Advanced Small Transit Vehicle Market Study

Del Peterson
Associate Research Fellow
Small Urban & Rural Transit Center
North Dakota State University
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Outline

- Current Market Conditions
- Current Market Issues
- Vehicle Technologies
- Cost Analysis

Current Market Conditions

What is a Small Transit Vehicle?

Less Than 30 Feet in Length

Market Segment Variations

Small Vehicle Market Segment	Average Price	Average Length	Average Number of Seats	Capital Cost per seat
Vans	$ 32,773	17 Feet	12	$2731
Cutaways	$ 64,596	23 Feet	17	$3800
Small Buses	$180,853	27 Feet	25	$7234

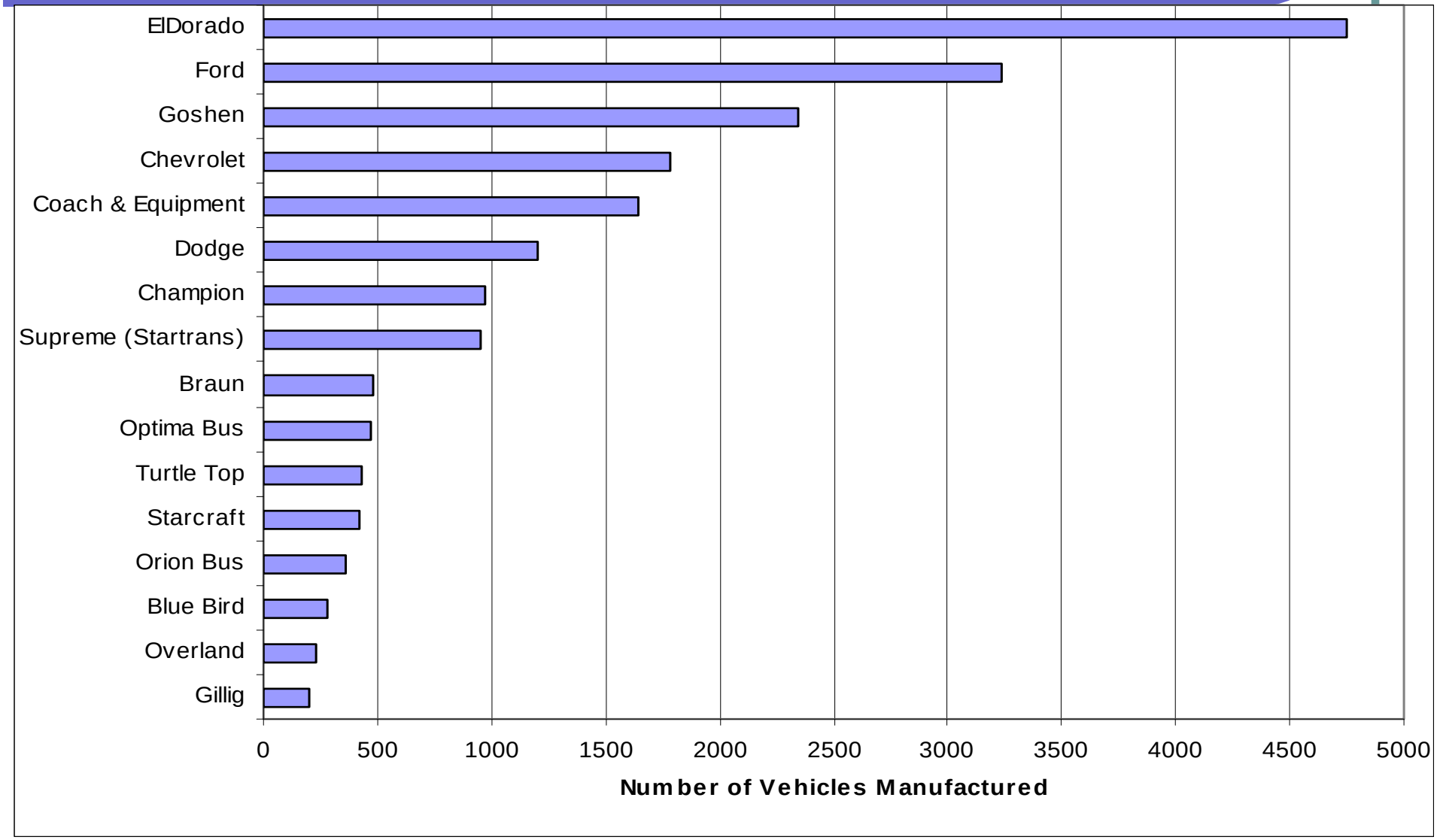
(APTA 2005)

