

## Masabi Hardware - Remote Survey Report Project Overview

Agency	Duluth	Author(s):	
Document Number / Version:	DR2-0007-03	Author(s).	Alan Knight
Date Approved:		Agency	
Date Approved:		Masabi	

#### **Agency Contact Person(s)**

Name	Email	
Title	Phone	
Responsible for	-	
Name	Email	
Title	Phone	
Responsible for		

#### Masabi Contact Person(s)

Name	Alan Knight	Email	alan.knight@masabi.com
Title	Hardware Field Technician		
Responsible for	Hardware Deployment		
Name	Ko-Shin Leu	Email	koshin@masbi.com
Title			
Responsible for	Project Management		

#### **Installation Timeline**

	Expected	Expected	Number of	Notes (incl. planned vehicles for Pilot)
Pilot (optional)				

Full Fleet			
Installation			

## Vehicles surveyed from sample groups

Manufacturer	Type	Version	Year of	Number of	Notes (incl. fleet numbers)



## **Masabi Hardware - Remote Survey Report Agency's Site Policies and Procedures**

#### **Contact Person on Site**

Name	Mark Ness, Jim Caywood	Email	mness@duluthtransit.com, jcaywood@
Title	Asst Director and Director of Maintenal	Phone	218-623-4331, 218-623-4332

## **Agency's Site Policies**

	Drive into the bus barn, park in lane that we will recommend when the time comes. Report to
Signing in procedure	maintenance Jim Caywood or Mark Ness for staging information.
Signing out procedure	Let Jim Caywood or Mark Ness know you are done also if returning.
<b>Daytime Masabi allowed on site</b>	7-3:30 CST unless organized with Jim Caywood and Mark Ness, can accommodate other hours.
	No ID is required, we do like it if they are wearing company attire to help recognize staff but not
ID required?	necessary.
General Safety Policies	Masks, safety vests, safety glasses if you require it.
Personal Protective Equipment	Masks, safety vests, safety glasses if you require it.

#### **Installation Times**

	7 AM CST		7-3:30 CST unless organized with Jim
Farliant start possible		Comment	Caywood and Mark Ness, can accommodate other hours.
Earliest start possible	Dunio et timo elimo in mot a etabliaba el cet	Comment	accommodate other nodrs.
	Project timeline is not established yet		
Installation to be finished by		Comment	
	7-3:30 CST		7-3:30 CST unless organized with Jim
			Caywood and Mark Ness, can
Working hours possible		Comment	accommodate other hours.
	7-3:30 CST		7-3:30 CST unless organized with Jim
			Caywood and Mark Ness, can
Supported working hours		Comment	accommodate other hours.

	Yes but will need to verify with Mark		7-3:30 CST unless organized with Jim
Working on weekends	Ness or Jim Caywood		Caywood and Mark Ness, can
possible?	· ·	Comment	accommodate other hours.
Breaks / Interruptions		Comment	N/A

#### **Installation Locations**

availability, i.e. forklift, etc.

	2402 W Michigan St, Duluth MN		
Installation location on site	55806	Comment	
Location description, incl.	Power, water fountain, facilities, WIFI,		If special requirements please let us
infrastructure (power, water,	indoors		know.
WIFI, etc.)		Comment	
Vehicle capacity, i.e. how many	2, may be more accomodating during		
vehicles can be installed in	off-peak service		
simultaneously	'	Comment	
Interchanging option, i.e. can	Yes		I am confused at this question
vehicles be interchanged	. 55		This is about how vehicles are parked /
without moving others		Comment	staged
Picture of location			THUE V
Workshop location for potential	Internal to shop		
Workshop location for potential	Internal to shop	Comment	
Workshop location for potential drilling etc.	Internal to shop		
drilling etc.	·	Comment Comment	
	'	Comment	
drilling etc.  Distance to installation location	·		
drilling etc.  Distance to installation location Vice available?	'	Comment	
drilling etc.  Distance to installation location	'	Comment Comment	
drilling etc.  Distance to installation location Vice available?	Yes	Comment Comment Comment	
drilling etc.  Distance to installation location Vice available?  Picture of workshop	Yes  Within maintenance area, can be moved	Comment Comment	
drilling etc.  Distance to installation location Vice available?	Yes	Comment Comment Comment Comment	
drilling etc.  Distance to installation location Vice available?  Picture of workshop	Yes  Within maintenance area, can be moved by fork lift to accommodate	Comment Comment Comment	
drilling etc.  Distance to installation location Vice available?  Picture of workshop  Location of material storage	Yes  Within maintenance area, can be moved by fork lift to accommodate	Comment Comment Comment Comment	
drilling etc.  Distance to installation location Vice available?  Picture of workshop  Location of material storage  Distance to installation location	Yes  Within maintenance area, can be moved by fork lift to accommodate	Comment Comment Comment Comment Comment	

## **Vehicles Availability**

Min n	umber of vehicles	2		Depends on peak/off-peak time of day
availa	ble per shift		Comment	
Vehic	le availability during shift	2		Depends on peak/off-peak time of day
			Comment	
State	requirement of vehicle by	Completed		
the en	nd of shift		Comment	



## Masabi Hardware Site Survey Report

## **Agency Cable Management Standards**

Cable routing requirements	Comment
Use of cable ties	
Cable management layouts in	
Labeling and naming conventions	
Others	
Cable protection requirements	Comment
Use of split loom	
Use of armored conduit	
Others	

Agency installation guidelines and policies to be followed by installers	
Agency staff will supervise the initial installation of each vehicle type to approve installation process.	
No cutting or splicing of the vehicles factory wiring loom is allowed, unless specifically approved by Masabi and the agency.	



