
**RESPONSES TO PUBLIC COMMENTS
PAINT CREEK WATERSHED**

Paint Creek Watershed TMDLs

The Paint Creek Watershed Draft TMDL Report was available for public review from January 10, 2012 through February 10, 2012. This appendix contains the comments received and responses to those comments.

One set of comments was submitted by Stephen N. Haughey representing the City of Washington Courthouse on February 10, 2012. This appendix contains the comments received and responses to those comments. Please note that references to page numbers in the draft report may not correspond to the same page numbers in the final report.

Comment:

FROST BROWN TODD LLC represent the City of Washington Courthouse, Ohio. On behalf of the City, the firm offers these comments on the draft TMDL report for the Paint Creek watershed.

The draft report is impressive in terms of (1) the volume of data that has been collected from the watershed, (2) the extent of the modeling performed to develop recommended point and nonpoint source loading reductions, and (3) OEPA's efforts to reach out to local organizations that have the authority to implement the recommended nonpoint source reduction and habitat improvement steps that must be implemented for the causes of impairment to have a realistic chance of being eliminated. The draft report reflects a significant upgrade to the modeling performed in earlier reports, and in the Agency's efforts to comply with the "reasonable assurances" requirements in the TMDL rule, *i.e.*, OAC § 3745-2-12(E), for nonpoint source causes of impairment.

On the other side, however, the level of resources committed to the development of the draft TMDL spanned a period of more than two years, and culminated in a draft report and appendices that are almost 400 pages, including many more graphs and complex datasets than in prior TMDL reports. In addition, the draft report incorporates a separate 2006 OEPA Biological and Water Quality Survey Report for Paint Creek (DSW/EAS/2008-1-2) for the bulk of the available biological/chemical data used to identify the impairments and causes thereof, and to model loading reductions, which report is another 195 pages. Despite the length of the two reports, and complexity thereof, OEPA's January 17, 2012, public notice provided just over three weeks to review and comprehend these complex reports, and then prepare and submit written comments thereon.

The City is unaware of any state of federal deadline for OEPA to finalize the draft TMDL report, and thus questions why the Agency provided such a limited window for the public to comment. With such a limited window, the City did not have sufficient time to understand the potential impact of the report on the City's operations, and then to hire a qualified expert to study the draft report and assist the City in the preparation of meaningful comments. Under such circumstances, the City's comments below are limited in scope, and based on a superficial review of the report and its recommendations. The City requests that OEPA either extend the comment period another 45-60 days or provide a second comments period of at least another 30 days after evaluating the comments submitted in response to the January 17, 2012, notice.

As OEPA is aware, the City is in the midst of negotiations with the Agency and its counsel on a schedule for significant capital improvements to the City's WWTP and the sewer collection system. By conservative estimates, these improvements will cost the City a least \$6-\$6.5 million, to as much as \$25-\$30 million, depending on the outcome of the negotiations.

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And, most importantly, they do not include new equipment to remove phosphorus to meet a monthly average concentration limit of 1.0 mg/l, the cost of which, by conservative estimate, is between \$1 and \$2 million for conventional alum/ferric chloride addition, mixing, settling and filtration equipment.

Washington Courthouse has a population of only 13,509, and the population has declined steadily over the last ten years. The average home was built in 1960, over 50 years ago, and has a value of only \$85,800. The median household income is only \$36,735, and the City has faced declining income tax revenues and a declining industrial tax base for at least the past five years.

The City is in Fayette County, which has an unemployment rate above 10.0%. The average monthly sewer bill is already \$62.23 in the City (which equates to \$746.76 per year), which rate does not reflect the substantial increase that will be required once the City and OEPA reach agreement on the capital improvement schedule. Under U.S., EPA's SSO/CSO Affordability Guidance, which is a very conservative indicator of affordability, sewer rates exceeding 2% of the median household income are deemed unaffordable by default. In the case of Washington Court House, the current sewer rate is already at 2.03232% of the median household income. Adding an additional \$1-\$2 million to the City's capital improvement program for phosphorus removal equipment will only worsen the current economic situation faced by the City.