FTA Funded Vehicle Purchases

Year	% of Total
95	59.9%
96	60.8%
97	65.3%
98	70.1%
99	61.5%
00	59.5%
01	66.1%
02	64.2%
03	68.0%
04	75.0%
10-year Ave.	64.6%

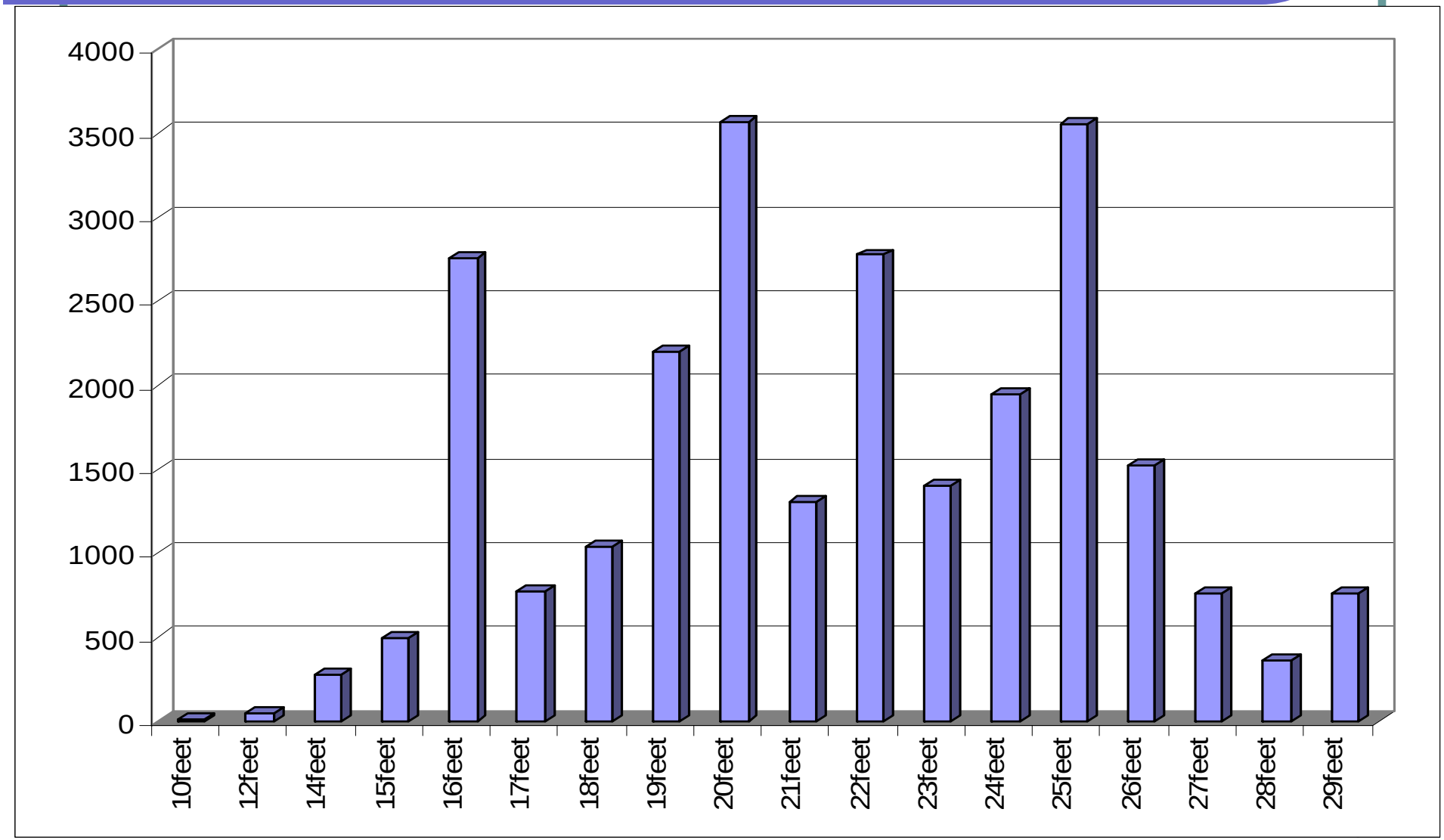
(FTA 2006)

Small Transit Vehicle Manufacturers



(APTA 2005)

