

NEW FRENCH LIGHT RAIL SYSTEMS IN THE TWENTYFIRST CENTURY

**(Twentyone tramways, five tram-trains,
five rubber-tyred tramways and one metro)**

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TOWNS HAVING METROS, TRAMWAYS AND TRAM-TRAINS AT JULY 2017

FRANCE

NO NEW METROS, TRAMWAYS OR TRAM-TRAINS
WERE INAUGURATED IN 2008, 2009, 2015 or 2016.
FROM 2010 ON 13 TRAMWAYS AND ONE TRAM TRAIN
HAVE BEEN INAUGURATED AS FOLLOWS:

2010 - TOULOUSE

2011 - ANGERS & REIMS

2012 - BREST, DIJON & LE HAVRE

2013 - PARIS T5 & T7 & TOURS

2014 - BESANCON & AUBAGNE

PARIS T6 & T8

2017 - "PARIS T1"

200 KILOMETRES



NEW TRAMWAYS, TRAM-TRAINS and METRO IN FRANCE from 2000 to 2017

<u>Conurbation</u>	<u>Inner Urban Population</u>	<u>Opening Year</u>	<u>Conurbation</u>	<u>Inner Urban Population</u>	<u>Opening Year</u>
<u>STEEL WHEEL TRAMWAYS</u>			<u>TRAM-TRAINS</u>		
1. Montpellier	264,538	2000	1. Paris T4	2,243,833	2006
2. Orléans	114,185	2000	2. Lyon	491,268	2010
3. Lyon	491,268	2000	3. Mulhouse	110,351	2010
4. Bordeaux	239,399	2003	4. Nantes	287,845	2011
5. Mulhouse	110,351	2006	5. Paris T11	2,243,833	2017
6. Valenciennes	43,471	2006	<u>RUBBER-TYRED "TRAMWAYS"</u>		
7. Paris T3	2,243,833	2006	1. Nancy *	105,382	2001
8. Marseille	850,636	2007	2. Caen *	108,793	2002
9. Le Mans	143,240	2007	3. Clermont-Ferrand	140,597	2006
10. Nice	344,064	2007	4. Paris T5	2,243,833	2013
11. Toulouse	447,340	2010	5. Paris T6	2,243,833	2014
12. Reims	180,752	2011	<u>METRO</u>		
13. Angers	148,803	2011	1. Rennes	208,033	2002
14. Brest	140,547	2012	(driverless)		
15. Dijon	151,504	2012	Tramways, tram-trains and metros are all electrically powered		
16. Le Havre	174,156	2012	* Nancy and Caen trams also have diesel engines and are unidirectional		
17. Tours	134,633	2013			
18. Paris T7	2,243,833	2013			
19. Besançon	115,879	2014			
20. Aubagne	45,800	2014			
21. Paris T8	2,243,833	2014			

FRENCH TRAMWAYS - 19th CENTURY AND 2nd GENERATION

<u>Town</u>	<u>Nineteenth Century</u>		<u>Initially</u> <u>Horse</u> <u>Drawn</u>	<u>Second Generation</u>	
	<u>Opening</u> <u>Year</u>	<u>Closure</u> <u>Year</u>		<u>Opening</u> <u>Year</u>	<u>Gap</u> <u>Years</u>
1.Paris	1855	1938	)	1992	54
2.Lille	1874	Never closed #	)	Not applicable	0
3.Marseille	1876	Never closed *	)	Not applicable	0
4.Rouen	1877	1953	)Yes	1994	41
5.Orleans	1877	1938	)	2000	62
6.Strasbourg	1878	1960	)	1994	34
7.Nice	1878	1953	)	2007	54
8.Nantes	1879	1958	No	1985	27
9.Bordeaux	1880	1958	Yes	2003	45
10.Reims	1881	1939	Yes	2011	72
11.St.Etienne	1881	Never closed #	No	Not applicable	0
12.Valenciennes	1881	1966	No	2006	40
13.Toulouse	1887	1957	Yes	2010	53
14.Mulhouse	1892	1956	)	2006	50
15.Le Havre	1894	1951	)	2012	61
16.Dijon	1895	1961	)No	2012	51
17.Angers	1896	1949	)	2011	62
18.Le Mans	1897	1947	)	2007	60
19.Grenoble	1897	1952	)	1987	35
20.Lyon	1897	1956	Yes	2000	44
21.Besançon	1897	1952	)	2014	62
22.Brest	1898	1945	)	2012	67
23.Montpellier	1898	1949	) No	2000	51
24.Tours	1900	1949	)	2013	64

NOTES

Lille and St.Etienne Tramways were closed relatively briefly for modernisation works in 1994 and 1998 respectively.

*Marseille Tramway never closed except for 2½ years during 2004-2007 when a 2nd generation tramway was built incorporating the 19th Century tramway.

Of these tramways 11 were initially horse drawn, typically for about 20 years, before conversion to electric traction.

LIGHT RAIL SYSTEMS IN FRANCE - 1967 to 2017

<u>Date</u>	<u>Metros</u>	<u>Tram- ways</u>	<u>Tram- Trains</u>	<u>Total</u>
1 Jan 1967-1977	1†	3*	-	4
1 Jan 1985	4	3	-	7
1 Jan 1993	4	6	-	10
1 Jan 1998	5	9	-	14
22 Jan 1998	My first talk on this subject			
1 Jun 2000	5	9	-	14
1 Jan 2001	5	12	-	17
1 Jan 2003	6	14¶	-	20
1 Jan 2007	6	19¶	1	26
1 Jan 2018	6	34¶	5	45

† Paris Metro-inaugurated 1900. ¶ Includes Tyred Trams

* Lille, Marseille & St.Etienne - all 19th Century tramways

Last 19th Century tramway, in Valenciennes, closed in 1966

LIGHT RAIL SYSTEMS IN FRANCE - 1967 to 2017

<u>Date</u>	<u>Metros</u>	<u>Tramways</u>	<u>Tram-Trains</u>	<u>Total</u>
1 Jan 1967-1977	1†	3*	-	4
1 Jan 1998	5	9	-	14
22 Jan 1998	My first talk on this subject			
1 Jan 2007	6	19	1	26
1 Jan 2008/09/10	6	21	1	28
1 Jan 2011	6	22	3	31
1 Jan 2012	6	24	4	34
1 Jan 2013	6	27	4	37
1 Jan 2014	6	30	4	40
1 Jan 2018	6	34	5	45

† Paris Metro - inaugurated 1900.

* Lille, Marseille & St.Etienne - all 19th Century tramways

Tramways includes Rubber-Tyred Tramways

Last 19th Century tramway, in Valenciennes, closed in 1966

LIGHT RAIL SYSTEMS IN FRANCE

**(immediately prior to the inauguration of
Toulouse Driverless Metro on 26 June 1993)**

<u>Conurbation</u>	<u>Inner Urban Population</u>	<u>Opening Year</u>
<u>STEEL WHEEL TRAMWAYS</u>		
1. Lille	227,533	1874
2. Marseille	850,636	1876
3. St.Etienne	170,049	1881
4. Nantes	287,845	1985
5. Grenoble	157,424	1987
6. Paris T1	2,243,833	1992
<u>METROS</u>		
1. Paris	2,243,833	1900
2. Marseille	850,636	1977
3. Lyon	491,268	1978
4. Lille	227,533	1983

LIGHT RAIL SYSTEMS IN FRANCE

at start of 2000

<u>Conurbation</u>	<u>Inner Urban Population</u>	<u>Opening Year</u>	<u>Conurbation</u>	<u>Inner Urban Population</u>	<u>Opening Year</u>
<u>STEEL WHEEL TRAMWAYS</u>			<u>METROS</u>		
1. Lille	227,533	1874	1. Paris	2,243,833	1900
2. Marseille	850,636	1876	2. Marseille	850,636	1977
3. St.Etienne	170,049	1881	3. Lyon	491,268	1978
4. Nantes	287,845	1985	4. Lille	227,533	1983
5. Grenoble	157,424	1987	5. Toulouse	447,340	1993
6. Paris T1	2,243,833	1992			
7. Rouen	111,553	1994			
8. Strasbourg	272,222	1994			
9. Paris T2	2,243,833	1997			

No new metros, tramways or tram-trains were inaugurated in France in: 1986, 1988-1991, 1993, 1995, 1996, 1998, 1999, 2001, 2002, 2004, 2005, 2008, 2009, 2015 & 2016

Light Rail Systems in France NOT included in these slides

Steel Wheel Tramways (8)

Lille

St.Etienne

Nantes

Grenoble

Paris T1

Rouen

Strasbourg

Paris T2

Rubber-Tyred Tramways (5)

Caen

Clermont-Ferrand

Nancy

Paris T5

Paris T6

Metros (6)

Lille

Lyon

Marseille

Paris

Rennes

Toulouse

Tram-Trains (5)

Lyon

Mulhouse

Nantes

Paris T4

Paris T11

**Slides follow, in order shown, for all
21 steel wheel tramways inaugurated
in France from 2000 to 2017**

- | | |
|----------------------|--------------------|
| 1.Montpellier (2000) | 11.Toulouse |
| 2.Orléans | 12.Reims |
| 3.Lyon | 13.Angers |
| 4.Bordeaux | 14.Brest |
| 5.Mulhouse | 15.Dijon |
| 6.Valenciennes | 16.Le Havre |
| 7.Paris T3 | 17.Tours |
| 8.Marseille | 18.Paris T7 |
| 9.Le Mans | 19.Besançon |
| 10.Nice | 20.Aubagne |
| | 21.Paris T8 (2014) |

FRANCE

METROS (6)
 * LILLE 1983
 * LYON 1978
 * MARSEILLE 1977
 * PARIS 1900
 * RENNES 2002
 * TOULOUSE 1993

* TOWNS, 5No, HAVING BOTH
 METRO AND TRAMWAY

RUBBER-TYRED TRAMWAYS (5)
 CAEN 2002
 CLERMONT-FERRAND 2006
 NANCY 2001
 PARIS T5 2013
 PARIS T6 2014
 LUXEMBOURG
 LUXEMBOURG

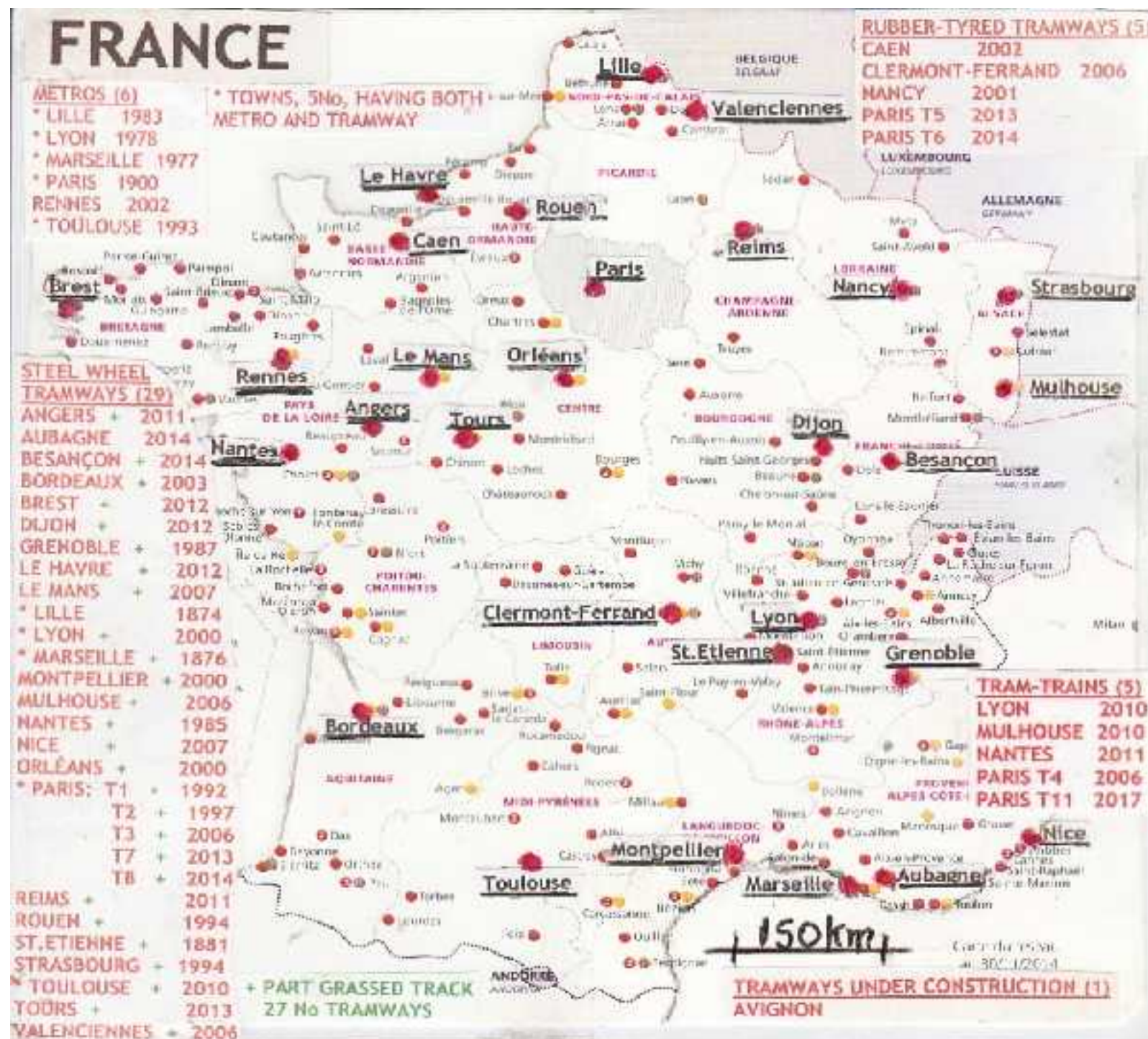
STEEL WHEEL TRAMWAYS (29)

