

# State of Georgia 2016 Mass Transit Solicitation

99999-SPD-SPD0000138

## APTA Form CER 10: Vehicle Technical Information

**NOTE:** This is a sample form. The Agency should customize it to comply with its proposed requirements.

This form must be completed and included in the Technical Proposal.

### GENERAL COACH DATA SHEET

[insert bus type]

<b>Bus manufacturer:</b>	EIDorado National (California), Inc.
Bus model:	Axess 40'
<b>Understructure manufacturer:</b>	EIDorado National (California), Inc.
Model number:	Axess 40'

### Basic Body Construction

Type:	Monocoque Type Space Frame
<b>Tubing or frame member thickness and dimensions</b>	
Overstructure	Various sizes of steel tubing
Understructure	Various sizes of steel tubing
<b>Skin thickness and material</b>	
Roof	.063 aluminum
Sidewall	.080 aluminum
Skirt panel	.125 fiberglass composite
Front end	.125 fiberglass
Rear end	.125 fiberglass

### Dimensions

<b>Overall length</b>	Over bumpers	41	ft	2	in.
	Over body	40	ft	4	in.
<b>Overall width</b>	Over body excluding mirrors	8	ft	6	in.
	Over body including mirrors—driving position	10	ft	0	in.
	Over tires front axles	8	ft	0	in.
	Over tires center axle	N/A	ft	N/a	in.
	Over tires rear axles	8	ft	5	in.

Overall height (maximum)

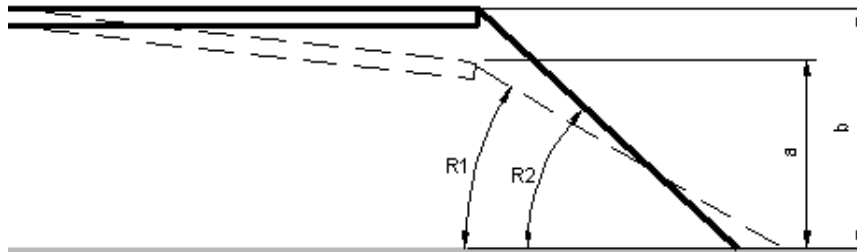
11	ft	3	in.
9	ft	8	in.

Overall height (main roof line)

Angle of approach	8.7	deg
Breakover angle	8.9	deg
Breakover angle (rear)	N/A	deg
Angle of departure	8.7	deg

Doorway Dimensions	Front		Rear	
Width between door posts	40	in.	42	in.
Door width between panels	35	in.	37	in.
Clear door width	32	in.	34	in.
Doorway height	79	in.	79	in.
Knuckle clearance	1.5	in.	1.5	in.

Step height from ground measured at center of doorway



	Front doorway, empty		Ramp angle		Rear Doorway, empty	
Kneeled	a.	11 in.	R1	14 deg	a.	11 in.
Unkneeled	b.	14 in.	R2	18 deg	b.	14 in.

Interior head room (center of aisle)

Front axle location	95	in.
Center axle location	N/A	in.
Rear axle location	79	in.

Aisle width between transverse seats 22 in. Dependent upon agency selected floorplan

Floor height above ground (centerline of bus)

At front door	15	in.
At front axle	15	in.
At drive axle	34	in.

At rear door  in.

**Minimum ground clearance (between bus and ground, with bus unkneeled)**

Excluding axles  in.

Including axles  in.

**Horizontal turning envelope** (see diagram below)

Outside body turning radius, TR0 (including bumper)

44	ft	4	in.
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Front inner corner radius, TR1

38	ft	9	in.
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Front wheel inner turning radius, TR2

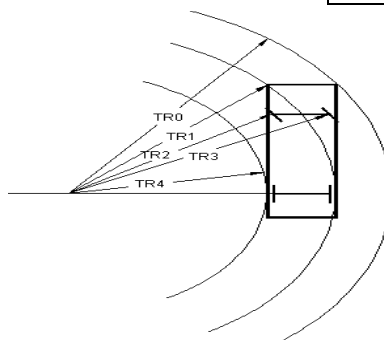
33	ft	1	in.
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Front wheel outer turning radius, TR3

38	ft	6	in.
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Inside Body Turning Radius innermost point, TR4 (including bumper)

23	ft	2	in.
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**Wheel base**

Front  in.

