BANDWIDTH MINIMIZATION PROBLEM   V. Campos, E. Piñana, R, Martí.   University of Valencia, Spain.

Instance	Nodes	Arcs	Lower Bound	GRASP+PR Elite list size 10. 200 iters			TABU SEARCH 25 restarts, 100 iters, alpha=0.1, gamma=1.1,c.tenure=2 nc.tenure=10,			Scatter Search with TS		
				Bandwidth	LB dev.	CPU	Bandwidth	LB Dev.	CPU	Bandwidth	LB Dev.	CPU
arc130.mtx.rnd	130	715	63	63	0,00%	0,971	64	1,59%	12,087	63	0,00%	57,793
ash85.mtx.rnd	85	219	9	9	0,00%	0,28	9	0,00%	0,771	10	11,11%	2,974
bcspwr01.mtx.	39	46	5	5	0,00%	0,07	5	0,00%	0,200	5	0,00%	0,61
bcspwr02.mtx.	49	59	7	7	0,00%	0,41	7	0,00%	0,320	7	0,00%	1,392
bcspwr03.mtx.	118	179	10	11	10,00%	0,721	11	10,00%	1,081	11	10,00%	5,397
bcsstk01.mtx.r	48	176	16	16	0,00%	0,741	17	6,25%	0,931	17	6,25%	2,763
bcsstk04.mtx.r	132	1758	37	37	0,00%	3,294	38	2,70%	12,257	38	2,70%	55,049
bcsstk05.mtx.r	153	1135	20	20	0,00%	4,836	20	0,00%	5,457	21	5,00%	25,276
bcsstk22.mtx.r	110	254	9	10	11,11%	1,181	11	22,22%	0,811	11	22,22%	2,814
can__144.mtx.	144	576	13	14	7,69%	2,153	14	7,69%	1,562	14	7,69%	7,801
can__161.mtx.	161	608	18	18	0,00%	0,49	19	5,56%	1,972	18	0,00%	13,799
curtis54.mtx.rn	54	124	10	10	0,00%	0,48	10	0,00%	0,580	10	0,00%	2,774
dwt__234.mtx.	117	162	11	11	0,00%	1,502	11	0,00%	1,091	11	0,00%	6,339
fs_183_1.mtx.r	183	701	52	61	17,31%	8,001	61	17,31%	24,905	63	21,15%	127,823
gent113.mtx.rn	104	549	26	27	3,85%	0,63	27	3,85%	3,364	28	7,69%	11,506
gre__115.mtx.	115	267	20	24	20,00%	2,443	24	20,00%	2,463	24	20,00%	9,423
gre__185.mtx.	185	650	17	22	29,41%	4,506	22	29,41%	2,824	22	29,41%	20,98
ibm32.mtx.rnd	32	90	11	11	0,00%	0,22	12	9,09%	0,310	11	0,00%	1,492
impcol_b.mtx.r	59	281	19	21	10,53%	0,751	21	10,53%	1,772	21	10,53%	4,346
impcol_c.mtx.r	137	352	26	31	19,23%	3,334	31	19,23%	4,516	32	23,08%	19,888
lns__131.mtx.r	123	275	19	22	15,79%	1,912	21	10,53%	2,733	21	10,53%	14,851
lund_a.mtx.rnd	147	1151	19	23	21,05%	3,565	23	21,05%	3,895	23	21,05%	30,393
lund_b.mtx.rnd	147	1147	19	23	21,05%	3,565	23	21,05%	4,055	23	21,05%	22,603
mcca.mtx.rnd	168	1662	32	37	15,63%	6,599	37	15,63%	13,469	37	15,63%	85,733
nos1.mtx.rnd	158	312	3	3	0,00%	1,962	3	0,00%	0,881	3	0,00%	7,57
nos4.mtx.rnd	100	247	10	10	0,00%	1,131	10	0,00%	0,981	10	0,00%	3,364
pores_1.mtx.rn	30	103	7	7	0,00%	0,21	7	0,00%	0,240	7	0,00%	0,931
steam3.mtx.rnd	80	424	7	7	0,00%	0,721	7	0,00%	1,271	7	0,00%	4,326
west0132.mtx.	132	404	25	35	40,00%	6,299	34	36,00%	7,200	34	36,00%	25,626
west0156.mtx.	156	371	34	37	8,82%	6,519	37	8,82%	6,709	38	11,76%	32,517
west0167.mtx.	167	489	31	35	12,90%	4,276	34	9,68%	5,738	35	12,90%	30,684
will199.mtx.rnd	199	660	57	69	21,05%	20,108	67	17,54%	21,530	67	17,54%	102,237
will57.mtx.rnd	57	127	6	7	16,67%	0,3	6	0,00%	0,480	6	0,00%	1,462
				22,515	**9,15%**	**2,854**	**22,515**	**9,26%**	**4,499**	**22,667**	**9,80%**	**22,501**

Our codes were compiled with Microsoft Visual C++ 6.0, optimizing for maximum speed. The experiments were run on a Pentium IV at 3 GHz with 1GB of RAM.

