



COMMON MEDITERRANEAN STRATEGY AND LOCAL PRACTICAL ACTIONS
FOR THE MITIGATION OF PORT, INDUSTRIES AND CITIES EMISSIONS.

Socio-economic trends in the area of Barcelona. Activity 3.3

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Updated version_October 2011



Projet cofinancé par le Fonds
Européen de Développement Régional
Project co-financed by the European
Regional Development Fund

Port of Barcelona										
Liquid Bulk Cargo										
Tonnes of handled material)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total hydrocarbons	8.064.387	8.502.409	8.688.892	9.558.218	11.036.815	9.069.844	9.461.842	9.958.684	9.955.639	9.758.969
Total other liquids	1.450.784	1.427.744	1.470.480	1.512.879	1.494.106	1.466.531	1.528.685	2.146.396	1.800.211	1.799.188
Total liquid bulk cargo	9.515.171	9.930.153	10.159.372	11.071.097	12.530.921	10.536.375	10.990.527	12.105.080	11.755.849	11.558.156
Dry Bulk Cargo										
With special installation (tonnes)	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
total especial installation	3.256.853	2.796.204	3.044.380	2.481.351	2.854.122	2.832.948	3.282.282	2.856.154	3.022.533	2.839.999
No especial installation	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
total no especial installation	560.934	587.094	653.446	986.955	1.197.805	1.274.634	587.971	650.318	890.647	702.219
Total dry bulk cargo	3.817.788	3.383.298	3.697.827	3.468.306	4.051.927	4.107.582	3.870.253	3.506.472	3.913.180	3.542.218
General Cargo										
TEU	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Loading	701.078	731.055	812.966	950.993	1.027.692	1.152.730	1.305.464	1.283.793	895.781	975.378
Unloading	709.976	730.177	839.400	965.500	1.043.789	1.165.509	1.304.635	1.285.756	901.376	970.355
total TEU	1.411.054	1.461.232	1.652.366	1.916.493	2.071.481	2.318.239	2.610.099	2.569.549	1.797.157	1.945.733
Vessels										
Ship arrivals by berthing area	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Ships arrivals	8.651	8.993	8.865	8.610	8.853	9.533	9.942	9.582	8.418	8.180
Passengers										
Passenger Traffic	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of passengers	1.443.060	1.690.524	1.869.967	1.968.193	2.208.330	2.538.751	2.879.864	3.236.976	3.201.737	3.444.491
Cars										
Traffic of cars	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Number of vehicles	613.073	603.900	649.441	785.446	686.048	723.016	801.406	716.306	438.654	550.874

2011 2012 2013 2104 Strategic Plan 2015

1700000

3900000

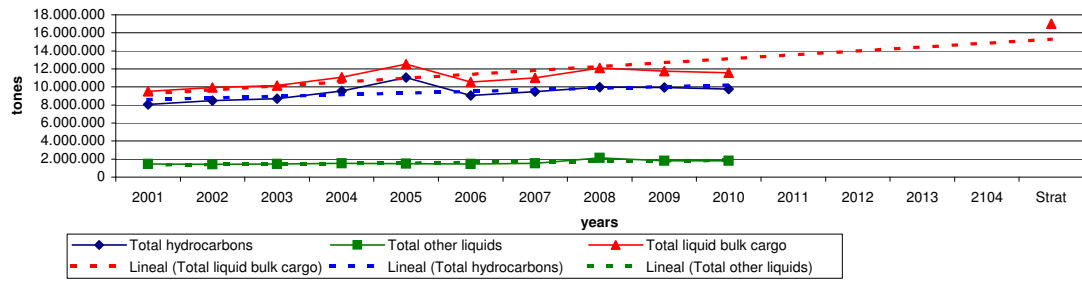
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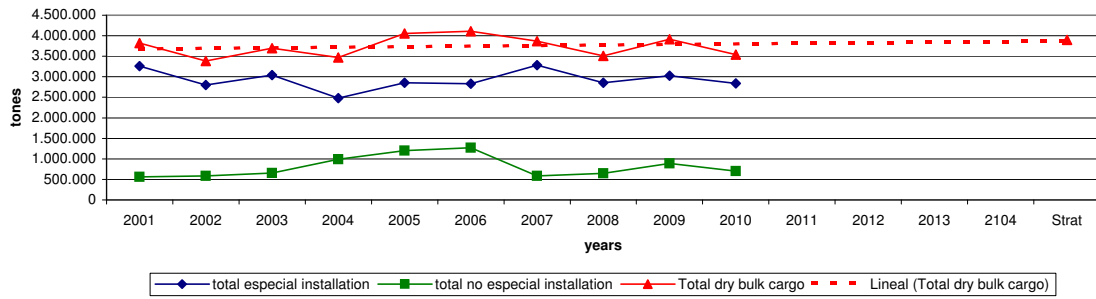
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Source: Port Authority of Barcelona