In addition to the affordability analysis performed under the U.S. EPA's SSO/CSO Affordability Guidance, the City also hired Paul Gotlieb, Ph.D, an economist, to prepare a updated and supplemental Financial Evaluation Report, dated April 11, 2011, which report has been previously submitted to OEPA. The report employs a matrix of different financial guidance documents/indicators to develop a Financial Capability Indicator score of "weak," "mid-range," or "strong" in terms of affordability for capital infrastructure investment. The City scored "weak" under the matrix, making it that much more difficult for the City's residents to afford yet additional capital investment obligations for the City's WWTP.

It is with these severe financial limitations in mind that the City questions the basis for the recommendation in the draft TMDL report (p. 87) that the City's discharge permit be amended to (1) add a monthly average numeric phosphorus limit of 1.0 mg/l, or (2) add a numeric limit based on existing effluent quality (~4.0 mg/l), coupled with a requirement that the City remove its discharge outfall pipe 2000 feet downstream past the confluence of Paint Creek and the East Fork, and prohibiting the City from discharging any additional phosphorus in the future if growth occur in the service area.

According to the draft report, 70% of the 1,142 square mile Paint Creek watershed is in full attainment of warmwater habitat aquatic life goals, and most of the East Fork, into which the City's outfall flows less than ½ mile away, is achieving exceptional warmwater habitat aquatic life goals. The report also indicates that the East Fork has excellent canopy and habitat, as indicated by the excellent QHEI habitat scores throughout the East Fork. As OEPA has repeatedly acknowledged in its 1999 Association Report and in several subsequent TMDL reports, excellent canopy, habitat and riparian corridor significantly increase a stream assimilative capacity for phosphorus, often several fold. In addition, the draft report indicates that the percentage of full and partial attainment throughout the watershed as a whole has improved appreciably since biological and chemical data were collected for purposes of the 2006 stream report.

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These factors, coupled with the capital improvements being discussed with OEPA for the City's WWTP and collection system, mean that water quality in Paint Creek and the East Fork is not only improving, but will further improve considerably once the City's capital improvements are completed. Under these circumstances, the City maintains that it is premature to consider imposing any numeric phosphorus limits on the City's discharge until the capital improvements are completed and the receiving stream reassessed in term of the impact of the improvements on chemical and biological quality.

In addition, the phosphorus concentrations measured over the last five years upstream and downstream of the City's outfall reflect that the City's discharge had no impact on the downstream concentration of phosphorus outside the mixing zone, nor on the downstream biological attainment status in the East Fork. The upstream and downstream concentrations vary widely, and show no correlation to the City's discharge data, but rather appear to correlate more closely with upstream seasonal agricultural practices, and upstream wet weather-related runoff from nearby farm fields and poorly maintained private septic systems. Under these circumstances, the City questions whether imposing phosphorus reductions on the City's discharge will lead to any real downstream benefit in terms of improved biological attainment.

The draft report identifies the largest sources of biological impairment immediately downstream of the City's outfall as upstream agricultural practices, upstream poorly maintained/designed septic systems, and upstream urbanization of the watershed and loss of riparian corridor habitat. If the recommended steps for upstream point and nonpoint source loading reduction and habitat improvement are implemented as part of OEPA's implementation plan and reasonable assurances, biological and chemical water quality downstream of the City's outfall will improve far more markedly than could be done by any amount of capital phosphorus reduction forced upon the City's WWTP.

Ohio's General Assembly enacted new RC § 6111.60 late last year. The new statute requires that before OEPA issues a new permit to the City with limits that would require yet additional capital expenditures for phosphorus removal the Agency: (1) consider the ability of the City to afford the capital improvements, (2) reduce the potential economic impacts on the City and its residents to the extent allowable under the Clean Water Act, and (3) and consider the economic impact of the other capital requirements already being imposed upon the City under the Clean Water Act. The City is already faced with the prospect of a very expensive capital improvement program for its WWTP and collection system. The City requests that OEPA carefully consider whether the biological conditions in the Paint Creek and the East Fork downstream of the City's outfall do in fact support and require yet an additional significant capital expenditure on the City's part at this time. The City respectfully maintains that such expenditure is not supported by the draft TMDL report, or at least that it is premature at this time to consider imposing such expenditure on the City.

