



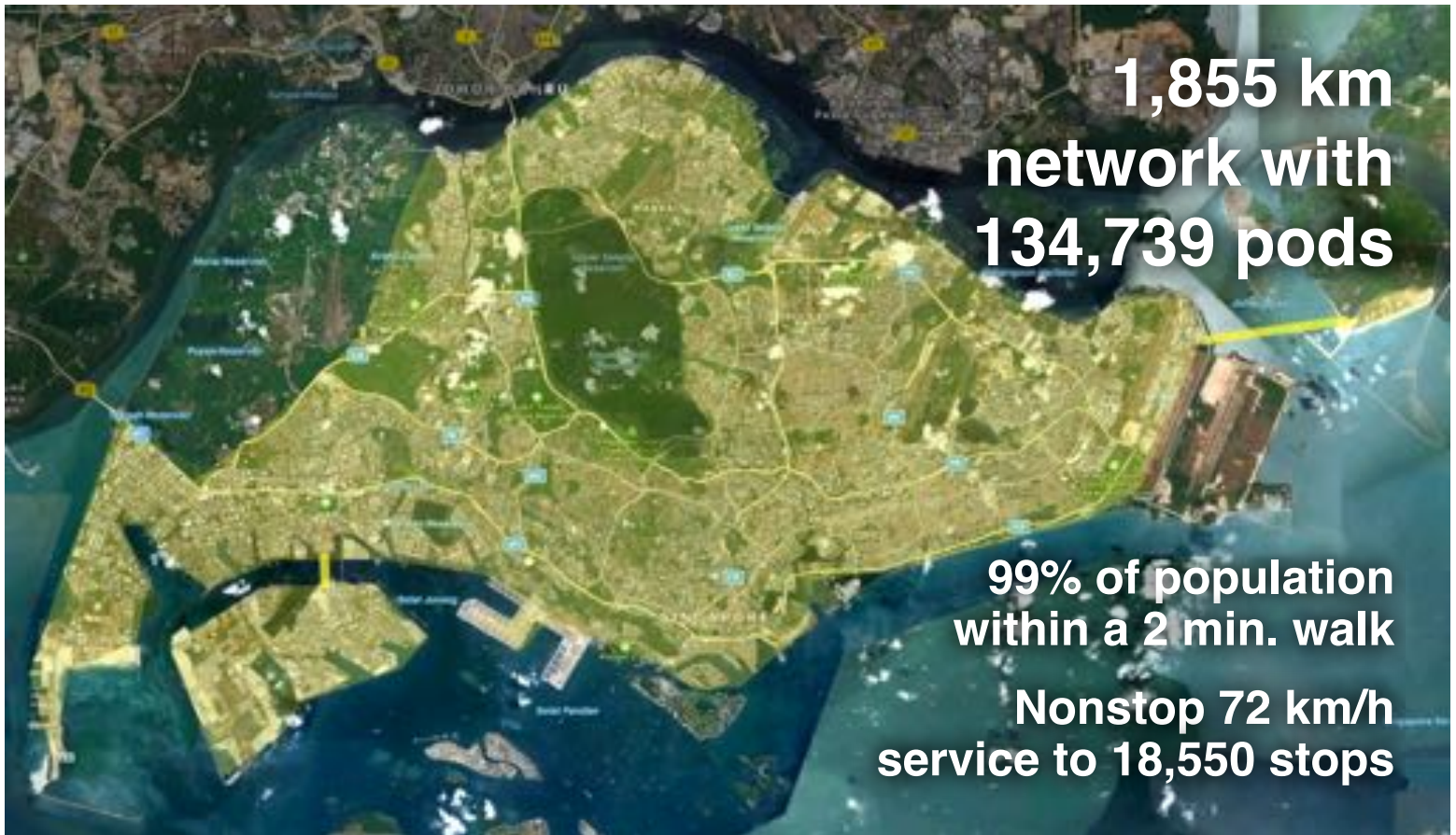
Transit X presents a preliminary proposal for a sustainable micro-rail network — a fleet of automated electric vehicles (pods) for passengers and freight on a local and regional podway providing equitable public transportation for

# Singapore

This proposal is downloadable at [transitx.com/proposals/Transit\\_X\\_for\\_Singapore.pdf](https://transitx.com/proposals/Transit_X_for_Singapore.pdf)

**High capacity • High speed • Nonstop • 24/7**  
**Solar powered • Zero Wait • Door-to-door • Resilient**

A 24-page companion Transit X Handbook is available at [transitx.com/transitxhandbook.pdf](https://transitx.com/transitxhandbook.pdf)



**Transit X proposes to build and operate a sustainable micro-rail podway to carry passengers and freight for Singapore that makes the Transit X service convenient to 99% of the population.**

Transit X efficiently services both suburbs and cities and provides for a higher quality of life. See [transitx.com](http://transitx.com) for more details. This 3-minute video ([transitx.com/video](http://transitx.com/video)) describes our innovative solution.

**Major benefits**

- Reduce congestion
- Provide parking relief
- Reduce pollution
- Improve safety

The Transit X Handbook ([transitx.com/transitxhandbook.pdf](http://transitx.com/transitxhandbook.pdf)) answers many questions about our service, the company, our technology, and the way we address: congestion, parking, road safety, pedestrian safety, ADA compliance, sustainability, fares, solar+storage, construction, aesthetics, operations, economic development, quality of service, security, station footprint, equitability, carbon footprint, transit integration, resiliency, reliability, rights-of-way, and open space.



