

Appendix E: Public Comments and Next Steps

The State Water Resources Plan (the “Plan”) is a collaborative effort among localities, regional partners, state agencies, water resource managers, businesses, the public, and other stakeholders to ensure the Commonwealth’s water resources are managed and protected for future generations. The Plan takes a comprehensive look at water resources and water demand for all beneficial uses in Virginia. An important note is that DEQ is charged with both enabling adequate public water supplies and ensuring protection of in-stream flow and groundwater for all identified beneficial uses. Water supply planning has not been overlooked or de-emphasized; rather it is a subset of an overall water resources plan.

The data and information collected as part of the initial Plan development are housed in a content management system (VA Hydro, the Office of Water Supply Modeling and Analysis Database). The information is currently accessible only internally to DEQ staff. However, plans are in place and development underway to roll out an online interface to local and regional planning partners in support of their local and regional water supply planning efforts, and ultimately to the public. The anticipated timeline for establishing this interactive platform is attached as Table 1 to this document. DEQ is actively communicating the Plan’s findings across the Commonwealth (schedule is attached as Table 2), and efforts are underway to meet with local and regional planning partners to explain the risks to beneficial uses when considering actions to meet future demand. These meetings will be prioritized based upon areas where 2040 projected demands are clustered, multiple critical indicators are anticipated to be met or exceeded by 2040, and a deficit in water supply is predicted. Initial outreach will focus on planning regions in the Potomac-Shenandoah River Basin, York River Basin, (Middle) James River Basin, and (Upper) Roanoke River Basin. Local and regional planning partners that believe they might benefit from a more detailed discussion of their Cumulative Impact Analysis or in the evaluation of water supply alternatives are encouraged to contact DEQ to ensure they are included in the prioritization.

A formal update of the Plan is anticipated following the submittal of the five-year local and regional water supply plan updates in December 2018. The statewide cumulative impact analysis (CIA) will be updated annually to reflect the most current information available. All water supply programs shall be reviewed, revised, and resubmitted to DEQ every 10 years beginning 2023. Formal compliance reviews of local and regional water supply programs will be reviewed in the context of the updated Plan.

Annual updates concerning activities in support of the Plan will be provided as part of DEQ’s Annual Water Resources Report to the Governor and the General Assembly. However, the ultimate goal is to enable local government or other stakeholders to directly enter projected water use or other water supply planning inputs into an interactive, web-based platform (VA Hydro, currently available as read-only, interactive interface under development) and to receive real-time, dynamic responses.

Once the interactive platform has been finalized, the Plan will become a ‘living document.’ As such, it will be subject to incremental revision during its lifetime as DEQ, localities, and other stakeholders provide input regarding their ongoing water supply planning efforts. Information supplied by localities will provide

the basis for more efficient data collection, which, in turn, will improve DEQ's and other resource managers' understanding of the Commonwealth's water resources. The interactive Plan will be available to all stakeholders as a tool to use as they identify solutions to meet future water demand, ensuring the water resources being considered are sustainable for their needs.

The 30-day public comment period for the draft Plan began on April 8, 2015. Thirty-one comments were received and are included as an attachment to this document (see Table 3). DEQ appreciates the time and effort it took to read the Plan and provide comments, and while no changes were made to the Plan itself, the comments and this document will be included as an addendum to the Plan to ensure consideration during near-term planning efforts and in developing future versions and updates of the Plan.

The comments submitted on the Plan reflect the diverse nature of the water use interests within the Commonwealth and are not unexpected. In general, there was recognition of the monumental endeavor it was to create the first plan to address the Commonwealth's future water needs, and it was noted that the Plan goes a long way in presenting the current state of water resources, anticipated growth, and potential impact of that growth on water supplies. It was also acknowledged that Virginia's water resources and demands are very complex, and there was appreciation that DEQ considered this in the Plan. Finally, it was noted that the Plan is an important tool for determining long-term water needs and how best to meet those needs, and there was support that the Plan be iterative and updated periodically to incorporate new information and to reflect changes.

The remaining comments are categorized as follows: Plan Structure and Development; Information from Water Supply Plans; Population Projections; Beneficial Uses; Cumulative Impact Analysis/Flow Metrics; Alternative Sources, Including Reuse; Safe Yield, Withdrawal Permits; and the twelve challenges identified in the Plan. A summary of these comments and DEQ's general responses to comments are provided below.

