Appendix Number (1)

The device that we used (STONEX S9i)

(STONEX S9i)

Three more S9 were developed after the 'first generation' and today STONEX is proud to introduce the new Intelligent S9i which re establish a new milestone and clarify the gap between STONEX and its imitators.(6)



Figure 1: STONEX S9i

DESCRIPTION

- **Going beyond the standard features**

S9i goes beyond…..A long working day? The dual slot for two Smart hot swappable batteries gives you up to 12 hours using the integrated UHF radiomodem. The power level can be checked and seen on the controller or directly on a led bar on the battery. Moreover, the same battery is used on S9i and on the Stonex controllers S4II C/H.(6)

- **The most advanced wireless comms systems**

The high speed Five Bands UMTS/HSPA+ (WCDMA/FDD) mobile data connection capability ensures rapid transfer of differential data in several formats with reliable Internet connection and very low latency. In the amazingly compact structure the long range Bluetooth® and WiFi modules allow always reliable data flow to the controller, and the integrated TX/RX UHF radiomodem, with selectable frequencies and output power, make S9i the perfect tool for a Base + Rover system.(6)

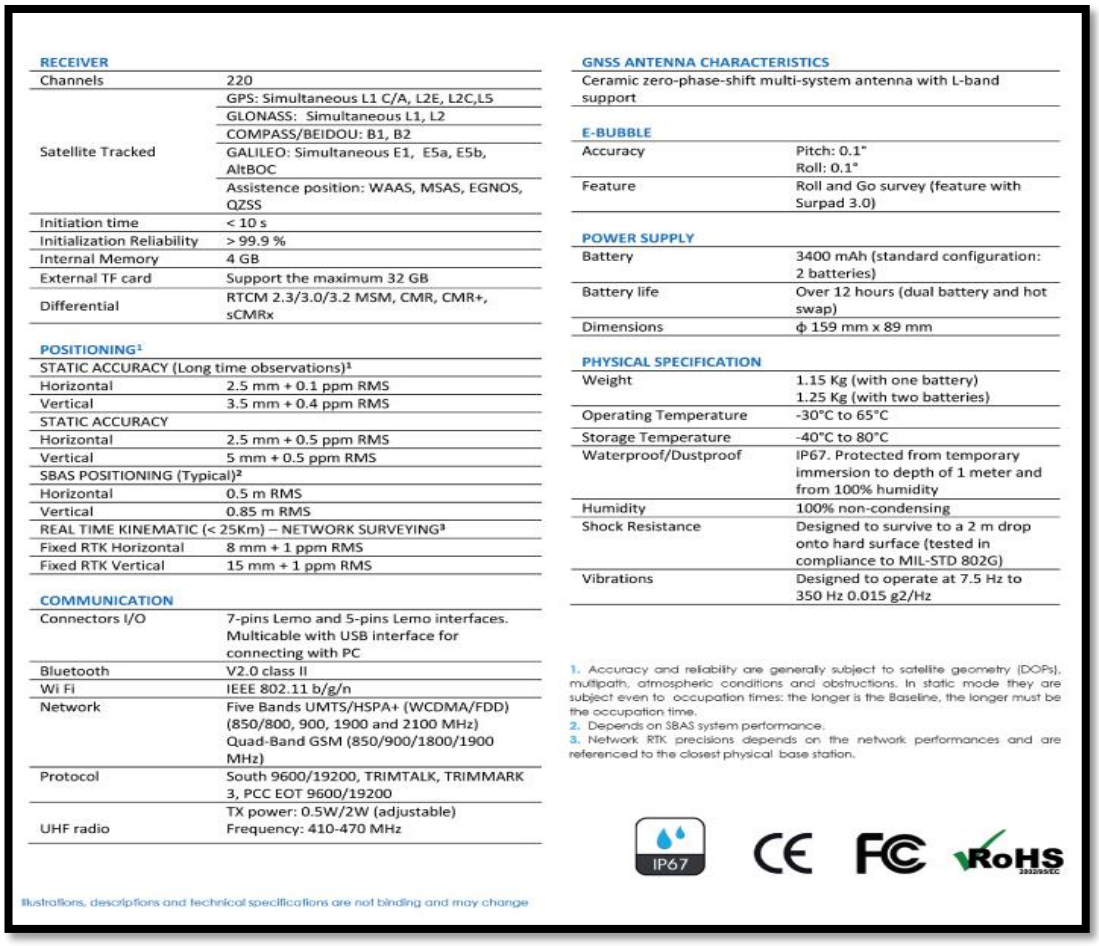
- **Reliable and fast**

IP67 certification, combined with a high shock resistance - S9i survives even after a 2 m drop on an hard surface - guarantee the maximum strength and the best water and dust tight even in harsh environments. The new Ceramic zero-phase-shift multi-system antenna with L-band support is essential for high accuracy measurements even in urban canyons and under bushy vegetation. The extremely short initialization time, lets the User save time everyday, every minute, every point. And when the GPS signal is lost, the advanced STONEX™ technology used in S9i dramatically minimize the re-initialization time, while positioning accuracy, checked from the field software, gives the smoothest field workflow.(6)

- **The stonex system**

S9i GNSS is compatible with most of the worldwide known field softwares. Anyway, the best utilisation of any STONEX GPS can be achieved using specific STONEX softwares: SURPAD and CUBE for Windows™ Mobile 6.5 and CUBE T for Windows™ 10.(6)

- **Technical features**



RECEIVER	
Channels	220
Satellite Tracked	GPS: Simultaneous L1 C/A, L2E, L2C,L5
	GLONASS: Simultaneous L1, L2
	COMPASS/BEIDOU: B1, B2
	GALILEO: Simultaneous E1, E5a, E5b, AltBOC
	Assistence position: WAAS, MSAS, EGNOS, QZSS
Initiation time	< 10 s
Initialization Reliability	> 99.9 %
Internal Memory	4 GB
External TF card	Support the maximum 32 GB
Differential	RTCM 2.3/3.0/3.2 MSM, CMR, CMR+, sCMRx

POSITIONING[1]	
STATIC ACCURACY (Long time observations)[1]	
Horizontal	2.5 mm + 0.1 ppm RMS
Vertical	3.5 mm + 0.4 ppm RMS
STATIC ACCURACY	
Horizontal	2.5 mm + 0.5 ppm RMS
Vertical	5 mm + 0.5 ppm RMS
SBAS POSITIONING (Typical)[2]	
Horizontal	0.5 m RMS
Vertical	0.85 m RMS
REAL TIME KINEMATIC (< 25Km) – NETWORK SURVEYING[3]	
Fixed RTK Horizontal	8 mm + 1 ppm RMS
Fixed RTK Vertical	15 mm + 1 ppm RMS