## Masabi Hardware Remote Survey Report

#### Person(s) executing the Survey

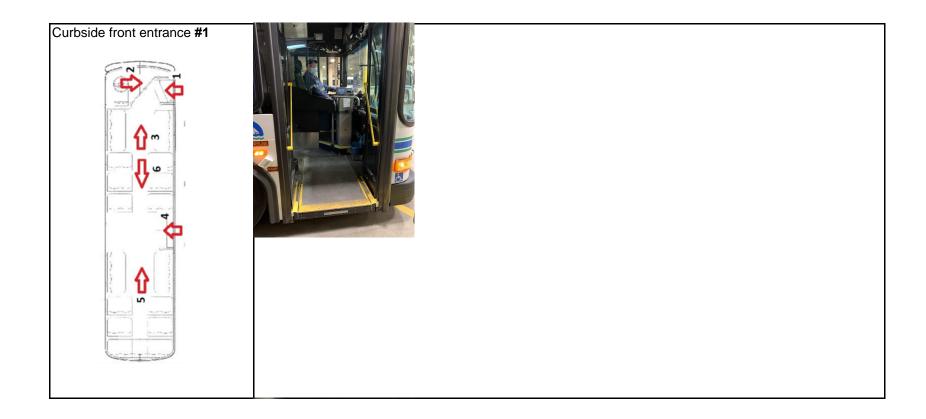
Name	Alan Knight	Email	alan.knight@masabi.com
Title	Hardware Field Technician		

#### Vehicle surveyed

Name / Number	1809	Model	LF 40"
Make	Gillig	Version	
Total of similar Vehicles	67	Year	2018
Name of similar Vehicles			

#### **Vehicle Overview**

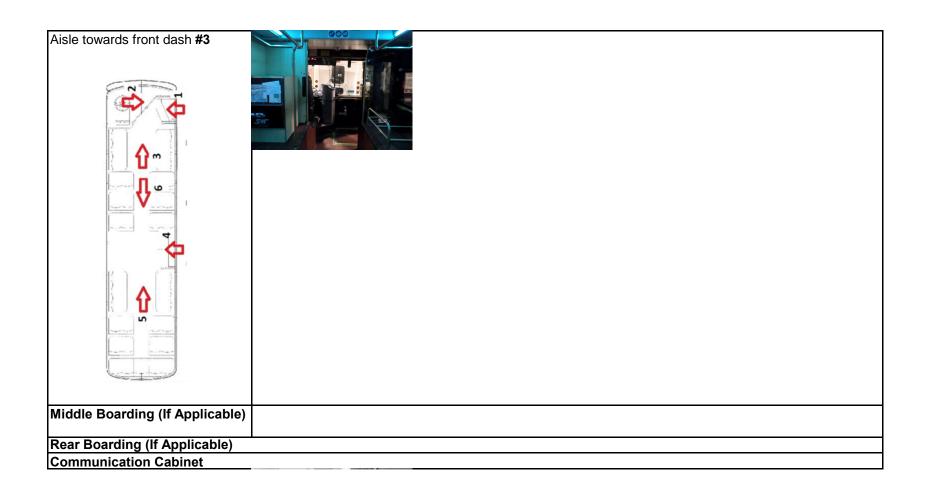
Pictures	
Front Boarding	Validators to be installed:

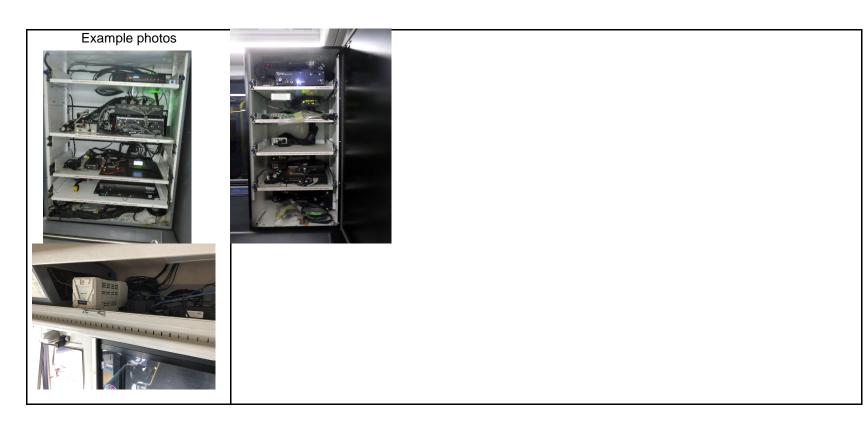


# Drivercs seat over to entrance door #2









## **Validator Location Criteria**

Validator Loc	ation overview		
Location Number	Location name	Additional Stanchion	Location selected (if several Validators are installed, select several locations)
1	Dash Vertical	Yes	
2	Dash Horizontal	Yes	X
3			
4			

Copy this section for additional locations investigated

Validator Location #1 - Dash Vertical	
Location Description	On dash right side mounted vertically

Location Pictures with Space Model	
	Photos Required

_ocation Consideratio	ns:	
Can the riders operate th	ne validator easily?	Yes
otential Issues		
Mitigation Strategies		
comments		<del></del>
	ng stanchion/rail available that can be used to install the valid	ator? No
otential Issues		
litigation Strategies		
Comments		
VIII the mounting location ontrols?	on still allow the driver to operate the bus safely without impa	Yes Yes
otential Issues		<u> </u>
litigation Strategies		
Comments		
an the driver observe t	ne validator display and/or hear the audio?	Yes

Potential Issues		
Mitigation Strategies		
Comments		
Will the mounting locat	ion still allow access to panels, cabinets, and cleaning for maintenance	Voc
procedures?		Yes
Potential Issues		
Mitigation Strategies		
Comments		
Does the validator locate	tion conform to Disabled Access policies (e.g ADA Max Height 48") ?	Yes
Potential Issues		
Mitigation Strategies		
Comments		
Will the mounting locat	ion reduce risk of possible mechanical damage in any way by the riders or	Vaa
operator?		Yes
Potential Issues		•
Mitigation Strategies		
Comments		
Can riders still access of	existing safety handrails and storage areas with the mounting location?	Yes
Potential Issues		•
Mitigation Strategies		
Comments		
Can all the cables route	ed to the validator be protected and hidden from the riders?	Yes
Potential Issues		
Mitigation Strategies		
Comments		
As everything been con	sidered with the mounting location with no additional concerns?	
Potential Issues		
Mitigation Strategies		
Comments		

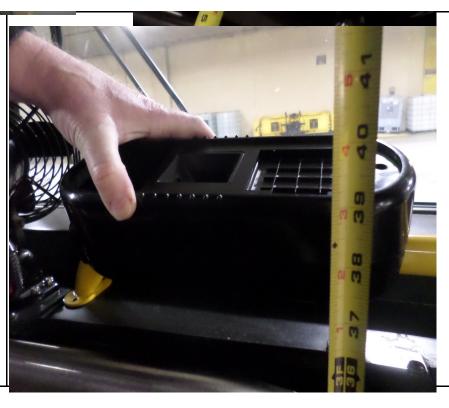
Validator Location #2 - Dash Horizontal		
Location Description	On dash right side mounted horizontally	

Location Pictures with Space Model









#### **Location Considerations:**

Can the riders operate the validator easily?		
Potential Issues		
Mitigation Strategies		
Comments		
ls there a suitable exist	ting stanchion/rail available that can be used to install the validator?	No
Potential Issues		
Mitigation Strategies		
Comments	Agency will source stanchion JRV to be installed angled about 45 degrees	
Will the mounting locat	tion still allow the driver to operate the bus safely without impact to sight or	
controls?		Yes
Potential Issues		
Mitigation Strategies		
Comments		
Can the driver observe	the validator display and/or hear the audio?	Yes

