



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

## **Topsfield, MA**

This proposal is downloadable at [transitx.com/proposals/Transit\\_X\\_for\\_Topsfield,MA.pdf](https://transitx.com/proposals/Transit_X_for_Topsfield,MA.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)



**12 mile network  
with 153 pods**

**95% of population  
within a 7 min. walk**

**Nonstop 45 mph  
service to 60 stops**

**Transit X proposes to build and operate a green, privately-financed micro-rail podway to carry passengers and freight for Topsfield that makes the Transit X service convenient to 95% 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. Use of underground tunnels is an option. Posts are typically spaced at 23 m (25 yds).

### No public funding

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 financed by investment banks and private equity firms.

### **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

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\$1 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

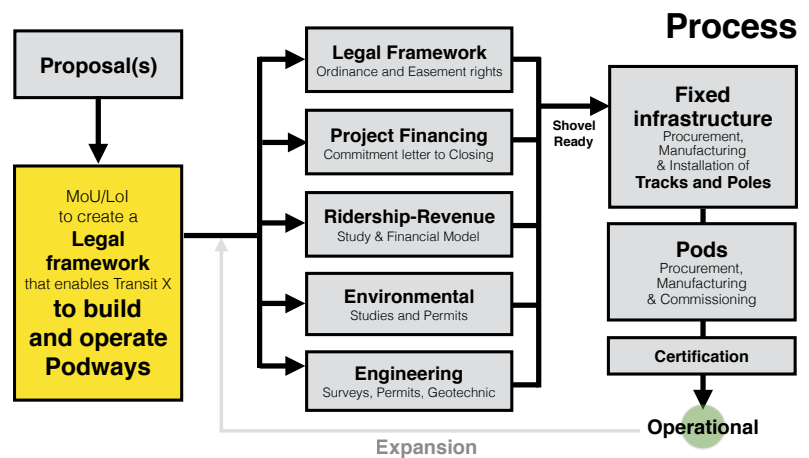
Please review our preliminary proposal, and then ask us any questions. We would be happy to provide further information, address specific concerns, or meet with specific people or groups. Any routes or coverage areas shown on the map are only preliminary suggestions and actual routes would be determined 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.

In parallel, we could refine the routes and meet with project stakeholders.

### **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 Topsfield through better transportation.

Sincerely,



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Zoom e-room: <https://zoom.us/j/8229009123>

Website: [transitx.com](https://transitx.com)

