



## HARPETH RIVER WATERSHED ASSOCIATION

November 13, 2013

Mr. Gary Davis  
Tennessee Dept. of Environment and Conservation  
Division of Water Pollution Control  
6th Floor, L&C Annex 401 Church St.  
Nashville, TN 37243

Re: Additional Comments on the three draft NPDES sewage treatment permits on the Harpeth River in Williamson County: City of Franklin (TN0028827), Berry's Chapel Utility STP (TN0029718), Cartwright Creek (TN0027278)

Dear Mr. Davis,

These public comments are submitted on behalf of the Harpeth River Watershed Association (HRWA) in addition to those submitted alongside our request for a public hearing on June 27, 2013. We also join in the public comments submitted by the Tennessee Clean Water Network (TCWN), Dr. George Garden, Mr. Kildgore, Mr. Turner, Ms. Holland, Patty Shultz on behalf of the Tennessee Scenic Rivers Association, and other members and supporters of HRWA. In addition to these public comments, HRWA requests that TDEC consider the public comments submitted by HRWA and others in prior permit actions regarding issues that continue to be pertinent to the impairment of the Harpeth River by the permittees in this action.

**I. If these permits are to rely on Total Maximum Daily Load (TMDL) standards, a new TMDL for the Harpeth River for low dissolved oxygen and nutrient enrichment is required**

**A. The current TMDL is not protective of water quality and relies on faulty assumptions**

The Harpeth River does not meet state water quality standards for dissolved oxygen (DO) (minimum of 5 mg/l) from the headwaters down to Kingston Springs, a distance of over 80 river miles. In our letter of February 10, 2013, HWRA provided a summary of the more than ten years of diurnal (24-hour) DO monitoring data that has been collected on the Harpeth by EPA, TDEC, and HRWA. A compilation of that data, a map of monitoring locations, and other material was provided to TDEC, other agencies, and the permittees. The EPA conducted the field research, performed the analysis, and wrote the TDML for nutrient enrichment and low dissolved oxygen for the Harpeth River, which was finalized in 2004. The field data was gathered over twelve years ago in 2000 and 2001. EPA staff involved in the formulation of the TMDL noted during an EPA Region IV conference call in February that, with the removal of the lowhead dam, a fundamental

condition affecting their modeling work is gone. The EPA staff also noted that the ten years of subsequent Harpeth River dissolved oxygen data gathered by various entities and compiled by HRWA shows that a key assumption – that the upper river system would meet water quality standards within a few years of the adoption of the TMDL in 2004 – is no longer valid.

These are the exact situations highlighted in the EPA Guidance on Revising and Withdrawing TMDLs (March 22, 2012). According to this guidance, it is appropriate to revise existing TMDLs when 1) modeling assumptions, data, or other information originally used ... have significantly changed, or 2) when the TMDL is not resulting in attainment of water quality standards. Both conditions exist with respect to the Harpeth River Low DO/Nutrient Enrichment TMDL. Additionally, the guidance specifically points to TMDLs that include wasteload allocations for point sources predicated on anticipated nonpoint sources loading reductions. This is exactly the situation with the Harpeth Low DO/Nutrient Enrichment TMDL. The sewer plant wasteload allocations were based on the upper section of the river achieving a 65% reduction in sediment oxygen demand within a few years (p. iii). The key assumption made to get the river models to fit the newly expanded city of Franklin sewer permit was to assume that the river was coming into Franklin with 6 mg/l of DO and 17 cfs of flow. Both of these assumptions are not typical of low flow, hot, summer river conditions when DO has been recorded at 2 or 3 mg/l in downtown Franklin and a typical daily flow can be 2 or 3 cfs in late August and early September.

In the summer, the Harpeth River is a low flow river that is effluent dominated. As Dr. Burkholder stated in her review of all three permits in 2009, “discharge from the STP under its new permit will continue to contribute substantially to the nutrient/eutrophication-related impairment for the receiving segment of this 303(d) listed stream.” She also noted that Franklin’s “discharge .... will continue to significantly influence” the Harpeth River. As the DO monitoring data shows, the river does not meet state standards for DO upstream from Franklin. The city recognizes this fact clearly in its recent comments to TDEC on the draft permit, in Mayor Moore’s statement at the public hearing, and in the report of the city’s Integrated Water Resources Plan. The biological monitoring that the city has been conducting under its permit since 2001 substantiate that the river in Franklin is impaired with nutrient enrichment (see chart in Franklin’s draft permit, p. R-32). All of the 3 sites for the past 12 years except one last year had scores indicating that the river is stressed. Notably the types of species of aquatic species found are tolerant to high nutrient concentrations. With the permits allowing discharge of BOD and nutrients that reduce DO in the river, the draft permits appear to violate the Clean Water Act and the TN Water Quality Control Act by not setting permit limits so that water quality standards are met in the receiving stream which is the Harpeth.<sup>1</sup> In addition, permits cannot be authorized when

---

<sup>1</sup> From TCWN’s comments, November 30, 2009 on the 2009 draft NPDES sewer plant draft permits for these three facilities:

Accordingly, the draft permits appear to violation Sections 402 and 302 of the federal Clean Water Act, 33 U.S.C. §§ 1342(b)(1)(A) and 1312(a), and Tenn. R. and Regs. 1200-4-5-.04(f) by failing to impose effluent limits that are sufficiently stringent to attain and maintain applicable water quality criteria for ammonia as nitrogen, Total Nitrogen, Total Phosphorus, and CBOD<sub>5</sub>. *See also* 40 C.F.R. §§ 122.44(d)(1)(vii)(A) and 123.25.

Issuance of the draft permit as proposed would also appear to violate Tenn. Code Ann. § 69-3-108(e) because it (1) would approve an activity that would cause a condition of pollution, and (2) fails to include the most stringent effluent limits necessary to implement applicable water quality standards for ammonia as nitrogen, Total Nitrogen, Total Phosphorus, and CBOD<sub>5</sub> in the Harpeth River.

“conditions of the permit do not provide for compliance with the applicable requirements of the CWA or regulations promulgated under CWA.”<sup>2</sup>

The river in the summer low flow season does not meet state DO standards, yet the city is discharging only about *half* of the BOD and Total Nitrogen load allocated to it in the TMDL. The TMDL set a summer season wasteload allocation of 400 lbs/day for BOD5 and an annual load of 290 lbs/day for Total Nitrogen. This summer, the city’s average daily discharge of Total Nitrogen through September was 159 lbs/day, which is 54% of the wasteload allocation. In 2011, when the most recent diurnal DO monitoring on the river was conducted (which was by HRWA), the annual Total Nitrogen load was 46.6%. At that time two river miles upstream the DO was just above 3 mg/l in the early morning and was the same just downstream from the discharge at the rec center. The sampling sites recorded low DO concentrations of 2 mg/l and 3 mg/l downstream through Davidson County and was still below the standard at 4 mg/l at Hidden Lake state park.

The final permits need to state clearly that, if the relevant permit limits are going to continue to be based on a Harpeth River TMDL, a new TMDL that achieves water quality standards is needed. In the draft sewer permits, the rationale states that the “division recognizes that some TMDL updating may be warranted” (in Franklin’s draft, p. R-4). As has been detailed in our prior comments, a Technical Advisory Committee (TAC) would oversee the data collection and preparation of a new TMDL.<sup>3</sup> The permittees would be involved in the TMDL formulation through the TAC and would provide funding for the needed work. In addition, a TAC offers opportunities for other funding and partners to be involved, which reduces the cost to the permittees. The TMDL would be based on creating a true “daily” load, as opposed to the annual average that is further divided into seasons by the current and draft permits.

