The Super Way: a PRT System

Preliminary Feasibility Analysis

SMSSV: Business Super Team
Christian Jorgensen & Stephanie Tucker

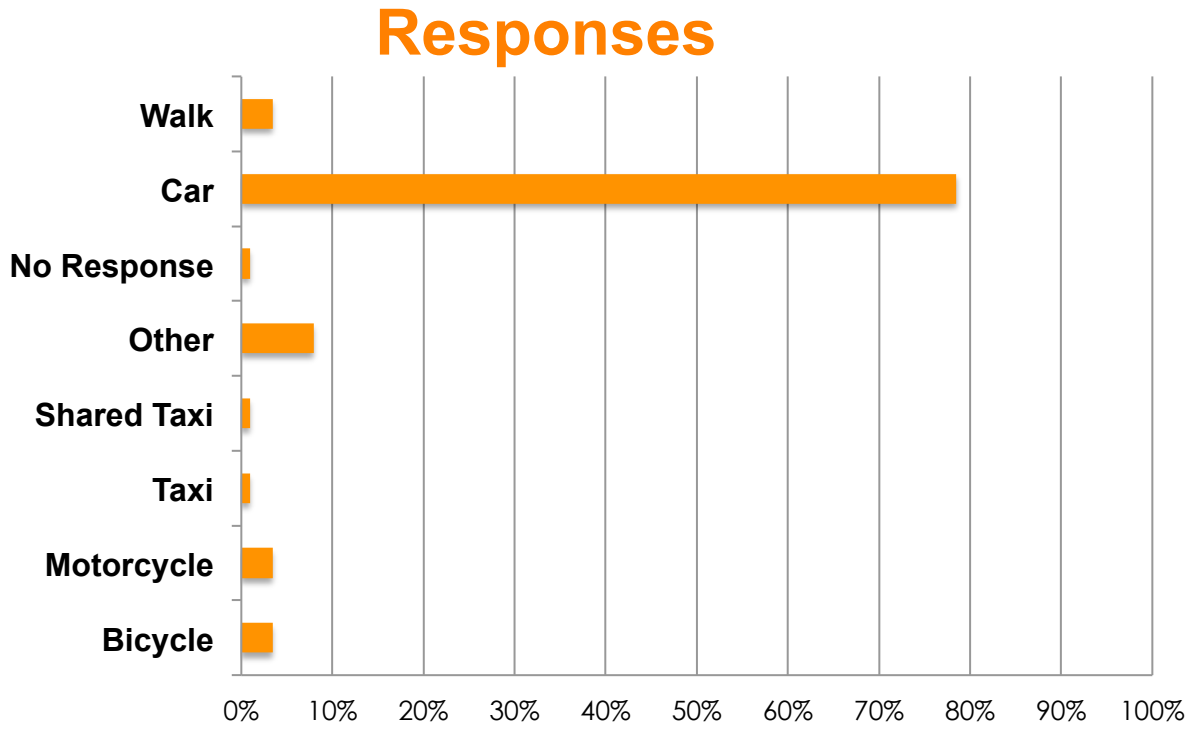
SUPERWAY

It's been a journey…

Alden StarCar: 1970's

78.5% of people use a car as their main mode of transportation.

Question:
"What mode [of transportation] do you presently use for most of your trip?"

