

**ADDENDUM TO SANITARY SEWER OVERFLOW PLAN
PROJECT PRIORITIZATION
March 14, 2008**

By transmittal October 30, 2007, Winchester Municipal Utilities (WMU) submitted its Sanitary Sewer Overflow Plan Update (SSOP) in accordance with Section VI, *Remedial Measures*, Item C, *Compliance Programs*, paragraph 30, *Update to Sanitary Sewer Overflow Plan* as required by the Consent Decree in Civil Action No. 06-102-KSF, United States District Court, Eastern District of Kentucky, Central Division at Lexington. The schedule for remedial measures to eliminate specified sanitary sewer overflows (SSOs) as outlined in the SSOP is listed in Table 1.

This addendum to the SSOP provides justification and prioritization of the projects recommended in the SSOP by WMU to address recurring sanitary sewer overflows (SSOs) in the sanitary sewer collection system, more specifically the Lower Howards Creek watershed.

Prioritization Approach

In order to prioritize and verify the schedule of capital projects planned by WMU to address the recurring SSOs within the WMU sanitary sewer collection system as documented in the October 30, 2007 SSOP submittal, WMU developed a Project Evaluation Model (PEM). The PEM uses criteria listed in the Consent Decree (paragraph 3(c)) augmented by criteria deemed necessary by WMU for the orderly progression and implementation of the projects. Those criteria are identified and defined as follows:

- Volume of SSO – The annual volume of SSO from a particular manhole, pump station, or bypass structure with degree of severity rated as high, medium, or low.
- Frequency of SSO – The annual number of SSO events from a particular manhole, pump station, or bypass structure with degree of severity rated as high, medium or low.
- Public Health Impact – The potential for human contact with discharge from a SSO with degree of severity rated as high, medium, or low based upon the SSO discharge running through residential / institutional properties (high), commercial properties (medium), or industrial / agricultural properties (low).
- Future Growth – The potential for growth / development upstream of a known SSO location using the adopted future land use map for Winchester and Clark County and with degree of severity rated as high, medium or low based upon the future land use classification.
- Stream Impact – The SSO receiving structure defined as a blueline stream, intermittent blueline stream, or wet weather ditch / storm sewer.
- Grant Appropriation – The current status of a grant appropriation to speed the implementation of a project with definition as yes or no.

Point values were assigned for each criterion and the defined levels of severity as designated in Table 2. Point values ranged from 0 to 10 with 10 being the most significant. An Importance Factor was assigned to each criterion reflecting local input and emphasis. To be statistically correct, the Importance Factor total must equal 100. Importance Factors are identified in Table 3.

Table 4 is the PEM with the rankings as developed by WMU staff. Table 5 compares the SSOP proposed schedule with the priority ranking as established using the PEM.