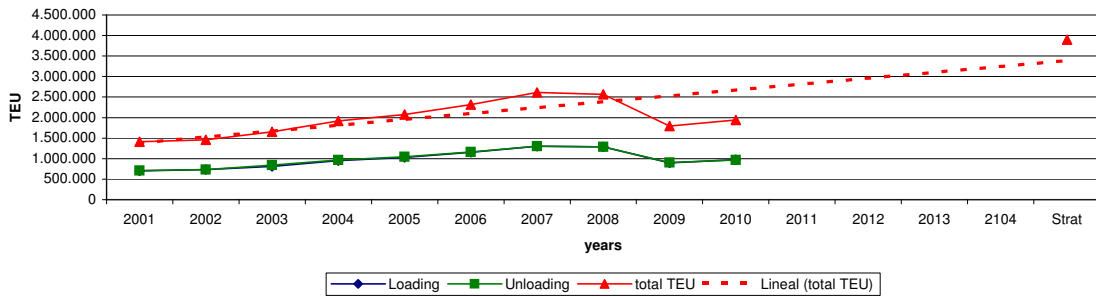
Liquid bulk cargo

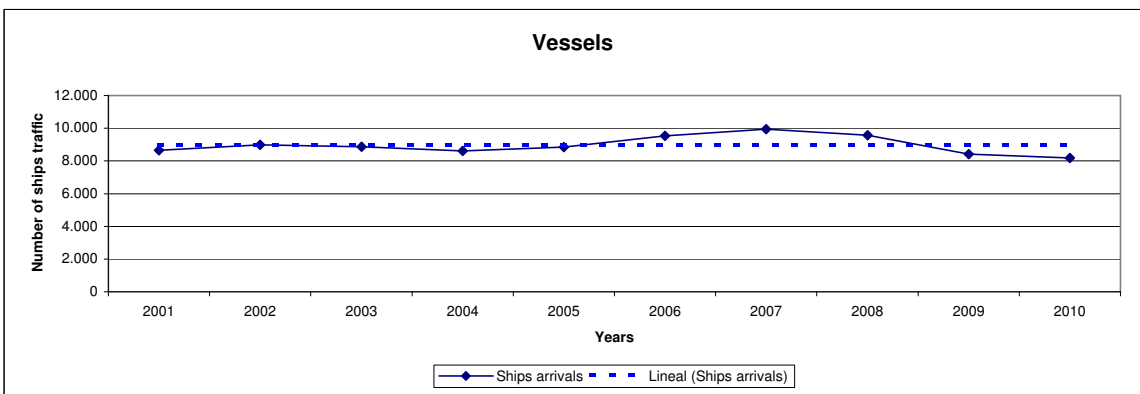
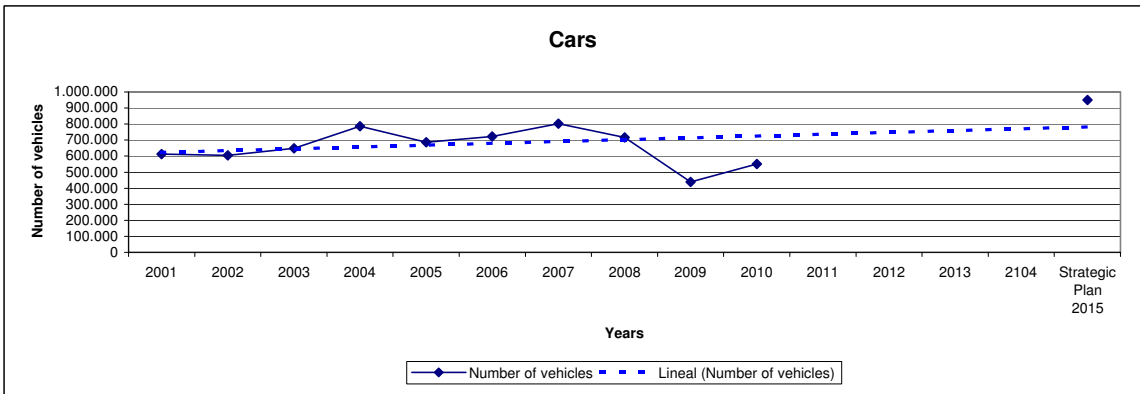
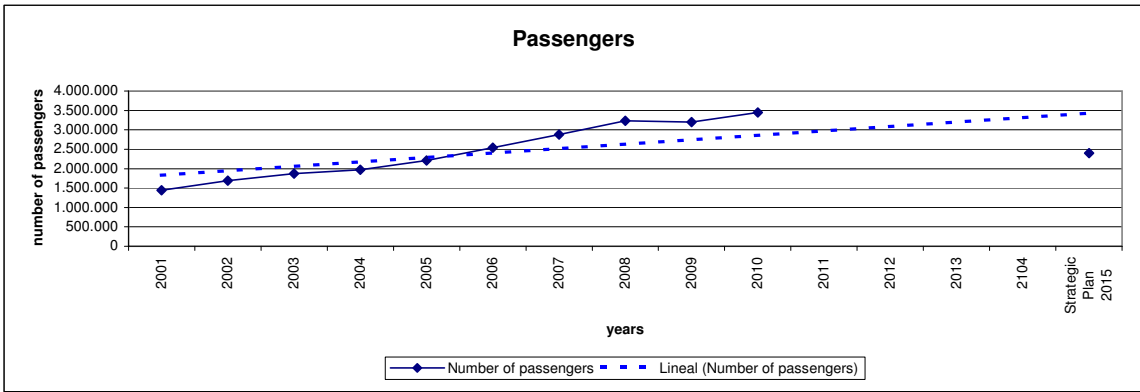


