



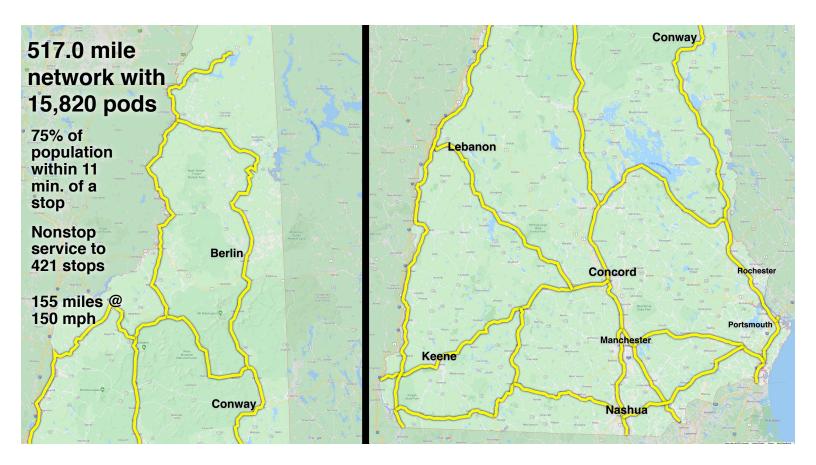
Transit X presents a preliminary proposal for a privately-financed public transit system — a fleet of automated electric vehicles (pods) for passengers and freight on a metro and inter-city micro-guideway providing equitable transportation for

# **New Hampshire**

This proposal is downloadable at <a href="mailto:transitx.com/proposals/Transitx">transitx.com/proposals/Transitx</a> X for New Hampshire.pdf

# High capacity · High speed · Nonstop · 24/7 Sustainable · Zero Wait · Door-to-door · Resilient

A companion Transit X Handbook is available at <a href="mailto:transitx.com/transitxhandbook.pdf">transitx.com/transitxhandbook.pdf</a>
A Feasibility Study is available to qualified organizations under NDA. Send request to hello@transitx.com



### **Proposal Overview**



Transit X proposes to finance, build and operate a sustainable microguideway to carry passengers and freight for New Hampshire that makes a podway convenient to 75% of the population.

Transit X efficiently services both suburbs and cities and provides for a higher quality of life. See transitx.com for more details. This 3-minute video (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) answers many questions about our service, the company, our technology, and the way we address: congestion, parking, road safety, pedestrian safety, accessibility, sustainability, fares,



renewable energy & 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. The Transit X podway can integrate into the built environment, providing both short term relief and a long term solution.

#### **High Capacity & High Speed**

A single guideway carries 12,000 pods per hour (20,000 to 50,000 passengers per hour). Two landing areas fit in a single car space and provide 2,000 boardings per hour. For urban commutes, pods trips are 3 times faster than car trips and the high-speed podway provides faster door-to-door trips than air travel for distances of 1,000 miles or less.

#### **Zero Footprint and Minimal Disruption**

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

#### Low-cost Infrastructure & equitable fares

Transit X projects do not require government funding because revenue from fares, freight, and advertising is much higher 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 impact investors, private wealth funds, commercial banks, sovereign wealth funds, 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 project groundbreaking will be in 2020.

#### **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, podways create walkable and bike-friendly neighborhoods.

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

Transit X podways offer 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 guideway. 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 55 kg (121 lbs) and achieve over 20 times the efficiency of electric cars. Renewable energy and storage installed on our guideways and posts provide 100% of the clean energy needed to power the system.

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

Podways provides the convenience and privacy that people value in cars, yet without their negative impacts. Transit X combines the best of mass transit and personal transportation modes which leads 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 podway. 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. We welcome labor unions.

#### **Revenue Generator**

Projects do not require government funding, and owners of the rights-of-way receive a Toll Share that is 5% of gross revenue for rights-of-way, estimated to be US\$89 million per year at the revenue target.