**Table 1: Sanitary Sewer Overflow Elimination Schedule
Winchester Municipal Utilities**

Sanitary Sewer Overflow Location	Drainage Basin	Project ID	Completion Date
Bonnie Brook Lane (Manhole 14-76A)	Lower Howards Creek Basin A	Lower Howards Creek Interceptor Sewer Phase1	10/31/22
Boonesboro Road (Manhole 13-3)	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11
151 Cherokee Drive (Manhole 8-261)	Lower Howards Creek Basin A	Lyndale-Calmes Sanitary Sewer Improvements	7/31/11
183 Cherokee Drive (Manhole 8-248)	Lower Howards Creek Basin A	Lyndale-Calmes Sanitary Sewer Improvements	7/31/11
Cherokee Drive / Calmes Blvd (Manhole 8-222)	Lower Howards Creek Basin A	Lyndale-Calmes Sanitary Sewer Improvements	7/31/11
Lynnway Drive (Manhole 8-2)	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11
Mockingbird Valley Road (Manhole 14-51)	Lower Howards Creek Basin A	Lower Howards Creek Interceptor Sewer Phase1	10/31/22
Northern Avenue (Manhole 14-115)	Lower Howards Creek Basin A	Redbud Sanitary Sewer Project (Completed)	4/1/07
Old Boonesboro Road (Manhole 8-151)	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11
Snowfall Pump Station	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11
Stoneybrook Pump Station	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11
Vaught Court (Manhole 13-7)	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11
Vaught Road (Manhole 13-8)	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11
Bel Air Pump Station	Strodes Creek Basin A	Bel-Air Pump Station Elimination	7/31/13
East Washington Street (Manhole 12-160A)	Strodes Creek Basin C	East Washington Street/Flanagan Street Sewer	1/20/21
Flanagan Street (Manhole 12-73)	Strodes Creek Basin C	East Washington Street/Flanagan Street Sewer	1/20/21
Madison Avenue (Manhole 9-9)	Strodes Creek Basin C	Strodes Creek Basin C Parallel Trunk Sewer	1/20/21
Maryland Avenue Pump Station	Strodes Creek Basin C	Maryland Avenue & Smith Manor Pump Stations	7/31/12
North Main Street (Manhole 20-501)	Strodes Creek Basin C	North Main Street Sewer Improvements	1/20/24
Smith Manor Pump Station	Strodes Creek Basin C	Maryland Avenue & Smith Manor Pump Stations	7/31/12
West Interceptor (Manhole 19-1)	Strodes Creek Basin D	New Wastewater Treatment Plant	1/31/08
West Interceptor (Manhole 19-2)	Strodes Creek Basin D	New Wastewater Treatment Plant	1/31/08
West Interceptor (Manhole 19-3)	Strodes Creek Basin D	New Wastewater Treatment Plant	1/31/08
West Interceptor (Manhole 19-4)	Strodes Creek Basin D	New Wastewater Treatment Plant	1/31/08
West Washington Street (Manhole 10-120)	Town Branch	Fifth Street Sewer Improvements Phase II	1/20/21
West Washington Street (Manhole 9-48)	Town Branch	East Washington Street/Flanagan Street Sewer	1/20/21
Winn Avenue (Manhole 9-31)	Town Branch	East Washington Street/Flanagan Street Sewer	1/20/21

**Table 2: Sanitary Sewer Overflow Plan (SSOP) Project Evaluation Model
Winchester Municipal Utilities**

Project Name: _____

Criteria	Point Value	Rating
1. SSO Volume		_____
High	10	
Medium	7	
Low	2	
2. SSO Frequency		_____
High	10	
Medium	7	
Low	2	
3. Public Health - Impact on Public		_____
High	10	
Medium	7	
Low	2	
4. Future Growth		_____
High	10	
Medium	7	
Low	2	
5. Stream Impact (SSO to blueline stream)		_____
Blueline Stream	10	
Intermittent Blueline Stream	5	
Wet Weather Ditch / Storm Sewer	3	
6. Grant Appropriation		_____
Yes	10	
No	0	

**Table 3: Sanitary Sewer Overflow Plan (SSOP) Project Prioritization
Winchester Municipal Utilities**

Project Name: _____

	Rating	X	Importance Factor	=	Priority Points
1 SSO Volume	0		30		0
2 SSO Frequency	0		25		0
3 Public Health - Impact on Public	0		15		0
4 Future Growth	0		10		0
5 Stream Impact	0		15		0
6 Grant Appropriation	0		5		0

**Table 4: Sanitary Sewer Overflow Plan (SSOP) Project Evaluation Model
Winchester Municipal Utilities**

Sanitary Sewer Overflow Location	Project ID	Volume (10, 7, 2)	Frequency (10, 7, 2)	Public Health (10, 7, 2)	Future Growth (10, 7, 2)	Stream Impact (10, 5, 3)	Grant Appropriation (10, 0)	Total Score	Weighted Score
Northern Avenue (Manhole 14-115)	Boone Ave/Hood Ave/Southern Ct								complete
Snowfall Pump Station	LHC Trunk Sewer, Pump Station, Force Main	10	10	10	10	10	0	50	950
Stoneybrook Pump Station	LHC Trunk Sewer, Pump Station, Force Main	10	7	10	10	10	0	47	875
Lynnway Drive (Manhole 8-2)	LHC Trunk Sewer, Pump Station, Force Main	10	7	10	7	10	0	44	845
Madison Avenue (Manhole 9-9)	Strodes Creek Basin C Parallel Trunk Sewer	10	10	2	7	10	0	39	800
West Interceptor (Manhole 19-1)	Strodes Creek WWTP	10	10	2	7	10	0	39	800
West Interceptor (Manhole 19-2)	Strodes Creek WWTP	10	10	2	7	10	0	39	800
West Interceptor (Manhole 19-3)	Strodes Creek WWTP	10	10	2	7	10	0	39	800
West Interceptor (Manhole 19-4)	Strodes Creek WWTP	10	10	2	7	10	0	39	800
Maryland Avenue Pump Station	Maryland Ave/Smith Manor Pump Station Elimination	10	7	10	2	5	10	44	770
151 Cherokee Drive (Manhole 8-261)	Lyndale/Calmes Sanitary Sewer Imps	7	2	10	10	10	10	49	710
183 Cherokee Drive (Manhole 8-248)	Lyndale/Calmes Sanitary Sewer Imps	7	2	10	10	10	10	49	710
Cherokee Drive / Calmes Blvd (Manhole 8-222)	Lyndale/Calmes Sanitary Sewer Imps	7	2	10	10	10	10	49	710
Old Boonesboro Road (Manhole 8-151)	LHC Trunk Sewer, Pump Station, Force Main	7	7	2	10	10	0	36	665
Flanagan Street (Manhole 12-73)	East Washington Street/Flanagan Street Sewer Imps	10	10	2	2	3	0	27	645

