 2b (6b) orange
H	Loop 2b (6b) tan
J	Loop 3a (7a) white
K	Loop 3a (7a) green
L	Loop 3b (7b) red
M	Loop 3b (7b) black
N	Gnd
P	Loop 4a (8a) w/yellow
R	Loop 4a (8a) w/purple
S	Loop 4b (8b) w/gray
T	Loop 4b (8b) w/brown
U	Piezo 1(5) (+) w/blue
V	Piezo 1(5) sh w/orange
W	Piezo 2 (6) (+) w/green
X	Piezo 2 (6) sh w/red
Y	Piezo 3 (7) (+) w/black
Z	Piezo 3 (7) sh w/red/blk
a	Piezo 4 (8) (+) red/green
b	Piezo 4 (8) sh red/orange
d	Gnd red/black



P1 Equipment Cable Plug		
26 Female Pin Slots		
A	Loop 1a (5a)	Connects to electronics unit
B	Loop 1a (5a)	
C	Loop 1b (5b)	
D	Loop 1b (5b)	
E	Loop 2a (6a)	
F	Loop 2a (6a)	
G	Loop 2b (6b)	
H	Loop 2b (6b)	
N	Gnd	
J	Loop 3a (7a)	Connects to electronics unit
K	Loop 3a (7a)	
L	Loop 3b (7b)	
M	Loop 3b (7b)	
P	Loop 4a (8a)	
R	Loop 4a (8a)	
S	Loop 4b (8b)	
T	Loop 4b (8b)	
d	Gnd	
U	Piezo 1(5) (+)	Connects to electronics unit
V	Piezo 1 sh	
W	Piezo 2 (6) (+)	
X	Piezo 2 sh	
Y	Piezo 3 (7) (+)	
Z	Piezo 3 sh	
a	Piezo 4 (8) (+)	
b	Piezo 4 sh	

NOTE:

The equipment cable can accommodate up to four lanes of inductive loop and vehicle sensor inputs. (Ref. Sheet No. 1 for cabinet layout)

For more than four lanes and up to eight lanes of inputs, the following options are available:

1. A second Vehicle Speed/Class. Unit and separate equipment cable connecting to a second J1 receptacle; or
2. A single Vehicle Speed/Class. Unit capable of up to eight lanes of inputs and a single equipment cable with split ends to fit two J1 receptacles. (Ref. Sheet 2 detail)

Numbers in parenthesis in the pinout chart identify lane numbers when a second backplane for lanes 5 through 8 is required.

EQUIPMENT CABLE DETAIL

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

TRAFFIC MONITORING SITE

	Names	Dates
Designed By		
Drawn By		
Checked By		

Approved By
Mgr Of Transportation Statistics

Revision	Sheet No.	Index No.
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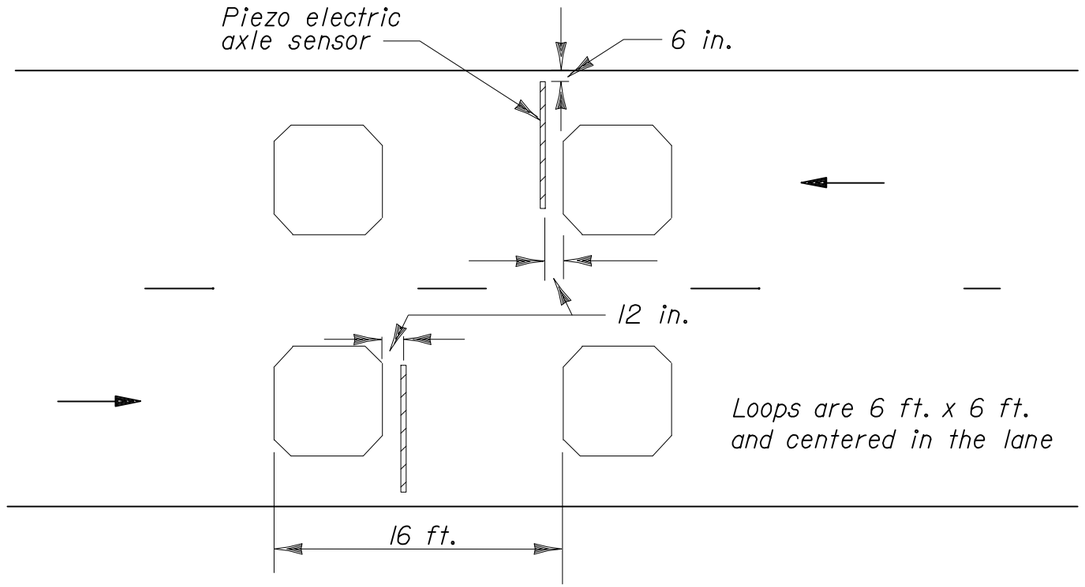
$$$$$$SYTIME$$$$$$

TRAFFIC MONITORING SITE LOOP ASSEMBLY WITH AXLE SENSOR PLACEMENT DETAIL



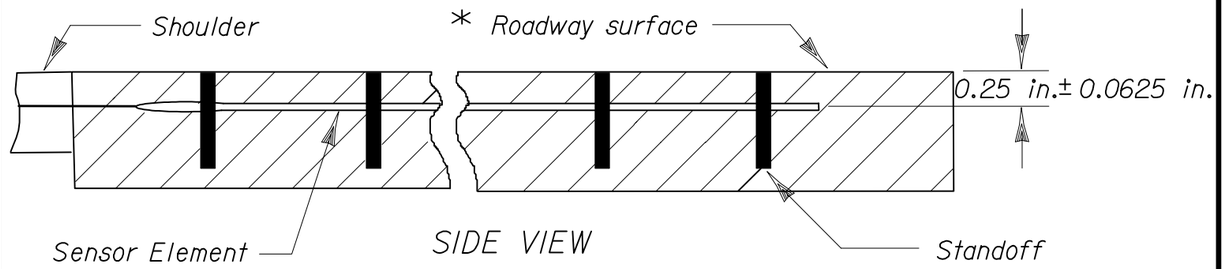
Note:

Loop slots shall be 0.25 inches wide (approx.) by 1.5 inches to 2 inches deep. Three turns of #12 AWG, type XHHW stranded copper wire shall be placed in the slot. Backer rod shall be used to hold the loop wire in the bottom of the slot.

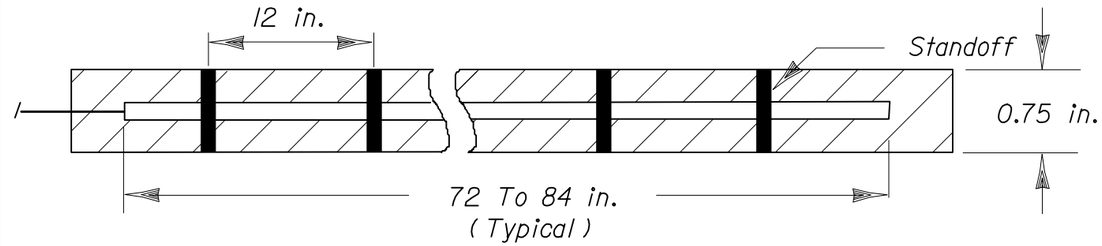
Loop leads shall be twisted at the rate of 10 to 12 twists per foot. The twisted pair shall extend to the pull box with three feet of spare length coiled in the pull box.