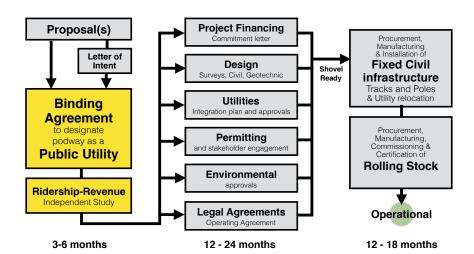
#### **Short and Long Term Solution**

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 are re-invested in the community and 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. Example documents and a sample project schedule can be viewed at:

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 ridesharing 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.

We look to a commitment enabling Transit X to build and operate podways along public rights-of-way, similar to other public utilities.

#### Other Resources

The links below provide general information about Transit X:

- Video presentations: <u>transitx.com/video</u> (2 min) <u>transitx.com/v</u> (5 min)
- Transit X Handbook (<u>transitx.com/transitxhandbook.pdf</u>)
- · Company profile (transitx.com/about.pdf)
- Other proposals (<u>transitx.com/w</u>)
- The process and templates for agreements (<u>transitx.com/process</u>)

#### **Addendum**

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

- Project Overview and Impact pages 6 and 7
- Toll Share pages 8 and 9
- Fares page 10 and 11
- Jobs Report page 12

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

Sincerely,



Email: hello@transitx.com

Telephone: +1 508-596-7024 (WhatsApp connected)