Plan Structure and Development Comments

- A commenter suggested that DEQ should consider the success of the Metropolitan Washington Area Potomac River water supply agreements and plans as they contemplate a statewide water supply planning approach.
- There was concern that the document does not accomplish the requirements set forth in the Virginia Code to prepare basin-specific reports.
- There was concern that the document does not constitute a "plan," as there are no goals, objectives, milestones, or timeframes, and it does not discuss how the state will help localities with long range water supply issues (financially, technically, or otherwise).

- Challenges should be prioritized and more context and discussion should be provided on how to proceed.
- Lumping all of the local/regional water supply plans together to make a statewide conclusion about water needs is misleading; the conclusion that there will be an increase in water demand of 32% by 2040 without context (in Executive Summary) does not provide an accurate picture. Major Basin Summaries provide a better and more complete picture of future demand.

DEQ Response:

The basis of the State Plan is the data and resource information provided in local and regional water supply plans and an analysis of the potential beneficial use implications of meeting these local and regional needs. It is not clear how the DEQ could meet its statutory and regulatory obligations using the Metropolitan Washington Agreements. The Metropolitan Washington Agreements provide an example of local coordination of water supplies to meet demand that other jurisdictions could choose to replicate, but there is no clear authority for DEQ to mandate specific approaches beyond defining baseline planning methods. The State Plan satisfies statutory requirements as the information in the main Plan document is at a smaller scale than the basin analysis required by law. In addition, Appendix B includes the summary data and analysis at the mandated basin scale. The online tool will improve upon this by integrating both scales dynamically. The structure of the State Plan reflects its purpose of informing local water users and local and regional water supply planning units of resource limitations and fatal flaws to be avoided in developing supplies to meet local needs. Neither the Code nor the regulation set forth a requirement or a process for inclusion of goals, objectives, milestones, or timeframes because at the time of adoption and promulgation, there was no consensus among stakeholders with respect to the appropriate inclusion or process for developing these tools. With the technical basis that has been developed through this Plan, DEQ can provide greater detail over time on what specific issues a community may need to address and facilitate conversation about how best to address them. Within the next few months, DEQ staff will be initiating these conversations in the locations with the most immediate water supply deficits and greatest potential for beneficial use conflict. This is also how DEQ anticipates dealing with the prioritization of the recommendations as it is expected that the prioritization will vary across the state based on the issues unique to each locality and region. Finally, the total statewide demand number is the factual statewide aggregate total of future demands provided to DEQ in the local and regional plans. The State Plan requirement identified by regulation for the presentation of demand is that it be a “cumulative demand analysis.” This is identified in 9VAC 780-140.G.1.

Information from Water Supply Plans Comments

- Water supply plans were submitted some time ago, and there have been significant developments that impact projections and water supply capacities. The Plan should reflect this updated information.

- Snapshots provided on localities served do not truly reflect the water uses by locality; these should be reviewed and updated.

DEQ's Response:

The Plan and snapshots include information from local/regional water supply plans that were developed with information collected from 2005 to 2011 in accordance with the phasing schedule required by the Local and Regional Water Supply Planning Regulation (WSP Regulation). This was unavoidable due to the staggered submission dates prescribed by the WSP Regulation. The initial delay in synchronizing local data collection with State Plan development was acknowledged as one of the consequences of state and local resource limitations, lack of local water supply planning data and experience, and the need to develop the data management and analytic tools to add value to the local planning processes. This will continue to improve with time. The regulations allow updated data to be submitted to DEQ at any time and if it is a change related to demand, it is required to be updated as part of the five-year review. If new data is submitted to DEQ, the State Plan will be updated in hard copy every five years. Once the online tool becomes available, it will allow for updating information in near real-time. It is important to note that the term "accuracy," when applied to predicted future water demand should be viewed much differently than other types of data. Future growth and development and its associated water use simply cannot be predicted with the same "accuracy" as a measured stream flow, or a measured volume of water withdrawn. Expectations of data accuracy and validity should be interpreted in this context. Water use, in terms of applicable state statute and regulation, is defined as water withdrawn from a source. Data are submitted and presented in the Plan consistent with this definition. Presenting the data in another way is inconsistent with the statute and regulations. Any particular data issues that are confirmed as erroneous will be revised.