All leads (inductive loop & vehicle sensor) shall be identified according to the lane numbering convention shown on sheet 8 and 9.

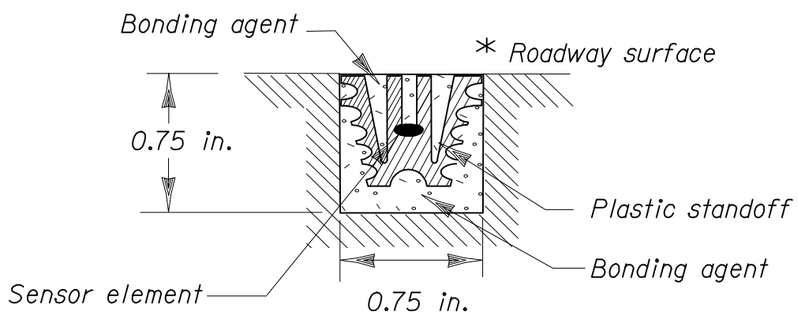
TYPICAL UNENCAPSULATED CLASS II VEHICLE SENSOR



SIDE VIEW



TOP VIEW



END VIEW

* Some installations may require axle sensors to be placed in the structural course, prior to placement of the friction course.

Note:

These are typical dimensions. actual dimensions, element cross-sections and standoffs may vary depending on manufacturer and model.

LOOP AND PIEZOELECTRIC VEHICLE SENSOR DETAIL

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

TRAFFIC MONITORING SITE

	Names	Dates
Designed By		
Drawn By		
Checked By		

Approved By
Mgr Of Transportation Statistics

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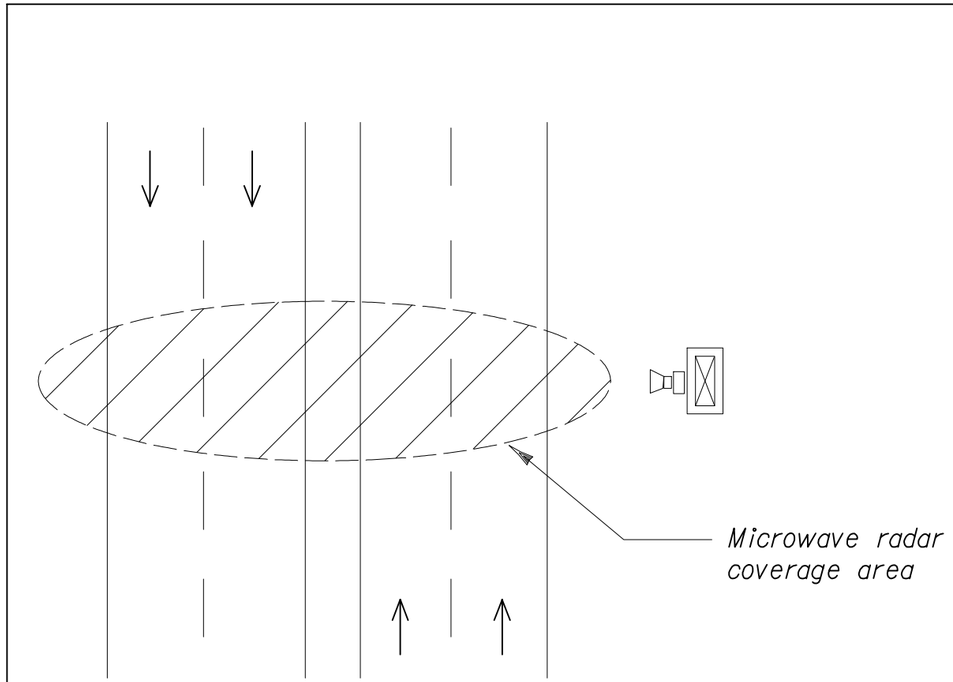
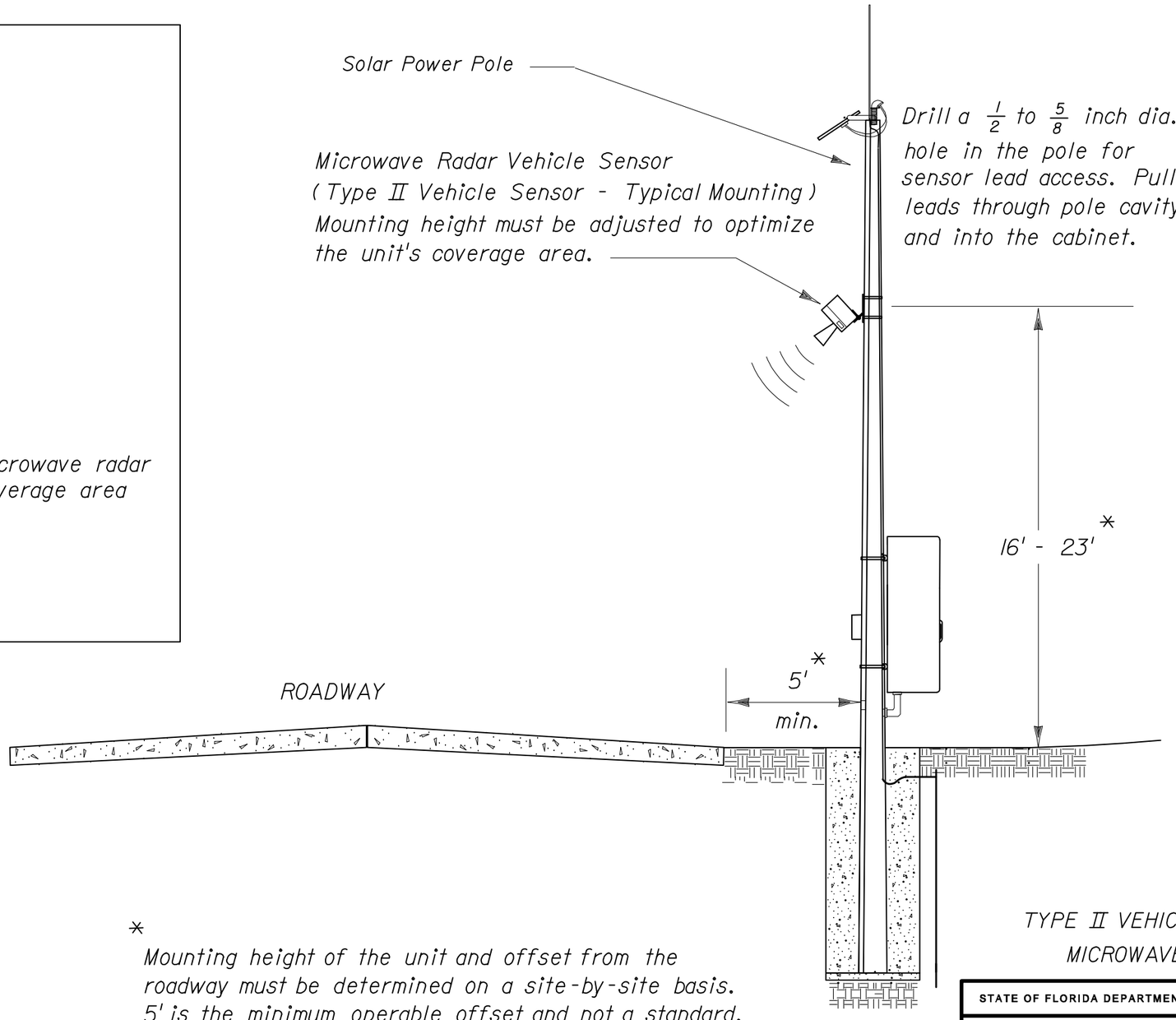


PLAN VIEW



The unit must be capable of detecting up to eight lanes of traffic (in either or both directions) when mounted perpindicular to the roadway.