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

Website: transitx.com

Twitter: http://twitter.com/TransitXCorp

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







People (resident-equivalent) in region   1,330,608 resident-equivalent propulation   1,360,608 resident-equivalent propulation   1,360,608 resident pro	1	Podway network length	833.9	km	517.0 mile
Route density ratio (route length to service area)		-			
Number of stops					
Second   Project   Proj		, ,			
Maler crossing route length		·		km	155 miles
Cost of fixed infrastructure   S4,839,291,441 97% of project cost		-			
10   Distance traveled by podway riders, per year   3,0% 3,552,592,086 km   2,256,865,097 miles				or 70 or project door	
Distance traveled by podway riders, per year   3,633,552,806 km   2,256,865,097 miles		·		after 4 years 9% in fire	st vear
1					•
12   Daily potential energy generation on podway   9,606.5 MWh					
Sustainable energy use per day   67.5 MWh					0,100,132 IIIIC3
Energy storage capital cost for 1 day(s) of supply at \$200 per kWn   \$13,499,367					
Nominal power of solar installation to meet self-demand   15,692 kW				IVIVVII	
Cost to generate sustainable energy (at \$1,000 per kW)				L/M	
Cost to buy sustainable energy at \$0.08 per kWh   \$5,400 per day		•		IV A A	
18				ner day	
Distance per rider per day   25 km   15.3 milles		•			30% of the non
Average distance per trip   1,211,184					
Single passenger fare for shared 8 km trip   S2.88		• • • • • • • • • • • • • • • • • • • •		KIII	5.1 illiles
Breakeven (as percentage of target trips)   Revenue from Base Fare   \$0.35   Vehicle-km					
Revenue from Base Fare   \$0.35 / vehicle-km		<u> </u>	·	416 722 tring par de	
Revenue from Market Fare   \$0.32   /vehicle-km   \$0.67   /vehicl					ıy
Passenger distance traveled during peak hour Boarding capacity 151,560 passengers per hour (38% of riders) 15,820 pods at 30% mode share 25.5 and 84 residents per pod 25.5 and 84					
Boarding capacity   151,560   passengers per hour (38% of riders)	24		\$0.67	/vehicle-km	
Number of pods for peak demand   15,820   pods at 30% mode share		-			
Number of podway riders per pod   25.5   and 84 residents per pod					
Distance per pod per year   168,187 km				•	
30         Operating costs (including Toll Share)         \$0.17         /vehicle-km           30         Pod garage area (3% of route with side—parking)         17,402         m²         0.2% of car parking           31         Cost of pods         \$102,830,000         is \$59 per resident           32         Capital cost of energy generation and storage         \$37,948,697         is \$29 per resident           33         Project Finances         \$4,980,070,138         \$5,972,020         per km         US\$9.6M per mi.           36         Project costs — per resident         \$3,743         \$5,972,020         per km         US\$9.6M per mi.           37         Net Revenue         \$1,788,304,310					er pod
Pod garage area (3% of route with side—parking)   17,402 m²   0.2% of car parking					
31       Cost of pods       \$102,830,000 is \$59 per resident         32       Capital cost of energy generation and storage       \$37,948,697 is \$29 per resident         33       Project Finances         34       Total Project Cost Portion Project Cost Project cost per km       \$4,980,070,138         35       Project costs — per resident       \$5,972,020 per km       US\$9.6M per mi.         36       Project costs — per resident       \$3,743         37       Net Revenue       \$1,788,304,310         38       Toll Share       \$89,415,215         39       Operating Expenses       \$357,660,862         40       Interest       \$174,302,455         41       Taxes       \$116,692,578         42       Net Operating Income (NOI)       \$1,050,233,200         43       Cap Rate (NOI / Project Cost)       0.21         44       Number of motor vehicles displaced       363,355 motor vehicles					
32 Capital cost of energy generation and storage       \$37,948,697 is \$29 per resident         33 Project Finances         34 Total Project Cost       \$4,980,070,138         35 Project cost per km       \$5,972,020 per km       US\$9.6M per mi.         36 Project costs — per resident       \$3,743         37 Net Revenue       \$1,788,304,310         38 Toll Share       \$89,415,215         39 Operating Expenses       \$357,660,862         40 Interest       \$174,302,455         41 Taxes       \$116,692,578         42 Net Operating Income (NOI)       \$1,050,233,200         43 Ozap Rate (NOI / Project Cost)       0.21         44 Number of motor vehicles displaced       363,355 motor vehicles					0.2% of car parking
Project Finances   S4,980,070,138   S4,980,070,138   S5,972,020   per km   US\$9.6M per mi.   S3,743   S7   S7   S7   S7   S7   S7   S7   S	31	·			