Rear  in.

**Overhang, centerline of axle over bumper**

Front  in.

Rear  in.

**Floor**

Interior length 

30	ft	3	in.
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Interior width (excluding coving) 

7	ft	11	in.
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Total standee area (approximately) 

60	ft <sup>2</sup>
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Minimum distance between wheelhouses: Front 

36	in.
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Rear 

35	in.
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Center 

N/A	in.
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Maximum interior floor slope (from horizontal) 

2	deg
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**Passenger capacity provided**

Total maximum seating	36	
Standee capacity	27	
Minimum hip to knee room	27	in.
Minimum foot room	14	in.

**Weight**

	No. of people	Front axle			Center axle			Rear axle			Total bus
		Left	Right	Total	Left	Right	Total	Left	Right	Total	
Empty bus, full fuel and farebox	N/A	5150	4600	9750	N/A	N/A	N/A	10150	9700	19850	29600
Fully seated, full fuel and farebox	36 + Driver	5965	5165	11130	N/A	N/A	N/A	12335	11685	24020	35150
Fully loaded standee and fully seated, full fuel and farebox	36 + 27 + Driver	7230	6330	13560	N/A	N/A	N/A	13145	12495	25640	39200
Crush load (1.5x fully loaded)					N/A	N/A	N/A				
GVWR				15660	N/A	N/A	N/A			27720	42720
GAWR				16000	N/A	N/A	N/A			28660	

**Engine, main**

Manufacturer	Cummins Engine Co.			
Type and weight rating	4 cycle in-line turbocharged air cooled			
Model number	ISL 280 HHD			
Bore		4.49 in.		
Stroke		5.69 in.		
Displacement		543 cubic in.		
Compression ratio	16.6:1			
Injector type and size	Bosch XP1			
Net SAE horsepower		280hp at	2200	RPM
Net SAE torque		900lb/ at ft	1300	RPM
Crankcase oil capacity				
New engine, dry		7.3 gal		
New engine, wet		7 gal		
Turbocharger make and model	Holset			
Maximum speed, no load		2400 RPM		
Maximum speed, full load		2200 RPM		
Speed at idle		700 RPM		
Speed at fast idle		1000 RPM		

**Engine information/graphs to be attached with this form:**

Engine speed vs. road speed  
Torque vs. engine speed  
Horsepower vs. engine speed  
Fuel consumption vs. engine speed  
Vehicle speed vs. time (both loaded and unloaded)  
Vehicle speed vs. grade (both loaded and unloaded)  
Acceleration vs. time  
Change of acceleration vs. time

**Hybrid drive or transmission**

Manufacturer	Allison B400R Transmission			
Type	Automatic			
Speeds	5			
Gear ratios	Forward:	3.49,1.86, 1.41,1.0,.075	Reverse:	5.03
Shift speeds				
1st–2nd	10	mph		
2nd–3rd	21	mph		
3rd–4th	30	mph		
4th–5th (if applicable)	40	mph		
5th–6th (if applicable)	N/A	mph		
Fuel capacity (including heat exchanger and filters)	28 quarts			

**Voltage regulator**

Manufacturer	Delco
Model	50VR

**Voltage equalizer**

Manufacturer	Vanner
Model	70-60

**Alternator**

Manufacturer	CE Niehoff		
Type	28 Volt Negative Ground		
Model	C803D		
Output at idle		320 amps	
Output at maximum speed		525 amps	
Maximum warranted speed		8000 rpm	
Speed at idle (approximately)		2000 – 2200 rpm	
Drive type	Belt Driven		

**Starter motor**

Manufacturer	Denso
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Type	Electric
Model	428000-0060