**Table 4: Sanitary Sewer Overflow Plan (SSOP) Project Evaluation Model
Winchester Municipal Utilities**

Sanitary Sewer Overflow Location	Project ID	Volume (10, 7, 2)	Frequency (10, 7, 2)	Public Health (10, 7, 2)	Future Growth (10, 7, 2)	Stream Impact (10, 5, 3)	Grant Appropriation (10, 0)	Total Score	Weighted Score
Bonnie Brook Lane (Manhole 14-76A)	LHC Interceptor Sewer Phase 1	7	7	10	2	5	0	31	630
Mockingbird Valley Road (Manhole 14-51)	LHC Interceptor Sewer Phase 1	7	7	10	2	5	0	31	630
Boonesboro Road (Manhole 13-3)	LHC Trunk Sewer, Pump Station, Force Main	2	2	10	10	10	0	34	510
Vaught Court (Manhole 13-7)	LHC Trunk Sewer, Pump Station, Force Main	2	2	10	10	10	0	34	510
Vaught Road (Manhole 13-8)	LHC Trunk Sewer, Pump Station, Force Main	2	2	10	10	10	0	34	510
Smith Manor Pump Station	Maryland Ave/Smith Manor Pump Station Elimination	7	2	10	2	5	0	26	505
Bel Air Pump Station	Bel-Air Pump Station Elimination	2	2	7	2	5	0	18	310
North Main Street (Manhole 20-501)	North Main Street Sewer Improvements	2	2	2	2	10	0	18	310
East Washington Street (Manhole 12-160A)	East Washington Street/Flanagan Street Sewer Imps	2	2	7	2	3	0	16	280
West Washington Street (Manhole 9-48)	East Washington Street/Flanagan Street Sewer Imps	2	2	7	2	3	0	16	280
West Washington Street (Manhole 10-120)	Fifth Street Sewer Improvements Phase II	2	2	7	2	3	0	16	280
Winn Avenue (Manhole 9-31)	East Washington Street/Flanagan Street Sewer Imps	2	2	2	2	3	0	11	205