34       Total Project Cost       \$4,980,070,138         35       Project cost per km       \$5,972,020 per km       US\$9.6M per mi.         36       Project costs — per resident       \$3,743         37       Net Revenue       \$1,788,304,310         38       Toll Share       \$89,415,215         39       Operating Expenses       \$357,660,862         40       Interest       \$174,302,455         41       Taxes       \$116,692,578         42       Net Operating Income (NOI)       \$1,050,233,200         43       Cap Rate (NOI / Project Cost)       0.21         44       Number of motor vehicles displaced       363,355 motor vehicles	32	Capital cost of energy generation and storage	\$37,948,697	is \$29 per resident	
34       Total Project Cost       \$4,980,070,138         35       Project cost per km       \$5,972,020 per km       US\$9.6M per mi.         36       Project costs — per resident       \$3,743         37       Net Revenue       \$1,788,304,310         38       Toll Share       \$89,415,215         39       Operating Expenses       \$357,660,862         40       Interest       \$174,302,455         41       Taxes       \$116,692,578         42       Net Operating Income (NOI)       \$1,050,233,200         43       Cap Rate (NOI / Project Cost)       0.21         44       Number of motor vehicles displaced       363,355 motor vehicles	33 <b>Pr</b>	oiect Finances			
35         Project cost per km         \$5,972,020 per km         US\$9.6M per mi.           36         Project costs — per resident         \$3,743           37         Net Revenue         \$1,788,304,310           38         Toll Share         \$89,415,215           39         Operating Expenses         \$357,660,862           40         Interest         \$174,302,455           41         Taxes         \$116,692,578           42         Net Operating Income (NOI)         \$1,050,233,200           43         Cap Rate (NOI / Project Cost)         0.21           44         Number of motor vehicles displaced         363,355 motor vehicles		•	\$4.980.070.138		
36       Project costs — per resident       \$3,743         37       Net Revenue       \$1,788,304,310         38       Toll Share       \$89,415,215         39       Operating Expenses       \$357,660,862         40       Interest       \$174,302,455         41       Taxes       \$116,692,578         42       Net Operating Income (NOI)       \$1,050,233,200         43       Cap Rate (NOI / Project Cost)       0.21         44       Number of motor vehicles displaced       363,355 motor vehicles		•		per km	US\$9.6M per mi.
37       Net Revenue       \$1,788,304,310         38       Toll Share       \$89,415,215         39       Operating Expenses       \$357,660,862         40       Interest       \$174,302,455         41       Taxes       \$116,692,578         42       Net Operating Income (NOI)       \$1,050,233,200         43       Cap Rate (NOI / Project Cost)       0.21         44       Number of motor vehicles displaced       363,355 motor vehicles		•			
38       Toll Share       \$89,415,215         39       Operating Expenses       \$357,660,862         40       Interest       \$174,302,455         41       Taxes       \$116,692,578         42       Net Operating Income (NOI)       \$1,050,233,200         43       Cap Rate (NOI / Project Cost)       0.21         44       Number of motor vehicles displaced       363,355 motor vehicles		· · · · · · · · · · · · · · · · · · ·			
39       Operating Expenses       \$357,660,862         40       Interest       \$174,302,455         41       Taxes       \$116,692,578         42       Net Operating Income (NOI)       \$1,050,233,200         43       Cap Rate (NOI / Project Cost)       0.21         44       Number of motor vehicles displaced       363,355 motor vehicles	38	Toll Share			
40     Interest     \$174,302,455       41     Taxes     \$116,692,578       42     Net Operating Income (NOI)     \$1,050,233,200       43     Cap Rate (NOI / Project Cost)     0.21       44     Number of motor vehicles displaced     363,355 motor vehicles					
41       Taxes       \$116,692,578         42       Net Operating Income (NOI)       \$1,050,233,200         43       Cap Rate (NOI / Project Cost)       0.21         44       Number of motor vehicles displaced       363,355 motor vehicles	40				
Net Operating Income (NOI) \$1,050,233,200  Cap Rate (NOI / Project Cost) 0.21  Number of motor vehicles displaced 363,355 motor vehicles		Taxes			
Number of motor vehicles displaced 363,355 motor vehicles	42	Net Operating Income (NOI)			
	43	Cap Rate (NOI / Project Cost)	0.21		
Yearly cost of cars displaced — per resident \$2,458	44	Number of motor vehicles displaced	363,355	motor vehicles	
	45	Yearly cost of cars displaced — per resident	\$2,458		