ANGERS + 2011
 AUBAGNE + 2014
 BESANCON + 2014
 BORDEAUX + 2003
 BREST + 2012
 DIJON + 2012
 GRENOBLE + 1987
 LE HAVRE + 2012
 LE MANS + 2007
 * LILLE 1874
 * LYON 2000
 * MARSEILLE 1876
 MONTPELLIER + 2000
 MULHOUSE + 2006
 NANTES + 1985
 NICE + 2007
 ORLEANS + 2000
 * PARIS: T1 1992
 T2 1997
 T3 2006
 T7 2013
 T8 2014
 REIMS + 2011
 ROUEN + 1994
 ST.ETIENNE + 1881
 STRASBOURG + 1994
 * TOULOUSE 2010
 TOURS + 2013
 VALENCIENNES + 2006

+ PART GRASSED TRACK
 27 No TRAMWAYS

TRAM-TRAINS (5)
 LYON 2010
 MULHOUSE 2010
 NANTES 2011
 PARIS T4 2006
 PARIS T11 2017

TRAMWAYS UNDER CONSTRUCTION (1)
 AVIGNON



Montpellier Tramway

Inaugurated: June 2000







**Ticket machines in July 2000
6 weeks after inauguration**







**Cyclist illegally holding
on to windscreen wiper
and being hauled uphill
by a tram.**

Orleans Tramway

Line 1 inaugurated: November 2000

Line 2 inaugurated: June 2012















Voyager en tram...



Tout voyageur peut voyager en tram avec ses enfants de la 3ème année jusqu'à 12 ans inclus. Les enfants de moins de 3 ans et les personnes âgées de moins de 16 ans ne sont pas admis.



Les personnes handicapées peuvent voyager gratuitement. Elles doivent être accompagnées d'un adulte.



Pour mieux voyager, gardez votre billet à portée de main. Il doit être présenté à la demande des agents de la RATP.



Tout voyageur peut se faire soigner gratuitement en cas d'urgence. Appelez le 112.



La validation obligatoire a lieu à l'embarquement. Elle est gratuite. Les voyageurs doivent valider leur billet avant d'embarquer.



Le transport des bagages est autorisé. Les voyageurs doivent respecter les règles d'embarquement et de débarquement.



Les vélos sont autorisés sur les lignes de tramway. Ils doivent être transportés à l'arrière du véhicule.



Les personnes handicapées peuvent voyager gratuitement. Elles doivent être accompagnées d'un adulte.



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Lyon Tramway

Inaugurated: December 2000









Bordeaux Tramway

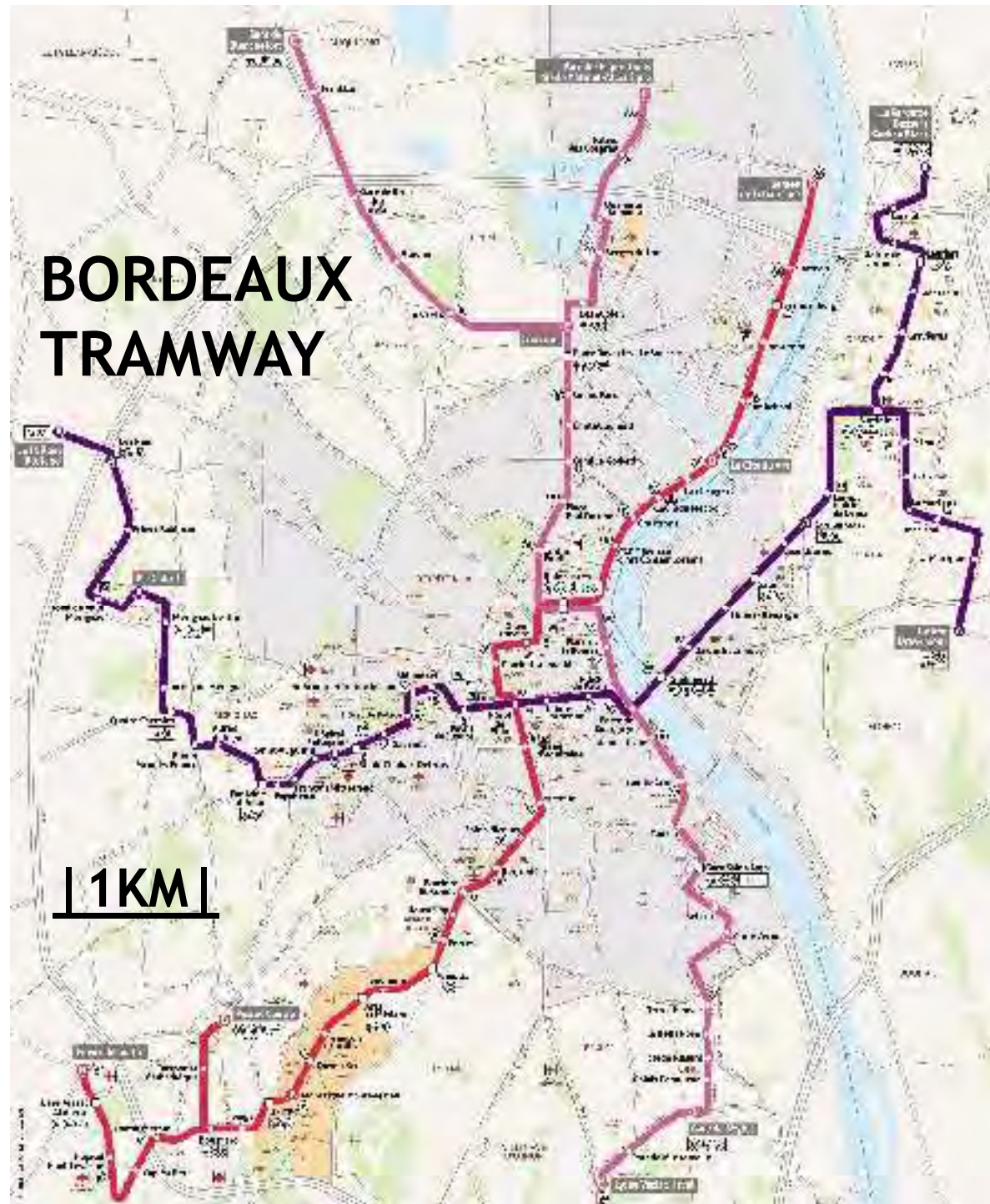
Inaugurated: December 2003

Most recent extension of 7.2km:

17 December 2016 on Line C

BORDEAUX TRAMWAY

1KM













Mulhouse Tramway

Inaugurated: May 2006











Valenciennes Tramway

Inaugurated: 2006









Paris Tramway T3

Inaugurated: 2006













Marseille Tramway

Inaugurated: 1876

Closed, (temporarily): 9 January 2004

Second generation tramway built,
(incorporating 3km of 19th Century
tramway): 2004-07

Inauguration of new tramway:
3 July 2007











Le Mans Tramway

Inaugurated:

November 2007

LE MANS TRAMWAY

1km

Stations marked on the map include: Université, République, Préfecture, Saint Martin, and others. The map also shows the Sarthe river and surrounding areas like Allennes.

1 km

FEPAL
ARCHE DE LA NATURE

ANTARES-
NN-Grain













LIGNE	DESTINATION	PROCHAIN PASSAGE
111	POISSY	10:00
112	POISSY	10:05
113	POISSY	10:10





Nice Tramway

Inaugurated:

November 2007









LAS PLANAS

Prochain dans 03 min

15:38



FRENCH LIGHT RAIL SYSTEMS

TABLES OF DATA

All data in the tables is in the public domain.

DISTANCES FROM PARIS AND URBAN POPULATIONS

	<u>City/Town</u>	<u>Distance from Paris in KM</u>	<u>Population Inner Area</u>	<u>Agglomeration</u>
1.	Angers	294	148,803	217,399
2.	Aubagne	788	45,800	-
3.	Besançon	405	115,879	131,739
4.	Bordeaux	579	239,399	851,071
5.	Brest	596	140,547	199,463
6.	Caen	236	108,793	196,688
7.	Clermont-Ferrand	420	140,597	261,926
8.	Dijon	311	151,672	237,920
9.	Grenoble	566	157,424	501,045
10.	Le Havre	198	174,156	239,566
11.	Le Mans	206	143,240	208,807
12.	Lille	223	227,533	1,018,809
13.	Lyon	458	491,268	1,567,537
14.	Marseille	769	850,636	1,038,940
15.	Montpellier	758	264,538	400,470
16.	Mulhouse	465	110,351	243,894
17.	Nancy	314	105,382	279,365
18.	Nantes	381	287,845	597,879
19.	Nice	927	344,064	943,665
20.	Orléans	132	114,185	270,470
21.	Reims	144	180,752	209,086
22.	Rennes	349	208,033	313,480
23.	Rouen	134	111,553	464,237
24.	St.Etienne	517	170,049	369,586
25.	Strasbourg	489	272,222	451,522
26.	Toulouse	677	447,340	892,115
27.	Tours	237	134,633	347,614
28.	Valenciennes	208	43,471	334,739

