

Pavement Condition Index

Pier 6 Southern Extension Assumptions

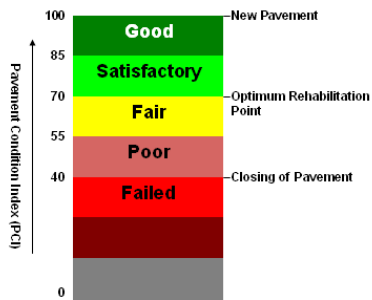
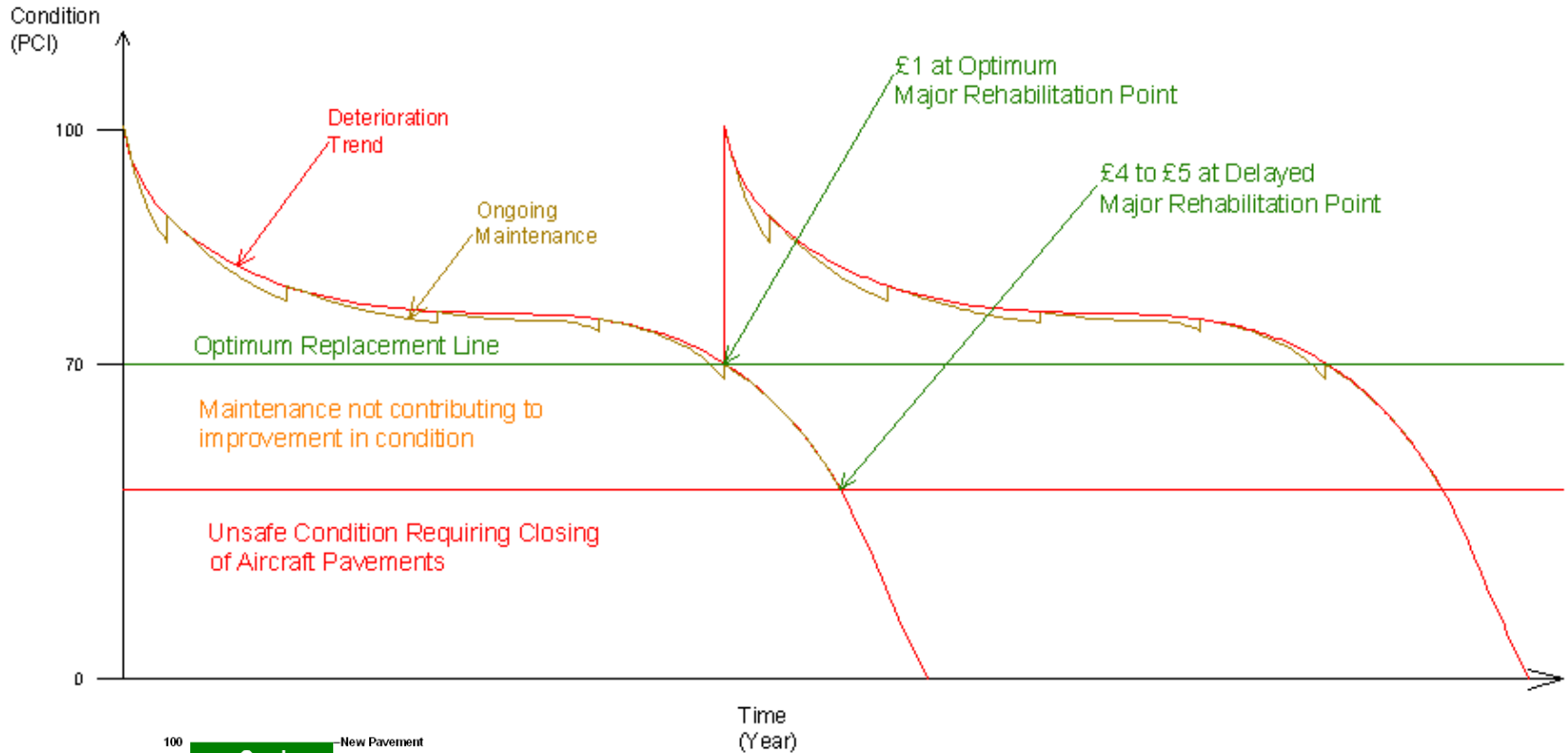


Pavement Condition Index

- All pavements (stands and taxiways) independently assessed – 3 yearly
- Reprioritisation of works/replacement based on assessment
- Scoring system based on recognised industry standard and 25 years of data
 - 0 to 100
- Deterioration Curve is recognised industry standard approach
 - Design Life
 - Economic Life
 - Failure point



PCI Deterioration Curve



2012 Assessment - Pier 6 Southern Extension site area

- February 2012 assessment identified potential areas to be replaced against PCI data
- £21.2m before 2017, £14m between 2017 and 2024 (At the time of assessment Pier 6 was assumed to complete in 2017)

Types	Stand	Average Residual Design Life	Area - Reconstruction 2017	Area - Reconstruction 2024	Total Area (m2)	% area at 2017	% area at 2024	Cost 2017 (£m)	Cost 2024 (£m)	Total Stand Reconstruction Cost (£m)	% cost at 2017	% cost at 2024
Pier Serve	104	6	222	2630	2852	8%	92%	0.065	0.763	0.828	8%	92%
Pier Serve	105	8.8	2046	1180	3226	63%	37%	0.6	0.545	1.145	52%	48%
Pier Serve	106	6.3	5270	750	6020	88%	12%	1.5	0.218	1.718	87%	13%
Pier Serve	107	1	6220	0	6220	100%	0%	1.8	0	1.8	100%	0%
Pier Serve	109	6.8	630	7334	7964	8%	92%	0.182	2.1	2.282	8%	92%
Pier Serve	110	5.3	566	2115	2681	21%	79%	1.03	0.614	1.644	63%	37%
Pier Serve	125	6	1800	5175	6975	26%	74%	0.522	1.5	2.022	26%	74%
Remote Stand	130	4.7	986	3579	4565	22%	78%	0.285	1.04	1.325	22%	78%
Remote Stand	131	-6	4415	0	4415	100%	0%	1.3	0	1.3	100%	0%
Remote Stand	132	2.6	3974	361	4335	92%	8%	1.75	0.104	1.854	94%	6%
Remote Stand	133	-2.5	3426	0	3426	100%	0%	0.993	0	0.993	100%	0%
Remote Stand	134	6	565	3880	4445	13%	87%	0.164	1.13	1.294	13%	87%
Remote Stand	135	4.5	706	3774	4480	16%	84%	0.205	1.09	1.295	16%	84%
Remote Stand	136	-2	3395	0	3395	100%	0%	0.984	0	0.984	100%	0%
Remote Stand	140	4	9252	1934	11186	83%	17%	2.68	0.56	3.24	83%	17%
Remote Stand	141	6.4	3032	7236	10268	30%	70%	0.879	2.1	2.979	30%	70%
Remote Stand	142	1.3	1344	4952	6296	21%	79%	0.39	1.44	1.83	21%	79%
Remote Stand	143	-0.25	6694	0	6694	100%	0%	1.94	0	1.94	100%	0%
Remote Stand	144	3.2	5097	2576	7673	66%	34%	1.48	0.747	2.227	66%	34%
Remote Stand	145	1	5016	0	5016	100%	0%	1.45	0	1.45	100%	0%
Taxiway	Kilo	-4	9987.5	0	9987.5	100%	0%	1	0	1	100%	0%
					122119.5		0					
		Average Residual Design Life	Total Area at 2017	Total Area at 2024	Total Cost at 2017 (£m)	Total Cost 2024 (£m)						
Pier Serve		5.7	16754	19184	5.7	5.7						
Remote Stand		1.8	47902	28292	14.5	8.2						
Taxiway		-4.0	9988	0	1.0	0.0						
					21.2	14.0						



2013 Assessment - Pier 6 Southern Extension site area

- 2013 review of PCI data for Pier 6 site area for Beyond Q5 period (2014 – 2019)
- 2011/12 survey data included to update PCI database (not available in Feb 2012)
- Costing exercise and scope confirmation for the Pier 6 site area, now including:
 - Taxiways Q and J
 - Substation AN
- £29.5m within the Beyond Q5 period from 2014 to 2019

Asset Replacement Works if Pier 6 Extension was not built				
Scope of Works	Quantity	Unit	Rate	Element
Block 104	485.00	m2	150.00	£ 72,750.00
Block 105	350.00	m2	150.00	£ 52,500.00
Block 106	4,360.00	m2	150.00	£ 654,000.00
Block 107	5,250.00	m2	150.00	£ 787,500.00
Block 109	800.00	m2	150.00	£ 120,000.00
Block 111	2,135.00	m2	150.00	£ 320,250.00
Block 130	986.00	m2	150.00	£ 147,900.00
Block 131	3,865.00	m2	150.00	£ 579,750.00
Block 132	983.00	m2	150.00	£ 147,450.00
Block 133	3,074.00	m2	150.00	£ 461,100.00
Block 134	3,880.00	m2	150.00	£ 582,000.00
Block 140	6,560.00	m2	150.00	£ 984,000.00
Block 141	5,964.00	m2	150.00	£ 894,600.00
Block 142	5,833.00	m2	150.00	£ 874,950.00
Block 143	4,952.00	m2	150.00	£ 742,800.00
Block 144	5,097.00	m2	150.00	£ 764,550.00
Block 145	3,966.00	m2	150.00	£ 594,900.00
Taxiway Kilo	17,013.00	m2	140.00	£ 2,381,820.00
Taxiway Quebec	18,775.00	m2	140.00	£ 2,628,500.00
Taxiway Juliet (Block 33N)	18,986.00	m2	140.00	£ 2,658,040.00
Substation AN		item		£ 1,334,000.00
				£ 17,658,110.00
Preliminaries - 15%				£ 2,648,716.50
Oncosts - 15%				£ 3,046,023.98
				£ 23,352,850.48
GAL Overhead - 6%				£ 1,401,171.03
Risk - 20%				£ 4,670,570.10
Total				£ 29,424,591.60



Asset Replacement Cost Assessment

- Rates used vary between c. £260 and £290 per sq m (c. £140 to £150 excl prelims, on costs, risk) for pavement replacement, and depend on:
 - Stand or taxiway?
 - Level of reconstruction and breakout of existing infrastructure required?
- On-going (routine) maintenance will improve the PCI score, which is revised following the 3 yearly surveys
- Pier 6 Southern Extension site area asset replacement costs based on the current survey data 2011/12:
 - Remaining asset life assessment based on future survey data could be different (Variables: routine maintenance, traffic levels, use of areas)
 - Costs estimated based on benchmarked rates in 2013
 - Total estimated cost to 2026 c. £44m based on current knowledge
 - Assume +/- 30% cost certainty as no design work, value engineering, or competitive tender processes have been undertaken