**Congestion, parking, pollution, and safety**

Most regions suffer from traffic congestion, limited parking, air pollution, and unsafe roads. Potential solutions are costly, but Transit X can solve these challenges without public funding. Transit X can integrate into the built environment, providing both short term relief and a long term solution.

**High Capacity**

A single track carries 12,000 pods per hour (20,000 to 50,000 passengers per hour). Two boarding areas fit in a single car space and provide 2,000 boardings per hour.

**Zero Footprint and Minimal Disruption**

Transit X features stops that don't interfere with pedestrians or other forms of transportation. We use easements alongside highway and roads and integrate utility lines and poles. Non-stop interchanges fit above existing intersections. Factory-built tracks and posts enable fast installation with minimal disruption. There are options for long crossings using bridges or underground tunnels. Posts are typically spaced at 23 m (25 yds).

**Low-cost Infrastructure & equitable fares**

Transit X does not require government funding because our revenue from fares, freight, and advertising is greater than our costs. We have reduced or eliminated many costs of transportation including the cost of materials, land, construction, fuel,

debt service, and labor. Our projects are typically financed by investment banks, private equity firms, banks, and governments.

### **Proven technology**

Our team and partners have built fully automated systems that are now in operation around the world. Transit X may look unique, but the underlying design is very similar to systems that have been operating for 40 years with an exemplary safety record. The rollout and maiden flight occurred on Oct 29, 2018 in Leominster, Massachusetts. The first Transit X system will be demonstrated by the end of 2019.

### **Service Quality**

Transit X provides on-demand, last-mile service that is superior to cars or buses. An operating agreement will guarantee high levels of availability and reliability. Our use of small vehicles (pods) makes this possible. By reducing car use, Transit X creates walkable and bike-friendly neighborhoods.

### **Less pollution: Air, Sound, Light, Visual, Water**

Transit X offers a much higher quality of life by eliminating many forms of pollution. Pods are quiet, efficient and have zero emissions. Pods offer less visual impact than the existing roads and vehicles, and utility lines can be hidden within the track. At night, there is no light pollution from headlights or taillights. Water pollution from road runoff is significantly reduced. Parking lots and roadways can be converted into green space and community paths as they become unnecessary.

### **Sustainable and Efficient**

Pods weigh only 45 kg (100 lbs) and achieve over 20 times the efficiency of electric cars. Solar, wind, and storage installed on our tracks and posts can provide 100% of the clean energy needed to power the system.

### **More Transit & Fewer Cars**

Transit X provides the convenience and privacy that people value in cars, yet without the negative impacts of personal cars. Transit X combines the best of mass transit and personal transportation modes which will lead to greater use of public transit and fewer cars.

### **De-risking Projects**

Transit X partners with large, established firms to provide fixed-price contracts for the engineering, certification, construction, and operations of a Transit X system. These partnerships enable Transit X to de-risk all of the major elements of the project, and provide performance guarantees. We work with local construction firms.

### **Jobs and Workforce Development**

Many regional jobs will be created to build a new transportation infrastructure, as well many new types of jobs will be created from economic growth. The majority of the construction jobs will be locally sourced and preferential hiring is given to those displaced by the transition.

## Revenue Generator for Government

Not only does Transit X not require public financing, but the government and private easement owners receive 4-5% of gross revenue, which would be US\$405 million per year average over the first 10 years.

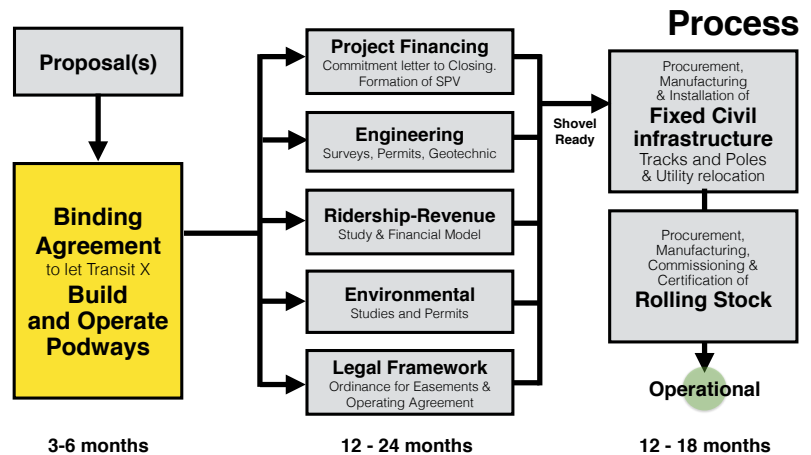
## Short and Long Term Solution

A project could be operational within 24 months from the start of a project. Transit X offers a rapidly-deployable solution that provides long term benefits. We would form a local company to build, operate, and maintain the network. At least 75% of the profits would be invested back into the region.

## Moving Forward

The diagram shows our process for a project. We submit a project proposal, then ask for a commitment for Transit X to build and operate a podway along rights-of-way easements. Example documents and a sample project schedule can be viewed at:

[transitx.com/process](http://transitx.com/process)



## Evaluation

Please review our preliminary proposal, and then ask us any questions. We would be happy to provide further information, address specific concerns, or meet with specific people or groups. Any routes or coverage areas shown on the map are only preliminary suggestions and actual routes would be determined based on needs, rights-of-ways, utility corridors, location of trees, and many other factors.

