



PHASE II LONG TERM CONTROL PLAN

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Appendix K

Recommended Solution Modeling Results

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Recommended Solution, Typical Year Simulation - 7 Total Pages

Recommended Solution, DS10yr4hr Simulation Results - 5 Total Pages

PHASE II LONG TERM CONTROL PLAN

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City of Lancaster Lancaster, Ohio Phase II LTCP

Appendix K Recommended Solution Typical Year Simulation Results



Analysis

Goals:

1. Control east side CSOs to 4 activations or less.
2. Provide a reasonable Level of Service (i.e. no flooded basements/manholes)

Recommended Solution:

Separation projects in place and regulator modifications at CSOs
1008/1009/1012/1013/1014/1019/1029/1033.

Results:

With recommended solution we have 4 or less activations for all active CSOs and we are *not* violating freeboard goals along the Hocking River and Baldwin Run interceptors.

Summary



CSO 1008	CSO 1009	CSO 1012
2025 Separation; Increased weir inlet offset from 12" to 19"	2025 Separation (Includes 2050 Separation Areas); Removed Leaping weir control rule configuration	2025 Separation (Includes 2050 Separation Areas); Removed Leaping weir control rule configuration
CSO 1013	CSO 1014	CSO 1033
2025 Separation (Includes 2050 Separation Areas); Removed Leaping weir control rule configuration	Added a new 456 ft of 18" underflow line from regulator to the 36" interceptor just upstream of YMCA PS; Closing the existing 12" underflow line from the regulator to the 36" interceptor	Added a new 600 ft of 15" underflow line from regulator to the 36" interceptor; Closing the existing 10" underflow line from the regulator to the 36" interceptor
CSO 1029	CSO 1019	Additional Notes
2025 Separation; Increased the overflow weir elevation from 1.8' to 7.5'	2025 Separation; Increased the underflow Orifice opening from 12" to 24"; Increased 156 ft of underflow pipe from 18" to 30" from CSO 1019 regulator to Main St interceptor POC.	Increased the 360 ft interceptor pipe segment from 18" to 48"; Increased 25 ft of interceptor pipe segment from 48" to 60"

