



Transit X, LLC offers a preliminary proposal for

## **Bend, Oregon**

For a privately-funded shared mobility service that is

**High capacity • Automated • Wait-free**  
**Solar powered • Last mile • Resilient**

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

**Bend  
Oregon**

**57 mile network**  
95% of population  
within a 5 min walk

45 mph nonstop  
service to 170+ stops

The Transit X logo is located in the bottom left corner of the map area.



# Economics for Bend, Oregon

Inputs are underlined.

Size of region	<u>85.5</u> km <sup>2</sup>	33.0 sq miles
Number of people in region (residents + visitors)	<u>81,236</u>	
Travel distance per year by all people (residents and visitors)	1,177,922,000 km	731,628,571 mi
Percentage of all travel that occurs within the region	<u>85%</u>	
Road coverage (percent of area conveniently served by paved roads)	<u>90%</u>	
Service area size	<u>76.95</u> km <sup>2</sup>	29.7 sq miles
Coverage: percent of people convenient (5 min walk) to Transit X	<u>95%</u>	
Estimate #1 for network length based on desired coverage	<u>90</u> km	55.6 miles
Length of paved roads (non-highway) in region	<u>192</u> km	119.5 miles
Estimate #2 for network length based on paved roadways	<u>91</u> km	56.8 miles
<b>Transit X network length</b>	<b><u>91</u></b> km	<b>56.8 miles</b>
Route density ratio (route length to service area)	1.19	
Total fixed costs for Transit X	\$212,454,141	
...per person	\$2,615	
Mode share of travel on Transit X	<u>81%</u>	
Distance traveled on Transit X, per year	808,496,213 km	502,171,561 mi
...per day	2,215,058 km	1,375,812 mi
Daily number of people riding Transit X	65,598 customers	
Distance per Transit X customer per day	<u>34</u> km	21.0 mi
Average trip distance	<u>11</u> km	7.0 miles
Cost for an average trip (at \$0.28 per km)	\$3.17	
Distance traveled during peak hour	221,506 km	137,581 mi
<b>Breakeven (customers per day)</b>	<b><u>10,647</u></b> customers	
Number of pods needed to meet peak demand	<b><u>1,923</u></b> pods	
Pod shed parking volume [in cubic 40' shipping containers (sc)]	<u>5</u> sc <sup>3</sup>	
Cost of pods	\$9,615,000	
Cost of pods per person	\$118	
Yearly payment from Transit X to municipality for air rights (5% of revenue)	\$11,369,478	
<b>System Economics</b>		
Total system cost (privately financed from Transit X)	\$222,069,141	
OPEX (O&M) per year	\$22,472,935	
Private equity	\$111,034,570	
Financed	\$111,034,570	
Gross Revenue from fares	\$227,389,560	
EBITA (Profit)	\$204,916,625	
Debt service	\$14,434,494	
OPEX + Debt service	\$36,907,429	
Net income	\$190,482,131	
Operating Margin	90%	
One-time project costs (per person)	<b><u>\$2,734</u></b>	
Operating costs (per passenger-mile)	<b><u>\$0.07</u></b>	
Equivalent number of cars taken off the road	<b><u>55,758</u></b> motor vehicles	
Yearly cost of cars removed (per person)	<b><u>\$6,177</u></b>	
Breakeven revenue distance per day	359,524 km	223,307 mi
<b>IRR (Internal rate of return)</b>	<b><u>86%</u></b>	
Payback period (profits pays back equity)	<b><u>7</u></b> months	
Network capacity (number of pods)	2,724 pods	
Peak demand as % of maximum track capacity	<u>71%</u>	
<b>Externalities (estimated)</b>		
Reduction in CO2 emissions	<b><u>95,806,801</u></b> kg CO <sub>2</sub>	
Public cost for maintaining roadways per year	<b><u>\$9,811,125</u></b>	
Reduced waste products per year	<b><u>5,227,346</u></b> kg	
Travel time saved (hours per person per year)	599	
Cost savings per household per year over personal car ownership	\$4,175	
Increase in household income from time saving and car costs	<u>29%</u>	
Reported injuries avoided per year	<u>501</u>	
Lives saved per year	<u>5</u>	
Land freed from less street parking and parking lots	TBD km <sup>2</sup>	
...and its value	TBD	

Health care cost savings from lower pollution  
 Change in local temperature heat island (degrees C)  
 Change in global temperature  
 Decrease in sea level

TBD  
 TBD °C  
 TBD °C  
 TBD mm

Assumptions	Value		
Ratio of road length to track length	2		
Convenient walk time to Transit X route	5 min.		
Walking speed	4.9 km/h (3 mph)		
Width of convenient swath along track	0.82 km (1 mi)		
Fixed cost for main route per km	\$3,100,000		
Fixed cost per km for branch	\$1,550,000		
Percentage of main route vs. all routes	50%		
Average cost of fixed infrastructure per km	\$2,325,000		
Distance traveled per person per year across all modes	14,500 km (9,006 mi)		
Mode share % of people convenient to Transit X	85%		
Percentage of daily travel during peak hour	10%		
Max capacity: number of pods per km of track	149 pods		
Max track capacity during peak hour as % of capacity	20%		
Average speed of pod	72 km/h		
Average # of trips for people riding Transit X	3 per day		
Occupancy per pod	2 people		
Maximum occupancy per pod	4 people		
Empty pods: Percentage non-revenue vehicle travel	25%		
Cost per pod	\$5,000		
Median household income	\$30,000		
Typical fare per km (per mile)	\$0.28 (\$0.45)		
O&M as % of project cost	5%		
O&M as % of gross revenue	5%		
Percentage debt financed	50%		
Length of loan/debt	20 years		
Interest rate for financing	8%		
kg CO2 emissions	2.37 per liter of gasoline		
Monetary value of 1 hour personal time	\$8		
Public roadway maintenance costs per year per km	\$51,000		
Infrastructure's footprint per km	5.78 m <sup>2</sup> (62 sf)		
Lease rate per m <sup>2</sup>	\$1,156		
Parking footprint for road vehicle	23 m <sup>2</sup> (247 sf)		
Cost of land per km <sup>2</sup>	\$100,000		
Fee for leasing air rights (percentage of gross revenue)	5%		

8/18/17

	Transit X	Car
Service life (years)	20	12
Full cost of vehicle per year	\$200	\$9,000
Public cost to maintain infrastructure (per km)	\$0	\$100,000
Energy Efficiency (MPGe)	1000	20
mass of CO2 per vehicle per km (kg)	0	0.1185
Vehicle mass (kg)	45	1950
Average speed of travel (km/h)	72	16
Average travel time (hours)	0.47	2.11
Fare per km	\$0.28	\$0.62
Number of deaths per 100M passenger-km	0.00001	1
Number of injuries per 100M passenger-km	0.0006	62
Volume to park (cubic meters)	5.7	70.9

Assumptions	Value		
% of HH income for 16km travel	15%		
Width of convenient swath for road	0.4 km		

Currency conversion

Currency name	
Equal to US\$1	1.