We expect this proposal to be reviewed by one or more committees or working groups. Familiar transportation options, such as buses, light rail, subways, and ride-sharing services (including autonomous vehicles) may have already been considered. Very few options offer the convenience of cars with at least the capacity of buses, and most, if not all, require public funding and subsidies.

Private cars have a dominant mode share because people like the privacy and convenience of a car — despite the significant risks and negative impact associated with them. People won't give up their cars unless the alternative is both better and cheaper. That is what Transit X can provide.

We hope you agree that this proposal offers a way to address your challenges in both the short and long term, providing an option that is better and lower risk than any alternative — including continuing with the status quo.

We hope you will conclude that moving forward with Transit X is an excellent opportunity to meet your current and future challenges.

Once we agree to move forward, we look to receive a commitment for Transit X to build and operate a podway along rights-of-way easements.

A podway network is rolled out in phases that each take less than 24 months.

### **Other Resources**

The links below provide general information about Transit X:

- One minute video overview ([transitx.com/video](https://transitx.com/video))
- Transit X Handbook ([transitx.com/transitxhandbook.pdf](https://transitx.com/transitxhandbook.pdf))
- Letters of Project Financing, Due Diligence, Contracts ([transitx.com/letters.pdf](https://transitx.com/letters.pdf))
- Memorandum of Understanding template ([transitx.com/process/mou.html](https://transitx.com/process/mou.html))
- Example Right-of-Way agreement ([transitx.com/process/resolution.html](https://transitx.com/process/resolution.html))
- Operating Agreement ([transitx.com/process/operating\\_agreement.html](https://transitx.com/process/operating_agreement.html))
- General Q & A ([transitx.com/QandA.html](https://transitx.com/QandA.html))
- Other proposals ([transitx.com/proposals](https://transitx.com/proposals))

### **Addendum**

The remaining pages of this proposal provide project-specific details:

- Project Overview and Impact — *pages 6 and 7*
- Taxes and Fees — *pages 8 and 9*
- Fares — *page 10 and 11*
- Financial Project Summary with Pro Forma — *pages 12 and 13*

We look forward to working with you to improve the quality of life for Singapore through better transportation.

Sincerely,



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1	<b>Transit X network length</b>	<b>1,855</b>	km
2	People (resident-equivalent) in region	5,607,300	resident-equivalent population
3	Route density ratio (route length to service area)	3.03	
4	Number of stops	18,550	
5	Triple-speed route length	0	km
6	Water crossing route length	0	km
7	<b>Cost of fixed infrastructure</b>	<b>\$6,727,122,735</b>	
8	...per person	\$1,200	
9	Mode share of travel on Transit X (29% after first year)	88%	after 10 years
10	Distance traveled by passengers on Transit X, per year	46,839,696,307	km
11	...per day	128,327,935	km
12	Daily potential energy generation with standard panels on tracks	14,244.4	MWh
13	Sustainable energy use per day	574.9	MWh 4.0% of max capacity
14	Energy storage capital cost for 1 day(s) of supply at \$250 per kWh	\$143,721,998	
15	Size (rated power) of solar installation	133,652	KW
16	Cost to generate sustainable energy (at \$1,000 per kW)	\$133,652,304	
17	Cost of buying sustainable energy at \$0.15 per kWh	\$86,233	per day 8% of OPEX
18	Daily passengers riding Transit X	4,930,494	customers 88% of the pop.
19	Distance per passenger per day	26	km
20	Average distance per trip (assuming 3 trips per day)	9	km
21	<b>Single passenger fare for shared 9 km trip</b>	<b>\$0.78</b>	0.97 SGD
22	Passenger distance traveled during peak hour	25,665,587	km
23	<b>Breakeven</b>	<b>1,305,691</b>	customers per day (26% of expected and 24% of people convenient to Transit X)
24	Boarding capacity	6,678,000	passengers per hour (135% of customers)
25	<b>Number of pods for peak demand</b>	<b>134,739</b>	<b>pods at 88% mode share</b>
26	Number of customers per pod	36.6	and 42 people per pod
27	Distance per pod per year	168,192	km
28	Two-layer pod garage area (8% of route with side-parking)	148,213	m <sup>2</sup> 0.1% of car parking
29	Cost of pods	\$875,803,500	is \$120 per person
30	Capital cost of energy generation and storage	\$360,586,593	is \$64 per person
31	<b>Project Finances</b>		
32	Total Project Cost	\$7,963,512,828	9,954,391,035 SGD
33	Project cost per km	\$4,293,613	per km
34	Equity financing	\$2,389,053,848	2,986,317,310 SGD
35	Debt financing	\$5,574,458,980	6,968,073,724 SGD
36			
37			
38			
39	Debt service (per year)	\$947,658,027	1,184,572,533 SGD
40	<b>Yearly fees and taxes (US\$91 per capita)</b>	<b>\$507,928,555</b>	634,910,693 SGD
41	OPEX + Debt service + Tax + Fees	\$1,853,762,223	2,317,202,776 SGD
42			
43			
44	Project costs — per person	\$1,420	1,775 SGD
45	Number of motor vehicles displaced	4,683,970	motor vehicles
46	Yearly cost of cars displaced — per person	\$7,518	9,398 SGD
47	Operating costs per passenger-km	\$0.01	
47	Full costs per passenger-km	\$0.04	
48	Breakeven revenue distance per day	33,983,736	km
49	Number of tracks in one direction needed to satisfy peak demand	<b>0.68</b>	