Twitter: <http://twitter.com/TransitXCorp>

Mail: 1127 Commonwealth Ave #30, Boston, MA 02134 USA





1	<b>Transit X network length</b>	<b>19 km</b>	<b>12.0 miles</b>
2	People (resident-equivalent) in region	7,455	resident-equivalent population
3	Route density ratio (route length to service area)	0.83	
4	Number of stops	60	
5	Triple-speed route length	0 km	
6	Water crossing route length	0 km	
7	<b>Cost of fixed infrastructure</b>	<b>\$70,068,247</b>	
8	...per person	\$9,399	
9	Mode share of travel on Transit X (26% after first year)	78%	after 10 years
10	Distance traveled by passengers on Transit X, per year	35,037,202 km	<b>21,762,237 miles</b>
11	...per day	95,992 km	<b>59,623 miles</b>
12	Daily potential energy generation with standard panels on tracks	148 MWh	
13	Sustainable energy use per day	1 MWh	0% of max capacity
14	Energy storage capital cost for 1 day(s) of supply at \$100 per kWh	\$65,085	
15	Size (rated power) of solar installation	151 KW	
16	Cost to generate sustainable energy (at \$1,000 per kW)	\$151,312	
17	Cost of buying sustainable energy at \$0.15 per kWh	\$98 per day	1% of OPEX
18	Daily passengers riding Transit X	5,840 customers	78% of the pop.
19	Distance per passenger per day	16 km	<b>10.2 miles</b>
20	Average distance per trip (assuming 3 trips per day)	5 km	<b>3.4 miles</b>
21	<b>Single passenger fare for shared 5 km trip</b>	<b>\$1.38</b>	
22	Passenger distance traveled during peak hour	19,198 km	<b>11,925 miles</b>
23	<b>Breakeven</b>	<b>5,259</b>	customers per day (90% of expected and 74% of people convenient to Transit X)
24	Boarding capacity	21,600	passengers per hour (370% of customers)
25	<b>Number of pods for peak demand</b>	<b>153 pods at 78% mode share</b>	
26	Number of customers per pod	38.2	and 49 people per pod
27	Distance per pod per year	167,690 km	
28	Two-layer pod garage area (2% of route with side-parking)	168 m <sup>2</sup>	0.2% of car parking
29	Cost of pods	\$994,500	is \$103 per person
30	Capital cost of energy generation and storage	\$281,317	is \$38 per person
31	<b>Project Finances</b>		
32	Total Project Cost (privately financed)	\$71,344,064	
33	Project cost	\$3,693,041 per km	US\$6.0M per mi.
34	Equity	\$21,403,219	
35	Private debt financing	\$49,940,845	
36			
37			
38			
39	Debt service (per year)	\$8,489,944	
40	<b>Yearly fees and taxes (US\$154 per capita)</b>	<b>\$1,145,360</b>	
41	OPEX + Debt service + Tax + Fees	\$13,202,507	
42			
43			
44	Project costs — per person	\$9,570	
45	Number of motor vehicles displaced	3,504	motor vehicles
46	Yearly cost of cars displaced — per person	\$4,230	
47	Operating costs per passenger-km	\$0.10	
47	Full costs per passenger-km	\$0.38	
48	Breakeven revenue distance per day	86,452 km	<b>53,697 miles</b>
49	Number of tracks in one direction needed to satisfy peak demand	<b>0.00</b>	



### Impact of proposed network

1	<b>Reduction in GHG emissions</b> (metric tons CO2-eq)	3,460 MTCO2-eq annually
2	<b>Estimated cost to maintain public roadways</b>	\$3,422,427 annually
3	<b>Reduced waste products</b>	561 metric tons annually
4	<b>Travel time saved</b> (non-stop travel and congestion)	292 hrs/person annually
5	<b>Cost savings from reduced car ownership</b>	\$1,210 per person annually
6	<b>Increase in household income</b> (from time savings and car costs)	9%
7	<b>Reported injuries avoided</b>	22 annually
8	<b>Lives saved</b> (from safety)	0 annually
9	<b>Land freed from parking (20 acres)</b>	80,586 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 3 mph
17	Width of convenient swath along track	1.14 km 1 mile
18	Fixed cost per km (track & posts)	\$2,790,000
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 6,211 miles
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	23,598 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	2.2 passengers
32	Average passengers per pod	1.4 passengers
	Average discount per passenger	18%
	Maximum passengers per pod	5 passengers
33	Empty pods: Percentage non-revenue	25%
34	Ex-Factory cost per pod	\$5,000
35	Worldwide Median Income per Household (US\$)	10,000
36	Average number of residents per household	2.3
37	Base fare per km (per mile)	\$0.42 \$0.67
38	O&M as % of project cost	5%
39	Percentage debt financed	70%
40	Length of loan/debt	10 years
41	Interest rate for debt	7%
42	kg CO2 emissions per liter of gasoline	2.37
43	Monetary value of 1 hour personal time (USD)	\$13.75
44	Eat. roadway maintenance per year per km	\$51,000
45	Area of one parking lot space	23 m <sup>2</sup> 247 sf
46	Commercial income of land (annual)	\$1.10 per m <sup>2</sup>
47	Distance from roadway that is convenient	0.35 km
48	Stops per km	2.9
49	Boarding capacity per stop	360 pph
50	Solar panel area per meter of track	2.0
51	Cost of sustainable energy and storage	\$0.15 per kWh
52	Global Horizontal Irradiance (GHI)	3.8 kWh/m <sup>2</sup> /day
53	Cost to generate sustainable energy	\$1,000 per kW
54	Storage per column	40 kWh
55	Typical span	23 m cols/km: 44
56	Energy storage cost	\$100 per kWh
57	Energy storage capacity	1 days
58	Area of parked pod	2.20 m <sup>2</sup>
59	Distance discount at max distance	40%
60	Max distance discount	500 km
61	Max usage discount at 10,000 km per capita	50%
62	Shared Pod Discount	20%
63	Shared Pod Compartment Discount	40%
64	Mode share starting discount	67%