Dry bulk cargo



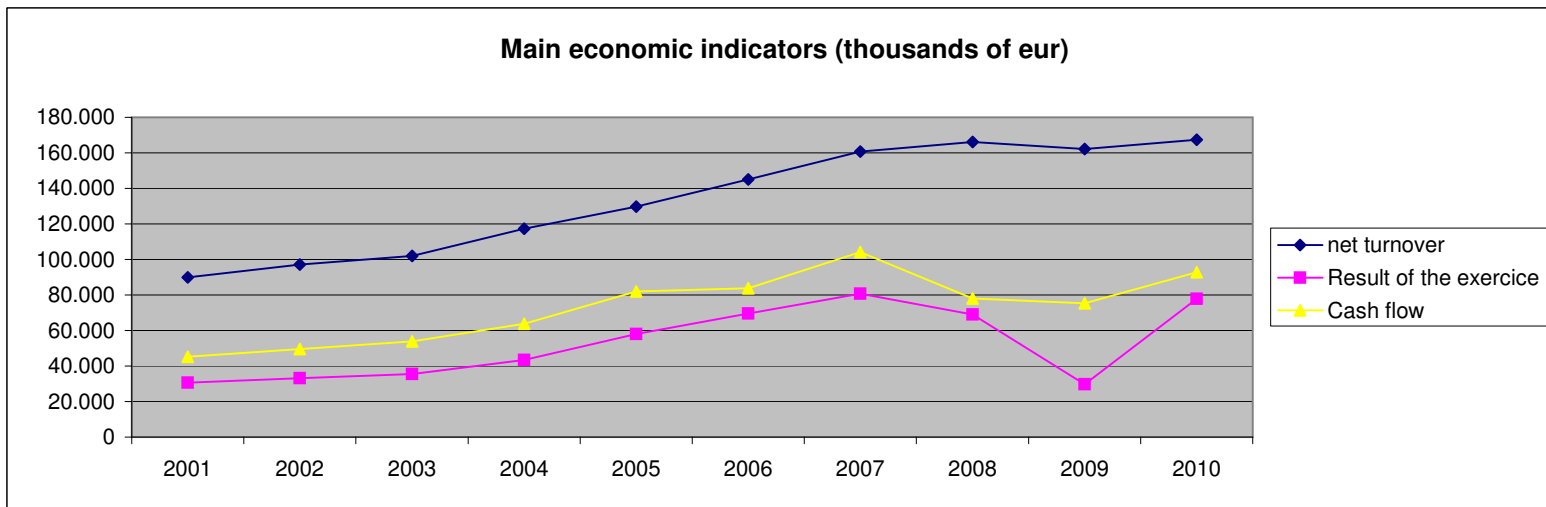
General cargo





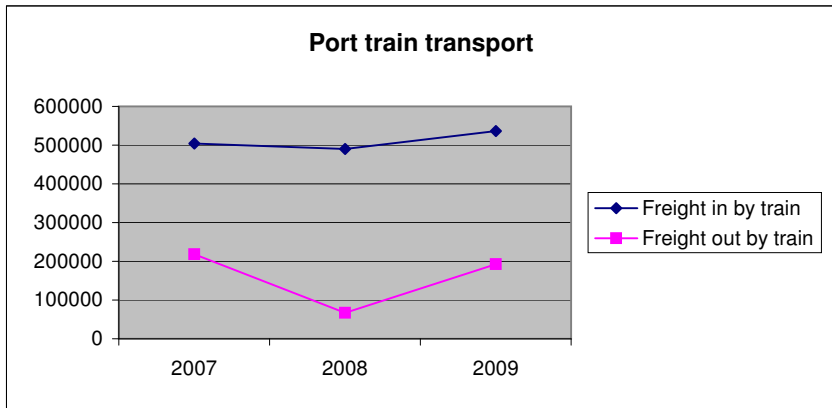
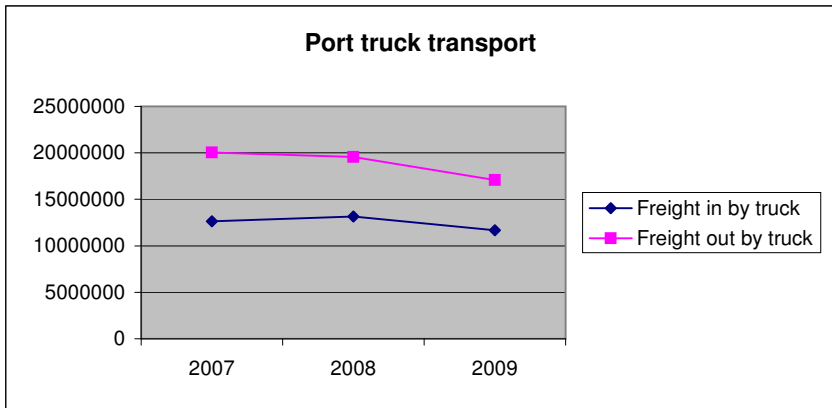
MAIN ECONOMIC INDICATORS (Source: Port Authority of Barcelona)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
net turnover	89.855	97.078	101.895	117.315	129.671	145.030	160738	166128	162197	167360
Result of the exercise	30.604	33.064	35.485	43.462	58.033	69.562	80.670	68.949	29.816	77.846
Cash flow	45.243	49.549	53.807	63.716	82.000	83.868	104.102	77.987	75.353	92.815
traffic (thousands of tones)	31.470	32.608	34.775	39.321	43.837	46.406	50.046	50.545	41.794	42.877