Coverage area of the unit is affected by the roadway geometry: distance from the travel lanes, median type and width, barrier walls, etc.

* Mounting height of the unit and offset from the roadway must be determined on a site-by-site basis. 5' is the minimum operable offset and not a standard.

TYPE II VEHICLE SENSOR
MICROWAVE RADAR

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

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Drawn By		
Checked By		

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Mgr Of Transportation Statistics

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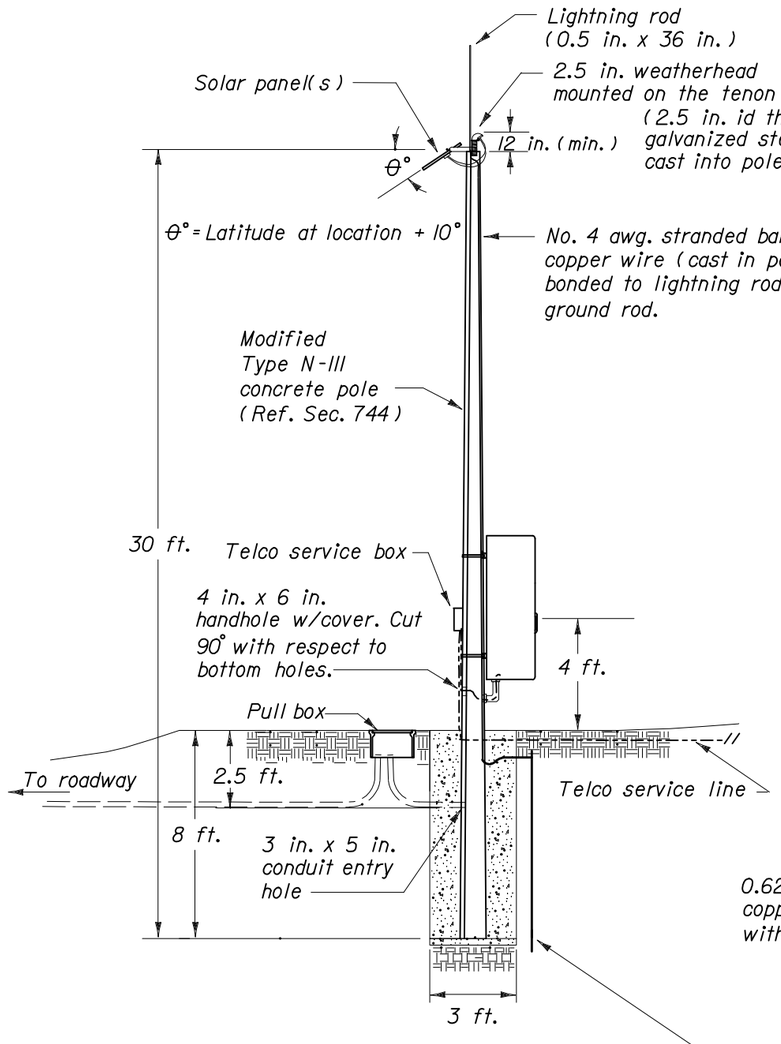
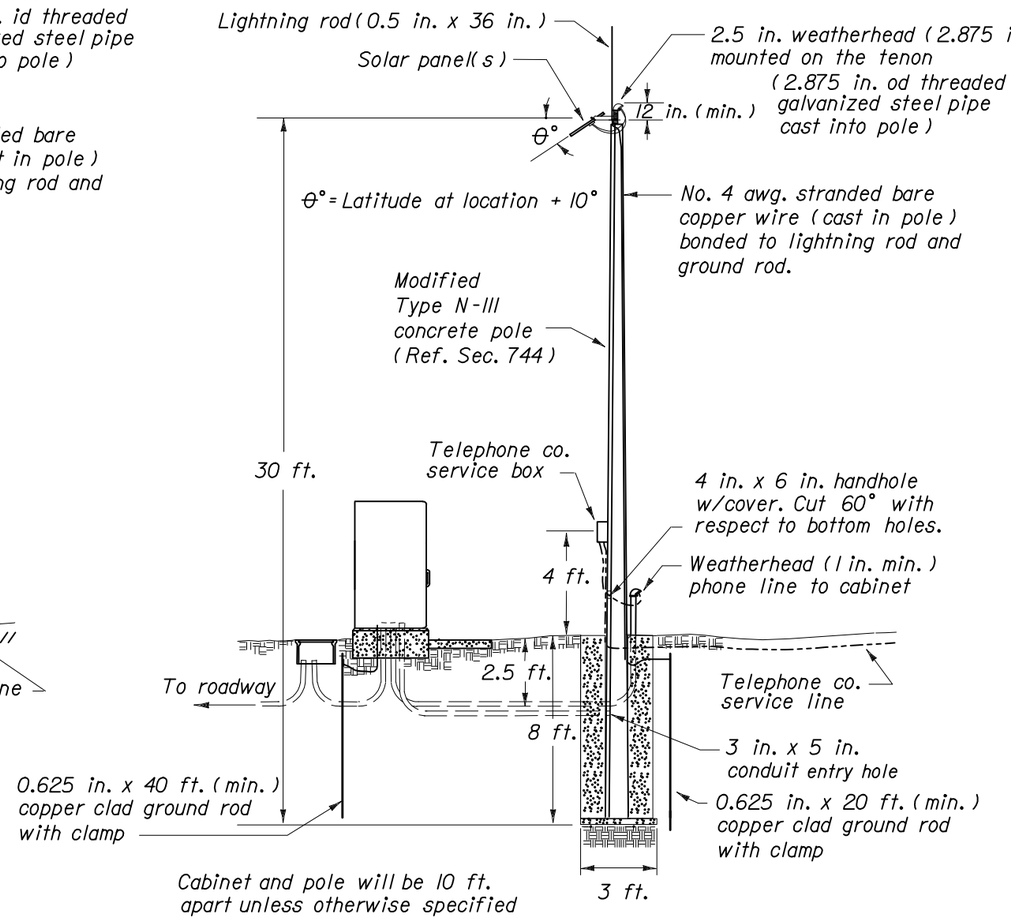
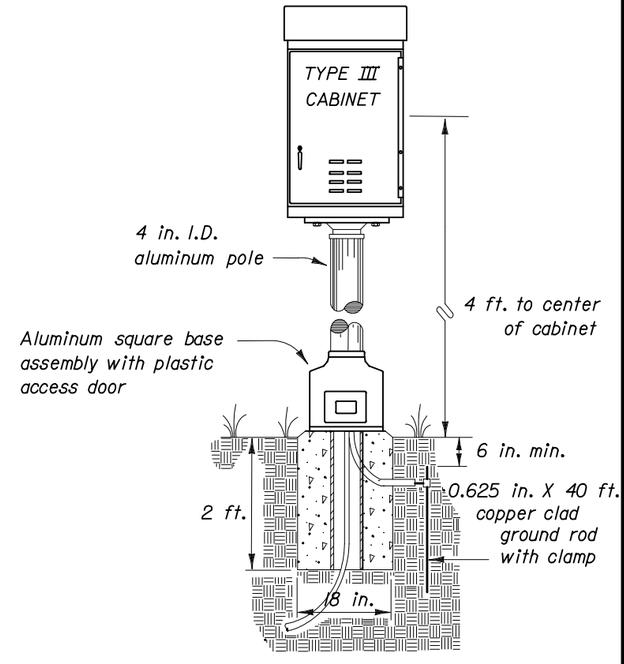