Potential Issues		
Mitigation Strategies		
Comments		
Will the mounting locat	ion still allow access to panels, cabinets, and cleaning for maintenance	Voc
procedures?		Yes
Potential Issues		
Mitigation Strategies		
Comments		
Does the validator local	tion conform to Disabled Access policies (e.g ADA Max Height 48") ?	Yes
Potential Issues		
Mitigation Strategies		
Comments	38" mounting height	
Will the mounting locat	ion reduce risk of possible mechanically damage in anyway by the riders or	
operator?		Yes
Potential Issues		
Mitigation Strategies		
Comments		
Can riders still access of	existing safety handrails and storage areas with the mounting location?	Yes
Potential Issues		
Mitigation Strategies		
Comments		
Can all the cables route	ed to the validator be protected and hidden from the riders?	Yes
Potential Issues		
Mitigation Strategies		
Comments		
As everything been con	sidered with the mounting location with no additional concerns?	Yes
Potential Issues	Does the front door impede the JRV? Can the JRV be tilted around 45 degrees on the st	anchion
Mitigation Strategies		
Comments	Agency said there was no issue with the front door hitting the JRV in this location	

Validator Location #3 - Sample name, e.g. on Dashboard, etc.

Validator Location #4 - Sample name, e.g. on Dashboard, etc.

Mounting of the Validator at the selected mounted location #

Stanchion

Is there an existing stanch	ion available?			No
Dimensions		Diameter	11/	4"
Color		Finish		
Validator mounting angle	(e.g 0, 30, 45, 90 degrees	)	45	
There are no additional ma	terials needed, that are no	ot part of a sta	ndard install?	Yes
Give details if required	Agency to source stand stanchion to the dash.	chion and the	required mounting hardware	for the mounting of the
Non std, mounting details				

#### **Power Source Criteria**

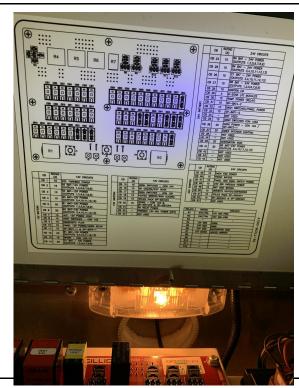
Power Source Overview					
Location #	Location name	Voltage 12 or 24V preferred	Max. current supply	Spare fuse slot available	Location selected
1	Ceiling distribution panel	24v	Supported	No	

Copy this section for additional power locations investigated

<b>Power Supply Location #1</b>	- Sample name, e.g. in communication cabinet power supply rail
Location description	Ceiling distribution panel

#### Location pictures





Will the power cables be protected and hidden from the riders? Yes Potential Issues Mitigation Strategies Comments Is the power source ignition switched? Yes Potential Issues Mitigation Strategies Comments As everything been considered with the power supply location with no other concerns? Yes Potential Issues Fused circuit needs to be identified by agency for JRV Agency provided electrical panel diagrams have identified circuits to be used Mitigation Strategies Additional panel circuit breaker may be required Comments

Power Supply Location #2 - Sample name, e.g. in communication cabinet power supply rail

Power Supply Location #3 - Sample name, e.g. in communication cabinet power supply rail

Connecting validator power cable to the selected power source					
Material needed	Other	U Con. M3 / M5	Other		
lwateriai needed					
Connection description	Ring and Fork connectors required for connection in panel				

## **Integrated Devices Criteria**

Modem/Router/AVL descri	ption #1	Modem/Router/AVL description #1				
Device name, including	Sierra MG90 Router					
What is the device used for?	WIFI internet router					
Device location	Comms Cabinet					
What type of interface is	Ethernet					
required (e.g Ethernet, RJ232,						
J1708)						
What I/O interfaces are free and						
to be used?	RJ45					
What are the cable	STP Ethernet					
requirements?						
Is DHCP available for network		Yes				
connectivity?						
Static IP Configs:						
IP /Subnet Mask/ Gateway/DNS						

Photos Required

Modem/Router/AVL descri	ption #2
Device name, including	Trapeze Multiple models across the fleet
manufacturer, model, and type	
What is the device used for?	AVL
Device location	Comms Cabinet
What type of interface is	Ethernet
required (e.g Ethernet, RJ232, J1708)	
What I/O interfaces are free and to be used?	Ethernet
What are the cable requirements?	Ethernet
Is DHCP available for network connectivity?	N/A

Static IP Configs:				
IP /Subnet Mask/ Gateway/DNS				
Photo of installed device				
		Pho	otos Required	
Modem/Router/AVL descrip	ption #3			

## Wiring Criteria

Copy this section if multiple Validators are installed per bus

Wiring validator to communication cabinet (split cable for JRV)		
Is there existing ethernet		No.
cables that meet requirements		No
that can be used?		

Description of the wiring route e.g from cabinet to under do through lower drive panel, into communications.	om front step lashboard, vers side	Route the cable through the side panels and dash to stanchion local	tion following factory	v wirina loom were
cabinet at head he	eight.	possible.		, 3
Will 15 or 30 ft of I				
cable be sufficient			Other	10ft
installation, if not	please enter		Other	
length. Description of am	ıına reauirea			
eg. drill through b				
left of drivers seat				
cable through.	•	Only for the cable thru the dash		
Description of pos	ssible			
obstacles.		None reported		
required for any part of cable run, please specify location, type, and length.	Protect the leng	<b>Location</b> th of the cable run.	Type Split loom	Length ft

Wiring validator (split cabl	e for JRV) to power source	
that meet requirements that can be used?		No
Description of the chosen wiring route e.g from front step cabinet to under dashboard,		
through lower drivers side panel, into communication		
cabinet at head height.	Follow existing factory wiring loom routing to splitter cable from power distribution panel	were possible

Will 15' or 30' of be sufficient for installation, if no length.	the		Other	10ft
Description of di eg. drill through left of drivers se ethernet cable th	bulkhead to at to pass	None reported		
Description of poolstacles.	ossible	None reported		
required for any part of cable run, please specify location, type, and length.		Location	Туре	Length ft
	Agency does no	t require any split loom for this cable run		0

