
NOTICES OF PUBLIC INFORMATION

Notices of Public Information contain corrections that agencies wish to make to their notices of rulemaking; miscellaneous rulemaking information that does not fit into any other category of notice; and other types of information required by statute to be published in the Register.

Because of the variety of Notices of Public Information, the Office of the Secretary of State has not established a specific publishing format for these notices. We do however require agencies to use a numbered list of questions and answers and follow our filing requirements by presenting receipts with electronic and paper copies.

NOTICE OF PUBLIC INFORMATION DEPARTMENT OF ENVIRONMENTAL QUALITY

[M15-237]

1. **A.R.S. Title and its heading:** 49, The Environment
A.R.S. Chapter and its heading: 2, Water Quality Control
A.R.S. Article and its heading: 2.1, Total Maximum Daily Loads
Section: A.R.S. § 49-234, Total maximum daily loads; implementation plans

2. **The public information relating to the listed statute:**

Pursuant to A.R.S. § 49-234, the Arizona Department of Environmental Quality (Department or ADEQ) is required to develop a total maximum daily load (TMDL) for navigable waters that are listed as impaired. The purpose of this notice is to publish the Department's determinations of total pollutant loadings for a TMDL for Granite Creek in Prescott, Arizona that the Department intends to submit to the Regional Administrator for Region 9, U.S. Environmental Protection Agency (EPA) for approval.

Public notice of the opportunity for public comment on the draft "Granite Creek *E. coli* TMDL" and associated "Modeling Report" was published in *The Prescott Courier* newspaper for general circulation in the vicinity of the impaired reaches, on November 26, 2014. The public comment period extended from December 11, 2014 to January 29, 2015.

3. **Total Maximum Daily Loads (TMDLs)**

A. **TMDL Process**

A TMDL represents the total load of a pollutant that can be assimilated by a waterbody on a daily basis and still meet the applicable water quality standard. The TMDL can be expressed as the total mass or quantity of a pollutant that can enter the waterbody within a unit of time. In most cases, the TMDL determines the allowable concentration or density of a pollutant in units per day and divides it among the various contributors in the watershed as wasteload (i.e., point source discharge) and load (i.e., nonpoint source) allocations. The TMDL must also account for natural background sources and provide a margin of safety.

In Arizona, as in other states, changes in standards or the establishment of site-specific standards are the result of ongoing science-based investigations or changes in toxicity criteria from EPA. Changes in designated uses and standards are part of the surface water quality standards triennial review process and are subject to public review. Standards are not changed simply to bring the waterbody into compliance, but are based on sound science that includes evaluation of the risk of impact to humans or aquatic and wildlife communities. Existing uses of the waterbody and natural conditions are considered when standards for specific water segments are established.

These TMDLs meet or exceed the following EPA Region 9 criteria for approval:

Plan to meet State Surface Water Quality Standards: The TMDLs include a study and a plan for the specific pollutants that must be addressed to ensure that applicable water quality standards are attained.

Describe quantified water quality goals, targets, or endpoints: The TMDL must establish numeric endpoints for



the water quality standards, including beneficial uses to be protected, as a result of implementing the TMDLs. This often requires an interpretation that clearly describes the linkage(s) between factors impacting water quality standards.

Analyze/account for all sources of pollutants: All significant pollutant sources are described, including the location and the magnitude of sources where data is available.

Identify pollution reduction goals: The TMDL plan includes pollutant reduction targets for all point and nonpoint sources of pollution.

Describe the linkage between water quality endpoints and pollutants of concern: The TMDLs must explain the relationship between the numeric targets and the pollutants of concern and determine whether the recommended pollutant load allocations exceed the loading capacity of the receiving water.

Develop margin of safety that considers uncertainties, seasonal variations, and critical conditions: The TMDLs must describe how any uncertainties regarding the ability of the plan to meet water quality standards have been addressed. The plan must consider these issues in its recommended pollution reduction targets.

Provide implementation recommendations for pollutant reduction actions and a monitoring plan: The TMDLs should provide a specific process and schedule for achieving pollutant reduction targets. A monitoring plan should also be included, especially where management actions will be phased in over time and to assess the validity of the pollutant reduction goals.

Include an appropriate level of public involvement in the TMDL process: This is met by publishing public notice of the TMDLs in a newspaper of general circulation in the area affected by the study, circulating the TMDLs for public comment, and holding public meetings in local communities. Public involvement must be documented in the state's TMDL submittal to EPA Region 9.

In addition, these TMDLs specifically comply with the public notification requirements of A.R.S. Title 49, Chapter 2, Article 2.1 through this public notice: Publication of these TMDLs in the Arizona Administrative Review (A.A.R.) is required per Arizona Revised Statute, Title 49, Chapter 2, Article 2.1 prior to submission of the TMDL to EPA. The Department shall:

1. Prepare a draft estimate of the total amount of each pollutant that causes impairment from all sources that may be added to a navigable water while still allowing the navigable water to achieve and maintain applicable surface water quality standards;
2. Determine draft allocations among the contributing sources that are sufficient to achieve the total loadings;
3. Provide public notice and allow for comment on each draft estimate and draft allocation and shall prepare written responses to comments received on the draft estimates and draft allocations.
4. Publish the determinations of total pollutant loadings that will not result in impairment and the draft allocations among the contributing sources that are sufficient to achieve the total loadings that it intends to submit initially to the regional administrator, along with a summary of the responses to comments on the estimated loadings and allocations, in the A.A.R. at least forty-five days before the submission of the loadings and allocations to the regional administrator.

Federal law only requires the submittal of the pollutant loadings to EPA for approval. However, the Department considers the pollutant loadings and the draft allocations to be integrally related and that they should be presented together to afford the public a complete understanding of the issues, outcomes and recommendations of the TMDL analysis. For that reason, the Department has combined the loadings and allocations in this publication in the A.A.R.

B. TMDL for Granite Creek



BACKGROUND

In 2010, Granite Creek and one of its tributaries Miller Creek, were listed on the State’s 303(d) Impaired Waters List as impaired for *Escherichia coli* (*E. coli*) based on sample results from 2007 and 2008. The listings have been confirmed in subsequent assessments and two additional tributaries, Butte Creek and Manzanita Creek, were listed for *E. coli* in 2012. TMDL sampling within the Upper Granite Creek Watershed was initiated in late 2007 and continued through August of 2014. Samples were collected at several points on the typical hydrograph for multiple locations and for subwatersheds and tributaries feeding the impaired reaches. Critical conditions for *E. coli* exceedances were determined to be both summer monsoon and winter storms flows. This TMDL includes load and waste load allocations developed to ensure that Granite Creek and its tributaries will meet the single sample maximum (SSM) *E. coli* standard of 235 colony forming units (cfu) per 100 ml. The 2012 Watershed Improvement Plan is being updated to include TMDL analysis and prioritization of best management practices and possible projects for TMDL implementation.

TMDL CALCULATIONS

The mass balance TMDL calculations are based on flow and load duration curves generated at the two USGS gauges above Watson Lake.

The TMDL or loading capacity and the resulting load reductions necessary to meet the TMDL is determined using the TMDL equation:

$$TMDL = \sum WLA + \sum LA + MOS$$

Where WLA is waste load allocation (point sources), LA is load allocation (nonpoint sources and natural background), and MOS is a margin of safety. Loading capacity, existing loads, and reductions needed for water quality standard attainment are calculated for Granite Creek as mass loads in Giga-organisms per day (G-orgs/day) to the creek and concentration targets in cfu/100 ml for permitted and non-permitted sources. Analysis of watershed data is provided to guide further source determination and prioritization of locations for application of best management practices. Background loading from Prescott National Forest was estimated on a storm event basis.