**B. Groundwater Contamination into the Harpeth from Egyptian Lacquer Manufacturing Company in downtown Franklin is undermining the validity of the wasteload allocation relied upon by the current TMDL**

An important source of biological demand in the river reducing the DO concentration in downtown Franklin is the continuing seepage of contaminated groundwater from the Egyptian Lacquer Manufacturing Company (ELMCO), a small paint finishing outfit on Eddy Lane (see Attachment 1 which includes a map). The contamination was identified in early spring of 2007. After a legal settlement a year of in situ BIOXX treatment was done, but a second year was not continued by ELMCO. As of the most recent well monitoring data in September, the main seep into Liberty Creek near the Harpeth River is still flowing with concentrations of toluene (114 mg/l) over 100 times the regulatory level of concern (1 mg/l). There is still a huge quantity of chemicals in the ground at the ELMCO site. Six percent of the volume of the groundwater in one well is comprised of acetone. This is free chemical product. The toluene in the seeps at Liberty Creek represents a range of 90 lbs/day to 730 lbs/day of ultimate CBOD, depending on the volume of groundwater during dry and wet periods. Attachment 1 provides a brief summary of the current conditions of the continuing contamination and calculations of the ultimate CBOD that these concentrations represent going into Liberty Creek and the Harpeth River.

The continuing chemical contamination at Liberty Creek is a large amount of CBOD, which essentially takes up much of the allocated load in the river that the TMDL has allocated to the sewage treatments plants. The total of 427 lbs/day of BOD allocated to the sewer plants is not

<sup>2</sup> 40 C.F.R. § 122.4(a), (d); Tenn. Comp. R. & Regs. 1200-04-05-.04(1)(f).

<sup>3</sup> See discussion, *infra*, Section II. A.

there if that much BOD from the ELMCO chemical seeps is in the river. Unfortunately there is no clean-up or final approved Corrective Action Plan. These sources of BOD are affecting the river's assimilative capacity, are undermining the fundamental wasteload allocation of the TMDL, and can be directly dealt with by TDEC.

## **II. Permit Comments in Common to all 3 Sewer Plants:**

- A. Support the formation of a Technical Advisory Committee (TAC) that is referenced in the draft permits. The draft permits need revision to *require* the formation of the TAC and outline its purpose, composition, and timeline of work. HRWA has provided draft language

HRWA has compiled examples of approaches in use around the country that coordinate water quality data gathering, TMDL implementation, and integration among point sources dischargers along a river and even other sources of pollution. In February of this year, HRWA provided extensive explanation of the use of a Technical Advisory Committee, including examples from other parts of the country, a draft comprehensive monitoring plan and continuous water quality monitoring stations, draft permit language to implement the TAC and expand ambient water quality monitoring requirements, and other information. This material was also provided to an extensive list of partner agencies, the permittees, and others.

The Technical Advisory Committee is an independent, interdisciplinary, advisory group and is not a regulatory authority. It makes recommendations to TDEC, which retains full authority. The purpose of the TAC is to finalize a water quality monitoring plan, evaluate data, oversee the development of a new TMDL, and oversee implementation. The TAC is comprised of various experts, members of various state and federal agencies, representatives of the sewer plant permittees and stormwater permittees, agriculture, and others, as drafted in the sample permit language provided in February. The draft language includes a time table for the work of the TAC. By including the TAC in the permits, there is a regulatory underpinning for the TAC and its function as a permit condition. A MOA would be written to further define roles, governance, function, and relationship to TDEC and the permittees. Very similar approaches are currently in use in North Carolina and around the country. The Division has the authority to include the establishment of a TAC or any other conditions in NPDES permits pursuant to the federal Clean Water Act § 402(a)(2) and the Tennessee Water Pollution Control Act § 69-3-108(g). HRWA is willing to invest our efforts in the TAC. EPA is supportive and has offered a staff person's time, and so are the USGS, TWRA, and the USFWS. Furthermore, a Vanderbilt Graduate student is already working on a study that will be of use to the water quality monitoring plan and TMDL.

- B. Support the current requirement for each permittee to do a Nutrient Management Strategy and update it yearly:

The permits issued in 2009 all had this new requirement and provided some clear guidance on what TDEC was looking for, with each to determine ways to reduce nutrient loads. While none of the permittees have done this, it is clearly justified.

- C. Support the need for a comprehensive water quality monitoring program and specific river studies that are needed to conduct a new TMDL on the Harpeth:

The 3 draft permits reference in the rationale that TDEC concurs with the need for in-stream water quality data and specific studies needed for a new TMDL. TDEC specifically calls

for the city of Franklin to undertake some river studies, including a sediment oxygen demand study, time of travel study, and continuous monitoring. The smaller permittees did not have any ambient water quality monitoring requirements included in their draft permits. However, HRWA strongly believes that all permittees need to be responsible for gathering the needed water quality studies and regular monitoring data. It should not be the responsibility of one of the permittees. However, it will be much more efficient and would generate high quality data if the monitoring is designed and managed by the TAC. The permittees would contribute financially based on their pollutant load, and staff of the permittees can be trained to take on aspects of monitoring in order to reduce costs. The TAC would finalize and revise the monitoring plan, which would be allocated to each permittee and others who participate. The TAC would manage any consultants contracted to do work under the TAC such as some of the river studies and TMDL modeling. There are more details and examples of TACs and monitoring programs from other parts of the country submitted in our material earlier this year. In particular, North Carolina has some good approaches that can easily be used here.

A TAC also offers opportunities for other funding sources and academic involvement to defray costs to permittees. Should one of the permittees decide not to participate in the TAC and organized monitoring, HRWA provided a draft for the Receiving Stream Investigations Appendix for each permittee.

D. The permits need to require that each provide funding to launch the continuous water quality monitoring program with 4 -6 USGS gauging stations so they are operational by May 2014.

HRWA worked with USGS, TDEC modeling and TMDL staff, and other experts to create the proposal which was submitted to TDEC in February. HRWA even identified possible sources of funds to bring to the effort. There are other partners, such as TDOT and USGS, that might still have funding to bring to this, since it also helps them meet some of their permitting and program goals.

E. Specific input on monitoring proposed on the permits as requested by TDEC:

The draft city of Franklin permit also has some specific changes and additions to current data studies that TDEC has requested. A biological monitoring sampling study is proposed in the comprehensive water quality monitoring that expands on the sites Franklin is already doing under its current permit. The small facilities are proposed to do two locations apiece as well.

1. Expanding the bio assessment monitoring that has been done by the city for over 10 years. The two additional sites: one has already been suggested to be at Cotton Road (per our submitted draft permit language on monitoring for all 3 permits in July). The other “downstream sufficient dissolved oxygen reference station” is likely not possible or the best approach. The benthic monitoring will indicate overall stream health or stress based on aquatic biota. These scores are not easily correlated or causally related to one water quality parameter such as dissolved oxygen. This is a discussion for the TAC.
2. Bioassessment is expanded beyond the 5 sites proposed for Franklin (4 in HRWA’s proposal already submitted) and 2 for each of the other sewer plants:
  - Berry’s Chapel—upstream of outfall but downstream of West Harpeth confluence
  - Old Hillsboro Road bridge (also a continuous monitoring USGS gage site)
  - Cartwright Creek—50 feet upstream of outfall

Upstream of Moran Road bridge (versus 150 yards downstream of outfall as in our proposal).

F. Support the flexible re-opener clause in the 3 permits:

We support the intent to enable the permits to be adjusted more flexibly than once in a five-year cycle as work is accomplished by the permittees on their nutrient management plans, data from river studies and monitoring are gathered, a new TMDL is completed, and proposed changes are recommended by the TAC. With a more collaborative and integrated approach founded on water monitoring data to guide permits adjustments, it will be of value to the permittees to have a flexible reopener clause to implement changes to foster adaptive management that can be of benefit to them.

G. Re-word the paragraph in the rationale section of each permit that states that “the division continues to consider the not fully supporting condition to be due primarily to non-point discharges (including upstream inputs) rather than the permittee’s treated wastewater discharge.”