Alternative vs. Baseline



Recommended Solution
Typical Year CSO Overflow Statistics

2014 Baseline with 2035 Growth
Typical Year CSO Overflow Statistics

VS

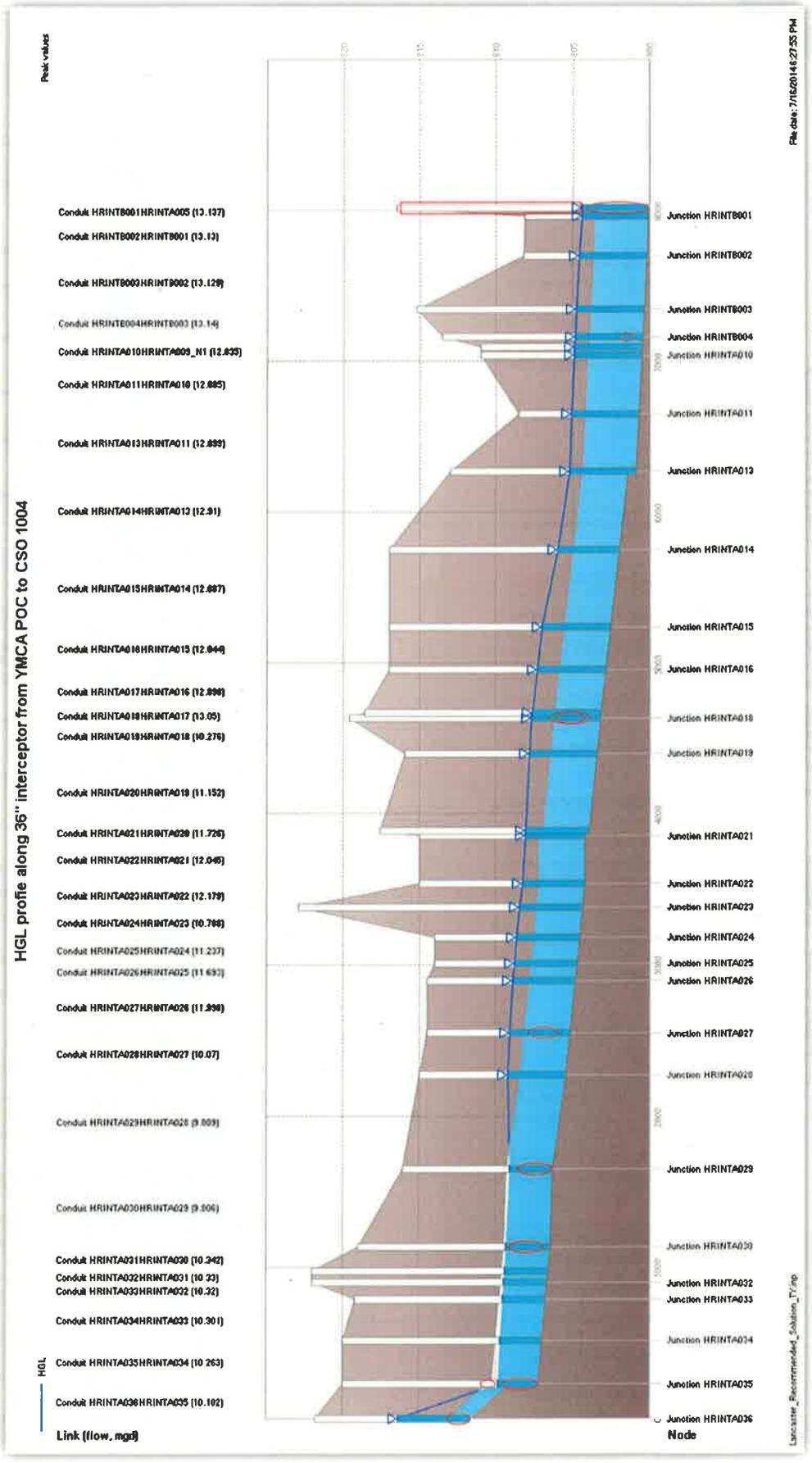
CSO No.	Total Volume (MG)	Total Duration (Hrs)	Number of Events
CSO1004	0.0	0	0
CSO1008	0.1	5	4
CSO1009	0.0	0	0
CSO1011	0.0	0	0
CSO1012	0.0	0	0
CSO1013	0.0	0	0
CSO1014	0.3	3	3
CSO1019	0.7	3	3
CSO1026	0.0	0	0
CSO1027	0.0	0	0
CSO1029	0.4	4	4
CSO1033	0.4	3	3
1.9			

CSO No.	Total Volume (MG)	Total Duration (Hrs)	Number of Events
CSO1004	12.7	49	10
CSO1008	1.4	46	27
CSO1009	4.4	227	77
CSO1011	0.0	0	0
CSO1012	4.4	200	58
CSO1013	4.8	166	77
CSO1014	1.7	21	18
CSO1019	3.5	19	16
CSO1026	0.0	0	0
CSO1027	0.0	0	0
CSO1029	3.7	70	31
CSO1033	1.1	7	6
37.7			

