



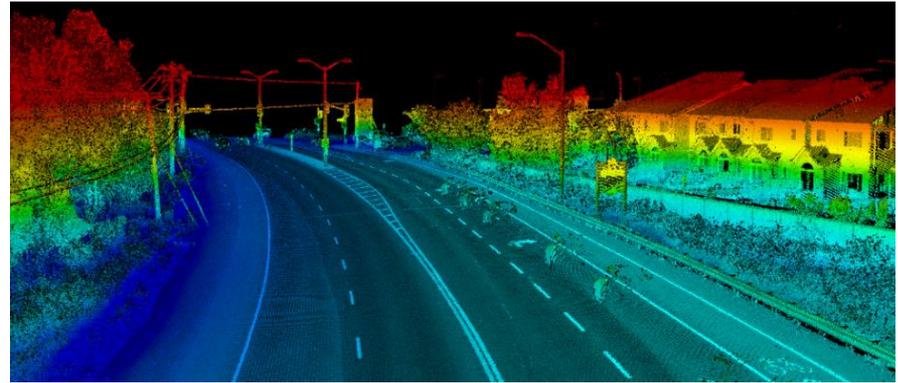
Florida Department of
TRANSPORTATION

Estimating Terrestrial Mobile LiDAR Projects Using FDOT Spreadsheet

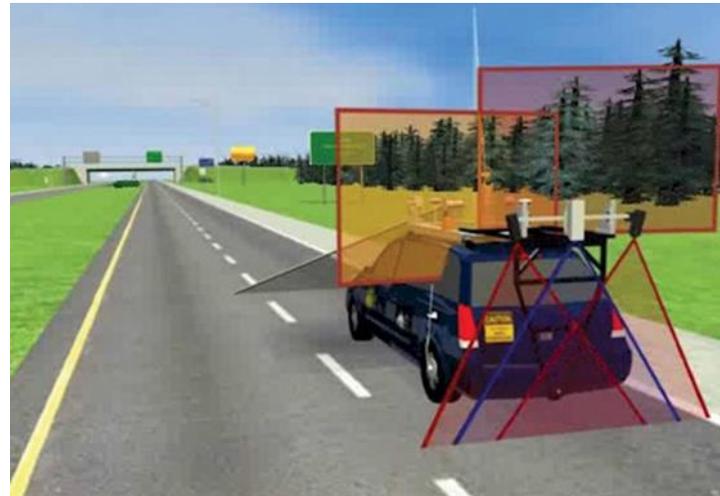
**Brett Wood, PSM
Surveying & Mapping Office**

Purpose

- To assist in CPR estimating and scoping of Terrestrial Mobile LiDAR projects.
 - Identification of Tasks
 - Work Flow
 - Effort
 - Schedule
 - Deliverables

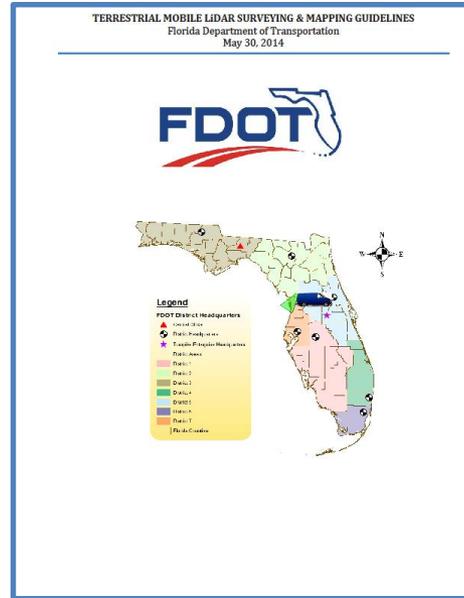


<http://www.getonthecmcbus.com/>



TAB 30. Design Project Staffhour Form

TML Guidelines



TML Staff Hour Spreadsheet

Task	Units	Qty. of Units	Hour / Unit	Person	Person	Person	Person	Person	Person	Total Range	Comments
Task No.				FSM	Senior FSM Technician	LIDAR Technician	LIDAR Operator	Field Technician			
30.01	Terrestrial Mobile LiDAR Mission Planning										Terrestrial Mobile LiDAR Mission Planning
	Division Range Category	Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
30.02	Project Control Point Coordination										Control Point Coordination
	Division Range Category	Point	1.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Point	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Point	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
30.03	Terrestrial Mobile LiDAR Mobilization										Terrestrial Mobile LiDAR Mobilization
	Division Range Category	Personnel	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	LIDAR Operator Only
		Personnel	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	LIDAR Operator Only
30.04	Terrestrial Mobile LiDAR Mission										Terrestrial Mobile LiDAR Mission
	Division Range Category	Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	LIDAR Sensor Operator
		Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Technician, FS Operator, Vehicle, FS
		Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Technician
30.05	Terrestrial Mobile LiDAR Processing										Terrestrial Mobile LiDAR Processing
	Division Range Category	Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
30.06	Terrestrial Mobile Photogrammetry Processing										Terrestrial Mobile Photogrammetry Processing
	Division Range Category	Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
30.07	Transformation / Adjustment										Transformation / Adjustment
	Division Range Category	Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Scan Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
30.08	Classification / Editing										Classification / Editing
	Division Range Category	Control Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Control Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Control Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
30.09	Specific Surface Reporting										Specific Surface Reporting
	Division Range Category	Control Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Control Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Control Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
30.10	Photogrammetric DSM Mosaicing										Photogrammetric DSM Mosaicing
	Division Range Category	Control Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Control Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Control Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
30.11	Photogrammetric DSM Presentation Mapping										Photogrammetric DSM Presentation Mapping
	Division Range Category	Control Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Control Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
		Control Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only
30.12	ASIS Data										ASIS Data
	Division Range Category	Control Miles	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	FSM Only