COMMUNICATION	
Connectors I/O	7-pins Lemo and 5-pins Lemo interfaces. Multicable with USB interface for connecting with PC
Bluetooth	V2.0 class II
Wi Fi	IEEE 802.11 b/g/n
Network	Five Bands UMTS/HSPA+ (WCDMA/FDD) (850/800, 900, 1900 and 2100 MHz) Quad-Band GSM (850/900/1800/1900 MHz)
Protocol	South 9600/19200, TRIMTALK, TRIMMARK 3, PCC EOT 9600/19200
UHF radio	TX power: 0.5W/2W (adjustable) Frequency: 410-470 MHz

GNSS ANTENNA CHARACTERISTICS
Ceramic zero-phase-shift multi-system antenna with L-band support

E-BUBBLE	
Accuracy	Pitch: 0.1° Roll: 0.1°
Feature	Roll and Go survey (feature with Surpad 3.0)

POWER SUPPLY	
Battery	3400 mAh (standard configuration: 2 batteries)
Battery life	Over 12 hours (dual battery and hot swap)
Dimensions	ϕ 159 mm x 89 mm

PHYSICAL SPECIFICATION	
Weight	1.15 Kg (with one battery) 1.25 Kg (with two batteries)
Operating Temperature	-30°C to 65°C
Storage Temperature	-40°C to 80°C
Waterproof/Dustproof	IP67. Protected from temporary immersion to depth of 1 meter and from 100% humidity
Humidity	100% non-condensing
Shock Resistance	Designed to survive to a 2 m drop onto hard surface (tested in compliance to MIL-STD 802G)
Vibrations	Designed to operate at 7.5 Hz to 350 Hz 0.015 g2/Hz

1. Accuracy and reliability are generally subject to satellite geometry (DOPs), multipath, atmospheric conditions and obstructions. In static mode they are subject even to occupation times: the longer is the Baseline, the longer must be the occupation time.
2. Depends on SBAS system performance.
3. Network RTK precisions depends on the network performances and are referenced to the closest physical base station.

IP67

Illustrations, descriptions and technical specifications are not binding and may change

Figure 2: features of device

Appendix Number (2)
Survey Work

Job name	4-6-18controlhussain
Creation date	6 Apr 2018
Version	Survey Pro 620
Distance Units	Meters
Angle units	Degrees
Pressure Units	inHg
Temperature Units	Fahrenheit

Coordinate system (Job)	
System	Israel Map Grid
Zone	Palastine New Grid
Datum	Israel New Grid (ITM) (1)

Projection	
Projection	Transverse Mercator
Origin lat	31°44'03.81700"N
Origin long	35°12'16.26100"E
False northing	126907.390
False easting	169529.584
Scale	1.00000670
South azimuth (grid)	No
Grid coords	Increase North-East
Ellipsoid	Semi-major axis: 6378137.000 Flattening: 298.25722154

Local site	
Type	Grid

Datum transformation	
Type	Seven parameter
Semi-major axis	6378137.000
Flattening	298.257223
Rotation X	-0°00'00.3306"
Rotation Y	-0°00'01.8571"
Rotation Z	0°00'01.6483"
Translation X	-23.809

Translation Y	-17.594
Translation Z	-17.801
Scale	5.43740ppm
Vertical adjustment	
Geoid file	il2

Collected Field Data (ECEF deltas: Mark to mark)

Note	Created by version 6.2.0.23, T41 (58625210037).
Corrections	
South azimuth (grid)	No
Grid coords	Increase North-East
Magnetic declination	0°00'00"
Distances	Grid
Neighborhood adjustment	Off

Projection	
Projection	Transverse Mercator
Origin lat	31°44'03.81700"N
Origin long	35°12'16.26100"E
False northing	126907.390
False easting	169529.584
Scale	1.00000670
Ellipsoid	Semi-major axis: 6378137.000 Flattening: 298.25722154

Local site	
Type	Grid
Datum transformation	
Type	Seven parameter
Semi-major axis	6378137.000
Flattening	298.257223
Rotation X	-0°00'00.3306"
Rotation Y	-0°00'01.8571"
Rotation Z	0°00'01.6483"

Translation X	-23.809
Translation Y	-17.594
Translation Z	-17.801
Scale	5.43740ppm

Vertical adjustment

Geoid file	il2

Coordinate system

System	Israel Map Grid
Zone	Palastine New Grid
Datum	Israel New Grid (ITM) (1)

Point	VRS1	**Latitude**	31°30'27.66894"N	**Longitude**	35°01'48.45342"E	**Height**	888.906	**Code**	
		Description	Base Setup						

GNSS receiver

Receiver type	Unknown
Serial number	
Firmware version	0
Antenna type	Unknown Broadcast
Measurement method	
Tape adjustment	0.000
Horizontal offset	0.000
Vertical offset	0.000

Base point

Point	VRS1	**Antenna height**	0.000	**Type**	Corrected				

GNSS receiver

Receiver type	SP60
Serial number	5730550028
Firmware version	3.33
Antenna type	SPP101861
Measurement method	
Tape adjustment	0.000
Horizontal offset	0.000

Vertical offset	0.069

Point	1000	**ΔX**	?	**ΔY**	?	**ΔZ**	?	**Code**	
		Description	control						
		Method	Fixed	**Type**	Topo point	**Search class**	Normal		
Antenna height	2.000	**Type**	Uncorrected	**Hz Prec**	0.001	**Vt Prec**	0.001		
QC 1		**Satellites**	15	**PDOP**	1.0	**HDOP**	0.5	**VDOP**	0.9
		RMS	62.201	**Positions used**	975				
QC 2		**VCV xx (m^2)**	0.000009	**VCV xy (m^2)**	0.000004	**VCV xz (m^2)**	0.000005		
				VCV yy (m^2)	0.000004	**VCV yz (m^2)**	0.000003		
						VCV zz (m^2)	0.000009		

Point	VRS2	**Latitude**	31°30'27.66894"N	**Longitude**	35°01'48.45342"E	**Height**	888.906	**Code**	
		Description	Base Setup						

Point	VRS3	**Latitude**	31°30'27.66894"N	**Longitude**	35°01'48.45342"E	**Height**	888.906	**Code**	
		Description	Base Setup						

GNSS receiver

Receiver type	Unknown
Serial number	
Firmware version	0
Antenna type	Unknown Broadcast
Measurement method	
Tape adjustment	0.000
Horizontal offset	0.000
Vertical offset	0.000