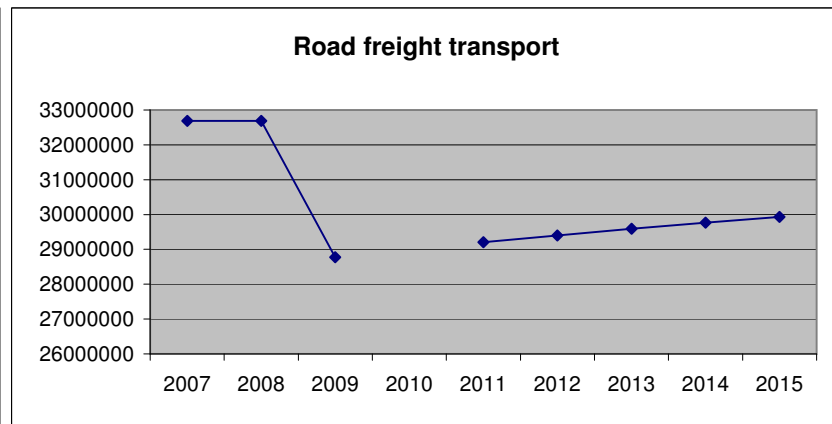
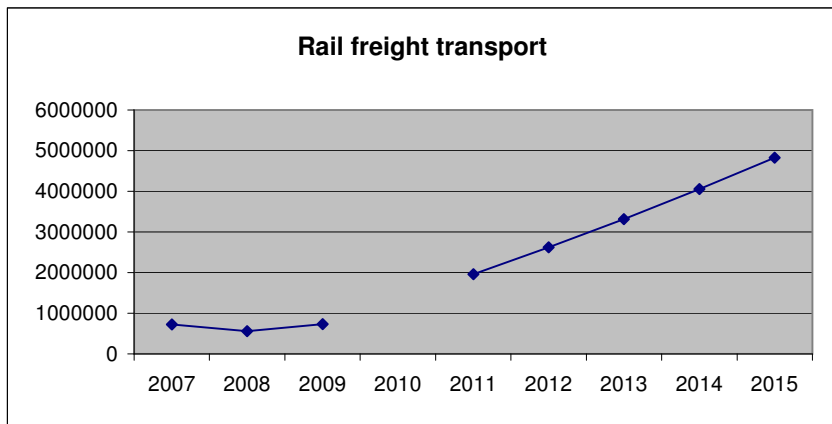
Rail&Road transport in&out the port facilities

	2007	2007	2008	2008	2009	2009	
	freight in	freight out	freight in	freight out	freight in	freight out	<i>in tones</i>
train	503906	218449	490169	67331	536298	192355	
truck	12654004	20031953	13140498	19546623	11687512	17087592	



Evolution according to Catalan Air Quality Plan (2003)

	2007	2008	2009	2010	2011	2012	2013	2014	2015
train	722355	557501	728653		1.957.660	2.620.278	3.318.082	4.052.511	4.825.059
road	32685957	32687121	28775103		29.202.170	29.402.128	29.590.778	29.767.342	29.931.005



Fleet of trucks operating in the Port of Barcelona

According to the Air Quality Improvement Plan (2003)

After implementing P+ programme, this is the trucks fleet %

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
PreEuro	34	28	23	18	15	12	0	0	0	0	0
Euro I	11	10	9	7	4	2	1	0	0	0	0
Euro II	33	32	32	31	29	27	27	22	18	13	10
Euro III	22	30	37	37	36	35	38	35	33	31	28
Euro IV	0	0	0	8	16	24	26	25	24	23	22
Euro V	0	0	0	0	0	0	9	18	25	33	40

Within the port, there are 19.760 truck routes per day of which 25% is for containers, done by a fleet of 1.300 trucks

Data from Port Authority of Barcelona

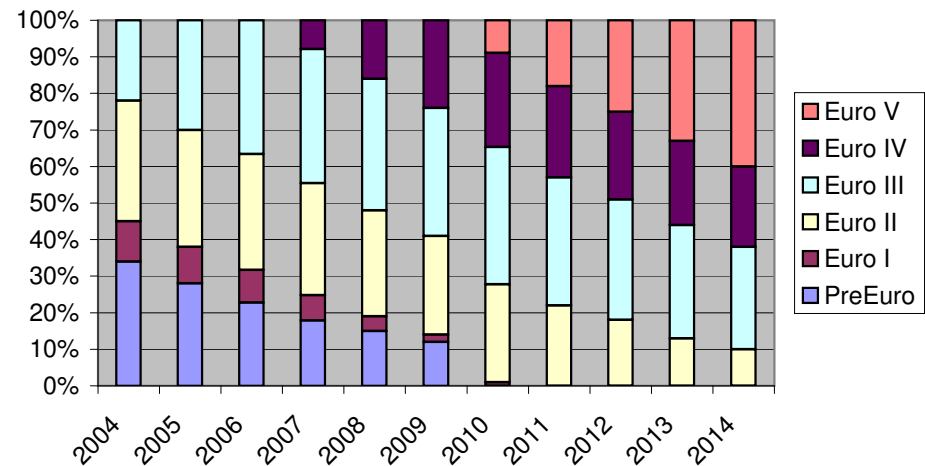
Mobile fleet

	2007	2008	2009
Cars	26600	26600	5050
Trucks	43400	46840	22120

Routes

	Annual route within the port (Km/year)	Average speed (Km/h)
Cars	900	40
Trucks	900	40