### Impact of proposed network

1	<b>Reduction in GHG emissions</b> (metric tons CO2-eq)	4,625,420 MTCO2-eq annually
2	<b>Estimated cost to maintain public roadways</b>	\$315,304,898 annually
3	<b>Reduced waste products</b>	750,606 metric tons annually
4	<b>Travel time saved</b> (non-stop travel and congestion)	462 hrs/person annually
5	<b>Cost savings from reduced car ownership</b>	\$4,470 per person annually
6	<b>Increase in household income</b> (from time savings and car costs)	33%
7	<b>Reported injuries avoided</b>	29,041 annually
8	<b>Lives saved</b> (from safety)	290 annually
9	<b>Land freed from parking (26,620 acres)</b>	107,731,302 m <sup>2</sup>
12	<b>Temperature reduction</b> (from heat island effect & GHG reductions)	0.5 to 2 °C
11	<b>Health care savings</b> (from pollution, injuries)	High

### Model Inputs

15	Ratio of road length to track length	4	
16	Walking speed	4.9	km/h
17	Width of convenient swath along track	0.33	km
18	Fixed cost per km (track & posts)	\$2,790,000	3,487,500 SGD
19	Water crossing: additional cost per km	\$8,370,000	
20	Triple-speed: additional cost per km	\$5,580,000	
21	Rate factor for water crossings or high-speed links.	2.2	
22	Average distance traveled per person per year (for trips under 1600 km)	10,000	km
23	Average distance per day per person	27	km
24	Mode share % of people convenient to Transit X	85%	at 5 min walk.
25	Percentage of daily demand during peak hour	20%	
26	Maximum capacity per track	35,716	pph
27	Average dwell time during peak hour	10	seconds
28	% of pods traveling on route with highest demand	18%	
29	Average speed of pod	72	km/h 45 mph
30	Average # of trips for a daily customer	3	per day
31	Average passengers per pod during peak hours	3.3	passengers
32	Average passengers per pod	2.1	passengers
	Average discount per passenger	24%	
	Maximum passengers per pod	5	passengers
33	Empty pods: Percentage non-revenue	25%	
34	Ex-Factory cost per pod	\$5,000	6,250 SGD
35	Worldwide Median Income per Household (US\$)	10,000	12,500 SGD
36	Average number of residents per household	2.3	SGD
37	Base fare per km	\$0.15	0.2 SGD
38	(per mile)	\$0.24	0.3 SGD
39	O&M as % of project cost	5%	
40	Percentage debt financed	70%	
41	Length of loan/debt	10	years
42	Interest rate for debt	7%	
43	kg CO2 emissions per liter of gasoline	2.37	
44	Monetary value of 1 hour personal time (USD)	\$5.25	7 SGD
45	Eat. roadway maintenance per year per km	\$51,000	63,750 SGD
46	Area of one parking lot space	23	m <sup>2</sup>
47	Commercial income of land (annual)	\$0.42	per m <sup>2</sup> SGD
48	Distance from roadway that is convenient	0.10	km
49	Stops per km	10.0	
50	Boarding capacity per stop	360	pph
51	Solar panel area per meter of track	2.0	
52	Cost of sustainable energy and storage	\$0.15	per kWh
53	Global Horizontal Irradiance (GHI)	3.8	kWh/m <sup>2</sup> /day
54	Cost to generate sustainable energy	\$1,000	per kW
55	Storage per column	40	kWh
56	Typical span	23	m cols/km: 44
57	Energy storage cost	\$250	per kWh
58	Energy storage capacity	1	days
59	Area of parked pod	2.20	m <sup>2</sup>
60	Distance discount at max distance	40%	
61	Max distance discount	500	km
62	Max usage discount at 10,000 km per capita	50%	
63	Shared Pod Discount	20%	
64	Shared Pod Compartment Discount	40%	
65	Mode share starting discount	67%	

### Model Inputs (continued)

68	Name of region or project	Singapore
69	Currency name	SGD
70	Equal to US\$1	1.25
71	Sustainable energy/electricity generation & storage as	CAPEX
72	Land area of region (sq. km)	720
73	Number of residents in region	5,607,300
74	% travel within region	95%
75	% of land area served by roads	85%
76	Coverage: % of pop. convenient (2 min walk) to Transit X	99%
77	Annual median household income (US\$)	\$21,000
78	Convenient walk time to stop (min)	2
79	Triple-speed route length (km)	0
80	Water crossing route length (km)	0.0
81	Visitors per year	0
82	Average length of visit (days)	2
83	Solar production ratio	1.57
84	Regional Fare Factor	1.0
85	EPC costs & contingency	30%
86	Triple-speed (km/h)	242
87	Daily Passengers Adjustment	100%
88	Number of Stops Adjustment	100%
89	Mode Share Adjustment	100%

### Pod & Car

	Pod	Car
87	Service life (years)	20 12
88	Full cost of vehicle per year	\$200 \$9,000
89	Public cost to maintain infrastructure (per km)	\$0 \$100,000
90	Energy consumption (MPGe)	3564 24
91	Energy consumption (liters/100km)	0.07 9.8
92	Energy consumption (Watt-hours/km)	9 1375
93	mass of CO2 per vehicle per km (kg)	0 0.09875
94	Vehicle mass (kg)	45 1950
95	Average speed of urban travel (km/h)	72 16
96	Typical travel time (in minutes) for 9 km trip	7 33
97	Fare/cost per km	\$0.15 \$0.62
98	Number of deaths per 100M passenger-km	0.00001 1
99	Number of injuries per 100M passenger-km	0.0006 62
100	Volume to park (cubic meters)	5.7 70.9



