## $\bar{\omega}$

Transit $X$


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 local and inter-city micro-guideway providing equitable transportation for

## Montréal to Boston

This proposal is downloadable at transitx.com/proposals/Transit X for Montreal to Boston.pdf
High capacity • High speed • Nonstop • 24/7 Sustainable • Zero Wait • Door-to-door • Resilient

A companion Transit X Handbook is available at transitx.com/transitxhandbook.Ddf


## Proposal Overview

## Transit X proposes to finance, build and operate a sustainable microguideway to carry passengers and freight for Montréal to Boston that makes the Transit $X$ service convenient to $50 \%$ 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. Transit X 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 highspeed 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 $X$ 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 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, 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 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

Transit X 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 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. Theses 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 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 $\$ 70$ 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 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 easements. 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 for 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 :

- One minute video overview (transitx.com/video)
- 7 minute video presentation (https://vimeo.com/366066646/eac953c0cc)
- Transit X Handbook (transitx.com/transitxhandbook.pdf)
- Company profile (transitx.com/about.pdf)
- Other proposals (transitx.com/proposals)
- The process and templates for agreements (transitx.com/process)


## 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 Montréal to Boston 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




$$
\begin{array}{r}
\text { Transit X network length } \\
\text { People (resident-equivalent) in region } \\
\text { Route density ratio (route length to service area) } \\
\text { Number of stops } \\
\text { Triple-speed route length } \\
\text { Water crossing route length } \\
\text { Cost of fixed infrastructure } \\
\ldots \text { per person } \\
\text { Mode share of travel on Transit X (2\% after first year) } \\
\text { Distance traveled by passengers on Transit X, per year } \\
\ldots \text { per day } \\
\text { Energy storage capital cost for 1 day(s) of supply at \$250 per kWh } \\
\text { Size (rated power) of solar installation } \\
\text { Cost to generate sustainable energy (at \$1,000 per kW) } \\
\text { Cost of buying sustainable energy at \$0.15 per kWh } \\
\text { Daily passengers riding Transit X } \\
\text { Distance per passenger per day } \\
\text { Proneration with standard panels on guideways } \\
\text { Average distance per trip (assuming } 3 \text { trips per day) } \\
\text { Single passenger fare for shared } 4 \text { km trip } \\
\text { Passenger distance traveled during peak hour } \\
\text { Breakeven }
\end{array}
$$



Transit X
Impact of proposed network

## Reduction in GHG emissions (metric tons CO2-eq) Estimated cost to maintain public roadways Reduced waste products Travel time saved (non-stop travel and congestion) Cost savings from reduced car ownership Increase in household income (from time savings and car costs) <br> Reported injuries avoided <br> Lives saved (from safety) <br> Land freed from parking (1,352 acres) Temperature reduction (from heat island effect \& GHG reductions) Health care savings (from pollution, injuries)

## 234,981 MTCO2-eq annually \$336,734,694 annually <br> 38,132 metric tons annually <br> 194 hrs/person annually <br> \$579 per person annually 6\% <br> 1,475 annually <br> 15 annually <br> 5,472,966 $\mathrm{m}^{2}$ <br> 0.5 to $2{ }^{\circ} \mathrm{C}$ <br> High