This statement needs to be corrected. The Harpeth River downstream from Franklin through at least Williamson County is very much “effluent dominated.” The Harpeth is a groundwater-fed low-flow river in the summer (as shown in the compilation of Dissolved Oxygen Continuous Data on the Harpeth provided with prior materials in February and July). The river’s 7Q10 statistic for extreme low flow conditions at the city’s discharge is only 540,000 gallons a day. The city’s permitted discharge is 12 MGD! As Dr. Burkholder stated in her reviews submitted on the permits in 2009, the city’s discharge swamps the river and significantly influences it. Even the two small sewer plants will affect the river’s eutrophication and nutrient driven water quality problems. Charts and graphs submitted in prior permit comment periods show that the river was 35%-90% effluent downstream of Franklin during times that TDEC had set out 3 week continuous Dissolved Oxygen monitoring. During this period concentrations of 1.5 mg/l – significantly below the standard of 5 mg/l—were recorded. Given the substantial effects that the permittees discharges have on the flow and content of the river – self-evident by the fact that the river is often primarily effluent in impaired portions – the permits need to revise their language to recognize the permittees’ contributions, as well as upstream input contributions, to the river’s impairment.

H. Establish mass loads (in lbs/day) from the TMDL as a MONTHLY average (in lbs/day) to be reported every month and set a daily maximum load of two times the monthly average. A daily average that is calculated over an entire year or 6 month season is meaningless.

The current permits integrated the TMDL annual loads of Total Nitrogen into the permit with one annual report of the daily average based on averaging across the entire year. This allows loads to be significantly high during some months if it can be low during other months. This can enable loads to be higher in the summer during the river’s stressful season. The annual load (expressed in lbs/day) should be set as a monthly average (as was done with the seasonal loads for CBOD5 and ammonia from the TMDL) with a daily max of no more than twice the daily average. The monthly average should be reported on the next monthly operating report.

I. The permit concentration limits for nutrients—Total Nitrogen and Total Phosphorus—need to be reduced in the 3 draft permits to reflect technically feasible levels.

Algae in the river is fed by the input of nutrients, especially nitrogen in the Harpeth where soils are already rich in phosphorus. High nutrient levels discharged feed algae growth, alter the types of algal species, and during low flows can cause algal blooms. Details have been discussed in other materials in the record that support that the Harpeth dissolved oxygen levels are also affected by algae. TDEC refers to its new Nutrient Reduction Strategy for setting permit limits for nutrients that it is developing for the Harpeth as part of the Cumberland River Basin. TDEC will do this with data from the US Geological Survey in about two years according to the draft permit. With the significant algal influence on DO levels in the river, it is justified to set limits in the permits at levels that are currently or can be technically achieved now.

J. Establish a percentage of effluent in the river during the summer as a permit control to accomplish both a reduced pollutant load in the summer and to eliminate odor issues:

These reduced concentrations, along with reductions in BOD for the city of Franklin, can be coupled with a limit on the volume of effluent discharged to meet the reduced load limits for these pollutants. In addition, setting a percent effluent limit in the river during the summer will address problems of odor on the river, a problem familiar to the many people who recreate on the Harpeth. The percentage of effluent should not be above 50% in the winter and 10% in the summer in order to protect aesthetics and recreational use. In addition, an odor survey should be done for all 3 facilities.

Setting a maximum percentage of river flow for effluent discharge is similar to the city of Franklin's water withdrawal permit, which limits the city to withdrawing water based on a percentage of the river's flow. The percentage would be based on an instantaneous flow of the river that is measured from the nearest USGS upstream. When the USGS continuous water quality monitoring gauges are installed (based on the 6 locations proposed in our earlier comments), there will be an appropriate USGS gauge for each sewer plant to use. Nonetheless, the permit should specify that the river's instantaneous flow should be measured by a flow gauge operated to provide real-time data for the public view, and the sewer plant will be responsible for removing obstructions in the area of the gauge. The permittee's discharge flow also needs to be provided to the public in real-time and for archiving. The percent effluent would be reported on the monthly report and calculated as frequently as possible with a daily average. For the small sewer plants that may not discharge continuously, the permit needs to specify how frequently in a day to measure the effluent flow to establish a effluent percent that is measured no less than two times a day when discharging.

K. Conduct an Odor Survey for each sewer facility, especially Franklin's, to eliminate the odor in the river downstream of the dischargers in the summer:

Public comments at the hearing pointed out that the river has a noticeable odor downstream of the city of Franklin's discharge point. HRWA staff and others have noted this "chlorinated or funky cement pipe smell" when on the river in various areas downstream of the Franklin sewer plant and around Fieldstone Farms (about 3-4 river miles). It is likely occurring downstream of the other two facilities, especially in drier summer conditions. The permits need to require all three to conduct odor surveys via serial dilution in order to determine what percentage of the effluent in the river does not cause a noticeable odor for people recreating on the river.

The Harpeth River is highly used as a recreational resource (one of its designated uses under the TWPCA) from southern Williamson County all the way to the river's confluence with the Cumberland River. In the vicinity of the three discharges, there are sections of the river that

are very popular for tubing, paddling, swimming, and fishing during the summer. HRWA is working with the city of Franklin Parks Department and Tennessee Scenic Rivers Association to add canoe accesses along the Harpeth through downtown Franklin to enable more river access. The Civil and Criminal Liability Section of the permits (Section 2.4.1) states clearly that “it shall be the responsibility of the permittee to conduct its wastewater treatment and/or discharge activities in a manner such that public or private nuisances or health hazards will not be created.”

L. Ammonia limits: Review permit limits to incorporate the new ammonia ambient water quality criteria recommended by EPA this summer:

In August 2013, EPA published new national recommended ambient water quality criteria for the protection of aquatic life from the toxic effects of ammonia.<sup>4</sup> These new national criteria incorporate the latest toxicity information for freshwater species, including unionid mussels and gill-breathing snails, and have reduced the criteria concentrations. Species of these sensitive organisms are found in the Harpeth River, as documented in a TWRA mussel survey as part of the HRWA Characterization Study of the impoundment behind the city of Franklin’s lowhead dam, the Army Corp of Engineer’s Harpeth River Reconnaissance Study, and Parmalee and Bogan’s, The Freshwater Mussels of Tennessee (1998).<sup>5</sup> While the city of Franklin’s permit has low ammonia concentrations, the other two permittees do not and need to have their ammonia limits reduced to at least mirror those in Franklin’s draft permit. In addition, the current city of Franklin permit ammonia limits also need to be evaluated and possibly reduced based on the new EPA recommended criteria.

M. No more hook-ups to the two small sewer plants, and a limit to only adding new hook-ups to Franklin;s sewer plant to those developments with final city approval as of November 12, 2013.

Details supporting this for each sewer plant is provided below in Parts III, IV, and V. Overall, the reason for the need for limiting new hook-ups is fundamentally because the river does not meet water quality standards in the summer both upstream and downstream of each discharge. As discussed above, a permit cannot be issued under state and federal law that causes pollution.

N. Specific language in the permit liability section:

The liability section of each permit needs to include this language found in similar TDEC permits, such as the construction general permit: “This permit does not authorize discharges that would result in violation of a state water quality standard. Such discharges constitute a violation of the permit.” This has been raised in prior comments.

O. Quarterly Total Nitrogen and Total Phosphorus monitoring:

All three current permits contain a provision stating: “Total Nitrogen and Total Phosphorus monitoring – report quarterly influent and effluent average concentrations, mass loadings, and percentage removals based on quarterly monitoring.” This monitoring provision has been

<sup>4</sup>Federal Register Volume 78, Number 163, Thursday, August 22, 2013, pp. 52,192-52,194.

<sup>5</sup> HRWA would like to adopt as part of this permit record these 3 reports and the entire record of comments and attachments submitted during the comment period by HRWA, TWRA, USFWS, the World Wildlife Fund and The Nature Conservancy for the 2007 ARAP water withdrawal permit issued to the city of Franklin (NRS06.332) and the new one issued in 2013 (NRS12.195). We also adopt into this permit comment record HRWA’s permit appeal of this permit. All of these materials can be found in the TDEC permit record for the city of Franklin ARAP water withdrawal permit except for the USACE, Harpeth River Reconnaissance Study, May 2012. P.O. Box 1127 ■ Franklin, Tennessee 37065 ■ Phone: 615-790-9767 ■ Facsimile: 615-790-9767 ■ www.harpethriver.org

removed from all three of the permittees' draft permits and needs to be reinstated, particularly since none of the permittees has yet to comply with this provision, which would provide valuable information concerning their operations and nutrient impairment of the river.