Population and Demand Projections Comments

- The Plan should include information on water use and population growth in Virginia over the past several decades.
- Critical analysis of the statewide per capita demand projection methodology is needed, as national trends indicate that per capita water use has gradually declined in recent years.
- Validation of projected water demand, population projections, and per capita water use should be reviewed. The projected consumption rates appear to be overestimated, as data from the last 20 years does not support a strong correlation between population growth and water demand; this trend should be acknowledged.
- Regional analysis is suspect due to the reliance on demand predictions provided in the local/regional water supply plans. DEQ established no criteria for these local predictions, so putting much weight in analyzing their findings is suspect.

DEQ's Response:

The importance of the water supply planning process is that it establishes a baseline for future planning. It is inherently prospective in nature. The Water Policy Technical Advisory Committee that drafted the consensus-based regulation never reached consensus on criteria for look backs. The Plan process was designed to establish a baseline and then to look prospectively after that. While there may be some benefit for particular planning regions or localities to look at per capita use, it is not required. Each locality and region has unique planning capabilities and limitations. The objective of the regulation was to establish a common baseline for demand projection that could be used by large urban areas as well as rural towns that would use data that was readily available to all. In many cases, rural jurisdictions did not have per capita use data. While there may be benefits to be realized by using a per capita use analysis in some areas of the state, at this time it is not practicable. At some future point in the process it may become more practicable for more localities. By design, the WSP Regulation allows for flexibility in the type of demand methodology applied. There is no perfect methodology for predicting the future use of water. Every methodology has strengths and limitations based on the basis of its assumptions. In lieu of dictating a methodology in the regulations, the emphasis is on using accepted industry standard methods and being transparent about the assumptions used in each local or regional plan. All methodologies employed in the local and regional water supply plan submittals were reviewed by DEQ staff, as well as the Water Supply Plan Advisory Committee established by the General Assembly, and were found to be reasonable, consistent with industry standards, and consistent with the requirements of the WSP Regulation. DEQ and the State Water Supply Plan Advisory Committee vetted the demand methods used in each plan and found them to be consistent with standard methods. As predictions of the future, they are as reasonable as any other. If there are overestimates in some cases due to more optimism in some plans than others, the analysis of impact is not invalidated; it simply is an analysis of an impact that may occur at a later date when the projected amount of water need may be reached.

Beneficial Uses Comments

- The Plan should emphasize that preference shall be given to human consumption over all other uses.
- Concern that DEQ is not prioritizing human consumption in practice.
- The Plan seems to intentionally raise the emphasis on instream needs and all but dismisses the priority that has historically been given to human consumptive needs.
- The Plan should clarify that the term “beneficial use” has a distinct meaning for surface water and groundwater, and that references to beneficial uses that apply only to surface water be stated as such.

DEQ's Response:

The human consumption issue was highly debated in the Water Policy Technical Advisory Committee that developed the regulation from 2002-2005. It was made clear that DEQ is charged with looking at water supply to serve all beneficial uses of water, both in-stream and off-stream. DEQ must consider both the human needs for adequate water supply and the consequences of meeting those needs on in-stream flow and other downstream users. The State Plan reflects that DEQ must do both. The Local and Regional Water Supply Planning law and regulation and the Virginia Water Protection Permit law and regulation establish no presumptive preference for human consumption. For groundwater, the statute and regulations identify a preference for human consumption, but no direction on how to implement the preference. Conflicts regarding water withdrawals and beneficial uses typically arise and are dealt with during the permitting process. As defined in the WSP Regulation, in-stream beneficial uses include, but are not limited to, the protection of fish and wildlife habitat, maintenance of waste assimilation, recreation, navigation, and cultural and aesthetic values. Off-stream beneficial uses include, but are not limited to, domestic (including public water supply), agricultural, electric power generation, and commercial and industrial uses. The State Plan emphasis on in-stream needs referenced by commenters reflects the direction in 9 VAC 780-140.G.3 to evaluate conflicts among projected demand and estimates of requirements for in-stream flow. The value added by the State is identifying where permitting issues could result from such conflicts so that they could be addressed as water supply projects are developed. This was a goal for the State Plan when the regulations were developed. It is noted the comment on different beneficial uses of water for surface water and groundwater is correct and will be addressed when the plan is reissued.