Base point

Point	VRS3	**Antenna height**	0.000	**Type**	Corrected				

GNSS receiver

Receiver type	SP60
Serial number	5730550028
Firmware version	3.33
Antenna type	SPP101861
Measurement method	
Tape adjustment	0.000
Horizontal offset	0.000
Vertical offset	0.069

Point	3000	**ΔX**	?	**ΔY**	?	**ΔZ**	?	**Code**	
		Description	control						
		Method	Fixed	**Type**	Topo point	**Search class**	Normal		
Antenna height	2.000	**Type**	Uncorrected	**Hz Prec**	0.002	**Vt Prec**	0.003		
QC 1		**Satellites**	15	**PDOP**	1.1	**HDOP**	0.5	**VDOP**	0.9
		RMS	86.124	**Positions used**	909				
QC 2		**VCV xx (m^2)**	0.000016	**VCV xy (m^2)**	0.000008	**VCV xz (m^2)**	0.000007		
				VCV yy (m^2)	0.000009	**VCV yz (m^2)**	0.000004		
						VCV zz (m^2)	0.000009		
Point	4000	**ΔX**	?	**ΔY**	?	**ΔZ**	?	**Code**	
		Description	control						
		Method	Fixed	**Type**	Topo point	**Search class**	Normal		
Antenna height	2.000	**Type**	Uncorrected	**Hz Prec**	0.002	**Vt Prec**	0.004		
QC 1		**Satellites**	12	**PDOP**	1.3	**HDOP**	0.6	**VDOP**	1.2
		RMS	56.140	**Positions used**	742				
QC 2		**VCV xx (m^2)**	0.000016	**VCV xy (m^2)**	0.000005	**VCV xz (m^2)**	0.000009		

				VCV yy (m^2)	0.000004	**VCV yz (m^2)**	0.000003		
						VCV zz (m^2)	0.000009		
Point	5000	**ΔX**	?	**ΔY**	?	**ΔZ**	?	**Code**	
		Description	control						
		Method	Fixed	**Type**	Topo point	**Search class**	Normal		
Antenna height	2.000	**Type**	Uncorrected	**Hz Prec**	0.001	**Vt Prec**	0.002		
QC 1		**Satellites**	15	**PDOP**	1.2	**HDOP**	0.5	**VDOP**	1.0
		RMS	66.986	**Positions used**	608				
QC 2		**VCV xx (m^2)**	0.000016	**VCV xy (m^2)**	0.000007	**VCV xz (m^2)**	0.000007		
				VCV yy (m^2)	0.000009	**VCV yz (m^2)**	0.000004		
						VCV zz (m^2)	0.000009		
Point	6000	**ΔX**	?	**ΔY**	?	**ΔZ**	?	**Code**	
		Description	control						
		Method	Fixed	**Type**	Topo point	**Search class**	Normal		
Antenna height	2.000	**Type**	Uncorrected	**Hz Prec**	0.001	**Vt Prec**	0.002		
QC 1		**Satellites**	14	**PDOP**	1.2	**HDOP**	0.6	**VDOP**	1.1
		RMS	70.175	**Positions used**	607				
QC 2		**VCV xx (m^2)**	0.000009	**VCV xy (m^2)**	0.000005	**VCV xz (m^2)**	0.000005		
				VCV yy (m^2)	0.000009	**VCV yz (m^2)**	0.000005		
						VCV zz (m^2)	0.000009		
Point	7000	**ΔX**	?	**ΔY**	?	**ΔZ**	?	**Code**	
		Description	control						

		Method	Fixed	**Type**	Topo point	**Search class**	Normal		
Antenna height	2.000	**Type**	Uncorrected	**Hz Prec**	0.002	**Vt Prec**	0.003		
QC 1		**Satellites**	14	**PDOP**	1.1	**HDOP**	0.5	**VDOP**	1.0
		RMS	95.694	**Positions used**	600				
QC 2		**VCV xx (m^2)**	0.000009	**VCV xy (m^2)**	0.000005	**VCV xz (m^2)**	0.000005		
				VCV yy (m^2)	0.000009	**VCV yz (m^2)**	0.000004		
						VCV zz (m^2)	0.000009		

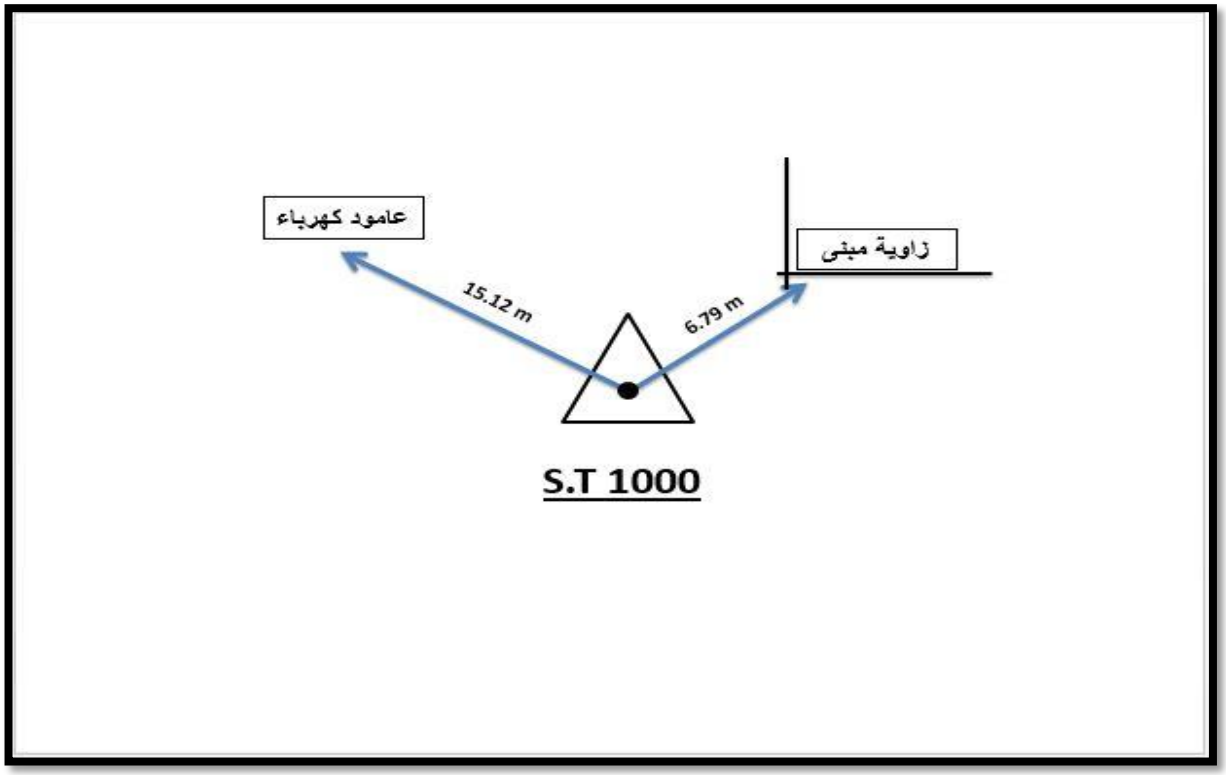
Note	Opened by version 6.2.0.23, T41 (58625210037).