P. Permittees need to fund TDEC cross testing of sampling and for BODu:

From a review of the last five years of monthly monitoring reports, the two small sewer plants have reported problems with their sampling which is the basis of the effluent reporting. The city of Franklin also continues to push against the CBODu/BOD5 ratio applied to its effluent. It is important that there be independent and unannounced sampling at each facility and that the facilities need to provide funding for the lab costs for TDEC to do this regularly. This interval from weekly, monthly, or quarterly or otherwise will vary by parameter and facility. It is also important to review the labs used by the permittees to ensure that the dilutions used and testing done do not mask the actual concentrations in the samples.

**III. Specific Comments on the Draft City of Franklin Permit:**

A. Support more specificity on the diurnal investigations of dissolved oxygen and other parameters during the summer:

TDEC required diurnal water quality monitoring in the city's permit, which has not been done. The city does gather water quality data from the river, but these are grab samples. For dissolved oxygen, which falls at night to a low early in the morning then rises to a high in the middle of the afternoon, this daily swing is critical to capture for any meaningful understanding of the conditions in the river and for conducting river models for the TMDL. So much of the DO data in the river is grab data, which typically is collected during the work day and misses the high and low of the day. Also, this requirement can be met or replaced by language to participate in funding the 6 USGS continuous monitoring stations.

In this draft permit, of the four proposed locations (one more than the in the current permit), the location at Hillsboro Road bridge (Site HRD1) could be dropped. After reviewing the decade of diurnal DO data gathered, this location and on downstream near the elementary school (Hunters Bend in Fieldstone Farms) is where the influence of the high oxygenation of the effluent can be seen. The oxygenation by the sewer facility to the effluent will create a brief increase in the river's DO, even though it is temporary and only masking the slow loss of DO caused by the rest of the effluent components as the river and effluent mix and flow downstream. The super oxygenation of the treated effluent provides a temporary hit of oxygen to the water that is brief and quickly disappears within a few river miles of the outfall point. In discussions with USGS on the proposed continuous monitoring sites, the USGS gauge at the Hillsboro Road bridge would be moved to Cotton Lane. The gauge at Hillsboro Road is there not for long term research and survey purposes by the USGS, but as a monitoring location paid for by the permittee. As the river research progresses, one outcome will be to locate the various spots along the river where the DO drops to its lowest point as a result of the effluent discharge from each facility (what the river modelers call the "DO sag").

B. Remove the current monthly average summer Total Nitrogen load of 377 lbs/day:

This monthly average load per day was a carry-over from two permit cycles ago and is higher than the TMDL annual daily average load of 290 lbs/day. TDEC incorporated the TDML annual day average in the 2009 permit, but did not remove the now outdated and higher 377

lbs/day. It doesn't make sense to have a higher daily average load in the summer when the river system is most affected by nitrogen loading than the annual daily average. The 377 lbs/day summer monthly average per day does not conform to the TMDL.

- C. Reduce concentration of BOD5 to 2 mg/l which is HALF of current permit because the city's sewer plant is consistently meeting this; reduce the BOD mass of the permit in HALF to 200 lbs/day.

As stated above, the Harpeth does not meet dissolved oxygen standards in the summer often prior to the discharge point as well as afterwards. This is with the city's load input at less than half the TMDL wasteload allocation of 400 lbs/day. The city's monthly reports show that it is consistently producing effluent with 2 mg/l or less of BOD5. Since 2 mg/l is the detection limit, this should be the new limit for the monthly average concentration. The daily maximum would be adjusted down accordingly to 4 mg/l which is two times the monthly average.

- D. Reduce the Total Nitrogen concentration from 5 mg/l, which does not comply with TMDL, to 2.9 mg/l which is in the TMDL.

The permit's current Total Nitrogen concentration of 5 mg/l with the 12 MGD design flow is over twice the TMDL's average daily load of 290 mg/l. The permit cannot continue to set the concentration above the TMDL limit. The city consistently produces effluent with concentrations around or below this concentration, so it is technically feasible.

- E. Reduce the Total Phosphorus proposed concentration from 3 mg/l to 0.6 mg/l.

The current permit limit of 5 mg/l is so far above the city's capabilities that it is irrelevant. The reduced concentration to 0.6 mg/l for Total Phosphorus is derived from the ratio that is optimal in an activated sludge sewage treatment plant (BOD5:TN:TP is 100:5:1). With the Total Nitrogen set at 2.9 mg/l, as proposed above, the Total Phosphorus concentration that goes with this ratio is 0.6 mg/l. This concentration for Total Phosphorus is still significantly higher than the eco-region reference concentration of 0.18 mg/l for this ecoregion,<sup>6</sup> which is the concentration proposed by TCWN. In addition, the grab samples that the city has been doing as part of their permit ambient water quality testing shows the concentrations in the river around 0.6 mg/l (data chart of 3 sampling sites in Franklin's draft permit at page R-28).

- F. Support the current permit's basic approach of having both concentration limits and total mass limits for the nutrients nitrogen and phosphorus:

In its comments, the city noted that it has discussed with TDEC the removal of concentration limits for nitrogen from the permit. This is not acceptable and should not be adopted. Aquatic wildlife and many chemical and biological processes are affected directly and in the short term by concentration. If concentration is removed, discharges can have high concentrations that would not be prevented by having a permit limit based on solely meeting a pollutant mass limit. The city and its consultants are proposing this as way to loosen the permit conditions to enable an increase in the sewer plant's capacity from 12 to 16 million gallons a day and still discharge mostly into the river in the summer. Removing the concentration limit dramatically restricts enforcement as well. With a concentration limit, a sample of any volume of

<sup>6</sup> Denton, Arnwine, and Wang, Development of Regionally-Based Interpretations of Tennessee's Narrative Nutrient Criterion, TDEC, 2001. For ecoregion 71h and 71i, TP- 0.18 mg/l and for Nitrate + Nitrite-0.92 mg/l. P.O. Box 1127 ■ Franklin, Tennessee 37065 ■ Phone: 615-790-9767 ■ Facsimile: 615-790-9767 ■ www.harpethriver.org

effluent would need to meet a concentration limit at any given time. A mass limit is based on the concentration and the volume of effluent with that concentration.

G. Place moratorium on city approval of new sewer capacity by prohibiting approval of new development for which the city proposes to provide sewer via the sewer plant.

The city of Franklin's sewer plant is handling at and above its design capacity of 12 million gallons a day as of 2013 based on the monthly operating reports. According to the letter from TDEC dated July 9, 2013, TDEC calculated an average 13.4 MGD from January through May of 2013. In addition, the city has already approved nearly 7000 new homes/residences that are not yet hooked up to the sewer treatment plant. HRWA compiled the number of 6828 in unbuilt residences by reviewing the city's 2012 Development Report<sup>7</sup> and the approvals of new developments in 2013 through the Nov. 12, 2013 Board of Mayor and Aldermen (BOMA) meeting. A table in the report totals 5,454 unbuilt residences in approved subdivisions. In 2013 thus far, another 1,374 or so residences were approved. These approved, but not yet built, homes approximate another 2 million gallons a day of sewer flow based on the figures used by SSR.<sup>8</sup> This firm is the city's consulting engineer who is currently updating capacity and projected sewer needs in each sewer drainage basin. This additional 2 million gallons will mean that the city's plant will be regularly receiving flows above its 12 million gallons a day. In these conditions violations are more likely since the plant is receiving volumes of untreated sewage above the capacity it was designed to treat.

A large proposed subdivision for people 55 years and older by Del Webb will be before the city on December 10 for consideration of annexation. This is another 718 homes and approximately 250,000 gpd. The more sewer capacity approved, the more the city is in the position of having committed to provide beyond its currently approved system can handle. This is already an issue, as noted by Ann Morbitt at TDEC in her July 9, 2013 letter to the city. She notes that the city is currently not able to operate three "oxidation ditches," which at times "reduces the treatment capacity of this facility to below the average influent flow rates." (para. 8). Capping the approved future demand at what has received final approval by the city's BOMA as of November 12, 2013 will provide the time needed to conduct the river studies and prepare a new TMDL. The new TMDL will provide an updated pollutant loads of Total Nitrogen, Total Phosphorus, and BOD that are needed for designing the sewer system to accommodate possible expansion. The time can also be focused on designing the land application for the expansion of effluent reuse. Fundamentally, the cap on new sewer customers is justified because the permit allows discharges when the dissolved oxygen levels are below state standards in the river which means there is little assimilative capacity.