Cumulative Impact Analysis/Flow Metrics Comments

- The four flow metrics selected for cumulative impact analysis do not accomplish the objectives required by the Code of Virginia. The graphical changes in flow by Hydrological Unit Code (HUC) presents a misleading picture of the potential impacts of cumulative withdrawals and need to be modified to reflect actual changes by linear river or stream segments rather than across entire HUC areas.
- Clarification is needed regarding the August Low Flow metric about its applicability to tidal freshwaters, and DEQ should develop minimum requirements for these waters.
- The Plan should add to the discussion of potential flows in the York River Basin a discussion of the regulation of releases from Lake Anna Dam so that readers are provided context of the associated issues.
- The Plan identifies a water shortfall under a drought critical condition, but fails to identify a strategy for addressing this shortfall.

DEQ's Response:

Early in the development of the WSP Regulation, it was concluded that the goal of this process was to put localities and the state in roles that they could perform best to add value to water supply planning. The consensus was that localities should maintain their traditional roles in identifying data unique to them and to take the lead in identifying their plan for future water supplies. DEQ then would take the lead in aggregating the information and conduct basin and statewide analyses of the conflicts or potential impacts to the resource that may be encountered in meeting these local water expectations. DEQ would then provide these analyses to localities to consider in their future planning and, when appropriate, facilitate dialogue on how to avoid the potential impacts or conflicts becoming future permitting problems. DEQs cumulative impact analyses use the most applicable peer-reviewed metrics that were available that could reasonably be used as surrogates for the beneficial uses to be evaluated. It is important to note that this is a large scale analysis that is limited by the readily available data that existed across the state. Without specific identification of local intakes that may be proposed to meet future needs (which was not available nor required by the WSP Regulation), a river segment or stream reach analyses would be misleading and would run the risk of presenting greater certainty than would be warranted given the data. DEQ expects that the metrics will evolve and improve over time, as will the local certainty of where projects may be located. In tidal fresh waters, the August Low Flow metric appears to have some validity and reliability for shad, but the data set is limited. DEQ has contracted with the United States Geological Survey to evaluate over seventy-five additional metrics over 2016-17. It is expected that there may be a better tidal metric in that data set that could improve the understanding of tidal living resource impacts. These improvements will be noted in annual cumulative impact analyses that will be published by DEQ in subsequent State Plans. Additional metrics, if found to be scientifically valid through peer review, will be added to the analysis in subsequent plans.

Alternative Sources, Including Reuse Comments

- The Plan should give greater consideration to reclaimed water, explain why this tool is not more commonly used in the Commonwealth, and make recommendations to remove or alleviate the existing regulatory barriers that exist, as well as articulate the benefits derived from reuse, per the Commonwealth's explicitly stated public policy.
- The Plan should facilitate the availability of reliable, safe, and cost-effective sources; disappointed that the Plan all but ignores existing barriers to wastewater reclamation and reuse.
- DEQ should take an active role in assisting public water supplies for the region and promoting the state funding for new sources and infrastructure.
- Policies should be adopted that incentivize water reuse.
- Although desalinization is mentioned as an alternative source, the Plan does not offer a solution to brine disposal, which is a major challenge for this alternative.