SOLAR POWER POLE
WITH POLE MTD. CABINET



SOLAR POWER POLE
WITH BASE MTD. CABINET



PEDESTAL MTD. CABINET

SOLAR POWER POLE DETAIL

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

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Drawn By		
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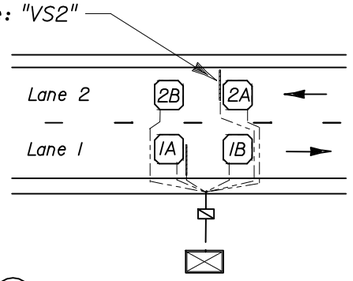
$$$$$$SYTIME$$$$$$

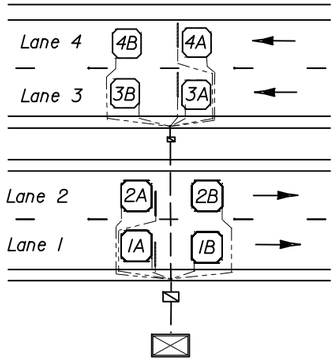
SINGLE CABINET CONFIGURATION

Vehicle sensors will be identified by, and leads marked with, the letters "VS" followed with the lane number.

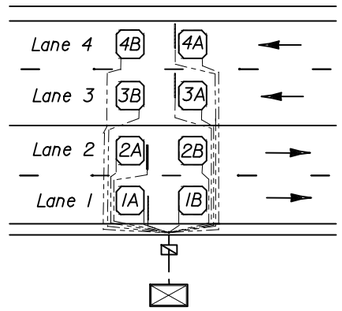
Example: "VS2"



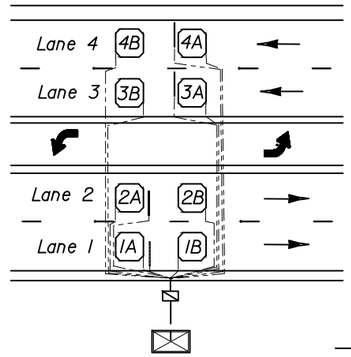
(A) TWO LANE - TWO WAY



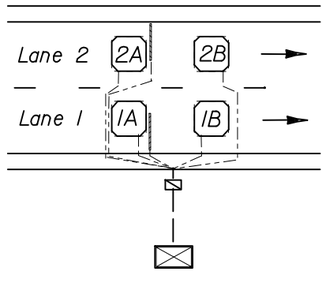
(B) FOUR LANE, DIVIDED - TWO WAY



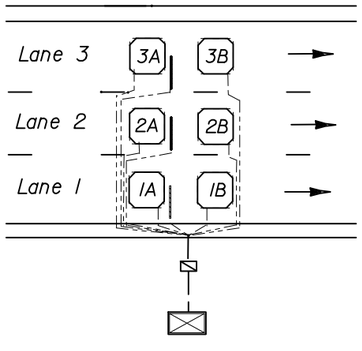
(C) FOUR LANE, UNDIVIDED - TWO WAY



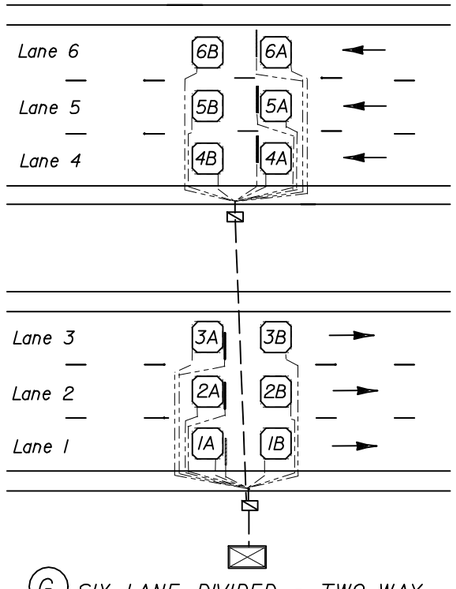
(D) FOUR LANE/CONTINUOUS LEFT TURN LANE



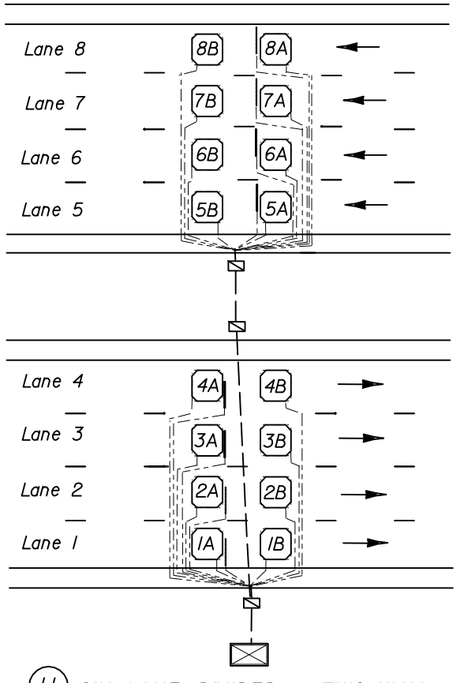
(E) TWO LANE - ONE WAY



(F) THREE LANE - ONE WAY



(G) SIX LANE, DIVIDED - TWO WAY



(H) SIX LANE, DIVIDED - TWO WAY

LANE NUMBERING CONVENTION DETAIL

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

TRAFFIC MONITORING SITE

	Names	Dates
Designed By		
Drawn By		
Checked By		

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Mgr Of Transportation Statistics

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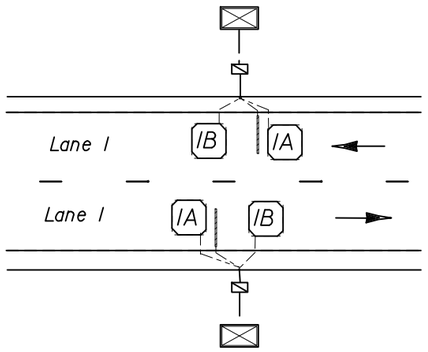
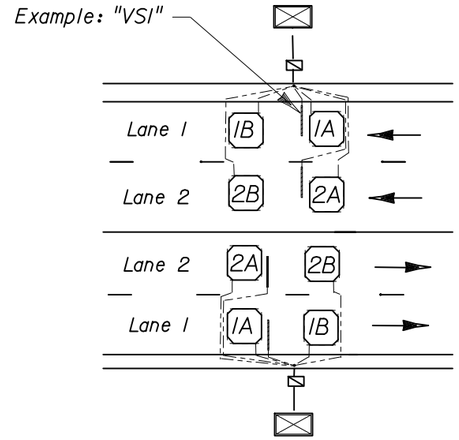
Vehicle sensors will be identified by, and leads marked with, the letters "VS" followed with the lane number.