### Air compressor

Manufacturer	Wabco 30.4		
Type	Twin Cylinder		
Rated capacity	30.4	CFM	
Capacity at idle (approximately)	15.9	CFMs	
Capacity at maximum speed (engine)	2400	CFM	
Maximum warranted speed	2200	rpm	
Speed idle	750	rpm	
Drive type	Direct		
Governor:			
Cut-in pressure	105	psi	
Cut-out pressure	125	psi	

### Axles

#### First

Manufacturer	Arvin Meritor		
Type	I-Beam		
Model number	FH-946		
Gross axle weight rating		16000 lbs	
Axle load		13332 lbs	

#### Second

Manufacturer	N/A		
Type			
Model number			
Gross axle weight rating		lbs	
Axle load		lbs	

#### Third (REAR)

Manufacturer	Arvin Meritor		
Type	Drive, Single Reduction		
Model number	Series 71000		
Gross axle weight rating		28660 lbs	
Axle load		26388 lbs	
Axle ratio	5.38		

### Suspension system

Manufacturer	EIDorado National		
Type:	Front:	Air ride – Multi V Link	
	Rear:	Air ride – Multi Link	
	Third:	N/A	

Springs:	Front:	Air bag
	Rear:	Air bag
	Third:	N/A

#### Joint N/A

Manufacturer	
Type	
Model number	

### Wheels and tires

#### Wheels

Make	Accuride - Hub Piloted
Size	22.5" x 8.25"
Capacity	7,500 lbs. each
Material	Powder Coated Steel

#### Tires

Manufacturer	Customer Supplied	
Type		
Size	305/70R22.5	
Load range/air pressure		15660/120 (single) lbs/psi; 27760/120 (dual) lbs/psi

### Steering, power

#### Pump

Manufacturer and model number	Eaton Series 26
Type	Gear Pump
Relief pressure	1915 psi

#### Booster/gear box

Manufacturer and model number	Sheppard – M110
Type	Hydraulic
Ratio	23:1

Power steering fluid capacity	2	gal
Maximum effort at steering wheel	7-10	lbs (unloaded stationary coach on dry asphalt pavement)
Steering wheel diameter	20	in.

### Brakes

Make of fundamental brake system	Meritor	
Brake chambers vendor size and part number:	Front:	MGMT24 (p/n 1427718/1427717)
	Rear:	MGM T2430 (p/n MJB2430ET757)
	Third:	N/A
Brake operation effort		

**Slack adjuster's vendor's type and part numbers N/A**

First:	Right:	N/A
	Left:	N/A
Second:	Right:	N/A
	Left:	N/A
Third:	Right:	N/A
	Left:	N/A
Length:	First take-up:	N/A
	Second take-up:	N/A
	Third take-up:	N/A

**Brake drums/discs**

Front:	Manufacturer	Meritor	
	Part number	EX225H302BA000 / EX225H301BA000	
	Diameter	17	in.
Rear:	Manufacturer	Meritor	
	Part number	EX225H302BA000 / EX225H301BA000	
	Diameter	17	in.
Third:	Manufacturer	N/A	
	Part number	N/A	
	Diameter	N/A	in.

Brake lining manufacturer	Meritor
Type	EX225

**Brake lining identification**

Front:	Forward	Inboard MA703
	Reverse	Outboard MA703
Rear:	Forward	Inboard MA703
	Reverse	Outboard MA703
Third:	Forward	N/A
	Reverse	N/A

**Brake linings per shoe**

Front:	1
Rear:	1
Third	N/A

**Brake lining widths**

Front:	4.5	in.
Rear:	4.5	in.
Third	N/A	in.



**Brake lining lengths**

Front:	9.5	in.
Rear:	9.5	in.
Third	N/A	in.

Brake lining thickness  in.

**Brake lining per axle**

Front:	60.48	sq. in.
Rear:	60.48	sq. in.
Third	N/A	sq. in.