**Table 5: Sanitary Sewer Overflow and Project Evaluation Model Comparison
Winchester Municipal Utilities**

Sanitary Sewer Overflow Location	Drainage Basin	Project ID	Completion Date	Ranking
Snowfall Pump Station	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11	1
Stoneybrook Pump Station	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11	2
Lynnway Drive (Manhole 8-2)	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11	3
Madison Avenue (Manhole 9-9)	Strodes Creek Basin C	Strodes Creek Basin C Parallel Trunk Sewer	1/20/21	4
West Interceptor (Manhole 19-1)	Strodes Creek Basin D	New Wastewater Treatment Plant	1/31/08	4
West Interceptor (Manhole 19-2)	Strodes Creek Basin D	New Wastewater Treatment Plant	1/31/08	4
West Interceptor (Manhole 19-3)	Strodes Creek Basin D	New Wastewater Treatment Plant	1/31/08	4
West Interceptor (Manhole 19-4)	Strodes Creek Basin D	New Wastewater Treatment Plant	1/31/08	4
Maryland Avenue Pump Station	Strodes Creek Basin C	Maryland Avenue & Smith Manor Pump Stations	7/31/12	9
151 Cherokee Drive (Manhole 8-261)	Lower Howards Creek Basin A	Lyndale-Calmes Sanitary Sewer Improvements	7/31/11	10
183 Cherokee Drive (Manhole 8-248)	Lower Howards Creek Basin A	Lyndale-Calmes Sanitary Sewer Improvements	7/31/11	10
Cherokee Drive / Calmes Blvd (Manhole 8-222)	Lower Howards Creek Basin A	Lyndale-Calmes Sanitary Sewer Improvements	7/31/11	10
Old Boonesboro Road (Manhole 8-151)	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11	13
Flanagan Street (Manhole 12-73)	Strodes Creek Basin C	East Washington Street/Flanagan Street Sewer	1/20/21	14
Bonnie Brook Lane (Manhole 14-76A)	Lower Howards Creek Basin A	Lower Howards Creek Interceptor Sewer Phase 1	10/31/22	15
Mockingbird Valley Road (Manhole 14-51)	Lower Howards Creek Basin A	Lower Howards Creek Interceptor Sewer Phase 1	10/31/22	15
Boonesboro Road (Manhole 13-3)	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11	17
Vaught Court (Manhole 13-7)	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11	17
Vaught Road (Manhole 13-8)	Lower Howards Creek Basin A	Lower Howards Creek Trunk Sewer	7/31/11	17
Smith Manor Pump Station	Strodes Creek Basin C	Maryland Avenue & Smith Manor Pump Stations	7/31/12	20
Bel Air Pump Station	Strodes Creek Basin A	Bel-Air Pump Station Elimination	7/31/13	21
North Main Street (Manhole 20-501)	Strodes Creek Basin C	North Main Street Sewer Improvements	1/20/24	21
East Washington Street (Manhole 12-160A)	Strodes Creek Basin C	East Washington Street/Flanagan Street Sewer	1/20/21	23
West Washington Street (Manhole 10-120)	Town Branch	Fifth Street Sewer Improvements Phase II	1/20/21	23
West Washington Street (Manhole 9-48)	Town Branch	East Washington Street/Flanagan Street Sewer	1/20/21	23
Winn Avenue (Manhole 9-31)	Town Branch	East Washington Street/Flanagan Street Sewer	1/20/21	26
Northern Avenue (Manhole 14-115)	Lower Howards Creek Basin A	Redbud Sanitary Sewer Project (Completed)	4/1/07	complete

Commentary

The PEM compares favorably with the prioritized schedule established by WMU. The favorable comparison is an indication of the knowledge of WMU of the sanitary sewer collection system and how best to address the SSO problems.

WMU placed into service its new wastewater treatment plant (WWTP) on January 21, 2008. The WWTP is designed to treat an average day flow of 7.2 million gallons per day (MGD) with a peak hydraulic capacity of 24.0 MGD. The project included construction of 410 feet of 48-inch and 50 feet of 36-inch influent pipe immediately upstream of the WWTP headworks (screening and influent pump station). The 48- and 36-inch pipe replaced existing pipe and four manholes (Nos. 19-1, 19-2, 19-3, and 19-4). On January 29, 2008, the WMU sanitary sewer service area received 1.7 inches of rain in approximately four hours. Instantaneous, influent flow rates exceeded 18.5 MGD at the WWTP. No SSO occurred at the new WWTP or in the new manholes immediately upstream of the new WWTP. Inspection of the two interceptors delivering flow to the WWTP showed no signs of SSOs or manhole surcharging.

The SSOP recommends that emphasis be placed on improvements within the Lower Howards Creek (LHC) watershed. The LHC watershed includes historic SSO events at 10 locations. WMU has identified LHC watershed projects that address each of the 10 SSO locations with a focus on transporting and treating the entire wastestream including all wet weather flow. The project(s) calls for the replacement of approximately 36,300 feet (6.9 miles) of gravity sewer line. With replacement of this amount of gravity sewer line, WMU expects to realize a reduction in the total amount of extraneous flow. The project will enable growth in a desirable portion of the WMU sanitary sewer service area. That growth is critical to the overall financing plan of WMU as WMU will be able to lessen the cost burden by spreading costs to additional customers.

The LHC watershed project is estimated to cost approximately \$25 million. The \$23 million WWTP will be complete and the \$25 million LHC watershed project will be initiated in 2008. The costs for these projects including debt service and operating costs will be borne by WMU's 11,342 wastewater customers 51% of which are low to moderate income (LMI) level. Recognizing this issue, the proposed SSOP directs priorities at the Maryland Avenue (Strodes Creek Basin C) improvements following completion of the LHC improvements. WMU has grant money for a portion of the costs for these improvements.