Reduced points

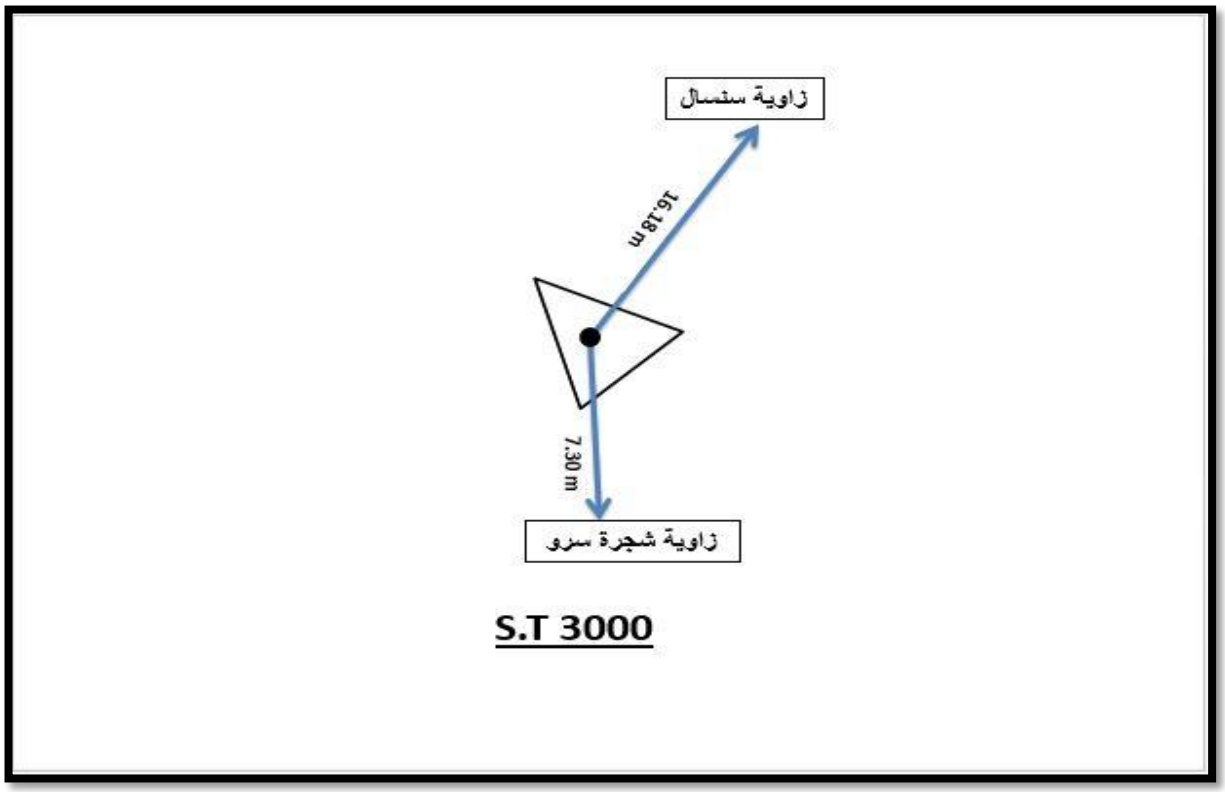
Point	VRS1	**North**	101742.166	**East**	152897.491	**Elevation**	869.594	**Code**	
		Description	Base Setup						
Point	1000	**North**	99662.730	**East**	153231.721	**Elevation**	810.184	**Code**	
		Description	control						
Point	VRS2	**North**	101742.166	**East**	152897.491	**Elevation**	869.594	**Code**	
		Description	Base Setup						
Point	VRS3	**North**	101742.166	**East**	152897.491	**Elevation**	869.594	**Code**	
		Description	Base Setup						
Point	3000	**North**	99206.384	**East**	153358.276	**Elevation**	789.329	**Code**	
		Description	control						
Point	4000	**North**	100022.312	**East**	153124.215	**Elevation**	837.256	**Code**	
		Description	control						
Point	5000	**North**	100258.866	**East**	152980.775	**Elevation**	853.351	**Code**	
		Description	control						
Point	6000	**North**	100323.855	**East**	152879.222	**Elevation**	866.957	**Code**	
		Description	control						
Point	7000	**North**	100521.008	**East**	152951.916	**Elevation**	878.493	**Code**	
		Description	control						

Appendix Number (3)
Control Point

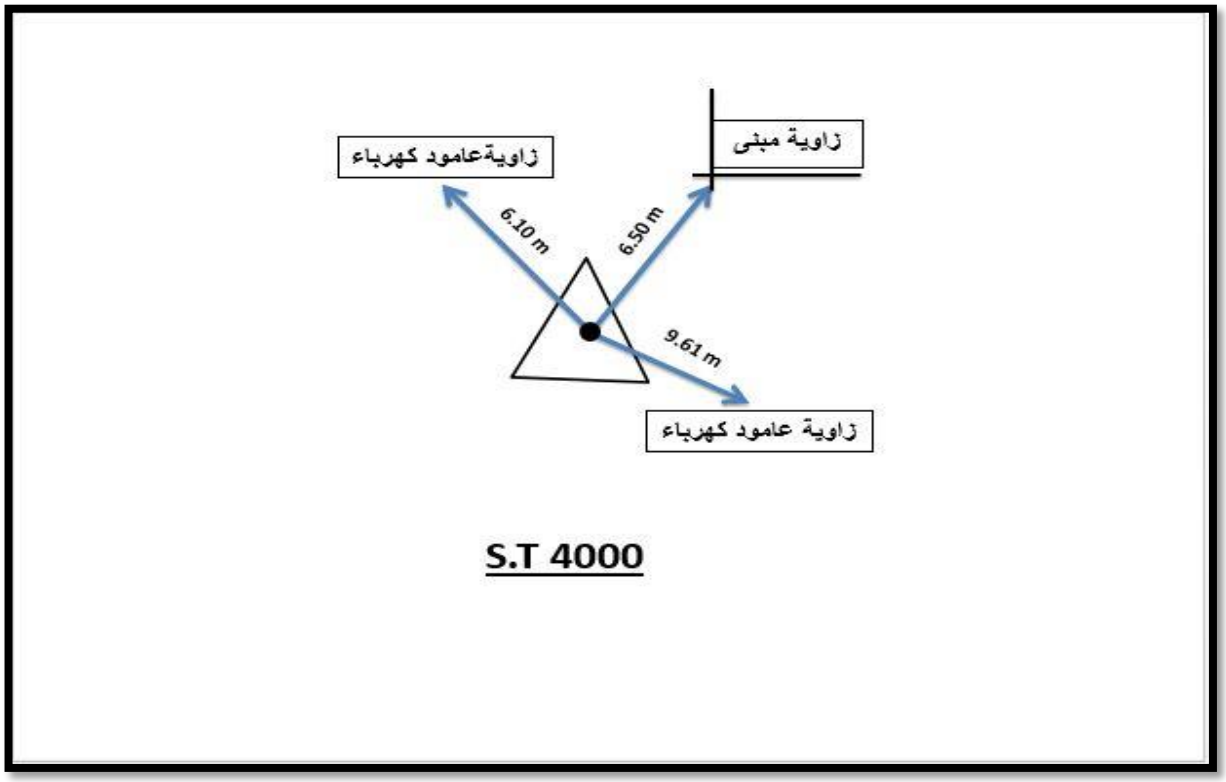
❖ Point Number (1000)