H. The city's effluent reuse program is a crucial part of the overall system and needs to comply with the rules for land application sewer disposal systems:

A critical part of the city's sewer system that will be part of the solution to reducing pollutant loads in the river is the effluent reuse program that the city started nearly 15 years ago. The city has at least two golf courses that take effluent for irrigation purposes and store it in ponds on site. The city has a set of local regulations that relate to charging for reuse, requiring sewer line

<sup>7</sup> <http://www.franklin-gov.com/Modules/ShowDocument.aspx?documentid=14720>.

<sup>8</sup> SSR uses 350 gallons per day (gpd) for a single family residence; 250 gpd for multi-family; 0.15 gpd/sft for retail; and 0.10 gpd/sft for office. In 2013 only residential has been newly approved. A proposal to expand the Galleria Mall by 73,7000 sft is under consideration which represents 11,055 gpd of sewer flow.  
P.O. Box 1127 ■ Franklin, Tennessee 37065 ■ Phone: 615-790-9767 ■ Facsimile: 615-790-9767 ■ [www.harpethriver.org](http://www.harpethriver.org)

laid (the purple pipe) with new sewer to take reuse water back out to new developments, and more. Land application sewer systems are permitted with a State Operating Permit that prohibits any discharge of the effluent, sets concentrations and sampling, and requires the submittal of extensive engineering plans. Over the years as the city has developed the reuse program, TDEC incorporated the components of the State Operating Permit into the NDPEs permit as opposed to issuing a separate SOP. Has the city also complied with section 1200-1-6 with regard to the reuse program which is essentially a land application sewer system?

The city's sewer system is really a combination of a discharge and land application system. The combined system needs to be designed based on the pollutant load limit and volume limit that can be discharged into the Harpeth in the summer. The remaining effluent will need to be treated on land or sent to another sewer plant like HVUD or Metro Nashville. Currently, the city's effluent reuse program is more of an add-on. During dry summers there is more effluent reuse demand by the golf courses, but in a wet, cool summer like this past summer, there is much less demand and the effluent is discharged to the river instead. This can be seen by examining the monthly operating reports. As an example, for the months of July in 2010, 2011, and 2012, the average volume of effluent reuse was 3.8 MGD, 4.49 MGD, and 4.34 MGD, respectively. During these three months of July, 50% or more of the total effluent was NOT discharged, which meant that only 3 to 4 MGD on average was discharged. This past summer, the average volume of effluent reuse was only 1.58 MGD, only 17% of the total effluent average flow. This meant that 9.24 MGD was discharged into the Harpeth, which was TWICE the volume of the prior 3 months of July. This clearly indicates that the effluent reuse program is not intentionally designed to handle a certain amount of volume and is currently set based on the weather conditions and current user demand.

Land application based sewer systems require engineering to determine application rates, access, and control of the land so that the city has control of the amount of volume it can apply. Land application sewer systems also contribute nutrients to the environment so local surface waters will need monitoring in strategic areas around land application areas. The design for a land application of sewer has its own complexities related to weather and the seasons. Essentially, during the summer the city's sewer system will be more of a land application program and in the winter, when the river volume is high and temperatures are lower, the city's sewer system will be predominantly a discharging system. It is time to push the effluent reuse component into more intentional design and regulatory oversight so that opportunities to secure land for application and areas for storage are secured in the midst of the expanding growth in the city's undeveloped areas that could also be valuable for the sewer system.

I. Comments on various charts in the permit appendix related to Dissolved Oxygen sampling, outputs from the IWRP and so forth:

The two charts of DO data on pages R-30 and 31 connect isolated grab data taken a few times a month over several years. At first glance the undulating graph looks like one generated from 24-hour monitoring sampling, which is not the case. These charts should NOT connect these dots. Also, most important is that the TIME OF DAY these grab data were taken is not indicated. These data in this presentation are meaningless without the time of day. As explained above, dissolved oxygen varies over a 24 hour period. The lows will be early in the morning before the sun rises. The highs will be in the late afternoon. Most grab data does not capture either the extent of the swing each day or the low readings because grab data is mostly taken during the work day. It appears that the grab data chart on the two preceding pages contain the DO data

shown on the graph. The staff did a great job of collecting the data as early as they could, around 7:10-7:30am. But the lowest readings are around 6am in the summer before the sunrises.

The charts on page R-35 have the same problem since the time of day is not indicated. I have the excel spreadsheets of this raw data and most of this was collected between 10am and 2pm. The data can be useful to calibrate river models if the time of day is known so the data can be matched to that time of day.

J. Alterations in permit monitoring parameters that need to be fixed

The draft permit contains several changes to the monitoring parameters that TDEC has made either on accident or without adequate explanation of the reasons for alteration. First, the parameters for silver and selenium that are listed for semiannual monitoring in the current permit are not present in the draft permit. The parameter for winter Total Nitrogen daily mg/L has been omitted from Franklin's draft permit, though it remains in both Cartwright Creek's and Berry's Chapel. The draft permit also provides for monitoring of summer Total Phosphorus daily lb/day, a parameter not contained in any previous permit, while omitting summer Total Phosphorus daily mg/L. The provisions for summer CBOD monthly lb/day and winter CBOD monthly lb/day appear to have been switched with each other. Finally, the parameter for summer Total Suspended Solids monthly lb/day has been omitted.

K. Changes in frequency of monitoring

The draft permit should reflect the frequency of monitoring being performed by Franklin. The measurements for Total Nitrogen and Total Phosphorus should be taken once per seven days, and parameters subject to semiannual monitoring should be changed to quarterly.

**IV. Specific Comments on the Draft Permit for Berry's Chapel Utility:**

A. Keep the 125,000 gallon reserve in place:

TDEC imposed this reserve capacity at the time of the permit expansion in order to have capacity to hook-up hundreds of homes on septic in the nearby vicinity of the plant. As has been described in prior comments and in the permit, Williamson County has successfully carried out its Grassland Sewer project to serve the septic neighborhood and ultimately has an agreement for the city of Franklin to serve these areas versus Berry's Chapel. Not all of the communities in grassland on septic will be served at Franklin since they are close to the Cartwright Creek facility, which cannot handle any more capacity.

The draft permit and TDEC correspondence to the utility has found Berry's Chapel in violation of its permit for failing to collect sampling information correctly since 2010 on key pollutants in its effluent. As a result, the results on their monthly operating reports for removal of TSS (suspended solids), CBOD, ammonia, and others parameters are questionable. This means we do not know what level of pollutant load the sewer plant is actually contributing to the river even if the reports indicate that concentrations are below permit limits. The reserve limits new capacity, which will limit any increase in pollutant load from the facility since the river is not meeting standards upstream and downstream of the discharge point.

B. Keep the financial requirements in section 3.8 that TDEC is proposing to remove:

Citizen comments made at the public hearing outlined extensive financial issues including misused funds for non-sewer plant expenses that can all be found documented in the Tennessee Regulatory Authority record involving numerous rate cases. Mr. Kildgore provided a set of materials for the permit record at the public hearing addressing the issue. The facility even changed its name and corporate entity from a private to non-profit in an attempt to be out from under the regulatory purview of the TRA so that rates could be raised more aggressively. The Attorney General eventually ruled that Berry's Chapel was still regulated by TRA and even owed funds back to customers. Clearly sound financial management is important to being able to meet the other conditions of the NPDES permit. The financial requirements provision should remain to protect the water quality of the river as well as the rate payer.