LOAD REDUCTIONS

Load Reductions (LR) are needed when the existing load is larger than the LA calculated using the TMDL equation. The LR can be calculated by:

$$LR = \text{Existing load} - (LA + \text{Natural background} + MOS)$$

The percent reduction needed is calculated by using:

$$\% \text{ Reduction} = (LR / \text{Existing Load}) * 100$$

TMDLs identify the amount of pollutant that can be assimilated by the waterbody and still meet water quality standards. In order to calculate *E. coli* mass load in Giga-organisms per day (G-orgs/day) from discharge in cubic feet per second (cfs), a conversion factor is required. The conversion factor of 0.02445 serves to convert the product of *E. coli* densities and flows into daily loads and is derived as follows:

$$1 \text{ cfu}/100\text{ml} \times 1000\text{ml}/1\text{L} \times 28.3\text{L}/1 \text{ ft}^3 \times 86,400 \text{ sec}/1 \text{ day} \times 1 \text{ G-org}/1 \times 10^9 \text{ cfu}$$

MARGIN OF SAFETY (MOS)

The MOS is intended to account for uncertainties and random variations associated with data collection, lab analysis, equipment and method precision and accuracy limitations, modeling, and random error associated with flow measurements. The MOS for this TMDL is implicit rather than explicit. The 0.75 upper confidence limit (UCL) median flow value was chosen due to uncertainties in the median value associated with limited sampling events to evaluate at most sites. This allows for an implicit margin of safety in the target load value that is reasonable when assessed in comparison with other *E. coli* TMDLs.

NATURAL BACKGROUND

The determination of natural background was made from ranking loads from samples collected in headwater sub-watersheds of upper Miller, upper Granite Creek, and Upper Aspen Creek. The 90th percentile load value was



selected as representative stormflow loading, corresponding to 18.98 G-cfu/day, or 50.4 cfu/100 ml at a flow of 15.4 cfs.

TMDL ALLOCATIONS

The TMDL contains both a concentration-based target of 235 cfu/100 ml to be met at all locations in the watershed, and a load-based target set at both USGS gauges. In practical application, meeting the concentration-based target will achieve the load-based target, and vice-versa. With the inclusion of an implicit MOS and background, reductions necessary to meet the SSM *E. coli* standards at these locations are 92.8 percent and 94.9 percent respectively (Table 1). These aggregated load reductions will be used as the benchmark for meeting the TMDL instream target and for assessing cumulative watershed improvements.

Table 1. Aggregated Loads and Allocations (G-cfu/day¹)

TMDL Static Load Sites	Target Flow (cfs)	TMDL Target Load	Existing Load	Percent Reduction	Natural Background	Total Allocation	LA 50%	WLA 50%	Concentration Target (cfu/100 ml)
Lower USGS Gauge #09503000	53	304.5	4,200.3	92.8	18.9	295.5	144.7	144.7	235
Upper USGS Gauge #09502960	18.3	105.2	2,070.6	94.9	18.9	86.2	43.1	43.1	235

¹G-cfu/day = 1 billion cfu/day = *E. coli* concentration (#cfu/100 ml) * cfs (discharge * conversion factor of 0.02446)

LOAD ALLOCATIONS

Nonpoint sources are diffuse sources not regulated under a surface water discharge permit. Load allocations for nonpoint source entities have been included in Table 2 for completeness and to show that the total *E. coli* allocation is essentially split 50-50 between nonpoint sources and point sources, based on jurisdictional area within the Watson Lake watershed. The urbanized area accounts for 14 percent of the watershed but approximately 50 percent of the TN and TP load (Tetra Tech, 2012). Mass based load targets for *E. coli* are similarly divided 50-50 for point source and nonpoint source inputs based on watershed area. Nonpoint source contributions from the watershed may come from either natural background conditions or anthropogenic sources. Mass based LAs for *E. coli* are calculated in the aggregate to be met at each USGS gauge depending on the reduction needed. Within the watershed, LAs are set at the SSM standard for *E. coli* to be met by all nonpoint sources.

WASTE LOAD ALLOCATIONS (WLA)

Wasteload allocations are assigned to entities with individual or general Arizona Discharge Pollution Elimination System (AZPDES) stormwater permits. Collectively, the permitted point sources, Municipal Stormwater (MS4) permit, Multi-sector General permits (MSGP), and Construction General permits (CGP) are assigned a concentration based WLA equal to 235 cfu/100 ml. This WLA is applied, as a water quality based effluent limit (WQBEL), to all existing and future AZPDES (individual and general) permittees within the Upper Granite Creek watershed. The WLA applies to discharges that occur in response to precipitation events and is applicable for each separate discharge that may issue from the permitted entity or site. The exception is for MS4 permits where the WLA is expressed as a system-wide requirement. Permittees can demonstrate compliance with the WLA by either direct sampling of outfall discharges or demonstrate that best management practices quantitatively reduce the discharge of pollutants to a level that meets the WQBEL. If single grab samples exceed the WLA, permittees should evaluate the effectiveness of BMPs, modify or implement new BMPs, or provide additional measures to improve water quality.

Table 2 breaks the total allocation down by land manager and the percent of the watershed under each jurisdiction. Each allocation is identified as either a load allocation (LA) for nonpoint source, or wasteload allocation (WLA) for point source.



Table 2. Load Allocations and Wasteload Allocations by Land Manager (G-cfu/day)

Land Manager	Square Miles ¹	Percent of Watershed	LA at #0902960	WLA at #0902960	LA at #09503000	WLA at #09503000	Concentration Target (cfu/100 ml)
Unallocated LA Reserve 10% of LA TBA			4.3		14.5		
Prescott Forest	18.1	40	34.3		115.3		
State Lands	2.2	5.0	4.3		14.4		
Military (VA)	0.08	0.2	0.17		0.58		
Total Nonpoint Source	20.4	45.2					
All Nonpoint Source							235
Unallocated WLA Reserve 10% of WLA ADOT MS4, MSGP, CGP, Other TBD				4.3		14.5	
City of Prescott MS4	17.6	39.0		30.8		103.7	
Yavapai County MS4	4.5	10.0		7.9		26.6	
Total Point Source	22.0	49.0					
Total Nonpoint + Point Source		94.2 ²					
All Point Source							235

¹as cited in 2012 WIP; ² does not include tribal land

The Arizona Department of Transportation (ADOT) has an individual Municipal Stormwater (MS4) permit. ADOT is not a generator but a conveyance system and their permit is statewide. General permits that have been issued within the watershed include the City of Prescott MS4, Yavapai County MS4, and several MSGPs and CGPs. MS4 and MSGP facilities covered under AZPDES permits are detailed in Table 3. CGPs are numerous and relatively short-lived, so they are not listed.

Beyond the general guidelines presented in the following paragraph regarding points of compliance for WLAs (discharge locations to waters carrying the FBC designated use), the ADEQ Stormwater Unit shall establish more specific locations when necessary on a case-by-case basis where dischargers under all general or individual permits (MS4, MSGP, CGP) issued by ADEQ are expected to meet their WLAs. The ADEQ Stormwater Unit shall also determine whether *E. coli* loading to tributaries or the main-stem of Granite Creek from all future general permittees has reasonable potential to occur in their permit reviews. If there is such reasonable potential, new permittees will be subject to the appropriate concentration-based WLA in this TMDL. Otherwise, new permittees' WLA shall be 0 cfu/100 ml.

The point of compliance for WLAs for all discharges from MS4, MSGP, CGP, or individual AZPDES permit operations shall be the point of discharge to a reach carrying a FBC designated use. All entities subject to individual and general AZPDES permit requirements will be considered to be operating consistent with the provisions of this TMDL if they adhere to the terms of their discharge permits as expressed for *E. coli* concentration.



Table 3. Permittees in the Watson Lake watershed (CGPs not listed)

Permit No.	Issue Date	Permit Type	Permittee Name
AZMS4-2002-30	2002	MS4	City of Prescott: Storm Water
AZMS4-2002-40	2002	MS4	Yavapai County: Storm Water
AZS000018	2008	MS4	AZ Dept. of Transportation: Storm Water
AZMSG-60156	5/27/11	MSGP	Fann Contracting Inc.: Trucking
AZMSG-60592	7/19/11	MSGP	Lamb RV Storage: Transit
AZMSG-68954	3/29/12	MSGP	City of Prescott: Sundog Treatment Works
AZMSG-68974	3/29/12	MSGP	City of Prescott: Transfer Station & Service
AZMSG-83190	11/24/14	MSGP	Yavapai Block Company, Inc.

4.0 ADEQ Response to comments on draft Granite Creek TMDL

EPA Region 9

Specific Comment #1:

Water Quality Standards and Margin of Safety (MOS), Section 3

Page 3 of the TMDL describes “Arizona’s 2009 water quality standard for *E. coli*”, and this is confusing. The year “2009” should be removed, or replaced with “approved”.

Response #1: 2009 has been removed and “approved” has been added, now on page 4.

Specific Comment #2:

The TMDL should state that the State-established designated uses and applicable water quality standards included in the TMDL apply to that portion of the Upper Granite Creek Watershed that falls under the jurisdiction of the state of Arizona. Clarify that Arizona water quality standards are not applicable to Tribal waters.