## 5% of gross revenue is paid for air rights and local taxes.

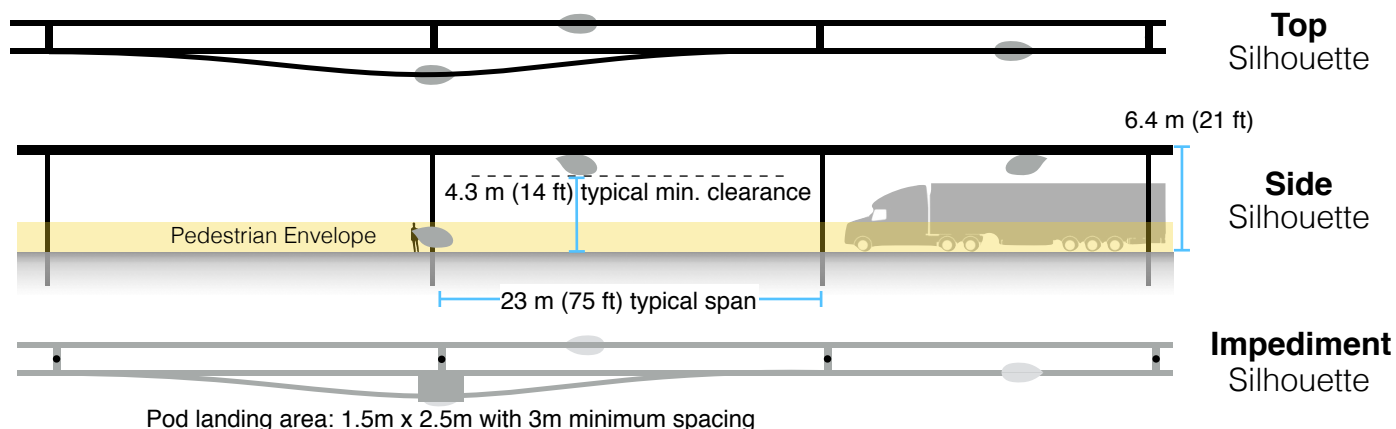
A minimum payment is based on the Footprint and the Transit X Commercial Rate (TXCR).

1	<b>Air-rights and Local Taxes</b>	(for calculating minimums)	
2	Total commercial land (estimated)	61,200,000 m <sup>2</sup>	<b>acres</b>
3	Total commercial gov't revenue (US\$)	\$25,704,000	32,130,000 SGD
4	<b>TXCR (Transit X Commercial Rate)</b>	\$0.42 per m <sup>2</sup> (estimated)	0.5 SGD
5	<i>TXCR is the yearly tax rate per land area. Calculation: total land area of commercial properties in the governmental region, divided by all the governmental income generated by those properties. The TXCR is used to calculate the minimum tax/fee.</i>		
6			
7	<b>Private Easement Fees</b>	For example	
8	<b>4% of gross revenue</b>	\$54.77 per route-meter	
9	<b>Minimum per year</b>	\$0.62 per route-meter	
10	<b>Transit X payment to Government</b>		
11	% of route on government easements	98% estimated	
12	<b>Total air-rights and local taxes</b>	<b>\$499,801,698 per year</b>	624,752,122 SGD
13	per resident	\$89	111 SGD
14	with a minimum of	\$1,157,739 per year	1,447,174 SGD
15			0 SGD
16	<b>Other financial benefits to Government</b>		
17	Less road maintenance from lower VMT		SGD
18	Public land made available from less parking and lanes		SGD
19	Reduced emergency and police services for road-related incidents		SGD
20	Less investment needed in road-based infrastructure (charging stations, signals, BRT, etc)		SGD



# Footprint calculations for minimum fee

# Yearly fees and taxes



1	Footprint Calculations	Metric	Imperial
2	Track width	0.30 m	
3	Track height	0.60 m	
4	Post diameter	0.3 m	
5	Post cross section	0.07 m <sup>2</sup>	
6	Stop landing area	3.75 m <sup>2</sup>	
7	...width	1.5 m	
8	...length	2.5 m	
9	Ramp length	21 m	
10	Typical Span	23 m	
11	Number of posts per unit length	43.5 poles per km	
12	Post height	6 m	
13			
14	<b>Single track</b>	1022.1 m <sup>2</sup>	
15	...Area of Side Silhouette	678.3 m <sup>2</sup>	
16	...Area of Top Silhouette	313.1 m <sup>2</sup>	
17	...Impediment Area (adjusted)	30.7 m <sup>2</sup>	
18			
19	<b>Dual track</b>	1322.1 m <sup>2</sup>	
20	...Area of Side Silhouette	678.3 m <sup>2</sup>	
21	...Area of Top Silhouette	613.1 m <sup>2</sup>	
22	...Impediment Area (adjusted)	30.7 m <sup>2</sup>	
23			
24	<b>Stop</b>	82.1 m <sup>2</sup>	
25	...Area of Side Silhouette	25.2 m <sup>2</sup>	
26	...Area of Top Silhouette	19.4 m <sup>2</sup>	
27	...Impediment Area (adjusted)	37.5 m <sup>2</sup>	
28			
29	Stops with dedicated landing areas	2 stops per km	
30	% of dual track	100%	
31			
32	<b>Average area per unit length</b>	1,486 m <sup>2</sup> per route-km	
33			
34	<b>Contract values</b>		
35	% gross revenue for government on private prop.	1%	
36	% gross revenue for private easement	4%	
37	% gross revenue for government easement	5%	
38	Impediment Factor	10	