Wiring validator to AVL		
communication cables that meet requirements that can be	Integration via ethernet no additional cabling is required	Yes
What are the specifications of the required cable and termination?	integration via ethernet no additional cabiling is required	
Description of the chosen wiring route e.g from front step cabinet to under dashboard, through lower drivers side panel, into communication cabinet at head height.		
Will 15' or 30' of cable be sufficient for the installation, if not please enter length.		Ft

Description of possible obstacles.  required for any part of cable run, please specify location, type, and length.  Location Type Length	Description of dri eg. drill through b left of drivers sea ethernet cable thr	oulkhead to it to pass rough.			
part of cable run, please specify location, type,		ssible			
	part of cable run, please specify location, type,		Location	Туре	Length ft



# Masabi Hardware Remote Survey Report

# Person(s) executing the Survey

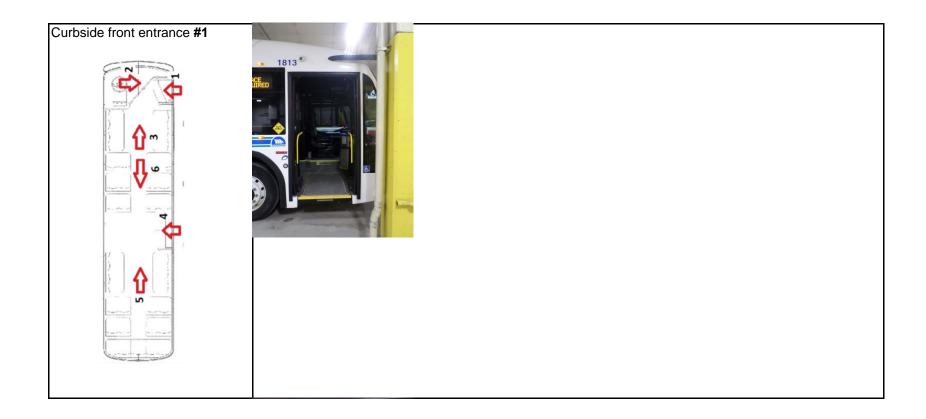
Name	Alan Knight	Email	alan.knight@masabi.com
Title	Hardware Field Technician		

# Vehicle surveyed

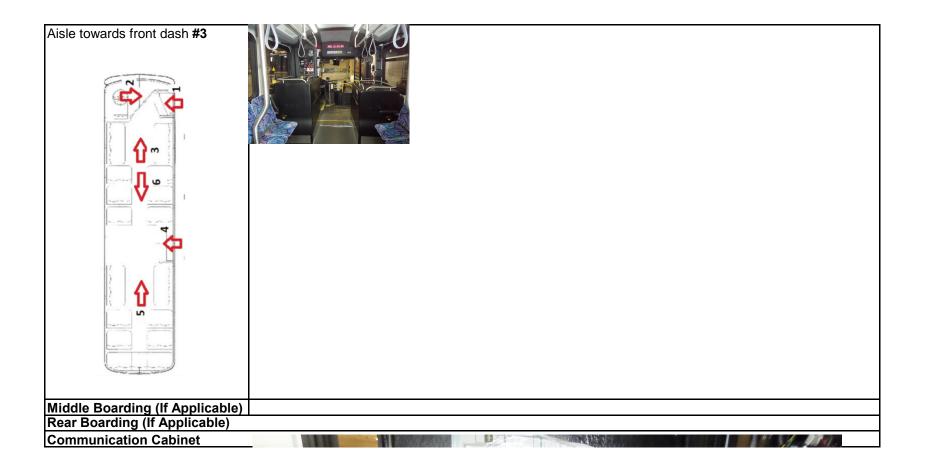
Name / Number	1812	Model	Catalyst 2
Make	Proterra	Version	Electric
Total of similar Vehicles 7		Year	2018
Name of similar Vehicles			

#### **Vehicle Overview**

Pictures	
Front Boarding	Validators to be installed:









### **Validator Location Criteria**

Validator Location overview						
Location Number	Location name	Additional Stanchion	Location selected (if several Validators are installed, select several locations)			
1	Top rail by farebox	N				
2						
3						
4						

Copy this section for additional locations investigated

### Validator Location #1 - Top rail by farebox

Location Description On top rail by farebox on rail

# Location Pictures with Space Model



Location Considerations:		<del></del>
Can the riders operate the va	alidator easily?	Yes
Potential Issues		
Mitigation Strategies		
Comments		1
Is there a suitable existing s	tanchion/rail available that can be used to install the validator?	Yes
Potential Issues		
Mitigation Strategies		
Comments		
Will the mounting location s	till allow the driver to operate the bus safely without impact to sight or	Vac
controls?		Yes
Potential Issues		
Mitigation Strategies		
Comments		
Can the driver observe the v	alidator's display and/or hear the audio?	Yes
1		

Potential Issues		
Mitigation Strategies		
Comments		
Will the mounting locat	tion still allow access to panels, cabinets, and cleaning for maintenance	Voc
procedures?		Yes
Potential Issues		
Mitigation Strategies		
Comments		
Does the validator loca	tion conform to Disabled Access policies (e.g ADA Max Height 48") ?	
Potential Issues		
Mitigation Strategies		
Comments	37" mounting height	
Will the mounting locat	tion reduce risk of possible mechanical damage in any way by the riders or	Voc
operator?		Yes
Potential Issues		
Mitigation Strategies		
Comments		
Can riders still access	existing safety handrails and storage areas with the mounting location?	Yes
Potential Issues		
Mitigation Strategies		
Comments	The main part of the rail is still accessible for riders	
Can all the cables route	ed to the validator be protected and hidden from the riders?	No
Potential Issues		
Mitigation Strategies		
Comments	Some external cabling required from dash to JRV	
As everything been cor	nsidered with the mounting location with no additional concerns?	Yes
Potential Issues		
Mitigation Strategies		
Comments		

Validator Location #2 - Sample name, e.g. on Dashboard, etc.

Validator Location #3 - Sample name, e.g. on Dashboard, etc.

Validator Location #4 - Sample name, e.g. on Dashboard, etc.