### Impact of proposed network

### **Project Overview** p. 2

₁ <i>Transit</i> X	Reduction in GHG emissions (metric tons CO2-eq)	358,813	MTCO2-eq annually
2	Estimated cost to maintain public roadways	\$366,916,224	•
3	Reduced waste products	58,228	metric tons annually
4	Travel time saved (non-stop travel and congestion)	437	hrs/person annually
5	Cost savings from reduced car ownership	\$331	per person annually
6	Increase in household income (from time savings and car costs)	12%	
7	Reported injuries avoided	2,253	annually
8	Lives saved (from safety)	23	annually
9	Land freed from parking (2,065 acres)	8,357,171	$m^2$
12	Temperature reduction (from heat island effect & GHG reductions)	0.5 to 2	°C
11	Health care savings (from pollution, injuries)	High	

### **Inputs and Assumptions**

			Inputs	and As
15	Ratio of road length to guideway length	4	•	
16	Walking speed	4.9	km/h	3 mph
17	Width of convenient swath along podway	6.53	km	4 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 in a developed county for trips under 1600 km)	10,000		6,211 miles
23	Average distance per day per person		km	
24	Mode share % of people convenient to a podway		at 5 min walk.	
25	Percentage of daily demand during peak hour	20%		
26	Maximum capacity per guideway	23,598		
27	Average dwell time during peak hour	18%	seconds	
28	% of pods traveling on route with highest demand		km/h	4E mah
29	Average speed of pod			45 mph
30	Average passengers per pad during peak bours		per day passengers	
32	Average passengers per pod during peak hours  Average passengers per pod		passengers	
UZ	Average passengers per pour Average discount per passenger	18%	passonyers	
33	Maximum passengers per pod		passengers	
34	Empty pods: Percentage non-revenue	25%	pacconigoro	
35	Ex-Factory cost per pod	\$5,000		
36	Worldwide Median Income per Household (US\$)	\$10,000		
37	Average number of residents per household	2.3	people/house	
38	Base fare per km	\$0.58		
39	(per mile)	\$0.94		
40	Market rate revenue factor	2.1		
	Percentage of revenue from passenger fares	60%		
40	O&M as % of revenue	20%		
41	Percentage debt financed	70%	debt	
42	Interest rate for debt	5.0%	interest	
43	kg CO2 emissions per liter of gasoline		kg/liter	
44	Monetary value of 1 hour personal time (USD)	\$13.75		
45	Est. roadway maintenance per year per km	\$100,000		
46	Area of one parking lot space		m <sup>2</sup>	247 sf
47	Commercial income of land (annual)		per m <sup>2</sup>	
48	Distance from roadway that is convenient	1.98		
49	Stops per km		stops/km	
50	Boarding capacity per stop	360		
51	Solar panel area per meter of podway		m <sup>2</sup>	
52	Cost to buy sustainable energy		per kWh per kWh	
57 54	Cost of sustainable energy storage Capital cost to generate sustainable energy	\$1,000	•	
53	Global Horizontal Irradiance (GHI)		kWh/m²/day	
55	Storage per column		kWh	
56	Typical span	23		44
58	Energy storage capacity		days	
59	Area of parked pod	2.20		
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	Price on Carbon	\$40	/tCO2e	
66	Toll Share (% of revenue for use of rights-of-way)	5%		
67	Expected ridership in first year	30%	of target	

اا	3113113	
1	Name of region or project	New Hampshire
2	Currency name	
3	Equal to US\$1	1
4	Energy in CAPEX or OPEX	CAPEX
5	Land area of region (sq. km)	24,214
6	Number of residents in region	1,330,608
7	% travel within region	90%
8	% of land area served by roads	30%
9	Coverage: % of pop. convenient (40 min walk) to a podway	75%
10	Annual median household income (US\$)	\$55,000
11	Convenient walk time to stop (min)	40
12	Triple-speed route length (km)	250
13	Water crossing route length (km)	0.0
14	Visitors per year	0
15	Average length of visit (days)	2
16	Solar production ratio	1.57
17	Regional Fare Factor	1
18	Price adjust (EPC costs & contingency)	30%
19	Triple-speed (km/h)	242
20	Daily Passengers Adjustment	100%
21	Number of Stops Adjustment	100%
22	Mode Share Adjustment	100%
23	Corporate Tax Rate	10%
24	Interest Rate on Debt	5.0%

		Pod	Car
25	Service life (years)	20	12
26	Full cost of vehicle per year	\$200	\$9,000
27	Public cost to maintain infrastructure per year per km	\$0	\$100,000
28	Energy consumption (MPGe)	3564	24
29	Energy consumption (liters/100km)	0.07	9.8
30	Energy consumption (Watt-hours/km)	9	1375
31	mass of CO2 per vehicle per km (kg)	0	0.09875
32	Vehicle mass (kg)	45	1950
33	Average speed of urban travel (km/h)	72	16
34	Typical travel time (in minutes) for 8 km trip	7	31
35	Fare/cost per km	\$0.58	\$0.62
36	Number of deaths per 100M passenger-km	0.00001	0.62
37	Number of injuries per 100M passenger-km	0.0006	62
38	Volume to park (cubic meters)	5.7	70.9

### **Toll Share for Rights-of-Way**

### Rights-of-Way owners' Toll Share is 5% of gross revenue

with a minimum payment based on the Footprint and the Transit X Commercial Rate (TXCR).