Instance			Lower Bound	GRASP+PR			TABU SEARCH			Scatter Search with TS		
494_bus.mtx.r	494	586	25	35	40,00%	10,174	31	24,00%	21,721	31	24,00%	78,402
662_bus.mtx.r	662	906	36	44	22,22%	25,987	40	11,11%	49,511	41	13,89%	189,342
685_bus.mtx.r	685	1282	30	46	53,33%	9,624	35	16,67%	31,935	34	13,33%	439,832
ash292.mtx.rn	292	958	16	22	37,50%	6,919	20	25,00%	5,958	20	25,00%	77,01
bcspwr04.mtx.	274	669	23	26	13,04%	3,715	25	8,70%	8,201	25	8,70%	69,489
bcspwr05.mtx.	443	590	25	35	40,00%	12,888	29	16,00%	16,663	28	12,00%	121,214
bcsstk06.mtx.r	420	3720	38	50	31,58%	33,848	48	26,32%	26,778	46	21,05%	229,069
bcsstk19.mtx.r	817	3018	13	16	23,08%	66,736	16	23,08%	26,969	16	23,08%	733,965
bcsstk20.mtx.r	467	1295	8	19	137,50%	8,362	18	125,00%	6,399	14	75,00%	132,991
bcsstm07.mtx.	420	3416	37	48	29,73%	76,93	46	24,32%	23,233	46	24,32%	286,492
bp_____0.mtx.	822	3260	174	258	48,28%	378,053	245	40,80%	375,650	245	40,80%	949,615
bp___200.mtx.	822	3788	186	271	45,70%	413,214	269	44,62%	439,061	272	46,24%	946,981
bp___400.mtx.	822	4015	188	285	51,60%	406,244	281	49,47%	426,453	280	48,94%	955,664
bp___600.mtx.	822	4157	190	297	56,32%	399,875	290	52,63%	485,658	293	54,21%	929,336
bp___800.mtx.	822	4518	197	307	55,84%	454,383	294	49,24%	489,203	301	52,79%	960,451
bp__1000.mtx.	822	4635	197	297	50,76%	629,905	302	53,30%	550,101	303	53,81%	938,079
bp__1200.mtx.	822	4698	197	303	53,81%	629,816	303	53,81%	552,614	299	51,78%	932,5
bp__1400.mtx.	822	4760	199	313	57,29%	513,098	311	56,28%	519,787	309	55,28%	968,953
bp__1600.mtx.	822	4809	199	317	59,30%	539,676	310	55,78%	524,103	312	56,78%	991,195
can__292.mtx.	292	1124	34	42	23,53%	5,548	40	17,65%	13,379	40	17,65%	99,052
can__445.mtx.	445	1682	46	58	26,09%	36,863	57	23,91%	26,718	54	17,39%	284,469
can__715.mtx.	715	2975	54	78	44,44%	9,794	76	40,74%	58,544	72	33,33%	752,312
can__838.mtx.	838	4586	75	88	17,33%	24,585	89	18,67%	104,190	89	18,67%	918,15
dwt__209.mtx.	209	767	21	24	14,29%	0,841	24	14,29%	4,816	24	14,29%	39,627
dwt__221.mtx.	221	704	12	13	8,33%	5,307	14	16,67%	3,094	13	8,33%	19,698
dwt__245.mtx.	245	608	21	26	23,81%	11,095	23	9,52%	6,279	22	4,76%	49,131