# Fair Fare Formula

Summary	<p>The average commute would be 3.5 times faster saving each commuter 295 hours per year.*</p> <p><b>At 0.11 SGD per km, a typical commute on Transit X is 17% less than public transit and 74% less than a Taxi.*</b></p>
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All prices in SGD		Trip Length		
		2 km	10 km	40 km
<b>Transit X</b>	<b>0.22</b> to 0.37	<b>1.11</b> to 1.85	<b>4.24</b> to 7.23	
	2 min., 3.6x faster	8 min., 3.6x faster	33 min., 3.4x faster	
<b>Public transit average</b>		<b>1.25</b>	<b>1.99</b>	<b>2.92</b>
Common public modes	<b>Taxi</b>	<b>1.74</b> 2 to 6 minutes	<b>7.57</b> 8 to 30 minutes	<b>29.42</b> 30 to 120 minutes
	<b>Uber/Lyft</b>	<b>1.32</b> 2 to 6 minutes	<b>5.45</b> 8 to 30 minutes	<b>20.92</b> 30 to 120 minutes
	<b>Public Bus</b>	<b>1.01</b> 3 to 12 minutes	<b>1.01</b> 15 to 60 minutes	<b>1.55</b> 60 to 240 minutes
	<b>Train</b>	<b>1.51</b> 2 to 12 minutes	<b>1.78</b> 8 to 60 minutes	<b>2.79</b> 30 to 240 minutes
<b>Personal car</b>		<b>1.43</b> 2 to 6 minutes	<b>4.47</b> 8 to 30 minutes	<b>15.87</b> 30 to 120 minutes

Travel mode	Avg. Speed	Low Speed	High speed	Base	Includ es km	Over per-km	Min Dist.	Max Dist.	Time cost	Mode share		
	km/h	km/h	km/h				km	km	per min	2	10	40
Taxi	30	20	80	1.01	1	0.50	0.5	100	0.45	5%	4%	1%
Uber/Lyft	30	20	80	0.81	1	0.40	0.5	100	0.22	10%	10%	2%
Public Bus	15	10	40	1.01	20	0.03	0.5	50	0	50%	50%	40%
Train	30	10	80	1.51	2	0.03	2	100	0	35%	36%	57%
Transit X	72	72	72	0	0	0.11	0.1	50	0	-	-	-
Personal car	30	20	80	0.67	0	0.34	0.1	400	0.09	-	-	-

\* All numbers on mode shares, speeds, and costs are rough estimates..

Base fares are set for first 5 years, then adjusted by formula. A 20% discount on a shared pod and a 40% discount on a shared compartment. Trips are discounted proportional to their length reaching a maximum of a 40% discount on a 500 km trip. No congestion-based pricing. Fares are proportional to the median income of the area and inversely proportional to per capita use, so the more use of Transit X, the lower the base fare up a to 50% discount. The amount of market-rate fares must be less than the amount of discounted fares. Transit X Fair Fare Formula and Fair Freight Formula is universal and applies to all regions and all times.