Evolution of the truck fleet



Evolution of freight rail transport related to the Port of Barcelona
 According to the the Port rail masterplan (2005-2020)

4 scenarios

IBERIAN WIDTH

	2005			2010			2020
	Low gaining	average	High gaining	Low gaining	average	High gaining	Medium gaining
A. Decreasing trend							
Bulks (Tn)	206.000	215.500	225.000	231.000	264.500	298.000	345.000
Containers (TEU)	107.730	138.640	169.550	104.080	130.440	156.800	275.000
Cars (Units)	374.400	429.000	483.600	462.000	529.375	596.750	1.070.013
B. Moderated success							
Bulks (Tn)	260.000	272.500	285.000	291.000	327.500	364.000	415.000
Containers (TEU)	107.730	138.640	169.550	104.080	130.440	156.800	275.000
Cars (Units)	530.400	598.000	665.600	654.480	737.896	821.311	1.070.013
C. High success							
Bulks (Tn)	300.000	312.500	325.000	331.000	377.500	424.000	495.000
Containers (TEU)	132.730	163.640	194.550	233.065	292.420	351.775	492.500
Cars (Units)	530.400	598.000	665.600	654.480	737.896	821.311	1.070.013
D. Maximal expectations							
Bulks (Tn)	680.000	692.500	705.000	731.000	817.500	904.000	1.100.000
Containers (TEU)	132.730	163.640	194.550	233.065	292.420	351.775	492.500
Cars (Units)	530.400	598.000	665.600	654.480	737.896	821.311	1.070.013

UIC WIDTH

A. Decreasing trend

Bulks (Tn)	48.000	54.000	60.000	54.000	63.000	72.000	75.000
Containers (TEU)	50.000	62.500	75.000	140.000	150.000	160.000	300.000
Cars (Units)							440.775

B. Moderated success

Bulks (Tn)	60.000	72.500	85.000	279.000	288.000	297.000	305.000
Containers (TEU)	50.000	62.500	75.000	140.000	150.000	160.000	300.000
Cars (Units)							440.775

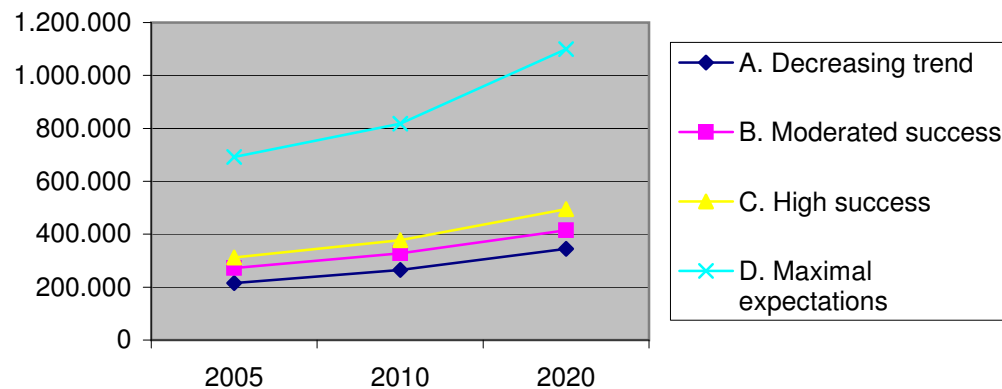
C. High success

Bulks (Tn)	60.000	72.500	85.000	379.000	388.000	397.000	455.000
Containers (TEU)	50.000	62.500	75.000	457.000	488.500	520.000	730.000
Cars (Units)							440.775

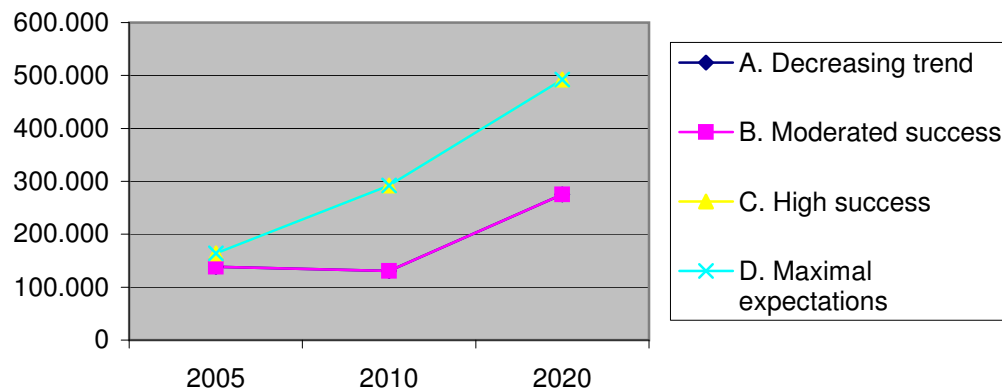
D. Maximal expectations

Bulks (Tn)	60.000	72.500	85.000	379.000	388.000	397.000	455.000
Containers (TEU)	50.000	62.500	75.000	457.000	488.500	520.000	730.000
Cars (Units)	21.000	26.500	32.000	211.500	264.375	317.250	440.775