30 TERRESTRIAL MOBILE LIDAR

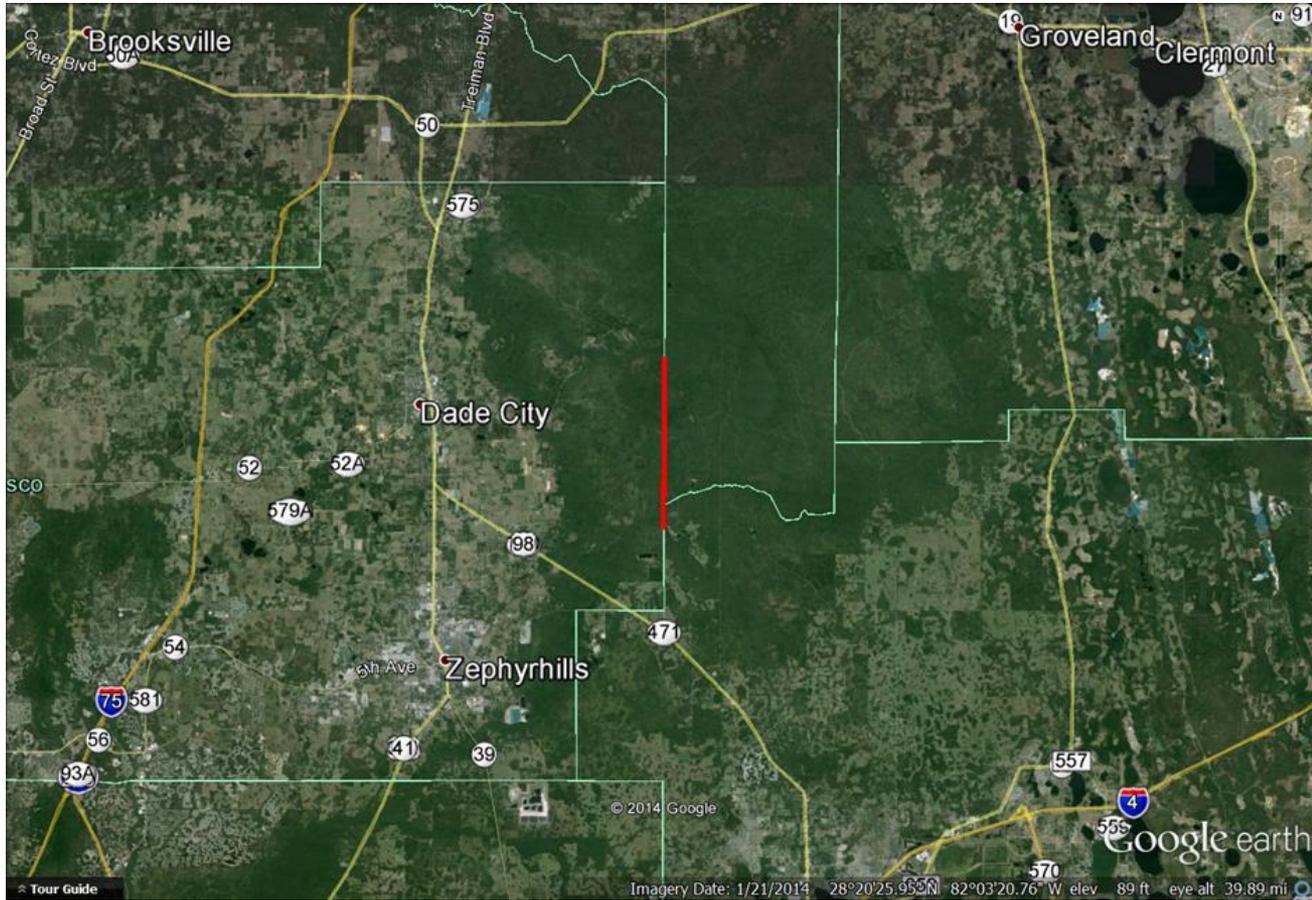
The CONSULTANT shall perform Terrestrial Mobile LiDAR tasks in accordance with all applicable statutes, manuals, guidelines, standards, handbooks, procedures, and current design memoranda.