The NPDES permit grants permission to use the public's natural resources as long as water quality standards are met. The permit does not give a right to pollute. If the owner of the facility can not meet the permit conditions, then the state needs to initiate efforts to find a new operator who is able to meet the permit conditions or otherwise provide sewer service to the customers. TDEC and TRA need to work on a joint agency effort to accomplish this if the Berry's Chapel Corp. does not want to spend the funds it receives from ratepayers to operate the facility within permit conditions.

C. No more hook ups:

This condition needs to be a part of the final permit for the reasons outlined above. The moratorium needs to stay in place until there is at least a year of compliance with every aspect of the permit including any sections that might be appealed and at least a year of following the financial requirements.

D. Reduce the concentration for Total Phosphorus from 5.7 mg/l to 1 mg/l:

As stated above, Total Phosphorus concentrations of 5.7 mg/l are so much higher than the ambient river concentration as to be meaningless in managing for load reduction. While the monthly reports indicate that the plant is not removing Total Phosphorus to this suggested level, it is technically feasible to do so.

E. Reduce Ammonia Limits in Summer and establish limits for the Winter to at a minimum match those in Franklin's permit:

As discussed above in the section above on comments applicable to all 3 sewer permits, EPA published new ammonia water quality criteria standards in August 2013. Ammonia is toxic to aquatic life and EPA's new recommendations reduce these standards to reflect new research on the sensitivity of fresh water mussels and gill-breathing snails which are found in the Harpeth. Berry's Chapel's current permit has no set winter ammonia limits and the summer limits are higher than for Cartwright Creek, which is a smaller facility. In reviewing the utilities monthly operating reports, the facility can clearly meet the much lower ammonia standards currently in the Franklin permit and the final permit should at least reduce ammonia limits in the summer and set them for the winter similar to Franklin's. In addition, TDEC should review the EPA's new recommended ammonia water quality criteria and reduce the permit limits further based on this review.

**V. Specific Comments on the Draft Permit for Cartwright Creek:**

- A. The permit needs to establish a compliance schedule to address and fix the significant and well documented problem with Inflow and Infiltration (I/I) which causes the plant to violate the permit.

TDEC has noted in the permit rational section for several permit cycles that I/I is a significant issue for Cartwright Creek. A look at the last five years of monthly operating reports indicates that the flow through the plant is *double* its design capacity. This dilutes the system such that it cannot remove enough of the Total Suspended Solids or BOD to meet permit conditions on a regular basis. The comments on the draft permit from Bruce Myers at Cartwright Creek specifically acknowledge that the facility cannot meet the Total Nitrogen limits. In 2011 and 2012, the small facility discharged 2.2 and 1.4 *times*, respectively, the annual mass of Total Nitrogen in lbs/day that was allocated to it in the TMDL (15 lbs/day). The independent analysis provided in the record by George Garden, PE, Vice-President at Barge Waggoner engineering firm, found the I/I to be one of the highest in the state at likely 2/3 of the flow into the plant. Until this is addressed the sewer plant cannot meet its permit limits; thus, a compliance schedule is essential in the final permit.

- B. No more hook ups:

This condition needs to be a part of the final permit for the reasons outlined above. The moratorium needs to stay in place until there is at least a year of compliance with every aspect of the permit including any sections that might be appealed. This essentially means no more hook-ups until the dramatic I/I problems are addressed and found successful through at least a year of compliance.

- C. Add the same or substantially similar financial requirements as those in Berry's Chapel's current permit:

Citizen comments made at the public hearing referred to financial management issues with Cartwright Creek LLC that are also part of the TRA public record. Cartwright Creek was purchased from the prior owners knowing of the facilities I/I problems. The owners are not prioritizing funds to fix the I/I problems. As discussed above with Berry's Chapel Corp., the NDPES permit for the sewer plant does not give a right to pollute. If the owner of the facility can not meet the permit conditions, then the state needs to initiate efforts to find a new operator who is able to meet the permit conditions or otherwise provide sewer service to the customers. TDEC and TRA need to work on a joint agency effort to accomplish this if Cartwright Creek does not want to spend the funds it receives from ratepayers to operate the facility within permit conditions.

- D. Reduce the concentration of Total Phosphorus from 3.5 mg/l to 1 mg/l:

According to the monthly reports, the facility is currently producing effluent at around 1 mg/l so this limit is technically feasible.

- E. Reduce Ammonia Limits in Summer and establish limits for the Winter to at a minimum match those in Franklin's permit:

As discussed above, EPA published new ammonia water quality criteria standards in August 2013. Ammonia is toxic to aquatic life and EPA's new recommendations reduce these standards to reflect new research on the sensitivity of fresh water mussels and gill-breathing snails which are found in the Harpeth. Cartwright Creek's current permit has no set winter ammonia. In

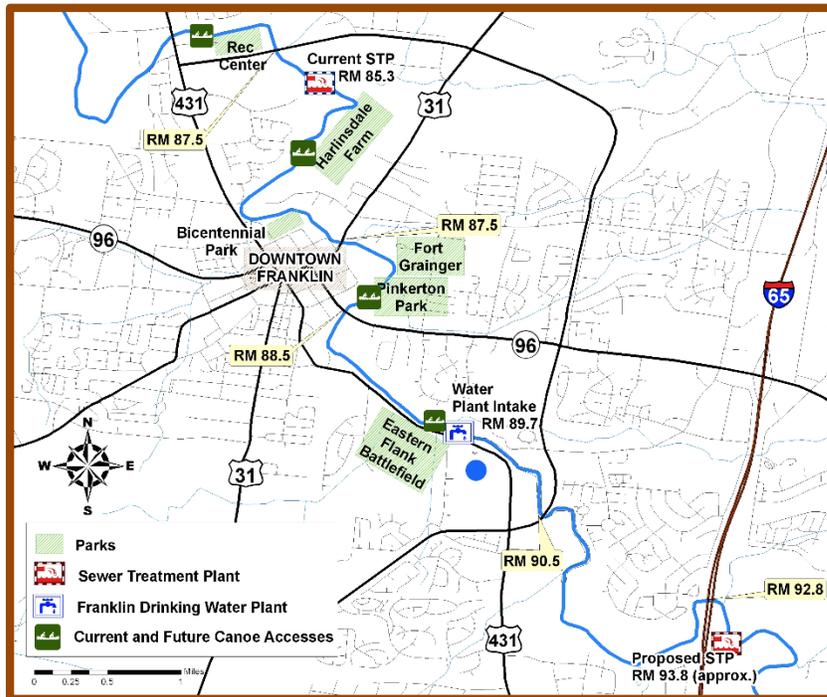
reviewing the utilities monthly operating reports, the facility can clearly meet the much lower ammonia standards currently in the Franklin permit and the final permit should at least reduce ammonia limits in the summer and set them for the winter similar to Franklin's. In addition, TDEC should review the EPA's new recommended ammonia water quality criteria and reduce the permit limits further based on this review.

F. Changes to the permit monitoring parameters

The draft permit requires Cartwright to report winter Total Phosphorus daily lb/day, while omitting winter Total Phosphorus daily mg/L. This should be changed so that winter Total Phosphorus daily mg/L is a required parameter. Total Phosphorus daily lb/day is not required for the other permittees and can be omitted.

**VI. Some comments related to the city of Franklin's Integrated Water Resources Plan**

The city of Franklin invested \$2,000,000 to conduct a forward thinking attempt to integrate the various programs: drinking water, sewer, effluent reuse, stormwater, and stream restoration. The IWRP was completed in February 2012. This plan grew out of the city's several year effort to secure an ARAP water withdrawal permit for the expansion to 4 MGD of its small drinking water plant that currently still produces 2 MGD. During the permitting process with all of the various analyses, it became clear to the aldermen and the public that the city actually relies on purchased drinking water from Harpeth Valley Utility District which the city tied onto in the 1980s. The Harpeth is such a low flow river in the summer that it has never been the sole source for drinking water even when Franklin was a town of 5500 people in the 1950s. Several years ago, debate on whether to increase or shut down drinking water production from the Harpeth was put aside to do the integrated analysis that would consider all of the systems. A key point raised during the water withdrawal was the effect on the river's assimilative capacity for the city's sewer plant discharge in the summer. TDEC issued an ARAP for the withdrawal setting conditions on the withdrawal, but the city did not expand the facility during that 5 year period. The city approved expenditures for engineering a new, same capacity drinking water plant, but the final decision on whether the city will continue to pull water from the Harpeth or finally let it go is still to come. Both the city and HRWA have filed permit appeals on the recently issued new TDEC ARAP water withdrawal permit that reduced the percent withdrawal from 20% to 15%.