- The Plan should include an additional challenge and recommendation that states DEQ will coordinate with other agencies, including the Virginia Department of Health and Virginia Department of Housing and Community Development, to identify regulatory obstacles to the availability of wastewater reclamation and reuse as an attractive, reliable, and cost-effective water supply. At a minimum, any regulatory requirements that (1) substantially increase the cost of projects, (2) unnecessarily lengthen the process for obtaining approval for projects, or (3) lessen the reliability and usefulness of projects to the provider or user should be considered obstacles. DEQ and its coordinating agencies will work to modify or eliminate any identified regulatory obstacles that are not necessary for material and substantial protection of public health and safety or the environment.
- The Plan should describe how DEQ and other state agencies will advocate for funding and permitting for additional water sources.
- Indirect potable reuse (IPR) is a common, yet unrecognized practice, and the state must acknowledge this and seize the opportunity to broaden the use of treated wastewater as an alternative water supply.
- IPR through aquifer replenishment has the potential to sustain groundwater supplies throughout much of the Eastern Virginia Groundwater Management Area as opposed to the more localized benefits associated with reservoir augmentation.
- DEQ should recognize trading as a potential strategy for addressing water demand.
- DEQ should clearly identify where more storage is needed, include suggestion for creating incentives for companies willing to develop such sites, and ally in the federal permitting process.
- The Plan should suggest nontraditional sources to meet projected 2040 demand, such as water reclamation and reuse, desalination, and interconnection, and address/eliminate burdensome roadblocks.
- The Plan should include an analysis of potential alternative sources identified at the local level; it is necessary to highlight potential impediments to alternative sources identified in the local/regional plans.
- The Plan should identify and vet alternative water sources, as well as include concrete recommendations on how to further identify and implement alternative solutions - this should be primary goal of the Plan. Potential alternatives that should be included: stormwater; a water trading program, providing incentives for individual water use reductions. Instead, the Plan identifies the regulatory implications of predicted water demands without critically evaluating the legitimacy of those demand predictions.
- By focusing on the regulatory implications, the Plan further restricts water availability without identifying concrete alternative sources to offset those restrictions. While water quality and other

regulatory programs will impact the assessment of water needs, the Plan focuses too much on these other impacts and too little on water supply planning itself.

- The Plan should address groundwater as a resource to carry public water supplies through drought periods.

DEQ's Response:

Negative public perception and high infrastructure costs are most often cited in Virginia as limiting greater reuse. The Eastern Virginia Groundwater Advisory Committee (EVGWAC) is currently exploring the potential benefits and obstacles to the development of alternative sources of supply such as reclamation and reuse (including IPR), trading, aquifer replenishment, etc. as part of an effort to address groundwater declines and the implications of those declines on future water supplies from the coastal aquifer system. Any findings and recommendations from the EVGWAC will be considered in future planning efforts. DEQ agrees greater incentives could be provided for alternative sources including reuse. Other state agencies are on the EVGWAC and may recommend the changes reflected by these comments. DEQ has stated that to meet the future water supply need, the industry should consider creating greater diversification of supply sources and regional interdependence. DEQ anticipates that follow-up work with targeted communities will evolve into a conversation about alternative supply development and perhaps in realizing economies of scale through regional cooperation when resources may be limited. If a water purveyor is considering an alternative water source, a storage project, a water reuse project, or other methods to meet demand, DEQ staff can facilitate information sharing and discussion among localities, state and federal agencies, and other stakeholders to assist in this effort. This is the process that can help vet and analyze the pros and cons of local alternatives. DEQ does not make decisions of funding policy. Those decisions are made by each Administration and the General Assembly. It is important to note that the Plan is not a regulation and, therefore, does not restrict water availability. It does however provide an early opportunity to consider resource issues that could become challenges for projects being developed. A primary objective of the regulation was to provide early warning, at the planning stage, for water supply project designers of potential issues that may come up in permitting. To be clear, the State Plan was not intended to analyze local demands beyond whether the demand method was legitimate and appropriate data was used in the projection.

Safe Yield Comments

- The term "safe yield" is used throughout the State Plan, yet it is unclear what this term means and how it is being applied in this document.
- The proposed definition of "safe yield" cited in the report is of concern. The phrase "can be" is subjective and the time period/duration of the "volumetric rate" is not specified in the definition.

DEQ's Response:

Safe yield is defined in the Glossary of State the Plan as follows: Safe yield of public water supply means the highest volumetric rate of water that can be withdrawn by a surface water withdrawal during the Drought of Record since 1930, including specific operational conditions established in a Virginia Water Protection permit, when applicable. DEQ believes that this definition is consistent with how it has traditionally been used in practice. The use of the phrase "can be" reflects that this is but a snapshot in time, as the amount that can be withdrawn under a drought of record and changes based on the drought of record, which is not static, and the number of users in the watershed, which also is not static. The yield is good for the term of the permit and is re-evaluated each time the permit is renewed or modified based on the current data at that time.