In addition to the maps and LiDAR products, the CONSULTANT shall submit all computations and reports to support the mapping. This will include documentation of all decisions reached from meetings, telephone conversations, and site visits.

- 30.1 **Mission Planning**
Research and prepare materials necessary for the successful execution of the Mobile LiDAR Mission. This includes but is not limited to route and safety planning, GPS/data acquisition scheduling, weather reports, and site terrain research.
- 30.2 **Project Control Point Coordination**
All efforts necessary to coordinate the proper placement of project ground control i.e. base stations, transformation control points, and validation points, supporting the Mobile LiDAR survey.
- 30.3 **Mobilization**
Prepare the LiDAR sensor and vehicle for project data collection, and get specialized personnel and equipment on site.
- 30.4 **Mobile LiDAR Mission**
Perform site calibrations of LiDAR sensor and collect laser survey data, including any simultaneous base station GPS occupations and operation of any necessary safety equipment.
- 30.5 **LIDAR Processing**
Download and post process collected measurement data from Mobile LiDAR vehicle sensors, and any base stations occupied during mission. Analyze Mobile LiDAR measurement points and scan route overlaps. Separate any large point cloud data sets into manageable file sizes with corresponding indexes.
- 30.6 **Terrestrial Mobile Photography Processing**
Process, reference, and name digital photographic imagery files collected during Mobile LiDAR mission.
- 30.7 **Transformation / Adjustment**
Adjust LiDAR point cloud data to Project Control points. Create point cloud data file(s) in approved digital format. Prepare required reports of precision and

Sample TML Project – SR471

SR 471 from Polk County Line to approximately 1.83 miles South of Unnamed Canal in Sumter County, Florida.



Sample TML Project – SR471 General Scope

- Project corridor length is approximately 5.2 miles.
- The lateral limits are to extend from pavement shoulder to pavement shoulder of SR 471 for hard elevations and tree line to tree line for planimetric features.



