

		(#) means see Notes below						\$463.11			
Category	Name	Purpose	Description	Make	Model	Qty	Cost	Extended	Vendor	SubstitutionOK?	
Mounting	Pole	Main mount pole	LDR 3/4-in x 10-ft 150-PSI Black Iron Pipe	LDR	314 34X120	1	20.79	20.79	Lowes	yes	
Mounting	Clamps - pole	hold pole to post	Sigma Electric ProConnex 3/4-in Conduit Hangers	Sigma	49110	3	0.68	2.04	Lowes	yes	
Mounting	Paint	paint for black iron pole	Rust-Oleum Stops Rust Gloss Black Spray Paint	Rust-Oleum	295387	1	3.97	3.97	Lowes	yes, carefully	
Mounting	Naptha (Paint Cleaner/thinner)	to clean black pipe for painting	Jasco 32-fl oz Fast to Dissolve Naphtha	Jasco	QJVM194	1	8.98	8.98	Lowes	Naptha is best. Mineral spirits will do, but . . .	
Mounting	PVC segment	transition from sensors to pipe (1)	See Note 1					0.00			
Mounting	Hinge	allows pole to tilt down for service	Gatehouse 3-1/2-in Satin Nickel 5/8-in Radius Mortise Door Hinge	Gatehouse	S841-509	1	3.08	3.08	Lowes	yes. any door hinge will be fine.	
Mounting	Brackets	holds box on pole	RCA VH125R 4" Antenna Wall Mount Kit, 2 pk	RCA	VH125R	1	5.98	5.98	Lowes	yes, if distance between holes matches box	
Housing	Box	Houses electrical components	6 in. x 6 in. x 4 in. Gray PVC Junction Box	Carlson	E987RR	1	13.94	13.94	Home Depot	yes, but must be "weatherproof"	
Housing	Box	houses pole-end lightning arrestor	1-Gang Non-Metallic Weatherproof Gray Box with Three 1/2 in. or 3/4 in. Knockouts	Bell	PSB37550GYB	1	5.87	5.87	Home Depot	yes, but must be "weatherproof"	
Housing	Box	houses 120VAC to 12VDC supply	Electronic Equipment Enclosure Box, 12" x 12" x 4", Non-Metallic, 1-Pack		EB1212-1	1	30.33	30.33	Amazon	yes	
Electrical	Liquid-tight conduit (2)	Conduit	Southwire Ultratite Non-Metal Liquid-tight 25-ft	Southwire	55094251	1	11.44	11.44	Lowes	yes See Note (2).	
Electrical	Liquid-tight connector	connects conduit to boxes	Southwire 1/2-in Screw-in Connector Conduit Fitting	Southwire	58133601	6	2.34	14.04	Lowes	yes	
Electrical	14 AWG power wire	carries 12VDC from supply to pole	250 ft. 14/2 Solid Romex SIMpull CU NM-B W/G Wire	Southwire	28827455	1	37.89	37.89	Home Depot	yes. Length depends on your installation	
Electrical	Power Supply w/ Battery BU	supplies 12VDC to station (3)	Power Supply for System AC 110-240V to DC 12V 5A	YuHan	6-07128E+14	1	29.99	29.99	Amazon	Yes. I currently use guts from an old UPS.	
Electrical	Battery	used as a standby power source	12V 5Ah Home Alarm Battery with F1 Terminals	Expert Power	EXP1250	1	15.99	15.99	Amazon	Yes. 7ah provides longer run during outage.	
Electrical	Cord	connect pwr supply to AC	14 AWG 3 Conductor 10 ft Replacement Power Cord, Pigtail	Middleway	B07Q9KV5MF	1	17.99	17.99	Amazon	Yes.	
Electronic	Raspberry Pi	main computer for station	Pi 4 Model B, BCM2711 SoC, 2GB DDR4 RAM, USB 3.0, PoE Enabled	Raspberry Pi	RPI4-MODBP-2GB	1	35.00	35.00	Newark	Sure? I thought about using a Zero W.	
Electronic	DROK Buck Converter	12VDC to 5VDC power module	Voltage Regulator DC 9V-36V Step Down to DC 5.3V 3.5-6A	DROK	200217	1	9.99	9.99	Amazon	Substitution not recommended, but possible.	
Electronic	Raindrop sensor	Raindrop sensor	LM393 Rain Drops Sensor	HiLetgo	3-01-0312-A	1	4.49	4.49	Amazon	Yes. Not required for station to function.	
Electronic	Main Sensor 1	Temp, Humidity, Pressure	BME280 Humidity Temperature Pressure Sensor with I2C	DIYmall	BC26852	1	9.49	9.49	Amazon	No.	
Electronic	Main Sensors 2	Wind speed, direction, Rainfall	Weather Meters	Sparkfun	SEN-08942	1	76.95	76.95	Sparkfun	Yes. Updated version is available from Sparkfun.	
Electronic	Variable speed system fan	provides air flow and cooling (4)	4-Wire 4-Pin CPU Cooling Fan for Dell Inspiron 13 5000	BAY Direct	CN-031TPT	1	16.99	16.99	Amazon	Yes. I used a pull from a dead Dell 13-7378 laptop	
Electronic	Lightning Arrestor (qty 2)	surge protector for 12VDC power	LRSO1 DC 12V Lightning Arrestor	Uxcell	LRS01-DC12V	2	13.68	27.36	Amazon	Yes. Use your own judgment here.	
Electronic	USB power cable	From Buck Converter to Pi	Right Angle USB Type C to USB A (1.5ft)	UGreen	20855	1	6.99	6.99	Amazon	Yes. 90 degree connectors are important.	
Electronic	Realtime clock	Keeps station time accurate	DS3231 Precision RTC Breakout [ADA3013]	Adafruit	8541582433	1	19.95	19.95	Amazon	No.	
Electronic	Analog to digital converter	Wind direction values	ADS1115 16 Bit 16 Byte 4 Channel I2C IIC Analog-to-Digital ADC	HiLetgo	B01DLHKMO2	1	6.99	6.99	Amazon	No.	
Electronic	Raspberry Pi camera module	Monitor outdoor conditions	Raspberry Pi Camera V2 Module IMX219 8-megapixel Sensor	Raspberry Pi	V2.0-US	1	26.59	26.59	Amazon	Yes.	
								0.00			
								0.00			
NOTES:											
	(1) You can see this part in the photos. It is the plastic piece just below the sensors' chrome mount tube. This PVC piece serves two purposes, it electrically isolates the sensors from the pole, and it holds them firmly in place. I used a part from one of the two failed Acurite stations we had. You need something that can firmly hold the larger black iron pipe pole, and the smaller chromed tube that comes with the Sparkfun Sensors. There are a multitude of ways to accomplish this.										
	(2) The actual number of conduit parts is completely dependent on how far your power supply is from the weather station.										
	(3) This power supply was chosen because it is capable of functioning as a battery backup in case of power failure, and has an on-board remote controllable relay. Both features are important to this build.										
	(4) This fan pulls air up into the chimney which serves two functions:										