Withdrawal Permits Comments

- The Plan should make every effort to maintain current permitted withdrawal amounts.
- Duration of permits should be reevaluated; ten or fifteen year permits are too short in the context of long range water supply planning and infrastructure investment.
- Requiring permittees to pay for monitoring wells is a cost shifting strategy that places additional burdens on the private sector, hindering economic development; grants or loans should be provided by the General Assembly.
- RockTenn in West Point should be required to reduce its permitted withdrawal and recycle processed water.

DEQ's Response:

The State Plan has no impact on permitted withdrawal amounts. Permitted amounts are tied to a permit and its period of applicability. Although water supply planning informs the permitting process, statutory permitting authority and implementing regulations are separate and have separate criteria for determining withdrawal limits. Any proposed changes to statutory permitting authorities must be made by the General Assembly, and any regulatory change must follow the applicable procedures for regulatory development, including public notice and comment. Changing permit terms would need to be done by the General Assembly and cannot be accomplished through the State Plan. The statute allows DEQ to require monitoring of groundwater levels by water users in their permits. These permit conditions were regularly used by the state from 1973 to the mid-1980s. In the 1980s, DEQ was able to develop its own drilling capabilities and did this work in lieu of permit conditions as a service until the program was eliminated a decade later. Reduction of water withdrawn by WestRock (RockTenn) is the subject of a permit renewal process currently underway.

Many responders provided comments on the specific challenges and recommendations found in the Plan as follows:

Challenge #1 Comments: Understanding the Impact of Unpermitted Water Withdrawals

- The Plan should acknowledge that, in all cases, grandfathered water withdrawals are limited to the specific volume of water that can be withdrawn through the capacity of the intake structure, and that large self-supplied users and community water systems are already required to adopt a Drought Response and Contingency Plan.
- Using the terms “grandfathered” and “unpermitted” interchangeably is misleading.
- The Plan incorrectly states that DEQ has limited information on unpermitted withdrawals, based on VWP exemption requirements for these users.
- DEQ should clarify that any future options contemplated by the Plan protect public water supply capacity.
- Changes to these statutory provisions have not been justified and are not warranted. Voluntary coordination with specific exempted withdrawals to identify options to reduce potential impacts to beneficial uses during low flow periods is supported.
- Unpermitted withdrawals continue to place stress on available water resources; permit parity is needed.
- DEQ must be provided adequate financial resources and staff to timely manage and issue permits.
- DEQ should be cautious establishing Surface Water Management Areas, but should favor cooperative agreements instead.
- Less regulated localities should be brought to a comparable level before additional regulations are applied to others.
- The establishment of Surface Water Management Areas seems to be the first step to develop a truly comprehensive water resources plan.
- The Plan should include a broad discussion of legal water rights that pertain to the withdrawal and use of surface waters in Virginia.

DEQ's Response:

While many users may have drought contingency and response plans, they were not designed nor evaluated to see if they eliminate downstream impacts. Use of the terms “grandfathered” and “unpermitted” will be reviewed for appropriate application in the next State Plan. DEQ’s statement on the lack of information on unpermitted withdrawals is valid. The information submitted in the excluded user survey is not certified by a professional engineer nor is any evidence of accuracy of the information provided. The surveys did not request operation information, which is the critical component in assessing potential impacts to other users and key water uses during low flow events. There are also gaps in the number of known users responding to the survey. Relying on this data would not be technically defensible. DEQ cannot state that public water supply capacity will be protected without knowing if the