Model Inputs

| Ratio of road length to guideway length | 4 |  |
| :---: | :---: | :---: |
| Walking speed | $4.9 \mathrm{~km} / \mathrm{h}$ | 3 mph |
| Width of convenient swath along guideway | 9.80 km | 6 mile |
| Fixed cost per km (track \& posts) | \$2,790,000 |  |
| Water crossing: additional cost per km | \$8,370,000 |  |
| Triple-speed: additional cost per km | \$5,580,000 |  |
| Rate factor for water crossings or high-speed links. | 2.2 |  |
| Average distance traveled per person per year in a developed county for trips under 1600 km ) | 10,000 km | 6,211 miles |
| Average distance per day per person | 27 km |  |
| Mode share \% of people convenient to Transit X | $85 \%$ at 5 min walk. |  |
| Percentage of daily demand during peak hour | 20\% |  |
| Maximum capacity per guideway | 23,598 pph |  |
| Average dwell time during peak hour | 10 seconds |  |
| \% of pods traveling on route with highest demand | 18\% |  |
| Average speed of pod | $242 \mathrm{~km} / \mathrm{h}$ | 150 mph |
| Average \# of trips for a daily customer | 3 per day |  |
| Average passengers per pod during peak hours | 2.2 passengers |  |
| Average passengers per pod | 1.4 passengers |  |
| Average discount per passenger | 18\% |  |
| Maximum passengers per pod | 5 passengers |  |
| Empty pods: Percentage non-revenue | 25\% |  |
| Ex-Factory cost per pod | \$5,000 |  |
| Worldwide Median Income per Household (US\$) | 10,000 |  |
| Average number of residents per household | 2.3 |  |
| Base fare per km | \$0.48 |  |
| (per mile) | \$0.76 |  |
| O\&M as \% of project cost | 5\% |  |
| Percentage debt financed | 70\% |  |
| Length of loan/debt | 10 years |  |
| Interest rate for debt | 7\% |  |
| kg CO2 emissions per liter of gasoline | 2.37 |  |
| Monetary value of 1 hour personal time (USD) | \$13.75 |  |
| Est. roadway maintenance per year per km | \$100,000 |  |
| Area of one parking lot space | $23 \mathrm{~m}^{2}$ | 247 sf |
| Commercial income of land (annual) | \$1.10 per m ${ }^{2}$ |  |
| Distance from roadway that is convenient | 2.97 km |  |
| Stops per km | 0.3 |  |
| Boarding capacity per stop | 360 pph |  |
| Solar panel area per meter of guideway | 2.0 |  |
| Cost of sustainable energy and storage | \$0.15 per kWh |  |
| Global Horizontal Irradiance (GHI) | 3.8 kWh/m²/day |  |
| Cost to generate sustainable energy | \$1,000 per kW |  |
| Storage per column | 40 kWh |  |
| Typical span | 23 m cols/km: | 44 |
| Energy storage cost | \$250 per kWh |  |
| Energy storage capacity | 1 days |  |
| Area of parked pod | $2.20 \mathrm{~m}^{2}$ |  |
| Distance discount at max distance | 40\% |  |
| Max distance discount | 500 km |  |
| Max usage discount at 10,000 km per capita | 50\% |  |
| Shared Pod Discount | 20\% |  |
| Shared Pod Compartment Discount | 40\% |  |
| Mode share starting discount | 67\% |  |
| Price on Metric Ton of Carbon | \$40 |  |

247 sf
perm

360 pph
0.15 per kWh
$3.8 \mathrm{kWh} / \mathrm{m}^{2} /$ day
40 kWh
$23 \mathrm{~m} \quad$ cols/km: 44
250 per kWh
$2.20 \mathrm{~m}^{2}$
40\%
500 km
50\%
40\%
67\%

Model Inputs (continued)