dwt__310.mtx.	310	1069	11	12	9,09%	6,469	12	9,09%	3,074	12	9,09%	97,78
dwt__361.mtx.	361	1296	14	15	7,14%	0,58	15	7,14%	5,127	14	0,00%	41,329
dwt__419.mtx.	419	1572	23	29	26,09%	21,281	27	17,39%	11,196	27	17,39%	106,222
dwt__503.mtx.	503	2762	29	45	55,17%	5,317	43	48,28%	28,411	43	48,28%	218,824
dwt__592.mtx.	592	2256	22	33	50,00%	85,533	32	45,45%	22,532	31	40,91%	274,514
dwt__878.mtx.	878	3285	23	35	52,17%	77,831	26	13,04%	41,699	26	13,04%	300,772
dwt__918.mtx.	918	3233	27	36	33,33%	9,043	33	22,22%	35,781	34	25,93%	463,897
dwt__992.mtx.	992	7876	35	49	40,00%	206,136	47	34,29%	63,491	40	14,29%	909,357
fs_541_1.mtx.r	541	2466	270	270	0,00%	16,203	270	0,00%	25,326	270	0,00%	45,876
fs_680_1.mtx.r	680	1464	17	17	0,00%	28,06	17	0,00%	20,619	17	0,00%	171,656
fs_760_1.mtx.r	760	3518	36	39	8,33%	76,32	39	8,33%	60,387	39	8,33%	914,715
gr_30_30.mtx.	900	3422	31	58	87,10%	71,853	37	19,35%	50,843	35	12,90%	598,26
gre__343.mtx.	343	1092	23	29	26,09%	15,902	29	26,09%	4,716	28	21,74%	82,899
gre__512.mtx.	512	1680	30	36	20,00%	71,232	37	23,33%	13,178	36	20,00%	191,265
gre_216a.mtx.	216	660	17	21	23,53%	6,95	22	29,41%	2,433	21	23,53%	23,754

hor__131.mtx.	434	2138	46	64	39,13%	20,669	57	23,91%	25,126	56	21,74%	182,612
impcol_a.mtx.r	206	557	30	34	13,33%	2,293	33	10,00%	6,939	33	10,00%	28
impcol_d.mtx.r	425	1267	36	42	16,67%	24,105	40	11,11%	21,150	40	11,11%	97,37
impcol_e.mtx.r	225	1187	34	42	23,53%	2,513	43	26,47%	11,867	43	26,47%	60,967
jagmesh1.mtx.	936	2664	24	27	12,50%	84,952	28	16,67%	14,430	27	12,50%	347,019
jpwh_991.mtx.	983	2678	82	96	17,07%	51,184	90	9,76%	79,635	90	9,76%	915,907
lns__511.mtx.r	503	1425	33	49	48,48%	44,103	45	36,36%	26,708	46	39,39%	138,599
mbeacxc.mtx.r	487	41686	248	265	6,85%	1410,4781	263	6,05%	1125,408	277	11,69%	1122,8841
mbeaflw.mtx.rr	487	41686	246	265	7,72%	1411,5901	263	6,91%	1137,416	277	12,60%	1093,0921
mbeause.mtx.r	492	36209	249	256	2,81%	1597,8981	257	3,21%	901,396	271	8,84%	1068,6561
mcfe.mtx.rnd	731	15086	112	130	16,07%	63,451	127	13,39%	282,025	128	14,29%	938,66
nnc261.mtx.rno	261	794	22	25	13,64%	16,914	24	9,09%	5,928	25	13,64%	27,329
nnc666.mtx.rn	666	2148	33	45	36,36%	41,7	42	27,27%	52,916	41	24,24%	714,026