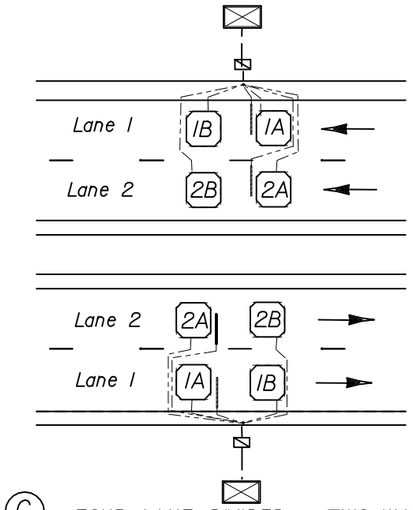
TWO CABINET CONFIGURATION



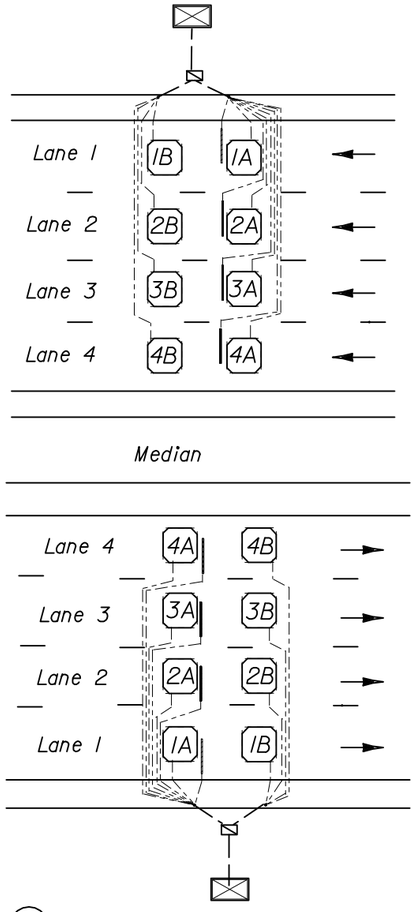
(A) TWO LANE - TWO WAY



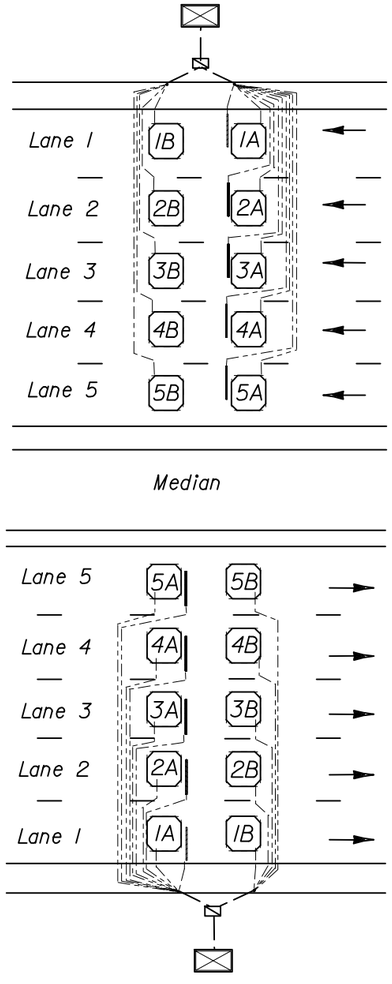
(B) FOUR LANE, UNDIVIDED TWO WAY



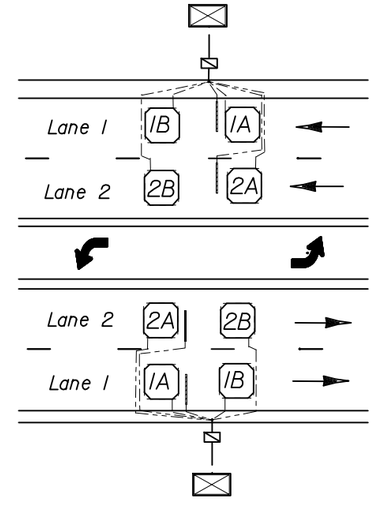
(C) FOUR LANE, DIVIDED - TWO WAY



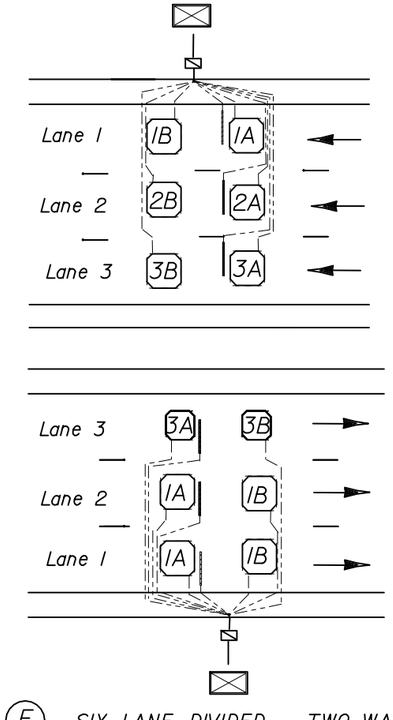
(F) EIGHT LANE, DIVIDED TWO WAY



(G) TEN LANE, DIVIDED TWO WAY



(D) FOUR LANE/CONTINUOUS LEFT TURN LANE