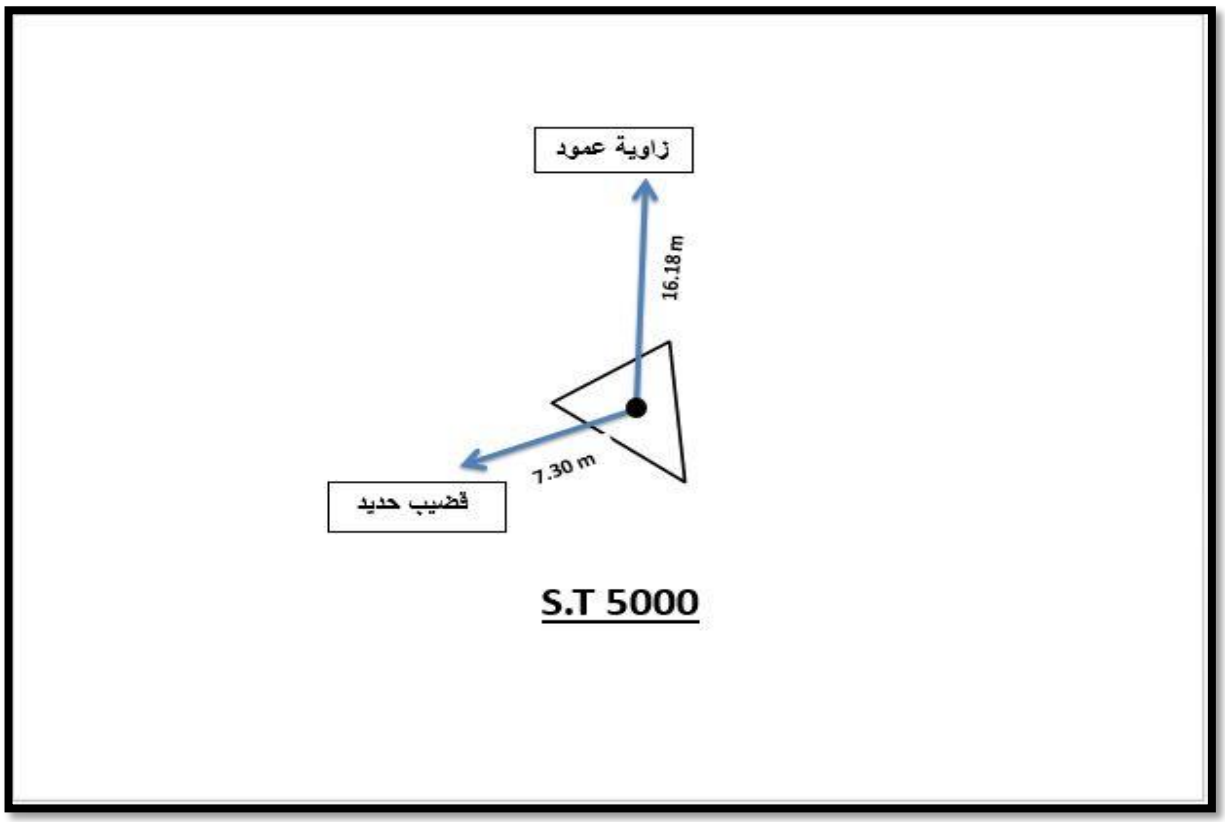
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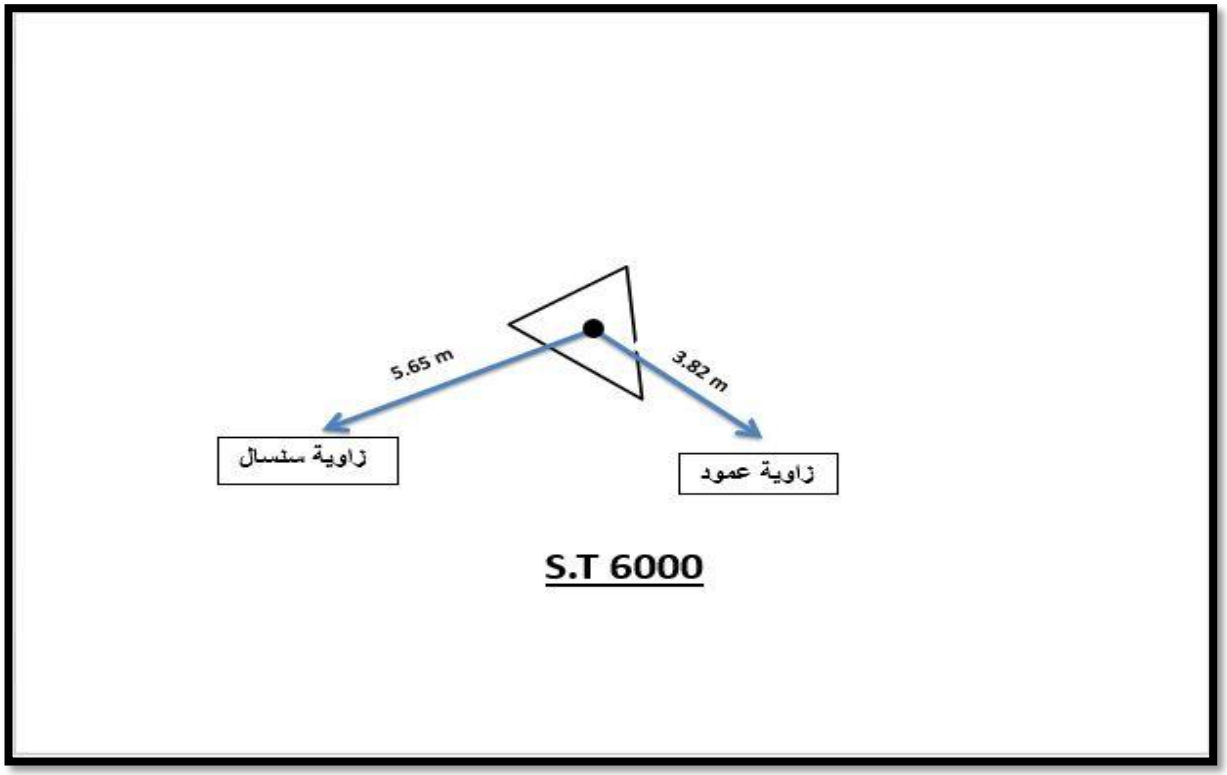
❖ Point Number (4000)