The City appreciates the opportunity to submit these comments and would be happy to meet with OEPA to discuss the City's comments and concerns about the draft TMDL report for the Paint Creek watershed.

Response:

At the City's request, Ohio EPA allowed the City of Washington Courthouse and/or its representatives 45 additional days beyond the original termination of the public comment period (i.e., 30 days comment period spanning from January 10 to February 10, 2012) to comment on

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the draft Paint Creek TMDL report. However, no further comments were submitted to Ohio EPA and this letter constitutes the only set of comments received regarding the draft report.

The letter brings forth two primary concerns. One is the economic impact associated with additional costs of enhanced waste water treatment (i.e., phosphorus removal) on the City of Washington Court House. The other concern is whether the diagnosis of a nutrient-caused biological impairment immediately down from the Washington Court House WWTP outfall is accurate and that problem is appreciably attributable to Washington Court House's waste water effluent (e.g., per statement: "In addition, the phosphorus concentrations measured over the last five years upstream and downstream of the City's outfall reflect that the City's discharge had no impact on the downstream concentration of phosphorus outside the mixing zone, nor on the downstream biological attainment status in the East Fork").

In addressing the first concern it is appropriate to identify the purpose of developing TMDLs, which is, in general terms, to provide a scientifically based technical analysis of the sources of pollutant loadings and the measures necessary to bring a water resource in to compliance with applicable water quality standards (e.g., the size of the reductions of pollutant loading). The TMDL process provides the information necessary for making well informed water quality management decisions, such as what is the magnitude of the problem, and what is the nature of the distribution of the sources of the problem. As shown in the report, the required nutrient reduction necessitates that the City's WWTP limit its nutrient loading.

Economic considerations, such as required by ORC §§ 6111.03(J) and 6111.60, have been placed by the General Assembly within the permitting and order authority of the Director, where flexibility can be employed through compliance schedules and/or other options. It is within these actions that economics are to be considered.

With respect to the nature of the aquatic life use downstream of the Washington Court House WWTP outfall, it is clear from both field observations of gross primary production at the time of the survey as well as signatures found in the structure of the aquatic communities that were collected in Paint Creek down from the WCH WWTP, that there is substantial nutrient enrichment. There are repeated references to this assertion in the technical support document that the commenter references above that was published based on the data collected during the initial survey (i.e., the report titled [*Biological and Water Quality Study of the Paint Creek Watershed, 2006. Clinton, Fayette, Greene, Highland, Madison, and Ross Counties, Ohio.*](#) Pages 132 and 137 make clear statements to this effect. In addition to the more proximal aquatic life use impairments due to nutrient enrichment on Paint Creek (i.e., within a relatively short distance from the WWTP outfall), there is evidence that Paint Creek Lake itself is eutrophic and exporting live and dead algae that is adversely impacting the river down from the impoundment (see pages 162 and 163 of the technical support document). There is no question that the City's WWTP supplies a comparatively large proportion of the phosphorus loading to the lake (e.g., in comparison to other contributing point sources). Specifically, among the seven largest waste water treatment plants contributing nutrients to Paint Creek Lake (Bloomington, Greenfield, Jeffersonville, Leesburg, Rattlesnake, Sabina, and Washington Court House wastewater treatment plants), the Washington Court House WWTP alone accounts for approximately 80 percent of the loading.

The total phosphorus concentrations from samples collected at three sites on Paint Creek, from river mile 73.3 (approximately four miles upstream of the City's WWTP outfall) to river mile 69.52 (approximately one half mile upstream of the City's WWTP outfall) to river mile 67.1 (approximately two miles downstream from the City's WWTP outfall) indicate that the city has a