Source of Data:- Michelin France 2015

URBAN POPULATIONS,

OPENING DATES AND

TRACK GAUGES

Source of data for
populations:-

Michelin France 2015

<u>City/Town</u>	<u>Inner Urban Area Population</u>	<u>Metro Year Opened</u>	<u>Gauge MM</u>	<u>Tramway Year Opened</u>	<u>Gauge MM</u>
1. Angers	148,803			2011	1435
2. Aubagne	45,800			2014	1435
3. Besançon	115,879			2014	1435
4. Bordeaux	239,399			2003	1435
5. Brest	140,547			2012	1435
6. Caen (Rubber-Tyred)	108,793			2002	-
7. Clermont Ferrand (Tyred)	140,597			2006	-
8. Dijon	151,672			2012	1435
9. Grenoble	157,424			1987	1435
10. Le Havre	174,156			2012	1435
11. Le Mans	143,240			2007	1435
12. Lille	227,533	1983	2060		
13. Lille (Re-equipped 1994)	"			1874	1000
14. Lyon	491,268	1978	1435		
15. Lyon (plus Tram-Train)	"			2000	1435
16. Marseille	850,636	1977	2000		
17. Marseille (New tramway 2007)	"			1876	1435
18. Montpellier	264,538			2000	1435
19. Mulhouse (plus Tram-Train)	110,351			2006	1435
20. Nancy (Rubber-Tyred)	105,382			2001	-
21. Nantes (plus Tram-Train)	287,845			1985	1435
22. Nice	344,064			2007	1435
23. Orléans	114,185			2000	1435
24. Paris	2,243,833	1900	1435		
25. Paris T1	"			1992	1435
26. Paris T2	"			1997	1435
27. Paris T3	"			2006	1435
28. Paris T4 (Tram-Train)	"			2006	1435
29. Paris T5 ((Rubber-Tyred)	"			2013	-
30. Paris T6 (Rubber-Tyred)	"			2014	-
31. Paris T7	"			2013	1435
32. Paris T8	"			2014	1435
33. Paris T11 (Tram-Train)	"			2017	1435
34. Reims	180,752			2011	1435
35. Rennes	208,033	2002	2060		
36. Rouen	111,533			1994	1435
37. St.Etienne (Modernised 1998)	170,049			1881	1000
38. Strasbourg	272,222			1994	1435
39. Toulouse	447,340	1993	2060		
40. Toulouse	"			2010	1435
41. Tours	134,633			2013	1435
42. Valenciennes	43,471			2006	1435

FRENCH TRAMWAYS

LINES, ROUTE LENGTHS, STOPS & STOP SPACING AT END 2017

<u>TOWN</u>	<u>LINES NO</u>	<u>ROUTE LENGTH KM</u>	<u>STOPS NO</u>	<u>AVERAGE STOP SPACING - METRES</u>
<u>CONVENTIONAL TRAMWAYS</u> (Steel wheel on steel rail)				
1. Angers (1.5km APS)	1	12.3	25	492
2. Aubagne	1	2.7	7	386
3. Besançon	2	14.5	31	468
4. Bordeaux (12.1km APS)	3	66.0	116	569
5. Brest	1	14.3	27	530
6. Dijon	2	20.0	38	526
7. Grenoble	5	47.9	91	526
8. Le Havre	2	13.0	23	565
9. Le Mans	2	18.8	35	537
10. Lille	2	22.0	36	611
11. Lyon	5	57.1	92	620
12. Marseille	3	12.7	33	385
13. Montpellier	4	57.0	87	655
14. Mulhouse	3	16.2	30	540
15. Nantes	3	43.5	82	530
16. Nice (1km battery operated)	1	9.2	22	418
17. Orléans (2.3km APS)	2	29.2	49	596
18. Paris T1	1	16.9	36	469
19. Paris T2	1	17.8	24	742
20. Paris T3	1	22.4	43	521
21. Paris T7	1	11.2	18	622
22. Paris T8	1	8.5	17	500
23. Reims (2km APS)	2	11.2	22	509
24. Rouen	2	15.1	31	487
25. St.Etienne	3	11.7	32	366
26. Strasbourg	6	59.7	72	829
27. Toulouse	2	16.6	27	611
28. Tours (1.8km APS)	1	14.8	29	510
29. Valenciennes	2	33.8	51	662
Total	65	696.1	1,226	568

APS = Alimentation par le sol, (central energised third rail), on 5 tramways.

FRENCH TRAMWAYS, TRAM-TRAINS & METROS
LINES, ROUTE LENGTHS, STOPS & STOP SPACING AT END 2017

<u>TOWN</u>	<u>LINES NO</u>	<u>ROUTE LENGTH KM</u>	<u>STOPS NO</u>	<u>AVERAGE STOP SPACING - METRES</u>
<u>CONVENTIONAL TRAMWAYS</u> (Steel wheel on steel rail)				
Total of 29 tramways	65	696.1	1,226	568
<u>RUBBER TYRED TRAMWAYS</u>				
1. Caen	2	15.7	34	462
2. Clermont Ferrand	1	14.2	34	417
3. Nancy	1	11.0	31	355
4. Paris T5	1	6.6	16	412
5. Paris T6	1	14.0	21	667
Sub-total	6	61.5	136	452
<u>TRAM-TRAINS</u> (with Inauguration Dates)				
1. Lyon - 9 August 2010	1	23.0	4	5,750
2. Mulhouse - 11 December 2010	1	22.0	16	1,375
3. Nantes - 15 June 2011	2	92.0	18	5,111
4. Paris T4 - 18 November 2006	1	8.0	11	727
5. Paris T11 - 1 July 2017	1	10.6	7	1,514
Sub-total	6	155.6	60	2,593
<u>METROS (excluding Paris)</u>				
1. Lille (driverless)	2	45.0	59	762
2. Lyon (1 line driverless)	4	30.9	43	718
3. Marseille	2	21.6	28	771
4. Rennes (driverless)	1	8.5	15	567
5. Toulouse (driverless)	2	26.2	37	762
Sub-total	11	134.2	182	737
TOTALS (44 systems)	88	1,047.4	1,600	655*

* Due to the differing natures of metros, tramways and tram-trains this is probably a meaningless average figure to calculate!

2 - Parc et trafic des réseaux de tramways

2.1 - Parc analysé et données de production 2016

Pour l'analyse de l'apodémologie, nous avons pris en compte les lignes des réseaux figurant dans le tableau ci-dessous.

Agglomération	Type	Nb de lignes	MLm	Moyages	Mise en service	Observations
Angers	Tramway fer	1	0,90	8,98	25/09/2011	
Autagne	Tramway fer	1	0,10	2,11	06/07/2014	
Besançon	Tramway fer	2	1,06	10,85	01/09/2011	
Bordeaux	Tramway fer	3	6,44	80,32	26/12/2005	
Brest	Tramway fer	1	1,07	9,42	23/06/2012	
Caen	Tramway ondu	2	1,29	9,22	18/11/2002	
Clermont-Ferrand	Tramway ondu	1	1,08	14,97	19/11/2006	
Dijon	Tramway fer	2	2,11	23,47	02/09/2012	
Grenoble	Tramway fer	5	5,26	56,77	06/03/1987	
Le Havre	Tramway fer	2	1,13	13,41	27/12/2012	
Le Mans	Tramway fer	2	1,97	18,01	14/11/2007	
Lille	Tramway fer	2	1,52	11,21	04/12/1969	
Lyon	Tramway fer	4	6,63	83,02	06/12/2006	Donc 23 tramways, 19 km (31,16)
Marseille	Tramway fer	5	1,59	23,26	26/11/1977	
Montpellier	Tramway fer	4	5,48	67,04	01/07/2009	
Mulhouse	Tramway fer	1	1,27	15,00	12/06/2006	Donc une ligne à Tramway ondu
Nancy	Tramway ondu	1	1,00	9,65	28/01/2001	
Nantes	Tramway fer	3	5,21	71,51	07/01/1985	
Nice	Tramway fer	1	1,28	29,74	26/11/2007	
Orléans	Tramway fer	2	2,41	20,92	24/11/2000	
Paris (IdF)	Tramway fer	5	11,69	275,32	19/07/1990	Donc 13 tramways, 19 km (21,16)
Reims	Tramway fer	2	0,99	13,14	16/04/2011	
Rouen	Tramway fer	2	1,46	17,31	16/12/1964	
Saint-Étienne	Tramway fer	3	1,71	22,10	01/01/1981	
Strasbourg	Tramway fer	10	5,67	60,20	28/11/1994	Donc 19 tramways, 19 km (21,16)
Toulouse	Tramway fer	2	1,63	12,24	13/06/1991	
Tours	Tramway fer	1	1,25	15,74	01/09/2013	
Valenciennes	Tramway fer	2	1,72	5,31	01/07/2006	
28 agglomérations		74	74,70	1025,68		

En savoir plus

Données récentes : réseau, nouvelles lignes ou extension de ligne mise en service en 2016 et prise en compte dans les résultats.

SERVICE FREQUENCY AND ANNUAL PATRONAGE - TRAMWAYS

	<u>TOWN</u>	<u>FREQUENCY IN MINUTES</u>		<u>MILLION JOURNEYS IN 2016</u>
		<u>PEAK</u>	<u>OFF-PEAK</u>	
1.	Angers	5	9	8.98
2.	Aubagne	10	-	2.11
3.	Besançon	6	16	10.85
4.	Bordeaux	4	6	86.32
5.	Brest	6	7	9.42
6.	Caen (tyred)	8	8	9.22
7.	Clermont-Ferrand (tyred)	5	8	14.97
8.	Dijon	5	8	23.47
9.	Grenoble	3-10	5-10	56.77
10.	Le Havre	8	10	13.41
11.	Le Mans	5	6	18.01
12.	Lille	8	11	11.21
13.	Lyon	5-7	10-15	92.42
14.	Marseille	5	6	23.26
15.	Montpellier	3	8-9	67.04
16.	Mulhouse	6	8-15	15.00
17.	Nancy (tyred)	5	5	9.65
18.	Nantes	3	6	71.51
19.	Nice	4	5	29.74
20.	Orléans	5	7	20.92
21.	Paris T1	8	8)	
22.	Paris T2	5	10)	
23.	Paris T3	5	7-8)	
24.	Paris T5 (tyred)	4	9)	276.32
25.	Paris T6 (tyred)	4	10-20)	
26.	Paris T7	6	10)	
27.	Paris T8	6	8)	
28.	Reims	6	8	13.14
29.	Rouen	5	6	17.31
30.	St.Etienne	4	5	22.10
31.	Strasbourg	4-8	8-12	68.20
32.	Toulouse	8	8	12.24
33.	Tours	6	8	15.74
34.	Valenciennes	10	12	6.35
		TOTAL		<u>1,025.68</u>

TRAM KILOMETRES AND PATRONAGE IN 2016

<u>TOWN</u>	<u>NUMBER OF TRAMS</u>	<u>ROUTE LENGTH KM</u>	<u>MILLION TRAM KMS</u>	<u>MILLION JOURNEYS</u>
1. Angers	17	12.3	0.90	8.98
2. Aubagne	8	2.7	0.14	2.11
3. Besançon	19	14.5	1.06	10.85
4. Bordeaux	100	66.0	6.44	86.32
5. Brest	22	14.3	1.07	9.42
6. Caen (tyred)	24	15.7	1.29	9.22
7. Clermont-Ferrand (tyred)	26	14.2	1.08	14.97
8. Dijon	33	20.0	2.11	23.47
9. Grenoble	103	47.9	5.26	56.77
10. Le Havre	22	13.0	1.13	13.41
11. Le Mans	26	18.8	1.87	18.01
12. Lille	24	22.0	1.52	11.21
13. Lyon	92	57.1	6.62	92.42
14. Marseille	32	12.7	1.59	23.26
15. Montpellier	83	57.0	5.48	67.04
16. Mulhouse	27	16.2	1.27	15.00
17. Nancy (tyred)	25	11.0	1.00	9.65
18. Nantes	91	43.5	5.21	71.51
19. Nice	28	9.2	1.28	29.74
20. Orléans	43	29.2	2.41	20.92
21. Paris T1	35	16.9)		
22. Paris T2	60	17.8)		
23. Paris T3a and T3b	46	22.4)		
24. Paris T5 (tyred)	15	6.6)	11.49	276.32
25. Paris T6 (tyred)	28	14.0)		
26. Paris T7	19	11.2)		
27. Paris T8	20	8.5)		
28. Reims	18	11.2	0.99	13.14
29. Rouen	27	15.1	1.46	17.31
30. St.Etienne	51	11.7	1.71	22.10
31. Strasbourg	94	59.7	5.67	68.20
32. Toulouse	24	16.6	1.63	12.24
33. Tours	21	14.8	1.26	15.74
34. Valenciennes	30	33.8	1.77	6.35
TOTALS	<u>1,333</u>	<u>757.6</u>	<u>74.70</u>	<u>1,025.68</u>