Sample TML Project – SR471

- South End of Project



- North End of Project



Sample TML Project – SR471



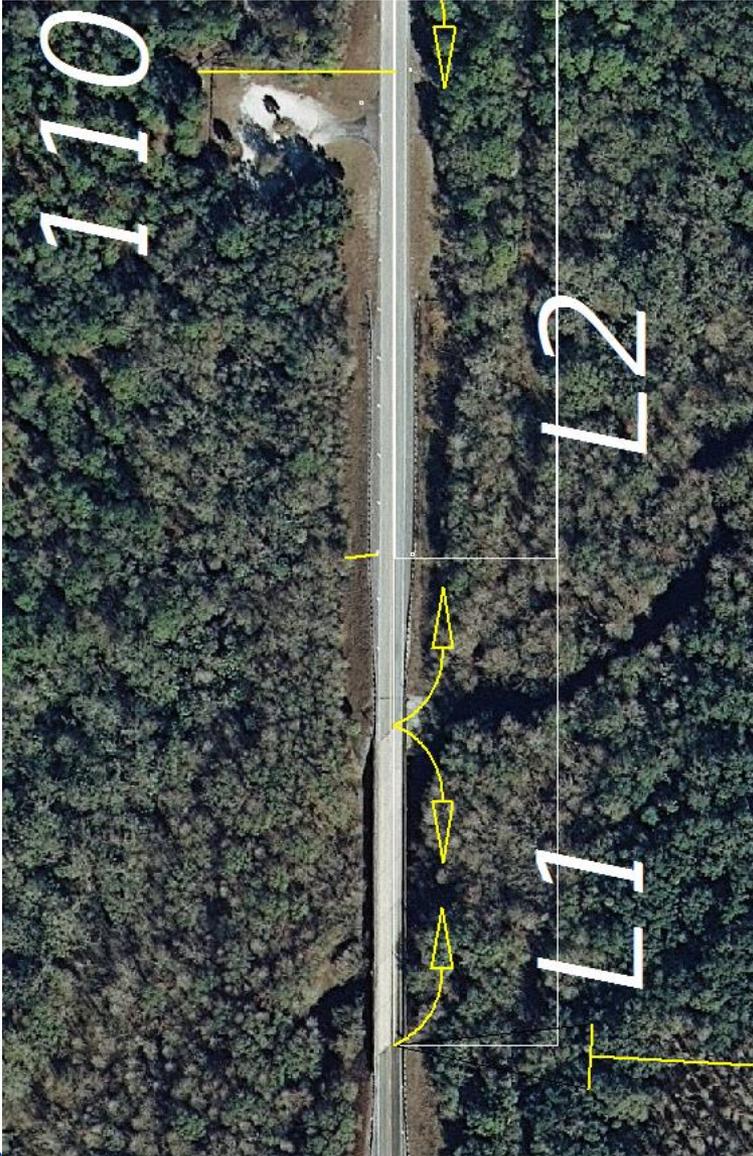
Sample TML Project – SR471

- Varying degrees of satellite obstructions



Sample TML Project – SR471

- Project Stationing
- Bridge



TML Vehicle Trajectory



TML Staffhour Form – SR471

Task No.	Task	Units	No. of Units	Hour / Unit	Hours	Hours	Hours	Hours	Hours	Hours	Total Range	Comments	Range Categories	Basis for Staff Hour Range	
					PSM	LiDAR Technician	LiDAR Technician	LiDAR Operator	Field Technician				2-Lane Roadway	Multi-Lane / Interstate	Urban
4	30.01	Terrestrial Mobile LiDAR Mission Planning	Terrestrial Mobile LiDAR Mission Planning												
5		2-Lane Roadway	Scan Miles	10.40	0.100	1.04					1.04	PSM Only	0.00 - 0.10	0.00 - 0.15	0.00 - 0.40
6			Scan Miles	10.40	0.500		5.20				5.20	Sr. LiDAR Tech Only	0.00 - 0.50	0.00 - 0.80	0.00 - 1.00
7			Scan Miles	10.40	0.000			0.00			0.00	LiDAR Technician Only	0.00 - 0.50	0.00 - 0.80	0.00 - 1.00
8	30.02	Project Control Point Coordination	Control Point Coordination												
9		2-Lane Roadway	Point	31	0.020	0.62					0.62	PSM Only	0.00 - 0.02	0.00 - 0.05	0.00 - 0.10
10			Point	31	0.040		1.24				1.24	Sr. LiDAR Tech Only	0.00 - 0.04	0.00 - 0.08	0.00 - 0.20
11			Point	31	0.040			1.24			1.24	LiDAR Technician Only	0.00 - 0.04	0.00 - 0.08	0.00 - 0.20
12	30.03	Terrestrial Mobile LiDAR Mobilization	Terrestrial Mobile LiDAR Mobilization												
13		2-Lane Roadway	Personnel	1	1.0				1.00		1.00	LiDAR Operator Only			
14			Personnel	2	1.0					2.00	2.00	Field Technician Only			
15	30.04	Terrestrial Mobile LiDAR Mission	Terrestrial Mobile LiDAR Mission												
16		2-Lane Roadway	Scan Miles	10.40	0.150				1.56		1.56	LiDAR Sensor Operator	0.00 - 0.20	0.00 - 0.30	0.00 - 0.40
17			Scan Miles	10.40	0.150	Number of Field Technician(s) =		2.00	1.56		3.12	1-Technician to drive vehicle, 1 base station	0.00 - 0.20	0.00 - 0.30	0.00 - 0.40
18	30.05	Terrestrial Mobile LiDAR Processing	Terrestrial Mobile LiDAR Processing												
19		2-Lane Roadway	Scan Miles	10.40	0.100	1.04					1.04	PSM Only	0.00 - 0.10	0.00 - 0.10	0.00 - 0.20
20			Scan Miles	10.40	0.000		0.00				0.00	Sr. LiDAR Tech Only	0.00 - 0.40	0.00 - 1.00	0.00 - 0.50
21			Scan Miles	10.40	0.600					6.24	6.24	LiDAR Operator	0.00 - 0.60	0.00 - 0.70	0.00 - 0.80
22	30.06	Terrestrial Mobile Photography Processing	Terrestrial Mobile Photography Processing												
23		2-Lane Roadway	Scan Miles	10.40	0.030	0.31					0.31	PSM Only	0.00 - 0.03	0.00 - 0.04	0.00 - 0.06
24			Scan Miles	10.40	0.100		1.04				1.04	Sr. LiDAR Tech Only	0.00 - 0.10	0.00 - 0.20	0.00 - 0.30
25			Scan Miles	10.40	0.500			5.20			5.20	LiDAR Technician Only	0.00 - 0.50	0.00 - 1.00	0.00 - 2.00
26	30.07	Transformation / Adjustment	Transformation / Adjustment												
27		2-Lane Roadway	Scan Miles	10.40	0.400	4.16					4.16	PSM Only	0.00 - 0.40	0.00 - 0.60	0.00 - 1.00
28			Scan Miles	10.40	1.000		10.40				10.40	Sr. LiDAR Tech Only	0.00 - 1.00	0.00 - 1.50	0.00 - 2.00
29			Scan Miles	10.40	0.000			0.00			0.00	LiDAR Technician Only			
30															
31	30.08	Classification / Editing	Classification / Editing												
32		2-Lane Roadway	Corridor Miles	5.20	0.097	0.50					0.50	PSM Only	0.00 - 0.40	0.00 - 0.60	0.00 - 0.80
33			Corridor Miles	5.20	0.000		0.00				0.00	Sr. LiDAR Tech Only	0.00 - 2.00	0.00 - 5.00	0.00 - 10.00
34			Corridor Miles	5.20	1.020			5.30			5.30	LiDAR Technician Only	0.00 - 2.00	0.00 - 5.00	0.00 - 10.00
35	30.09	Specific Surface Reporting	Specific Surface Reporting												
36		2-Lane Roadway	Corridor Miles	5.20	0.193	1.00					1.00	PSM Only	0.00 - 0.20	0.00 - 0.40	0.00 - 0.50

TML Staffhour Form

- 30.01 Terrestrial Mobile LiDAR Mission Planning

- All efforts necessary for planning and preparation of materials needed for the successful execution of the Mobile LiDAR Mission. Includes route and safety planning; GPS /data acquisition scheduling, weather reports, and site terrain research.