nos2.mtx.rnd	638	1272	3	3	0,00%	12,588	3	0,00%	3,605	3	0,00%	133,391
nos3.mtx.rnd	960	7442	43	79	83,72%	141,564	72	67,44%	76,980	48	11,63%	934,293
nos5.mtx.rnd	468	2352	53	69	30,19%	84,771	65	22,64%	27,519	65	22,64%	261,355
nos6.mtx.rnd	675	1290	15	16	6,67%	33,347	17	13,33%	5,398	16	6,67%	134,843
nos7.mtx.rnd	729	1944	43	66	53,49%	69,049	66	53,49%	19,728	65	51,16%	256,478
orsirr_2.mtx.rn	886	2542	62	91	46,77%	32,066	87	40,32%	62,099	87	40,32%	769,546
plat362.mtx.rnd	362	2712	29	36	24,14%	2,032	35	20,69%	17,314	36	24,14%	99,172
plskz362.mtx.r	362	880	15	20	33,33%	5,507	18	20,00%	6,078	19	26,67%	46,957
pores_3.mtx.rn	456	1769	13	13	0,00%	2,273	13	0,00%	5,037	13	0,00%	51,924
saylr1.mtx.rnd	238	445	12	15	25,00%	6,329	16	33,33%	1,552	14	16,67%	11,837
saylr3.mtx.rnd	681	1373	35	52	48,57%	60,607	52	48,57%	22,902	47	34,29%	239,584
sherman1.mtx.	681	1373	35	52	48,57%	60,637	52	48,57%	22,852	47	34,29%	239,454
sherman4.mtx.	546	1341	21	27	28,57%	2,964	27	28,57%	8,292	27	28,57%	56,16
shl____0.mtx.r	663	1682	211	241	14,22%	70,511	232	9,95%	252,152	234	10,90%	926,522
shl__200.mtx.r	663	1720	220	247	12,27%	59,986	238	8,18%	264,160	239	8,64%	918,951
shl__400.mtx.r	663	1709	213	242	13,62%	76,109	235	10,33%	286,562	238	11,74%	923,738
steam1.mtx.rnd	240	1761	32	46	43,75%	8,482	44	37,50%	9,774	44	37,50%	121,975
steam2.mtx.rnd	600	6580	54	65	20,37%	113,162	65	20,37%	30,053	63	16,67%	563,069
str____0.mtx.r	363	2446	87	124	42,53%	83,089	120	37,93%	90,670	118	35,63%	832,467
str__200.mtx.r	363	3049	90	135	50,00%	71,993	128	42,22%	107,304	128	42,22%	608,124
str__600.mtx.r	363	3244	101	144	42,57%	57,562	135	33,66%	110,448	135	33,66%	654,862
west0381.mtx.	381	2150	119	159	33,61%	137,778	156	31,09%	142,445	156	31,09%	911,741
west0479.mtx.	479	1889	84	127	51,19%	131,038	122	45,24%	97,099	124	47,62%	724,501
west0497.mtx.	497	1715	69	92	33,33%	71,703	87	26,09%	69,740	87	26,09%	388,909
west0655.mtx.	655	2841	109	167	53,21%	188,511	161	47,71%	177,274	162	48,62%	930,929
west0989.mtx.	989	3500	123	217	76,42%	325,167	213	73,17%	359,567	210	70,73%	940,412
				99,088	**33,41%**	**151,161**	**96,163**	**27,77%**	**139,417**	**96,013**	**25,07%**	**461,881**