| 68 | Name of region or project | Montréal to Boston |
| :--- | :--- | :--- | :--- |
| 69 | Currency name | 1 |
| 70 | Equal to US\$1 | CAPEX |
| 71 | Sustainable energy/electricity generation <br> \& storage as | 100,000 |
| 72 | Land area of region (sq. km) | $7,931,042$ |
| 73 | Number of residents in region | $40 \%$ |
| 74 | \% travel within region | $10 \%$ |
| 75 | \% of land area served by roads | $50 \%$ |
| 76 | Coverage: \% of pop. convenient (60 min <br> walk) to Transit X | Annual median household income (US\$) |
| 77 | $\$ 55,000$ |  |
| 78 | Convenient walk time to stop (min) | 60 |
| 79 | Triple-speed route length (km) | 500 |
| 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 |
| :---: | :---: | :---: | :---: |
| 90 | Service life (years) | 20 | 12 |
| 91 | Full cost of vehicle per year | \$200 | \$9,000 |
| 92 | Public cost to maintain infrastructure per year per km | \$0 | \$100,000 |
| 93 | Energy consumption (MPGe) | 3564 | 24 |
| 94 | Energy consumption (liters/100km) | 0.07 | 9.8 |
| 95 | Energy consumption (Watt-hours/km) | 9 | 1375 |
| 96 | mass of CO2 per vehicle per $\mathrm{km}(\mathrm{kg})$ | 0 | 0.09875 |
| 97 | Vehicle mass (kg) | 45 | 1950 |
| 98 | Average speed of urban travel (km/h) | 72 | 16 |
| 99 | Typical travel time (in minutes) for 4 km trip | 3 | 14 |
| 100 | Fare/cost per km | \$0.48 | \$0.62 |
| 101 | Number of deaths per 100M passenger-km | 0.00001 | 1 |
| 102 | Number of injuries per 100M passenger-km | 0.0006 | 62 |
| 103 | Volume to park (cubic meters) | 5.7 | 70.9 |

## Taxes and Fees

## 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).

```
Air-rights and Local Taxes
Total commercial land (estimated)
Total commercial gov't revenue (US$)
TXCR (Transit X Commercial Rate)
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.
```

(for calculating minimums)

$$
\begin{array}{ll}
1,000,000,000 \mathrm{~m}^{2} & 247,105 \text { acres }
\end{array}
$$

$$
\$ 1,100,000,000
$$

$\$ 1.10 \begin{aligned} & \text { per m} \\ & \text { (estimated) }\end{aligned}$
$\$ 11.84$ per sf
(estimated)

## Private Easement Fees

4\% of gross revenue
Minimum per year

For example
$\$ 34.63$ per route-meter
$\$ 1.66$ per route-meter
\$10.56 per route-foot
\$0.51 per route-foot

## Transit X payment to Government

\% of route on government easements
98\% estimated

Total air-rights and local taxes
per resident
with a minimum of
\$86,923,796 per year
\$11
$\$ 847,659$ per year

## Other financial benefits to Government

Less road maintenance from lower VMT
Public land made available from less parking and lanes
Reduced emergency and police services for road-related incidents
Less investment needed in road-based infrastructure (charging stations, signals, BRT, etc)


| 1 | Footprint Calculations | Metric | Imperial |
| :---: | :---: | :---: | :---: |
| 2 | Guideway width | $\underline{0.30} \mathrm{~m}$ | 11.8 inches |
| 3 | Guideway height | 0.60 m | 23.6 inches |
| 4 | Post diameter | $\underline{0.35} \mathrm{~m}$ | 13.8 inches |
| 5 | Post cross section | $\underline{0.10} \mathrm{~m}^{2}$ | 1.0 sf |
| 6 | Stop landing area | $3.75 \mathrm{~m}^{2}$ | 40.4 sf |
| 7 | ...width | 1.5 m | 59.1 inches |
| 8 | ...length | 2.5 m | 98.4 inches |
| 9 | Ramp length | $\underline{21} \mathrm{~m}$ | 68.9 feet |
| 10 | Typical Span | $\underline{23} \mathrm{~m}$ | 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 | Single guideway | 1046.3 m² | 11258 sf |
| 15 | ...Area of Side Silhouette | $691.3 \mathrm{~m}^{2}$ | 7438 sf |
| 16 | ...Area of Top Silhouette | 313.1 m² | 3369 sf |
| 17 | ...Impediment Area (adjusted) | $41.8 \mathrm{~m}^{2}$ | 450 sf |
| 18 |  |  |  |
| 19 | Dual guideway | $1346.3 \mathrm{~m}^{2}$ | 14486 sf |
| 20 | ...Area of Side Silhouette | 691.3 m² | 7438 sf |
| 21 | ...Area of Top Silhouette | 613.1 m² | 6597 sf |
| 22 | ...Impediment Area (adjusted) | 41.8 m² | 450 sf |
| 23 |  |  |  |
| 24 | Stop | $82.1 \mathrm{~m}^{2}$ | 883 sf |
| 25 | ...Area of Side Silhouette | 25.2 m² | 271 sf |
| 26 | ...Area of Top Silhouette | $19.4 \mathrm{~m}^{2}$ | 208 sf |
| 27 | ...Impediment Area (adjusted) | $37.5 \mathrm{~m}^{2}$ | 404 sf |
| 28 |  |  |  |
| 29 | Stops with dedicated landing areas | $\underline{2}$ stops per km | 3.2 stops per mile |
| 30 | \% of dual guideway | 100\% |  |
| 31 |  |  |  |
| 32 | Average area per unit length | 1,510 m² per route-km | 26,212 sf per route-mile |
| 33 |  |  |  |
| 34 | Contract values |  |  |
| 35 | \% gross revenue for government on private prop. | 1\% |  |
| 36 | \% gross revenue for private easement | 4\% |  |
| 37 | \% gross revenue for government easement | 5\% |  |
|  | Impediment Factor | 10 |  |