NOTE:-

The figures for tram kilometres and passenger journeys have been obtained from one of the webpages of Service Technique des Remontées Mécaniques et Transport Guidés at:
www.strmtg.developpement-durable.gouv.fr/IMG/pdf/rapport_annuel_tw_2016_v1.pdf

1. A Day Ticket is not available with most Smartcards.
2. B=Onboard, S=Stop
3. All tickets are valid for bus, trolleybus, metro and tram in each urban area.
4. Aubagne and Mulhouse currently do not have Smartcards.
5. Opening years shown for metros only.
6. † 7 Days or as shown
+ 3 Day ticket. # One month ticket.
7. In Paris for Metro, Tram and RER:
¶ Zone 1 * Zones 3 & 4

TICKET PRICES, SMARTCARDS & VALIDATION IN FRANCE AT JULY 2017									
METROS AND TRAMWAYS				TICKET PRICES - EUROS					
TOWN		SYSTEM	SINGLE	DAY	7 DAY +	10 TRIPS	B	S	
1. Angers		Tram	1.4	3.9	12.2	12.2	B		
2. Aubagne		Tram	Free	for	all	users	-	-	
3. Besançon		Tram	1.4	4.3	#42.0	12.0	B		
4. Bordeaux		Tram	1.5	4.6	13.5	12.4	B		
5. Brest		Tram	1.5	4.0	14.2	12.50	B		
6. Caen		Tyred-Tram	1.5	4.0	+8.05	12.7	B		
7. Clermont-Ferrand		Tyred-Tram	1.5	4.9	#47.5	13.5	B		
8. Dijon		Tram	1.3	3.9	12.0	13.0	B		
9. Grenoble		Tram	1.5	5.0	+12.0	14.0			S
10. Le Havre		Tram	1.7	4.0	14.5	12.7	B		
11. Le Mans		Tram	1.5	4.1	15.8	13.2	B		
12. Lille	1983	Metro	1.6	4.8	16.5	14.0			S
13. "		Tram	"	"	"	"			S
14. Lyon	1978	Metro	1.8	5.6	19.3	16.6			S
15. "		Tram	"	"	"	"	B		
16. Marseille	1977	Metro	1.6	5.2	+13.7	13.6			S
17. "		Tram	"	"	"	"	B		
18. Montpellier		Tram	1.6	4.3	16.5	10.0	B		
19. Mulhouse		Tram	1.5	4.3	+8.0	13.2	B		
20. Nancy		Tyred-Tram	1.3	3.8	#33.5	9.4	B		
21. Nantes		Tram	1.6	5.2	#64.0	14.7	B		
22. Nice		Tram	1.5	5.0	15.0	10.0	B		
23. Orléans		Tram	1.5	3.9	#42.6	14.0	B		
	<u>Zone</u>								
24. Paris T1	3	Tram	1.9	9.7	19.8	14.5	B		
25. Paris T2	1-4	Tram	"	12.0	22.15	"	B		
26. Paris T3	1	Tram	"	7.3	"	"	B		
27. Paris T5	3 & 4	Tyred-Tram	"	12.0	19.8	"	B		
28. Paris T6	3	Tyred-Tram	"	9.7	"	"	B		
29. Paris T7	3 & 4	Tram	"	12.0	"	"	B		
30. Paris T8	3	Tram	"	9.7	"	"	B		
31. Reims		Tram	1.6	4.0	#37.5	12.5	B		
32. Rennes	2002	Metro	1.5	4.1	17.9	14.5			S
33. Rouen		Tram	1.6	4.9	#53.0	13.8	B		
34. St-Etienne		Tram	1.4	none	#46.0	10.0	B		
35. Strasbourg		Tram	1.7	4.3	#49.8	14.0			S
36. Toulouse	1993	Metro	1.6	5.5	14.2	13.4			S
37. "		Tram	"	"	"	"	B		
38. Tours		Tram	1.5	3.9	#39.5	13.0	B		
39. Valenciennes		Tram	1.6	3.8	#38.5	12.0	B		
							TOTALS	30	8.

POWER RATINGS - STEEL WHEEL TRAMS

	<u>TOWN</u>	<u>TRAM</u>	<u>LENGTH METRES</u>	<u>POWER KILOWATTS</u>	<u>NO OF TRAMS</u>
1.	Angers	Alstom Citadis 302	32.4	480	17
2.	Aubagne	Alstom Citadis Compact	22.0	480	6
3.	Besançon	CAF Urbos 3	24.0	180	19
4.	Bordeaux	Alstom Citadis 302	32.9	480	12)
		Alstom Citadis 402	44.0	720	88) 100
5.	Brest	Alstom Citadis 302	32.7	480	22
6.	Dijon	Alstom Citadis 302	32.7	480	33
7.	Grenoble	Alsthom TFS	29.4	550	53)
		Alstom Citadis 402	43.73	720	50) 103
8.	Le Havre	Alstom Citadis 302	32.6	480	22
9.	Le Mans	Alstom Citadis 302	32.7	480	26
10.	Lille	Breda	29.9	410	24
11.	Lyon	Alstom Citadis 302	32.43	480	73)
		Alstom Citadis 402	42.0	720	19) 92
12.	Marseille	Bombardier Flexity	32.5	460	32
13.	Montpellier	Alstom Citadis 302	32.51	560	27)
		Alstom Citadis 401	40.97	840	30) 83
		Alstom Citadis 402	43.7	720	26)
14.	Mulhouse	Alstom Citadis 302	32.3	480	77
15.	Nantes	Alsthom TFS	39.15	550	46)
		Adtranz Incentro	36.4	360	33) 91
		CAF Urbos 3	35.1	480	12)
16.	Nice	Alstom Citadis 302	33.02	480	13)
		Alstom Citadis 402	44.00	720	15) 28
17.	Orléans	Alstom Citadis 301	29.87	560	22)
		Alstom Citadis 302	32.4	480	21) 43
18.	Paris 11	Alsthom TFS	29.4	550	35
19.	Paris T2	Alstom Citadis 302	32.2	560	60
20.	Paris T3	Alstom Citadis 402	40.97	720	46
21.	Paris T7	Alstom Citadis 302	32.7	480	19
22.	Paris T8	Alstom Citadis 302	32.7	480	20
23.	Reims	Alstom Citadis 302	32.4	480	18
24.	Rouen	Alstom Citadis 402	43.7	720	27
25.	St.Etienne	Alsthom-Yevey	23.2	280	35)
		CAF Urbos 100	32.97	750	16) 51
26.	Strasbourg	ABB/Bombardier	33.3	336	36)
		ABB/Bombardier	43.1	424	17) 94
		Alstom Citadis 403	45.0	720	41)
27.	Toulouse	Alstom Citadis 302	32.0	480	24
28.	Tours	Alstom Citadis 402	43.7	720	21
29.	Valenciennes	Alstom Citadis 302	33.0	560	30
				TOTAL	1,215

ROLLING STOCK LIVERIES -TRAMS AND TYRED TRAMS

<u>TOWN</u>	<u>LIVERY</u>
1. Angers	Rainbow stripes with white background
2. Aubagne	Blue background with faces and teeth
3. Besançon	Blue
4. Bordeaux	Grey and dark green
5. Brest	Green, black and silver
6. Caen (Tyred)	White and blue
7. Clermont-Ferrand (Tyred)	Maroon
8. Dijon	Black, white and purple
9. Grenoble	Grey with blue stripes
10. Le Havre	Off white with black doors
11. Le Mans	Red/Orange
12. Lille	Light grey with orange stripe
13. Lyon	White
14. Marseille	White with wide brown cantrails
15. Mulhouse	Yellow, with black or red stripes
16. Montpellier	Blue with white swallows
"	Multicoloured floral design
"	Maritime livery
"	Gold mosaic livery
17. Nancy (Tyred)	Light and dark grey
18. Nantes	White with green stripe and grey sills
19. Nice	Grey
20. Orleans	Silver with gold stripe
21. Paris T1	Grey with blue, green and white stripe
22. Paris T2	White and green
23. Paris T3	White with pale green stripes
24. Paris T5 (Tyred)	White and green
25. Paris T6 (Tyred)	White, grey and green
26. Paris T7	Grey, white and green cantrail
27. Paris T8	Grey, white and green cantrail
28. Reims	Eight different monotone colours
29. Rouen	White
30. St.Etienne	White with green stripes
"	Yellow base and grey roof
31. Strasbourg	White and fawn
32. Toulouse	Silver and black
33. Tours	Silver and black
34. Valenciennes	Grey

PASSENGER CAPACITY - STEEL WHEEL TRAMS

<u>TOWN</u>		<u>SEATED</u>	<u>STANDING 4 PERS/M2</u>	<u>CRUSH CONDITIONS</u>
1. Angers		56		206
2. Aubagne				130
3. Besançon		38	94	
4. Bordeaux	Standard	48	170	301
	Long	70	230	412
5. Brest		42	158	
6. Dijon		42	158	
7. Grenoble	Standard	46	134	198
	Long	76		
8. Le Havre		42	158	
9. Le Mans		64	146	
10. Lille		36	141	203
11. Lyon		57		200
12. Marseille		42	158	
13. Montpellier		64		205
		56		231
14. Mulhouse		56		231
15. Nantes - GEC Alsthom		64	162	236
	Adtranz Incentro	76		259
	CAF Urbos 3	68		249
16. Nice		54	152	
17. Orléans		40		176
18. Paris T1		54	120	198
19. Paris T2		54	120	198
20. Paris T3		75		300
21. Paris T7		54		200
22. Paris T8		54		200
23. Reims		54	148	
24. Rouen		56		231
25. St.Etienne	Unidirectional	39		163
	Bidirectional	34		238
26. Strasbourg	Standard	66		240
	Long	92		270
27. Toulouse		48		212
28. Tours		84		300
29. Valenciennes		48		247

PASSENGER CAPACITY - RUBBER-TYRED TRAMS

<u>TOWN</u>	<u>SEATED</u>	<u>STANDING 4 PERS/M2</u>	<u>CRUSH CONDITIONS</u>
1. Caen			150
2. Clermont-Ferrand	48		225
3. Nancy	57		93
4. Paris T5			178
5. Paris T6	60		358

“Crush conditions” are
from 6 to 8 passengers
per square metre.

MANUFACTURERS & PRICE PER TRAM

Total: 1,215 Trams

<u>TOWN</u>	<u>MANUFACTURER AND TYPE</u>	<u>UNITS</u>	<u>TOTAL</u>	<u>€MILLION/TRAM</u>
1. Angers	Alstom Citadis 302		17	2.76
2. Aubagne	Alstom Citadis Compact		8	1.75
3. Besançon	CAF Urbos 3		19	1.83
4. Bordeaux	Alstom Citadis 302	12)		
	Alstom Citadis 402	88)	100	3.07
5. Brest	Alstom Citadis 302		22	2.05
6. Dijon	Alstom Citadis 302		33	2.05
7. Grenoble	a) Alsthom-Francorail	38)		
	b) GEC-Alsthom	15)	103	
	c) Alstom Citadis 402	50)		
8. Le Havre	Alstom Citadis 302		22	2.25
9. Le Mans	Alstom Citadis 302		26	
10. Lille	Breda, Italy		24	
11. Lyon	Alstom Citadis 302	73)		
	Alstom Citadis 402	19)	92	3.05
12. Marseille	Bombardier Flexity		32	3.00
13. Montpellier	Alstom Citadis 302	27)		
	Alstom Citadis 401	30)	83	
	Alstom Citadis 402	26)		2.82
14. Mulhouse	Alstom Citadis 302		27	
15. Nantes	a) Alsthom	46)		
	b) Adtranz "Incentro"	33)	91	
	c) CAF Urbos 3	12)		2.50
16. Nice	Alstom Citadis 302	13)		
	Alstom Citadis 402	15)	28	
17. Orleans	Alstom Citadis 301	22)		
	Alstom Citadis 302	21)	43	
18. Paris T1	GEC-Alsthom		35	
19. Paris T2	Alstom Citadis 302		60	
20. Paris T3	Alstom Citadis 402		46	3.08
21. Paris T7	Alstom Citadis 302		19	2.63
22. Paris T8	Alstom Citadis 302		20	1.83
23. Reims	Alstom Citadis 302		18	
24. Rouen	Alstom Citadis 402		27	2.96
	GEC-Alsthom (28 sold in 2012)			2.77
25. St.Etienne	a) GEC-Alsthom	15)		
	b) GEC Alsthom-Vevey	20)	51	
	c) CAF Urbos 100	16)		2.63
26. Strasbourg	ABB, Bombardier	53)		
	Alstom Citadis 403	41)	94	
27. Toulouse	Alstom Citadis 302		24	2.74
28. Tours	Alstom Citadis 402		21	3.48
29. Valenciennes	Alstom Citadis 302		30	2.43