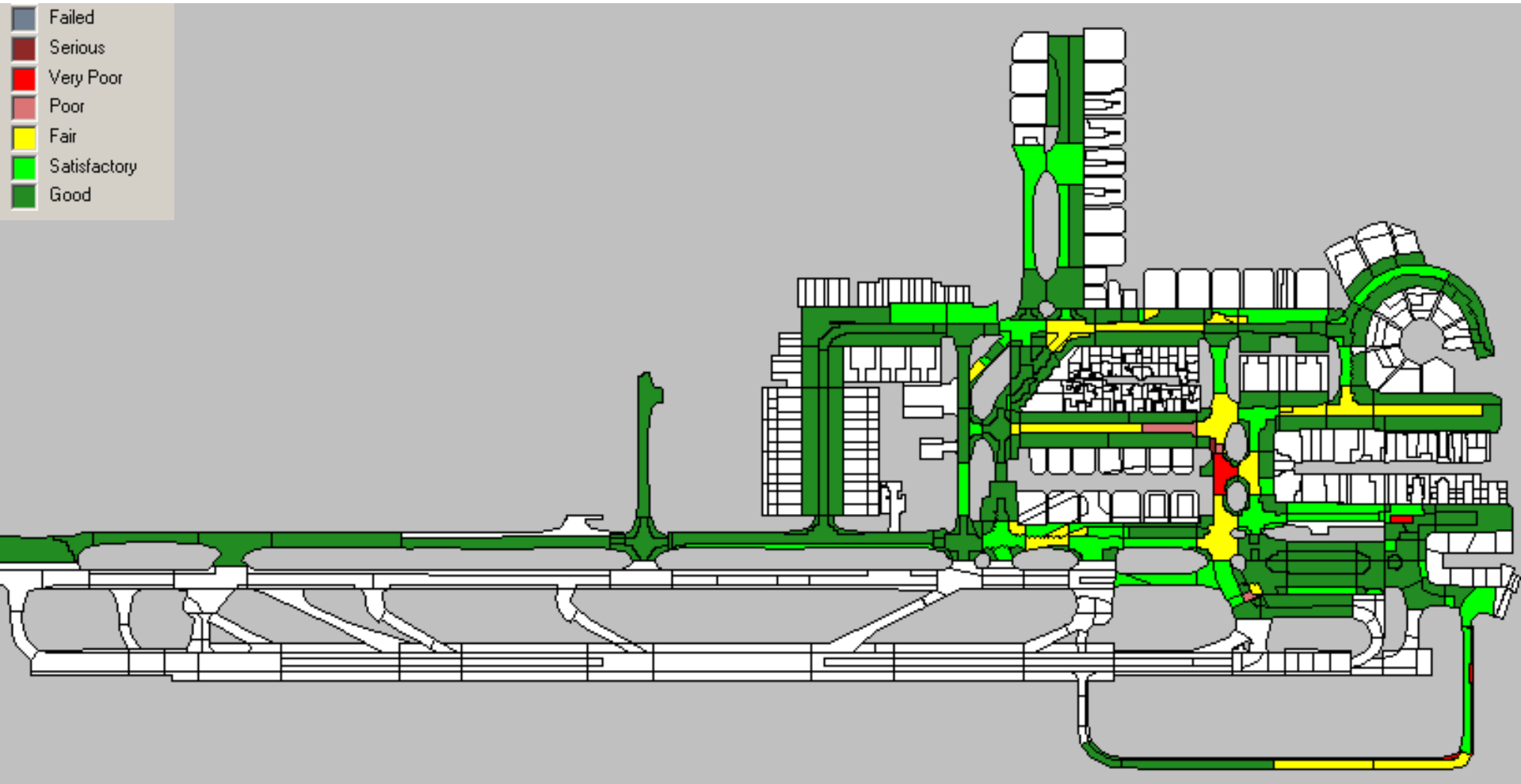


Taxiways

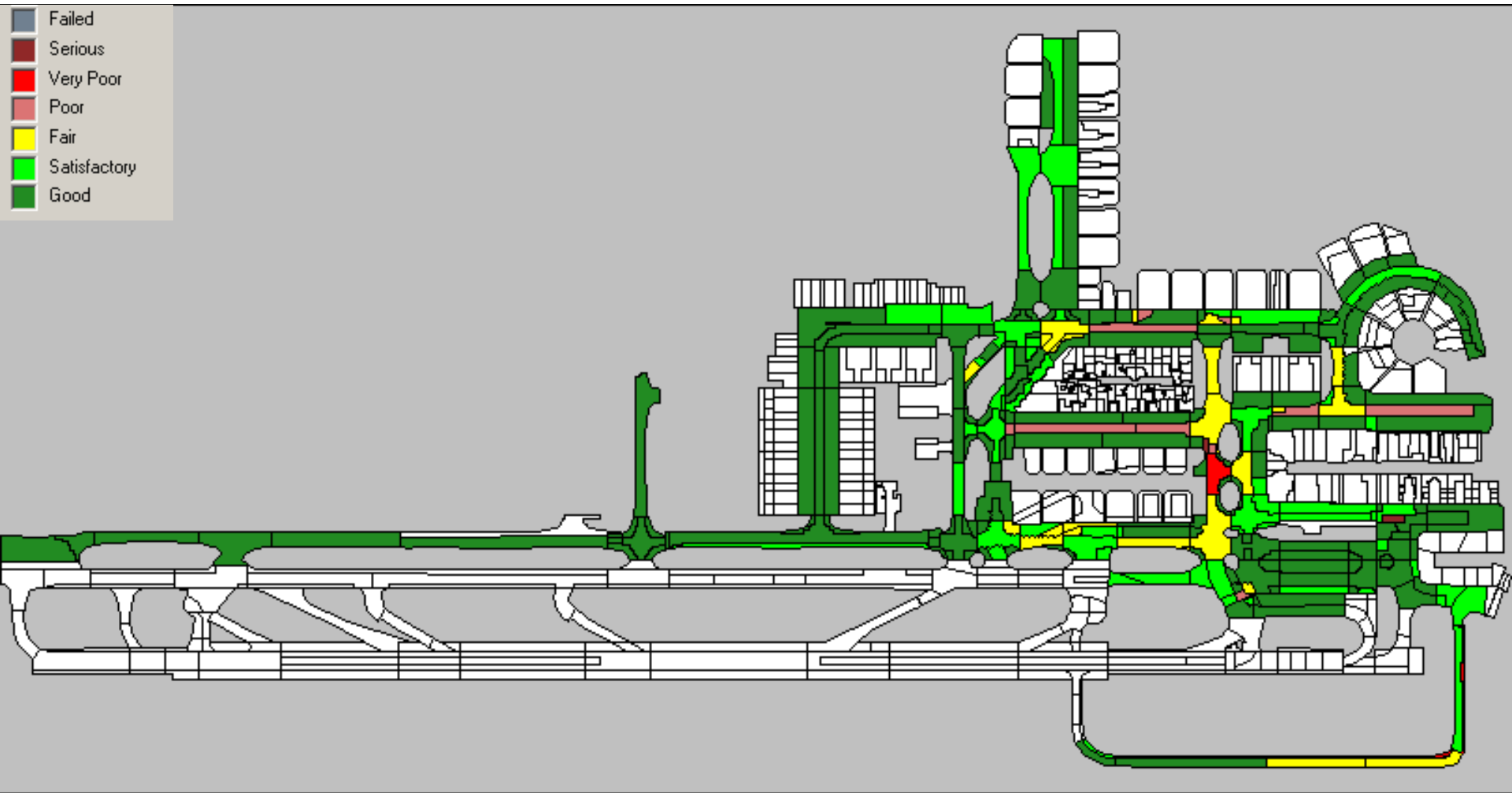
Airport-wide PCI database – graphical output