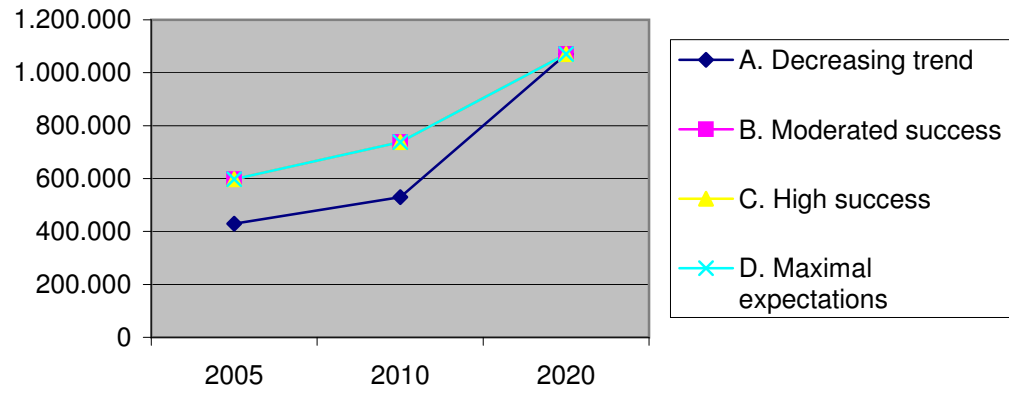
Bulk by rail projections (Iberian width)



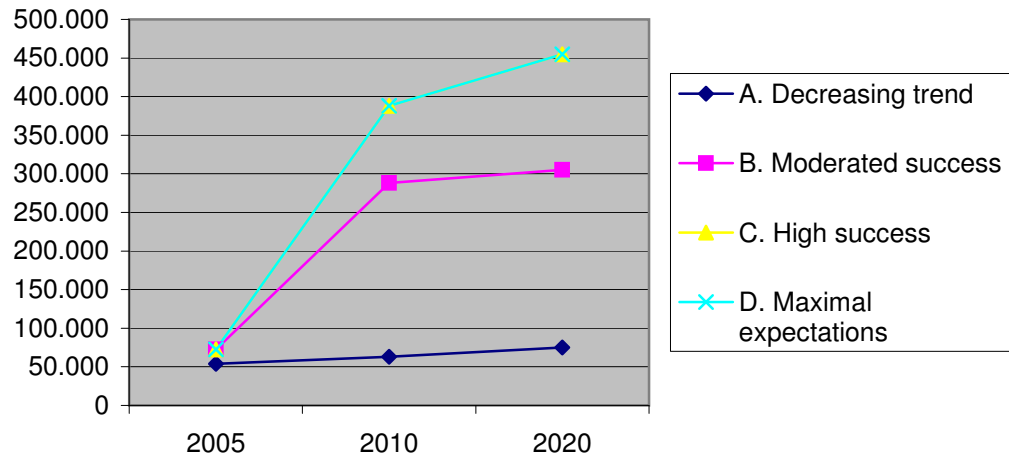
Containers by rail (Iberian width)



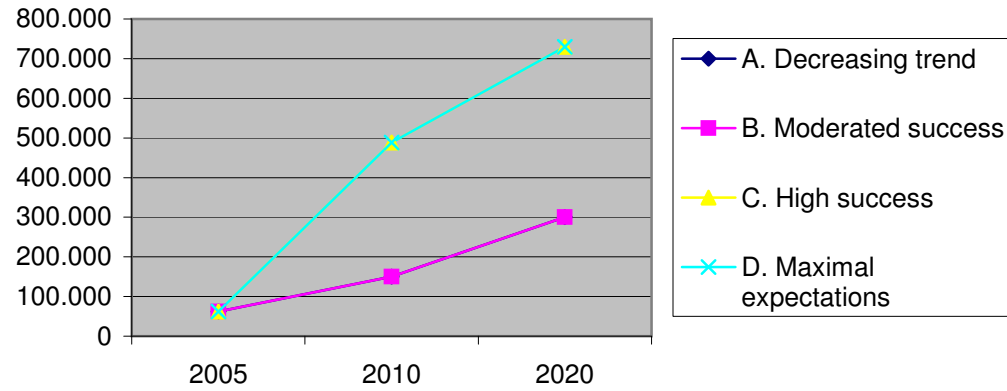
Cars by rail projection (Iberian width)



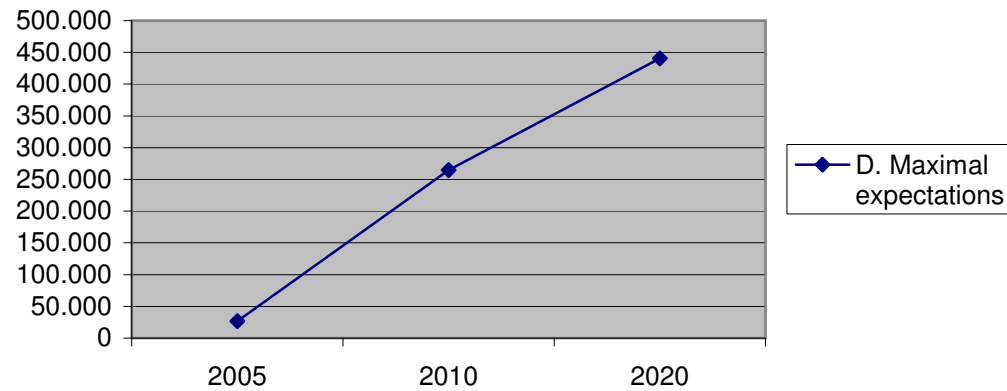
Bulks by rail (UIC width)