The primary goal of the IWRP was to look at some big picture options for planning to double the capacity of the city's sewer processing capacity from 12 to 24 MGD. Above is a map of the 7 river miles through downtown Franklin showing five city and county parks linked by the river. The sewer plant is downstream just upstream from the Rec center canoe access. The city purchased land in the floodplain several years ago that is about 3 river miles UPSTREAM of the city's aging drinking water plant. One of the options that became the preferred one by the consultants and city water and sewer senior staff is a "toilet to tap" option. This involves constructing a 6 MGD sewer plant upstream so that the treated effluent in the summer would "augment" the river's flows to support a new and larger 4 MGD drinking water plant that still would not be able to operate at capacity in the summer. Another option analyzed is to have all 24 MGD sewer capacity at the current location and no longer withdrawal from the Harpeth to produce drinking water. A third option dusted off some old work to consider a pipeline to the Cumberland River to bring raw water down to process in the city at a new drinking water plant. There were two other options looked at as well. None included investigation of a pipeline to the Cumberland to discharge treated effluent or to hook into either Metro or HVUD's sewer system.

This draft final Integrated Water Resources Plan from July 2012 by CDM Smith has been provided to TDEC and TDEC has been given the sense that Alternative 1, "Toilet to Tap" option, was approved by the stakeholders and possibly the city Board of Mayor and Aldermen. This is not the case for either. There is lots of great work in the IWRP, but there are important aspects and limitations to it that need to be part of the permit record. Many of the summary statements in section 4.2.4 are biased enough that they need to be addressed.

1. As far as the issue of approval or recommendations from the Stakeholders involved in the IWRP, please see attached my memo to the Board of Mayor and Aldermen in April 2012. In this memo I had to clarify that the stakeholders did NOT vote on any final alternative. Most of the stakeholders were government officials and felt that their role was to advise and not direct or tell the aldermen how to spend city funds. Some stakeholders did vote or voice their option. HRWA in my memo went on record not supporting the "Toilet to Tap"

approach. Also, in May 2012, the city aldermen did NOT vote for this alternative either. They voted to approve components of various options analyzed by the IWRP. These included approving the work to do engineering to increase the sewer plant to 16 MGD, to engineer simply replacing the drinking water plant at its current capacity of 2 MGD, and some other components. After all not all of these expensive capital costs are needed at once. I can provide that material if needed and it is on the city's meeting web site.

2. A "river model" in the context of one based on new river field studies and analysis that would form the basis of a new TMDL has not been done with the IWRP. Modeling was done using a model designed by TVA that TDEC supported, but it was not used to produce a model that could determine whether an option would bring the river up to water quality standards. The modeling work was more appropriately called a Predictive Screening tool. The intent was to see if there were some distinct differences in the 5 options that would kick one more out of consideration. It is perturbing to see the IWRP and city comments imply that the IWRP involved a new river study as if it was the basis of a TMDL and that there was significant field work performed. The IWRP did not conduct any field work.
3. In the draft IWRP report, CDMSmith says that the effort was not intended to find the option that would bring the river to water quality standards. Unfortunately, that is what most of the aldermen expected. There was much disappointment when the work became framed as looking for the option that "didn't make the river any worse after it left Franklin." This is reflected in some of the final results when looking at the table in section 5-2. There is no difference to speak of between the options as to the amount of lbs/day of BOD or TN that is produced. The numbers in the chart are a bit different, but with all the assumptions and the scale of the work, the difference is minimal if real at all. The reason that there was little difference among any of the options is based on the fact that there was little difference in the amount of effluent discharged among them. No option was based on an aggressive land application during the summer that would reduce effluent volume significantly compared to the others, for example. The similarities in loadings of BOD and TN are easy to see on the bar charts that have the TMDL loads marked on them. The one showing the Total Nitrogen loads is below. The IWRP did not find an option that met the TMDL's Total Nitrogen load which means the IWRP did not provide any engineering optimization of the treatment system that TDEC is expecting from doing a Nutrient Management Plan as specified in the permit. Instead discussion has been on seeing if TDEC will increase the loads in the winter.
4. The modeling work done to screen the various options was not able to incorporate the entire load at 24 MGD of treated effluent without cutting the amount of Sediment Oxygen Demand in HALF. CDMSmith tried to use the SOD field data collected by EPA for the TMDL, but the D.O. charts dipped way below the minimum of 5 mg/l. Also the modeling did not line up the output of its DO data to the city's field, grab, data based on the time of day it the city's data was collected. This had the added effort of adjusting the model's output of DO data up along the graph since the grab data was not capturing the low values found in the early morning or late night. The effect of using HALF of the SOD data and "curve fitting" to the city's DO grab data was that the lines shown on the example DO chart in the Franklin draft permit is HIGH, moved up the scale about 2 -4 mg/l.
5. CDM's modeling staff met with interested stakeholders, such as HRWA and the US Geological Survey and HRWA experts, to review and discuss the modeling which were

mostly HRWA and USGS. There is no doubt that the EPA's 3 SOD field values are not robust, still the values are in line with what to expect in the Harpeth. In the summer it is shallow and warm and moves slowly. This allows sediment to have a reasonable influence in reducing DO in the water. Modeling is unfortunately rife with lack of data and sensitivities to a key assumption. The important point is that the outputs from the model did not find any of the IWRP options that would keep the DO at or above standards. Essentially the charts really should be about 2 mg/l lower. This means that 24 MGD of treated effluent in the river is NOT going to be assimilated by the river in the summer. Also the options that would work have not been analyzed yet and probably can't be until river studies are done and a new TMDL prepared.

## Section 4 • Phase II – System Analysis

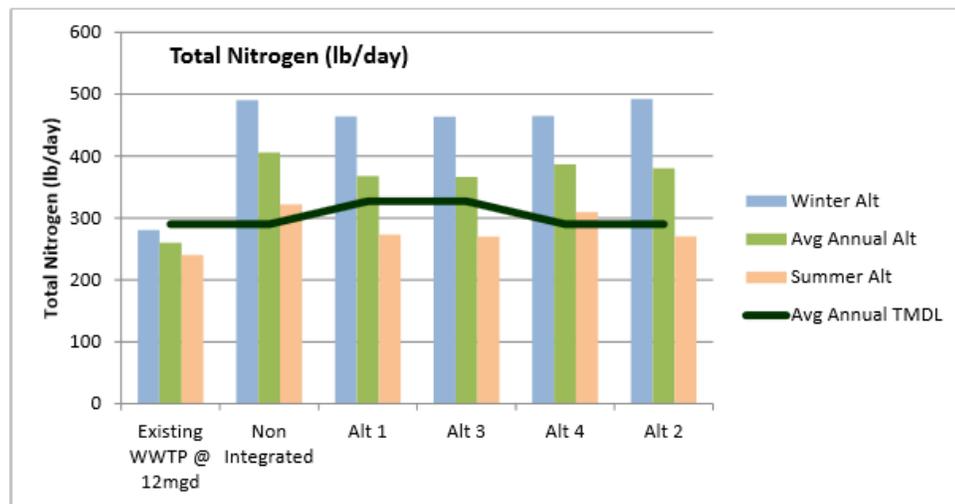


Figure 4-16

IWRP Loads Compared Against TMDL Limits for Nitrogen

p. 4-23 City of Franklin, TN, Integrated Water Management Plan, Draft Report, July 2012, CDM Smith.