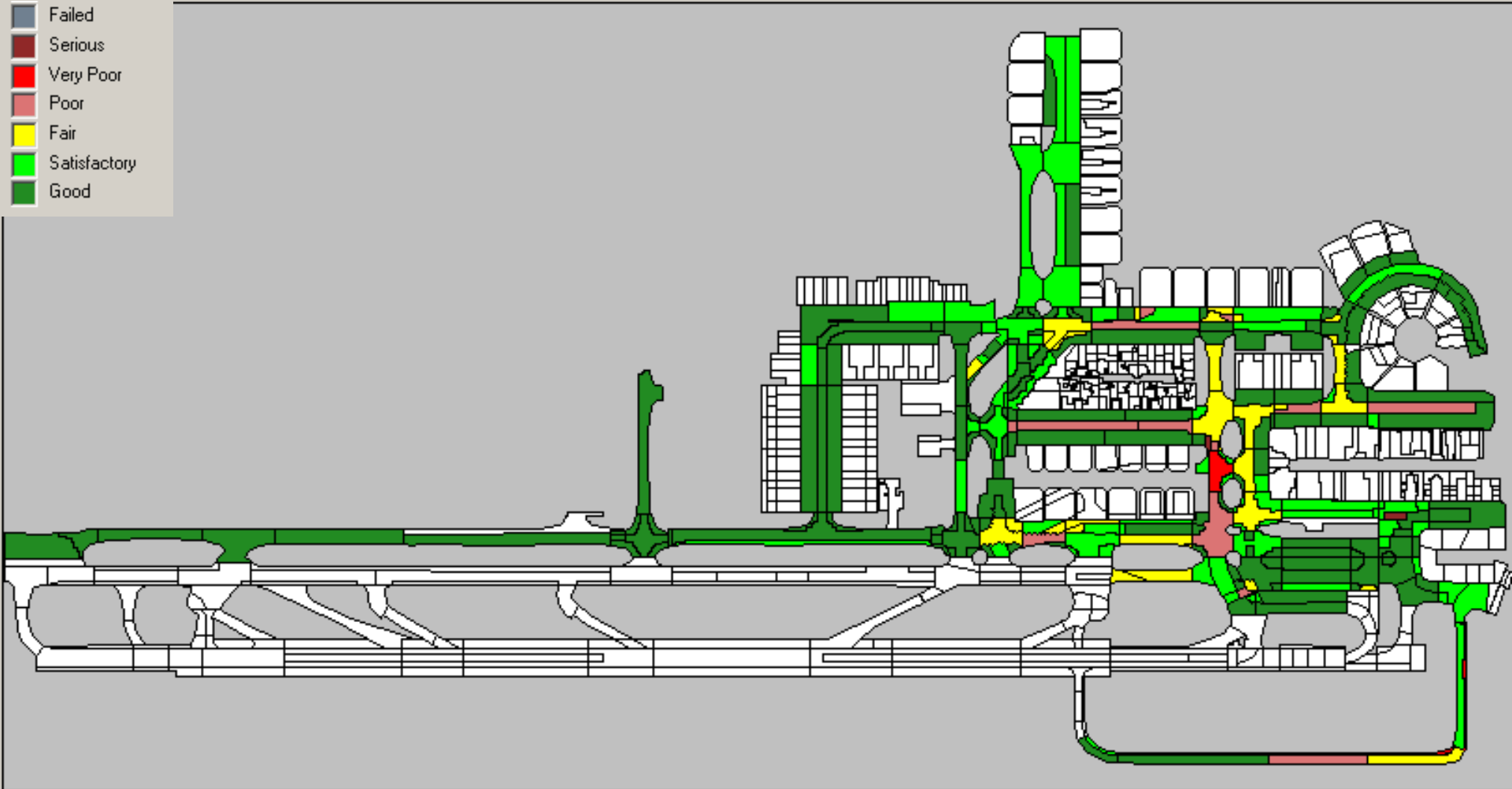
2011



2012

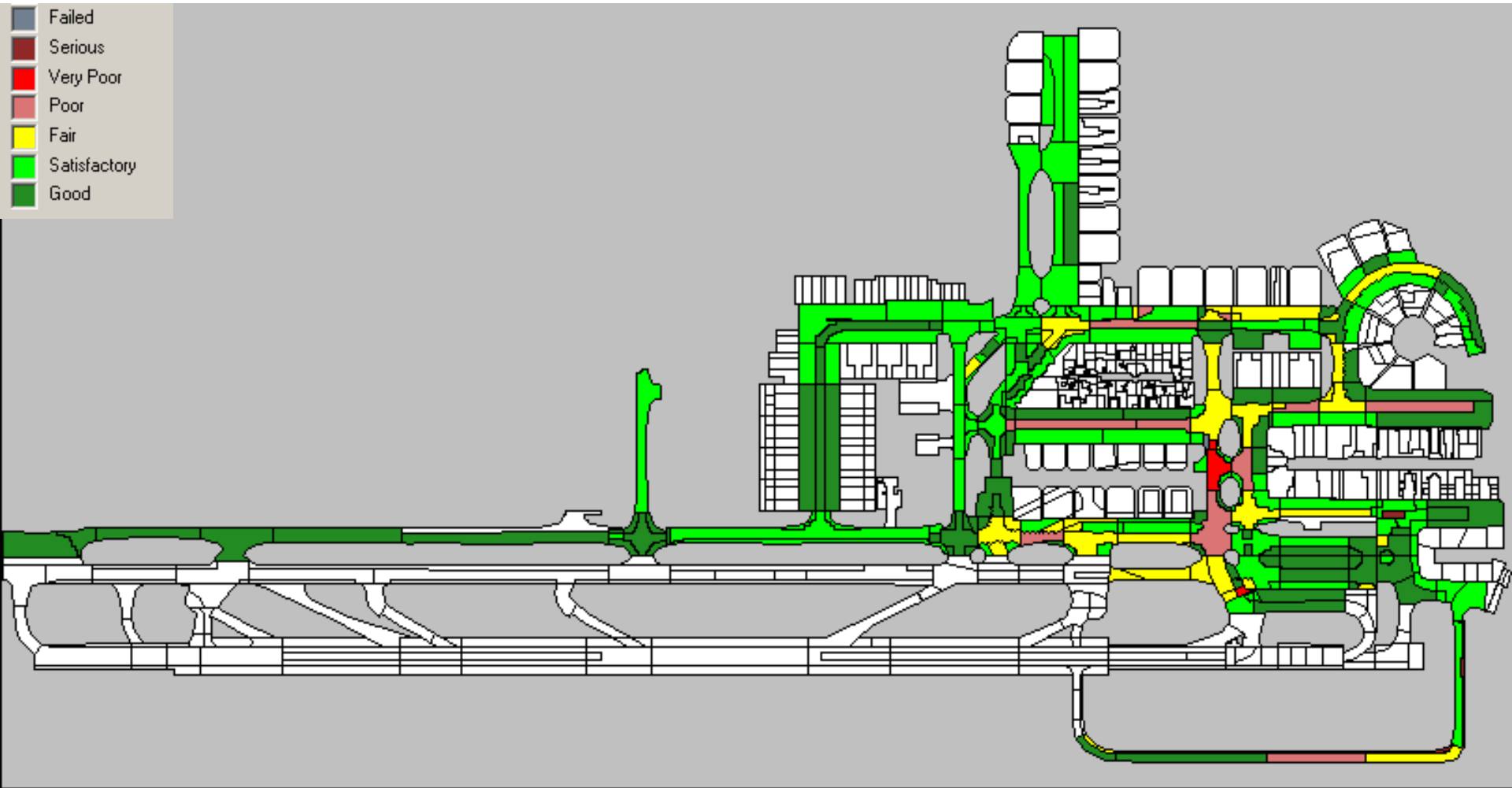


2013



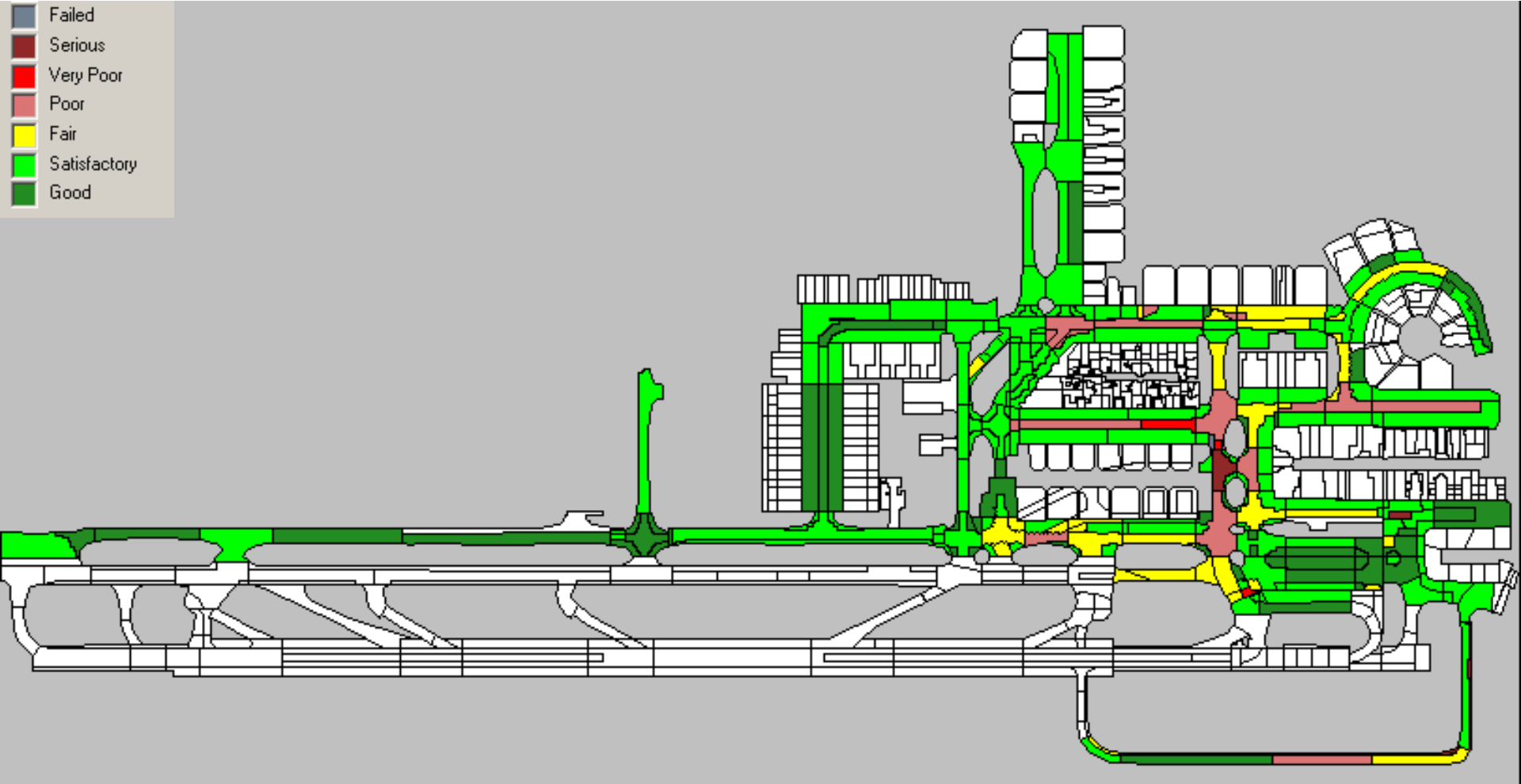
2015

- Failed
- Serious
- Very Poor
- Poor
- Fair
- Satisfactory
- Good

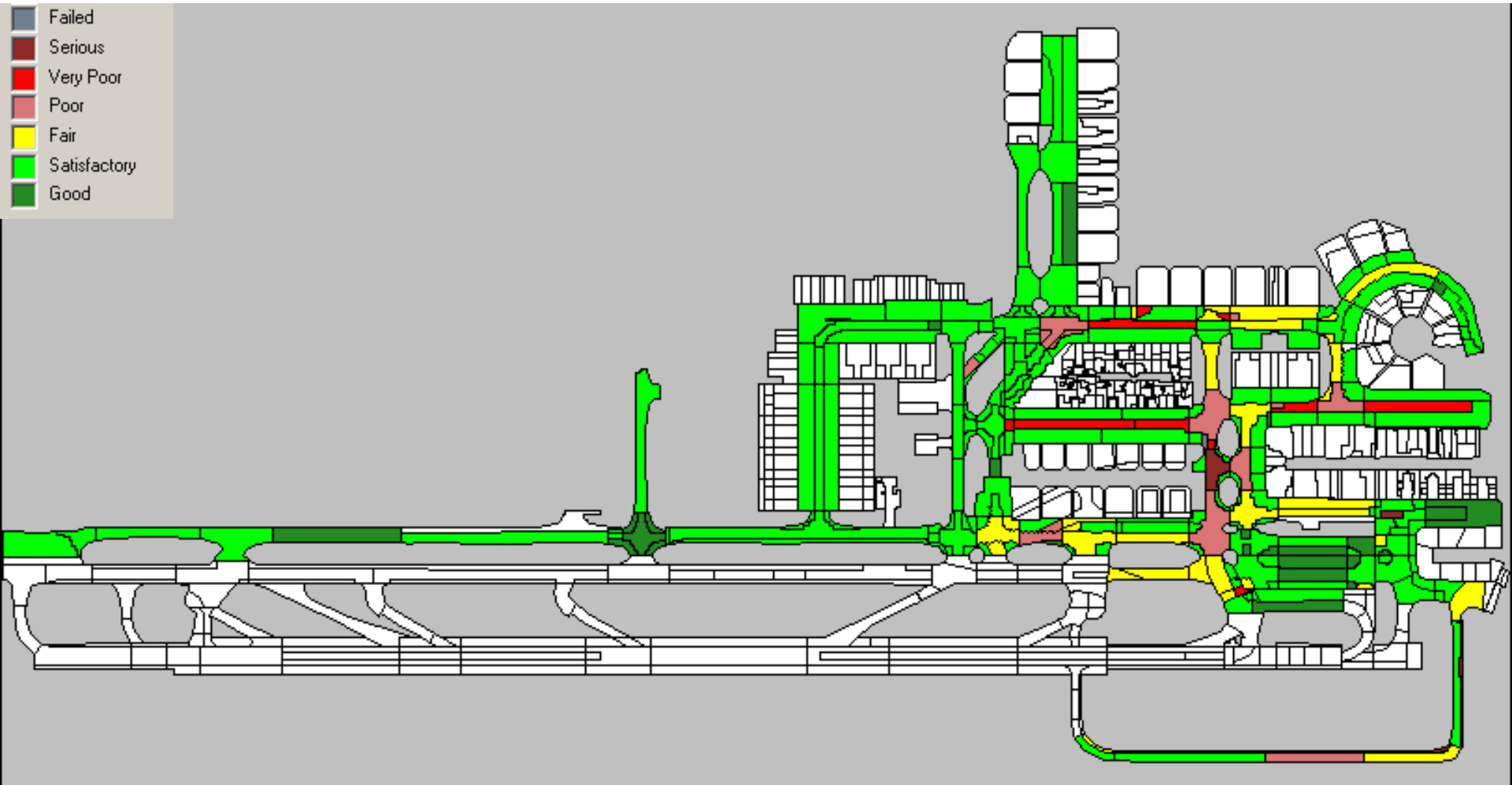