# Fair Fare Formula

Fare rates are updated annually using this formula

	Formula Name	Value	Units	Description of the value or model input
1	GlobalIncome	12,500	SGD	Global median household income. Updated annually based on most recent standard published data.
2	AllTravel	23,000	km	Travel distance per household per year on any mode for trips under 1600 km. A global constant
3	PercentIncomeForTransport	20%		% of median household income for all transportation under 1600 km trips. A global constant.
4	GlobalRate	0.11	SGD/km	Global rate: <b>GlobalIncome * PercentIncomeForTransport / AllTravel</b>
5	IncomeFirst	\$26,250	SGD	Median household income at first stop (per person per day). External input. Based on reliable public data source updated annually.
6	IncomeDest	\$39,375	SGD	Median household income at destination per trip. External input. Based on reliable public data updated annually.
7	RegionalRate	0.23	SGD/km	Regional rate based on median income: <b>MedianIncomeFirst * PercentIncomeForTransport / AllTravel</b>
8	UnderIncomeRate	0.00	SGD/km	Under global income adjustment: <b>if (RegionalRate &lt; GlobalRate, GlobalRate - RegionalRate, 0)</b>
9	NominalRate	0.23	SGD/km	Nominal rate: <b>RegionalRate + UnderIncomeRate</b>
10	RegionalFactor	1.00		Regional Fare Factor. Negotiated upfront to make network financially viable.
11	AdjustedRate	0.23	SGD/km	Regional adjusted rate: <b>NominalRate * RegionalFactor</b>
13	Population	5,607,300		Population in region. Updated annually based on trusted public data source.
12	UsageMaxDiscount	50%		Fare Discount when Transit X travel per household equals AllTravel. Global constant.
14	PassengerTravel	46,839,696,307	km	Total passenger distance traveled previous calendar year. Based on expected mode share for first 3 years. Based on actual passenger trips. Audited.
15	ModeShare	36%		Percent of Total Travel Per Capita on Transit X: <b>PassengerTravel / (Population x AllTravel)</b>
16	BaseRate	<b>0.19</b>	SGD/km	<b>Base rate for single-passenger pod (without discounts)</b> <b>(1 - UsageMaxDiscount x min(1,ModeShare)) x AdjustedRate</b>
17	SpecialRateFactor	2.20		Rate factor for water crossings or high-speed links. Global constant.
18	SpecialBaseRate	0.41	SGD/km	Base rate for high-speed travel or water crossings: <b>BaseRate * SpecialRateFactor</b>
19	DistanceDiscount	40%		Distance discount at max distance. Global constant.
20	MaxDistanceDiscount	500	km	Max distance discount. Global constant.
21	DistanceDiscountPerKm	0.000149	SGD/km	Discount amount per km: <b>BaseRate x DistanceDiscount / MaxDistanceDiscount</b>
22	SeniorDiscount	20%		Senior discount set according to local regulations
23	StudentDiscount	20%		Student discount set according to local regulations
	DisabilityDiscount	20%		Disability discount set according to local regulations
24	DiscountBaseRate	<b>0.15</b>	SGD/km	<b>Discounted base rate: BaseRate x (1 - SeniorDiscount)</b>
25	SharedPodDiscount	20%		Discount for a shared pod. Set by Transit X per year. 15% minimum and 30% maximum. Maximum yearly change is one percentage point.
26	SharedPodRate	<b>0.15</b>	SGD/km	<b>Rate for a shared pod: BaseRate x (1 - SharedPodDiscount)</b>
27	SharedCompartmentDiscount	40%		Discount for shared compartment. Set by Transit X per year. 25% minimum and 40% maximum. Maximum yearly change is one percentage point.
28	SharedCompartmentRate	<b>0.11</b>	SGD/km	<b>Rate for shared compartment</b> <b>BaseRate x (1 - SharedCompartmentDiscount)</b>
29	SingleOccupancyMaxDistance	0.13	SGD/km	Rate for 500 km in single-passenger pod.
30	Senior + SharedCompartmentRate	<b>0.05</b>	SGD/km	Rate for a Senior taking a 500 km trip in a shared compartment. <b>BaseRate x (1 - SeniorDiscountAmount) x (1 - SharedCompartmentDiscount) x (1 - MaxDistanceDiscount)</b>
31	50PctIncomeAtDest	25%		% Higher fare rate if Destination has 50% higher median income than First <b>(IncomeDest / IncomeFirst - 1) / 2</b>
32	DistanceBase	34,661,375,267	km	Passenger distance under base fare. Audited value from operational data.
33	PercentBase	74%		Percent of passenger distance under base fare: <b>DistanceBase / PassengerTravel</b>
34	BaseRevenue	4,928,155,445	SGD	Annual revenue from all travel under base rate. Audited value from operational data.
35	AverageDiscount	24%		Average fare discount from Base Rate: <b>1 - (BaseRevenue / (DistanceBase x BaseRate))</b>
36	MarketFactor	1.0		Market rate factor. Negotiated value for setting ratio of AverageDiscount
37	MarketRateCap	24%		Cap on passenger travel distance at market rate: <b>AverageDiscount x MarketFactor</b>
38	MarketTravelCap	8,280,795,420	km	Cap on passenger travel distance at market rate: <b>DistanceBase x MarketRateCap</b>

# Project Summary

**Project Description** A fully-automated, solar-powered, micro-rail network. A transportation utility.

**Project type** **Privately-funded Public Transit**  
Design, Build, Finance, Own, Operate, Maintain (DBFOOM)

**Project equity** US\$2.39 billion (30% of total)

**Cost to Gov't** \$0

**Structure** Privately financed equity and debt

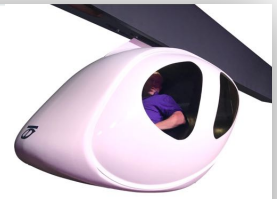
**Debt term** 10 years @ 7%

**Equity terms** A waterfall profit distribution per year with:  
1. 90% until capital payback,  
2. then 50% until Target% is reached  
3. then 10%

**Taxes & Fees** \$499,801,698 per year

**Benefits to society and environment** Extremely high

**Estimated return** 40% average IRR at 5 yrs  
48% average IRR at 10 yrs



Transit X presents a preliminary proposal for a sustainable micro-rail network — a fleet of automated electric vehicles (pods) for passengers and freight on a local and regional podway providing equitable public transportation for

## Singapore

**High capacity • High speed • Nonstop • 24/7**  
**Solar powered • Zero Wait • Door-to-door • Resilient**



## Financials

(US\$ in millions)	Year 1	Total Years 1-12
<b>Gross Revenues</b>	<b>3,352</b>	<b>97,223</b>
<b>Taxes and fees</b>	<b>168</b>	<b>4,861</b>
<b>Debt service</b>	<b>\$390</b>	<b>\$4,292</b>

## ESG (Environmental, Social, Governance) Benefits

<b>Clean Energy</b> yes	<b>Improve Resiliency</b> yes
<b>Energy security</b> yes	<b>Sustainable</b> yes
<b>Zero Emissions</b> yes	<b>Equitable</b> yes
<b>Zero GHG</b> yes	<b>Recyclable Materials</b> yes
<b>Lowers Pollution</b> yes	<b>Affordable Housing</b> yes
<b>Clean Water</b> yes	<b>Improved Health</b> yes
<b>Improved Safety</b> yes	<b>Economic Development</b> yes
<b>Add Green Space</b> yes	<b>Access to Food</b> yes
<b>Accessible</b> yes	<b>Add Quality Jobs</b> yes

## About Transit X

Transit X finances, designs, builds, and operates solar-electric micro-rail public transit podways to supplant buses, trains, cars, and trucks. Transit X offers its service to governments and commercial developers. Maiden Flight was on Oct 29, 2018 and pilot projects started in 2018. First pilots will break ground in 2019 and begin operations in 2020. Transit X is a privately held company founded in 2015, based in Boston, Massachusetts.