Response #2: ADEQ has clarified the text in Section III.

Specific Comment #3:

Beneficial uses for Granite Creek and all its tributaries included in the Upper Granite Creek TMDL boundary should be included in Table 1 of the TMDL and/or Section 3, *Water Quality Standards and MOS*. We suggest listing all waterbodies included in the TMDL which are tributaries to Granite Creek and Watson Lake by name (Slaughterhouse Gulch, Manzanita, Miller, Butte and Aspen Creeks, etc.) and their applicable designated uses.

Response #3: This information has been added to Table 1.

Specific Comment #4:

Problem Identification, Section 4

In several places throughout the TMDL and in Appendix A, *E. coli* concentrations above the standard are noted. However, the magnitude of these exceedances are not described. The TMDL should include an assessment determination for each waterbody segment included in the TMDL.

The assessment should describe the number of exceedances of the *E. coli* water quality standard for each waterbody segment analyzed (Upper and Lower Granite Creek, Upper and Lower Miller Creek, Upper and Lower Aspen Creek, Upper and Lower Butte Creek, Manzanita Creek, Government Creek, Slaughterhouse Gulch, etc.). It would be helpful if the assessment determination explicitly provided the average concentrations of *E. coli* found in recent data, rather than just stating it meets or does not meet the standard.

Response #4: Sample results in excess of the WQS can be found in Appendix A of the TMDL report up through 2013. The 2012/14 305(b) Assessment Report contains the decision criteria and number of exceedances based on those assessment criteria. In addition, Figure 6 in Section VII of the TMDL specifies the percent reductions needed by sub-watershed.

**Specific Comment #5:**

Source Analysis

There is no source analysis section included in the TMDL. The list of point and non-point sources and their magnitude, and some analysis of the impact from each should be described, (i.e. which are the greatest contributors). At a minimum, the TMDL should also reference and summarize the relevant analysis in the Watershed Implementation Plan (WIP). Any relevant source analysis conclusions drawn from ADEQ's "Draft Granite Creek Modeling Report: In support of the Granite Creek *E. coli* TMDL, Verde Watershed, Yavapai County, Arizona," should also be included.

Response #5: Section V is now "Source Determination" and includes the WIP analysis. Relevant source analysis conclusions from the Modeling Report remain in Section VI.

Specific Comment #6:TMDL for *E. coli*, Section 7

In Table 4 on page 12, the TMDL should indicate whether the City of Prescott and Yavapai County are MS4s or another type of permittee.

Response #6: Table 4 is now Table 5 and the type of permittee has been indicated.

Specific Comment #7:

Page 12 of the TMDL provides concentration-based WLAs depending on whether the discharge is to a creek with a FBC or PBC designated use. The TMDL should clarify whether a discharge to a tributary of one of these creeks is also subject to the WLAs. Applicable concentration-based WLAs should be included in Table 4 in addition to the mass-based allocations provided.

Response #7: The text on page 12 of the TMDL has been revised (and is now on page 19) to remove reference to the PBC designated use *E. coli* standard. As an intermittent system, Granite Creek and its tributaries are held to the same perennial *E. coli* standards, SSM of 235 cfu/100 ml and Geometric Mean of 136 cfu/100 ml. The WLA of 235 cfu/100 ml applies to Granite Creek and to all of its tributaries. Table 4 is now Table 5; the concentration-based WLA has been added to Table 5 which is now on page 19.

Specific Comment #8:

The TMDL should disaggregate the WLAs for point source dischargers. The proposed TMDL includes combined WLAs for the ADOT MS4 and reserve WLAs at each gauging station. This collective WLA will be difficult to implement in separate permits. We strongly encourage disaggregating allocations, especially for individual permittees.

Response #8: It is not possible at this time to completely disaggregate the mass based WLAs due to a lack of discharge monitoring data. Table 5 contains mass based WLAs based upon watershed area. The TMDL is applying a concentration-based WLA to each permittee equal to 235 cfu/100 ml.

Specific Comment #9:

It is unclear whether or not the combined WLA in Table 4 includes MSGP facilities. If so it should state this and if not the TMDL should clearly state what the WLA for MSGP facilities is and include this information in Table 4.

Response #9: Table 4 is now Table 5 and provides mass-based WLAs to the three MS4 permittees. MSGP facilities and CGPs are included in the Reserved WLA. However, the concentration-based WLA applies to all general and individual permits.

Specific Comment #10:

The TMDL should provide a basis for the 50/50 split of the load allocation between point and nonpoint sources described on page 13.

Response #10: The urbanized area accounts for 14 percent of the watershed but approximately 50 percent of the TN and TP load (Tetra Tech, 2012). Mass based load targets are divided 50:50 for point source and nonpoint source inputs based on watershed area. This statement has been added to what is now Section VIII-5.

Specific Comment #11:



On page 13, the TMDL states that “updated will be incorporated into future Stormwater Management Plan (SWMP) and Stormwater Pollution Prevention Plan (SWPPP) reviews and requirements based on new data. First, it should state “*additional WLAs*” since the TMDL also establishes a concentration-based WLA. Also, it is not clear whether this new information would result in revisions to the existing TMDL, or how “additional WLAs” could impact permittee compliance with already established permit limits based on the existing WLA.

Response #11: The sentence referring to “updated WLAs” has been removed and clarifying language added to Section VIII-6.

Specific Comment #12:

Also on page 13, the TMDL recommends collaboration between point and nonpoint sources. The TMDL should describe the expectations for the collaboration.

Response #12: ADEQ expects that collaboration between point and nonpoint source entities in development of strategies to achieve the TMDL occur through the Watershed Improvement Council (added to Section IX).

Specific Comment #13:

It is not clear that all point sources in the watershed are being accounted for in the TMDL, as only stormwater point sources are listed. Are there any wastewater point sources in the watershed? If so, WLAs should be included for those point sources.

Response #13: There are no wastewater sources permitted to discharge within the Upper Granite Creek watershed. Any future permitted point source would be assigned a WQBEL equal to 235 cfu/100ml as discussed in Section VIII.

Specific Comment #14:

The TMDL should specify the locations where the WLAs apply. There appear to be both a concentration-based WLA and a mass-based cfu/day WLA, which is set at the gauging station. It is not clear where the concentration-based WLA applies. The TMDL leaves the point of compliance for each discharger to be determined within the SWMP or SWPPP. The permittees included in the TMDL would likely have multiple discharge points and therefore, determining representative monitoring and appropriate points of compliance is important to consider in the TMDL in order to ensure implementation of the TMDL leads to the expected water quality improvement. The TMDL should clearly describe whether or not the WLAs apply at the end of the pipe or conveyance, and how WLAs covering multiple discharge points should be applied or measured.

Response #14: Representative discharge outfall locations have not been determined at this time. However, the WLA applies to discharges that occur in response to precipitation events and is applicable for each separate discharge that may issue from the permitted entity or site. The exception is for MS4 permits where the WLA is expressed as a system-wide requirement. Permittees can demonstrate compliance with the WLA by either direct sampling of outfall discharges or demonstrate that best management practices quantitatively reduce the discharge of pollutants to a level that meets the WQBEL. This language has been added to Section VIII.

Specific Comment #15:

The TMDL should describe how the WLA should be translated into water quality-based effluent limits (WQBELs) for point source dischargers. There are essentially two ways a WLA can be incorporated into a permit: (1) include numeric WQBELs or; (2) include best management practices that are demonstrated by modeling to quantitatively reduce the discharge of pollutants to a level that meets the WLA. The TMDL should clearly establish how the WLA should be incorporated into permit limits and identify appropriate averaging periods and periods of excursion. This should also be addressed for the filers under the Construction General permit, which is currently described on page 13 of the TMDL.

Response #15: All potential point source discharges are expected to meet the single sample maximum (SSM) E. coli standard of 235 cfu/100 ml. Permittees can demonstrate compliance with the WLA by either direct sampling of outfall discharges or demonstrate that best management practices quantitatively reduce the discharge of pollutants to a level that meets the WQBEL. This language has been added to Section VIII.

**Specific Comment #16:**

On page 12 the proposed TMDL states that the WLA can be superseded by specific general permit conditions issued by ADEQ and that these additional conditions would depend on site-specific factors, such as proximity to impaired waters or reasonable potential to exceed water quality standards. This statement provides too much flexibility, which may result in inadequate implementation of the TMDL.