Containers by rail (UIC width)

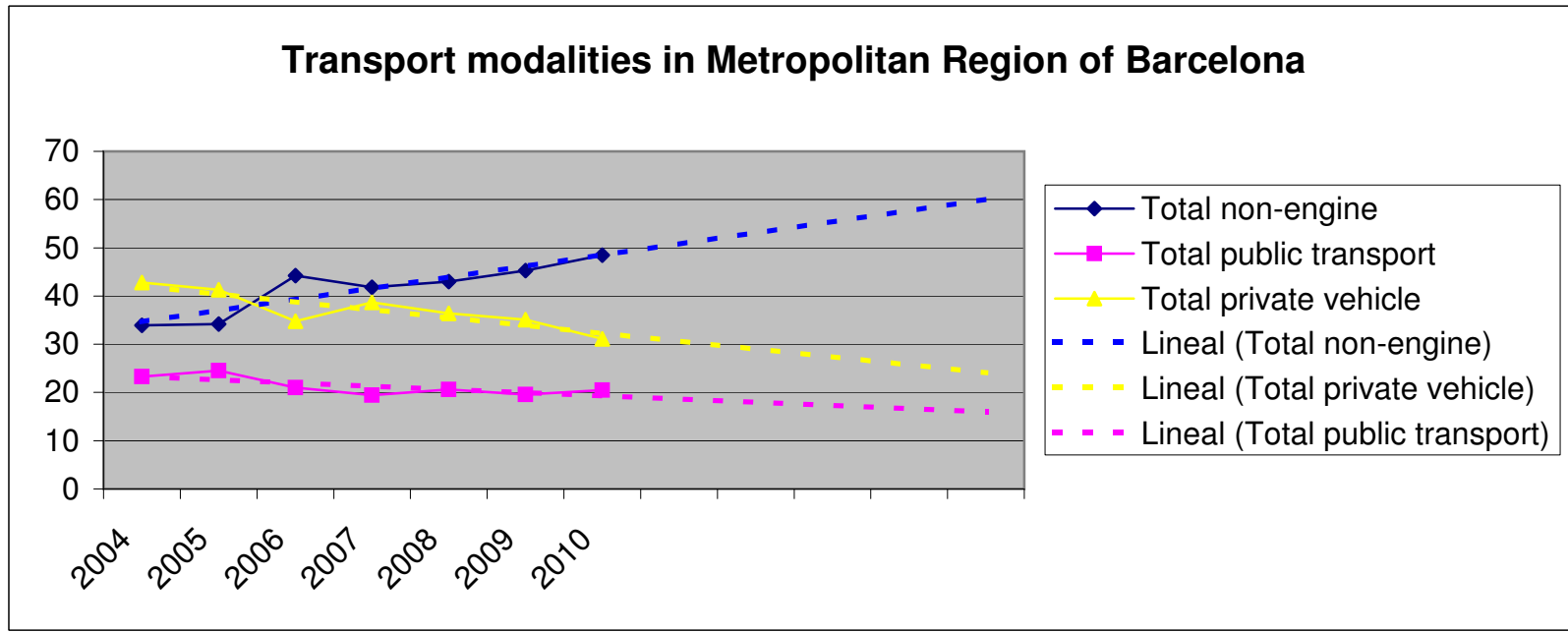


Cars by rail (UIC width)



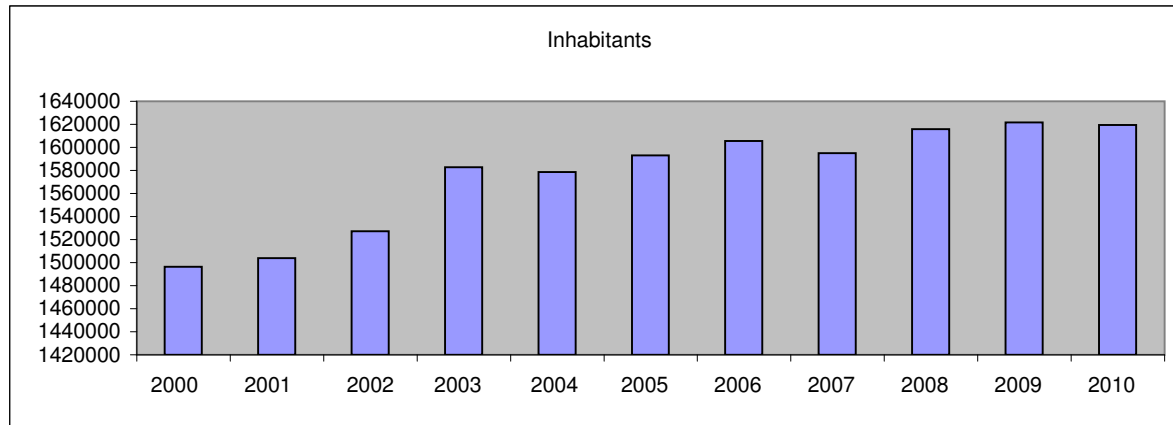
Mobility survey in working day (Source: Autoritat del Transport Metropolità)