2016

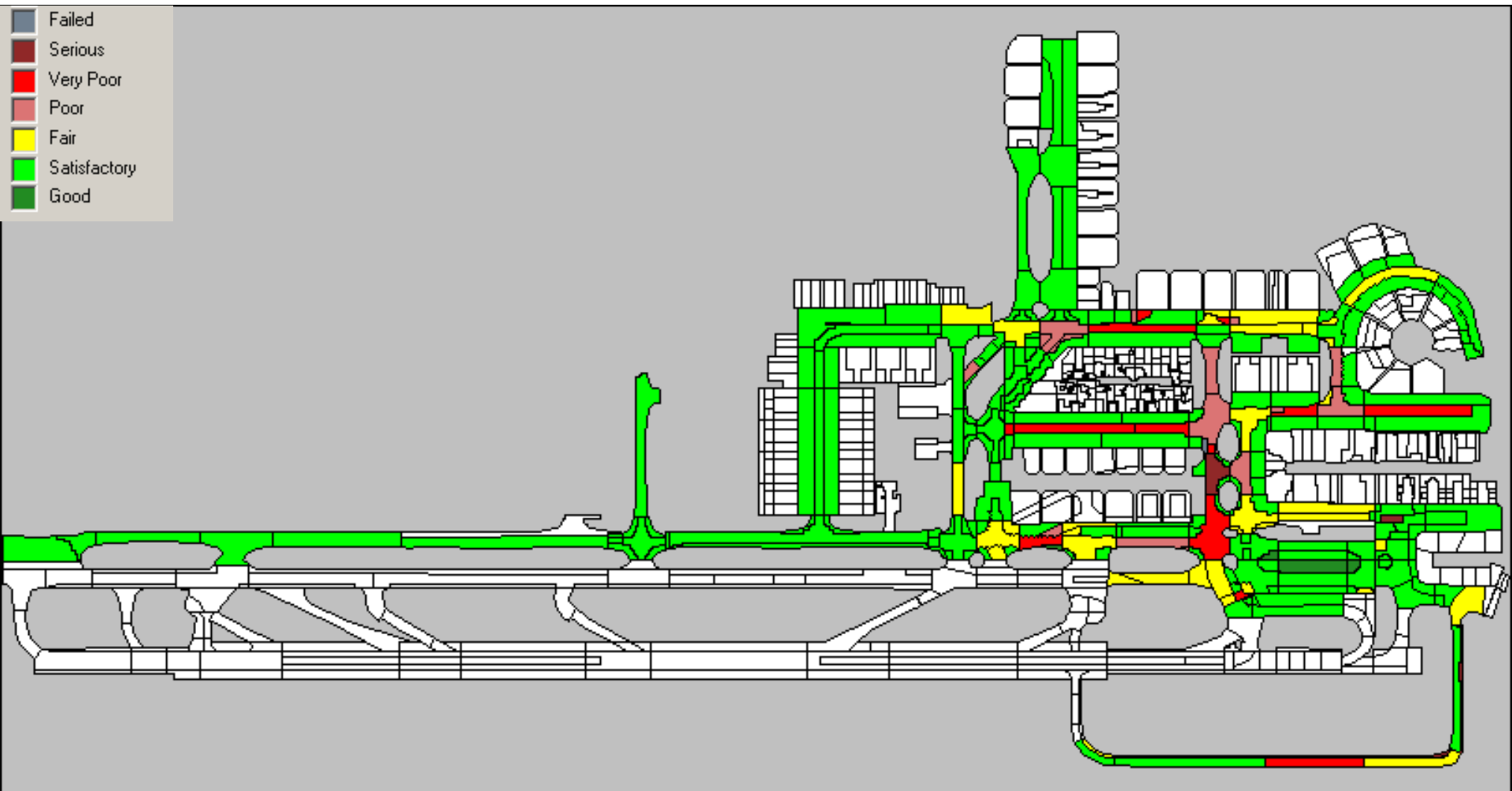
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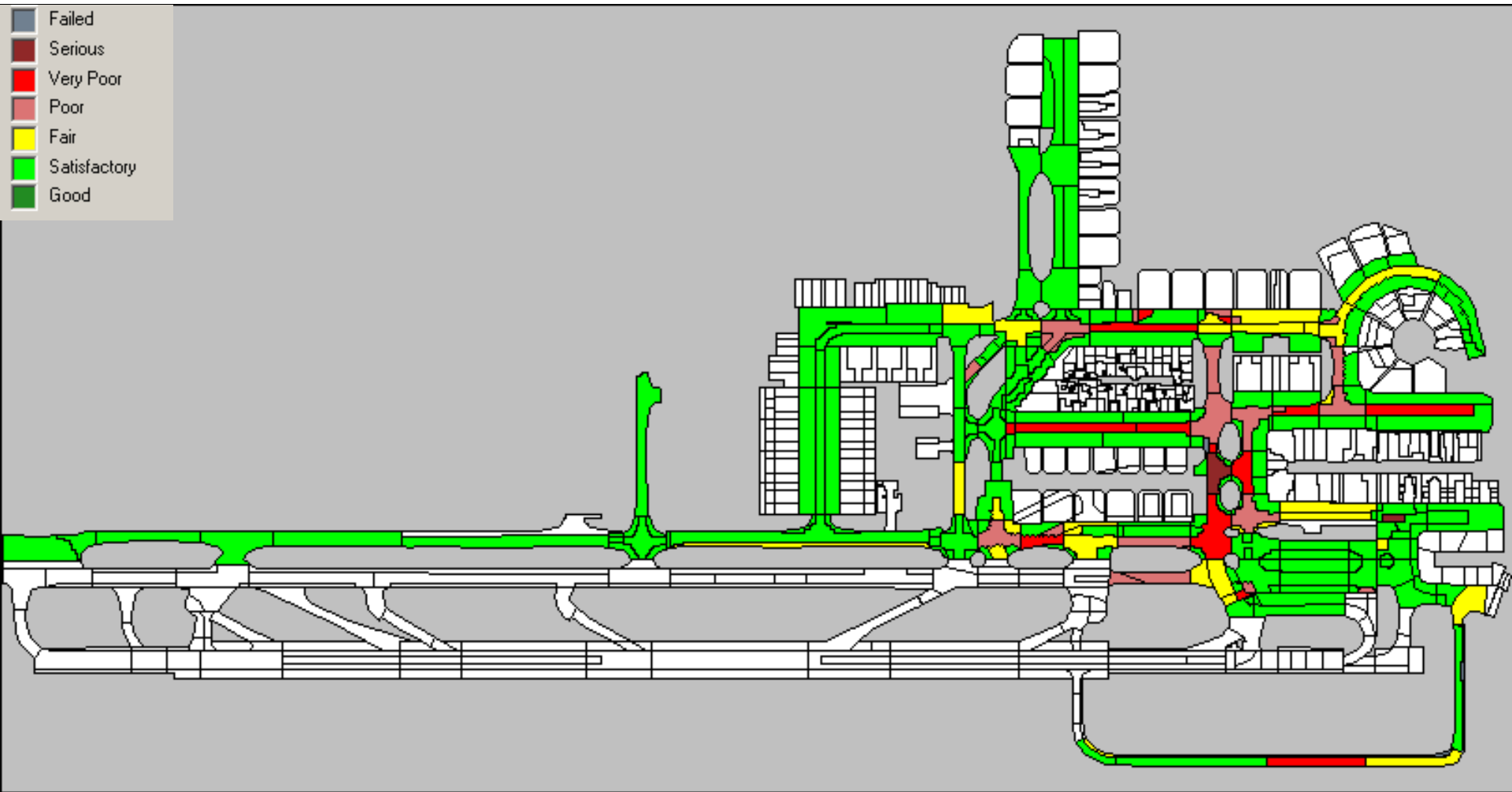
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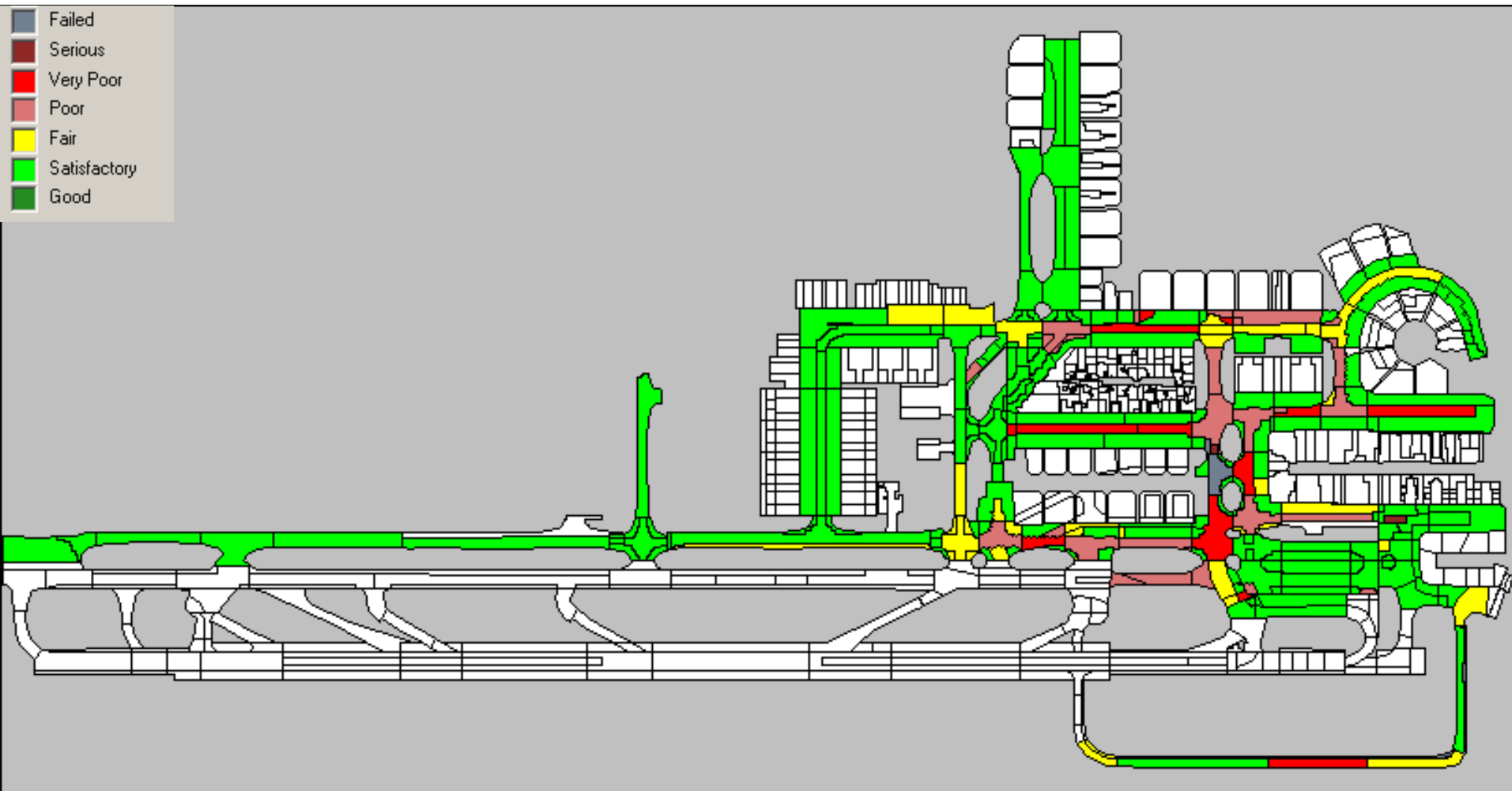
2018



