

## *Falling River TMDL Implementation Plan*

### ***Analysis of residential BMP needs for the Falling River TMDL Implementation Plan***

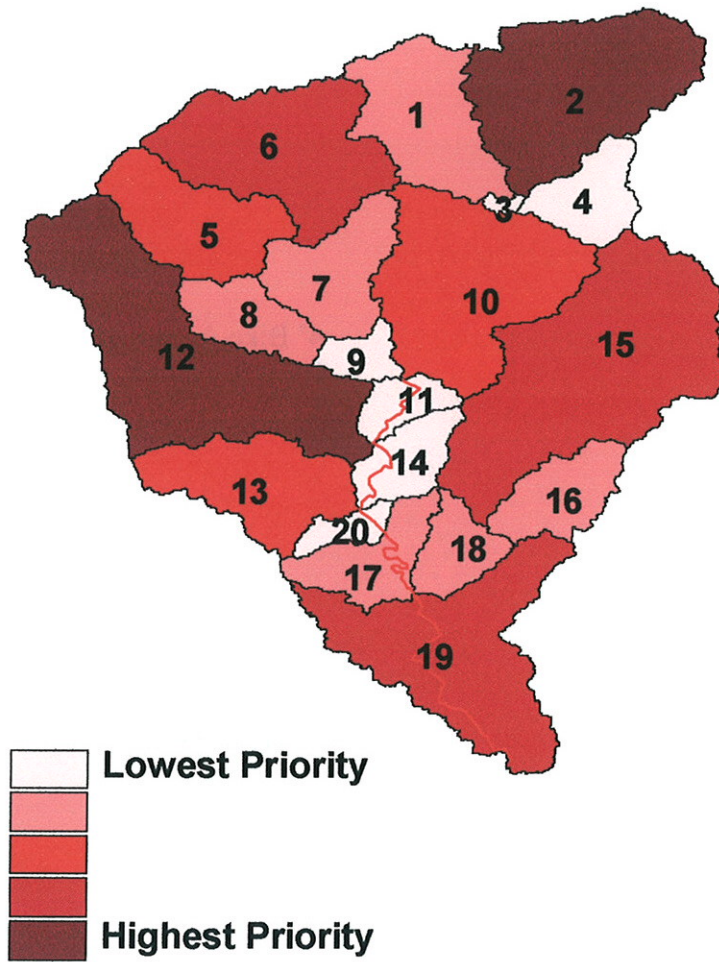
Residential BMP needs (*e.g.*, septic systems and alternative treatment systems) were based on data from the TMDL development. The Falling River TMDL required 100% of straight pipes to be corrected. The number of straight pipes was estimated from the non-sewered 2000 census data. Failing septic systems were estimated in accordance with estimates from Raymond B. Reneau, Jr. from Virginia Tech, a 40% failure rate for systems designed and installed prior to 1964, a 20% failure rate for systems designed and installed between 1964 and 1984, and a 5% failure rate on all systems designed and installed after 1984. Straight pipe and failing septic system estimates by subwatershed for each impairment are shown in Table 1. Figures 1 and 2 show targeting priorities for correction of failing septic system and straight pipes by subwatersheds.

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**Table 1. Estimated Residential BMPs for Falling River.**