### Model Inputs (continued)

68	Name of region or project	Topsfield, MA
69	Currency name	
70	Equal to US\$1	1
71	Sustainable energy/electricity generation & storage as	CAPEX
72	Land area of region (sq. km)	31
73	Number of residents in region	6,085
74	% travel within region	60%
75	% of land area served by roads	75%
76	Coverage: % of pop. convenient (7 min walk) to Transit X	95%
77	Annual median household income (US\$)	\$55,000
78	Convenient walk time to stop (min)	7
79	Triple-speed route length (km)	0
80	Water crossing route length (km)	0.0
81	Visitors per year	500,000
82	Average length of visit (days)	1
83	Solar production ratio	1.57
84	Regional Fare Factor	1.0
85	EPC costs & contingency	30%
86	Triple-speed (km/h)	242
87	Trip Distance Factor	1
88	Number of Stops Factor	1

### 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 5 km trip	5 21
97	Fare/cost per km	\$0.42 \$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.

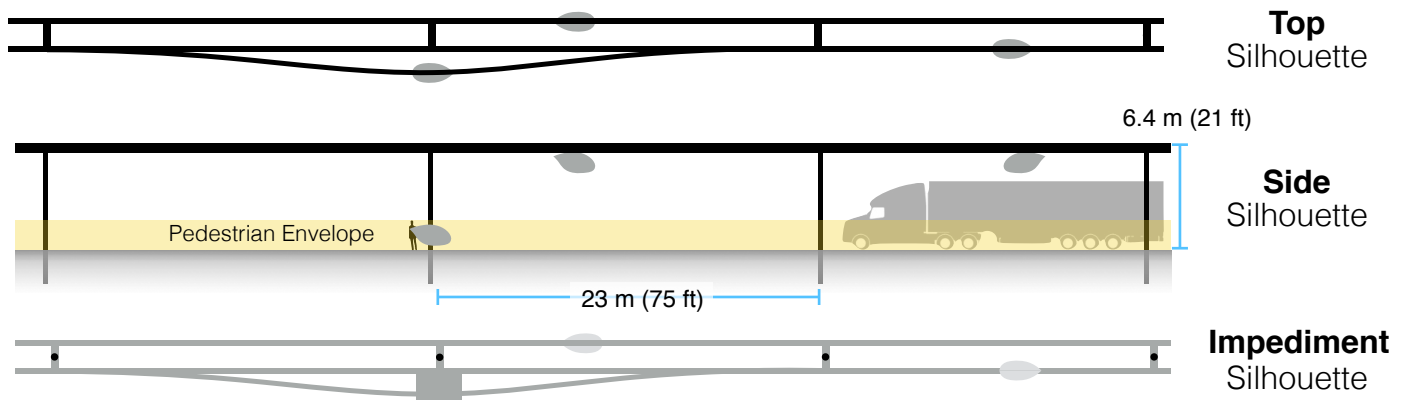
A minimum payment is based on the Footprint and the Transit X Commercial Rate (TXCR).