2019

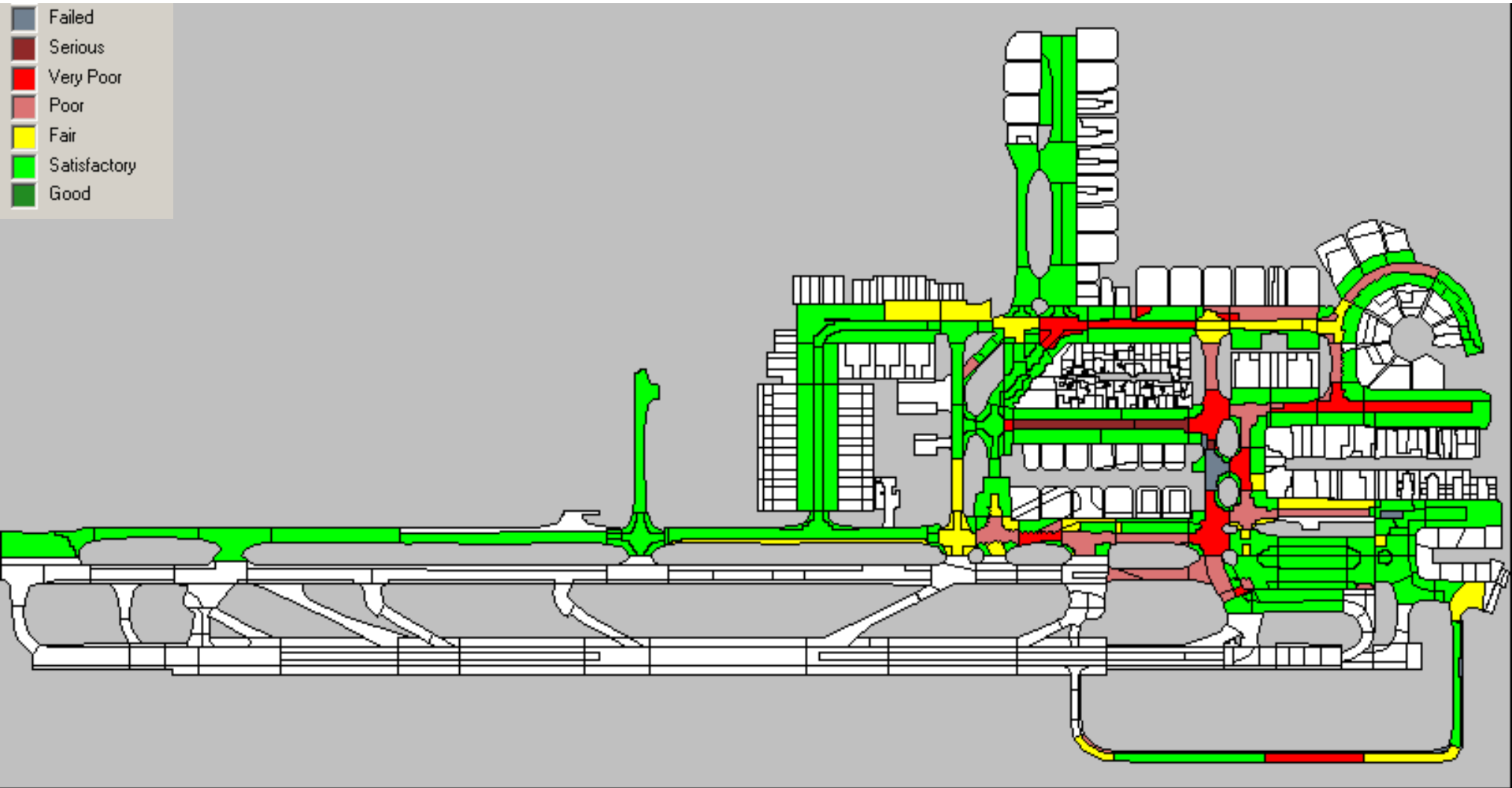


2020



2021

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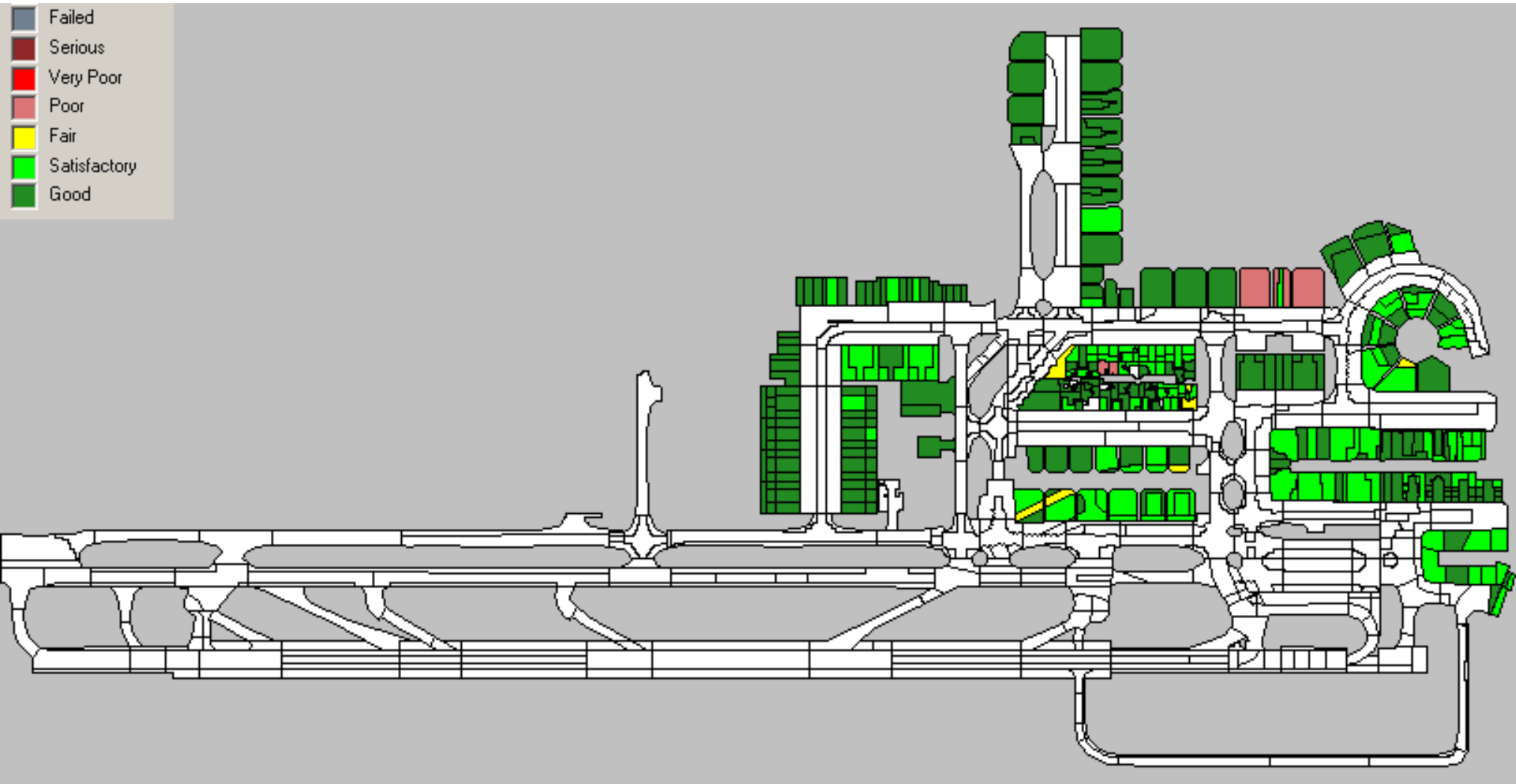


Stands

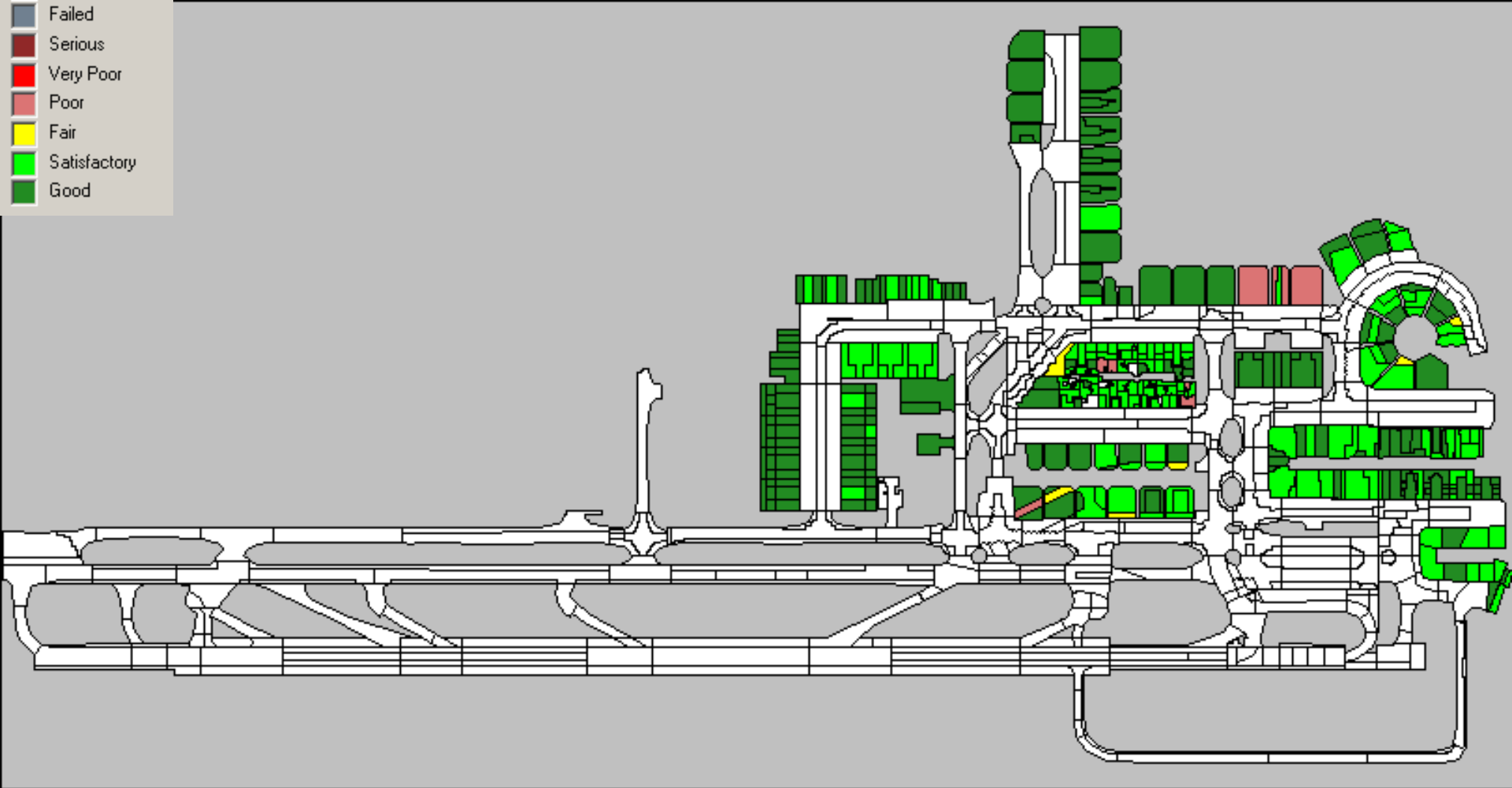
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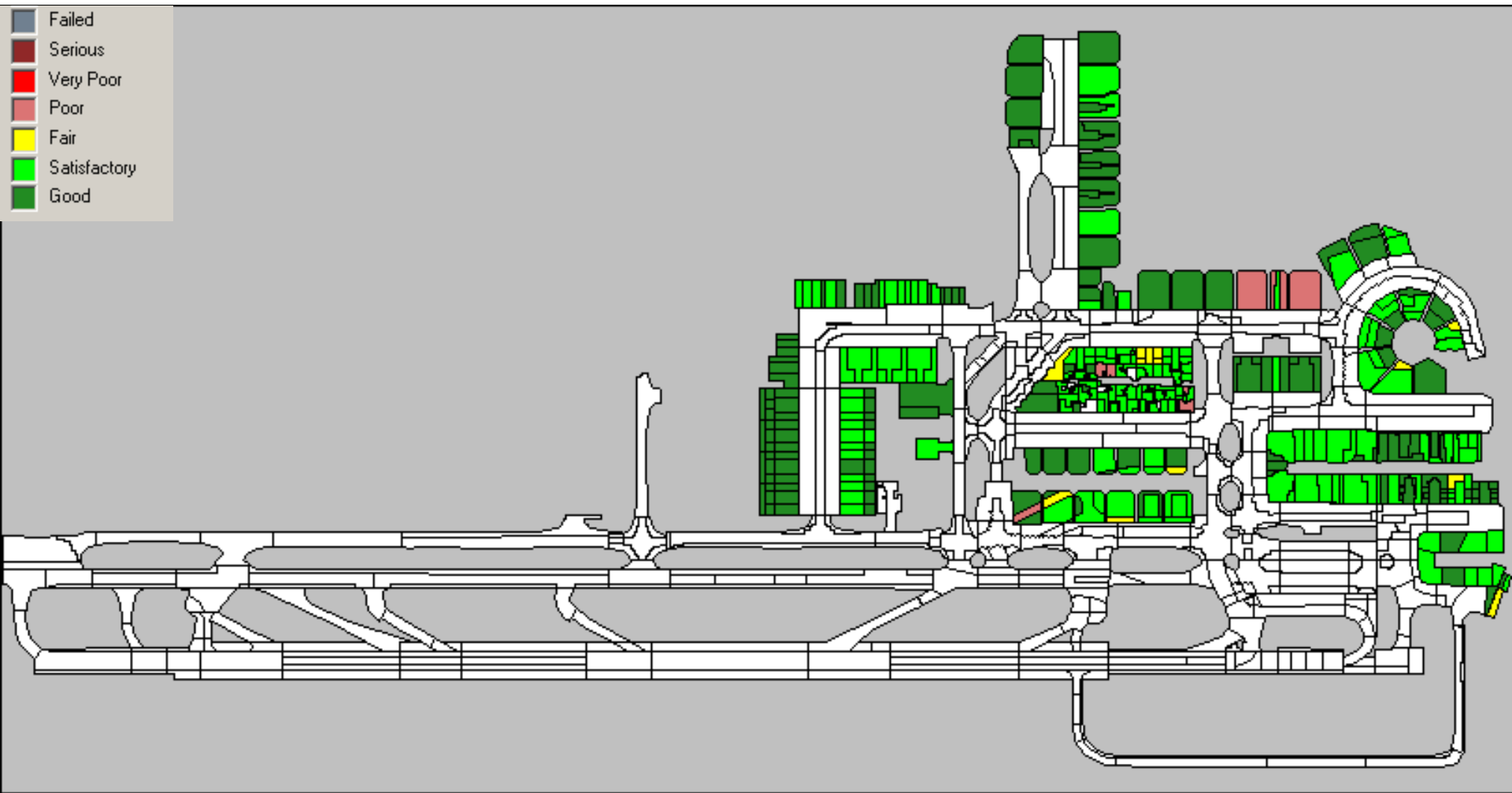
2011