Response #16: ADEQ agrees and has removed the “superseded by” language from the revised Section VIII language.

Specific Comment #17:

TMDL Implementation, Section 8

We noticed that an implementation section was not included in this TMDL. Implementation is a critical next-step to realize improvements in water quality in the Upper Granite Creek watershed. EPA supports ADEQ's plan to update the companion WIP described on page 16 and Table 6 of the TMDL. We understand that the process and analysis will provide greater detail on how nonpoint source pollution will be reduced. We welcome opportunities to collaborate with you on implementation, such as facilitating improved water quality practices on federal lands contributing to water quality exceedances and helping to complete more specific watershed plans to inform focused cost-effective implementation towards meeting load reductions.

Response #17: TMDL implementation milestones have been included in Section IX-2 of the TMDL document, with additional detail and general timelines to be incorporated in the revised WIP.

Specific Comment #18:**Appendices and Supporting Technical Documents**

Several documents are referenced frequently throughout the TMDL and serve as supporting technical documents. In addition to Appendix A, the following documents should be included as Appendices to the TMDL: a) ADEQ. 2014. “Draft Granite Creek Modeling Report: In support of the Granite Creek *E. coli* TMDL, Verde Watershed, Yavapai County, Arizona”, and b) “Prescott Creeks and the Granite Creek Improvement Council. 2012. “Improvement Plan for the Upper Granite Creek Watershed, Arizona, Version 2.1.”

Response #18: The supporting documents are too large to be added as appendices to the TMDL. These supporting documents are available for review and download from the ADEQ web site at: http://lists.azdeq.gov/environ/water/assessment/tmdl_status-vr.html and in the Reference section of the TMDL.

Arizona Department of Transportation**Specific Comment #1:**

Local to the Upper Granite Creek Watershed ADEQ has provided information that indicates sources of *E. coli* include humans, wildlife, and domestic animals, as well as sanitary sewer overflows and cross connections. These sources and situations are not compatible with, or common to the ADOT MS4. While the mathematics that are the basis for load, or assimilation of *E. coli* in the watershed/system, appear to be sound, the assignment of waste load or load allocations to entities with individual or general AZPDES permits places emphasis on the type of permit rather than a known source of pollution occurring in that MS4 or even the amount of surface area contributed. For these reasons it is recommended that ADEQ consider the following (additional comments) and revise the draft TMDL accordingly.

Response #1: *E. coli* can be carried by sediment or water that reaches or crosses ADOT's jurisdiction. Although the activities performed by ADOT would not normally generate *E. coli*, BMPs may be needed to control run on and runoff.

Specific Comment #2:

Table 5 incorrectly states ADOT has an MS4 permit issued in 2000; ADOT's permit at the time of this draft TMDL is an individual statewide with MS4, industrial, and construction that was issued in 2008.

Response #2: Table 5 is now Table 6; the date has been corrected and the permit type has been clarified.

**Specific Comment #3:**

ADOT would prefer to have control measure specific requirements for the MS4 Outfalls only and would plan to comply with appropriate numeric limits for specific projects or activities subject to the construction or industrial general permits.

Response #3: Permittees can demonstrate compliance with the WLA by either direct sampling of outfall discharges or demonstrate that best management practices quantitatively reduce the discharge of pollutants to a level that meets the WQBEL. Due to a lack of monitoring data by the MS4 jurisdictions within the Granite Creek watershed specific control measures required to improve water quality are not currently known. The WLA and associated WQBEL are intended to be the benchmark against which BMP or control measure effectiveness is measured. If the WLA is being met no additional control measures are needed. However, exceedances of the WLA should result in the reevaluation of control measures as described in Section 7.1 of the 2008 ADOT MS4 permit.

Specific Comment #4:

It is unclear from the draft TMDL document whether the ADOT MS4 is a direct contributor of *E. coli* or whether the system is pass-through transport of *E. coli* originating from other land uses. Page 15 of the draft TMDL document notes that potential sources of pollution include degraded municipal sewer infrastructure, septic systems, water reuse, livestock, and pets; these are not typical activities associated with ADOT.

Response #4: See Response #1 above. ADEQ agrees that MS4 ADOT activities in and of themselves are unlikely to generate *E. coli* and any *E. coli* contained within ADOT MS4 discharges likely originated from other surrounding land uses. However, ADOT's permit requires that discharges not degrade the receiving water and specifically requires an illicit discharge detection and elimination program. A sentence has been added to Section VIII, page 20, clarifying ADOT as a conveyance system.

Specific Comment #5:

Also on page 15 of the draft TMDL document lists factors that could be associated with a MS4 such as ADOT, but more realistically a traditional MS4 such as a city. The draft TMDL document does not describe the percentage of impervious surfaces within the total area that are comprised of ADOT property. In acknowledgement of that described in this and the above bullet, and of ADOT's post-construction control measure requirements in our Phase I AZPDES Individual Permit, ADOT requests that any limits are BMP-based.

Response #5: ADOT is correct that ADEQ was not able to determine the exact area of the watershed comprised of ADOT property due to a lack of accurate mapping information. However, that lack of information does not negate the need for a numeric target against which BMP effectiveness can be evaluated.

Specific Comment #6:

Because the ADOT MS4 may pick up background *E. coli* from soils or carry effluent-laden run-on from adjacent communities, it only makes sense for ADOT to have a narrative, BMP-based limit rather than a numeric assignment. The MS4 section of ADOT's permit contains illicit discharge detection and elimination conditions that require ADOT to stop any non-storm-water flows unless they are currently allowed by an AZPDES permit.

Response #6: Exceedances that are caused solely by natural conditions are not considered a violation of the applicable water quality standard or WLA. Illicit discharge detection and elimination along with coordination with other stakeholders within the watershed is necessary to improve water quality. The numeric WLA provides a benchmark to which BMP effectiveness can be measured.

Specific Comment #7:

Research, pilot-studies, outreach, and other BMP-related activities should precede the implementation of a numeric limit. When assessing the approach, ADEQ must consider the variable nature of stormwater and the time between qualifying rain events, availability of reliable and applicable field data, aerial deposition of *E. coli*-laden dust and sediment, and regional wildlife movements and population dynamics.

Response #7: ADEQ agrees that the activities mentioned are imperative to improving water quality. However, these actions are already required by ADOT's 2008 permit, see Section 3.2 SSWMP Requirements.

**Specific Comment #8:**

ADOT understands that as a non-point source, potentially polluted stormwater may intersect or be present within the MS4 as a result of natural background, however we do not feel that we are a substantive contributor. Background sources may include aerial deposition of dust containing pollutants, wildlife population dynamics, and natural and modified drainage patterns due to regional development and re-development. Therefore, applying a more easily implementable approach, such as that required of Washington DOT, including identifying illicit sources of bacteria, or treating for bacteria in excess of bacteria concentration, or working with individual property owners, are more appropriate than assigning a waste load allocation that is impracticable to meet. In reality, collecting and processing analytical results from the representative sites within hold times is challenging because laboratory testing is not generally available.

Response #8: ADOT's contribution from its MS4 storm sewer system has not been accurately quantified due to a lack of discharge monitoring data. As previously stated ADOT activities are unlikely to generate *E. coli* but the ADOTs storm sewer system may act as a conveyance from other sources in the watershed. Identification of illicit discharges, BMP implementation and outreach are requirements of ADOTs 2008 permit. ADEQ does not agree that the holding time for *E.coli* is prohibitive; ADEQ routinely samples and analyzes water column samples for *E. coli* across the state even in remote regions using commercially available analytical equipment.

Prescott Creeks**Specific Comment #1:**

ABBREVIATIONS – As we worked through the document, several times we referred to the abbreviations list to find that it was not all-inclusive of abbreviations in the document. Update of the list in the final will be helpful.

Response #1: ADEQ has updated the acronym list.

Specific Comment #2:

EXECUTIVE SUMMARY – The executive summary is concise and frames the topic well. It also includes the first map as Figure ES-1. We found all of the maps to be very helpful in supporting the verbiage of the report, yet found ourselves wishing that they were presented in a larger format. Ideally a full page presentation would help the reader see more detail. Similarly, inclusion of some main roadways or other features in the maps might help the reader orient to the landscape. These comments can be applied to all maps presented in the document.

Response #2: All maps have been enlarged to marginal extent and major roadways added to Figure 7. The other maps are either too congested to add roads or remain as they were based on the intended illustration.