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significant impact on the ambient nutrient concentration (see the figures below). During an extended low flow period, samples were collected on October 23, 2008. The two total phosphorus samples upstream of the WCH WWTP were 0.012 mg/l (immediately upstream from the WWTP outfall) and 0.067 mg/l (at river mile 73.1) compared to 3.61 mg/l at the location approximately two miles downstream of the outfall (see the graph below). There was no effluent loading data collected at the WWTP for 10/23/08; however, on 10/15/08 the effluent flow rate was 1.866 million gallons per day with a concentration of 6.616 mg/l total phosphorus (i.e., a load of 46.73 kg/day total phosphorus). Likewise, there is no ambient sampling for East Fork Paint Creek on 10/23; however, a sample was collected on East Fork Paint Creek downstream from the Bloomingburg WWTP at river mile 5.06 on September 10th under low flow conditions. The result was 0.124 mg/l total phosphorus. No appreciable storm events occurred between the 9/10 sampling event on the East Fork Paint Creek and the 10/23 sampling events on Paint Creek at river miles 73.3, 69.52, and 67.1.

Based on these data, from upstream locations to downstream of the WCH WWTP there is approximately a 300-fold increase in ambient total phosphorus concentrations. The contribution from the only other significant tributary is relatively modest in comparison (i.e., only about a ten-fold greater concentration, and that is withstanding the dilution effects of the combination of East Fork and Paint Creek stream flows) to the increase that would otherwise be attributable only to the WWTP.

Also, the draft Paint Creek TMDL report discusses the effective stream concentration due solely to the loading from the Washington Court House WWTP (see pages 27 and 28) where estimates were 0.05 to 0.09 mg/l total phosphorus for the mean and median values, respectively. These estimates, however, are based on a method which significantly underestimates the more proximal impact on total phosphorus concentrations since the stream flow used in the estimation was taken from the USGS gage located near Greenfield, Ohio, some 17 miles downstream with a drainage area that increases by 2.7 times (from 66 square miles to 183 square miles). Using flow statistics more germane to the local water quality down from the Washington Court House WWTP outfall (based on USGS StreamStats data), the values go to 0.13 to 0.20 mg/l total phosphorus for the mean flow statistic and 0.33 to 0.51 mg/l total phosphorus for the median flow statistic, depending on which Washington Court House WWTP loading statistic is used. See the table below for more details regarding this more realistic representation of the impact that Washington Court House WWTP is having on ambient nutrient concentrations in Paint Creek.

In summary, the data collected make a very strong case that the effluent from Washington Court House's WWTP is adding a very sizeable total phosphorus load to Paint Creek in both absolute and relative terms (relative to other sources).

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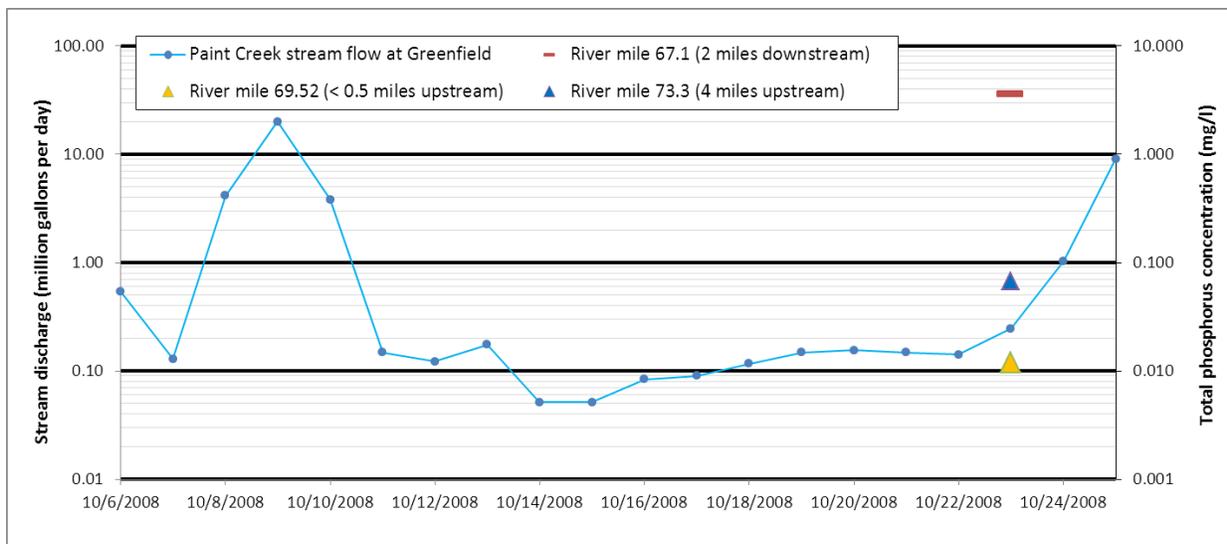