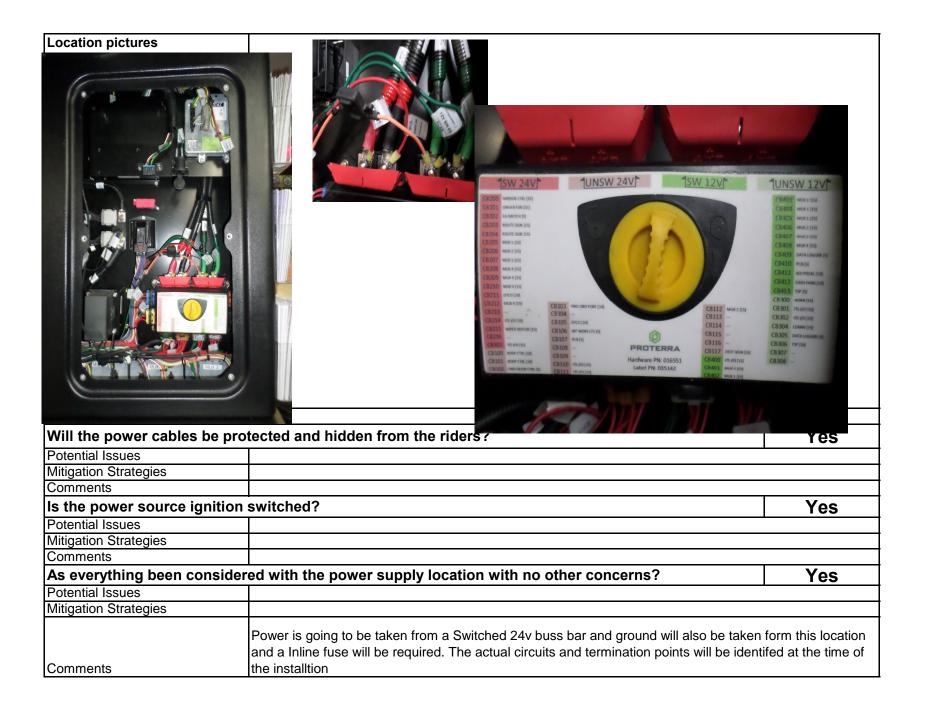
Mounting of th	e Validator a	nt the selected mounte	ed location #		
Stanchion					
Is there an exist	ting stanchior	n available?			Yes
Dimensions		11/4	Diameter		
Color			Finish		
Validator mount	ting angle (e.	g 0, 30, 45, 90 degrees	)	0	
There are no ad	ditional mater	rials needed, that are no	ot part of a stand	ard install?	No
Give details if required Unused section of handrail is free to mount the JRV.					
Non std, mounting details  M6 Rivnuts and screws to mount the JRV to the handrail will be supplied by Masabi.					

### **Power Source Criteria**

Power Source Overview						
		Voltage 12 or 24V	Max. current	Spare fuse slot	Location	
Location #	Location name	preferred	supply	available	selected	
	Distribution panel above Comms	24v		From bus bar		

Copy this section for additional power locations investigated

<b>Power Supply Location #1</b>	- Sample name, e.g. in communication cabinet power supply rail
Location description	Distribution panel above Comms



#### Power Supply Location #2 - Sample name, e.g. in communication cabinet power supply rail

#### Power Supply Location #3 - Sample name, e.g. in communication cabinet power supply rail

Connecting validator's power cable to the selected power source					
Material panded	Other	U Con. M3 / M5	Other		
Material needed	M5				
Connection description	on description Buss bar connection, with ring crimp connectors				

### **Integrated Devices Criteria**

Modem/Router/AVL description #1						
Device name, including	Sierra MG90 Router					
What is the device used for?	WIFI internet router					
Device location	Comms Cabinet					
What type of interface is	Ethernet					
What I/O interfaces are free and	RJ45	RJ45				
What are the cable	STP Ethernet					
Is DHCP available for network					Voc	
connectivity?					Yes	
Static IP Configs:						
IP /Subnet Mask/ Gateway/DNS						

Photo of installed device	
	Photos Required

ption #2	
Trapeze Multiple models across the fleet	
AVL	
Comms Cabinet	
Ethernet	
Ethernet	
Ethernet	
N/A	
	Trapeze Multiple models across the fleet  AVL Comms Cabinet  Ethernet  Ethernet

Static IP Configs:			
P /Subnet Mask/ Gateway/DNS			
Next of tradelled decise			
Photo of installed device			
	Pho	otos Required	

# Wiring Criteria

Copy this section if multiple Validators are installed per bus

Wiring validator to commu	nication cabinet (split cable for JRV)	
Is there existing ethernet cables that meet requirements		No
that can be used?		

Route the cable through the side panels and dash following the factory loom to stanchion mounting route e.g from front step cabinet to under dashboard, hrough lower drivers side canel, into communication cabinet at head height.  Route the cable through the side panels and dash following the factory loom to stanchion mounting the factory loom to stanchion mounting. For the cable to enter the JRV it will need to be through lower drivers side capinet at head height.						
Will 15 or 30ft of Ethernet cable be sufficient for the installation, if not please enter length.				20Ft		
Description of dr	rilling required					
Description of poolstacles.	ossible					
If conduit is	Location Type Length ft					
	External cable g	oing to JRV on Stanchion	Split loom	4		

Wiring validator (split cables there existing power cables	e for JRV) to power source	
that meet requirements that		No
can be used?		]
Description of the chosen		
wiring route e.g from front step		
cabinet to under dashboard,		
through lower drivers side		
panel, into communication		
	Follow existing factory wire loom routing to splitter cable from power distribution panel	
Will 15' or 30' of Power cables		
be sufficient for the	Othor	04
installation, if not please enter	Other	Oft
length.	No additional cable required to be added splitter cable	
Description of drilling required		
eg. drill through bulkhead to		
left of drivers seat to pass		
ethernet cable through.	Only for the cable thru the dash	
	Only for the cable that the dash	
Description of possible	Name negative	
obstacles.	None reported	

required for any part of cable run, please specify location, type, and length.	Location	Туре	Length ft
	Agency does not require any split loom for this cable run		0

Wiring validator to AVL						
communication cables that						
meet requirements that can be						
used?	Integration via ethernet no additional cabling is required					
What are the specifications of	J					
the required cable and						
termination?						
Description of the chosen						
wiring route e.g from front step						
cabinet to under dashboard,						
through lower drivers side						
panel, into communication						
cabinet at head height.						
Will 15' or 30' of cable be						
sufficient for the installation, if			Ft			
not please enter length.						
Description of drilling required						
Description of possible						
required for any part of cable						
run, please	Location	_				
specify	Location	Type	Length ft			
location, type,						
and length.						
and length.						