1	<b>Air-rights and Local Taxes</b>	(for calculating minimums)	
2	Total commercial land (estimated)	2,325,000 m <sup>2</sup>	<b>575 acres</b>
3	Total commercial gov't revenue (US\$)	\$2,557,500	
4	<b>TXCR (Transit X Commercial Rate)</b>	\$1.10 per m <sup>2</sup>	
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>	\$11.84 per sf	
6			
7	<b>Private Easement Fees</b>	For example	
8	<b>4% of gross revenue</b>	\$11.86 per route-meter	<b>\$3.62 per route-foot</b>
9	<b>Minimum per year</b>	\$1.63 per route-meter	<b>\$0.50 per route-foot</b>
10	<b>Government Fees and Taxes</b>		
11	% of route on government easements	98%	
12	<b>5% on government easements</b>	\$1,122,453	
13	<b>1% on private easements</b>	\$4,581	
14	<b>Total air-rights and local taxes</b>	<b>\$1,127,035 per year</b>	
16	per resident	\$185	
15	<b>with a minimum of</b>	<b>\$31,582 per year</b>	



# Footprint calculations for minimum fee

# Yearly fees and taxes



1	<b>Footprint Calculations</b>	Metric	Imperial
2	Track width	0.30 m	11.8 inches
3	Track height	0.60 m	23.6 inches
4	Post diameter	0.3 m	11.8 inches
5	Post cross section	0.07 m <sup>2</sup>	0.8 sf
6	Stop landing area	3.75 m <sup>2</sup>	40.4 sf
7	...width	1.5 m	59.1 inches
8	...length	2.5 m	98.4 inches
9	Ramp length	21 m	68.9 feet
10	Typical Span	23 m	75.5 feet
11	Number of posts per unit length	43.5 poles per km	70.0 poles per mile
12	Post height	6 m	19.7 feet
13			
14	<b>Single track</b>	1022.1 m <sup>2</sup>	10998 sf
15	...Area of Side Silhouette	678.3 m <sup>2</sup>	7298 sf
16	...Area of Top Silhouette	313.1 m <sup>2</sup>	3369 sf
17	...Impediment Area (adjusted)	30.7 m <sup>2</sup>	331 sf
18			
19	<b>Dual track</b>	1322.1 m <sup>2</sup>	14226 sf
20	...Area of Side Silhouette	678.3 m <sup>2</sup>	7298 sf
21	...Area of Top Silhouette	613.1 m <sup>2</sup>	6597 sf
22	...Impediment Area (adjusted)	30.7 m <sup>2</sup>	331 sf
23			
24	<b>Stop</b>	82.1 m <sup>2</sup>	883 sf
25	...Area of Side Silhouette	25.2 m <sup>2</sup>	271 sf
26	...Area of Top Silhouette	19.4 m <sup>2</sup>	208 sf
27	...Impediment Area (adjusted)	37.5 m <sup>2</sup>	404 sf
28			
29	Stops with dedicated landing areas	2 stops per km	3.2 stops per mile
30	% of dual track	100%	
31			
32	<b>Average area per unit length</b>	1,486 m <sup>2</sup> per route-km	<b>25,793 sf per route-mile</b>
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 0.40 USD per mile, 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 USD		Trip Length		
		1 mile	6 mile	25 mile
<b>Transit X</b>	<b>0.50</b> to 0.84	<b>2.48</b> to 4.15	<b>9.51</b> to 16.20	
	2 min., 3.6x faster	8 min., 3.6x faster	33 min., 3.4x faster	
<b>Public transit average</b>		<b>2.81</b>	<b>4.46</b>	<b>6.54</b>
Common public modes	<b>Taxi</b>	<b>3.89</b> 2 to 6 minutes	<b>16.95</b> 8 to 30 minutes	<b>65.90</b> 30 to 120 minutes
	<b>Uber/Lyft</b>	<b>2.96</b> 2 to 6 minutes	<b>12.20</b> 8 to 30 minutes	<b>46.84</b> 30 to 120 minutes
	<b>Public Bus</b>	<b>2.26</b> 3 to 12 minutes	<b>2.26</b> 15 to 60 minutes	<b>3.46</b> 60 to 240 minutes
	<b>Train</b>	<b>3.39</b> 2 to 12 minutes	<b>3.99</b> 8 to 60 minutes	<b>6.25</b> 30 to 240 minutes
<b>Personal car</b>		<b>3.24</b> 2 to 6 minutes	<b>10.18</b> 8 to 30 minutes	<b>36.21</b> 30 to 120 minutes