SIZES OF CARS AND UNITS AND NUMBERS OF AXLES

STEEL WHEEL TRAMS

<u>TOWN</u>	<u>UNIT DIMENSIONS-METRES</u>			<u>NUMBER OF AXLES</u>
	<u>LENGTH</u>	<u>WIDTH</u>	<u>HEIGHT</u>	
1. Angers	32.4	2.40	3.27	6
2. Aubagne	22.0	2.40		4
3. Besançon	23.0	2.40		4
4. Bordeaux	32.9	2.40	3.27	8
	43.0	2.40	3.27	10
5. Brest	32.0	2.40		6
6. Dijon	32.0	2.40		6
7. Grenoble	29.4	2.30	3.36	6
	43.73	2.30		8
8. Le Havre	32.0	2.40		6
9. Le Mans	32.7	2.40	3.40	6
10. Lille	29.9	2.40	2.95	7
11. Lyon	32.33	2.40	3.27	6
12. Marseille	32.5	2.40	3.5	6
13. Montpellier	44.0	2.65	3.27	8
	30.0	2.65	3.27	6
	43.7	2.65		8
14. Mulhouse	32.5	2.65		6
15. Nantes	39.15	2.30	3.25	8
	36.4	2.40		6
	35.1	2.40		6
16. Nice	33.02	2.65		6
	44.0	2.65		8
17. Orléans	30.0	2.32	3.27	6
	32.4	2.40		6
18. Paris T1	29.4	2.30	3.36	6
19. Paris T2	32.9	2.40	3.36	6
20. Paris T3	43.7	2.65		8
21. Paris T7	32.7	2.40	3.40	6
22. Paris T8	32.7	2.40	3.40	6
23. Reims	32.4	2.40		6
24. Rouen	43.7	2.40		8
25. St.Etienne	23.2	2.12		6
	33.0	2.15		6
26. Strasbourg	33.3	2.40	3.10	8
	43.1	2.45	3.10	10
27. Toulouse	32.0	2.40		6
28. Tours	43.7	2.40	3.50	8
29. Valenciennes	33.0	2.40		6

SIZES OF CARS AND UNITS AND NUMBERS OF AXLES
RUBBER-TYRED TRAMS, TRAM-TRAINS & METROS

<u>TOWN</u>	<u>UNIT LENGTH</u>	<u>DIMENSIONS-METRES</u>		<u>NUMBER OF AXLES</u>
<u>RUBBER-TYRED TRAMS</u>				
1. Caen	24.5	2.50	3.22	4
2. Clermont-Ferrand	32.0	2.20		5
3. Nancy	24.5	2.50	3.22	4
4. Paris T5	25.0	2.20	3.12	4
5. Paris T6	46.0	2.20	3.12	7
<u>TRAM-TRAINS</u>				
1. Lyon	27.0	2.55	3.68	6
2. Mulhouse	45.0	2.65	3.52	6
3. Nantes	42.0	2.65	3.37	8
4. Paris T4	36.7	2.65		8
5. Paris T11	42.0	2.65	3.50	10
<u>METROS (excluding Paris)</u>				
1. Lille	26.14	2.06	3.25	4
2. Lyon				4
3. Marseille				4
4. Rennes	26.14	2.06	3.25	4
5. Toulouse	26.14	2.06	3.25	4

ELECTRICITY SUPPLY DETAILS

1. All metros, Lyon tram-train and all tramways, except St.Etienne Tramway, draw electrical supply at 750 volts Direct Current.
2. St. Etienne Tramway is supplied at 600 volts DC. Its older trams are unidirectional, i.e. driver's cab at one end only of the tram. Its new trams, which entered service in 2017, are bidirectional, with cab at both ends.
3. Mulhouse, Nantes and Paris T4 & T11 tram-trains are dual voltage 750 volts DC/25kVAC units. At present only Mulhouse tram-trains draw current at both voltages. It is intended that dual voltage will apply on Nantes, Paris T4 & T11 tram-trains, which at present only operate on 25kVAC, after on-street extensions to these systems have been built.
4. Lyon Metro Line C and all tramways, except Angers, Bordeaux, Nancy, Nice, Orléans, Reims and Tours are supplied throughout by overhead line and pantograph.
5. Angers, Bordeaux, Orléans, Reims and Tours Tramways are supplied part by overhead line and pantograph and part by intermittently energised central third rail, that is Alimentation par le Sol or APS.
6. Nice Tramway is supplied predominantly by overhead line and pantograph except for two short sections, 450 metres and 480 metres long, where it is powered by on-tram batteries, which recharge when tram uses overhead line.
7. Nancy Tramway is supplied by two trolley poles. Caen and Nancy Trams also have diesel engines and are unidirectional, i.e. driver's cab at one end only.
8. Lyon metro Lines A and B and Marseille Metro (2 lines) are rubbertyred and supplied by "third" rail.
9. The Metros in Lille (2 lines), Lyon Line D, Rennes, Toulouse (2 lines) and Paris Lines 1 and 14 are driverless and rubbertyred and supplied by two "third" rails, which are also the guide rails. All have platform edge doors except Lyon Line D which has no such doors.

NOTE: Lyon Metro has four lines - A,B,C & D

POPULATIONS AND VERSEMENT TRANSPORT

	<u>Town</u>	<u>Population Agglomeration</u>	<u>Versement Transport</u>
1.	Angers	226,843	1.80%
2.	Aubagne	46,568 #	1.80%
3.	Besançon	135,808	1.80%
4.	Bordeaux	753,931	2.00%
5.	Brest	210,055	1.65%
6.	Caen	199,490	2.00%
7.	Clermont Ferrand	258,541	1.80%
8.	Dijon	236,953	2.00%
9.	Grenoble	419,334	1.80%
10.	Le Havre	248,547	1.80%
11.	Le Mans	194,825	1.80%
12.	Lille	1,000,900	2.00%
13.	Lyon	1,348,832	1.75%
14.	Marseille	1,349,772	2.00%
15.	Montpellier	287,981	1.80%
16.	Mulhouse	234,445	1.82%
17.	Nancy	331,363	1.60%
18.	Nantes	544,932	1.80%
19.	Nice	888,784	1.53%.
20.	Orléans	263,292	1.80%
21.	Paris	11,532,398	1.60%
22.	Reims	215,581	1.80%
23.	Rennes	272,263	1.80%
24.	Rouen	389,862	2.00%
25.	St.Etienne	287,981	1.50%
26.	Strasbourg	427,245	2.00%
27.	Toulouse	761,090	1.80%
28.	Tours	344,739	2.00%
29.	Valenciennes	357,395	2.00%

This figure is for the Inner Area since Aubagne does not have an Agglomeration

Versement Transport:
A "Payroll Tax" paid
only by businesses with
over 9 employees.

OPERATING COSTS : SOURCES OF REVENUE

<u>CITY/TOWN</u>	<u>Fares</u>	<u>Subsidy/ Grants</u>	<u>Other</u>	<u>Versement Transport</u>
<u>METROS</u>				
Lille	60%	29%	11%	2.00%
Lyon	49.6%	58.4%	-	1.63%
Marseille	43%	39%	18%	2.00%
Paris	41.8%	40.9%	17.3%	2.80%
Rennes	38%	62%	-	1.75%
Toulouse	47%	50%	3%	1.75%
<u>TRAMWAYS</u>				
Angers		No figures		1.80%
Aubagne		No figures		1.80%
Besançon		No figures		1.80%
Bordeaux	25.5%	72.35%	2.15%	2.00%
Brest		No figures		1.65%
Caen		No figures		1.60%
Clermont Ferrand		No figures		1.80%
Dijon		No figures		2.00%
Grainville	49%	43%	8%	1.80%
Le Havre		No figures		1.80%
Le Mans		No figures		1.80%
Lille	60%	29%	11%	2.00%
Lyon	49.6%	58.4%	-	1.75%
Marseille	43%	39%	18%	2.00%
Montpellier		No figures		1.80%
Mulhouse		No figures		1.80%
Nancy	47.5%	46.8%	5.7%	1.60%
Nantes	41.1%	53.1%	5.8%	1.80%
Nice		No figures		1.53%
Orléans	45.2%	55%		1.80%
Paris	41.8%	40.9%	17.3%	2.60%
Reims		No figures		1.80%
Rouen	27.1%	66.5%	6.4%	1.60%
St-Etienne	61%	33%	6%	1.30%
Strasbourg	68%	32%	-	2.00%
Toulouse	47%	50%	3%	1.80%
Tours		No figures		2.00%
Valenciennes		No figures		1.80%

NOTES

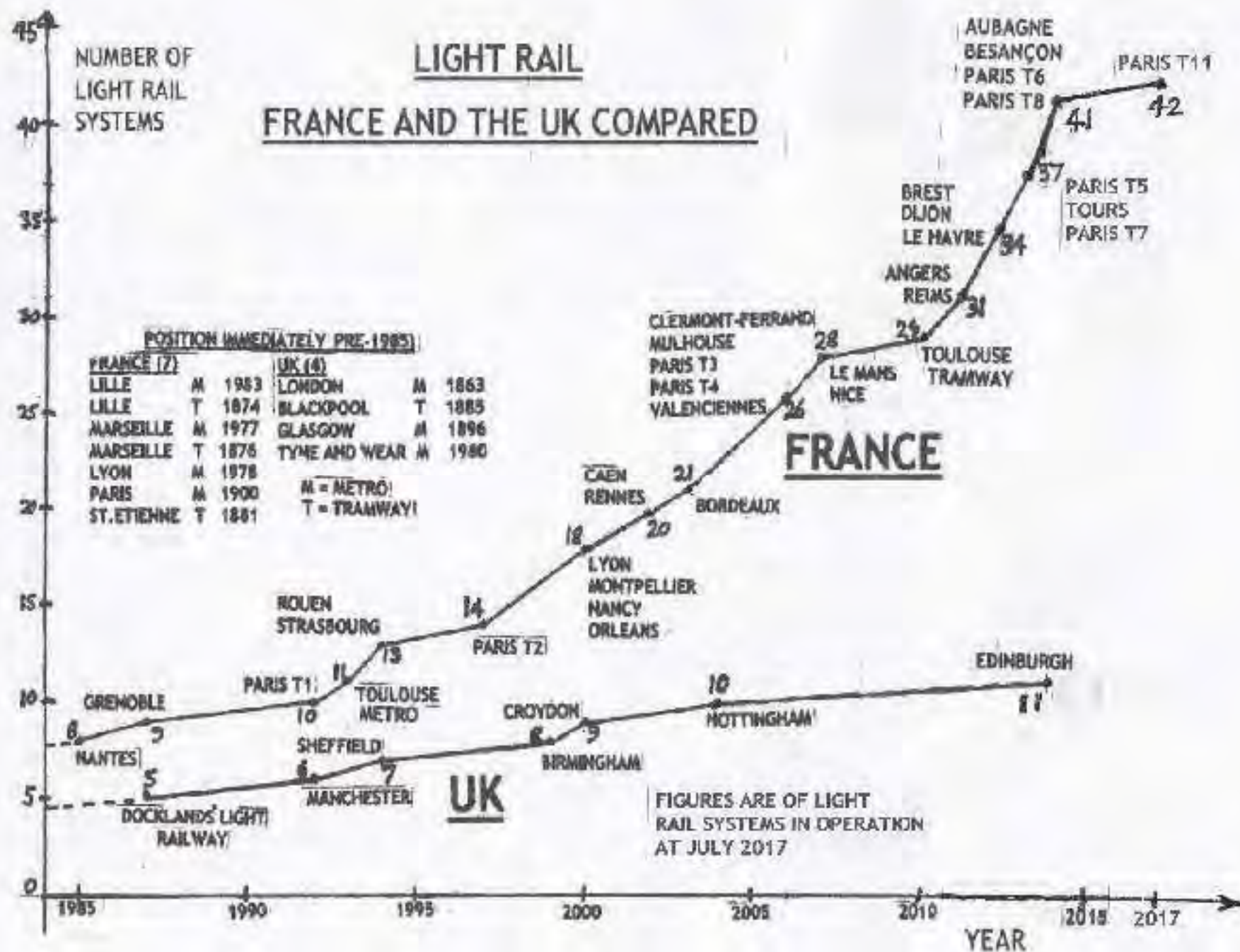
1. *Versement Transport* is a "Payroll Tax" paid by businesses in the conurbation with over 9 employees.
2. * Concessionary Fares
3. Websites for *Versement Transport*: www.urssaf.fr & www.ofli.fr