# Masabi Hardware Remote Survey Report

# Person(s) executing the Survey

Name	Alan Knight	Email	alan.knight@masabi.com
Title	Hardware Field Technician		

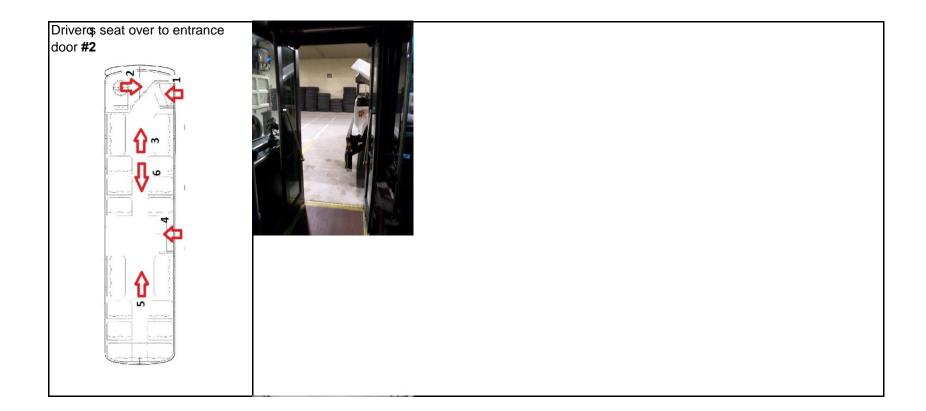
# Vehicle surveyed

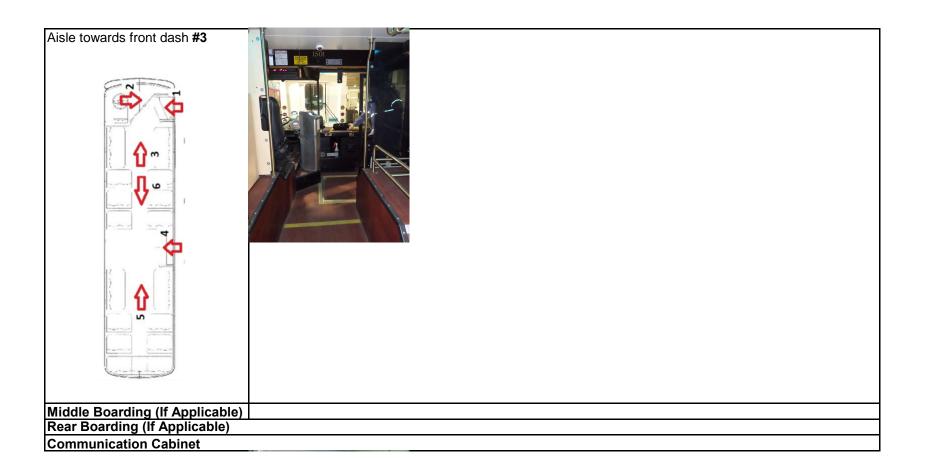
Name / Number	1501	Model	Trolly
Make	Gillig	Version	
Total of similar Vehicles	1	Year	2015
Name of similar Vehicles			

### **Vehicle Overview**

Pictures	
Front Boarding	Validators to be installed:











### **Validator Location Criteria**

Validator Location overview							
Location Number	Location name	Additional Stanchion	Location selected (if several Validators are installed, select several locations)				
1	On Dash	Y	X				
2							
3							
4							

Copy this section for additional locations investigated

### Validator Location #1 - On Dash

Location Description On

On right side of dash

# **Location Pictures with Space Model**









Location Considerations:		
Can the riders operate the validator ea	sily?	Yes
Potential Issues		
Mitigation Strategies		
Comments		
Is there a suitable existing stanchion/r	ail available that can be used to install the validator?	No
Potential Issues		
Mitigation Strategies		
Comments		
Will the mounting location still allow the	ne driver to operate the bus safely without impact to sight or	V
controls?		Yes
Potential Issues		
Mitigation Strategies		
Comments		
Can the driver observe the validator's	display and/or hear the audio?	Yes

Potential Issues		
Mitigation Strategies		
Comments		
Will the mounting locat	tion still allow access to panels, cabinets, and cleaning for maintenance	Voc
procedures?		Yes
Potential Issues		
Mitigation Strategies		
Comments		
Does the validator loca	tion conform to Disabled Access policies (e.g ADA Max Height 48") ?	Yes
Potential Issues		
Mitigation Strategies		
Comments	43" mounting height	
Will the mounting locat	tion reduce risk of possible mechanical damage in any way by the riders or	Vac
operator?		Yes
Potential Issues		
Mitigation Strategies		
Comments		
Can riders still access	existing safety handrails and storage areas with the mounting location?	Yes
Potential Issues		
Mitigation Strategies		
Comments		
Can all the cables route	ed to the validator be protected and hidden from the riders?	Yes
Potential Issues		
Mitigation Strategies		
Comments		
As everything been cor	nsidered with the mounting location with no additional concerns?	Yes
Potential Issues		
Mitigation Strategies		
Comments		

Validator Location #2 - Sample name, e.g. on Dashboard, etc.

Validator Location #3 - Sample name, e.g. on Dashboard, etc.

Validator Location #4 - Sample name, e.g. on Dashboard, etc.

Mounting of the Stanchion	Validator	at the selected mounte	ed location #			
Is there an existin	g stanchio	n available?				No
Dimensions			Diameter		11/4"	
Color			Finish			
Validator mountin	g angle (e	g 0, 30, 45, 90 degrees )		45		
There are no addit	ional mate	erials needed, that are no	t part of a stand	ard install?		Yes
Give details if requir	red	Agency to source stanc the stanchion to the das		equired mounting hard	ware for the	mounting of
Non std, mounting of	details					

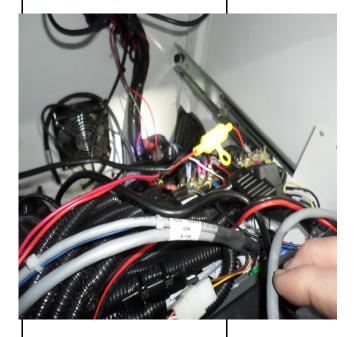
# **Power Source Criteria**

Power Source Overview					
		Voltage 12 or 24V	Max. current	Spare fuse slot	Location
Location #	Location name	preferred	supply	available	selected
	Ceiling distribution panel	24		No	

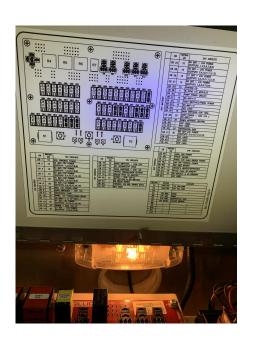
Copy this section for additional power locations investigated

Power Supply Location #1 - Sample name, e.g. in communication cabinet power supply rail			
Location description	Ceiling distribution panel		