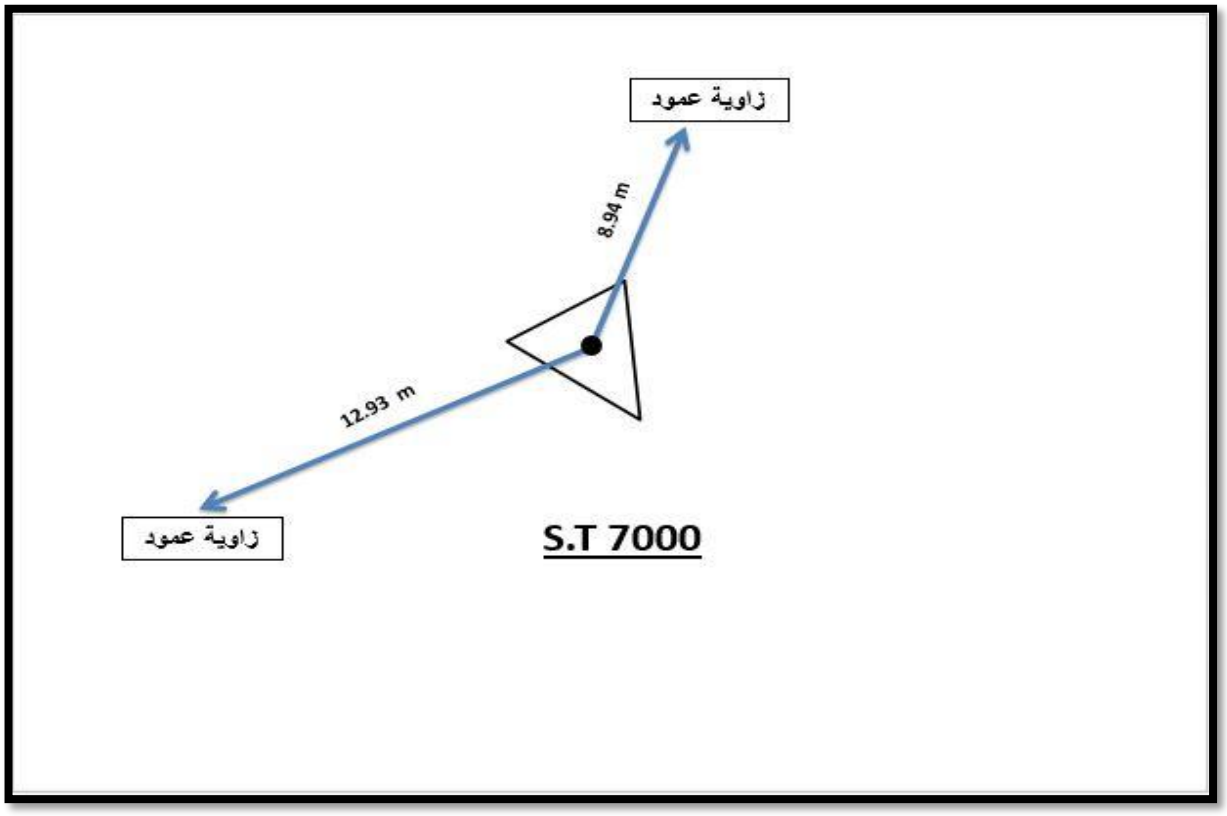
❖ Point Number (5000)



❖ Point Number (6000)



❖ Point Number (7000)



Appendix Number (4)
Traffic Count

❖ **First day (OUT)**

Lift									
Day	Time		Vehicle Tybe						
	From	To	Motor Cycles	passenger Cars	Van	Buses	Single Unit 2,3,4 Axle	Single Trailer 3,4,5,6 Axle	Multi Trailer 5,6,7 Axle
Sat 10/3/2018	8:00	8:15	0	41	1	3	2	1	0
	8:15	8:30	0	52	2	2	3	0	1
	8:30	8:45	0	43	1	0	2	0	0
	8:45	9:00	0	31	1	1	2	0	0
	9:00	9:15	0	25	1	1	4	1	1
	9:15	9:30	0	23	1	0	2	1	0
	9:30	9:45	0	39	1	0	1	0	0
	9:45	10:00	0	31	1	0	2	0	0
	10:00	10:15	0	34	1	0	3	0	0
	10:15	10:30	1	33	3	0	2	0	0
	10:30	10:45	0	33	1	1	4	1	1
	10:45	11:00	0	47	1	0	1	0	0
	11:00	11:15	0	36	1	0	2	0	0
	11:15	11:30	0	28	1	0	3	0	0
	11:30	11:45	0	37	1	1	2	0	0
	11:45	12:00	0	35	2	0	5	1	0
	12:00	12:15	1	40	1	0	9	0	0
	12:15	12:30	0	32	1	0	4	0	0
	12:30	12:45	0	44	1	0	2	0	0
	12:45	13:00	0	32	1	1	2	0	0
	13:00	13:15	0	47	1	2	4	1	0
	13:15	13:30	0	43	1	2	6	0	1
	13:30	13:45	1	24	1	1	1	0	0
	13:45	14:00	0	37	1	1	3	0	0
	14:00	14:15	0	23	1	2	2	1	0
	14:15	14:30	0	35	1	0	3	0	0
	14:30	14:45	0	42	2	1	1	0	0
	14:45	15:00	0	39	1	3	2	1	1
Total			3	1006	33	22	79	8	5