New EQ at the plant required capacity is ~3.3 MG



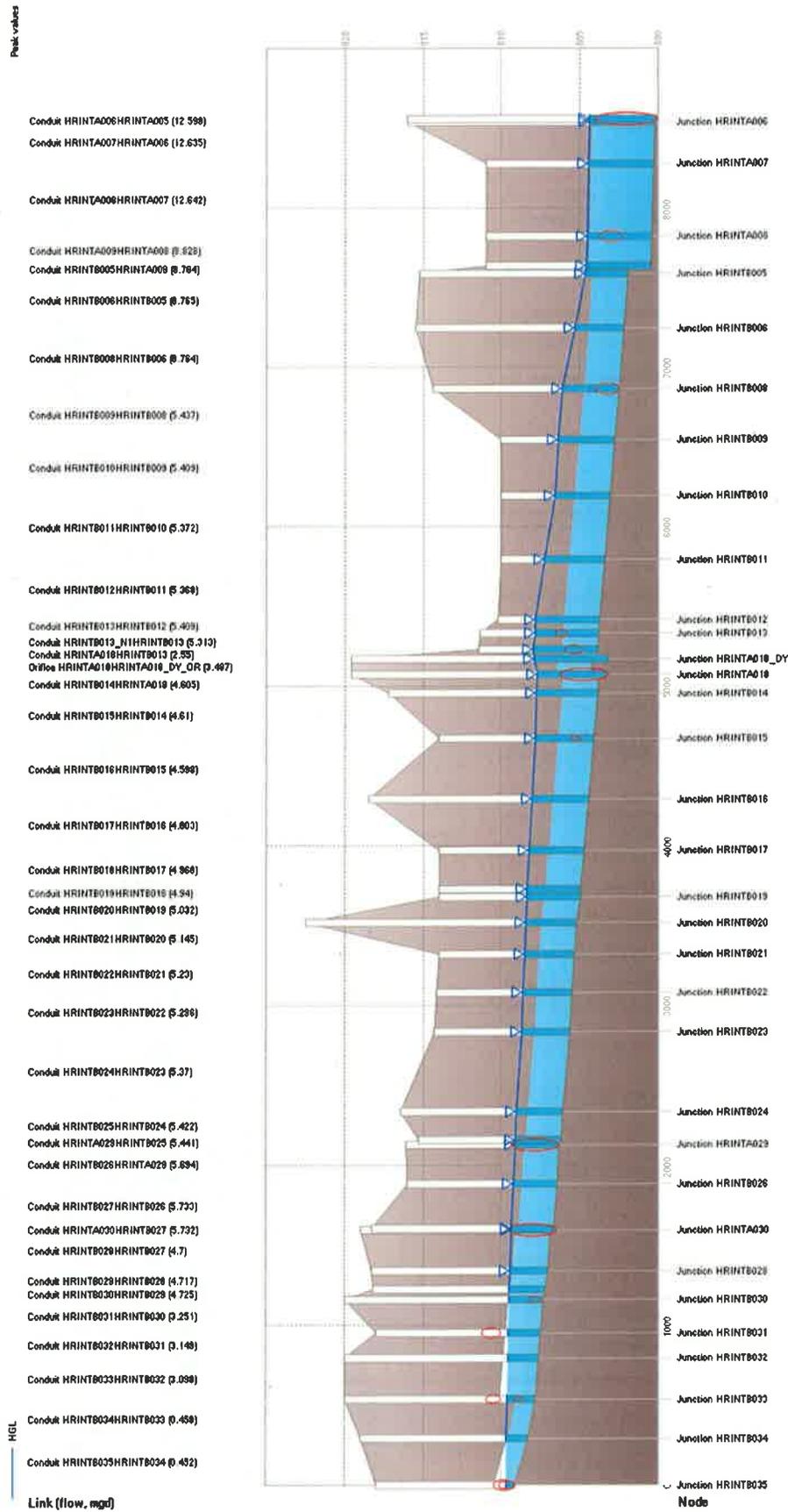
Typical Year – Peak HGL Conditions



Typical Year – Peak HGL Conditions

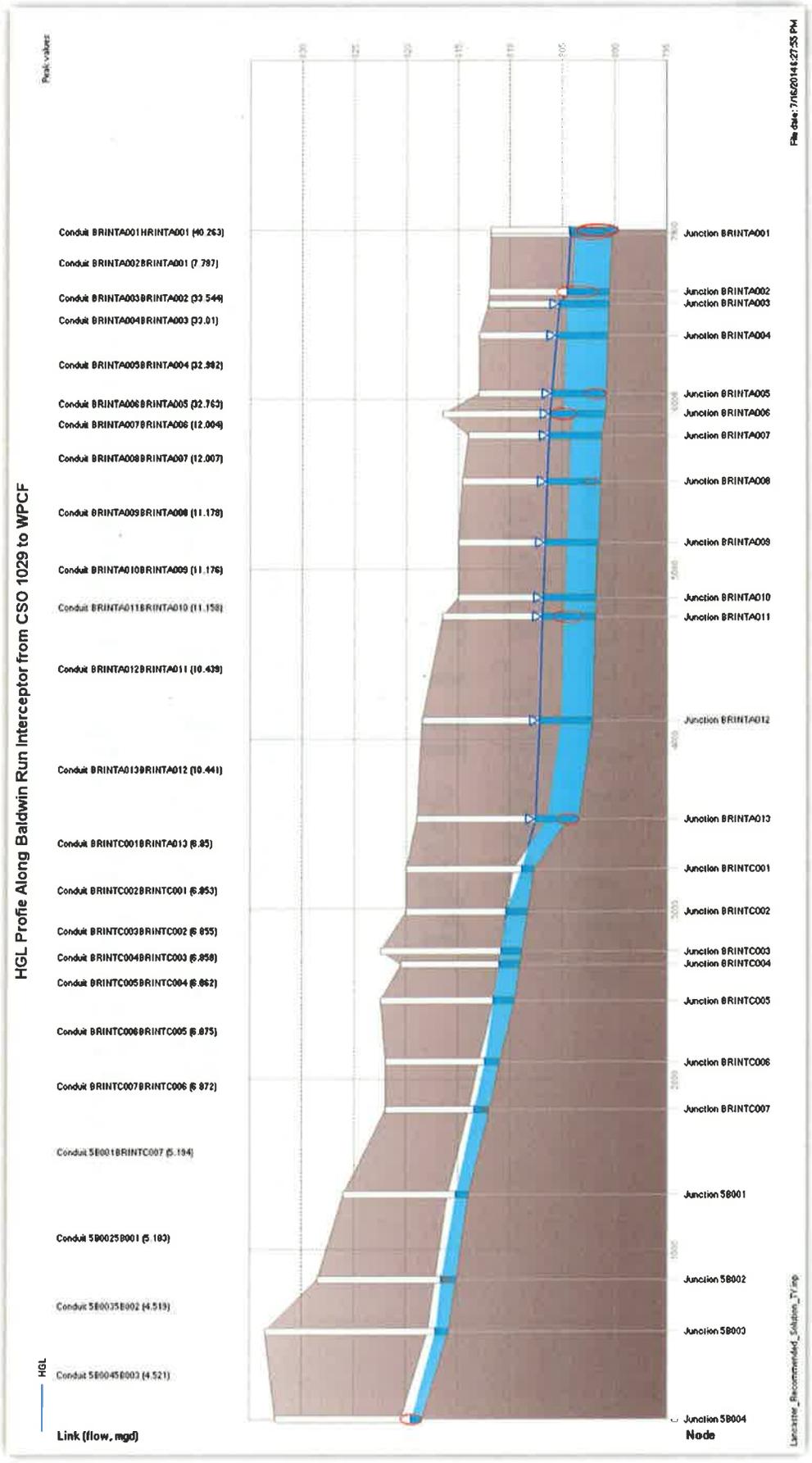


HGL Profile Along 27" Interceptor From CSO 1009 to CSO 1004