Range Categories								
2-Lane Roadway			Multi-Lane / Interstate			Urban		
0.00	-	0.10	0.00	-	0.15	0.00	-	0.40
0.00	-	0.50	0.00	-	0.80	0.00	-	1.00
0.00	-	0.50	0.00	-	0.80	0.00	-	1.00

Task No.	Task	Units	No. of Units	Hour / Unit	Hours	Hours	Hours	Hours	Hours	Total Range	Comments
					PSM	Senior LiDAR Technician	LiDAR Technician	LiDAR Operator	Field Technician		
30.01	Terrestrial Mobile LiDAR Mission Planning										Terrestrial Mobile LiDAR Mission Planning
	2-Lane Roadway	Scan Miles	10.40	0.100	1.04					1.04	PSM Only
		Scan Miles	10.40	0.500		5.20				5.20	Sr. LiDAR Tech Only
		Scan Miles	10.40	0.000			0.00			0.00	LiDAR Technician Only

TML Staffhour Form

- 30.02 Project Control Point Coordination

- All efforts necessary to **coordinate** the proper placement of project ground control i.e. base stations, transformation control points, and validation points, supporting the Mobile LiDAR survey. Includes communication of appropriate accuracies along with of target specifications and identification with field and office personnel.

Range Categories								
2-Lane Roadway			Multi-Lane / Interstate			Urban		
0.00	-	0.02	0.00	-	0.05	0.00	-	0.10
0.00	-	0.04	0.00	-	0.08	0.00	-	0.20
0.00	-	0.04	0.00	-	0.08	0.00	-	0.20

30.02	Project Control Point Coordination										
	Control Point Coordination										
	2-Lane Roadway	Point	31	0.020	0.62					0.62	PSM Only
		Point	31	0.040		1.24				1.24	Sr. LiDAR Tech Only
		Point	31	0.040			1.24			1.24	LiDAR Technician Only

- Scope

- Twenty One (21) local transformation point target pairs, set at approximately 1350' intervals, will be required along the scanned roadway. In addition, 40 validation point targets, set at approximately 450' intervals, will be surveyed on hard pavement surfaces along the project corridor. The control point targets will be set on hard, flat and uniform surfaces on the outside limits of the traveled way at locations visible to the laser sensors.

TML Staffhour Form

- 30.03 Terrestrial Mobile LiDAR Mobilization

- Includes cost to get specialized personnel and equipment on site. When additional field personnel are needed for safety etc. during scan, the additional # of staff should be entered into No. of Units column.

- 30.04 Terrestrial Mobile LiDAR Mission

- Includes on site calibration, collection of Mobile LiDAR data, and any simultaneous base station occupations. Personnel should include any safety or supporting personnel if necessary.

Range Categories								
2-Lane Roadway			Multi-Lane / Interstate			Urban		
0.00	-	0.20	0.00	-	0.30	0.00	-	0.40
0.00	-	0.20	0.00	-	0.30	0.00	-	0.40

Task No.	Task	Units	No. of Units	Hour / Unit	Hours	Hours	Hours	Hours	Hours	Total Range	Comments
					PSM	Senior LiDAR Technician	LiDAR Technician	LiDAR Operator	Field Technician		
30.03	Terrestrial Mobile LiDAR Mobilization										Terrestrial Mobile LiDAR Mobilization
	2-Lane Roadway	Personnel	1	1.0				1.00		1.00	LiDAR Operator Only
		Personnel	2	1.0					2.00	2.00	Field Technician Only
30.04	Terrestrial Mobile LiDAR Mission										Terrestrial Mobile LiDAR Mission
	2-Lane Roadway	Scan Miles	10.40	0.150				1.56		1.56	LiDAR Sensor Operator
		Scan Miles	10.40	0.150			Number of Field Technician(s) =	2.00	1.56	3.12	1-Technician to drive vehicle , 1-base station

TML Staffhour Form

- 30.05 Terrestrial Mobile LiDAR Processing**
 - Includes downloading and post processing of Global Navigation Satellite System (GNSS) / Inertial Navigation System (INS) data, creation of scan vehicle best estimate trajectories, analysis of scan route data overlaps. Also includes if necessary, separation of large point cloud data sets into manageable LAS (see ASPRS) files with corresponding graphic "tile" index.
- 30.06 Terrestrial Mobile Photography Processing**
 - Includes the formatting, organizing, and naming digital photographic imagery (if any) collected during Mobile LiDAR mission. If adjustment or rectification is needed this will result in significantly higher range values, and may even need to be specified elsewhere in tab 28.