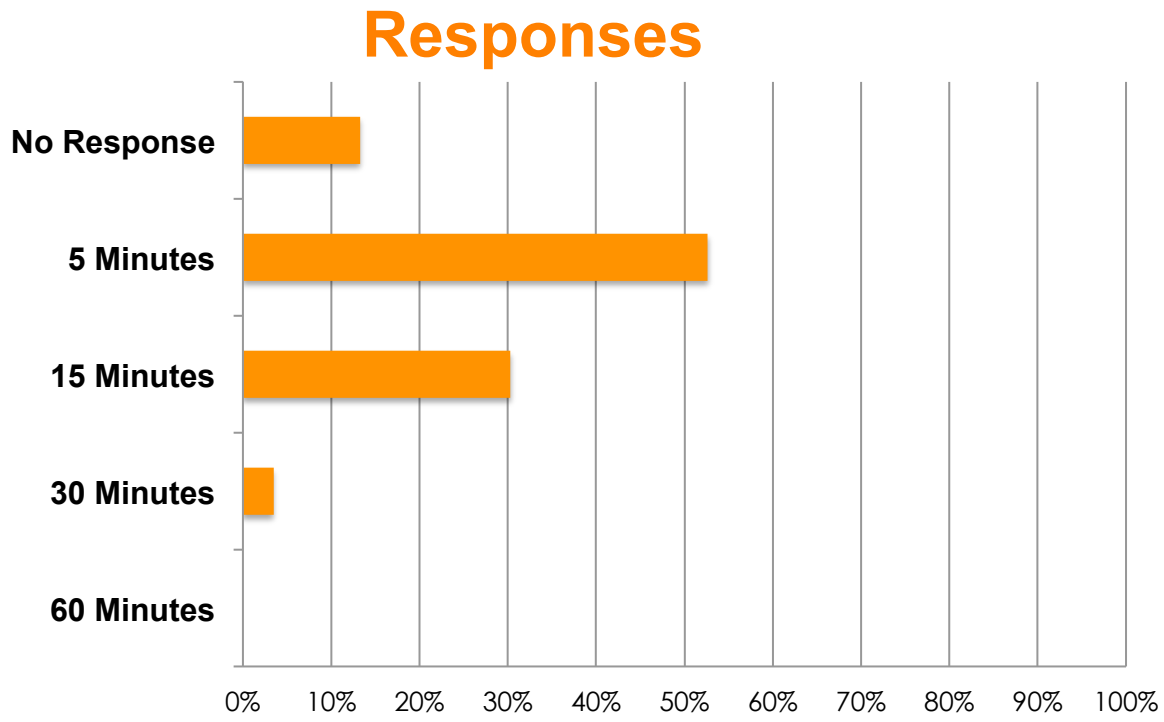


[Transit Survey 2012]

SUPERWAY

59% of those travelers would **NOT** be willing to walk more than **5 MINUTES** to a transit stop.

Question:
"Pick the longest walking time acceptable to you at each end of the trip."