### Toll Share Payment (inclusive of all fees and taxes)

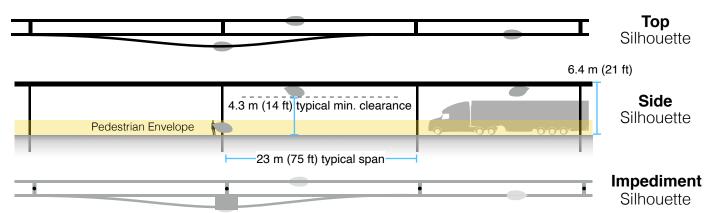
	Estimated Annual Payment at target revenue	<b>\$89,415,215</b> annually	\$67 per resident				
	with a minimum of	\$1,435,815 annually					
0							
1 (	Other financial benefits to Owners of Rights-of-way and/or Local Government:						
2	Less road maintenance from lower VMT						
3	Public land made available from less parking and lanes						
4	Reduced emergency and police services for road-related incidents						
5	Less investment needed in road-bas						

#### Minimum payment calculations

(charging stations, signals, BRT, etc)

2	Total commercial land (estimated)	726,420,000 m <sup>2</sup>	179,502 acres
3	Total commercial gov't revenue (US\$)	\$799,062,000	
4	TXCR (Transit X Commercial Rate)	\$1.10 per m <sup>2</sup> (estimated)	
5	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 tayling.	\$11.84 per sf (estimated)	

### **Toll Share Minimum Calculation**



Pod landing area: 1.5m x 2.5m with 3m minimum spacing

1	Footprint Calculations	Metric	Imperial
2	Guideway width	<u>0.35</u> m	13.8 inches
3	Guideway height	<u>0.65</u> m	25.6 inches
4	Post diameter	<u>0.4</u> m	15.7 inches
5	Post cross section	<u>0.13</u> m <sup>2</sup>	1.4 sf
6	Stop landing area	<u>3.75</u> m <sup>2</sup>	40.4 sf
7	width	<u>1.5</u> m	59.1 inches
8	length	<u>2.5</u> m	98.4 inches
9	Ramp length	<u>21</u> m	68.9 feet
10	Typical Span	<u>23</u> m	75.5 feet
11	Number of posts per unit length	43.5 poles per km	70.0 poles per mile
12	Post height	<u>6</u> m	19.7 feet
13			
14	Single guideway	1172.2 m <sup>2</sup>	12612 sf
15	Area of Side Silhouette	754.3 m <sup>2</sup>	8117 sf
16	Area of Top Silhouette	363.2 m <sup>2</sup>	3908 sf
17	Impediment Area (adjusted)	54.6 m <sup>2</sup>	588 sf
18			
19	Dual guideway	1522.2 m <sup>2</sup>	16378 sf
20	Area of Side Silhouette	754.3 m <sup>2</sup>	8117 sf
21	Area of Top Silhouette	713.2 m <sup>2</sup>	7674 sf
22	Impediment Area (adjusted)	54.6 m <sup>2</sup>	588 sf
23			
24	Stop	86.3 m <sup>2</sup>	928 sf
25	Area of Side Silhouette	27.3 m <sup>2</sup>	294 sf
26	Area of Top Silhouette	21.5 m <sup>2</sup>	231 sf
27	Impediment Area (adjusted)	37.5 m <sup>2</sup>	404 sf
28	, , ,		
29	Ctops with dedicated landing are	O.E. otopo por line	0.0 stone ner mile
30	Stops with dedicated landing areas % of dual guideway	0.5 stops per km 100%	0.8 stops per mile
31	% of dual guideway	100%	
32	Average area per unit length	1,565 m² per route-km	27,165 sf per route-mile
33			
34	Impediment Factor	10	



