



Transit X, LLC offers a preliminary proposal for
Watsonville, California

For a privately-funded shared mobility service that is

High capacity • Automated • Wait-free
Solar powered • Final destination • Resilient

26-page companion Transit X Handbook is available at transitx.com/transitxhandbook.pdf

Watsonville
California

8 mile network
90% of population
within a 3 min walk
45 mph nonstop
service to 24+ stops

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



Economics for Watsonville, CA

Inputs are underlined.

	Size of region	<u>17.3</u> km ²	6.7 sq miles
	Number of people in region (residents + visitors)	<u>54,000</u>	
	Travel distance per year by all people (residents and visitors)	783,000,000 km	486,335,404 mi
	Percentage of all travel that occurs within the region	<u>40%</u>	
	Road coverage (percent of area conveniently served by paved roads)	<u>90%</u>	
	Service area size	15.57 km ²	6.0 sq miles
	Coverage: percent of people convenient (3 min walk) to Transit X	<u>41%</u>	
	Estimate #1 for network length based on desired coverage	13 km	8.1 miles
	Length of paved roads (non-highway) in region	<u>39</u> km	24.2 miles
	Estimate #2 for network length based on paved roadways	8 km	5.0 miles
	Transit X network length	13 km	8.1 miles
	Route density ratio (route length to service area)	0.84	
	Total fixed costs for Transit X	\$30,290,005	
	...per person	\$561	
	Mode share of travel on Transit X	<u>35%</u>	
	Distance traveled on Transit X, per year	109,150,200 km	67,795,155 mi
	...per day	299,042 km	185,740 mi
	Daily number of people riding Transit X	18,819 customers	
	Distance per Transit X customer per day	16 km	9.9 mi
	Average trip distance	5 km	3.3 miles
	Cost for an average trip (at \$0.28 per km)	\$1.49	
	Distance traveled during peak hour	29,904 km	18,574 mi
	Breakeven (customers per day)	3,168 customers	
	Number of pods needed to meet peak demand	260 pods	
	Pod shed parking volume [in cubic 40' shipping containers (sc)]	2 sc ³	
	Cost of pods	\$1,300,000	
	Cost of pods per person	\$24	
	Yearly payment from Transit X to municipality for air rights (5% of revenue)	\$1,534,925	
System Economics			
	Total system cost (privately financed from Transit X)	\$31,590,005	
	OPEX (O&M) per year	\$3,114,425	
	Private equity	\$15,795,003	
	Financed	\$15,795,003	
	Gross Revenue from fares	\$30,698,494	
	EBITA (Profit)	\$27,584,069	
	Debt service	\$2,053,350	
	OPEX + Debt service	\$5,167,775	
	Net income	\$25,530,718	
	Operating Margin	90%	
	One-time project costs (per person)	\$585	
	Operating costs (per passenger-mile)	\$0.08	
	Equivalent number of cars taken off the road	7,528 motor vehicles	
	Yearly cost of cars removed (per person)	\$1,255	
	Breakeven revenue distance per day	50,341 km	31,267 mi
	IRR (Internal rate of return)	81%	
	Payback period (profits pays back equity)	7 months	
	Network capacity (number of pods)	388 pods	
	Peak demand as % of maximum track capacity	67%	
Externalities (estimated)			
	Reduction in CO2 emissions	12,934,299 kg CO ₂	
	Public cost for maintaining roadways per year	\$1,985,175	
	Reduced waste products per year	705,713 kg	
	Travel time saved (hours per person per year)	282	
	Cost savings per household per year over personal car ownership	\$1,965	
	Increase in household income from time saving and car costs	14%	
	Reported injuries avoided per year	68	
	Lives saved per year	1	
	Land freed from less street parking and parking lots	TBD km ²	
	...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	3 min.		
Walking speed	4.9 km/h (3 mph)		
Width of convenient swath along track	0.49 km (0 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 ² (62 sf)		
Lease rate per m ²	\$1,156		
Parking footprint for road vehicle	23 m ² (247 sf)		
Cost of land per km ²	\$100,000		
Fee for leasing air rights (percentage of gross revenue)	5%		

8/6/17

	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)	0.22	0.99
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.