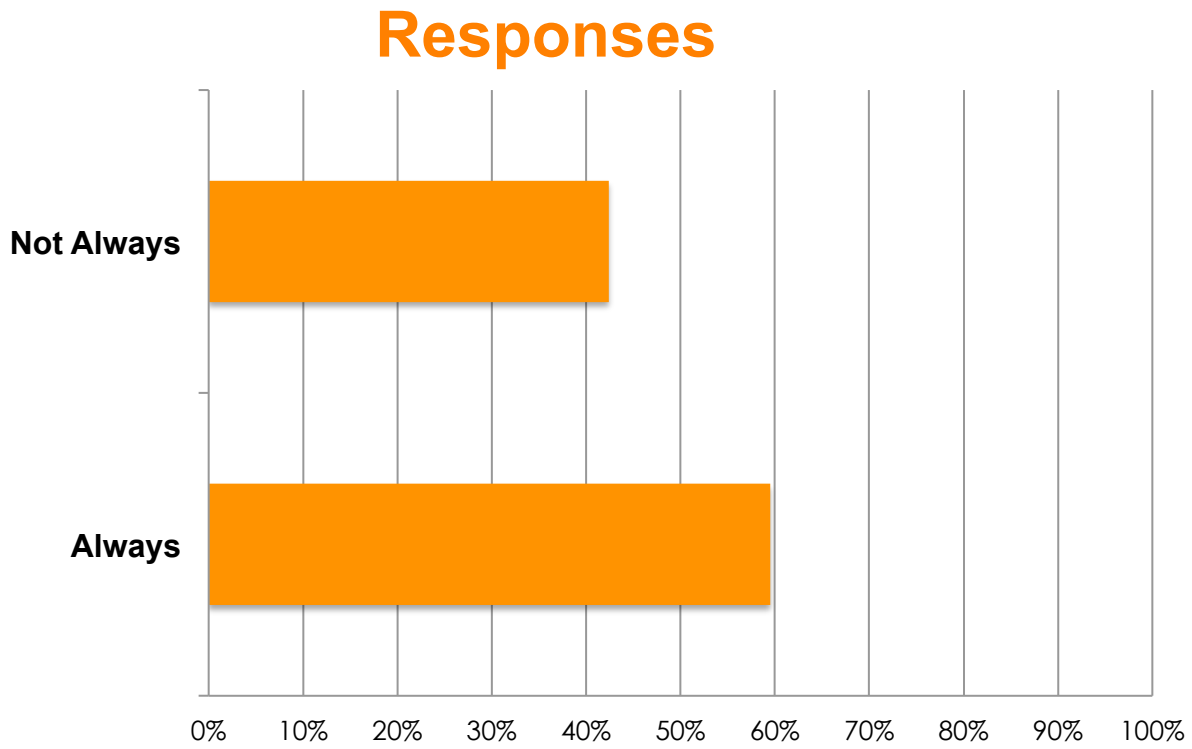


[Transit Survey 2012]

SUPERWAY

59% of those travelers said that they would need to ALWAYS get a seat to use transit

Question:
"Would you always need to get a seat?"



[Transit Survey 2012]

True Expense of sustaining car use in US

TRUE FUEL COSTS:

- $15.14 per gallon
- Accounts for:
  - Oil industry tax break
  - Corporate welfare handouts
  - Military action (Iraq)

Source: The Progress Report

INFRASTRUCTURE FOR CARS:

- Air and Water Pollution
- Societal Cost of Congestion
  - Stress
  - Illness
  - Time
  - Loss of opportunity
- Roads
- Parking

Source: www.treehugger.com

SUPERWAY

What Commuters want:

Want a **car *substitute***, <u>not</u> a **bus substitute!**

Research

Customers vs. End Users

SWOT Analysis #1

OPPORTUNITIES

- First-Mover Advantage
- Move from Fossil Fuels
  - Increase in fuel cost
  - Progressive increase in ridership
- Global Standards
- Early Adopters
- Connecting to Existing Infrastructure
- Job Creation

THREATS

- Barriers to Entry:
  - Standardized Technology
  - Securing Funding
- Local & Regional Zoning
- Consumer Acceptance
- Competitor's Opposition

STRENGTHS

- Safety
- Scalability
- Modularity
- Renewable Energy
- Reduce Traffic Congestion
- Operating Costs

WEAKNESSES

- Land-Use Challenges
- Significant Infrastructure
- Behavioral Changes
- 1st mile/Last Mile
- Gap in Funding

SUPERWAY

Define the actual costs of current systems of transportation and find better solutions

Estimated Construction Costs per Mile

	SuperWay Podcar - Unidirectional	SuperWay Podcar - Bidirectional	ULTRa system	Vectus	Taxi 2000 SkyWeb Express	HiGH SPEED TRAIN	BART
Cost per **Mile**	$9 Million	$13.7 Million	$9 MIllion to 15 Million	$18 Million	$16 Million to $24 Million	$80.5 Million to $161 Million	$241 Million

Estimated Startup costs

	Airport System			Local Regional System			Wider Regional System			State-wide		
	Low	Med	High	Low	Med	High	Low	Med	High	Low	Med	High
# of Miles	6.5 Miles			60 Miles			120 Miles			436 Miles		
Est. Cost/ Mile	$9M	$13.7 M	$25M	$9M	$13.7 M	$25M	$9M	$13.7 M	$25M	$9M	$13.7 M	$25M
Est. Total Cost	$58.5 M	$89M	$162.5M	$540 M	$840 M	$1.5B	$1.08 B	$1.64 B	$3B	$3.92 B	$5.97 B	$10.9 B