Typical Year – Peak HGL Conditions





**City of Lancaster
Lancaster, Ohio
Phase II LTCP**

**Appendix K
Recommended Solution
DS10yr4hr Simulation Results**

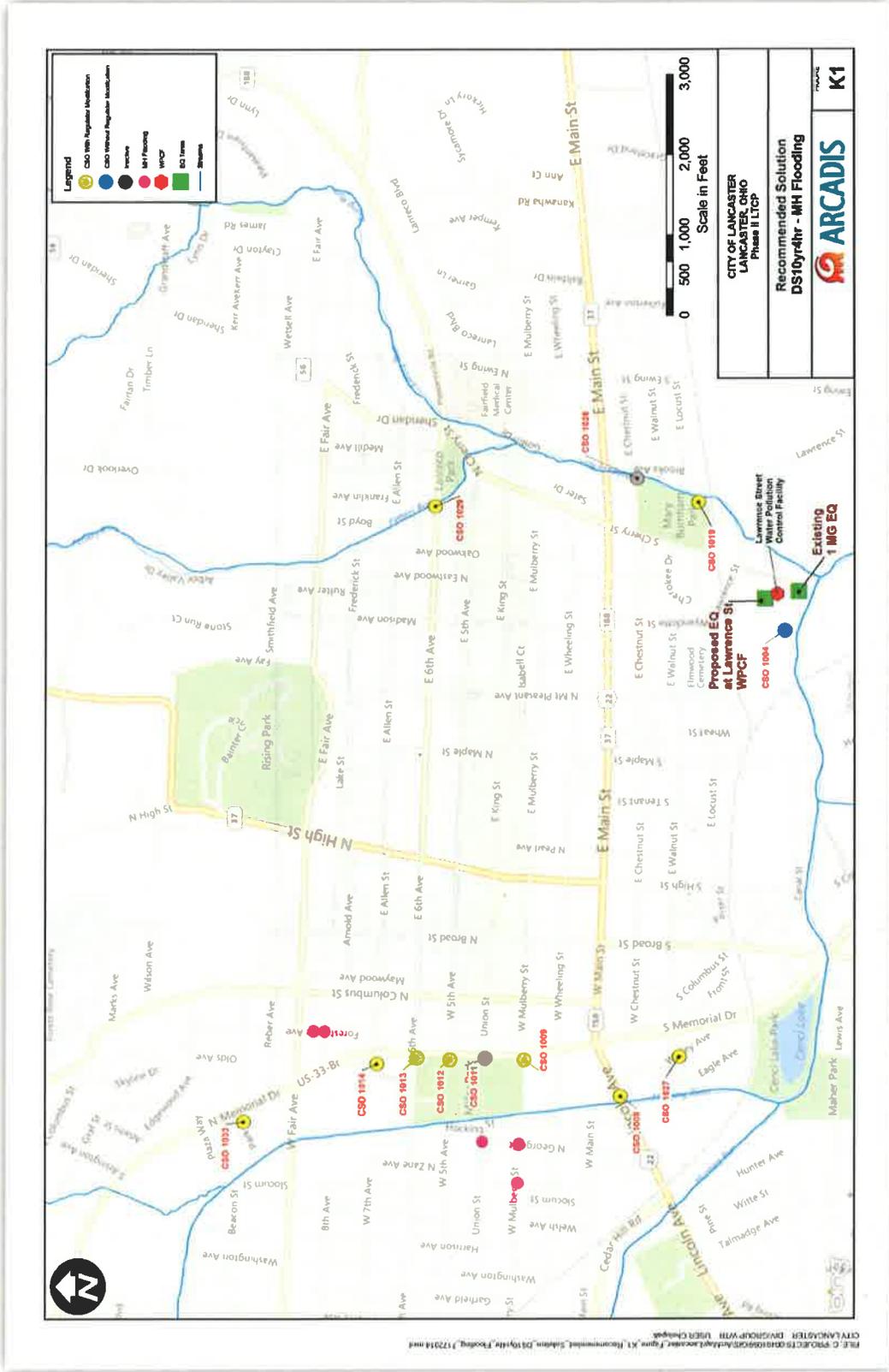


DS10yr4hr – MH Flooding Table



Node	Hours Flooded	Max. Rate (MGD)	Total Flood Volume (MG)
21A003	2.1	0.96	0.047
21A005	1.4	3.14	0.117
21B002	2.3	1.30	0.071
24A102	1.2	3.62	0.102
24A103	1.0	1.52	0.037

DS10yr4hr – MH Flooding Map



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