Specific Comment #3:

Table ES-2 is well laid out and easily understood. Local discussion has included some speculation about proper function of the Upper USGS Gauge #09502960. While we do not in any way mean to suggest that gauge data is incorrect, we want to call this to ADEQ's attention so that coordination with the USGS can occur. Basis of allocations on gauge data in the future will underscore the importance of proper function and continued support of these sites by the USGS.

Response #3: ADEQ acknowledges the concern regarding proper maintenance and function of USGS gauges. No provisional data were used in the loading analysis and the flow duration curves were based on the period of record.

Specific Comment #4:

WATER QUALITY STANDARDS AND MOS – The last sentence of this section states “Recreational use along Granite Creek and its tributaries includes walking, hiking, biking, wading and camping. There is a golf course located between two of the tributaries and several parks.” Prescott Creeks believes this is an understatement of the importance of recreation to the creek system flowing throughout the Prescott area. There are numerous official parks (Granite Creek Park, West Granite Creek Park, Manzanita/Mountain Club Park, Strickin Park) as well as the downtown Greenways Trail (which extends from Leroux St on the upstream end to Granite Creek Park and then continues up Miller Creek to Miller Valley Rd). There are many other areas not formally designated as parks which are used recreationally by the community. Prescott Creeks believes a more representative listing of parks, both formal and informal, is important to present in this document. One of its audiences is the public – many of whom use these parks in a variety of capacities.



Response #4: ADEQ has added a list of parks and trails from the City of Prescott web site to Section V-2 in the document. This section of the TMDL emphasizes the importance of appropriate use of BMPs within/on all recreational amenities.

Specific Comment #5:

PROBLEM IDENTIFICATION – “Prescott Creeks Preservation Association” is incorrectly referred to with the acronym PCA. The full legal name of the organization is Prescott Creeks Preservation Association, and we use “Prescott Creeks” as an informal, shortened DBA (doing-business-as) name. The mission of Prescott Creeks is to achieve healthy watersheds and clean waters in central Arizona for the benefit of people and wildlife through protection, restoration, education and advocacy. We appreciate the coordination and collaboration on monitoring and water quality improvement projects leading up to the TMDL, as well as the formal recognition in the document.

Response #5: The requested correction has been made.

Specific Comment #6:

TMDL TARGET DEVELOPMENT – Figure 3. Granite Creek Basin Cumulative Loads per Square Mile map includes several subwatersheds with no data. Each of the subwatersheds with no data also lacks a label for the watershed name. Reviewers can find the subwatershed names listed on one or more maps in the Modelling Report, but it would be helpful to have all subwatersheds labeled on the maps where they appear. This comment can also apply to Figure 5. Cumulative Percent Reductions by Subwatershed.

Response #6: ADEQ has rearranged the order of figures so that what was Figure 4 is now Figure 3 (Anthropogenic Impact Indices) and introduces the subwatersheds with all 24 of them labeled. Figure 3 can be used to note which subwatersheds were not represented in sampling or load comparisons.

Sierra Club

Comments:

We have a significant interest in protecting and restoring the water quality in Arizona’s rivers, lakes, and streams. It is within that context that we are submitting these comments. We are generally supportive of the contents of the Draft TMDL, and specifically support strategies for reducing exceedences such as green infrastructure, outreach and education focusing on public involvement, and pursuing funding through innovative mechanisms like a watershed protection fee. The draft document mentions rewriting the 2012 Watershed Improvement Plan (WIP). Any future drafts of the WIP should retain these strategies, as well as a plan for addressing Prescott’s aging and degraded municipal sewer infrastructure. Success of other priority projects listed in the draft may be undercut if this significant *E. coli* source with likelihood to become an ever-increasing contributor to exceedences is not addressed.

Both the work toward assessing current conditions and cleaning up Granite Creek accomplished to date and the constructive strategies *outlined* in this Draft TMDL demonstrate what can be accomplished through collaborative relationships between ADEQ and local stakeholder groups. Thank you for your efforts to protect Granite Creek and other watersheds in Arizona.

Response: The revised WIP will continue to cite the need for addressing repairs and improvements to Prescott’s municipal sewer infrastructure, however, specific plans for such is not within the purview of the WIP, a non-point source plan for improvements and TMDL implementation.

City of Prescott

General Comments:

The City supports seeking water quality improvements for the benefit of the local community and its visitors. The current conditions and the remedies outlined in the TMDL require the strong participation of those that live within or visit the watershed. The disclosure of the scientific process (including data gaps) is a critical element with any regulatory action, such as this, due to the large financial and personal investments by area residents. The City’s history shows that it adheres to and meets state and federal regulations. At the same time, the City has found great challenges in doing so, as the regulations do not necessarily correspond to the local topographic, climate, and governmental conditions existing within this specific watershed.

Response: ADEQ acknowledges the challenges inherent in meeting the proposed TMDL WLAs, but the *E. coli* standard applies to all water bodies regardless of “topography, climate or governmental conditions”.



Specific Comment #1:

Statement No. 1 - Coordination of schedules for multiple regulatory actions

The draft TMDL was void of any information regarding overall implementation schedule and specific milestones. As you are aware, this is the second TMDL that has been released for the area that has a direct impact on the citizens both within and outside of the City limits. The Watson Lake TMDL is currently awaiting its second public review comment period while the initial public comment period for the E. coli TDML is underway. The City understands that both TMDLs will have linkage with enforcement measures to the Small MS4 General Permit yet, to-date, the City (nor any other stormwater permittees in Arizona) have been given definitive information for how the MS4 permit will be integrated and how the TMDL requirements, as noted in the TMDL documents, will be enforced throughout the permit.

To further complicate the schedules for TMDL implementation, ADEQ is in the process of drafting a new Small MS4 General Permit which is expected to be released in July 2015. While the TMDLs are not yet approved, nor the MS4 permit issued, the ADEQ Stormwater Permitting Unit is currently requiring the City to develop an impaired waters monitoring plan (see attached). The development of such a plan will be highly complex and resource intensive, requiring additional data compilation and analysis before sampling schedules, equipment procurement and lab analysis costs can be evaluated. As you are aware, analytical monitoring would be performed to meet MS4 permit and Granite Creek Watershed and Watson Lake TMDL requirements, therefore the plan must consider all these components. The City is now required by ADEQ to expend scarce resources in advance of final MS4 permit and TMDL documents which will outline the City's implementation responsibilities and milestones.

The City understands that the final TMDL will include a detailed implementation schedule. We ask ADEQ to consider the fact that the City will be burdened with the concurrent implementation of two different TMDLs for separate water bodies and pollutants, while anticipating major modifications to the City's Stormwater Management Program for compliance with the new MS4 permit. These are separate but related regulatory actions for which solutions are likely going to be costly to define and implement. A response is sought from ADEQ on the matter of coordinating the requirements and schedules of separate ADEQ units.

Response #1: The final TMDL includes general milestones only. Specific milestones will be developed under the new MS4 general permit or other general permit updates. A TMDL sets a budget for discharges, monitoring required by the MS4, and actions taken in accordance with the Watershed Improvement Plan will provide the implementation. Please refer to Table 7 in Section IX for a list of milestones toward implementation.

Specific Comment #2:

The City also seeks more information from ADEQ on the status of Willow Lake. ADEQ 's Draft 2012/14 Status of Water Quality in Arizona 305(b) Assessment Report added Willow Lake to the 303(d) list of impaired waters for Ammonia. The City understands that this impairment listing will require an additional TMDL analysis and implementation plan for Willow Lake. Please provide more information on the schedule for developing a TMDL for Willow Lake and how this will be integrated into the implementation of the Watson Lake and Granite Creek Watershed TMDLs and MS4 permit compliance.

Response #2: The listing of Willow Creek Reservoir for ammonia may not require a TMDL, per se. It is not clear that the ammonia issue in Willow Creek Reservoir is associated with external ammonia loading. It seems much more likely that high ammonia values are the result of excessive growth and die-off of aquatic vegetation. ADEQ would like to work with stakeholders in the Willow Creek watershed to explore remedies for this problem based on in-lake management alternatives, while understanding that Granite Creek and Watson Lake are the immediate focus.

Specific Comment #3:

Statement No. 2 - The rate of occurrence for E. coli exceedances does not correspond to the degree of monitoring and remedy recommended in the TMDL.