LIGHT RAIL IN FRANCE & GREAT BRITAIN COMPARED **NEW SYSTEMS INAUGURATED FROM 1999 TO 2017**

<u>FRANCE</u>		Route Length	Year	Route Length	<u>GREAT BRITAIN</u>
City/Town		Km	Inaugurated	Km	City/Town
<u>STEEL WHEEL TRAMWAYS</u>					
1. Lyon	57.1	2000	20.4	1. Birmingham	
2. Montpellier	57.0	2000	28.0	2. Croydon	
3. Orleans	29.2	2000			
4. Bordeaux	66.0	2003			
		2004	32.0	3. Nottingham	
5. Mulhouse	16.7	2006			
6. Paris T3	22.4	2006			
7. Valenciennes	33.8	2006			
8. Le Mans	18.8	2007			
9. Marseille	12.7	2007			
10. Nice	9.2	2007			
11. Toulouse	16.6	2010			
12. Reims	11.2	2011			
13. Angers	12.5	2011			
14. Brest	11.3	2012			
15. Dijon	20.0	2012			
16. Le Havre	15.0	2012			
17. Tours	14.8	2013			
18. Paris T7	11.2	2013			
19. Besançon	14.5	2014	13.9	4. Edinburgh	
20. Aubagne	7.7	2014			
21. Paris T8	8.5	2014			
Route length total - Km	461.5		94.3		
<u>RUBBER-TYRED TRAMWAYS</u>					
22. Nancy	11.0	2001			
23. Caen	15.7	2007			
24. Clermont Ferrand	14.2	2008			
25. Paris T5	6.6	2013			
26. Paris T6	14.0	2014			
<u>TRAM-TRAINS</u>					
27. Paris T4	8.0	2006			
28. Lyon	23.0	2010			
29. Mulhouse	22.0	2010			
30. Nantes	92.0	2011			
31. Paris T11	10.6	2017			
<u>METRO</u>					
32. Rennes (driverless)	8.5	2002			
Route length total - Km	225.6				

NOTES: All systems are electrically powered and by overhead line except Rennes Metro which uses two "third" rails. Voltage is 750 volts DC except for tram-trains where Mulhouse is supplied at 25 KvAC for part of its route length and Paris T4 and Nantes are supplied for their full route length at 25 KvAC. Since inauguration some tramways, specifically Lyon, Montpellier, Orleans, Bordeaux, Paris T3, and Valenciennes, have had substantial extensions, included in the above route lengths. Note that 461.5 km is nearly 5 times 94.3 km. No new light rail systems were inaugurated in either country in 1995, 1996, 1998, 2001, 2002, 2005, 2008, 2009, 2015 and 2016. In 1997 one new tramway, Paris T2, route length now 17.8 km, was inaugurated.

19 August 2017





**Caen Tramway
(rubber-tyred)**

Caen Abbey

**Tomb of
William the Conqueror
King of England
1066-1087**



†
HIC SEPULTUS EST
INVICTISSIMUS
GUILLELMUS
CONQUESTOR
NORMANNIE DUX
ET ANGLIE REX
HUIUSCE DOMUS
CONDITOR
QUI OBIT ANNO
M LXXXVII

FRANCE

200 KILOMETRES

2017 - PARIS T11



Toulouse Tramway

**Inauguration was planned
for 27 November 2010**

**Due to a tramdrivers' strike
normal service did not start
until 11 December 2010**













Reims Tramway
Inaugurated:
16 April 2011





Ligne

Destination

Mn

A
A

NEUFCHATEL
NEUFCHATEL
10:39

08 MN
28 MN

⌚ Temps d'attente estimé





TARIFS Bus-Tram

Les Tickets

- Ticket unique** (1) : Permet de voyager une seule fois sur le réseau Citura. Le prix est de 1,50 €.
- Ticket 10** (2) : Permet de voyager 10 fois sur le réseau Citura. Le prix est de 12,50 €.
- Ticket 20** (3) : Permet de voyager 20 fois sur le réseau Citura. Le prix est de 25,00 €.
- Ticket 30** (4) : Permet de voyager 30 fois sur le réseau Citura. Le prix est de 37,50 €.
- Ticket 40** (5) : Permet de voyager 40 fois sur le réseau Citura. Le prix est de 50,00 €.
- Ticket 50** (6) : Permet de voyager 50 fois sur le réseau Citura. Le prix est de 62,50 €.
- Ticket 60** (7) : Permet de voyager 60 fois sur le réseau Citura. Le prix est de 75,00 €.
- Ticket 70** (8) : Permet de voyager 70 fois sur le réseau Citura. Le prix est de 87,50 €.
- Ticket 80** (9) : Permet de voyager 80 fois sur le réseau Citura. Le prix est de 100,00 €.
- Ticket 90** (10) : Permet de voyager 90 fois sur le réseau Citura. Le prix est de 112,50 €.
- Ticket 100** (11) : Permet de voyager 100 fois sur le réseau Citura. Le prix est de 125,00 €.

Conditions d'utilisation

- Le ticket est valable pour tous les bus et tramways Citura.
- Le ticket est valable pendant 12 mois à compter de la date d'achat.
- Le ticket est non transférable.
- Le ticket est valable pour un seul voyage par trajet.
- Le ticket est valable pour un seul voyage par ligne.
- Le ticket est valable pour un seul voyage par heure.
- Le ticket est valable pour un seul voyage par jour.
- Le ticket est valable pour un seul voyage par semaine.
- Le ticket est valable pour un seul voyage par mois.
- Le ticket est valable pour un seul voyage par trimestre.
- Le ticket est valable pour un seul voyage par semestre.
- Le ticket est valable pour un seul voyage par année.



Les Abonnements

- Abonnement 1** (12) : Permet de voyager tous les jours sur le réseau Citura. Le prix est de 120,00 €.
- Abonnement 2** (24) : Permet de voyager tous les jours sur le réseau Citura. Le prix est de 240,00 €.
- Abonnement 3** (36) : Permet de voyager tous les jours sur le réseau Citura. Le prix est de 360,00 €.
- Abonnement 4** (48) : Permet de voyager tous les jours sur le réseau Citura. Le prix est de 480,00 €.
- Abonnement 5** (60) : Permet de voyager tous les jours sur le réseau Citura. Le prix est de 600,00 €.
- Abonnement 6** (72) : Permet de voyager tous les jours sur le réseau Citura. Le prix est de 720,00 €.
- Abonnement 7** (84) : Permet de voyager tous les jours sur le réseau Citura. Le prix est de 840,00 €.
- Abonnement 8** (96) : Permet de voyager tous les jours sur le réseau Citura. Le prix est de 960,00 €.
- Abonnement 9** (108) : Permet de voyager tous les jours sur le réseau Citura. Le prix est de 1080,00 €.
- Abonnement 10** (120) : Permet de voyager tous les jours sur le réseau Citura. Le prix est de 1200,00 €.

Conditions d'utilisation

- L'abonnement est valable pour tous les bus et tramways Citura.
- L'abonnement est valable pendant 12 mois à compter de la date d'achat.
- L'abonnement est non transférable.
- L'abonnement est valable pour un seul voyage par trajet.
- L'abonnement est valable pour un seul voyage par ligne.
- L'abonnement est valable pour un seul voyage par heure.
- L'abonnement est valable pour un seul voyage par jour.
- L'abonnement est valable pour un seul voyage par semaine.
- L'abonnement est valable pour un seul voyage par mois.
- L'abonnement est valable pour un seul voyage par trimestre.
- L'abonnement est valable pour un seul voyage par semestre.
- L'abonnement est valable pour un seul voyage par année.



Conditions d'utilisation

- L'abonnement est valable pour tous les bus et tramways Citura.
- L'abonnement est valable pendant 12 mois à compter de la date d'achat.
- L'abonnement est non transférable.
- L'abonnement est valable pour un seul voyage par trajet.
- L'abonnement est valable pour un seul voyage par ligne.
- L'abonnement est valable pour un seul voyage par heure.
- L'abonnement est valable pour un seul voyage par jour.
- L'abonnement est valable pour un seul voyage par semaine.
- L'abonnement est valable pour un seul voyage par mois.
- L'abonnement est valable pour un seul voyage par trimestre.
- L'abonnement est valable pour un seul voyage par semestre.
- L'abonnement est valable pour un seul voyage par année.















Angers Tramway

Inaugurated:

25 June 2011



















TRAMWAY EN ESSAIS



SOYEZ PRUDENTS

VODZILLA

www.spcv.fr/transport/trym



Avrillé
Métropole



Angoulême métropole
Le territoire de demain



A AURILLE ARDENNE 8
A AURILLE ARDENNE 20
Samedi 16 juillet 14:49





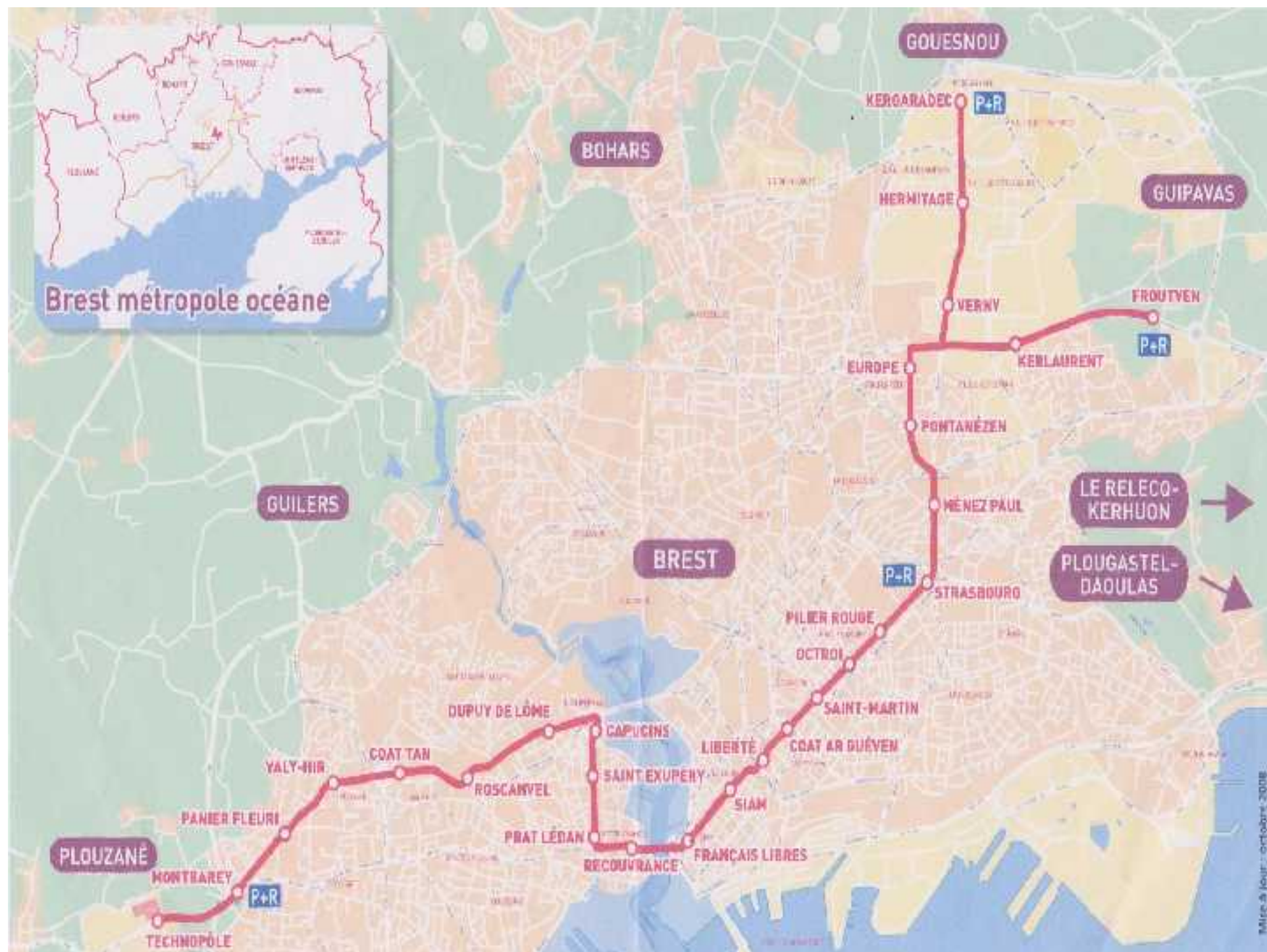








Brest Tramway
Inaugurated:
23 June 2012





esplanade du Général Leclerc 2012

→ **Coût prévisionnel du tramway**
383 millions d'euros HT

→ Les subventions

Europe :	13,8 M €
Etat :	33,4 M €
Région Bretagne :	4 M €
Département du Finistère :	16 M €
Autres (Ademe, CDC, AFIFT) :	1 M €

Maîtrise d'ouvrage : Brest métropole océane

Maîtrise d'œuvre générale : Groupement
Téo-Ingénierie transport : Systra/Architecture
et paysage : Richez_Associés/Atelier de l'île/
B3I/Transitec

Maîtrise d'œuvre du centre de maintenance :
Groupement Ferrand Sigal Architectes/
Archipole/AUA structure/Technip TPS

Maîtrise d'œuvre du pont de Recouvrance :
Groupement Selec - TPI/Architecture
& Ouvrage d'Art

Les financeurs de la 1^{re} ligne de tramway de l'agglomération brestoise













HORS SERVICE

HORS SERVICE

















Dijon Tramway

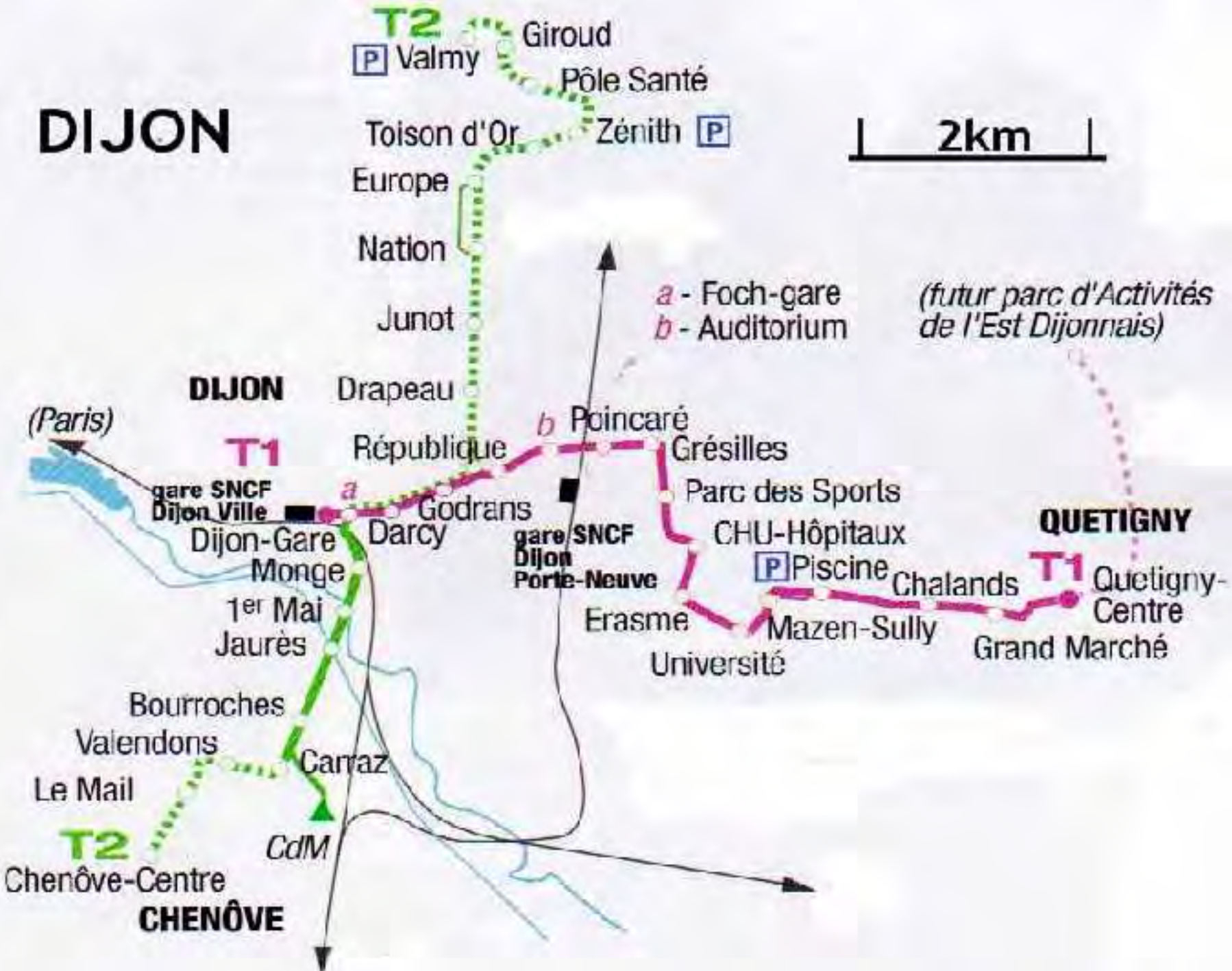
Inaugurations

Line 1 - 8.5km: 1 September 2012

Line 2 - 11.5km: 8 December 2012

Cost: €400million

DIJON









T

2

DIRECTION **CHENOVE**

Prochain
arrêt



Nation

Arrêt
suivant



Junot



Drapeau



République



Godrans

DIMANCHE 18 AOUT 2013

15:37

Validation systématique



Cartes et Tickets doivent
être validés à chaque montée,
même en correspondance.











Le Havre Tramway

Length: 13.0km

Construction started: March 2010

Inaugurated: 12 December 2012

Cost: €395million

Special Feature: 575m Tunnel

LE HAVRE TRAMWAY

1km

TUNNEL

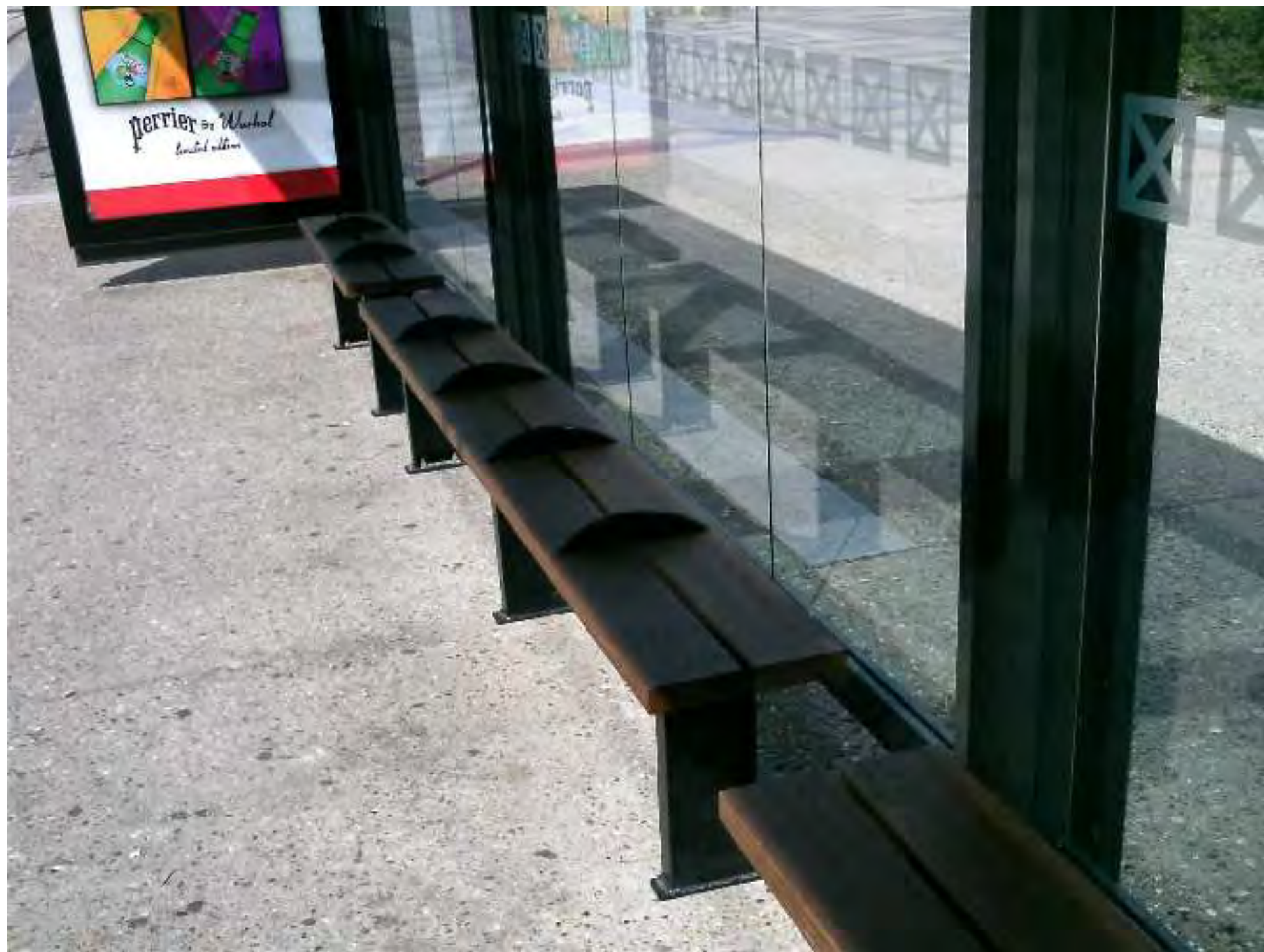
La Cézard Express Régionale (LER)
CRASHES 22/1/2008 par
Dépassement

Parking relais Tram



















LE HAVRE TRAMWAY

Construction started - March 2010

Inaugurated - 12 December 2012

FUNDING OF CAPITAL EXPENDITURE

<u>Sources of Funding</u>	<u>€ Million</u>	<u>Percentage</u>
Central Government	48.1	12.27%
Region - Haute Normandie	10.0	2.55%
Department - Seine Maritime	19.47	4.96%
Commune de Le Havre	237.0	60.45%
European Union	10.0	2.55%
Versement Transport (See Note 1)	67.5	17.22%
TOTAL	€392.07m	100%

FEATURES:- Length - 13 kilometres

Tramstops - 23

575 metre long new bored tunnel

Trams - 20 Alstom Citadis 302

Service Frequency at peak times - 3 minutes in town centre
6 minutes in suburbs

NOTES:- 1. Versement Transport is a Payroll Tax payable by all "businesses" with over 9 employees. It is currently in the range 1.53% to 2% of the employers' salaries/wages bill, the exact percentage each conurbation may levy requiring approval by central government. Versement Transport in Le Havre is currently 1.8%.

