	Emp	oty m	ap		Den	ise m	ap	20 agents			
$\overline{k}$	CG	DG	WDG	k	CG	DG	WDG	obs	CG	DG	WDG
30	0.2	1.0	1.2	16	3.9	3.9	11.6	0	0.1	0.5	0.5
40	0.5	1.7	2.0	20	4.8	4.8	15.2	10	1.0	1.3	2.1
50	0.6	2.3	2.8	24	6.9	7.0	22.2	20	3.0	3.1	6.2

Table 1: Average h-values of the root CT node. k represents the number of agents, and obs represents the percentage of cells that are randomly blocked on a  $20 \times 20$  grid.

# Small Maps - 20 x 20 grids

	Agents	Instances	ICBS	CG	DG	WDG		Agents	Instances	ICBS	CG	DG	WDG
Nodes (×1000)								Nodes (×1000)					
	30	44	3.6	2.6	0.5	0.5		16	47	20.2	9.6	7.8	6.1
	40	39	8.9	7.0	0.2	0.2		20	29	20.2	13.6	10.7	8.9
	50	23	12.4	10.1	2.9	2.9		24	7	79.6	47.4	33.2	15.2
	Runtime (s)							Runtime (s)					
	30	44	0.5	0.4	0.1	0.1		16	47	7.0	2.4	2.4	2.4
	40	39	1.0	0.9	0.1	0.1		20	29	4.0	3.3	2.1	1.9
	50	23	1.7	1.5	0.6	0.7		24	7	17.9	9.6	5.4	3.0
		(a)	Empty n	nap.					(b)	) Dense r	nap.		

Table 2: Average expanded CT nodes and average runtime over instances solved by all solvers.

# Larger h-value

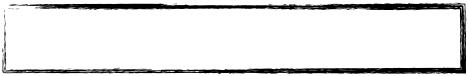
### Larger h-value





## no blocked cells

#### no blocked cells



## 30% randomly blocked cells



## Smaller number of expanded CT nodes









Empty map					Den	ise m	ap	20 agents			
k	CG	DG	WDG	k	CG	DG	WDG	obs	CG	DG	WDG
30	0.2	1.0	1.2	16	3.9	3.9	11.6	0	0.1	0.5	0.5
40	0.5	1.7					15.2		1	1.3	2.1
50	0.6	2.3	2.8	24	6.9	7.0	22.2	20	3.0	3.1	6.2

Table 1: Average h-values of the root CT node. k represents the number of agents, and obs represents the percentage of cells that are randomly blocked on a  $20 \times 20$  grid.

# Small Maps - 20 x 20 grids