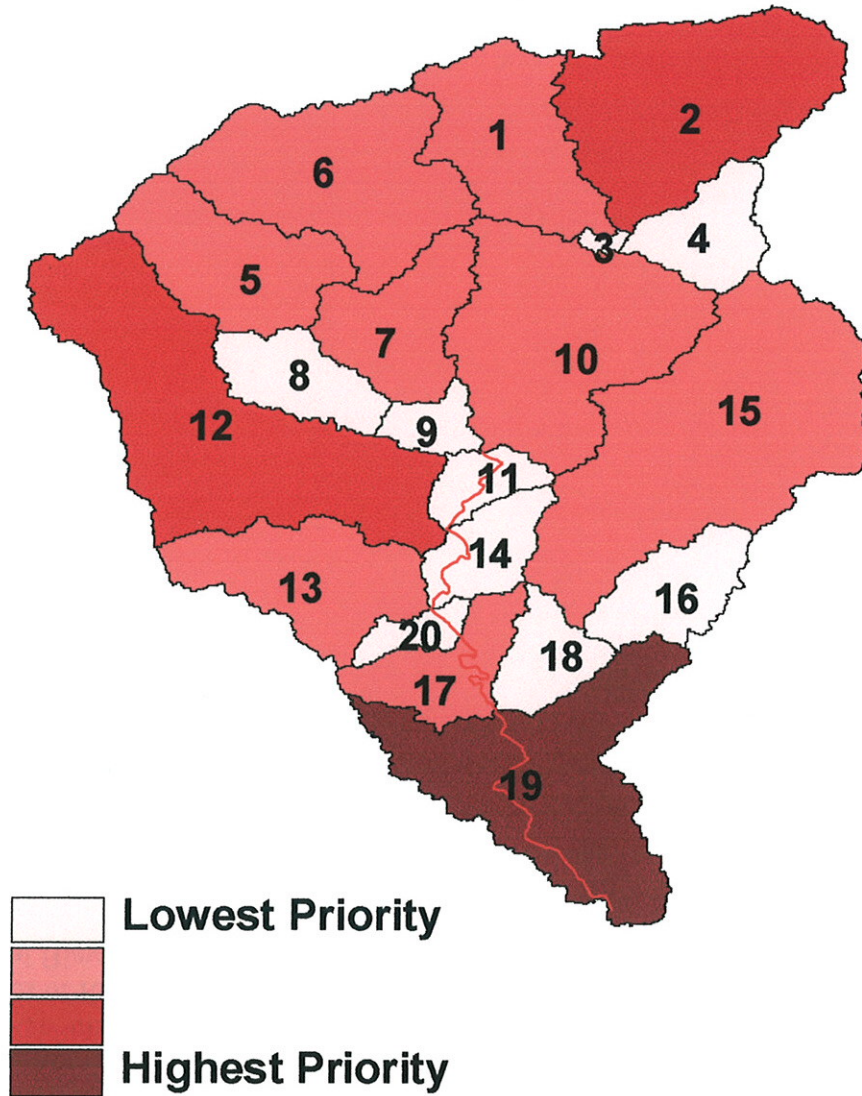
<b>Subwatershed</b>	<b>Failing Septic Systems</b>	<b>Straight Pipes</b>
1	5	1
2	22	2
3	0	0
4	2	0
5	10	1
6	15	1
7	6	1
8	4	0
9	1	0
10	10	1
11	2	0
12	25	2
13	8	1
14	2	0
15	12	1
16	4	0
17	5	1
18	4	0
19	14	3
20	1	0
<b>Total</b>	<b>152</b>	<b>15</b>

### Falling River Failed Septic System Targeting



**Figure 1** Failing septic tank distribution in the Falling River watershed

## Falling River Straight Pipe Targeting



**Figure 2** Straight pipe distribution in the Falling River watershed

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Based on conditions in other rural watersheds it is estimated that 10% of the failing septic tanks will need to be replaced. Ten percent of the straight pipes were estimated to be replaced by alternative wastewater systems and the remainder by septic systems. Cost estimates for can be found in Table 2.

**Table 2. Cost Estimates for Correction of Failing Septic Tanks and Straight Pipes in the Falling River Watershed.**

<b>Failing Septic Systems</b>			
<b>BMP</b>	<b>Estimated Need</b>	<b>Average Cost/Unit</b>	<b>Total Cost</b>
Replace (With Septic System)	69	\$6,000	\$414,000
Replace (With AWTS* System)	15	\$22,500	\$337,500
Repair Septic System	68	\$3,000	\$204,000
<b>Total</b>	<b>152</b>		<b>\$955,500</b>
<b>Straight Pipes</b>			
<b>BMP</b>	<b>Estimated Need</b>	<b>Average Cost/Unit</b>	<b>Total Cost</b>
Replace (With Septic System)	14	\$6,000	\$84,000
Replace (With AWTS* System)	1	\$22,500	\$22,500
<b>Total</b>	<b>15</b>		<b>\$106,500</b>
<b>Septic Tank Pump-Out Program</b>			
<b>BMP</b>	<b>Estimated Need</b>	<b>Average Cost/Unit</b>	<b>Total Cost</b>
Septic Tank Pump-Out Program	5,055	\$225	\$1,137,375
<b>Grand Total</b>			<b>\$2,199,375</b>

\* AWTS = Alternative Waste Treatment System