(E) SIX LANE, DIVIDED - TWO WAY

LANE NUMBERING CONVENTION DETAIL

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

TRAFFIC MONITORING SITE

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Approved By
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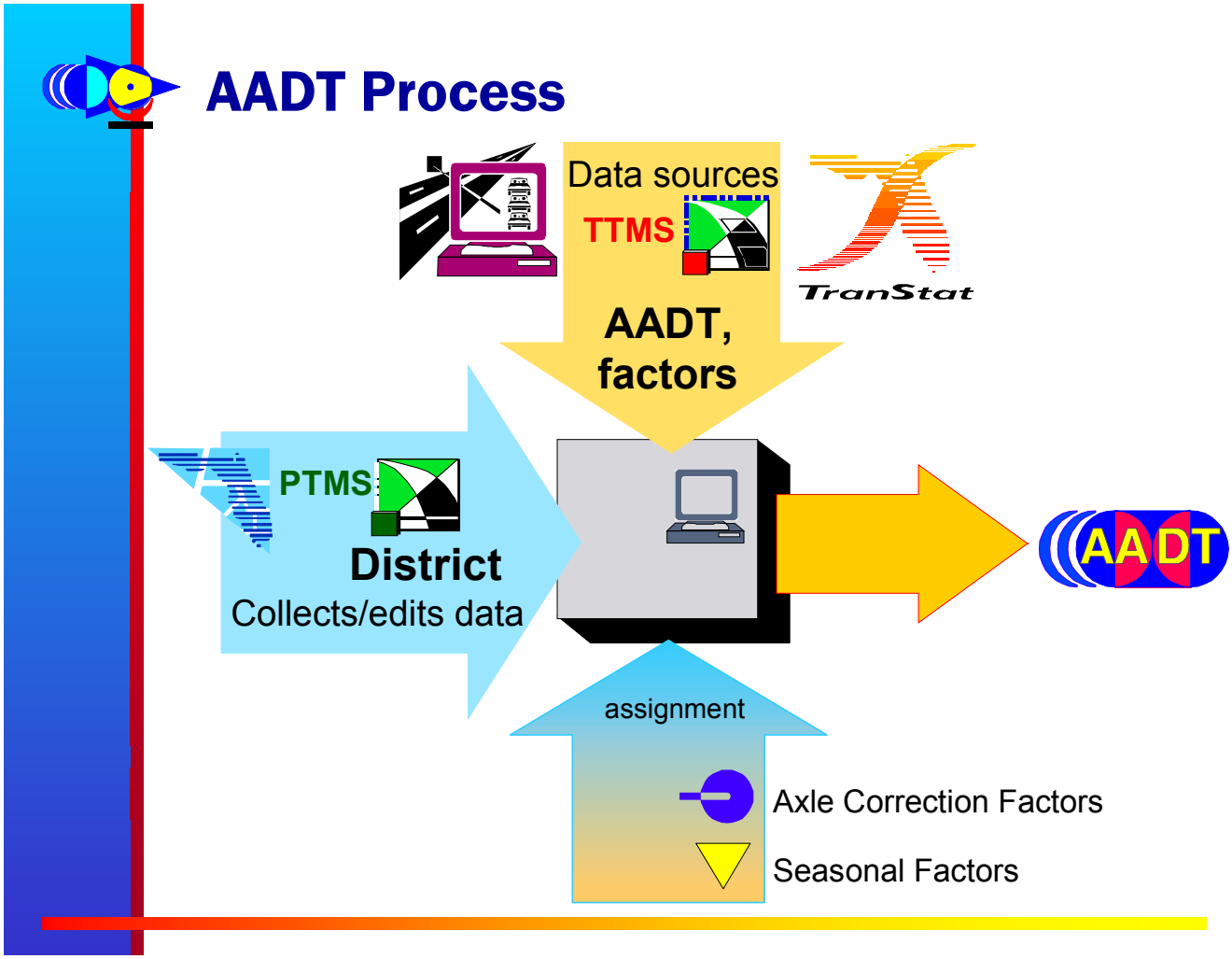
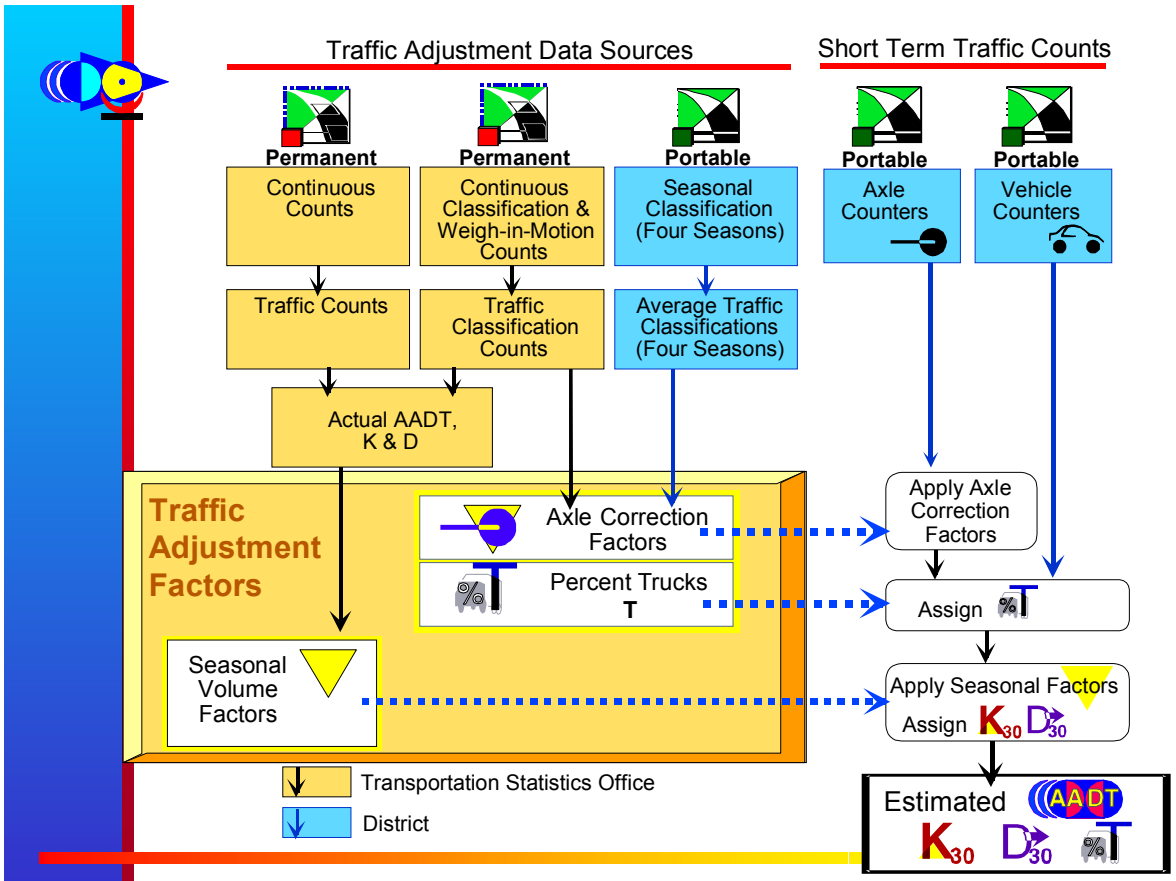
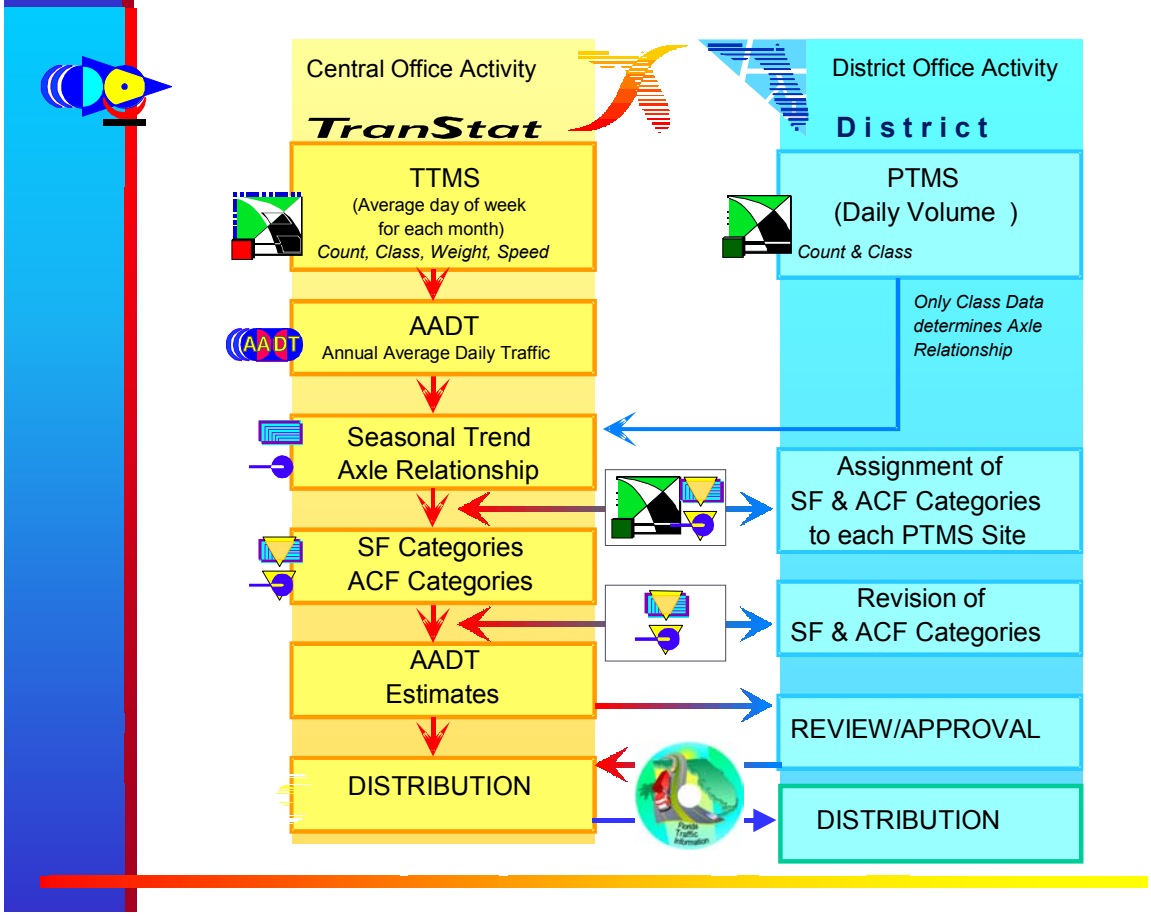
APPENDIX F AADT Development Flowchart