**Cooling system****Radiator/charge air cooler**

Manufacturer	Modine				
Type	Over under module design				
Model number	E-Fan Gen 2				
Number of tubes	228/15				
Tubes outer diameter	1	in./	4.25	in.	
Fins per inch	10	fins			
Fin thickness	Aluminum	in.			
Total cooling and heating system capacity	20	gal			
Radiator fan speed control	Digital type				
Surge tank capacity	16	quarts			
Engine thermostat temperature setting:	Initial opening (fully closed)		185	°F	
	Fully open		195	°F	
Overheat alarm temperature sending unit setting	225	°F			
Shutdown temperature setting	230	°F			

**Air reservoir capacity**

Supply reservoir	1224	in. <sup>3</sup>
Primary reservoir	2495	in. <sup>3</sup>
Secondary reservoir	2495	in. <sup>3</sup>
Packing reservoir	2429	in. <sup>3</sup>
Accessory reservoir	2429	in. <sup>3</sup>
Other reservoir type	N/A	in. <sup>3</sup>

**Heating, ventilation and air conditioning equipment**

Heating system capacity	115000	BTU/hr
Air conditioning capacity	115000	BTU
Ventilating capacity	3000	CFM

**Compressor**

Manufacturer	Thermo King			
Model	X430			
Number of cylinders		4		
Drive ratio		1:1		
Maximum warranted speed		2600		rpm
Operating speed		2200		rpm (recommended)
Weight		110		lbs
Oil capacity	Dry	8.9 pints	gal	
	Wet	N/A	gal	
Refrigerant:	Type	R407C	17	lbs

**Condenser**

Manufacturer	Thermo King		
Model	Athenia AM II		
Number of fins/in.	11		
Outer diameter of tube	0.375	in.	
Fin thickness	0.016	in.	

**Condenser fan**

Manufacturer	EBM		
Model	W3G300 ECDC		
Fan diameter	12	in.	
Speed maximum	3300	rpm	
Flow rate (maximum)	5500	CFM	

**Receiver**

Manufacturer	Thermo King		
Model	Horizontal Type		
Capacity	125	lbs	

**Condenser fan drive motors**

Manufacturer	EBM		
Model	W3G300		
Type	ECDC		
Horsepower	0.30	hp	
Operating speed	3300	rpm	

**Evaporator fan drive motors**

Manufacturer	EBM		
Model	K3G097		
Type	ECDC		

Horsepower	0.30	hp
Operating speed	4400	rpm

#### Evaporator(s)

Manufacturer	Thermo King	
Model	Athenia AM II	
Number of rows	4	
Number of fins/in.	10	
Outer diameter of tube	0.375	in.
Fin thickness	0.016	in.
Number of evaporators	6 circuits	Per cell

#### Expansion valve

Manufacturer	Danfoss
Model	Tube

#### Filter-drier

Manufacturer	Thermo King
Model	Various – disposable in-line type

#### Heater cores

Manufacturer	Thermo King	
Model	Athenia AM II	
Capacity	115000	Btu/hr
Number of rows	2	
Number of fins/in.	8	
Outer diameter of tube	0.375	in.
Fin thickness	0.008	in.
Number of heater cores	4 circuits	Per coil

#### Floor heater blowers - Optional

Front	
Rear	

#### Controls

Manufacturer	Thermo King
Model	Intelligaire III

#### Driver's heater

Manufacturer	Mobility Climate Controls	
Model	13-14114	
Capacity	60000	Btu/hr

**Ventilation system**

Type	Thermo King/Mobility Climate Controls
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**Coolant heater - Optional**

Make		
Model		
Capacity		Btu

**Interior lighting**

Manufacturer	I/O Controls	
Type	LED	
Number of fixtures	9	
Size of fixtures	72"	
Power pack	Driver Module	

**Doors****Front**

Manufacturer of operating equipment	Vapor
Type of door	Slide/Glide
Type of operating equipment	Electro-pneumatic

**Rear**

Manufacturer of operating equipment	Vapor
Type of door	Slide/Glide
Type of operating equipment	Electro-pneumatic

**Passenger windows****Front**

Manufacturer	Dura		
Model	Traditional Frame T3		
Type	Full Height Slider		
Number:	Side	14	
	Rear	N/A	
Sizes:	44.06 x 50		30.56 x 50
			44.06 x 23
Glazing:	Type	Laminated Glass	
	Thickness	1/4"	
	Color of tint	Gray	
	Light transmission	28%	

