State of Florida

Department of Transportation

DISTRICT FOUR

APPENDIX 2
DISTRICT FOUR MVDS CALIBRATION PROCEDURES

Transportation Systems Management and Operations (TSM&O) Device Maintenance Contract, District Four

Financial Project Number(s): 406795-7-72-01 and various

Proposal/Contract Number: E4X61

FDOT District IV
MVDS Calibration Checklist

Device ID: _____
Device Location: _____
Roadway: _____
County: _____

Technician's Name: _____
Date (mm/dd/yyyy): _____

Codes: NA: Not Applicable; G: Good; NW: Not Working; P: Problem; R: Repaired

MVDS Calibration Proecedures			
No.	**Activity Description**	**Code**	**Comments**
1	Visually Check Unit.		
2	Verify the existing lane configuration observed in the field is the same as seen on SunGuide software. Fill and submit lane configuration sheet. If discrepencies are found, stop calibration and notify the Department immediately.		
3	Power the MVDS unit and set up communications between the laptop computer and the MVDS unit per manufacturer's manual.		
4	Verify that the MVDS firmware version is up to date, otherwise update firmware to the newest version.		
5	Verify communications by reading the indicators in the main screen. Change communications mode to Normal Mode. Verify that the Message Period is set as 20 seconds. Notify the Department immediately if it is not 20 seconds.		
6	Prior to conducting volume calibration, start a self-test of the MVDS unit or check applicable initial start-up parameters per manufacturer's manual. Verify all systems are working properly. Stop calibration, and troubleshoot if any abnormality is found.		
7	Conduct volume calibration per attached flowchart. One technician should conduct the manual count using a tally counter, and the other technician should monitor the MVDS software and record the data from the laptop computer. Follow manufacturer's model volume calibration procedures.		
8	For each lane, if volume calibration percentage error is greater than 5%, repeat step 7. Adjust volume sensitivity if needed per attached flowchart.		

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9	Conduct speed calibration per attached flowchart. One technician should measure vehicular speeds using a radar gun (LIDAR). One technician should monitor the software GUI and record MVDS speed readings accordingly. Speed calibration shall be performed when traffic is normal and flowing.Follow manufacturer's model speed calibration procedures.		
10	For each lane, if speed calibration percentage error is greater than 5%, repeat step 9. Adjust speed coefficient per attached flowchart.		
11	Prior to leaving the site, verify MVDS operation with TMC Operations to make sure MVDS is operating normally. Otherwise, proceed to troubleshoot.		
12	Final calibration results and screenshots with time stamps from Manufacturer software showing Time Interval (20 seconds), Device ID, and lane configuration details are to be saved and submitted to the Department for review and approval.		

Notes:

All maintenance staff involved in field operations during the calibration process shall exercise appropriate safety precautions. Any maintenance of traffic (MOT) requests shall be coordinated with FDOT prior to field deployment.

Minimum Equipment:

- Laptop ☐
- Radar Speed Gun ☐
- Tally Counter ☐
- Serial/Ethernet Cable ☐
- Power Supply ☐
- Bucket Truck (if applicable) ☐
- MVDS Manufacturer Software and User Manual ☐
- Safety Vest and Equipment ☐