### Location pictures







<b>Location Considerati</b>	ons:	
Will the power cables b	be protected and hidden from the riders?	Yes
Potential Issues		•
Mitigation Strategies		
Comments		
Is the power source ig	nition switched?	Yes
Potential Issues		•
Mitigation Strategies		
Comments		
As everything been co	nsidered with the power supply location with no other concerns?	Yes
Potential Issues	Fused circuit needs to be identified by agency for JRV	•
Mitigation Strategies	Agency provided electrical panel diagrams have identified circuits to be used	
	Panel is the same as the 40" LF Gillig	
Comments	Additional panel circuit breaker will be required	

Power Supply Location #2 - Sample name, e.g. in communication cabinet power supply rail

### Power Supply Location #3 - Sample name, e.g. in communication cabinet power supply rail

Connecting validator's power cable to the selected power source					
Material needed	Citing Coll. IVIS / IVIS	U Con. M3 / M5	Other		
material ficeded					
Connection description	Ring and Fork connectors required for connection in panel				

# **Integrated Devices Criteria**

Modem/Router/AVL description #1					
Device name, including	Sierra MG90 Router				
What is the device used for?	WIFI internet router				
Device location	Comms Cabinet				
What type of interface is	Ethernet				
required (e.g Ethernet, RJ232,					
J1708)					
What I/O interfaces are free and	RJ45				
to be used?					
What are the cable	STP Ethernet				
requirements?					
Is DHCP available for network					Voo
connectivity?					Yes
Static IP Configs:					
IP /Subnet Mask/ Gateway/DNS					

Photo of installed device	
	Photos Required

Modem/Router/AVL descri	ption #2
Device name, including	Trapeze Multiple models across the fleet
manufacturer, model, and type	
What is the device used for?	AVL
Device location	Comm Cabinet
What type of interface is	Ethernet
required (e.g Ethernet, RJ232,	
What I/O interfaces are free and	Ethernet
	Ethernet
Is DHCP available for network connectivity?	N/A

				T		
Static IP Configs:						
IP /Subnet Mask/ Gateway/DNS						
,						
Photo of installed device						
Prioto of installed device						
		Pho	otos Required			
<u> </u>						
Madam/Dautan/AV/L descript	tion #2					
Modem/Router/AVL descript	11011 #3					
Wiring Criteria						
_	Copy this section if multiple Validators are installed per bus					

No

Wiring validator to communication cabinet (split cable for JRV)

Is there existing ethernet cables that meet requirements

that can be used?

Description of the wiring route e.g cabinet to under through lower dipanel, into compability at head	from front step r dashboard, rivers side munication	Route the cable through the side panels and dash to stanchion local	ion following the fac	ctory wiring loom
Will 15 or 30ft of be sufficient for installation, if no length.	the	·	Other	10ft
eg. drill through left of drivers se cable through.	bulkhead to	Only for the cable thru the dash		
Description of p obstacles.	ossible	None reported		
required for any part of cable run, please specify location, type, and length.		Location	Туре	Length Ft
and length.	Protect the leng	th of the cable run.	Split loom	10

Wiring validator (split cabl	e for JRV) to power source	
is there existing power capies		
that meet requirements that		No
can be used?		
Description of the chosen		
wiring route e.g from front step		
cabinet to under dashboard,		
,		
through lower drivers side		
panel, into communication		
cabinet at head height.	Follow existing factory wire loom routing to splitter cable from power distribution panel	

Will 15' or 30' of be sufficient for installation, if no length.	the		Other	10ft
Description of dreg. drill through left of drivers see ethernet cable the Description of probstacles.	bulkhead to at to pass rough. ossible	None reported  None reported		
required for any part of cable run, please specify location, type, and length.		Location	Туре	Length ft
_	Agency does no	t require any split loom for this cable run		0

Wiring validator to AVL		
communication cables that		
meet requirements that can be		Yes
	Integration via ethernet no additional cabling is required	
What are the specifications of		
the required cable and		
termination?		
Description of the chosen		
wiring route e.g from front step		
cabinet to under dashboard,		
through lower drivers side		
panel, into communication		
cabinet at head height.		
Will 15' or 30' of cable be		
sufficient for the installation, if		Ft
not please enter length.		

Description of dr eg. drill through I left of drivers sea ethernet cable th	bulkhead to at to pass			
Description of poobstacles.	ssible			
required for any part of cable run, please specify location, type, and length.		Location	Туре	Length ft
  -				



# Masabi Hardware Remote Survey Report

## Person(s) executing the Survey

Name	Alan Knight	Email	alan.knight@masabi.com
Title	Hardware Field Technician		

## Vehicle surveyed

Name / Number	1901	Model	Trolly
Make	Hometown	Version	
Total of similar Vehicles	1 +1	Year	2019
Name of similar Vehicles			

#### **Vehicle Overview**

Pictures	
Front Boarding	Validators to be installed:











#### **Validator Location Criteria**

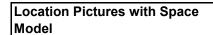
Validator Location overview						
Location Number	Location name	Additional Stanchion	Location selected (if several Validators are installed, select several locations)			
1	On Dash	Y				
2						
3						
4						

Copy this section for additional locations investigated

#### Validator Location #1 - On Dash

**Location Description** 

On right side of dash





Location Consideration		
Can the riders operate th	ne validator easily?	Yes
Potential Issues		
Mitigation Strategies		
Comments		
Is there a suitable existing	ng stanchion/rail available that can be used to install the validator?	No
Potential Issues		
Mitigation Strategies		
Comments		
Will the mounting location controls?	on still allow the driver to operate the bus safely without impact to sight or	Yes
Potential Issues		
Mitigation Strategies		
Comments		
	he validator's display and/or hear the audio?	Yes

Potential Issues		
Mitigation Strategies		
Comments		
Will the mounting locat	tion still allow access to panels, cabinets, and cleaning for maintenance	Voc
procedures?		Yes
Potential Issues		
Mitigation Strategies		
Comments		
Does the validator loca	tion conform to Disabled Access policies (e.g ADA Max Height 48") ?	Yes
Potential Issues		
Mitigation Strategies		
Comments	48" mounting height	
Will the mounting locat	tion reduce risk of possible mechanical damage in any way by the riders or	Voc
operator?		Yes
Potential Issues		
Mitigation Strategies		
Comments		
Can riders still access	existing safety handrails and storage areas with the mounting location?	Yes
Potential Issues		•
Mitigation Strategies		
Comments		
Can all the cables route	ed to the validator be protected and hidden from the riders?	Yes
Potential Issues		
Mitigation Strategies		
Comments		
As everything been cor	nsidered with the mounting location with no additional concerns?	Yes
Potential Issues		
Mitigation Strategies		
Comments		

Validator Location #2 - Sample name, e.g. on Dashboard, etc.