Traffic Adjustment Data Sources
Short Term Traffic Counts
Permanent
Continuous Counts
Permanent
Continuous Classification & Weigh-in-Motion Counts
Portable
Seasonal Classification (Four Seasons)
Portable
Axle Counters
Portable
Vehicle Counters
Traffic Counts
Traffic Classification Counts
Average Traffic Classifications (Four Seasons)
Actual AADT, K & D
Traffic Adjustment Factors
Axle Correction Factors
Percent Trucks T
Seasonal Volume Factors
Apply Axle Correction Factors
Assign T
Apply Seasonal Factors
Assign K30 D30
Estimated AADT K30 D30 T
Transportation Statistics Office
District


Central Office Activity
TranStat
District Office Activity
District
TTMS
(Average day of week for each month)
Count, Class, Weight, Speed
PTMS
(Daily Volume)
Count & Class
Only Class Data determines Axle Relationship
AADT
Annual Average Daily Traffic
Seasonal Trend Axle Relationship
Assignment of SF & ACF Categories to each PTMS Site
SF Categories ACF Categories
Revision of SF & ACF Categories
AADT Estimates
REVIEW/APPROVAL
DISTRIBUTION
DISTRIBUTION

APPENDIX G FDOT Quality Assurance Monitoring Plan

District Quality Control Plan 2001

PRIMARY FUNCTION: Traffic Data Reporting

Critical Process: *Data Collection Schedule*

Critical Requirements	Compliance Indicators	District QC Plan	QC Tasks/Activities
Complete traffic data collection scheduling annually.	Provide district data collection schedule for PTMSs to be counted for the program year to Central Office by 1/31.	A. Determine number of active sites and counties that are to be counted and send schedule to CO.	A. Identify active sites as of December 31 for your district for next year's data collection. B. Prepare a summary report including the total number of active sites for each county. C. Prepare data collection schedule.

District Quality Control Plan 2001

PRIMARY FUNCTION: Traffic Data Reporting

Critical Process: *Traffic Data Collection*

Critical Requirements	Compliance Indicators	District QC Plan	QC Tasks/Activities
1. Traffic data will be collected for urban areas (minimum of one count per site per year).	A. At least one weekday 24-hour continuous count per year will be collected for at least 90% of the total active urban sites. B. All routine data collection begins 1/1 and ends 11/15 for urban areas.	A. Determine the number of active urban sites for which a 24 hour count was collected and notify CO of % completion. B. District will conduct its traffic data collection on or after 1/1 each year and complete on or before 11/15 each year.	A-1. Determine total number and location of active urban sites. A-2. Compare loaded counts with the active site listing to determine that identified sites are counted. B-1. Manage & coordinate traffic data collection program to be conducted within prescribed timeframe. B-2. Obtain available raw counts from local gov’ts & other FDOT departments.

Critical Requirements	Compliance Indicators	District QC Plan	QC Tasks/Activities
2. Traffic data will be collected for rural areas (minimum of one count per site per year).	A-1. At least one weekday 48-hour continuous count per year will be collected for at least 90% of the total active rural sites. A-2. All routine data collection begins 1/1 and ends 11/15 for rural areas.	A. Determine the number of active rural sites for which a 48 hour count was collected and notify CO of % completion. B. District will conduct its traffic data collection on or after 1/1 each year and complete on or before 11/15 each year.	A-1. Determine total number and location of active rural sites. A-2. Compare loaded counts with the active site listing to determine that identified sites are counted. B-1. Manage & coordinate traffic data collection program to be conducted within prescribed timeframe. B-2. Obtain available raw counts from local gov’ts & other FDOT departments.

Critical Requirements	Compliance Indicators	District QC Plan	QC Tasks/Activities
3. Equipment must be functioning properly.	A. Equipment certifications will be sent to CO by 1/31 every year.	A-1. District will submit either a summary or a detailed report of equipment certification by 1/31. A-2. District will maintain record of equipment certification by model & serial number for 3 cal. years.	A-1. Schedule and complete testing of in-house equipment by December 1. A-2. Obtain equipment certification from consultants/contractors before count cycle starts. A-3. Update certification files as necessary.
	B. Inform CO of the number & location of new and/or replacement TMS installations needed for your District.	B. Determine & document the opportunity or need to add new or replacement TMS installations.	B. Monitor District construction or resurfacing projects for possible TMS installations.
	C. Inform CO of the number & location of TMSs requiring repair.	C. Document the needed repairs to TMS's sites and inform CO.	C. During the program cycle identify any TMS sites that require any repair.