MVDS Lane Configuration Sheet

MVDS ID:_____ MVDS Location:_____

Device Address:_____ Latitude:_____

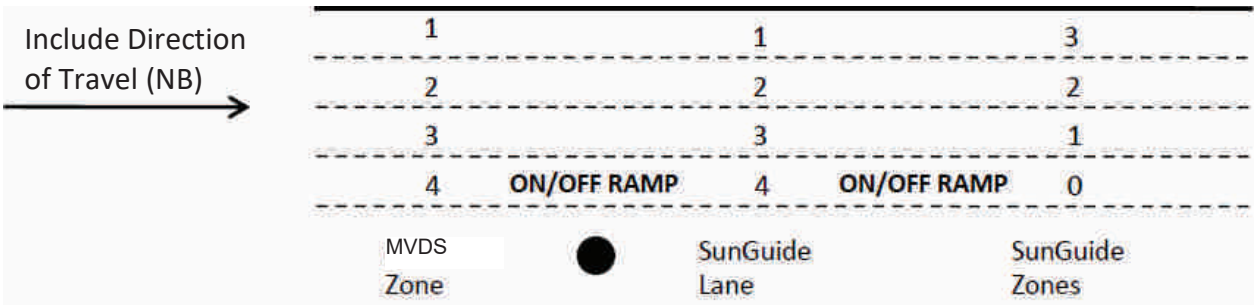
COMM Protocol:_____ Longitude:_____

Local Port Number:_____ IP:_____

Poll Period:_____ Port Server:_____

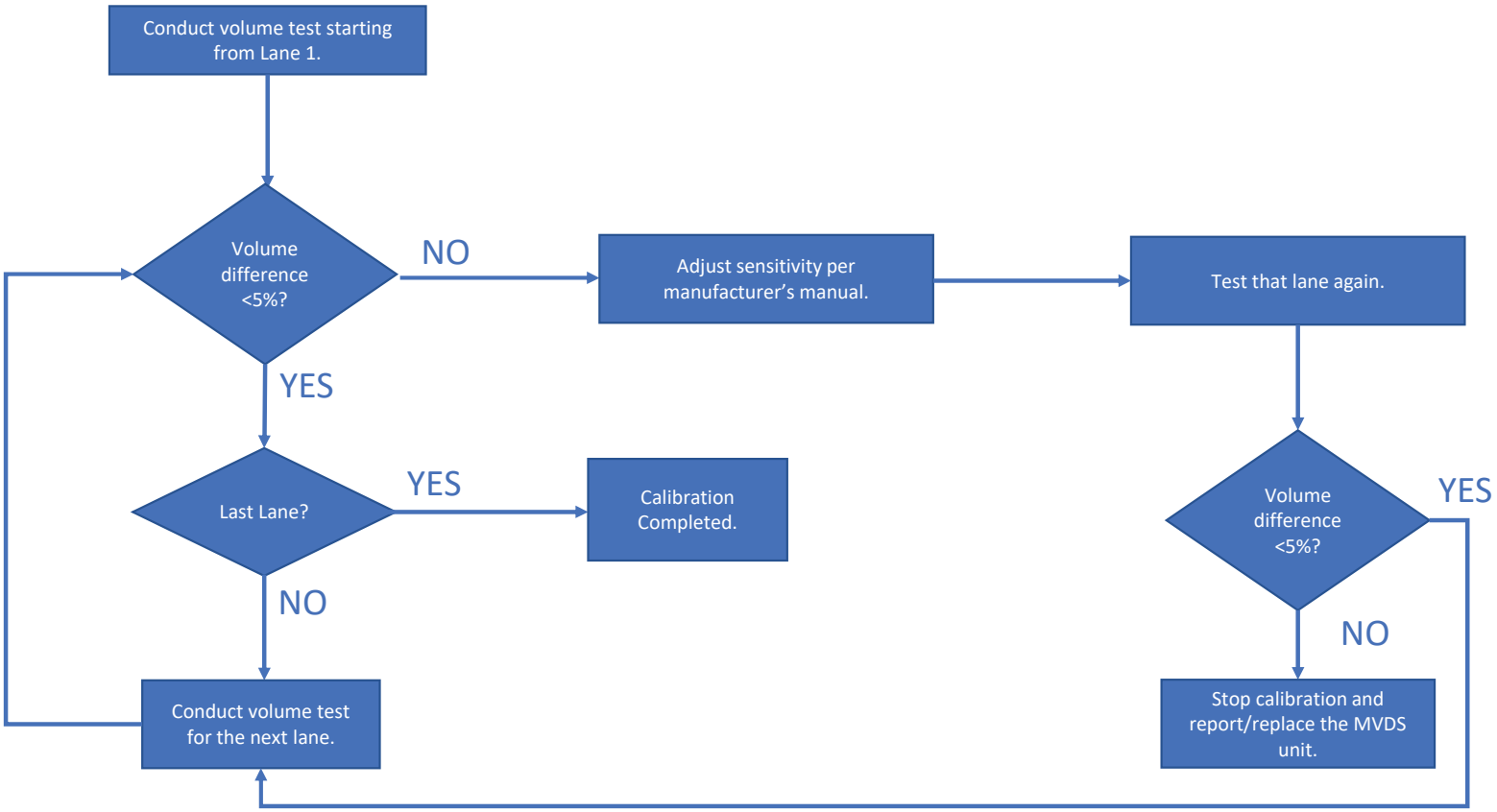
Number of Lanes Detected:_____ Travel Direction Detection:_____