Fair Fare Formula

Faster travel saves a household 295 hours per year.*
Summary At 0.46 USD per mile, a typical commute on Transit X is $17 \%$ less than public transit and $74 \%$ less than a Taxi.*

## Trip Length

| All prices in USD |  | 1 mile | 6 mile | 25 mile |
| :---: | :---: | :---: | :---: | :---: |
| Transit X |  | $0.57$ <br> to 0.95 <br> 2 min., 3.6x faster | 2.81 <br> to 4.71 <br> 8 min., 3.6x faster | 10.80 <br> to 18.40 <br> 33 min., $3.4 x$ faster |
| Public transit average |  | 3.19 | 5.07 | 7.43 |
|  | Taxi | $\begin{gathered} 4.42 \\ 2 \text { to } 6 \text { minutes } \end{gathered}$ | $\begin{gathered} 19.24 \\ 8 \text { to } 30 \text { minutes } \end{gathered}$ | $74.83$ <br> 30 to 120 minutes |
|  | Uber/Lyft | $\begin{gathered} \mathbf{3 . 3 6} \\ 2 \text { to } 6 \text { minutes } \end{gathered}$ | $\begin{gathered} 13.86 \\ 8 \text { to } 30 \text { minutes } \end{gathered}$ | $\begin{gathered} \mathbf{5 3 . 2 0} \\ 30 \text { to } 120 \text { minutes } \end{gathered}$ |
|  | Public Bus | $\begin{gathered} \mathbf{2 . 5 7} \\ 3 \text { to } 12 \text { minutes } \end{gathered}$ | $\begin{gathered} \mathbf{2 . 5 7} \\ 15 \text { to } 60 \text { minutes } \end{gathered}$ | $\begin{gathered} \mathbf{3 . 9 3} \\ 60 \text { to } 240 \text { minutes } \end{gathered}$ |
|  | Train | $\begin{gathered} \mathbf{3 . 8 5} \\ 2 \text { to } 12 \text { minutes } \end{gathered}$ | $\begin{gathered} 4.53 \\ 8 \text { to } 60 \text { minutes } \end{gathered}$ | $7.10$ <br> 30 to 240 minutes |
| Personal car |  | $\begin{gathered} 3.65 \\ 2 \text { to } 6 \text { minutes } \end{gathered}$ | $\begin{gathered} 11.41 \\ 8 \text { to } 30 \text { minutes } \end{gathered}$ | $40.50$ <br> 30 to 120 minutes |