2. Cost of 20 trams, included in the above, was €45 million which equates to €2.25 million per tram.

3. Capital cost per kilometre was €30.38 million per kilometre which includes purchase price of trams.

Tours Tramway

Length: 14.8km

Construction started: January 2011

Inaugurated: 31 August 2013

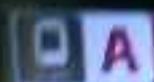
Cost: €369million

Special Feature: 1.8km APS

Trams: 21 No 43.7m by 2.4m wide







Vaucanson

Samedi 31 Aout 2013

17:03

Station - Station

Marne

bleu











See also: www.youtube.com/watch?v=mZOtToCYXNM

Duration: 3mins 26secs



Paris T7 Tramway

Inaugurated:

16 November 2013











T 7

Prochaine station

arrivée à Porte de Thiais à 14:01

13 39

● **Aéroport d'Orly**

● Coeur d'Orly

● Caroline Aigle

● Hélène Boucher

onlyval

onlybus

183 N22 N31 N131 N144



villejuif

4

villejuif

15



Porte de l'Essonne



T 7 Villejuif



Attention
en traversant
les voies

Be cautious when
crossing the tracks

Vorsicht beim Überqueren
der Bahnlinien

Cautela al varare
le vie

Attenzione quando si
attraversano i binari



Les espaces et les
véhicules de la RATP
sont équipés
d'un système
de vidéosurveillance

Plus d'infos sur nos sites
web: www.ratp.fr ou www.ratp.fr

A video protection system
equips RATP spaces and
vehicles

Der Verkehrsbereich und die
Fahrzeuge der RATP sind
mit Videoschutzsystemen
ausgestattet

Los espacios y los vehículos
de la RATP están
equipados con un sistema
de videovigilancia

Di più sul sito della
RATP: www.ratp.fr o
chiamando il
numero verde





Besançon Tramway

Inaugurated: 30 August 2014













Battant

Temps d'attente du prochain tram (en minutes)

	1	Chalezeule	
13:33	1	Chalezeule	8
	2	Gare Viotte	11

Inauguration Tram: dimanche
31 août bus + tram gratuit



1 Chalezeule

13:50

Inauguration Tram :
dimanche 31 août
bus + tram gratuit



Prochaine station

Croix de Palente











Aubagne Tramway

**Inaugurated:
1 September 2014**

Route length: 2.7km

























Paris T8 Tramway

**Inaugurated:
16 December 2014**

Route length: 8.5km





Saint-Denis - Porte de Paris

T 8 Épinay • Villetaneuse



Vente de billets
par River Bus
à destination

Der Verkauf von
Fahrkarten ist
nur an den
River Buses möglich

Verkauf von Tickets
nur an den
River Buses möglich



Attention
de l'attention
des conducteurs

Achtung
auf die Anweisungen
des Busfahrers

Attention
auf die Anweisungen
des Busfahrers



Les billets et les
cartes de la RATP
sont disponibles
dans les bornes
de validation

Die Fahrkarten und
Karten der RATP
sind an den
Validatoren erhältlich

Die Fahrkarten und
Karten der RATP
sind an den
Validatoren erhältlich







• Épinay – Orgemont

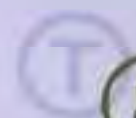
• Épinay-sur-Seine – Gare

• Gilbert Bonnemaïson

• Lacépède

• Rose Bertin

11 54



8

Saint-Denis

Départ dans 1 minute









Réservé à la descente





Paris T8 Tramway

**Photos shown in chronological order of
tramway inauguration for all new steel
wheel tramways in France from 2000 on**

- | | |
|----------------------|--------------------|
| 1.Montpellier (2000) | 11.Toulouse |
| 2.Orléans | 12.Reims |
| 3.Lyon | 13.Angers |
| 4.Bordeaux | 14.Brest |
| 5.Mulhouse | 15.Dijon |
| 6.Valenciennes | 16.Le Havre |
| 7.Paris T3 | 17.Tours |
| 8.Marseille | 18.Paris T7 |
| 9.Le Mans | 19.Besançon |
| 10.Nice | 20.Aubagne |
| | 21.Paris T8 (2014) |

**TOWNS HAVING METROS,
TRAMWAYS AND TRAM-TRAINS
AT JULY 2017**

FRANCE

NO NEW METROS, TRAMWAYS OR TRAM-TRAINS
WERE INAUGURATED IN 2008, 2009, 2015 or 2016.
FROM 2010 ON 13 TRAMWAYS AND *ONE TRAM-TRAIN
HAVE BEEN INAUGURATED AS FOLLOWS:

2010 - TOULOUSE

2011 - ANGERS & REIMS

2012 - BREST, DIJON & LE HAVRE

2013 - PARIS T5 & T7 & TOURS

2014 - BESANÇON & AUBAGNE

" PARIS T6 & T8

2017 - *PARIS T11

200 KILOMETRES



OFFICIAL TRANSPORT OPERATOR WEBSITES - Page 1

<u>Town</u>	<u>Website address</u>
Angers	bustram.irigo.fr ; www.angersloiremetropole.fr/tramway
Aubagne	www.lignes-agglo.fr
Avignon	www.grandavignon.fr *See below
Besançon	www.ginko.voyage ; www.lettram-grandbesancon.fr
Bordeaux	www.infotbc.com
Brest	www.bibus.fr ;
Caen	www.twisto.fr ; www.tramway2019.com
Clermont Ferrand	www.t2c.fr
Dijon	www.divia.fr ;
Grenoble	www.tag.fr ; www.smtc-grenoble.org
Le Havre	www.transports-lia.fr
Le Mans	www.setram.fr
Lille	www.transpole.fr
Lyon	www.tcl.fr ; www.sytral.fr ;
Marseille	www.rtm.fr
Montpellier	www.tam-voyages.com

*Avignon Tramway: Construction started 2016. Completion due 2019

OFFICIAL TRANSPORT OPERATOR WEBSITES - Page 2

<u>Town</u>	<u>Website address</u>
Mulhouse	www.solea.info ;
Nancy	www.reseau-stan.com
Nantes	www.tan.fr
Nice	www.lignesdazur.com ; tramway.nice.fr
Orléans	www.reseau-tao.fr
Paris	www.ratp.fr ; www.tramway.paris.fr ; www.stif.info
Reims	www.mars-reims.fr ; www.citura.fr
Rennes	www.star.fr
Rouen	www.crea-astuce.fr
St.Etienne	www.reseau-stas.fr
Strasbourg	www.cts-strasbourg.fr
Toulouse	www.tisseo.fr
Tours	www.filbleu.fr
Valenciennes	www.transvilles.com

In January 2014 I gave an earlier version of the presentation you have seen this evening to the Stephenson Locomotive Society, Newcastle Centre. Since then I have updated it to include four new tramways, and various extensions to existing tramways and a metro, which have all subsequently come into service. The updated version, (in “pdf” format), may be viewed and downloaded free from the Society’s website at:

www.stephensonloco.org.uk/NEW%20FRENCH%20LIGHT%20RAIL.pdf

To view the nine most recent talks I have given on this subject, from start 2014 to date, go to webpage:

jumpshare.com/b/srLketGXy3EQHauJteCz

Further, to view over 100 slides, taken on 7 September 2016, of the racing cars in the Le Mans 24 Hour Race Museum go to webpage:

jumpshare.com/b/zpQlhcy49TY99m6628oi

Light Rail in France – The Current Scene
by Graham Jellett, MA, MSc, CDipAF, CEng, MICE, FCILT, MCIHT
Area Officer, Light Rail Transit Association

Introduction

These albums contain photographs of all fortyfive urban public light rail systems, that is metros, tramways and tram-trains, currently operating in France together with 38 related tables of data. Photographs of four of these tramways when under construction are also included. My original presentation, “French Metro and Tramway Systems”, was first given on 22nd January 1998 in Gateshead Civic Centre when only 14 such systems existed. Since then the content of this talk has changed considerably and been updated regularly as new systems, extensions to existing systems and more rolling stock have come into public use, ticket prices have changed and smartcards have been introduced in 27 of the 29 conurbations having light rail. Since January 1998 this talk has been given to 119 audiences in England, Scotland and Wales at meetings of professional engineering and transport institutions, university transport students, light rail and railway enthusiast societies and other interested clubs and societies.

Presentation to Meetings

In every year since the mid-1980s France has always had in service more than double the number of metros and tramways concurrently running in the UK and now has more than four times the eleven British light rail systems at present operating. A total of 45 public light rail systems now operate in 29 French conurbations consisting of 6 metros, 29 steel wheel tramways, 5 rubber-tyred tramways and 5 tram-trains.

From 1992 onwards I have, as an ordinary farepaying passenger, visited all these systems when in service at least once, thirtytwo of these systems between two and ten times and the Paris Metro over twenty times. I have travelled on all but 450 metres of the present route length of 1047.4 kilometres, (this route length excludes Paris Metro which I have nevertheless travelled on extensively), the exception being the short 450 metre extension to the steel-wheel tramway in Nice. I have also visited four tramways when under construction.

The six metros are in Lille, Lyon, Marseille, Paris, Rennes and Toulouse. Twenty seven conventional “second generation” tramways are now in operation, the first being Nantes, inaugurated in 1985, followed in chronological order by Grenoble, Paris T1, Strasbourg, Rouen, Paris T2, Montpellier, Orléans, Lyon, Bordeaux, Mulhouse, Valenciennes, Paris T3, Marseille, Le Mans, Nice, Toulouse, Reims, Angers, Brest, Dijon, Le Havre, Tours, Paris T7, Besançon, Aubagne and Paris T8. Only three nineteenth century tramways, those in Lille, Marseille and St.Etienne survived through the twentieth century to today. However, within the last twentyfive years Lille Tramway has been comprehensively modernised and re-equipped, a new second generation Marseille Tramway has been built incorporating the remaining 3km of the nineteenth century tramway, and St.Etienne tramway has been extensively modernised, two new lines built and new bidirectional trams introduced in 2017. Five rubber tyred tramways, all inaugurated since 2000, operate in Caen, Clermont-Ferrand, Nancy, Paris T5 and T6. Five so called tram-trains are in service - on tramway in Lyon, three on conventional railway line - one in Nantes, two in Paris namely T4 and T11, and on both tramway and railway in Mulhouse.

With these photographs and data tables many features are shown including service frequency, station spacing, passenger capacity, disabled access, seating layout, manufacturers, liveries, fares and ticketing including smart ticketing. Also outlined are the Declaration of Public Utility, issued by Central Government and essential for new systems to be built, and “Versement Transport”, a payroll tax raised locally and allocated specifically for funding local public transport expenditure.

Of technical interest are tramways in six towns, where, for aesthetic reasons, trams are powered in the centres of Angers, Bordeaux, Orleans, Reims and Tours by intermittently energised short sections of central “third” rail and in Nice by onboard batteries. Also of note are the trams on tyres in Clermont-Ferrand and Paris T5 and T6, and eight driverless metro lines in Lille, Toulouse and Paris, each with two lines, and Lyon and Rennes, which both have one such line. Unusually the driverless metro line in Lyon has no platform edge doors.

Tables of Data and Map of France and Route Plans

All data in the tables has been collected from many sources and is all in the public domain. Also included are two maps on which the conurbations having light rail systems are marked. I have made every effort to ensure that the data is accurate.

Acknowledgement

I would like to place on record my profound thanks and immense gratitude to my wife, Eleanor, who is a fluent French speaker, without whose considerable assistance, on all but one of these annual visits to France over the past twentyfive years, it would not have been practicable for me to prepare my talk or these albums. I may be contacted by email to graham#jellett.plus.com or by text to 07758087389.

Thank you

**Anyone who would like data tables
and/or plans etc. emailed to them
my email address is:**

[graham at jellett.plus.com](mailto:graham@jellett.plus.com)

**All data in the tables is in the
public domain.**

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