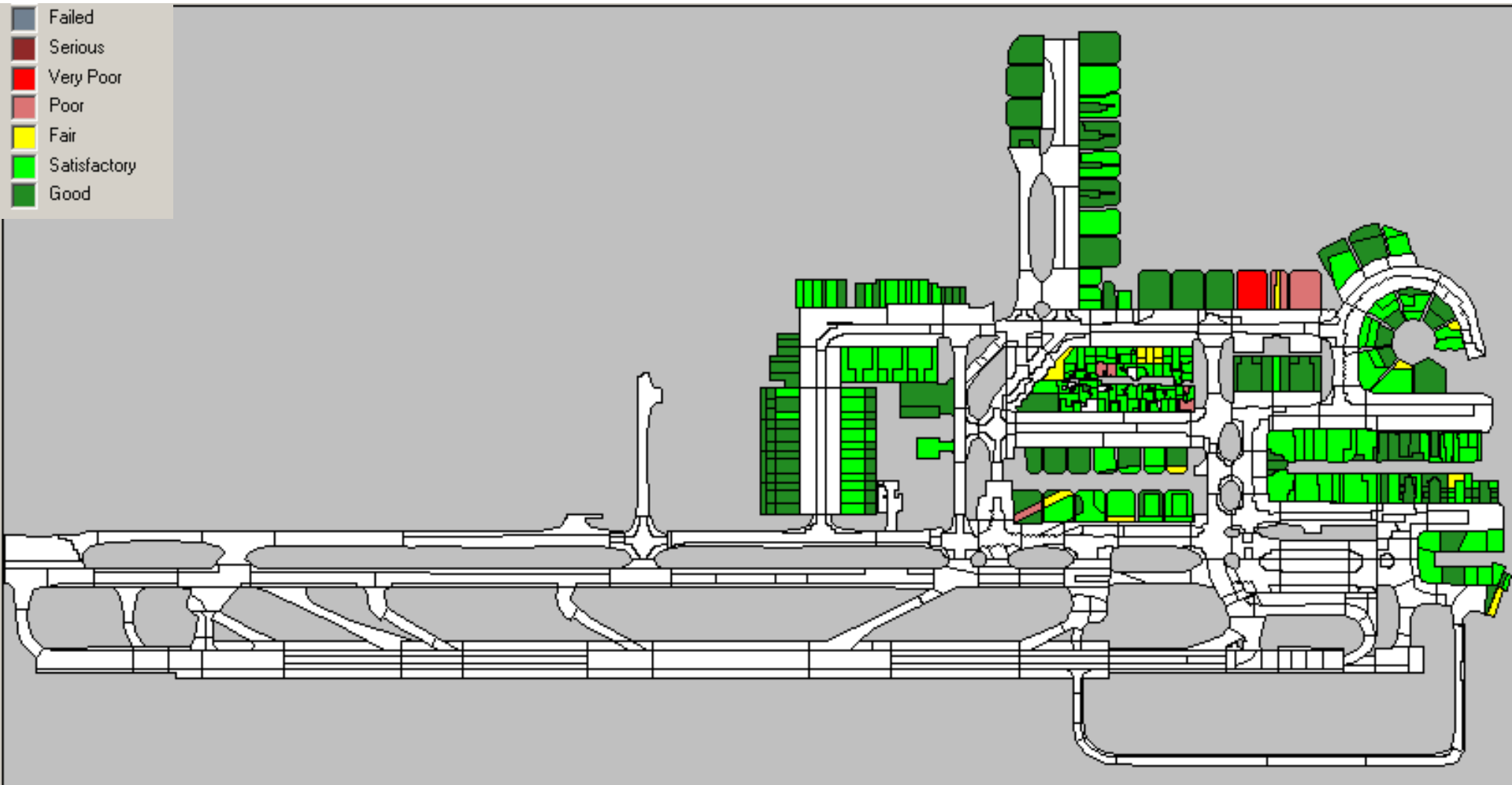
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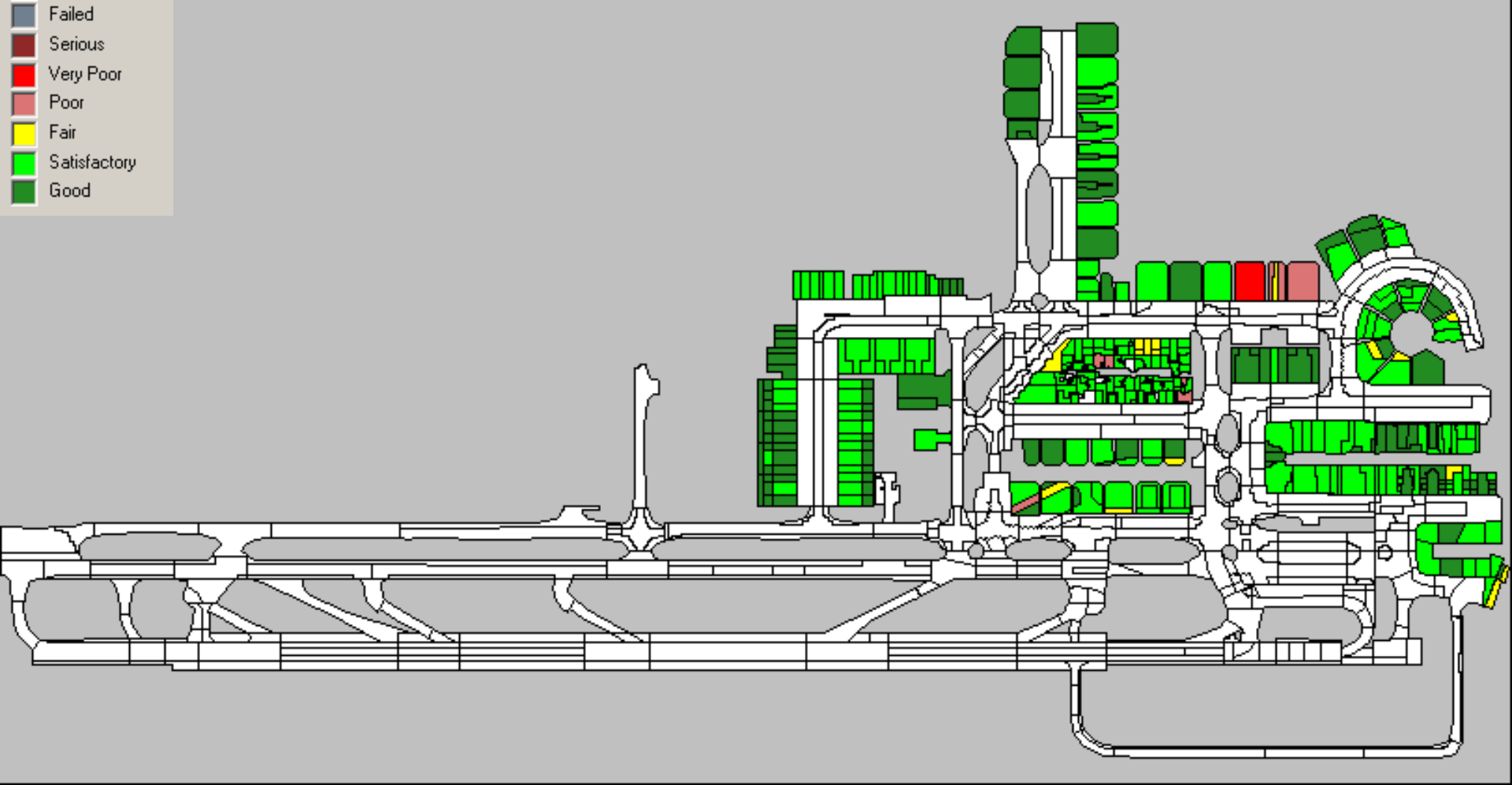
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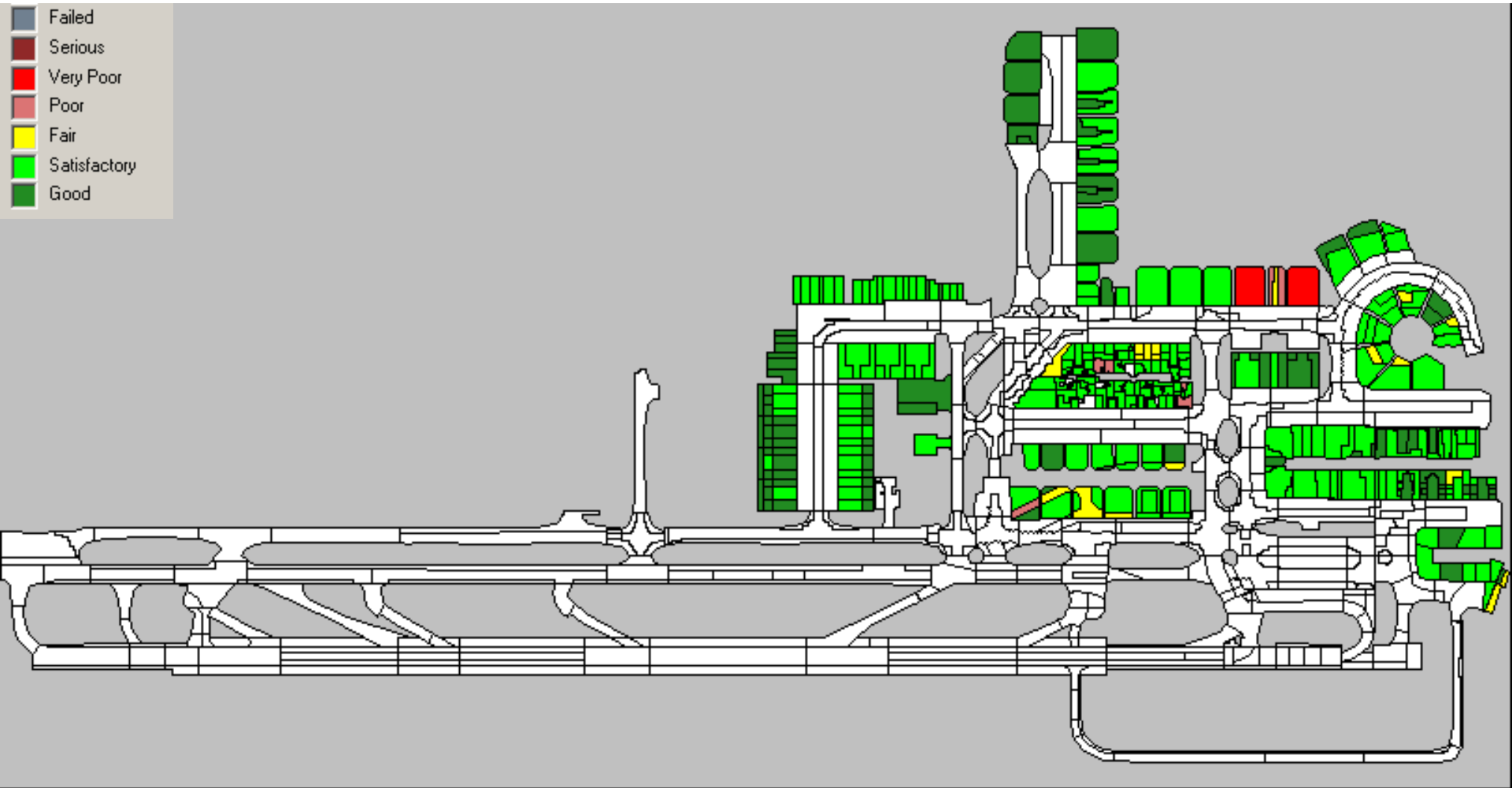
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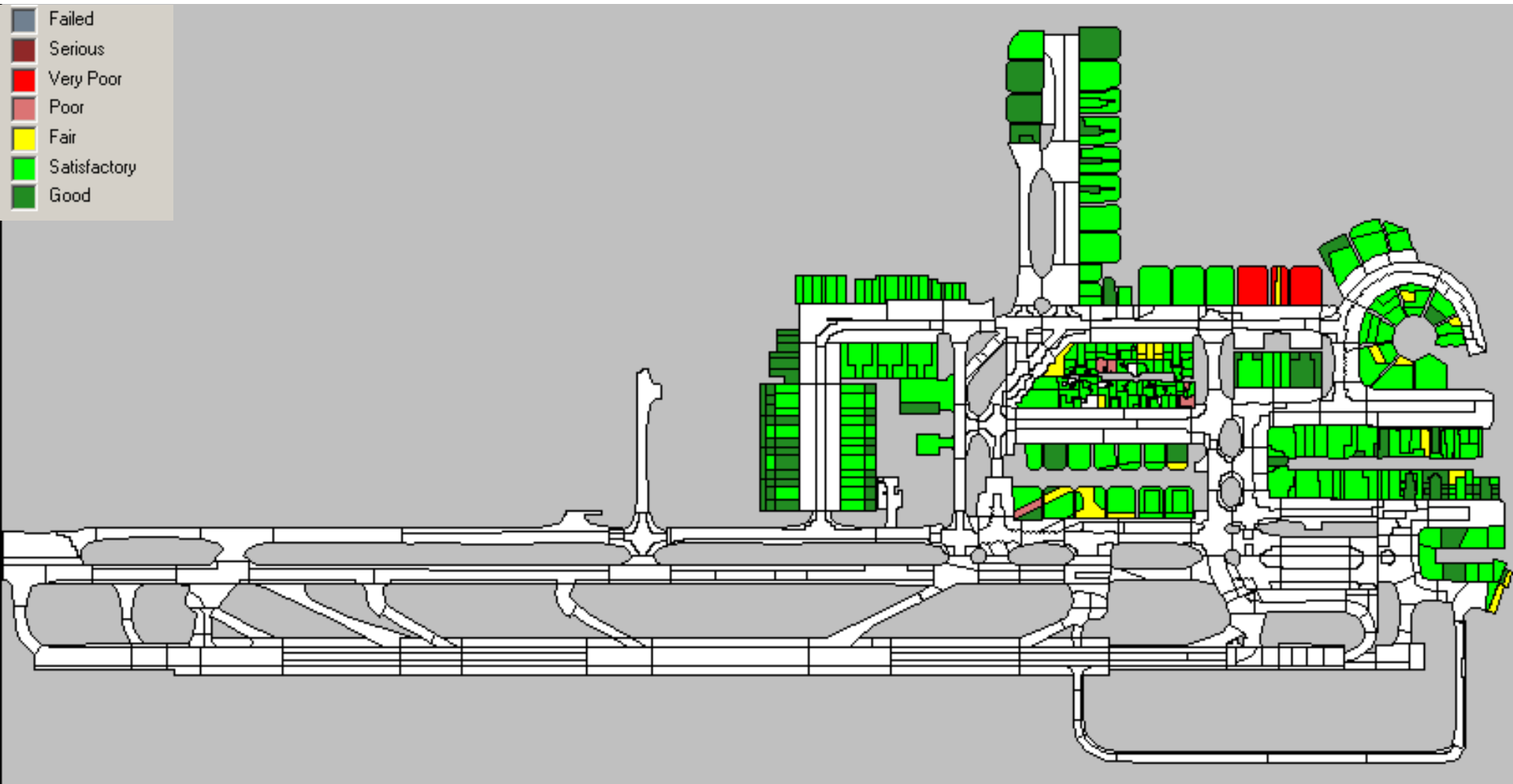