	2004	2005	2006	2007	2008	2009	2010
Total non-engine	33,9	34,2	44,2	41,8	43	45,3	48,5
Rail	13,39	14,13	12,2	11,6	12,36	11,87	11,6
Bus	8,57	9,36	7,52	6,86	7,43	6,92	8
Other public tansp	1,32	1,02	1,27	0,98	0,8	0,8	0,9
Total public transport	23,28	24,51	20,99	19,44	20,59	19,59	20,5
Car	37,92	36,92	29,6	33,08	31,66	30,88	26,6
Motorbike	3,89	3,67	3,96	4,33	3,89	3,68	3,4
Others	0,98	0,7	1,18	1,27	0,83	0,52	1,1
Total private vehicle	42,79	41,29	34,74	38,68	36,38	35,08	31,1



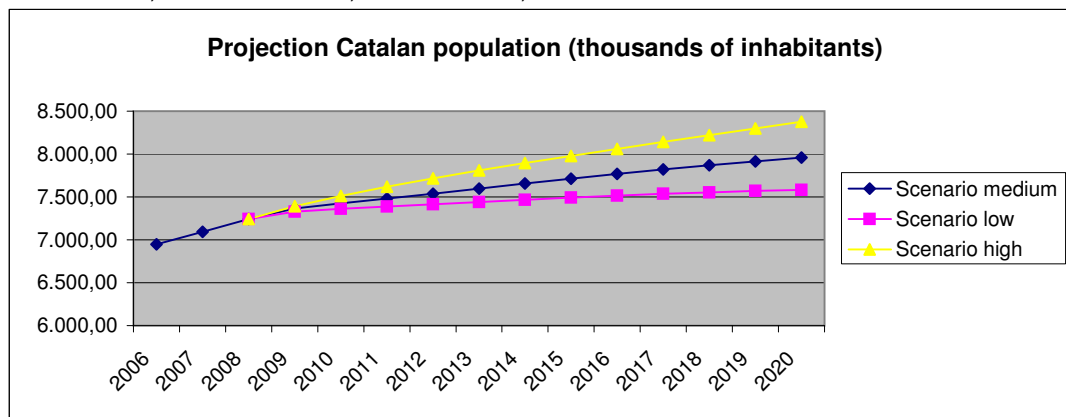
Population of the city of Barcelona

2000	1496266
2001	1503884
2002	1527190
2003	1582738
2004	1578546
2005	1593075
2006	1605602
2007	1595110
2008	1615908
2009	1621537
2010	1619337



Projection Catalan population 2006-2020 (IDESCAT)
<http://www.idescat.cat/cat/idescat/publicacions/cataleg/pdfdocs/pp2021-2041pr.pdf>

	scenario low	scenario medium	scenario high
2006		6.946,10	
2007		7.094,20	
2008	7.242,50	7.242,50	7.242,50
2009	7.329,80	7.366,50	7.393,60
2010	7.360,10	7.424,20	7.512,90
2011	7.387,60	7.479,90	7.618,80
2012	7.414,40	7.538,10	7.716,40
2013	7.441,40	7.598,30	7.808,30
2014	7.467,40	7.657,60	7.895,10
2015	7.491,80	7.714,10	7.979,20
2016	7.515,60	7.768,00	8.061,20
2017	7.536,30	7.819,40	8.141,80
2018	7.554,00	7.868,50	8.220,80
2019	7.569,10	7.915,50	8.298,60
2020	7.581,80	7.960,60	8.375,40



Population metropolitan area of Barcelona (2008)

City	Inhabitants	Surface in Km2	Density
Barcelona	1.615.908	101	15.951
Hospitalet de	253.782	12	20.987
Badalona	216.201	22	10.295
Santa Coloma	116.765	7	16.681
Cornellá de Ll	84.477	7	12.068
San Baudilio d	80.727	22	3.669
San Cugat del	71.901	48	1.517
El Prat de Llot	62.663	31	2.021
Viladecans	61.718	20	3.086
Castelldefels	60.572	13	4.535
Sardañola del	57.758	32	1.925
Esplugas de Ll	46.286	5	9.257
Gavá	44.678	31	1.489
San Felíu de L	42.273	12	3.523
Ripollet	35.661	4	8.915
San Adrián de	32.734	4	8.184
Moncada y Re	32.111	23	1.396
San Juan Desp	31.671	6	5.279
Barberá del V.	29.208	8	3.651
San Vicente d	27.106	9	3.012
San Andrés de	25.743	6	4.291
Molins de Rey	23.544	16	1.472
San Justo Des	15.391	8	1.924
Badia del Vall	13.975	1	13.975
Corbera de Ll	13.133	18	691
Castellbisbal	11.540	31	372
Pallejá	10.819	8	1.352
Montgat	9.778	3	3.259
Cervelló	7.944	22	331
Santa Coloma	7.508	7	1.073
Tiana	7.417	8	927
Begas	5.898	50	118
Torrellas de Ll	4.974	14	355
El Papiol	3.781	9	420
San Clemente	3.631	11	330
La Palma de C	3.009	5	602
Total	3.189.647	634	5.031