From	To	PC	Havy	Total
8:00 AM	9:00 AM	167	22	189
8:15 AM	9:15 AM	151	23	174
8:30 AM	9:30 AM	122	19	141
8:45 AM	9:45 AM	118	18	136
9:00 AM	10:00 AM	118	17	135
9:15 AM	10:15 AM	127	13	140
9:30 AM	10:30 AM	137	15	152
9:45 AM	10:45 AM	131	21	152
10:00 AM	11:00 AM	147	20	167
10:15 AM	11:15 AM	149	19	168
10:30 AM	11:30 AM	144	17	161
10:45 AM	11:45 AM	148	13	161
11:00 AM	12:00 PM	136	19	155
11:15 AM	12:15 PM	140	27	167
11:30 AM	12:30 PM	144	28	172
11:45 AM	12:45 PM	151	27	178
12:00 PM	1:00 PM	148	23	171
12:15 PM	1:15 PM	155	20	175
12:30 PM	1:30 PM	166	25	191
12:45 PM	1:45 PM	146	26	172
1:00 PM	2:00 PM	151	27	178
1:15 PM	2:15 PM	127	25	152
1:30 PM	2:30 PM	119	19	138
1:45 PM	2:45 PM	137	19	156
2:00 PM	3:00 PM	139	22	161

❖ **First day (IN)**

Right									
Day	Time		Vehicle Tybe						
	From	To	Motor Cycles	passenger Cars	Van	Buses	Single Unit 2,3,4 Axle	Single Trailer 3,4,5,6 Axle	Multi Trailer 5,6,7 Axle
Sat 10/3/2018	8:00	8:15	0	30	3	2	4	0	0
	8:15	8:30	0	23	1	2	2	0	0
	8:30	8:45	0	40	1	2	3	0	0
	8:45	9:00	1	36	1	1	1	0	0
	9:00	9:15	0	22	0	1	5	0	0
	9:15	9:30	0	45	1	0	4	0	0
	9:30	9:45	0	50	1	0	4	1	1
	9:45	10:00	0	39	0	0	3	0	0
	10:00	10:15	0	31	1	0	1	0	1
	10:15	10:30	0	44	1	0	1	1	0
	10:30	10:45	0	29	1	0	0	0	0
	10:45	11:00	1	30	2	0	0	0	0
	11:00	11:15	0	40	1	1	4	0	0
	11:15	11:30	0	35	2	0	3	1	0
	11:30	11:45	0	50	1	0	3	0	0
	11:45	12:00	0	38	1	1	5	0	0
	12:00	12:15	0	43	1	1	4	0	2
	12:15	12:30	1	38	0	0	1	0	0
	12:30	12:45	0	33	1	1	4	0	0
	12:45	13:00	0	34	1	1	0	1	0
	13:00	13:15	0	50	1	1	1	0	1
	13:15	13:30	0	48	2	0	1	0	1
	13:30	13:45	0	35	0	0	2	0	1
	13:45	14:00	1	44	1	0	3	1	0
	14:00	14:15	0	53	1	2	3	0	0
	14:15	14:30	0	47	4	3	2	0	0
	14:30	14:45	1	46	1	1	5	1	0
	14:45	15:00	0	62	1	1	5	0	0
Total			5	1115	32	21	74	6	7

From	To	PC	Havy	Total
8:00 AM	9:00 AM	129	24	153
8:15 AM	9:15 AM	121	21	142
8:30 AM	9:30 AM	143	21	164
8:45 AM	9:45 AM	153	22	175
9:00 AM	10:00 AM	156	21	177
9:15 AM	10:15 AM	165	18	183
9:30 AM	10:30 AM	164	16	180
9:45 AM	10:45 AM	143	10	153
10:00 AM	11:00 AM	134	10	144
10:15 AM	11:15 AM	143	13	156
10:30 AM	11:30 AM	134	16	150
10:45 AM	11:45 AM	155	19	174
11:00 AM	12:00 PM	163	23	186
11:15 AM	12:15 PM	166	25	191
11:30 AM	12:30 PM	169	21	190
11:45 AM	12:45 PM	152	23	175
12:00 PM	1:00 PM	148	19	167
12:15 PM	1:15 PM	155	15	170
12:30 PM	1:30 PM	165	17	182
12:45 PM	1:45 PM	167	14	181
1:00 PM	2:00 PM	177	17	194
1:15 PM	2:15 PM	180	19	199
1:30 PM	2:30 PM	179	24	203
1:45 PM	2:45 PM	190	30	220
2:00 PM	3:00 PM	208	31	239

❖ **Second day (OUT)**

Lift									
Day	Time		Vehicle Tybe						
	From	To	Motor Cycles	passenger Cars	Van	Buses	Single Unit 2,3,4 Axle	Single Trailer 3,4,5,6 Axle	Multi Trailer 5,6,7 Axle
Sun 11/3/2018	8:00	8:15	0	42	0	3	4	0	1
	8:15	8:30	0	43	1	2	3	0	0
	8:30	8:45	0	33	1	1	3	0	0
	8:45	9:00	0	28	0	1	5	0	1
	9:00	9:15	1	27	1	0	4	1	0
	9:15	9:30	0	30	1	0	2	0	0
	9:30	9:45	1	40	2	0	2	1	0
	9:45	10:00	0	32	1	0	1	0	0
	10:00	10:15	0	35	1	0	1	0	0
	10:15	10:30	0	30	1	0	0	1	0
	10:30	10:45	0	33	1	1	1	0	0
	10:45	11:00	0	47	1	1	0	0	1
	11:00	11:15	0	36	1	0	1	1	0
	11:15	11:30	0	28	1	1	1	0	0
	11:30	11:45	0	37	0	1	3	0	1
	11:45	12:00	0	35	1	1	2	0	0
	12:00	12:15	0	40	1	1	3	0	1
	12:15	12:30	1	49	0	1	1	1	0
	12:30	12:45	0	30	1	2	6	1	0
	12:45	13:00	1	29	1	2	4	0	0
	13:00	13:15	0	43	1	2	2	0	1
	13:15	13:30	0	33	1	3	2	0	0
	13:30	13:45	0	22	0	2	4	0	1
	13:45	14:00	0	36	2	2	9	0	0
	14:00	14:15	0	19	0	1	5	1	0
	14:15	14:30	1	23	1	1	2	0	0
	14:30	14:45	0	35	1	1	3	1	0
	14:45	15:00	0	30	2	1	2	0	0
Total			5	945	25	31	76	8	7