Length of Small Transit Vehicles



(APTA 2005)

Current Market Issues

1. Small vehicles not lasting advertised 10-12 year Altoona lifetime
2. Agencies are interested in adopting new technologies, but lack the necessary funding
3. Maintenance difficult to manage, especially in shared city/county maintenance facilities
4. Responsibility for maintenance and warranties is not assigned, and is often avoided
5. State control of 5310: precludes agency input in procurement, specs are not always written well
6. Ride quality: high cutaway vehicles sway; wheelchair positions poorly placed

Current Market Issues

7. There is no “white book” for small vehicle procurement
8. Cutaway vehicles successful by riding truck market
9. Physical room for components (ITS, etc.) limited in small vehicles
10. Need to move away from “low bid mentality” and focus on quality, needs
11. Capital funds should focus on life cycle cost and service coordination
12. Pooled or combined purchases unlikely to meet needs of all members

Vehicle Technologies

- Fuels
  - Gasoline: established and common
  - Diesel: established and common
  - Natural Gas (CNG): established for 40’ transit vehicles, infrastructure in large metropolitan areas
- Propulsion
  - Hybrid-Electric: commercialized in 40’ transit vehicles, first models being available for body-on-chassis vehicles
  - Fuel Cell: still in R&D, commercialization expected around 2020
- Accessibility
  - Low-floor: established for 40’ transit vehicles, some models available in cutaway/chassis market

Vehicle Technologies

- Intelligent Transportation Systems (ITS)
  - Available/"off-the-shelf" (focused on 40' market):
    - Computer Assisted Dispatch (CAD)
    - Global Positioning System (GPS)
    - Automatic Vehicle Location (AVL)
    - Automatic Passenger Counters (APC)
    - Traffic Signal Priority (TSP)
    - Electronic Fare Collection
    - WiFi (Wireless Internet Access)

Vehicle Technologies

- ITS Costs

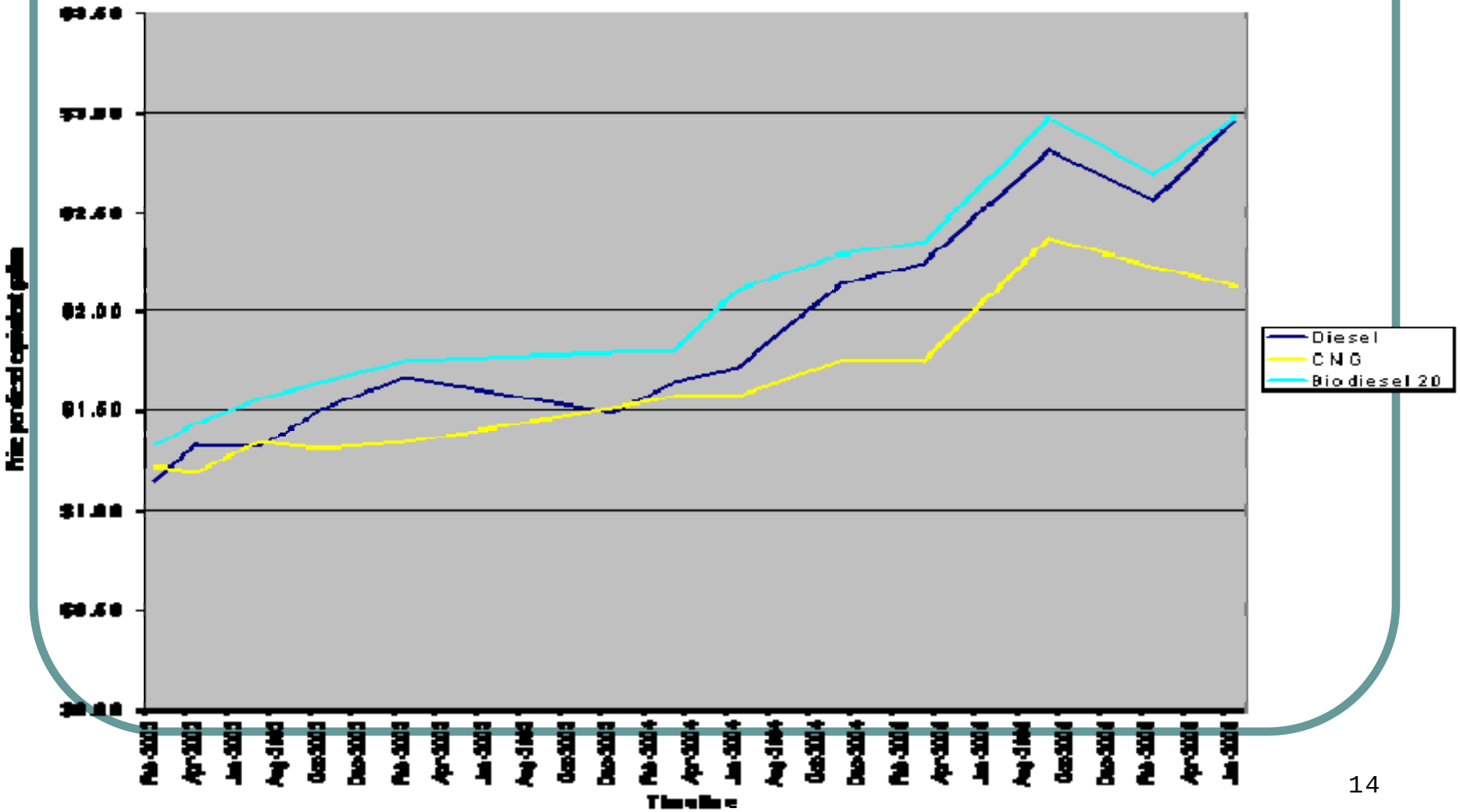
Technology/Equipment	Avg. Capital Cost	Estimated O&M Cost per year
CAD Terminal	$400	$108
GPS	$1,250	$24
TSP	$1,650	$7
Security (CCTV + Emergency Button)	$4,600	$180
Electronic Farebox	$850	$45
APC	$5,625	$3
Navigation	$2,400	-
Radio	$185	$9