The report outlines that a mass reduction of E. coli is needed, in the range of 93% to 95% over time, to achieve the targeted TMDLs. The City questions whether the steep E.coli reductions are warranted given that exceedances are periodic and occur during high flow events, yet these high flows are a natural result of local topography and precipitation patterns.

The microbial source tracking (MST) analysis conducted by the University of Arizona, as presented in the Watershed



Improvement Plan (WIP 2.0), showed that “91% of the samples collected within the project area were positive for the human genetic marker.” This would point to possible sewer main over flows during storm events and possible issues related to private, failing, septic systems, or transitory human occupation along the creeks. For the City, an operator of a municipal sewer system, the identification of historic infrastructure, or infrastructure that is beyond its operational lifespan, is an on-going process. The City monitors and places appropriate improvements into the Capital Improvement Program. If the TMDL in this stage cannot identify where to target these mitigations, it poses a challenge for the City. Once again, the City supports watershed health and the proper maintenance of City systems, but there are significant source identification and implementation issues.

Response #3: Implementing the permit-required monitoring will help the City identify specific areas of concern where mitigation activities may be needed. The City is not permitted to discharge untreated or treated wastewater to the creeks or to the lakes. Historically, the areas of concern for the failure of infrastructure (pipe breaks or manhole overflows) are known; ADEQ assumes that these issues are prioritized and mitigated as soon as possible, a permit condition. The reduction goal of 90+ percent is warranted and the MST results support the need of the MS4 to identify and eliminate illicit discharges. Assessment of infrastructure needs or improvements is within the purview of the City and should be ongoing.

Specific Comment #4:

Statement No. 3 - Discrepancies between hydrologic classification and designated uses

The Draft Upper Granite Creek Watershed *E. coli* TMDL document states that “Granite Creek is considered intermittent; hence, it carries the Full Body Contact (FBC) designated use with a SSM of 235 cfu/100 ml.” However, the Granite Creek *E. coli* TMDL Modeling Report states that “Upper Granite Creek is considered perennial, although it may not truly conform to the designation”. This discrepancy raises concerns about how hydrological classifications are determined and how those classifications influence a designated use and subsequent water quality standard. Furthermore, there is no discussion of whether these classifications are being applied appropriately to the conditions in the Upper Granite Creek Watershed. The FBC water quality standard for *E. coli* is applied whether or not swimming is encouraged, or even practical, in local water bodies. The City does not agree with the FBC classification for Watson Lake (the irrigation reservoirs were never intended for, nor posted to encourage, swimming); in this case identifying the creeks as FBC where there are some reaches that are ephemeral, intermittent or perennial needs to be fully addressed by ADEQ.

Response #4: An intermittent water body carries the perennial Arizona Surface Water Quality Standards (WQS), as no independent standards have been developed for intermittent waters. “Intermittent” is defined in the WQS as: a stream or reach that flows continuously only at certain times of the year, as when it receives water from a spring or from another surface source, such as melting snow”. The AZ WQS (A.A.C. R18-Chapter 11) can be found on the Secretary of State’s web page: http://apps.azsos.gov/public_services/Title_18/18-11.pdf. The shared standards for perennial and intermittent streams apply year round, as they are the most conservative, protective standards. The default perennial standard for *E. coli* is a single sample maximum of 235 cfu/100 ml, applied to protect for full body contact (FBC) in all surface waters that share the perennial WQS.

Specific Comment #5:

Statement No. 4 - Lack of funding and tools to support multi-jurisdictional efforts

The City must make it clear to ADEQ that funding these long-term and science intensive studies, along with recommended remedies, will require a dedicated funding source. Funds generated through City development impact fees are limited by state legislation and are intended to address infrastructure demands placed on the system by development. Water/sewer rates increases may be able to provide funding to mitigate existing conditions, as long as the increases are “just and reasonable.” Rate/fee increases require considerable community education efforts in order to garner the support of the citizens of Prescott and must be approved by Prescott City Council. The City has recently established an Aquifer Protection Fee which is termed as such to provide an understanding that its use is intended to be consistent with ADEQ language regarding aquifer protection, both groundwater and surface water (<http://www.azdeq.gov/environ/water/permits/index.html>). At this time, the fees have not accrued to a level which can support the TMDL-recommended mitigation or further study. The City (its residents and utility customers) is showing its commitment to watershed health, yet a significant funding gap remains.



The City of Prescott is just one of many stakeholders (Federal, State, County, Tribal, City) identified in the TMDLs. The City is not aware of any state funding mechanisms or other regulatory tools that would assist in engaging in a complicated, multi-jurisdictional effort to improve water quality. The City asks that ADEQ address the issue of unfunded mandates that will require a coordinated, multi-stakeholder effort to meet regulatory requirements.

Response #5: ADEQ is aware of economic consequences of funding challenges to meet the Watson Lake nutrient TMDL WLAs for TN and TP and the Granite Creek *E. coli* TMDL WLA. Funding is a consequence of the MS4 permit; the TMDL sets the target. The WIC/WIP process will engage all stakeholders and should explore other funding sources.

Specific Comment #6:

Statement No. 5 - Non-point source (NPS) contribution of private properties and the importance of education and outreach

The City's assigned Wasteload Allocation (WLA) presented in the draft TMDL accurately reflects that the City is the permitted entity with the largest jurisdiction in the watershed. While the City recognizes its role in the watershed and accepts responsibility to meet these WLAs, the non-point source (NPS) contribution of private properties in the watershed must also be acknowledged. The WIP states that there are approximately 1,800 private properties that border the creeks and washes in the watershed. These properties may have a direct impact on water quality and the City has limited authority to regulate activities on private properties. Therefore, additional education and outreach efforts will be required to raise awareness about NPS water quality issues in the watershed and encourage behaviors that protect and improve water quality. The City has long recognized that education and outreach efforts are a critical component in the management of the City's water resources. The City was an active participant in education and outreach efforts of the WIC/WIP; supported (and contributed funding to) the development of the Creek Care Guide; and continues to distribute the Creek Care Guide and other watershed education through the City Water Smart and Watershed Smart programs.

Education and outreach efforts are known to be challenging because of the sizeable investment of time and resources required to implement them and success is difficult to measure or determine. Regardless, the City is aware that public support will be required for City expenditures on water quality improvements and that individual behavior change will be a linchpin in the success of the City's efforts.

Response#6: ADEQ acknowledges that non-point contributions from private properties in the watershed are also important and is invested in continued outreach and education efforts. ADEQ reconvened the WIC in February of 2015 to build on previous work by focusing additional sampling efforts on Miller Creek and North Miller Creek. Chemistry results as well as a new field survey will be incorporated in an updated WIP addendum in the fall of 2015. This update will include further prioritization of water quality improvement projects and BMPs.

Specific Comment on Text #1:

Executive Summary - Pg. 1, Second sentence incorrectly states that Granite Creek was listed on 303(d) list for *E. coli* in 2006. It was listed in 2004 for DO by EPA and 2010 for *E. coli*.

Response Text #1: This was an error and ADEQ has corrected the text.

Specific Comment on Text#2:

Executive Summary - Pg. 1, Second paragraph, please quantify *periodically exceeds*. What constitutes an occasional exceedance that remains acceptable? Who defines what percentage of exceedance is too much?

Response Text#2: Assessment of impairment for *E. coli* only requires more than one exceedance of the 235 cfu/100 ml SSM water quality standard in any consecutive three-year period, per A.A.C. Title 18, Chapter 11, Section 106 D (2). Appendix A of the TMDL report shows the frequency of values above 235 cfu/100 ml by sample location. ADEQ has removed "periodically exceeds" from the Executive Summary to avoid confusion between sample results and formal assessment methodology.

**Specific Comment on Text#3:**

Pg 2 - Tribal trust responsibilities; more information on this topic is needed.

Response Text #3: ADEQ must consider federal Tribal Trust responsibilities in the Watson Lake Watershed since TMDLs are subject to the approval of the U.S. Environmental Protection Agency (EPA). ADEQ will assist USEPA in fulfilling tribal trust responsibilities by adopting a TMDL that restores and maintains pollutant levels that are protective of fish and other beneficial uses related to the Yavapai-Prescott Indian Tribe (YPIT) to the degree that natural conditions allow. YPIT was invited to both the original Watershed Improvement Council and the reconvened Council in February 2015. EPA and ADEQ will explore funding opportunities for YPIT projects that are evaluated to contribute to the mitigation of *E. coli* impairment.