**Mirrors**

	Size	Type	Manufacturer	Part no.	Model no.
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Right side exterior	15x8	Combo	SafeFleet	CS-23-D913HRFHRCX-OTS	CS-23-D913HRFHRCX-OTS
Left side exterior	15x8	Combo	SafeFleet	RS-7-U13HRFHRCX-OTS	RS-7-U13HRFHRCX-OTS
Center rearview	15x4	Convex	Lucerex	23.987.00	23.987.00
Front entrance area	N/A				
Upper-right corner	6"	Convex	Rosco	BAS3001	
Rear exit area	12"	Convex	Rosco	362R	

## Seats

### Passenger

Manufacturer	Freedman
Model	Featherweight
Type	Mid Hi

### Operator

Manufacturer	Recaro
Model and part number	Ergo Metro AM80
Type	Air Suspension

## Paint

Manufacturer	Akzo Nobel, Sikkens
Type	Autocoat BT

## Wheelchair ramp equipment

Manufacturer	Lift-U		
Model number	LU18		
Capacity	950	lbs	
Width of platform	32	in.	
Length of platform	48	in.	
System fluid capacity	N/A	quarts	
Type of fluid used	N/A		
Operating hydraulic pressure	N/A	Psi	NOTE: Electrically deployed
Hydraulic cylinders:	Size	N/A	
	Number	N/A	

## Wheelchair securement equipment

Manufacturer	Q'Straint
Model number	QRT 8100-A1 Deluxe

## Destination signs

Manufacturer	Twin Vision / Transign
Type	SMART Series 3 100% Amber LED / Mechanical

**Character length**

Front destination		in. Programmable
Front route	2.25	in. Transign
Curbside destination		in. Programmable
Rear route	18	in. Programmable

**Character height**

Front destination	8.0	in. Programmable
Front route	4.25	in. Transign
Curbside destination	4.3	in. Programmable
Rear route	6.1	in. Programmable

**Number of characters**

Front destination		Programmable
Front route	4	Transign
Curbside destination		Programmable
Rear route		Programmable

**Message width**

Front destination		in. Programmable
Front route	9	in.
Curbside destination		in. Programmable
Rear route		in. Programmable

**Electrical****Multiplex system**

Manufacturer	I/O Controls
Model number	Dinex G3

**Batteries**

Manufacturer	Deka
Model number	8D, Side Post
Type	1300 CCA each

**Communication system****GPS**

Manufacturer	N/A
Model number	N/A

**PA system**

	Manufacturer	Model number	Number
Amplifier	REI	700890	
Microphone	REI	480037BK	

Internal speakers	REI	603B/6LP	8
External speaker	REI	220010	1

### Energy storage (hybrid drive) - Optional

Type			
Number of cells		V	
Battery pack voltage		V	
Weight		lbs	

### Security camera system – Optional

Manufacturer	Prewire only provided in base		
Model number			
Number of cameras			
Storage capacity			

### Bike racks - Optional

Manufacturer	
Model number	

### Fire detection system

Manufacturer	Amerex		
Model number	V25		
Fire detectors	Fixed Temperature		
Type (thermal or optical)	Thermal		
Number of detectors	4		

### Automatic voice annunciator system – Not in base

Manufacturer	
Model and part number	

### Annunciator LED sign – Not in base

Number of signs		
Housing dimensions		
Character length		in.
Character height		in.
Character width		in.

### GPS antenna

Manufacturer	Per customer request
Model and part number	

**Automatic passenger counter – Not in base**

Manufacturer	
Model and part number	a.
	b.
	c.
Sensor type	

**Real-time bus arrival prediction system – Not in base**

	Manufacturer	Model number
Router		
Cellular modem		
Charge protection		

**Electronic tire pressure monitoring system – Not in base**

Manufacturer	
Model number	

**Electronic brake stroke/wear indicator system - Optional**

Manufacturer	
Model number	

**NOTE:** All information above is accurate to the timeframe upon submission. The Agency reserves the right to update above data if changes occur, upon consultation with the customer.