Vehicle Technologies

- Small Vehicles
  - Purpose Built Transit Vans
    - Ford Transit, Dodge Sprinter, etc.
    - Commercially Available
  - Ebus
    - 22’ Electric/Fuel Cell Electric Low-Floor Vehicles
    - Commercially Available
  - Brevi Bus
    - 19-25’ Low-Floor Flexible Seating Vehicle
    - In Development/Prototype Testing

Cost Analysis

- Fuel Costs



Cost Analysis

Fuel	Avg. Cost per Gallon
Gasoline	$2.22
Diesel	$2.62
CNG*	**$1.77**
E85	$2.11
Propane	$2.33
B20	$2.66
B2-B5	$2.75
B99-B100	$3.31

Cost Analysis

- Estimated Cost for 25-30 foot Body-on-Chassis Vehicle

Vehicle Type	Estimated Cost
Standard floor gasoline/diesel	$65,000
Low-Floor	$100,000+
Hybrid-Electric	$150,000+
Fuel Cell	$1.5 M +

Cost Analysis

Cost Item	Total Costs		Cost to Connecticut	
	Conventional Bus	Hybrid Bus	Conventional Bus	Hybrid Bus
Purchase Cost	$320,000	$500,000	$64,000	$100,000
Engine Rebuild	50,000	25,000	50,000	25,000
Transmission Rebuild	30,000	10,000	30,000	10,000
Battery Replacement	0	20,000	0	20,000
Fuel	171,429	156,522	171,429	156,522
Brake Maintenance	18,000	12,000	18,000	12,000
Diesel Particulate Filter Maintenance	12,000	6,000	12,000	6,000
Other Normal Miscellaneous Maintenance	150,000	150,000	150,000	150,000
Totals	**$751,429**	**$879,522**	**$495,492**	**$479,522**

Connecticut Academy of Science and Engineering (2005)

Cost Analysis

Life-cycle Costs (5-7 years, 150,000 miles)	Total Cost		Cost to State	
	Conventional Cutaway	Low-Floor Cutaway	Conventional Cutaway	Low-Floor Cutaway
Purchase Price (80/20)	$50,000	$100,000	$10,000	$20,000
Brake Maintenance	8,000	6,000	8,000	6,000
Fuel ($3/gallon)	55,000	55,000	55,000	55,000
Battery Replacement	0	0	0	0
Other Normal Miscillaneous Maintenance	17,000	15,000	17,000	15,000
Increased Revenues				
Ridership Increase (3%/yr due to improved accessibility & Assuming 20,000 base rides/yr at $3 per ride)	0	10,000	0	10,000
Total Cost	**$130,000**	**$166,000**	**$90,000**	**$86,000**

Your Thoughts……

- “A nice thing about being imperfect is the joy it brings to others.”