Specific Comment on Text#4:

TMDL does not acknowledge plans to overturn the Granite Creek DO listing by ADEQ. Please clarify if the DO listing is still warranted and why?

Response Text#4: ADEQ does intend to submit a delist proposal, a report summarizing the DO data collected since 2004 and the rationale for delisting based on the exceedance rate interpreted through the associated hydrologic conditions, as well as the interpretation of the biocriteria results. A draft report, scheduled for December 2015, will be reviewed internally at ADEQ as well as externally by EPA. Ultimate delisting is dependent on approval by EPA.

Specific Comment on Text#5:

Pg 12 - Table 4 Footnote; what is the date of the data set for City square miles, and is this percentage an accurate number?

Response Text#5: The percentages come from the 2012 WIP, so the understanding was that the numbers date from 2010 or 2011. The WIP is being updated in the next few months, so we will make sure we have the most up to date data.

Specific Comment on Text#6:

Pg 12 - "ADEQ recognizes certain sectors of activities and facilities covered under the general permits are not reasonably expected to add *E. coli* loading." What are these sectors? Are these facilities still required to monitor per the MSGP where there is an established TMDL?

Response Text#6: Some MSGP facilities may not typically be a source of *E. coli*; if there is a question, the ADEQ Stormwater Unit would assess the need for monitoring on a case by case basis. For example, if a facility has porta-john service outside, then that could be a source, such as auto salvage yards. A facility that provides porta-john service and storage would also be a logical concern, but not a regulated activity under SIC code 7539. However, again, if there is determined to be a concern, these activities could be regulated. Airports may also be required to monitor if they are transferring waste from planes to trucks for disposal. The ADEQ Stormwater Unit will determine reasonable potential (RP) under MSGP or CGP and determine monitoring accordingly. If there is no RP, a permittee would receive a WLA = 0.

Specific Comment on Text#7:

Pg 13 - The acronym for Stormwater Pollution Prevention Plan is SWPPP, not SWMPP.

Response Text#7: The text has been corrected.

Specific Comment on Text#8:

Pg 13 - Provide information on how ADEQ plans to reach out to CGP permittees regarding monitoring requirements. Due to City involvement in this permit program, insofar as requiring proof of permit coverage in order to secure local permits, permittees will undoubtedly turn to the City with questions on complying with this requirement. Please provide information on what ADEQ sees the City's role.

Response Text#8: ADEQ has prepared a CGP SWPPP template that will assist construction site operators with permit compliance and monitoring requirements. Operators are not required to use the template, but the department encourages it. The City's role is not to enforce on ADEQ's Stormwater Construction General Permit. Rather, the City must comply with its permit by ensuring construction site operators are in compliance with local codes/ordinances and by ensuring there are no illicit discharges into the City's storm sewer system. Additionally, the City is encouraged to leverage information and resources available on the ADEQ website and collaborate with other MS4s on outreach efforts.

**Specific Comment on Text#9:**

Pg 14 - Table 5. City of Prescott Fleet Services has filed a NOT and is now being managed under the MS4 permit. Please remove from the table. Be advised that AZMSG72837/Synchronous Aerospace facility has closed and may also need to be removed from this list (see attached).

Response Text #9: Table 5 is now Table 6 and has been updated to remove COP Fleet Services as well as Synchronous Aerospace.

Specific Comment on Text#10:

Pg 15 - WIP update, provide more info on how the WIP update will be staffed and the leadership roles.

Response Text#10: Jake Breedlove, ADEQ Grants and Watershed Coordinator, has been the lead in reconvening the WIC in February 2015, which has since met once a month. ADEQ committed sampling resources to further explore issues within the Miller Creek subwatershed that were identified in the 2012 WIP. Fourteen sites were sampled between February 2015 and July 2015, 11 on Miller Creek and 3 on North Miller Creek. As part of this effort, ADEQ staff (Susan Fitch and Jade Dickens) trained volunteers in sample collection and Amanda Richardson (City of Prescott) trained volunteers on field survey methods. A field survey was conducted on North Miller in May and June 2015. Sample and field survey results are being evaluated by the WIC and recommendations will be made in an addendum to the WIP that focuses on the Miller subwatershed. Under the Watershed Protection Unit Manager, Krista Osterberg, Susan Fitch is assisting Jake Breedlove in writing the addendum and adding TMDL updates to the WIP. The ADEQ expectation is that the City will continue to work with other stakeholders on the WIC to support both nonpoint and permitted watershed improvements. Susan Fitch and Jade Dickens will conduct BMP effectiveness monitoring for existing projects between September 2015 and July 2016.

Specific Comment on Text#11:

The draft TMDL was void of any information regarding overall implementation schedule and specific milestones. The City understands that the final TMDL will include a detailed implementation schedule. We ask ADEQ to consider the fact that the City will be burdened with the concurrent implementation of two different TMDLs for separate water bodies and pollutants, for which solutions are likely going to be costly to define and implement. Therefore we ask that the implementation period be as long as it can reasonably be. The City is proposing an implementation period of 25 years.

Response Text#11: Table 6 is now Table 7 and provides a preliminary list of milestones that covers completion of the TMDL and implementation. The updated WIP will provide a platform for both point and NPS project ideas and prioritization to address nutrients and *E. coli* in the creeks. The implementation and effectiveness monitoring of BMPs is expected to be an ongoing effort and is based upon improving water quality rather than imposing a deadline for implementation to be completed. Implementation will be iterative in nature.

Specific Comment on Text#12:

Pg 15 - Third paragraph, *"The WIC recommends that GI be integrated with traditional grey infrastructure to the maximum extent possible within the watershed to effectively reduce stormwater quantity before it enters the already overburdened sewer system and discharges to the nearest water body."* It should be noted that stormwater of any quantity is prohibited from entering the municipal sewer system per Prescott City Code (2- 1-38) which states, *"No person shall discharge or cause to be discharged any stormwater, surface water, groundwater, roof runoff, subsurface drainage, cooling water or unpolluted industrial process water to any sanitary sewer. Stormwater and all other surface drainage shall be discharged to such sewers or drains as are specifically designated as such, or to a natural outlet approved by the City."* It should also be noted that the municipal sewer system is not permitted to discharge "to the nearest water body". Municipal sewage is treated to regulatory standards (i.e., Aquifer Protection Permit) before being beneficially reused or recharged to the aquifer.

Response Text#12: The citation from the WIP (by the WIC) is interpreted by ADEQ as a recommendation for retaining as much stormwater and grey water on-site as possible, to minimize these water sources from reaching the creeks for two reasons: 1) keep pollutants out of the creeks, and 2) lessen the possibility of promoting conditions that would lead to inflow and infiltration (I & I) problems in the sanitary sewer collection system. ADEQ acknowledges that the City is not permitted to discharge from the sewer collection system to the creeks, however, breaks in pipes and overflows from manholes have occurred. The text has been revised to make these points more clear.

**Granite Creek *E. coli* Modeling Report****Specific Comment on Text#13:**

Given the limited number of samples in the upper watersheds, what is the confidence level with the estimated background contribution (50.4 cfu/100 ml)?

Response Text#13: There is no statistical confidence level associated with the choice of the 90th percentile data value “Background” was derived from stormflow loads; the 50.4 cfu/100 ml was the concentration value at the 90th percentile load. This concentration was associated with the highest flow recorded in the upper watershed of 15 cfs, a rain on snow event on Upper Aspen Creek. There was only one of the nine stormflow samples in the upper watershed that was higher than 50.4 cfu/100 ml, and that was a value of 65 cfu/100 ml at Thumb Butte Park, but the flow and thus the load, were lower.

Specific Comment on Text#14:

Pg 3, *E. coli* occasionally exceeded - quantify occasionally here, is it the same as periodically?

Response Text#14: Yes. See response Text#2 addressing this question in the TMDL report.

Specific Comment on Text#15:

Pg 3, Verify Wirt et. al, 2004 reference is correct - this report was controversial locally and at the State level. In some cases, also at the Federal level.

Response Text#15: The purpose of the citation was to emphasize that surface flows below Watson Lake in Granite Creek do not, except in extreme wet year conditions, reach the Verde River. The exact nature of the groundwater-surface water interaction and the status of the groundwater aquifers is not the purview of this TMDL.

Specific Comment on Text#16:

Pg 3, Fourth paragraph - It is the City of Prescott, not town of Prescott

Response Text#16: The correction has been made.