### **Fair Fare Formula**

Summary

Faster travel saves a household 295 hours per year.\*

At 0.56 per mile, a typical commute on Transit X is 17% less than public transit

Irin	I Anath
11111	Length

All prices in USD		1.2 mile	6 mile	25 mile
	Transit X	<b>0.70</b> to 1.16 2 min., 3.6x faster	<b>3.45 to 5.79</b> 8 min., 3.6x faster	<b>13.25</b> to 22.58 33 min., 3.4x faster
	Public transit average	3.91	6.22	9.12
səpou	Taxi	<b>5.42</b> 2 to 6 minutes	<b>23.62</b> 8 to 30 minutes	<b>91.85</b> 30 to 120 minutes
Common public modes	Uber/Lyft	<b>4.13</b> 2 to 6 minutes	<b>17.01</b> 8 to 30 minutes	<b>65.30</b> 30 to 120 minutes
non pı	Public Bus	<b>3.15</b> 3 to 12 minutes	<b>3.15</b> 15 to 60 minutes	<b>4.83</b> 60 to 240 minutes
Comr	Train	<b>4.72</b> 2 to 12 minutes	<b>5.56</b> 8 to 60 minutes	<b>8.71</b> 30 to 240 minutes
Personal car		<b>4.43</b> 2 to 6 minutes	<b>13.74</b> 8 to 30 minutes	<b>48.67</b> 30 to 120 minutes

										Mo	ode shar	е
	Avg. Speed	Low Speed	High speed				Min Dist	Max Dist.	Time cost	6%	70%	24%
										Dis	tance (k	m)
Travel mode	km/h	km/h	km/h	Base	Includes km	Over per-km	km	km	per min	2	10	40
Taxi	30	20	80	3.15	1	1.57	0.5	100	1.40	5%	4%	1%
Uber/Lyft	30	20	80	2.52	1	1.26	0.5	100	0.70	10%	10%	2%
Public Bus	15	10	40	3.15	20	0.08	0.5	50	0	50%	50%	40%
Train	30	10	80	4.72	2	0.10	2	100	0	35%	36%	57%
Transit X	72	72	72	0	0	0.35	0.1	50	0	-	-	-
Personal car	30	20	80	2.10	0	1.05	0.1	400	0.23	-	-	-

<sup>\*</sup> All numbers on mode shares, speeds, and costs are estimates based on global averages.

Base fares are set for first 3 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. Market rate fares must account for less than half of all fares.

## **Fair Fare Formula**

Fare rates are updated annually using this 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	20,000	km	Travel distance per household per year on any mode for trips under 1600 km. A global constant
3	PercentIncomeForTra nsport	25%		% of median household income for all transportation under 1600 km trips. A global constant.
4	GlobalRate	0.13	USD/km	Global minimum rate: GlobalIncome * PercentIncomeForTransport / AllTravel
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. Maximum is 8 times <b>GlobalIncome</b>
6	IncomeDest	80,000	USD	Median household income at destination per trip. External input. Based on reliable public data updated annually. Maximum is 8 times <b>GlobalIncome</b>
7	RegionalRate	0.69	USD/km	Regional rate based on median income:  MedianIncomeFirst * PercentIncomeForTransport / AllTravel
8	UnderIncomeRate	0.00	USD/km	Under global income adjustment: if (RegionalRate < GlobalRate, GlobalRate - RegionalRate, 0)
9	NominalRate	0.69	USD/km	Nominal rate: RegionalRate + UnderIncomeRate
10	RegionalFactor	1.00		Regional Fare Factor. Negotiated upfront to make network financially viable.
11	AdjustedRate	0.69	USD/km	Regional adjusted rate: NominalRate * RegionalFactor
12	Population	<u>1,330,608</u>		Population in region. Updated annually based on trusted public data source.
13	UsageMaxDiscount	50%		Fare Discount when Transit X travel per household equals AllTravel. Global constant.
14	ModeShare	30%		Percent of Total Travel Per Capita on Transit X podways. Based on target mode share for first 3 years, then adjusted based on actual travel.  PassengerTravel / (Population x AllTravel)
15	BaseRate	0.58	USD/km	Base rate for single-passenger pod (without discounts) (1 - UsageMaxDiscount x min(1,ModeShare)) x AdjustedRate
16	SpecialRateFactor	2.20		Rate factor for water crossings or high-speed links. Global constant.
17	SpecialBaseRate	1.28	USD/km	Base rate for high-speed travel or water crossings:  BaseRate * SpecialRateFactor
18	DistanceDiscount	40%		Distance discount at max distance. Global constant.
19	MaxDistanceDiscount	500	km	Max distance discount. Global constant.
20	DistanceDiscountPer Km	0.000467	USD/km	Discount amount per km:  BaseRate x DistanceDiscount / MaxDistanceDiscount
21	SeniorDiscount	20%		Senior discount set according to local regulations
22	StudentDiscount	20%		Student discount set according to local regulations
23	DisabilityDiscount	20%		Disability discount set according to local regulations
24	DiscountBaseRate	0.47	USD/km	Discounted base rate: BaseRate x (1 - SeniorDiscount)
25	SharedPodDiscount	20%		Discount for requesting a shared pod. 15% minimum and 30% maximum.
26	SharedPodRate	0.47	USD/km	Rate for a shared pod: BaseRate x (1 - SharedPodDiscount)
20		0.47	OOD/KIII	•
27	SharedCompartment Discount	40%		Discount for requesting a shared compartment. 25% minimum and 40% maximum. At least 10 percentage points higher than SharedPodDiscount.
28	SharedCompartment Rate	0.35	USD/km	Rate for shared compartment  BaseRate x (1 - SharedCompartmentDiscount)
29	SingleOccupancyMax Distance	0.40	USD/km	Rate for 500 km in single-passenger pod.
30	Senior + SharedCompartment Rate	0.17	USD/km	Rate for a Senior taking a 500 km trip in a shared compartment.  BaseRate x (1 - SeniorDiscountAmount) x (1 - SharedCompartmentDiscount) x (1 - MaxDistanceDiscount)
31	50PctIncomeAtDest	23%		% Higher fare rate if Destination has 50% higher median income than First (IncomeDest / IncomeFirst - 1) / 2
32	DistanceBase	-	km	Passenger distance under base fare.
33	PercentBase	<u>74%</u>		Percent of passenger distance under base fare. Audited value from operational data.  DistanceBase / PassengerTravel
34	AverageDiscount	18%		Average fare discount from Base Rate. Audited value from operational data.  1 - (BaseRevenue / (DistanceDase x BaseRate))
35	MarketFactor	1.0		Market rate factor. Negotiated value for setting ratio of AverageDiscount
36	MarketRateCap	18%		Cap on passenger travel distance at market rate:  AverageDiscount x MarketFactor