Travel mode	Avg. Speed	Low Speed	High speed	Base	Includ es km	Over per-km	Min Dist km	Max Dist. km	Time cost per min	Mode share		
	km/h	km/h	km/h							6%	70%	24%
Taxi	30	20	80	2.26	1	1.13	0.5	100	1.00	5%	4%	1%
Uber/Lyft	30	20	80	1.81	1	0.90	0.5	100	0.50	10%	10%	2%
Public Bus	15	10	40	2.26	20	0.06	0.5	50	0	50%	50%	40%
Train	30	10	80	3.39	2	0.08	2	100	0	35%	36%	57%
Transit X	72	72	72	0	0	0.25	0.1	50	0	-	-	-
Personal car	30	20	80	1.51	0	0.75	0.1	400	0.23	-	-	-

\* 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.



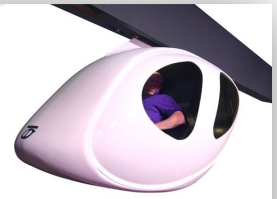
# Fair Fare Formula

Fare rates are updated annually using this formula

	Formula Name	Value	Units	Description of the value or model input
1	GlobalIncome	10,000	USD	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	0.09	USD/km	Global rate: <b>GlobalIncome * PercentIncomeForTransport / AllTravel</b>
5	IncomeFirst	\$55,000	USD	Median household income at first stop (per person per day). External input. Based on reliable public data source updated annually.
6	IncomeDest	\$82,500	USD	Median household income at destination per trip. External input. Based on reliable public data updated annually.
7	RegionalRate	0.48	USD/km	Regional rate based on median income: <b>MedianIncomeFirst * PercentIncomeForTransport / AllTravel</b>
8	UnderIncomeRate	0.00	USD/km	Under global income adjustment: <b>if (RegionalRate &lt; GlobalRate, GlobalRate - RegionalRate, 0)</b>
9	NominalRate	0.48	USD/km	Nominal rate: <b>RegionalRate + UnderIncomeRate</b>
10	RegionalFactor	1.00		Regional Fare Factor. Negotiated upfront to make network financially viable.
11	AdjustedRate	0.48	USD/km	Regional adjusted rate: <b>NominalRate * RegionalFactor</b>
13	Population	6,085		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	35,037,202	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	25%		Percent of Total Travel Per Capita on Transit X: <b>PassengerTravel / (Population x AllTravel)</b>
16	BaseRate	<b>0.42</b>	USD/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	0.92	USD/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	0.000335	USD/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>0.33</b>	USD/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>0.33</b>	USD/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>0.25</b>	USD/km	<b>Rate for shared compartment</b> <b>BaseRate x (1 - SharedCompartmentDiscount)</b>
29	SingleOccupancyMaxDistance	0.28	USD/km	Rate for 500 km in single-passenger pod.
30	Senior + SharedCompartmentRate	0.12	USD/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	25,927,529	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	8,890,248	USD	Annual revenue from all travel under base rate. Audited value from operational data.
35	AverageDiscount	18%		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	18%		Cap on passenger travel distance at market rate: <b>AverageDiscount x MarketFactor</b>
38	MarketTravelCap	4,679,097	km	Cap on passenger travel distance at market rate: <b>DistanceBase x MarketRateCap</b>