The SSOP is consistent with the schedule as agreed and documented in the Consent Decree paragraph 30 (p. 31) which requires the following compliance schedule for remediation of defined SSOs:

Location	Completion Date
Snowfall and Stoneybrook Pump Stations	July 31, 2011
Maryland Avenue / Smith manor Pump Stations	July 31, 2012
Bel-Air Pump Station	July 31, 2013
Madison Avenue Pump Station	July 31, 2021

WMU fully intends to comply with these deadlines.

The single anomaly in the prioritized schedule is Madison Avenue – manhole No. 9-9. Manhole No. 9-9 historically is the first location for an SSO to occur after a wet weather event. Manhole No. 9-9 resulted in a priority ranking of No. 4 in the PEM, but is not scheduled for final remediation until January 2021. This single anomaly is reflective of the model's failure to address system-wide SSO volume reduction and the associated cost benefit achieved by placing emphasis on SSOs in the Lower Howards Creek watershed. A review of Table 6 indicates that construction of the new WWTP and the improvements planned in the LHC watershed will result in a cumulative reduction of 98% in system-wide SSO volume. Using Table 6 but excluding the WWTP, construction of the improvements in the LHC watershed will result in a cumulative reduction of 55% in collection system SSO volume.

In conclusion, it is a reasonable expectation that the SSOP will be reviewed and updated following completion of the LHC watershed improvements considering the criteria established in the PEM and the remaining total SSO volume.

**Table 6: Sanitary Sewer Overflow Five-Year Data Summary
Winchester Municipal Utilities**

SSO Location	Drainage Basin	# of Occurrences	Total Volume of Occurrences
Vaught Court (Manhole 13-7)	Lower Howards Creek	2	15,000
East Broadway/Jackson (Manhole 12-116)	Town Branch	3	23,400
Winn Avenue (Manhole 9-31)	Town Branch	2	39,600
West Washington Street (Manhole 10-120)	Town Branch	4	46,800
W. Washington Street/Oliver Street (Manhole 9-48)	Town Branch	7	57,900
Clay Street (Manhole 20-469)	Town Branch	5	63,000
Stoneybrook Pump Station	Lower Howards Creek	2	66,000
North Main Street (Manhole 20-501)	Town Branch	6	67,500
Post Time Liquor (Manhole 13-4)	Lower Howards Creek	7	69,600
Flanagan Alley (Manhole 12-74)	Town Branch	4	97,500
Hickman Street (Manhole 12-60)	Town Branch	8	99,000
Hud Road Pump Station	Hoods Creek	11	128,700
Cherokee Drive (Manhole 8-248)	Lower Howards Creek	11	159,703
East Washington Street (Manhole 12-160A)	Town Branch	11	197,100
155 Cherokee Drive (Manhole 8-261)	Lower Howards Creek	10	231,600
Smith Manor Pump Station	Strodes Creek	13	234,540
Vaught Road (Manhole 13-8)	Lower Howards Creek	13	238,800
Buckner Street (Manhole 12-22)	Town Branch	22	290,820
Bel-Air Pump Station	Strodes Creek	11	305,280
183 Cherokee Drive (Manhole 8-248)	Lower Howards Creek	13	321,000
Northern Avenue (Manhole 14-115)	Lower Howards Creek	25	394,200
Mockingbird Valley Road (Manhole 14-51)	Lower Howards Creek	28	509,700
Bonnie Brook Lane (Manhole 14-76A)	Lower Howards Creek	28	517,500
Maryland Pump Station	Strodes Creek	46	1,772,310
West Interceptor (Manholes 19-1, 19-2, 19-3, 19-4)	Strodes Creek	12	2,491,500
Flanagan Street (Manhole 12-73)	Town Branch	56	2,597,677
Stoneybrook Pump Station	Lower Howards Creek	45	3,968,460
Madison Street (Manhole 9-9)	Town Branch	69	5,173,470
Snowfall Pump Station	Lower Howards Creek	65	10,250,910
Strodes Creek Wastewater Treatment Plant	All	146	809,000,000

Note: Data is based upon information contained in 308 Response

3/14/2008