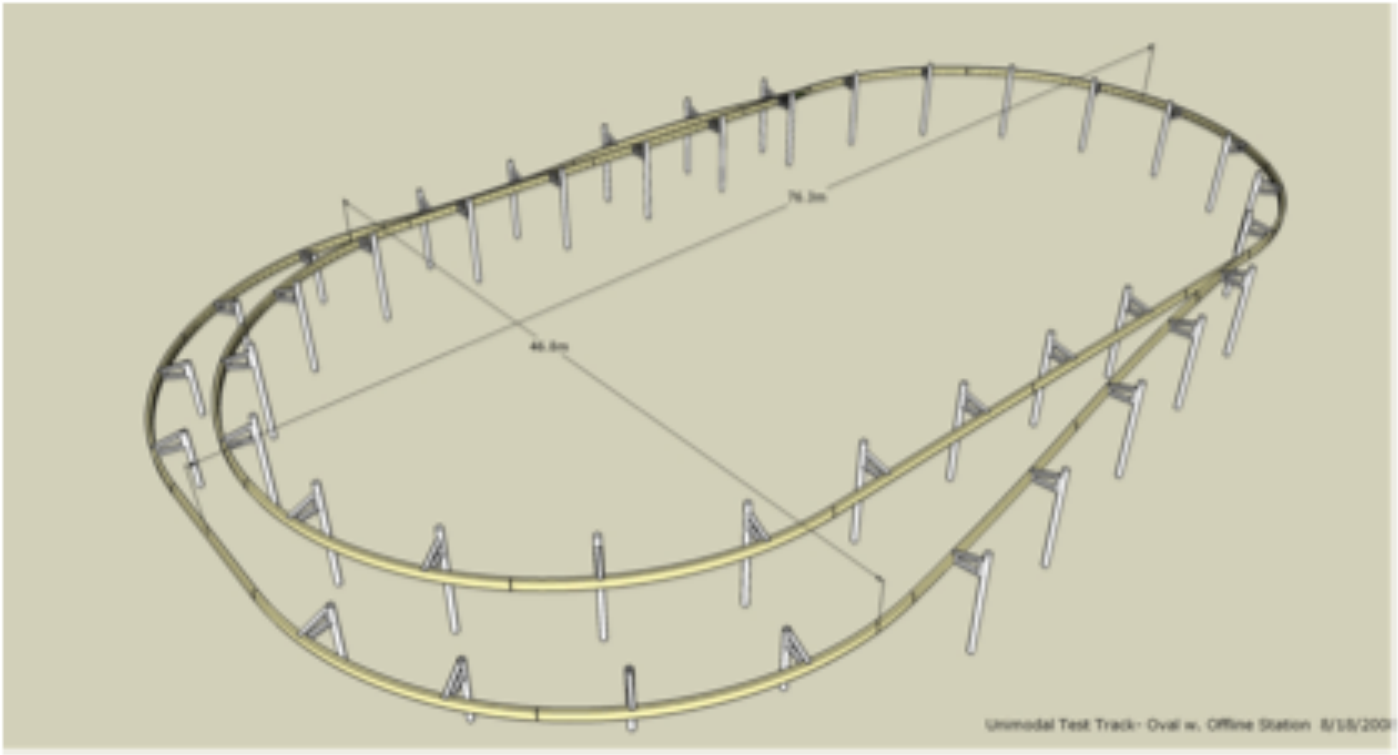
System Design Options

PRIMARY CORRIDOR

GRID MATRIX

Known & Unknown Costs

Need a **Hardware Reference Platform (HRP)**



Unknowns #1

- **1st time implementation of technologies**
  - Propulsion
  - Switching
  - Software
  - Car Design
  - Station Design
  - Power Sources
  - Other

Unknowns #2

1st time implementation of building and deploying:

- Manufacturing Issues
- Regulations
- Public Reaction
- Availability of Funding
- Viable Business Model
- System Safety
- System Reliability
- Natural Disasters
- Manmade Disasters
- Other

Unknowns #3

Will consumers be <u>willing</u> to switch?