From	To	PC	Havy	Total
8:00 AM	9:00 AM	146	26	172
8:15 AM	9:15 AM	131	25	156
8:30 AM	9:30 AM	118	22	140
8:45 AM	9:45 AM	125	23	148
9:00 AM	10:00 AM	129	18	147
9:15 AM	10:15 AM	137	13	150
9:30 AM	10:30 AM	137	12	149
9:45 AM	10:45 AM	130	9	139
10:00 AM	11:00 AM	145	10	155
10:15 AM	11:15 AM	146	11	157
10:30 AM	11:30 AM	144	12	156
10:45 AM	11:45 AM	148	14	162
11:00 AM	12:00 PM	136	15	151
11:15 AM	12:15 PM	140	18	158
11:30 AM	12:30 PM	161	19	180
11:45 AM	12:45 PM	154	24	178
12:00 PM	1:00 PM	148	28	176
12:15 PM	1:15 PM	151	28	179
12:30 PM	1:30 PM	135	30	165
12:45 PM	1:45 PM	127	27	154
1:00 PM	2:00 PM	134	32	166
1:15 PM	2:15 PM	110	33	143
1:30 PM	2:30 PM	100	32	132
1:45 PM	2:45 PM	113	31	144
2:00 PM	3:00 PM	107	23	130

❖ **Second day (IN)**

Right									
Day	Time		Vehicle Tybe						
	From	To	Motor Cycles	passenger Cars	Van	Buses	Single Unit 2,3,4 Axle	Single Trailer 3,4,5,6 Axle	Multi Trailer 5,6,7 Axle
Sun 11/3/2018	8:00	8:15	0	28	1	1	2	1	0
	8:15	8:30	0	25	0	1	1	0	0
	8:30	8:45	1	42	3	1	4	1	0
	8:45	9:00	0	22	1	1	3	1	0
	9:00	9:15	0	45	1	1	2	0	0
	9:15	9:30	0	32	1	1	2	0	0
	9:30	9:45	0	45	1	1	1	1	0
	9:45	10:00	0	37	1	1	3	1	0
	10:00	10:15	0	33	1	0	1	0	1
	10:15	10:30	1	42	2	0	2	1	0
	10:30	10:45	1	27	1	0	4	0	0
	10:45	11:00	0	29	0	2	1	0	0
	11:00	11:15	0	28	1	1	5	0	0
	11:15	11:30	0	23	1	1	4	1	1
	11:30	11:45	0	48	1	0	2	0	0
	11:45	12:00	0	36	0	0	3	0	0
	12:00	12:15	1	41	1	0	3	0	0
	12:15	12:30	0	35	1	0	2	1	0
	12:30	12:45	0	35	0	0	1	0	0
	12:45	13:00	0	33	1	0	1	0	0
	13:00	13:15	0	51	1	2	0	1	0
	13:15	13:30	0	47	1	2	4	0	0
	13:30	13:45	0	31	0	1	1	0	0
	13:45	14:00	0	45	1	1	4	0	0
	14:00	14:15	1	49	0	1	5	0	0
	14:15	14:30	0	50	1	1	3	1	0
	14:30	14:45	1	47	1	1	3	0	0
	14:45	15:00	1	61	1	1	4	0	0
Total			7	1067	25	22	71	10	2

From	To	PC	Havy	Total
8:00 AM	9:00 AM	117	23	140
8:15 AM	9:15 AM	134	22	156
8:30 AM	9:30 AM	141	24	165
8:45 AM	9:45 AM	144	18	162
9:00 AM	10:00 AM	159	18	177
9:15 AM	10:15 AM	147	17	164
9:30 AM	10:30 AM	157	19	176
9:45 AM	10:45 AM	139	21	160
10:00 AM	11:00 AM	131	18	149
10:15 AM	11:15 AM	126	22	148
10:30 AM	11:30 AM	107	24	131
10:45 AM	11:45 AM	128	21	149
11:00 AM	12:00 PM	135	21	156
11:15 AM	12:15 PM	148	19	167
11:30 AM	12:30 PM	160	15	175
11:45 AM	12:45 PM	147	13	160
12:00 PM	1:00 PM	144	12	156
12:15 PM	1:15 PM	154	11	165
12:30 PM	1:30 PM	166	14	180
12:45 PM	1:45 PM	162	15	177
1:00 PM	2:00 PM	174	19	193
1:15 PM	2:15 PM	172	22	194
1:30 PM	2:30 PM	175	21	196
1:45 PM	2:45 PM	191	25	216
2:00 PM	3:00 PM	207	26	233

Appendix Number (5)
Alignment curve report

Alignment curve report

Alignment Curve Report **Client:** Client Company
Project Name: C:\Users\HSSAIN\Downloads\design-almajor-street.dwg **Project Description:**
Report Date: 4/27/2018 10:03:33 AM **Prepared by:** Preparer

Alignment: CL_NG1_2223

Description:

	Tangent Data		
Length:	162.823	Course:	S 19° 02' 42.5543" W
	Spiral Curve Data: clothoid		
Length:	40.000	L Tan:	27.007
Radius:	40.992	S Tan:	13.643
Theta:	27° 57' 16.8638"	P:	1.613
X:	39.058	K:	19.842
Y:	6.396	A:	40.493
Chord:	39.578	Course:	S 09° 44' 44.9270" W
	Spiral Curve Data: clothoid		
Length:	80.000	L Tan:	56.262
Radius:	40.992	S Tan:	29.348
Theta:	55° 54' 33.7275"	P:	6.289
X:	72.711	K:	38.763
Y:	24.304	A:	57.266
Chord:	76.665	Course:	S 46° 20' 10.3641" E
	Tangent Data		
Length:	67.749	Course:	S 64° 49' 08.0370" E
	Circular Curve Data		

Delta:	51° 18' 39.0597"	Type:	RIGHT
Radius:	135.000		
Length:	120.898	Tangent:	64.842
Mid-Ord:	13.309	External:	14.765
Chord:	116.899	Course:	S 39° 09' 48.5071" E

Tangent Data

Length:	412.343	Course:	S 13° 30' 28.9773" E

Circular Curve Data

Delta:	47° 12' 21.4961"	Type:	LEFT
Radius:	135.000		
Length:	111.226	Tangent:	58.988
Mid-Ord:	11.294	External:	12.325
Chord:	108.107	Course:	S 37° 06' 39.7253" E

Tangent Data

Length:	102.394	Course:	S 60° 42' 50.4733" E

Circular Curve Data

Delta:	58° 49' 06.5974"	Type:	RIGHT
Radius:	170.000		
Length:	174.518	Tangent:	95.826
Mid-Ord:	21.907	External:	25.148
Chord:	166.955	Course:	S 31° 18' 17.1746" E

Tangent Data

Length:	617.560	Course:	S 01° 53' 43.8759" E

Alignment: end

Description:

Tangent Data

Length:	162.823	Course:	S 19° 02' 42.5543" W

APPENDIX NUMBER (4)
Traffic Count