# Jobs Report\*

This project would create 21,700 new jobs in manufacturing, construction, and operations. About 16,000 existing transportation jobs would be impacted — of which 1,000 workers would need significant retraining. Improving the transportation infrastructure will boost the economy overall and lead to 15,200 new jobs. Lowering the cost of transportation and reducing travel times raises household income by 12%.

1	Annual median household income (US\$)	\$55,000	
2	CAPEX		
3	Average gross CAPEX salary (% of median HH)	125%	
4	Average gross CAPEX salary	\$68,750	
5	% of CAPEX as salary	15%	
6	Years of CAPEX	2	
7	# of CAPEX jobs	5,430	
8	% of jobs that are manufacturing vs. construction	75%	
9	Manufacturing jobs	4,070	
10	Construction jobs	1,360	
11	Supply chain jobs factor	3	
12	Jobs in supply chain	16,290	
13	Average gross OPEX salary (% of median HH)	115%	
14	Average gross OPEX salary	\$63,250	
15	% of OPEX as salary	30%	
16	Operations and Maintenance jobs	1,700	
17	Secondary-effect jobs factor	7%	
18	Secondary effect jobs	15,240	
19	Job transitioning and training		
20	Expected mode share at 10 years (from page 6, line 9)	30%	
21	% of population with a full-time job	60%	798,365
22	jobs in transportation	10%	79,836
23	jobs impacted with this proposed network	20%	15,967
24	jobs requiring significant retraining	20%	3,193
25	Jobs needing retraining with this proposed network (over 10 years)	0.1%	970
26	Training cost per person as % of salary (from line 13)	100%	\$63,250
27	Number of years that training is divided across	10	
28	Ratio (as %) of training costs vs. gov't revenue from Transit X project	7%	\$6,135,250

<sup>\*</sup> Numbers are approximations based on a universal model. A regional study could analyze data based on local conditions.