Technician/Contractor:_____ Date:_____



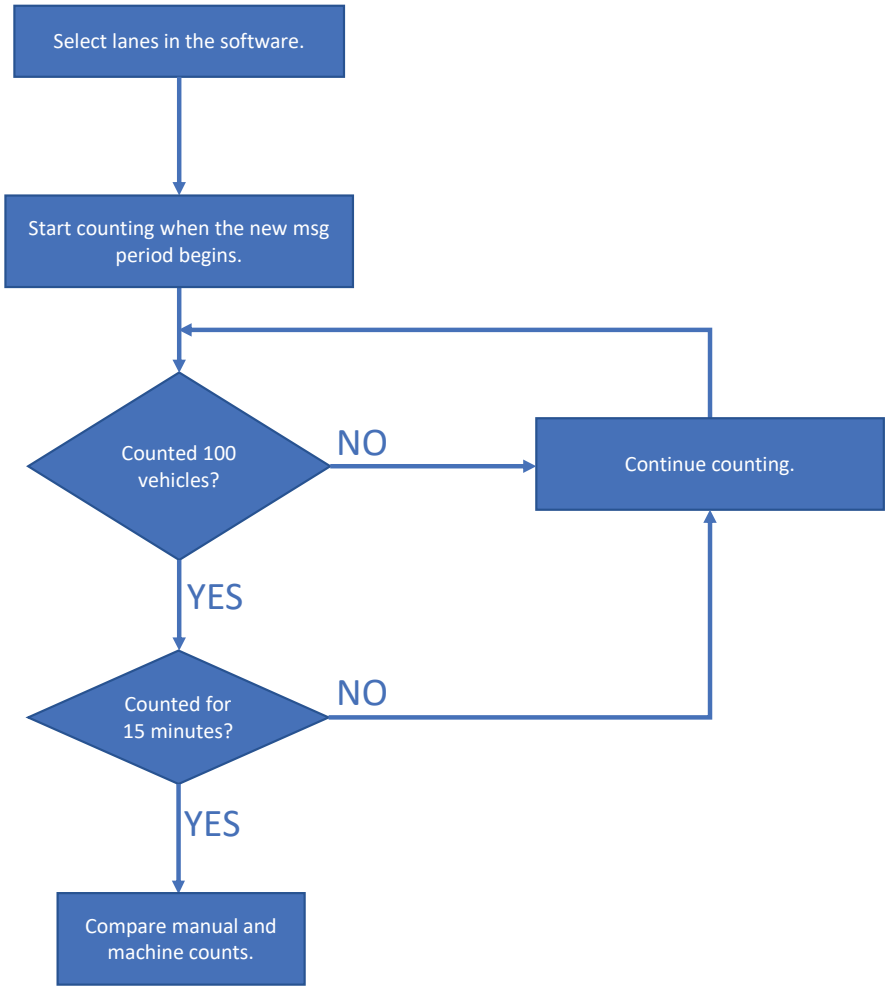
Sample Lane Configuration Diagram

Volume Sensitivity Adjustment Process



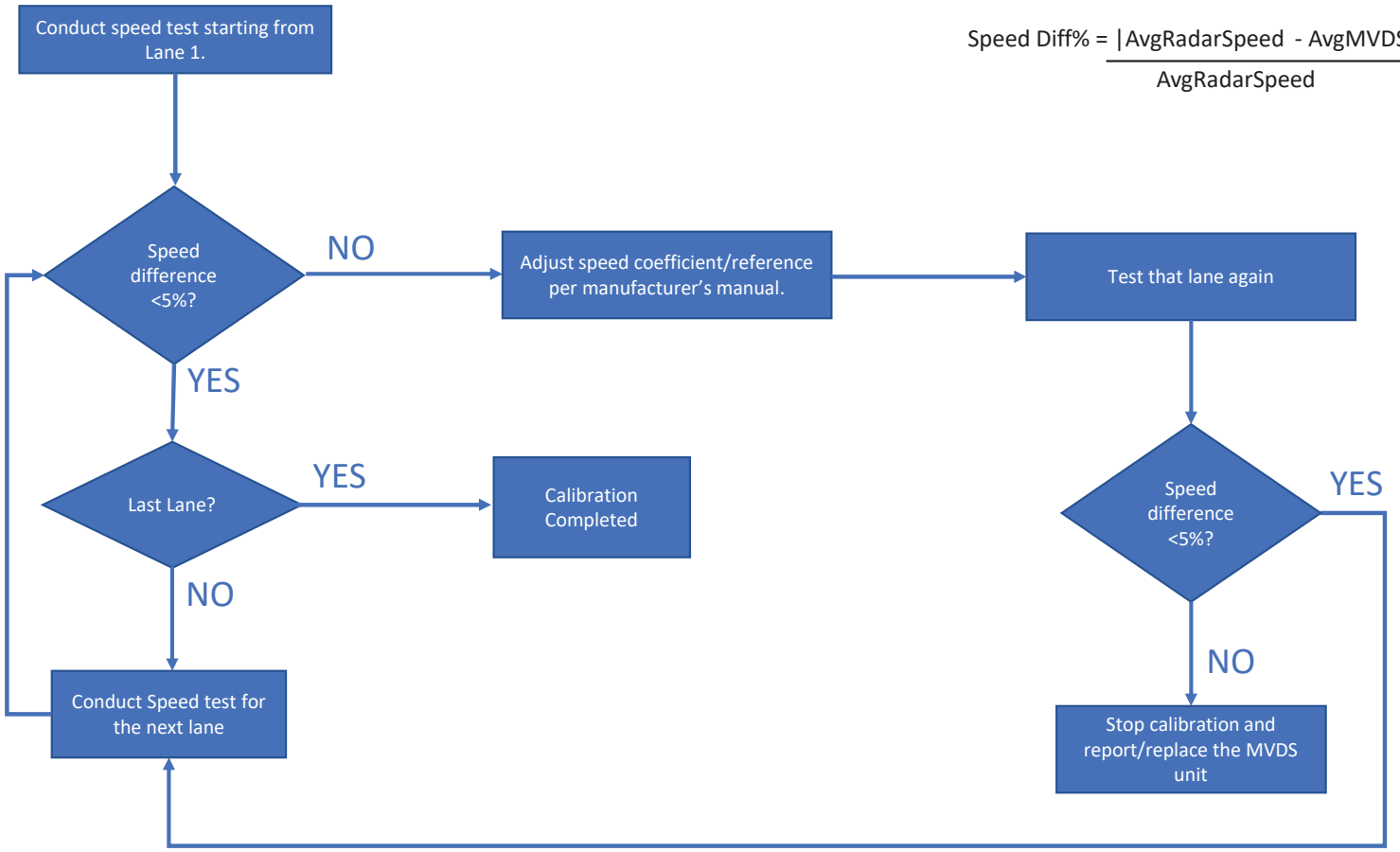
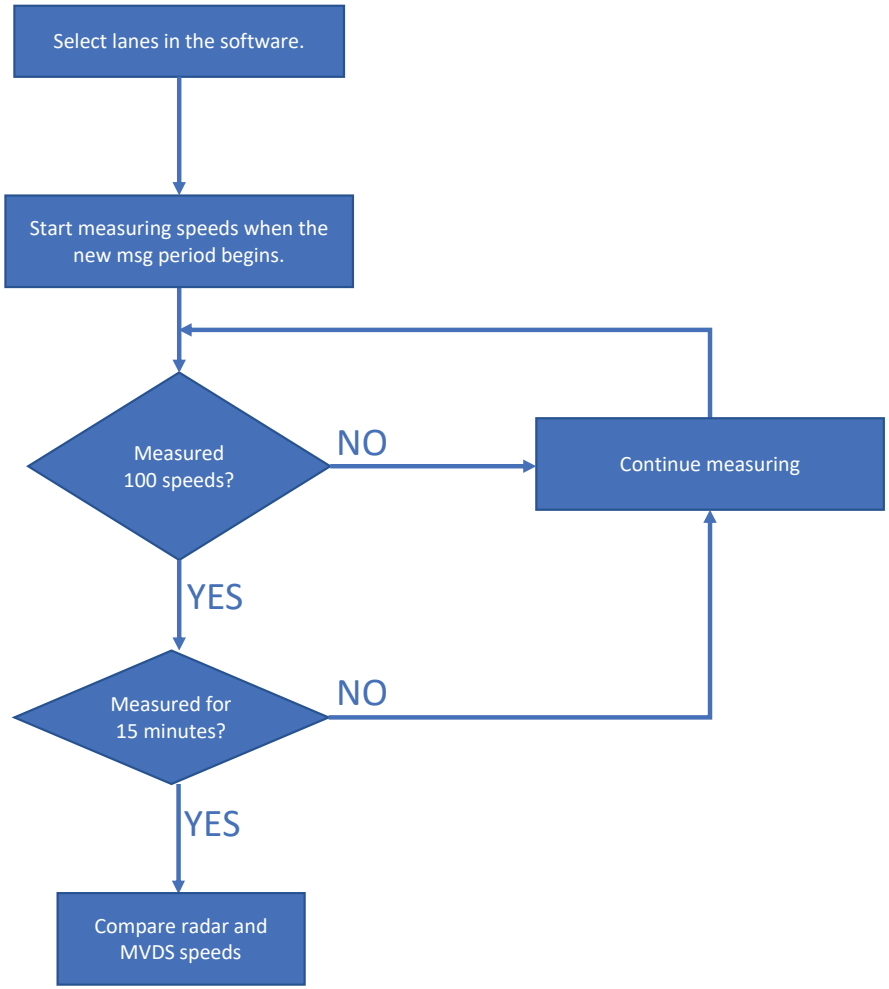
$$\text{Volume Diff\%} = \frac{|\text{ManualCount} - \text{MVDSCount}|}{\text{ManualCount}} \times 100\%$$

MVDS Volume Calibration Process



Speed Coefficient Adjustment Process

$$\text{Speed Diff\%} = \frac{|\text{AvgRadarSpeed} - \text{AvgMVDSSpeed}|}{\text{AvgRadarSpeed}} \times 100\%$$



MVDS Speed Calibration Process