Specific Comment on Text#17:

Pg 3, Fifth paragraph - reference Appendix A in text.

Response Text #17: The reference has been added.

Specific Comment on Text#18:

Pg 3, Sixth paragraph - Prescott Creek Preservation Association (Prescott Creeks).

Response Text#18: Text was corrected but the paragraph is now on page 4.

Specific Comment on Text#19:

Pg 5, First paragraph - was this mostly citizen science? Does a protocol list exist in the WIP? If so, this should be included to give the data set confidence.

Response Text#19: Data were collected by ADEQ staff, Prescott Creeks staff, and volunteers under oversight by Prescott Creeks. All sampling was conducted pursuant to an ADEQ approved sample and analysis plan (SAP). The SAP was referenced in the 2012 WIP.

Specific Comment on Text#20:

Pg 6, “the lack of data . . . does not alter the validity of the analysis on a watershed basis, nor does it hinder or qualify the overall conclusions of this report.” Why would the lack of data not alter the validity of the analysis?

Response Text#20: The modeling approach and associated results are valid for watersheds in which there were sufficient data. Missing data from four sub-watersheds out of 24 does not invalidate the approach or conclusions reached.

Specific Comment on Text#21:

Pg 8, “Granite Creek is considered a perennial water ...” It is either classified as stream type or not, not considered. Include a



reference here.

Response Text#21: Granite Creek is technically an “intermittent” water body hydrologically. However, this class of water body is “considered” by ADEQ and the Arizona Surface Water Quality Standards to fall under the umbrella of “perennial” water when applying standards (A.A.C. R 18-Chapter 11, Appendix B).

Specific Comment on Text#22:

Pg 10, Table 2 heading needs to be moved to the top.

Response Text#22: The author of the Modeling Report preferred to label tables below the table, which is acceptable for a technical support document.

Specific Comment on Text#23:

Pg 15, Percent Reductions, paragraph 3. Can you provide more information on what the exceptions were in the “few cases” where “site characteristics overrode the larger subwatershed's character”?

Response Text#23: The exceptions were storm conditions of heavy rains on snow resulting in larger flows at some locations relative to others, depending on the storm track, slope, and watershed area captured in those events.

Specific Comment on Text#24:

Pg 15, Third paragraph, what is meant by “Prescott Metro area”? Do you mean Prescott City limits or the Prescott Urbanized Area as defined by the 2012 census?

Response Text#24: “Metro area” was an umbrella term not really meant to represent either just the City limits or urbanized area defined by the 2012 census. The term was used as a surrogate for “Watson watershed” with regard to the degree of development.

Specific Comments on Text #25/Appendices

- a) Appendix B of the Modeling Report describes how flow was differentiated between baseflow and stormflow throughout a typical flow hydrograph. Was that determination made based on the flow records of just one of the USGS gauges or both of the gauges?
- b) Appendix A of the Modeling Report lists the project data and includes a flow assumed to be occurring at that location during the time that the sample was collected. How was that flow computed?
- c) Was [flow] it measured at each of the sampling site? And if so how?

Response Text #25a: Both gages were used to determine the distinction between baseflow and stormflow. #25b: Some flows were measured but many were estimated using the float and cross-sectional area method and checked against an algorithm developed by Peter Kroopnick (WIP, 2012) relating upper watershed flows to the upper USGS gauge. #25c: When flows were measured directly, a Marsh-McBirney velocity meter was used along with a tape, stadia rod, and correction factors for channel shape.

Actions Recommended by the City of Prescott

The TMDL document should remain a draft, to be used as a guiding document for permitted and non-permitted stakeholders, to develop an action plan.

ADEQ Response: ADEQ believes the TMDL analysis is valid and finds no reason for it to remain in draft. The TMDL will be finalized with a set of milestones for implementation. The WIP has been developed and is currently being updated and appended with a focused study of the Miller Creek subwatershed. Implementation by permitted stakeholders will be incorporated into the relevant MS4, MSGP, or CGP.

TMDL findings should remain unapplied, at this time, in a regulatory manner such as the MS4 or other similar permits. Before long-term, time benchmarks are applied in a final document, the City needs time to perform a more detailed modeling and scientific study to quantify the extent of capital cost.



ADEQ Response: The manner and timelines for permit compliance will be executed through the Stormwater Permits Unit of ADEQ. The Watershed Protection Unit (now the umbrella for targeted monitoring, TMDLs, 319 Grants, and effectiveness monitoring) will remain involved with nonpoint stakeholders and private parties to promote and support ongoing nonpoint source improvements.

Doris Cellarius

General Comments

Thank you for doing such a thorough investigation of possible sources of the E coli problems in our creeks. I support reconvening the WIC and increasing the focus on education with well-advertised opportunities for public involvement in green infrastructure throughout the community.

List of Specific Suggestions:

1. Add other groups such as Sierra Club Water Sentinels and involve them in public outreach.
2. Target lawn and grounds maintenance businesses and landscape contractors, as well as septic and plumbing maintenance businesses, for specific education about how they can help solve our problems.
3. Involve the City street department in identifying areas of the City where adding bioretention filter strips uphill from creeks would help mitigate the impacts of storms.
4. Assist the City of Prescott Building Department in promoting the use of pervious materials for drive ways and parking lots.
5. Encourage businesses that make and supply paving materials so that there is greater production, advertising and use of pervious materials.
6. For the WIC I think there should be some discussion of why E coli is high at the targeted sites – what's in the area that is on the ground and enters the creek during the first flush?

Response to Suggestions: Thank you for all these ideas; they will be raised and addressed through the WIC, updating of the WIP, and ongoing Watershed Protection Unit involvement.

Greg Olsen

Specific Comment #1:

Can the analytical data be provided, sorted by sampling station along with the station geographic coordinates? (with the page size maps and data table format, it's kind of hard to determine where the samples were taken relative to the Forest areas)

Response #1: The data will be provided as suggested in an appendix to the updated WIP, scheduled for completion by December, 2015.

Specific Comment #2:

Were any of the samples processed for DNA typing, to categorize the sources? (wondering about human, canine, livestock, etc.). This might be helpful information when we need to tease out the nitrogen sources someday...

Response #2: The 2012 WIP version 2.1 contains the results of microbial source tracking on page 38 and 39; please use the following link to review this document. http://www.azdeq.gov/environ/watershed/download/gc_wip.pdf

Specific Comment #3:

I was looking for just a little more discussion on seasonality...

Response #3: Seasonality as it pertains to baseflow and stormflow was addressed in Section VI and more extensively in the Draft Modeling Report. Critical conditions for loading occur any time storm intensity and duration is sufficient to create overland flow.

Oak Creek Watershed Council (OCWC)

General Comments

OCWC water quality assessments have determined that indeed turbulent flows (storm event response) with associated suspended sediment are prime indicators for bacteriological exceedances.

E. Coli exceedances within Oak Creek has occurred during base flow and has been attributed to recreationist and their pets



(dogs) disturbing channel floor sediments that re-suspend *E. Coli* that has a lengthy residence times within these sediment layers.

OCWC has identified a major source of *E. Coli* outside developed areas as dog and human feces. Therefore, we have spent major efforts in public information outreach, pet waste stations and incorporating ambassadors and volunteers to remove trash and human/pet feces. Human trash has been associated to encouraging small mammals (raccoons, skunks) to defecate at or near Oak Creek.

OCWC concurs with this TMDL finding of anthropogenic impacts to percent impervious surface areas.

Based on OCWC findings the mortality rates to *E. Coli* based on storm water residence or holding times will be difficult to attain. We understand *E. Coli* can survive in much longer time frames than previous thought.

Based on the findings stated above, Green Infrastructure (GI) will need to filter, absorb or contain *E. Coli* to successfully treat the storm water discharge to tributaries.

ADEQ Response: Thank you for your insights and suggestions. They will be reviewed by the Granite Creek WIC and considered within the revised, updated WIP, scheduled for December, 2015.

Amanda Richardson

Specific Comment #1:

ADEQ was not consistent in identifying the Modeling Report, referring to it at times as the “Technical Analysis Report”. In addition, the dates for the Draft TMDL and Modeling Report are not consistent.

Response #1: The Modeling Report was drafted in 2013 and updated in 2014 at roughly the same time period that the Draft TMDL Report was completed (December 2014). ADEQ has corrected “Technical Analysis Report” to “Modeling Report”.