|  | Avg. Speed | $\begin{aligned} & \text { Low } \\ & \text { Speed } \end{aligned}$ | High speed |  |  |  | $\begin{aligned} & \text { Min } \\ & \text { Dist } \end{aligned}$ | Max Dist. | Time cost | Mode share |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Travel mode | km/h | km/h | km/h | Base | Includ es km | $\begin{array}{r} \text { Over } \\ \text { per-km } \end{array}$ | km | km | per min | 2 | 10 | 40 |
| Taxi | 30 | 20 | 80 | 2.57 | 1 | 1.28 | 0.5 | 100 | 1.14 | 5\% | 4\% | 1\% |
| Uber/Lyft | 30 | 20 | 80 | 2.05 | 1 | 1.03 | 0.5 | 100 | 0.57 | 10\% | 10\% | 2\% |
| Public Bus | 15 | 10 | 40 | 2.57 | 20 | 0.07 | 0.5 | 50 | 0 | 50\% | 50\% | 40\% |
| Train | 30 | 10 | 80 | 3.85 | 2 | 0.09 | 2 | 100 | 0 | 35\% | 36\% | 57\% |
| Transit X | 72 | 72 | 72 | 0 | 0 | 0.29 | 0.1 | 50 | 0 | - | - | - |
| Personal car | 30 | 20 | 80 | 1.71 | 0 | 0.86 | 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.

TransitX

## Fair Fare Formula

## Fare rates are updated annually using this formula

|  | Name | Value | Units | Description of the value or model input |
| :---: | :---: | :---: | :---: | :---: |
| 1 | Globallncome | 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 | PercentIncomeForTr ansport | 20\% |  | \% of median household income for all transportation under 1600 km trips. A global constant. |
| 4 | GlobalRate | 0.09 | USD/km | Global rate: Globallncome * 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. |
| 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: <br> MedianIncomeFirst * PercentIncomeForTransport / AllTravel |
| 8 | UnderIncomeRate | 0.00 | USD/km | Under global income adjustment: <br> if (RegionalRate < GlobalRate, GlobalRate - RegionalRate, 0) |
| 9 | NominalRate | 0.48 | USD/km | Nominal rate: RegionalRate + UnderIncomeRate |
| 10 | RegionalFactor | 1.00 |  | Regional Fare Factor. Negotiated upfront to make network financially viable. |
| 11 | AdjustedRate | 0.48 | USD/km | Regional adjusted rate: NominalRate * RegionalFactor |
| 13 | Population | 7,931,042 |  | 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 | ,379,550,531 | 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 | 1\% |  | Percent of Total Travel Per Capita on Transit X: <br> PassengerTravel / (Population x AllTravel) |
| 16 | BaseRate | 0.48 | USD/km | Base rate for single-passenger pod (without discounts) <br> (1 - UsageMaxDiscount x min(1,ModeShare)) x AdjustedRate |
| 17 | SpecialRateFactor | 2.20 |  | Rate factor for water crossings or high-speed links. Global constant. |
| 18 | SpecialBaseRate | 1.05 | USD/km | Base rate for high-speed travel or water crossings: BaseRate *SpecialRateFactor |
| 19 | DistanceDiscount | 40\% |  | Distance discount at max distance. Global constant. |
| 20 | MaxDistanceDiscou nt | 500 | km | Max distance discount. Global constant. |
| 21 | DistanceDiscountPe rKm | 0.000380 | USD/km | Discount amount per km: <br> BaseRate x DistanceDiscount / MaxDistanceDiscount |
| 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 | 0.38 | 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 | 0.38 | USD/km | Rate for a shared pod: BaseRate x (1-SharedPodDiscount) |
| 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 | $0.29$ | USD/km | Rate for shared compartment <br> BaseRate x (1-SharedCompartmentDiscount) |
| 29 | SingleOccupancyMa xDistance | 0.32 | USD/km | Rate for 500 km in single-passenger pod. |
| 30 | Senior + SharedCompartment Rate | 0.14 | USD/km | Rate for a Senior taking a 500 km trip in a shared compartment. <br> BaseRate x (1-SeniorDiscountAmount) x (1-SharedCompartmentDiscount) x (1MaxDistanceDiscount) |
| 31 | 50PctIncomeAtDest | 25\% |  | \% Higher fare rate if Destination has 50\% higher median income than First (IncomeDest / IncomeFirst - 1) / 2 |
| 32 | DistanceBase | 1,760,867,393 |  | Passenger distance under base fare. Audited value from operational data. |
| 33 | PercentBase | 74\% |  | Percent of passenger distance under base fare: DistanceBase / PassengerTravel |
| 34 | BaseRevenue | 685,670,306 | USD | Annual revenue from all travel under base rate. Audited value from operational data. |
| 35 | AverageDiscount | 18\% |  | Average fare discount from Base Rate: <br> 1-(BaseRevenue / (DlstanceDase x BaseRate)) |
| 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: AverageDiscount x MarketFactor |
| 38 | MarketTravelCap | 317,780,742 | km | Cap on passenger travel distance at market rate: DistanceBase x MarketRateCap |