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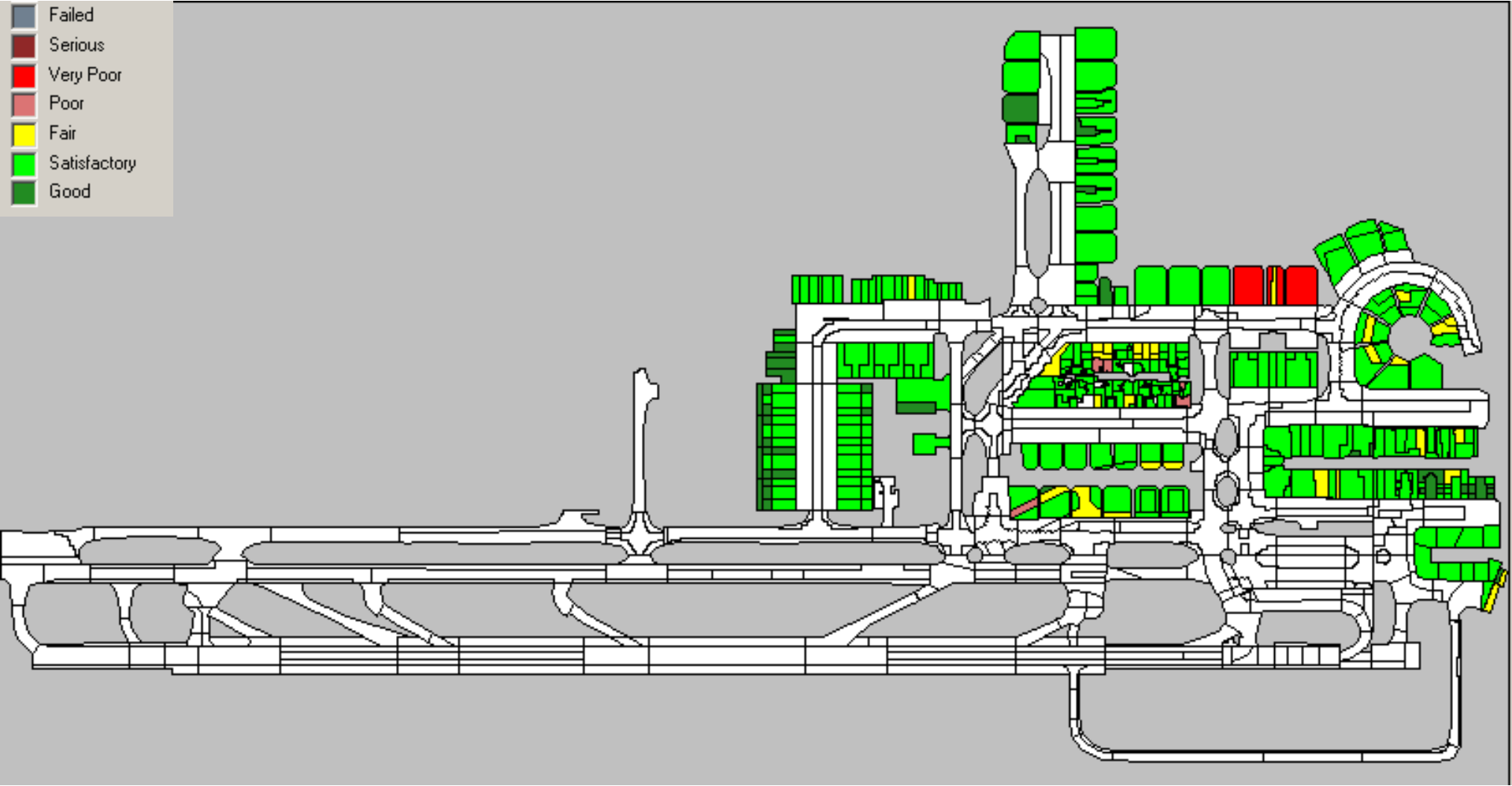