Range Categories								
2-Lane Roadway			Multi-Lane / Interstate			Urban		
0.00	-	0.10	0.00	-	0.10	0.00	-	0.20
0.00	-	0.40	0.00	-	1.00	0.00	-	0.50
0.00	-	0.60	0.00	-	0.70	0.00	-	0.80
0.00	-	0.03	0.00	-	0.04	0.00	-	0.06
0.00	-	0.10	0.00	-	0.20	0.00	-	0.30
0.00	-	0.50	0.00	-	1.00	0.00	-	2.00

30.05	Terrestrial Mobile LiDAR Processing									
	2-Lane Roadway	Scan Miles	10.40	0.100	1.04				1.04	PSM Only
		Scan Miles	10.40	0.000		0.00			0.00	Sr. LiDAR Tech Only
		Scan Miles	10.40	0.600			6.24		6.24	LiDAR Operator
30.06	Terrestrial Mobile Photography Processing									
	2-Lane Roadway	Scan Miles	10.40	0.030	0.31				0.31	PSM Only
		Scan Miles	10.40	0.100		1.04			1.04	Sr. LiDAR Tech Only
		Scan Miles	10.40	0.500			5.20		5.20	LiDAR Technician Only

TML Staffhour Form

- 30.07 Transformation / Adjustment

- Includes transformation / Adjustment of LiDAR point cloud to Project Control, accuracy analysis, NSSDA reporting of validation points, and includes cross section analysis. If this is performed by separate firm or is the final product delivered, it should be accompanied by a Survey Report certifying accuracy and meeting MTS . Also includes creation and delivery of adjusted point cloud data in digital LAS (see ASPRS) file(s) format.

Range Categories								
2-Lane Roadway			Multi-Lane / Interstate			Urban		
0.00	-	0.40	0.00	-	0.60	0.00	-	1.00
0.00	-	1.00	0.00	-	1.50	0.00	-	2.00
	-			-			-	

Task No.	Task	Units	No. of Units	Hour / Unit	Hours	Hours	Hours	Hours	Hours	Total Range	Comments
					PSM	Senior LiDAR Technician	LiDAR Technician	LiDAR Operator	Field Technician		
30.07	Transformation / Adjustment										Transformation / Adjustment
	2-Lane Roadway	Scan Miles	10.40	0.400	4.16					4.16	PSM Only
		Scan Miles	10.40	1.000		10.40				10.40	Sr. LiDAR Tech Only
		Scan Miles	10.40	0.000			0.00			0.00	LiDAR Technician Only

TML Staffhour Form

- 30.08 Classification / Editing

- Includes any classification of point cloud data, removal or classification of anomalies from such things as moving object ghosting, erroneous point returns, points outside effective range of sensor, etc. These task ranges will vary significantly depending on number of classification categories required by project scope.

- 30.09 Specific Surface Reporting

- Includes reporting of specific surface details such as pavement rutting, bridge structure clearance to roadway surface. This task is used for efforts NOT covered under other typical topographic mapping tasks.

Range Categories								
2-Lane Roadway			Multi-Lane / Interstate			Urban		
0.00	-	0.40	0.00	-	0.60	0.00	-	0.80
0.00	-	2.00	0.00	-	5.00	0.00	-	5.00
0.00	-	2.00	0.00	-	5.00	0.00	-	10.00
0.00	-	0.20	0.00	-	0.40	0.00	-	0.50
0.00	-	1.00	0.00	-	2.00	0.00	-	5.00
0.00	-	2.00	0.00	-	3.00	0.00	-	10.00

30.08	Classification / Editing									
	2-Lane Roadway	Corridor Miles	5.20	0.097	0.50				0.50	PSM Only
		Corridor Miles	5.20	0.000		0.00			0.00	Sr. LiDAR Tech Only
		Corridor Miles	5.20	1.020			5.30		5.30	LiDAR Technician Only
30.09	Specific Surface Reporting									
	2-Lane Roadway	Corridor Miles	5.20	0.193	1.00				1.00	PSM Only
		Corridor Miles	5.20	0.962		5.00			5.00	Sr. LiDAR Tech Only
		Corridor Miles	5.20	1.250			6.50		6.50	LiDAR Technician Only

TML Staffhour Form

- 30.10 Topographic (3D) Mapping**
 - Includes efforts necessary to produce three dimensional (3D) topographic survey map from collected Mobile LiDAR data. Do not duplicate effort for project areas that may be covered under 30.11 Topographic (2D) Planimetric Mapping.
- 30.11 Topographic (2D) Planimetric Mapping**
 - Includes efforts necessary to produce two dimensional (2D) planimetric survey map from collected Mobile LiDAR data. Do not duplicate effort for project areas that may be covered under 30.10 Topographic (3D) Mapping.