6. The entire IWRP effort worked off of the pollutant wasteloads set by the EPA's TMDL. As discussed extensively in documents in the permit record, it is clear that the TMDL did not set the loads at levels to enable the river to meet standards. HRWA and other stakeholders promoted at the beginning of the IWRP process that one or two figures representing lower loads be used for the analysis as well. That was not supported.
7. This river model also did not work at flows in the river below 5 cfs. While an improvement over the state of the art when the EPA did its work, the river regularly sees daily flows in the summer of 2 and 3 cfs and the 7Q10 is LESS still at 0.84 cfs. The river must meet water quality standards at 7Q10 flows by law.
8. The IWRP has put too much emphasis on the sediment oxygen demand of material along the river bottom as the primary reason the river doesn't meet water quality standards upstream. The groundwater contamination by ELMCO is one example of a loading in the river that is not SOD. Also upstream sources can be tackled HRWA has been doing in the headwaters with agricultural best management practices. The town of Eagleville is finally

building a non-discharging sewer plant that will address failing septic that is widespread in the town from the perched water table in the headwaters.

9. The IWRP document and the city's comments clearly state that the river is impaired and that the Harpeth does not meet water quality standards before the sewer plant discharge. As has been pointed out in these comments, discharging a pollutant into receiving waters that do not meet standards for that pollutant or because of it is not allowed.
  
10. It is important to stress that the IWRP completely ignored the effect of having an effluent dominated stream flowing through downtown Franklin. The plan views the "Toilet to Tap" proposal as if the effluent is simply more river water when it will create odor and introduce contaminants into the drinking water supply. Sewage treatment plants do not remove all the potential harmful substances such as pharmaceuticals and personal care products, hormone derivatives, organic chemicals, and others depending on the sewer system and customer base. Current Safe Drinking Water Act regulations and guidelines do not address scenarios for effluent-dominant systems. According to the National Academy of Sciences report on Water Reuse that came out in 2012, there are no standards based on science set up to protect public health when it comes to direct reclaimed water reuse as of yet.

Please do not hesitate to contact me if you need any further material much of which can be accessed from our web site.

Sincerely,



Dorene Bolze  
Executive Director  
Harpeth River Watershed Association

Attachments:

1. "Liberty Creek Flow and Oxygen Demand: ELMCO Solvent Release Response" to HRWA by Global Consulting, Nov. 12, 2013
2. May 3, 2012 memo from Dorie Bolze to Franklin BOMA on role of stakeholders in the IWRP. No vote on options done.

cc:

Bob Martineau, TDEC Commissioner  
Shari Meghreblian, Deputy Director, TDEC  
Sandra Dudley, Director of the Division of Water Resources  
Jennifer Dodd, TDEC  
Alan Schwendimann, TDEC  
Briton Dotson, TDEC  
Wade Murphy, TDEC  
Sherry Wang, TDEC  
Ming Shiao, TDEC  
Vojin Janjic, TDEC  
Eric Stuckey, City Administrator of Franklin  
Mark Hilty, City of Franklin, Director of Water Services

Tyler Ring, Berry's Chapel Utility  
Bruce Myers, Cartwright Creek Utility  
Jim Giattina, EPA Region IV, Water Protection Division  
Chris Thomas, EPA Region IV, Chief, Pollution Control and Implementation Branch  
Shawneille Campbell-Dunbar, EPA Region IV, Chief, TMDL Development Section  
Mark Nuhfer, EPA Region IV, Chief, Municipal & Industrial NPDES  
William Melville, EPA, Region IV, TMDL  
Scott Gain, USGS, Director for TN  
Shannon Williams, USGS  
Steve Alexander, USFWS Cookeville  
David McKinney, TWRA  
Rob Todd, TWRA



## HARPETH RIVER WATERSHED ASSOCIATION

### Board of

### Directors

Matt Dobson

*Chairman*

Becky Barkley

David Bridgers

Angela Calhoun

Mike Corn

Susan Hilgendorf

Debby Meide

Craig Owensby

Phil Pace

Jay Sheridan

### Advisory Board

Jeff Carr

Robert Crosby

Orrin Ingram

John Ingram

Lisa Harless

Nancy Hiatt

David Lemke

Nathan Ober

Darrell Waltrip

May 3, 2012

Dear Mayor Moore, City of Franklin Aldermen, and Eric Stuckey

RE: Item 14: Language in resolution (2012-18) re IWRP projects on role and approval of a Preferred Plan (Option 1) by the stakeholders

As you know, I have represented HRWA as a stakeholder in the city of Franklin's Integrated Water Management Plan. HRWA has been very supportive of this important effort that the city has undertaken to plan for its sewer and drinking water needs for the next 30 years. CDM Smith and city staff have put in significant effort and prepared numerous technical documents that are very valuable in guiding the Board of Mayor and Aldermen's decisions in continuing to upgrade and fund the many aspects of the city's sewer and drinking water system. Stakeholders have also provided valuable input and time. HRWA has provided CDM Smith with everything in our files and met with CDM Smith staff on several occasions outside of the formal stakeholder meetings to discuss certain aspects of the work, such as the water quality modeling effort.

Earlier this year, presentations of the IWRP Phase II efforts were given and a proposed priority list of projects was presented and discussed during several BOMA work sessions. At one of these, the question was raised as to the role of the stakeholders and whether there was an actual vote on the various Alternatives analyzed in the Phase II effort. The draft resolution (2012-18) that accompanies the proposed project list states that "the Stakeholders and Steering Committee have approved a Preferred Plan (Alternative 1) that provides a list of projects and/or policies needed to implement the intent of the IWRP." In addition, a statement read by Mayor Moore at the most recent BOMA Work Session did clearly frame the stakeholder role as that of officially approving Alternative 1.

During the April 10 work session I provided oral comments regarding my recollection on the role of stakeholders and the process of the Phase II analysis of the alternatives. Since not all of the members of BOMA were present at that work session, it seemed appropriate to provide this officially in writing. During the October 2011 stakeholder meeting, the CDM facilitator at one point asked each attendee their position on each of the alternatives after the presentation. I recall some people saying they were. I recall that stakeholders in attendance that represented state and federal agencies, local governments, and utilities made statements to the effect that for various reasons it was not appropriate for them to approve or disapprove of an alternative. Many stated that they felt their role was

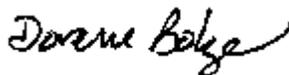
advisory. I remember one or two stakeholders stating that it didn't feel appropriate as an outside entity to imply or dictate policy guidance which is the role of BOMA. I stated that I was not supportive of the outcome presented for a number of reasons related to work on the water quality model, concerns that Alternative 1 presented significant regulatory issues, and concerns about having the results presented to the stakeholders that afternoon with no time to review, among other points that I raised at various times during the IWRP effort.

HRWA's concerns with aspects of the IWRP work does not negate the vast amount of valuable work that has been done and is being used to guide important sewer and water infrastructure decisions. Nor would it be appropriate for HRWA to speak for any of the other stakeholders on their recollection or perspective on their role. It was suggested during the IWRP work, that the final report on Phase II and the statement describing the stakeholder involvement be circulated to the stakeholders for review prior to finalization of that report. The list of stakeholders is on page 3-4 of the Phase I IWRP report that is on the city's website if you have an interest in contacting them.

HRWA has participated in numerous stakeholder processes like the IWRP. A similar one was the 840 Task Force that worked on modifications to the route of a contentious section through southeastern Williamson County. In that situation, two different statements were prepared that each stakeholder signed related to the preferred alternative route. The work was provided to Governor Bredesen who was the decision-making authority to choose the final route. In other similar task force or stakeholder efforts that I have participated in, the members are noted for their input but were not decision makers. The subsequent report reflected that the findings or preferred options were based on input from the advisors/stakeholders but the decisions or preferred options were set by a different decision-making body or the authors. With the regard to the nature of the function of the stakeholders for the IWRP, a statement as to their role in the final Phase II report will clarify their involvement versus those of the Steering Committee or others with regard to any recommendations of alternatives and options.

While there are differences on aspects of the IWRP work, I want all of the members of the board of mayor and aldermen and city staff to know that these are to be expected as part of the nature of these complex issues. HRWA appreciates and recognizes each of your care, concern and desire to improve and maintain the health of the Harpeth River that flows through downtown Franklin. Each of you care for the Harpeth River and for the city of Franklin.

Sincerely,



Dorene Bolze  
Executive Director