Validator Location #3 - Sample name, e.g. on Dashboard, etc.

Validator Location #4 - Sample name, e.g. on Dashboard, etc.

Mounting of the Validat Stanchion	or at the selected moun	ted location	#	
Is there an existing stand	hion available?			No
Dimensions		Diameter	11/4"	
Color		Finish		
Validator mounting angle (e.g 0, 30, 45, 90 degrees ) 45				
·				No
Give details if required  Agency to source stanchion and the required mounting hardware for the mounting control stanchion to the dash.				he mounting of the
Non std, mounting details				

## **Power Source Criteria**

<b>Power Source</b>	Power Source Overview						
		Voltage 12 or 24V	Max. current	Spare fuse slot	Location		
Location #	Location name	preferred	supply	available	selected		
	Driver Side outer distribution panel	24		No			

Copy this section for additional power locations investigated

<b>Power Supply Location #1</b>	- Driver Side outer distribution panel
Location description	Driver Side outer distribution panel

Location pictures		
Lasation Considerati		
Location Considerati		
=	pe protected and hidden from the riders?	Yes
Potential Issues		
Mitigation Strategies		
Comments		
Is the power source igr	nition switched?	
Potential Issues		<u>.</u>
Mitigation Strategies		
Comments	TBD	
As evervthing been cor	nsidered with the power supply location with no other concerns?	Yes
Potential Issues	Fused circuit needs to be identified by agency for JRV	100
Mitigation Strategies	, , ,	
Comments		

Power Supply Location #2 - Sample name, e.g. in communication cabinet power supply rail

Power Supply Location #3 - Sample name, e.g. in communication cabinet power supply rail

Connecting validator's pov		ed power source	
Material needed	Other	U Con. M3 / M5	Other
Waterial fleeded			
Connection description	TBD		

## **Integrated Devices Criteria**

Modem/Router/AVL descri	ption #1		
Device name, including	Sierra MG90 Router		
What is the device used for?	WIFI internet router		
Device location	Comms Cabinet		
What type of interface is	Ethernet		
required (e.g Ethernet, RJ232,			
J1708)			
What I/O interfaces are free and	RJ45		
to be used?			
What are the cable	STP Ethernet		
requirements?			
Is DHCP available for network			Voc
connectivity?			Yes
Static IP Configs:			
IP /Subnet Mask/ Gateway/DNS			
,			

Photo of installed device	
	Dhotos Doguirod
	Photos Required
Modem/Router/AVL descr	intion #2
Device name, including	Trapeze Multiple models across the fleet

Modem/Router/AVL descri	PHOH #Z	
Device name, including	Trapeze Multiple models across the fleet	
manufacturer, model, and type		
What is the device used for?	AVL	
Device location	Comms Cabinet	
What type of interface is	Ethernet	
required (e.g Ethernet, RJ232,		
J1708)		
What I/O interfaces are free and	Ethernet	
to be used?		
What are the cable	Ethernet	
requirements?		
Is DHCP available for network	N/a	\
connectivity?		Yes

0(-t - ID 0 f				
Static IP Configs:				
IP /Subnet Mask/ Gateway/DNS				
Photo of installed device				
		Dh	otoo Boquirod	
		FIIC	otos Required	
Modem/Router/AVL descript	tion #3			
Wiring Criteria				
<b>J</b>	Copy this section if mu	ultiple Validators are	installed per bus	

No

Wiring validator to communication cabinet (split cable for JRV)

Is there existing ethernet

that can be used?

cables that meet requirements

Description of the wiring route e.g cabinet to under through lower depanel, into commatcabinet at head	from front step r dashboard, rivers side munication	Route the cable through the side panels and dash to stanchion local	tion following factor	y wiring loom
be sufficient for installation, if no length.	the ot please enter		Other	15ft
Description of d eg. drill through left of drivers se cable through.	bulkhead to eat to pass	Only for the cable thru the dash		
Description of postacles.	ossible	None reported		
required for any part of cable run, please specify location, type, and length.		Location	Туре	Length ft
-	Agency does no	t require any split loom for this cable run		0

Wiring validator (split cabl	e for JRV) to power source	
Is there existing power cables that meet requirements that can be used?		No
Description of the chosen wiring route e.g from front step cabinet to under dashboard, through lower drivers side panel, into communication cabinet at head height.	Route cable through panels	

will 15' or 30' of be sufficient for installation, if no length.	the	Splitter cable will reach external distribution panel		0Ft
Description of dr eg. drill through left of drivers sea ethernet cable th	bulkhead to at to pass	None reported		
Description of poolstacles.		None reported		
required for any part of cable run, please specify location, type, and length.		Location	Туре	Length ft
_	Agency does no	t require any split loom for this cable run		0

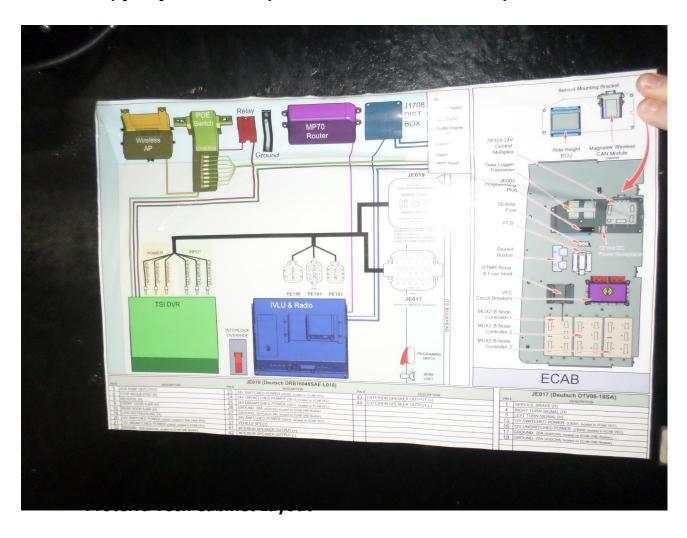
Wiring validator to AVL		
	Integration via ethernet no additional cabling is required	Yes
What are the specifications of the required cable and termination?		
Description of the chosen wiring route e.g from front step cabinet to under dashboard, through lower drivers side panel, into communication cabinet at head height.		
sufficient for the installation, if not please enter length.		Ft

head to			
pass			
gh.			
ole			
		_	
	Location	Туре	Length ft
	pass gh. bie	pass gh.	pass gh. ble



# Masabi Hardware Remote Survey Report

## Copy any additional photos to this Sheet as required





**Proterra Breaker Layout**