Range Categories								
2-Lane Roadway			Multi-Lane / Interstate			Urban		
0.00	-	0.30	0.00	-	0.50	0.00	-	1.00
0.00	-	15.00	0.00	-	20.00	0.00	-	30.00
0.00	-	25.00	0.00	-	30.00	0.00	-	40.00
0.00	-	0.30	0.00	-	0.40	0.00	-	0.60
0.00	-	0.50	0.00	-	0.60	0.00	-	0.80
0.00	-	3.00	0.00	-	5.00	0.00	-	6.00

Task No.	Task	Units	No. of Units	Hour / Unit	Hours	Hours	Hours	Hours	Hours	Total Range	Comments
					PSM	Senior LiDAR Technician	LiDAR Technician	LiDAR Operator	Field Technician		
30.10	Topographic (3D) Mapping										Topographic (3D) Mapping
	2-Lane Roadway	Corridor Miles	5.20	0.193	1.00					1.00	PSM Only
		Corridor Miles	5.20	3.462		18.00				18.00	Sr. LiDAR Tech Only
		Corridor Miles	5.20	8.076			42.00			42.00	LiDAR Technician Only
30.11	Topographic (2D) Planimetric Mapping										Topographic (2D) Planimetric Mapping
	2-Lane Roadway	Corridor Miles	5.20	0.000	0.00					0.00	PSM Only
		Corridor Miles	5.20	0.000		0.00				0.00	Sr. LiDAR Tech Only
		Corridor Miles	5.20	0.000			0.00			0.00	LiDAR Technician Only

TML Staffhour Form

- 30.12 CADD Edits

- Includes CADD edit of graphics after field review for delivery of required electronic files. (MicroStation DGN, CADD)

- 30.13 Data Merging

- Includes final edit of graphics for delivery after ingesting outlying or obscured areas measured with other technologies. (MicroStation DGN, CADD and GeoPAK files.)

Range Categories								
2-Lane Roadway			Multi-Lane / Interstate			Urban		
0.00	-	0.20	0.00	-	0.40	0.00	-	0.50
0.00	-	0.50	0.00	-	1.00	0.00	-	1.00
0.00	-	2.00	0.00	-	4.00	0.00	-	6.00
0.00	-	0.20	0.00	-	0.40	0.00	-	0.50
0.00	-	0.50	0.00	-	1.00	0.00	-	1.00
0.00	-	1.00	0.00	-	2.00	0.00	-	7.00

Task No.	Task	Units	No. of Units	Hour / Unit	Hours	Hours	Hours	Hours	Hours	Total Range	Comments
						PSM	Senior LiDAR Technician	LiDAR Technician	LiDAR Operator		
30.12	CADD Edits										
	2-Lane Roadway	Corridor Miles	5.20	0.057	0.30					0.30	PSM Only
		Corridor Miles	5.20	0.000		0.00				0.00	Sr. LiDAR Tech Only
		Corridor Miles	5.20	0.384			2.00			2.00	LiDAR Technician Only
30.13	Data Merging										
	2-Lane Roadway	Corridor Miles	5.20	0.096	0.50					0.50	PSM Only
		Corridor Miles	5.20	0.385		2.00				2.00	Sr. LiDAR Tech Only
		Corridor Miles	5.20	0.576			3.00			3.00	LiDAR Technician Only

TML Staffhour Form

- 30.14 Miscellaneous
 - For miscellaneous tasks not covered on spreadsheet specific tasks. The # of staff should be entered into No. of Units column.

Task No.	Task	Units	No. of Units	Hour / Unit	Hours	Hours	Hours	Hours	Hours	Total Range	Comments
					PSM	Senior LiDAR Technician	LiDAR Technician	LiDAR Operator	Field Technician		
30.14	Miscellaneous										
	Survey Report	LS	1	8	8					8.00	PSM Only
		LS	0	0		0				0.00	Sr. LiDAR Tech Only
		LS	0	0			0			0.00	LiDAR Tech Only
		LS	0	0				0		0.00	LiDAR Operator Only
		LS	0	0					0	0.00	Field Technician Only

TML Staffhour Form

- 30.19 Coordination

- Includes efforts of the Terrestrial Mobile LiDAR surveyor responsible for the survey project deliverables to coordinate with the other surveyors (if any) on the final presentation of survey map/report after data merging, communicating each surveyor's responsibility with the Department's Project Manager with (LS based on 2-3% of all the above tasks).