District Quality Control Plan 2001

PRIMARY FUNCTION: Traffic Data Reporting

Critical Process: *Development of the Average Annual Daily Traffic (AADT)*

Critical Requirements	Compliance Indicators	District QC Plan	QC Tasks/Activities
4. Traffic data will be edited and processed in a timely manner.	A. All counts will be edited and processed by 12/31.	A. Complete final weekly load (NCTRAFF.FDF) into the mainframe and notify Central Office of completion by 12/31.	A-1. Review raw counts before processing. A-2. Prepare E-mail or memo for Central Office by 12/31.
	B. AADT development will be completed by March 15.	B. Review and edit adjustment factors and develop AADT according to the following schedule: 2) Central Office will send the required reports as identified in the Traffic Monitoring Handbook by 2/11 & the District will update the associated files and notify CO by 2/23. 3) Central Office will send AADT reports by 2/28 & the District will update the associated files and notify CO by 3/6.	B-1. Review, update, and finalize factor assignments. B-2. Notify CO as critical steps are completed.
		C. Provide justification for 1st & 2nd year estimates by 3/1 (if required), and prepare 3rd year estimates by 3/1 (if required).	C. Identify active site for which no valid count was obtained.

APPENDIX H TTMS Inspection & Inventory Forms

TTMS INSPECTION SHEET (DOT)

Technician_____ **Date**_____ **Certified**: YES / NO

Site_____ **Unit #**_____

Equip Type: DAW100, DAW200, DAW190, ADR-1000, ADR-3000, ADR WIM, TC241a, TT2001, Phoenix, RTMS
Program: Count, Speed, Class, WM, Class & Speed, Class by Speed

NH Number_____ **Serial Number**_____ **Phone Operational :** YES / NO

Speed Limit: N / E_____ S / W_____ **Number of Lanes**_____
Time Zone: _____
Sensor Configuration: None, L, LL, LPL, PLP, WPD, WPZ **Sensor Mount:** Surface, Below Friction Course
Loop Length _____ ft **Sensor Spacing** _____ ft
Modem Type: Qblazer, Microcom, LPM14E, Starcomm **Warning Sign Installed**: YES / NO
Baud Rate_____ **Register Interval** _____

No. solar panels:_____ **Total Wattage**: _____ **Power** _____
Circle one: SUNNY / CLOUDY **Solar Output Voltage**:_____ **Solar Regulator Output Voltage**: _____
Mast Type: Concrete, Aluminum, Wood, PT 4X4, Structure, None **Cabinet Type**: RR, 334, 3, 4, 5
Cabinet Mount: Low Base, High Base, Breakaway, Pole **Wiring Harness**: None, 36 Pin, 26 Pin, PAT
Backplane: Tomlinson, FDOT(Walton), Peek, Pat, Control Specialists

Total # of batteries _____ **Battery Voltage (under load)**: _____ **Battery size** _____
Battery type _____
Ground Rod Resistance_____ohms
Type of Suppressors:
Power – None, Tomlinson, Edco, Peek
Telephone – None, Tomlinson, Edco, Peek, Citel
Presence Sensors – None, Tomlinson, Edco, Peek
Axle Sensors – None, Tomlinson, Edco, Peek
Weigh Pads – None, Tomlinson, Edco, Pat

Lane Designation:
Lane 1 – N,S,E,W - In, Out, Center, Center Left, Center Right
Lane 2 – N,S,E,W - In, Out, Center, Center Left, Center Right
Lane 3 – N,S,E,W - In, Out, Center, Center Left, Center Right
Lane 4 – N,S,E,W - In, Out, Center, Center Left, Center Right
Lane 5 – N,S,E,W - In, Out, Center, Center Left, Center Right
Lane 6 – N,S,E,W - In, Out, Center, Center Left, Center Right
Lane 7 – N,S,E,W - In, Out, Center, Center Left, Center Right
Lane 8 – N,S,E,W - In, Out, Center, Center Left, Center Right

Piezo Brand: Mitron, Phillips, BL, Fiber-Optic, KISTLER, AtoChem, _____

	Insulation Meg Ohm:	**Loop Resistance**:	**Piezo Voltage**:	**WIM Piezo Voltage:**
Lane 1	Loop 1_____	_____	Lane 1_____	#1_____#2_____#3_____#4_____
	Loop 2_____	_____		
Lane 2	Loop 3_____	_____	Lane 2_____	#1_____#2_____#3_____#4_____
	Loop 4_____	_____		
Lane 3	Loop 5_____	_____	Lane 3_____	#1_____#2_____#3_____#4_____
	Loop 6_____	_____		
Lane 4	Loop 7_____	_____	Lane 4_____	#1_____#2_____#3_____#4_____
	Loop 8_____	_____		
Lane 5	Loop 9_____	_____	Lane 5_____	#1_____#2_____#3_____#4_____
	Loop 10_____	_____		
Lane 6	Loop 11_____	_____	Lane 6_____	#1_____#2_____#3_____#4_____
	Loop 12_____	_____		

Operational Check: Speed_____Counts_____Classification_____Weight_____

Comments:_____
_____
_____
_____

TTMS INVENTORY

Date: _____ **Inspector:** _____

Site _____ **Unit** 1 / 2 **NH Nmbr:** _____
Speed Limit N / E _____ S / W _____
Warning Signs? Y / N
Unit Model _____ **No. of Lanes** _____
Program Count, Speed, Class, WM, Class & Speed, Class by Speed
Poll? Y / N / Download only
Time Zone E / C **Register interval** _____
Sensor Config L, P, L/L, P/L/P, L/P/L, WIM/PZ, WIM/BP
Sensor Spacing _____ **ft.** **Loop Length** _____ **ft.**
Modem Type _____ **Baud rate** _____

Power S / AC **No. of Batteries** _____
Solar Panel Brand _____ **Battery Size** _____ **amp hrs**
Nmbr of Panels _____ **Battery Type** Gell, Lithium hydroxide,_____
Total Wattage _____
Mast Type None, Concrete, Aluminum, Wood, PT 4X4, Structure/Sign
Cabinet Type R/R, 334, 3, 4, 5
Cabinet Mount Low Base, High Base, Breakaway, Pole
Wire Harness None, 36 Pin, 26 Pin, PAT
Back Plane None, Tomlinson, FDOT(Walton), Peek, Pat, Control Specialists
Piezo Brand Mitron, Phillips, BL, KISLER, AtoChem

Surge Suppression
Power None, Tomlinson, Edco, Peek
Telephone None, Tomlinson, Edco, Peek, Citel
Presence Sensor None, Tomlinson, Edco, Peek, Diamond
Piezo Sensor None, Tomlinson, Edco, Peek
Weigh Pad None, Tomlinson, Edco, Peek

Certified by: _____ **for** **Counts** _____ **Class** _____

	Quantity by Class per Lane								Comments:
	Lane								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
Class 2									
Class 5									**Time:**
Class 9									From:
Class									To:
Class									1/4/2002