Figure 1. Time series plot showing stream flow patterns leading up to and following the October 24, 2008 sampling events when ambient total phosphorus concentrations for Paint Creek were measure both up and downstream of the Washington Court House wastewater treatment plant.

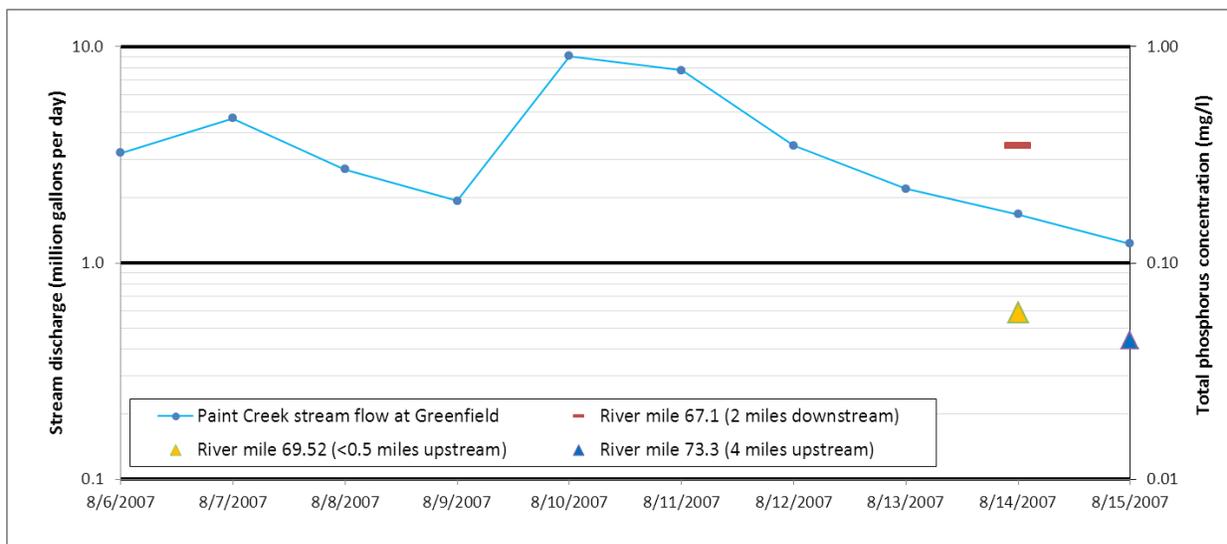


Figure 2. Time series plot showing stream flow patterns leading up to and following the August 14 and 15, 2008 sampling events when ambient total phosphorus concentrations for Paint Creek were measure both up and downstream of the Washington Court House wastewater treatment plant.

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Table 1. Several stream flow statistics and the associated in-stream total phosphorus concentrations using a conservative mass balance of total phosphorus loading from the Washington Court House wastewater treatment plant.

Flow Statistic	Near WWTP outfall (cfs)	Near WWTP outfall (MGD)	Effective stream concentrations (mg/l) using geomean load (22.8 kg/day)	Effective stream concentrations (mg/l) using mean load (35.4 kg/day)	Effective stream concentrations (mg/l) using median load (28.9 kg/day)
Mean	73	47.2	0.13	0.20	0.16
Median	28.3	18.3	0.33	0.51	0.42
25th percentile	12.3	7.9	0.76	1.18	0.96
75th percentile	63.9	41.3	0.15	0.23	0.19
Peak discharge for 2 year return interval	2,100	1,357	0.0044	0.0069	0.0056
Drainage area (square miles)	65.7	65.7	65.7	65.7	65.7