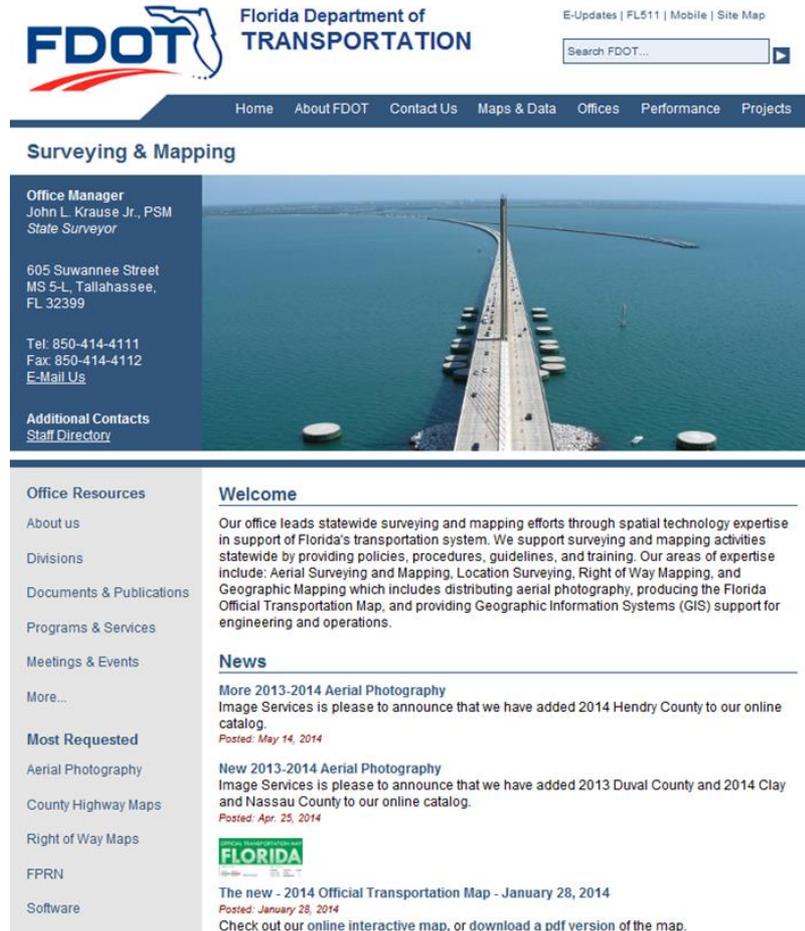
Mobile Scan Nontechnical Subtotal										36.00
30.19	Coordination									
		LS	2%							3
30. Terrestrial Mobile LiDAR Mapping Total										179.52

Technical Meetings			# of Units		Hours	Total Hrs.	
Terrestrial Mobile LiDAR Mapping Submittal Review	EA		2		4	8	
Other Meetings	EA		0		0	0	
Subtotal Technical Meetings						8	Hours
Progress Meetings	EA		0		0	0	
Phase Review Meetings	EA		0		0	0	
Total Meeting Hours						8	Hours
						Carries to 30.16	

Discussion

- Future Revisions
 - Design Spreadsheet updating going on now
 - Work Type 8.5 Remote Sensing F.S. 14-75 (Prequalification)
- Questions / Suggestions
- Contact Information:

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Aerial Mapping Manager
Florida Department of Transportation
Surveying & Mapping Office
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Phone (850) 414-4431*



The screenshot shows the FDOT website's Surveying & Mapping page. At the top, there is the FDOT logo and the text 'Florida Department of TRANSPORTATION'. To the right, there are links for 'E-Updates | FL511 | Mobile | Site Map' and a search bar labeled 'Search FDOT...'. Below this is a navigation menu with links for 'Home', 'About FDOT', 'Contact Us', 'Maps & Data', 'Offices', 'Performance', and 'Projects'. The main heading is 'Surveying & Mapping'. On the left side, there is a sidebar with the following information: 'Office Manager John L. Krause Jr., PSM State Surveyor', '605 Suwannee Street MS 5-L, Tallahassee, FL 32399', 'Tel: 850-414-4111 Fax: 850-414-4112 E-Mail Us', and 'Additional Contacts Staff Directory'. The main content area features a large image of a bridge over water. Below the image, there is a 'Welcome' section with text: 'Our office leads statewide surveying and mapping efforts through spatial technology expertise in support of Florida's transportation system. We support surveying and mapping activities statewide by providing policies, procedures, guidelines, and training. Our areas of expertise include: Aerial Surveying and Mapping, Location Surveying, Right of Way Mapping, and Geographic Mapping which includes distributing aerial photography, producing the Florida Official Transportation Map, and providing Geographic Information Systems (GIS) support for engineering and operations.' Below this is a 'News' section with two entries: 'More 2013-2014 Aerial Photography Image Services is please to announce that we have added 2014 Hendry County to our online catalog. Posted: May 14, 2014' and 'New 2013-2014 Aerial Photography Image Services is please to announce that we have added 2013 Duval County and 2014 Clay and Nassau County to our online catalog. Posted: Apr. 25, 2014'. At the bottom of the news section, there is a 'FLORIDA' logo and text: 'The new - 2014 Official Transportation Map - January 28, 2014 Posted: January 28, 2014 Check out our online interactive map, or download a pdf version of the map.'

<http://www.dot.state.fl.us/surveyingandmapping/>