## Status

	Now	Prior to close
<b>Project financing</b>	Available	Yes
<b>Outdoor Test Track</b>	Nov 2019	Yes
<b>Rider-Revenue study</b>	Preliminary	Yes
<b>Environmental study</b>	Per region	Yes
<b>Air rights</b>	Per project	Yes
<b>Permitting</b>	Per project	Yes
<b>Safety certification</b>	Per country	Yes
<b>Construction firm</b>	Per project	Yes
<b>Design and major subs</b>	Per project	Yes
<b>Operations &amp; Maint</b>	Partners	Yes
<b>Utility relocation</b>	Per project	Agreements

General information available at [transitx.com](http://transitx.com). Detailed information and references can be provided under appropriate non-disclosure/non-compete/non-circumvent agreements. Contact: Mike Stanley, CEO, Transit X, [mike@transitx.com](mailto:mike@transitx.com), 508-596-7024



## Model Inputs and Assumptions

<b>Route length (km)</b>	1,855	<b>Travel per year per pod (km)</b>	168,192
<b>Starting number of pods</b>	44,464	<b>Revenue per vehicle-km (US\$)</b>	0.45
<b>Projected revenue growth</b>	15%	<b>OPEX as % of project cost</b>	5%
<b>Project Cost (Privately funded)</b>	\$7,963,512,828	<b>Debt Interest rate</b>	7%
<b>% Debt financed</b>	70%	<b>Debt term (yrs)</b>	10
<b>Debt</b>	\$5,574,458,980	<b>Profit share when below capital return</b>	90%
<b>Equity</b>	\$2,389,053,848	<b>Profit share when below Target IRR</b>	50%
<b>Debt payment (per year)</b>	\$390,212,129	<b>Profit share when above Target IRR</b>	10%

## Pro Forma

Years	0	1	2	3	4	5	6	7	8	9	10	11	12
<b>Revenue</b>	0	3,352,338,261	3,855,189,001	4,433,467,351	5,098,487,453	5,863,260,571	6,742,749,657	7,754,162,106	8,917,286,422	10,254,879,385	11,793,111,293	13,562,077,986	15,596,389,684
<b>5% RoW+tax+fee</b>	0%	167,616,913	192,759,450	221,673,368	254,924,373	293,163,029	337,137,483	387,708,105	445,864,321	512,743,969	589,655,565	678,103,899	779,819,484
<b>Debt service</b>	0	\$390,212,129	\$390,212,129	\$390,212,129	\$390,212,129	\$390,212,129	\$390,212,129	\$390,212,129	\$390,212,129	\$390,212,129	\$390,212,129	\$390,212,129	\$390,212,129
<b>Investor share</b>	0	1,941,030,199	987,998,501	583,235,973	632,986,263	690,199,097	755,993,856	831,657,829	918,671,398	1,018,737,003	1,133,812,447	1,266,149,209	1,418,336,485
<b>Investor share (%)</b>		90%	39%	20%	18%	17%	16%	15%	15%	14%	13%	13%	13%
<b>Share / Orig Capital</b>	0%	81%	41%	24%	26%	29%	32%	35%	38%	43%	47%	53%	59%
<b>IRR to date</b>	loss	(19%)	17%	28%	36%	40%	43%	45%	46%	47%	48%	48%	49%

### Important Notices

The information contained in this document is not an offer to sell or a solicitation to buy any security. These materials and documents and information from which they are derived or which are referred to by or accessible from them may contain forward looking statements within the meaning of Section 27A of the Securities Act of 1933, Section 2E of the Securities Exchange Act of 1934 and the Private Securities Litigation Reform Act of 1995. All statements other than statements of historical fact are forward looking statements and are subject to risks and uncertainties. Forward looking statements generally can be identified by the use of forward looking terminology such as "may," "will," "expect," "intend," "estimate," "project," "anticipate," "believe" or "plan" or the negative thereof or variations thereon or similar terminology. Although Transit X believes that the expectations reflected in such forward looking statements are reasonable, it can give no assurance that such expectations will prove to be correct. All forward looking statements speak only as of the date made. Except as required by law, Transit X undertakes no obligation to update any forward looking statement to reflect events or circumstances after the date on which it is made or to reflect the occurrence of anticipated or unanticipated events or circumstances. These materials and documents and information from which they are derived or which are referred to by or accessible from them represent Transit X's best estimate as to the allocation of the funding proceeds based upon its present business plan and financial condition. The costs and expenses to be incurred in pursuing the Company's business plan cannot be predicted with certainty. There can be no assurance that unforeseen events will not occur or that the Company's business plan will be achieved or that it will not be changed, and it is possible that the funding proceeds may be applied in a manner other than that described herein.