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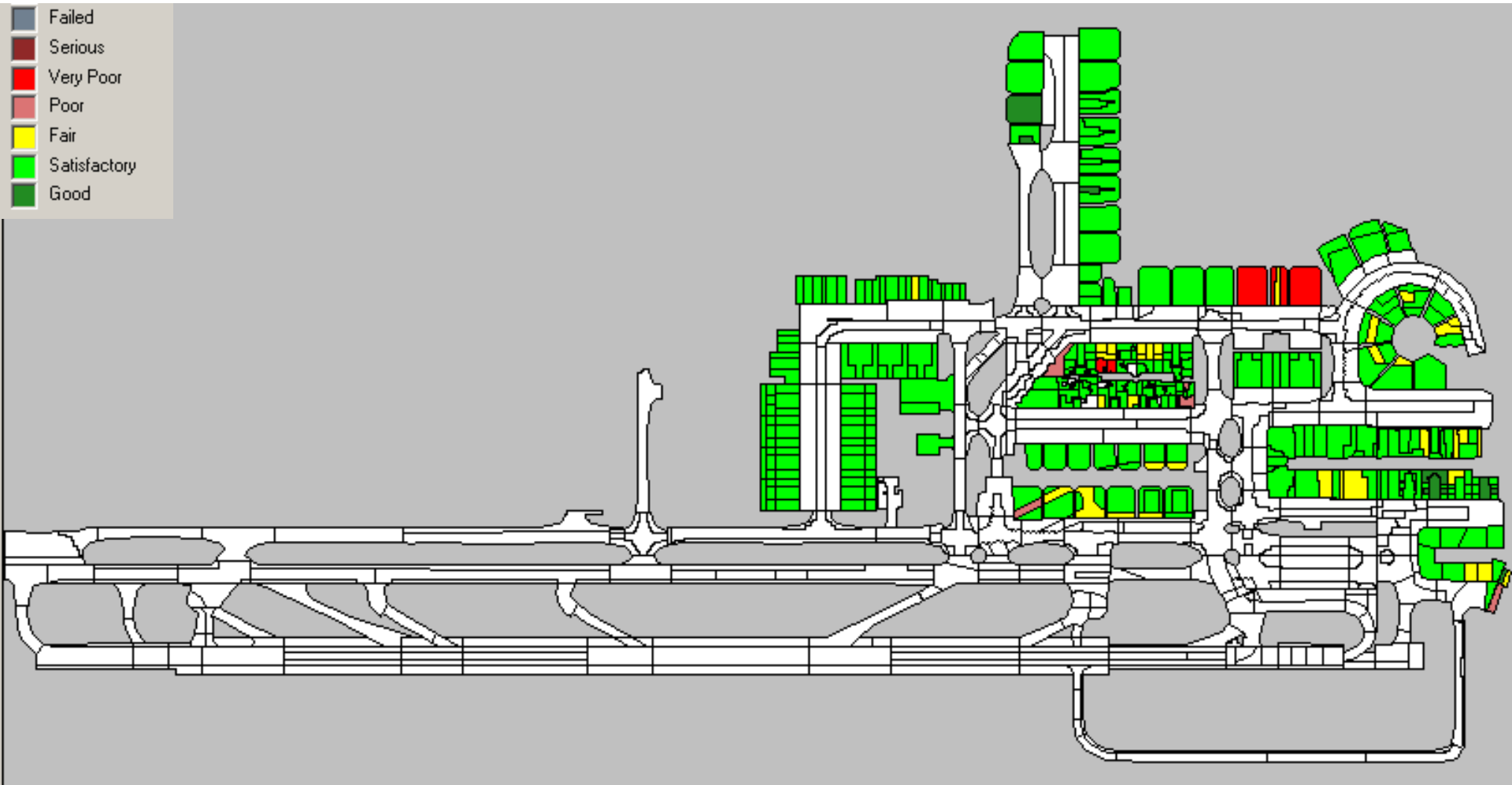
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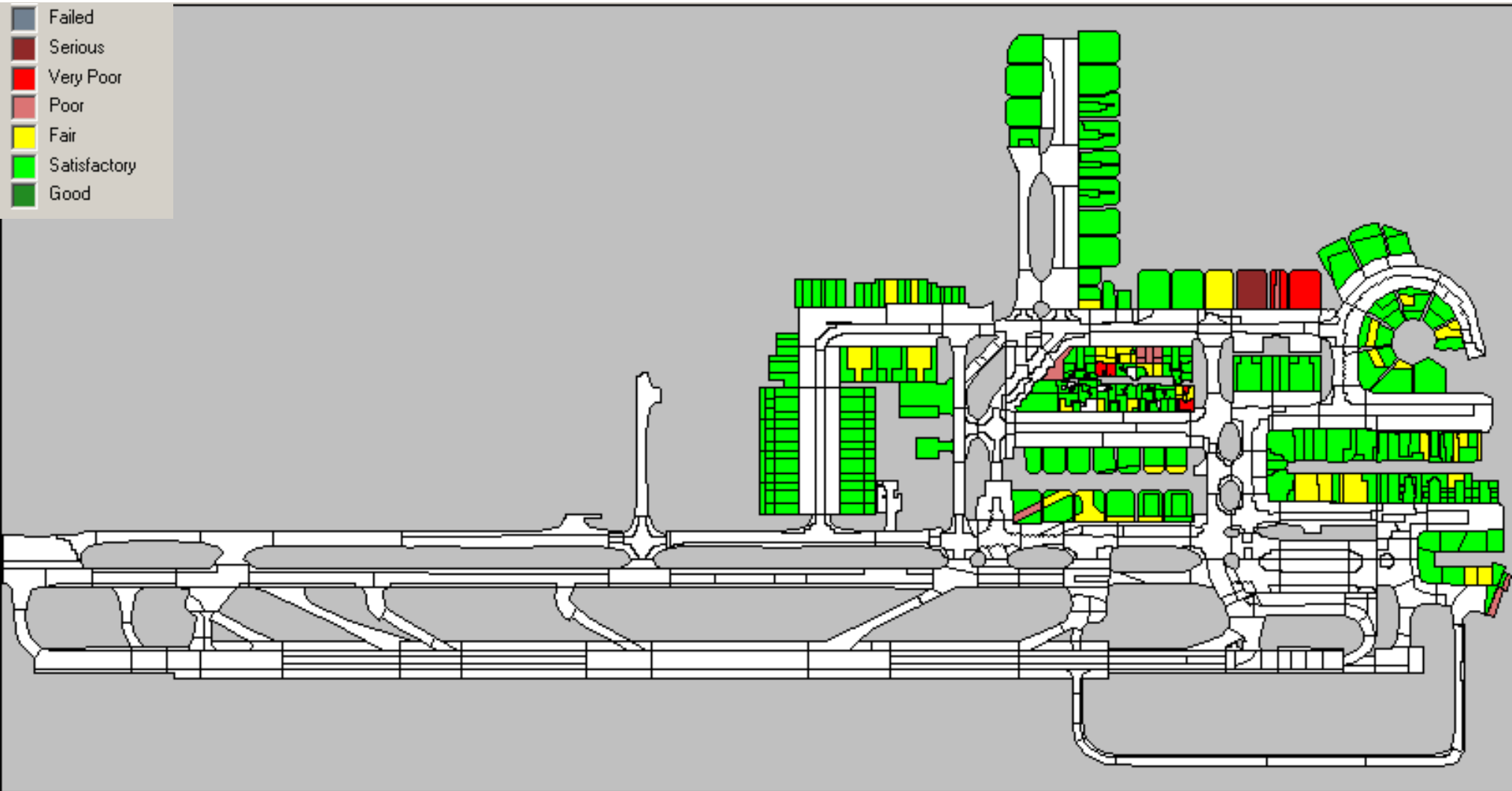
2018



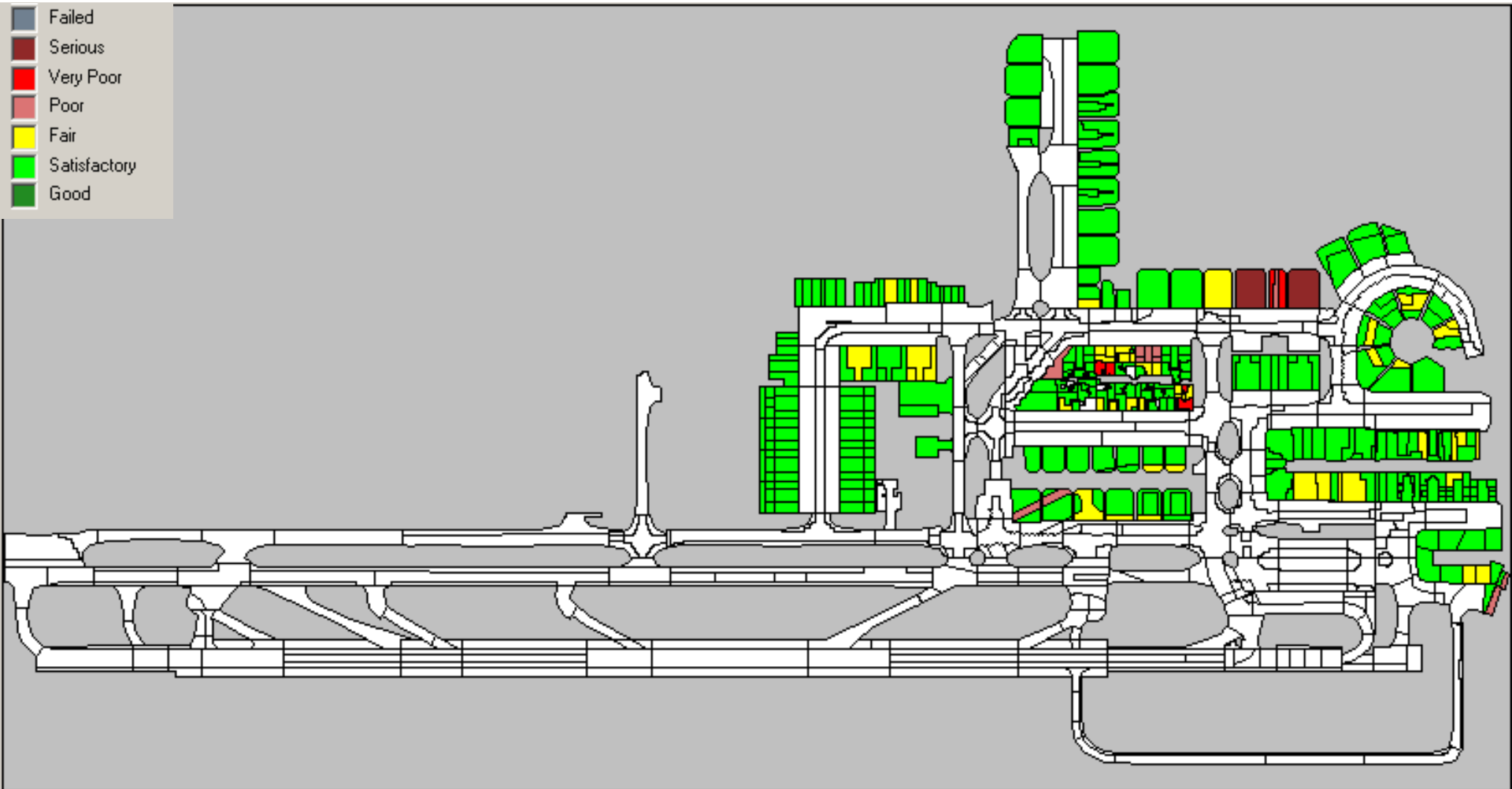
2019



2020



2021



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Gatwick