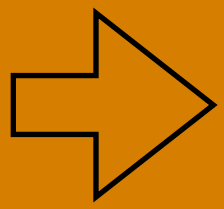
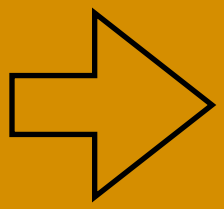
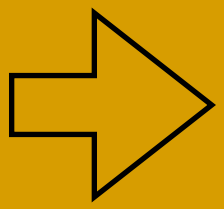
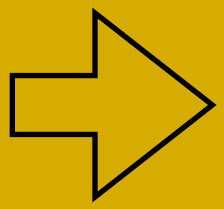
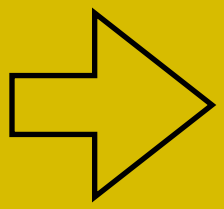
- Cost
- Comfort
- Safety
- Convenience
- Availability
- Speed
- Reliability
- Flexibility
- First Mile, Last Mile
- Other

SuperWay Competitors

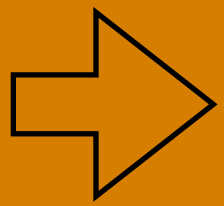
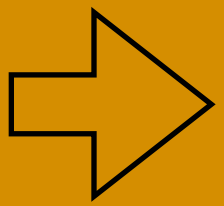
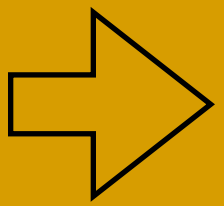
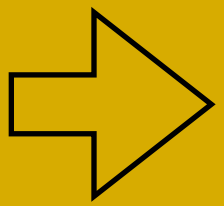
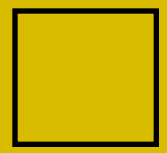
	Mode of Transportation								
	PRT	Car	Automated Cars	Bus	Train	Light Rail	Electric Scooter Segway	Bicycle	Walk
Point-to-Point	A	A	A	D	D	D	E?	E?	E?
Wait-time	A	A	A	D	D	D	E?	E	E
Travel-Time	A	E	E	E	E	E	E	D	D
Private	A	A	A	D	D	D	E	E?	E?
Comfortable	A	A	A	E	E	E	D	D ?	D ?
Clean	A	A	A	D	D	D	E	E	E
Safe	A	D	E	E	E	E	D	E?	E?
Automated	A	E	A	E	E	A	E	E	E
Transportation of Goods	E	A	A	E	E	E	D	D	D
Low Cost to End User	E	D	D	E	E	E	D	A	A
Cost of Implementation to Customer	E	E?	E?	E?	D	D	A	A	A
Environmental Consciousness	A	D	E	E	E	E	A	A	A

Key: **A=Advantage** **D=Disadvantage** **E=Even**

Fall 2012 Goals

Define Product/ Service, Customer & Market	Identify Differentiators & Market Position	Perform Feasibility Analyses	Preliminary Financial Projections & Analyses	Propose & Evaluate Business Cases
				

Spring 2013 Goals

Business Case(s)	Financial Plan	Marketing Plan	Business Model	Business Plan
				

Implementation Timeline

- Pull from feasibility document

Growth Potential

- First-mover advantage
- Move from fossil fuels
- Safety
- Congestion
- Consumer Expectations
- Zoning & Acceptance
- Scalability
- Modularity
- Global standardization
- Land-use
- Funding Models
- Likely early adopters
- Integration into existing Infrastructure

Management Team

- Dr. Burford Furman
- Students

- Advisors and Mentors
  - Ron Swenson
  - Dr. Basu
  - Dr. Musgrave
  - Professor Andra

SUPERWAY

Questions?....Thank you!