# Project Summary

<b>Project Description</b>	A fully-automated, solar-powered, micro-rail network. A transportation utility.
<b>Project type</b>	<b>Privately-funded Public Transit</b> Design, Build, Finance, Own, Operate, Maintain (DBFOOM)
<b>Project cost</b>	US\$71 million
<b>Cost to Gov't</b>	\$0
<b>Structure</b>	Privately financed equity and debt
<b>Debt term</b>	10 years @ 7%
<b>Equity terms</b>	A waterfall profit distribution per year with: <ol style="list-style-type: none"> <li>1. 90% until capital payback,</li> <li>2. then 50% until Target% is reached</li> <li>3. then 10%</li> </ol>
<b>Taxes &amp; Fees</b>	\$1,127,035 per year
<b>Benefits to society and environment</b>	Extremely high



Transit X presents a preliminary proposal for a privately-financed, solar-powered public transit network — a fleet of fully-autonomous, shared, electric, 4-passenger vehicles (pods) on a local and regional podway

## Topsfield, MA

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



## Financials

(US\$ in millions)

	<b>Year 1</b>	<b>Total Years 1-12</b>
<b>Gross Revenues</b>	<b>7</b>	<b>217</b>
<b>Taxes and fees</b>	<b>0</b>	<b>11</b>
<b>Debt service</b>	<b>\$3</b>	<b>\$38</b>

## ESG (Environmental, Social, Governance) Benefits

<b>Clean energy</b> yes	<b>Resiliency</b> yes
<b>Energy security</b> yes	<b>Sustainable</b> yes
<b>Emissions-free</b> yes	<b>Equitable</b> yes
<b>GHG-free</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>Econ. Development</b> yes
<b>New infrastructure</b> yes	<b>Access to Food</b> yes
<b>Equitable transport</b> yes	<b>New job creation</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

	<b>Now</b>	<b>Prior to close</b>
<b>Project financing</b>	Letter of intent	Yes
<b>Outdoor test system</b>	Dec, 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>	In process	Yes
<b>Construction firm</b>	Per project	Yes
<b>Design and major subs</b>	Per project	Yes
<b>Operations &amp; Maint</b>	Yes	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>	19	<b>Travel per year per pod (km)</b>	167,690
<b>Starting number of pods</b>	50	<b>Revenue per vehicle-km (US\$)</b>	0.89
<b>Projected revenue growth</b>	15%	<b>OPEX as % of project cost</b>	5%
<b>Project Cost (Privately funded)</b>	\$71,344,064	<b>Debt Interest rate</b>	7%
<b>% Debt financed</b>	70%	<b>Debt term (yrs)</b>	10
<b>Debt</b>	\$49,940,845	<b>Profit share when below capital return</b>	90%
<b>Equity</b>	\$21,403,219	<b>Profit share when below Target IRR</b>	50%
<b>Debt payment (per year)</b>	\$3,495,859	<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
Revenue	0	7,486,015	8,608,917	9,900,255	11,385,293	13,093,087	15,057,050	17,315,607	19,912,948	22,899,890	26,334,874	30,285,105	34,827,871
5% RoW=tax+fee	0%	374,301	430,446	495,013	569,265	654,654	752,852	865,780	995,647	1,144,995	1,316,744	1,514,255	1,741,394
Debt service	0	\$3,495,859	\$3,495,859	\$3,495,859	\$3,495,859	\$3,495,859	\$3,495,859	\$3,495,859	\$3,495,859	\$3,495,859	\$3,495,859	\$3,495,859	\$3,495,859
Investor share	0	39,408	470,066	965,323	1,534,868	2,189,845	2,943,069	3,809,276	4,805,414	5,950,973	3,375,983	3,544,316	3,737,900
Investor share (%)		90%	90%	90%	90%	90%	90%	90%	90%	90%	42%	36%	32%
Share / Orig Capital	0%	0%	2%	5%	7%	10%	14%	18%	22%	28%	16%	17%	17%

### 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.