Project A micro-guideway automated pod network Description providing a public transportation utility.

Project type Sustainable Transportation Infrastructure Design, Build, Finance, Own, Operate, Maintain (DBFOOM)

Project equity US\$1.66 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 $\$ 86,923,796$ per year
Benefits to
society and Extremely high
environment
Estimated return (28\%) average IRR at 5 yrs
$3 \%$ average IRR at 10 yrs

| Financials <br> (US\$ in millions) | Year 1 | Total <br> Years 1-12 |
| ---: | ---: | ---: |
| Gross Revenues | 583 | 16,908 |
| Taxes and fees | 29 | 845 |
| Debt service | $\$ 271$ | $\$ 2,978$ |

ESG (Environmental, Social, Governance) Benefits

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

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 local and inter-city micro-guideway providing equitable transportation for

## Montréal to Boston

High capacity•High speed•Nonstop • 24/7 Sustainable • Zero Wait • Door-to-door • Resilient
Montreal
316 mile network with
$\mathbf{3 , 0 8 2}$ pods
$\mathbf{5 0 \%}$ of population within
$\mathbf{1 5}$ min. of a stop
Nonstop service to 172
stops
2:00 Montréal to Boston
0:40 Burlington to Montréal
1:26 Burlington to Boston
0:16 Burlington to Montpelier

## About Transit $\mathbf{X}$

Transit X finances, designs, builds, and operates sustainable micro-guideway 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 2019. First pilots will break ground in 2020 and begin operations in 2021. Transit $X$ is a privately held company founded in 2015, based in Boston, Massachusetts.

## Status

|  | Now | Prior to close |
| ---: | :--- | :--- |
| Project financing | Available | Yes |
| Test System | 2018 | Yes |
| Rider-Revenue study | Internal model | Yes |
| Environmental study | Per region | Yes |
| Air rights | Per project | Yes |
| Permitting | Per project | Yes |
| Safety certification | Per country | Yes |
| Construction firm | Per project | Yes |
| Design and major subs | Per project | Yes |
| Operations \& Maint | Partners | Yes |
| Utility relocation | Per project | Agreements |

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

## Model Inputs and Assumptions

Route length (km, miles) 510<br>Starting number of pods 1,017<br>Projected revenue (and OPEX) growth 15\%<br>Project Cost (Privately funded) \$5,525,268,308<br>\% Debt financed 70\%<br>Debt \$3,867,687,816<br>Equity \$1,657,580,493<br>Debt payment (per year) \$270,738,147

316
Travel per year per pod (km) 565,367
Revenue per vehicle-km (US\$) 1.01
OPEX as \% of project cost $5 \%$
Debt Interest rate 7\%

Debt term (yrs) 10
Profit share when below capital return $90 \%$
Profit share when below Target IRR 50\%
Profit share when above Target IRR 10\%

Pro Forma

| Years | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Revenue (5) | 0 | 582,991,066 | 670,439,726 | 771,005,685 | 886,656,538 | 1,019,655,019 | 1,172,603,271 | 1,348,493,762 | 1,550,767,826 | 1,783,383,000 | 2,050,890,450 | 2,558,524,018 | 2,712,302,620 |
| Revenue as \% of target |  | 33\% | 38\% | 44\% | 50\% | 58\% | 66\% | 76\% | 88\% | 101\% | 116\% | 133\% | 154\% |
| 5\% RoW - tax - fee (\$) | 0\% | 29,149,553 | 33,521,986 | 38,550,284 | 44,332,827 | 50,982,751 | 58,630,164 | 67,424,688 | 77,538,391 | 89,169,150 | 102,544,523 | 117,926,201 | 135,615,131 |
| Debtservice (\$) | 0 | 270,738,147 | 270,738,147 | 270,738,147 | 270,738,147 | 270,738,147 | 270,738,147 | 270,738,147 | 270,738,147 | 270,738,147 | 270,738,147 | 270,738,147 | 270,738,147 |


| Investor share (\$) | 0 | 5,540,360 | 39,266,099 | 78,050,698 | 122,652,988 | 173,945,621 | 232,932,149 | 300,766,656 | 378,776,340 | 468,487,475 | 262,426,913 | 275,609,466 | 290,769,402 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Investor share (\%) |  | 90\% | 90\% | 90\% | 90\% | 90\% | 90\% | 90\% | 90\% | 90\% | 41\% | 36\% | 32\% |
| Share / Orig Capital | 0\% | 0\% | 2\% | 5\% | 7\% | 10\% | 14\% | 18\% | 23\% | 28\% | 16\% | 17\% | 18\% |
| IRR to date | loss | loss | loss | (62\%) | (42\%) | (28\%) | (17\%) | (9\%) | (3\%) | 1\% | 3\% | 5\% | 6\% |
| Carbon Offset Credits (\$) | 0 | 3,101,561 | 3,566,795 | 4,101,815 | 4,717,087 | 5,424,650 | 6,238,347 | 7,174,099 | 8,250,214 | 9,487,746 | 10,910,908 | 12,547,545 | 14,429,676 |

## 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.

## Jobs Report*

This would create 24,100 new jobs in manufacturing, construction, and operations. About 95,200 existing transportation jobs would be impacted - of which 1,400 workers would need significant retraining. Improving the transportation infrastructure will boost the economy overall and lead to 40,400 new jobs. Lowering the cost of transportation and reducing travel times raises household income by $6 \%$.

Annual median household income (US\$)
CAPEX
Average gross CAPEX salary (\% of median HH)
Average gross CAPEX salary
\% of CAPEX as salary
Years of CAPEX
\# of CAPEX jobs
\% of jobs that are manufacturing vs. construction
Manufacturing jobs
Construction jobs
Supply chain jobs factor
Jobs in supply chain
${ }^{13}$ Average gross OPEX salary (\% of median HH)
${ }^{4}$ Average gross OPEX salary
${ }^{15}$ \% of OPEX as salary
${ }^{16}$ Operations and Maintenance jobs
${ }^{17}$ Secondary-effect jobs factor
${ }^{10}$ Secondary effect jobs
${ }^{19}$ Job transitioning and training
${ }^{20}$ Expected mode share at 10 years (from page 6, line 9)
${ }^{21} \%$ of population with a full-time job
22 ...jobs in transportation 10\%
${ }^{23}$...jobs impacted with this proposed network $20 \%$
24 ...jobs requiring significant retraining 20\%
25 Jobs needing retraining with this proposed network (over 10 years)
${ }^{26}$ Training cost per person as \% of salary (from line 13)
0.0\%

100\%
10
$10 \%$

4,758,625
475,863
95,173
19,035
1,430
\$63,250
\$9,044,750

[^0]
[^0]:    * Numbers are approximations based on a universal model. A regional study could analyze data based on local conditions.