existing supply can meet demand and that proposed alternatives do not make the situation worse. In the case of the Coastal Plain aquifer and its associated declines, DEQ is making every effort to preserve existing capacity, but in some cases it may not be possible without investment by others to improve the water balance. DEQ has stated that it will exhaust voluntary efforts to address potential resource conflicts identified in the State Plan. While there are management benefits to permit parity, DEQ believes it needs further interaction with stakeholders through voluntary means before any final conclusions are made. The development of definitive information on the stresses attributed to unpermitted withdrawals is needed. DEQ believes that specific data to demonstrate the need for any potential use of Surface Water Management Areas would need to be developed to meet the regulatory requirements. At the present time, that information has not been developed and likely cannot be developed without working with willing localities in a cooperative manner. DEQ has indicated more work with stakeholders is needed to determine if any identified resource issues can be addressed through voluntary means. DEQ's initial follow-up efforts will concentrate on planning units where 2040 projected demands are clustered, multiple beneficial use metrics are anticipated to be exceeded by 2040, and a deficit in water supply is predicted. Should there be an unpermitted water withdrawal whose known operation (or unknown operation) led to the potential risk to beneficial uses identified, DEQ will coordinate with the localities and other stakeholders to collect information, clarify operation, or facilitate the development of low flow operational rules, if requested. Options, such as establishing Surface Water Management Areas, are tools available to DEQ if a problem exists that could be addressed with such a tool and voluntary efforts are unsuccessful. If the designation criteria for a Surface Water Management Area can be demonstrated, a proposal to take that regulatory action could be brought to the State Water Control Board as a result of a local petition or DEQ initiative. The assumption that the Surface Water Management Areas should be established as the basis for a comprehensive State Plan may miss opportunities to achieve similar results through non-regulatory means. However, it is too early in this effort to say how important the use of that tool may or may not be. DEQ is not clear which localities may be under-regulated, so is unable to respond. There is no requirement for a discussion of water rights in the Plan and, given the legal nature of water rights, it is unclear that such a discussion would be appropriately within the Plan scope or add value to the Plan.

Challenge #2 Comments: Gaps in Water Withdrawal Reporting, Differences in Reporting Thresholds between WSP and VVWR Regulations, and Lack of Adequate Data

- An interactive, real time, self entered database is a good idea.
- General Assembly must provide adequate resources to DEQ to partner with localities to provide this data.
- Any usages not reported should be recorded; direct input of data seems to be reasonable, but is already being done for surface water withdrawals.

- Obtaining accurate data should be a priority, as this data is needed to better manage water resources.
- Costs associated with state observation wells to obtain groundwater data should not be borne solely by groundwater users.

DEQ's Response:

DEQ appreciates the support for an online data system. DEQ agrees that the grant funding provided to localities and regions for plan development was instrumental in the successful completion of local and regional plans. The elimination of this funding may be detrimental to continued local efforts to develop data. On-line data entry of surface water withdrawals accounts for approximately 60-70 percent of a given year's withdrawals. Data needed to meet the objectives of all commenters is unlikely to be borne by any one entity. It is simply cost prohibitive. DEQ spends over \$1.5 million a year to monitor the quantity of water resources. Nearly \$500,000 goes to contract USGS to collect and maintain flow and water level data. Funding for data collection has declined over time. Areas where there has been underreporting have been targeted for improvement, and DEQ began efforts to improve water use data collection in late 2014 by contacting all golf courses in the Commonwealth not currently registered in the Virginia Water Withdrawal Reporting database. Additionally, DEQ is coordinating with the Virginia Golf Course Superintendents Association. To date, 280 of 320 known golf courses are registered in VA Hydro. DEQ also developed a work plan for outreach efforts to the agricultural community in late 2014. To date, explanatory materials have been developed for dissemination to farmers and other interested parties. The agency is coordinating with the Farm Bureau, Virginia Extension, and others to ensure success in improved data collection. In 2015, DEQ applied for federal funds to improve water withdrawal data collection and management capability.

Challenge #3 Comments: Quantifying Current and Future Risks to Groundwater Availability Outside of Current Groundwater Management Areas

- Expanding the monitoring capability and gaining a better understanding of groundwater resources outside GWMA is a reasonable goal.
- DEQ should work with USGS and other applicable state and federal agencies to establish well networks, as this is a statewide issue.
- Industrial and agricultural water users should be added to the list of stakeholders.

DEQ's Response:

DEQ appreciates the commenter's support for expanding groundwater monitoring outside of the Groundwater Management Areas. DEQ currently works with USGS on the State Observation Well Network. DEQ collects data on groundwater levels at 192 wells and the USGS collects data on groundwater levels at 218 wells, with periodic water quality samples taken at 19 of those wells. Sixty-six

of the wells in the DEQ/USGS Observation Well Network have been converted to real time monitoring with measurements captured every 15 minutes and uploaded to the internet using satellite technology. Additional information about this program can be obtained on DEQ's website. The comment regarding industrial and agricultural stakeholders is noted and is being done in practice as outreach efforts are implemented.

Challenge #4 Comments: Reservoir Site Development

- DEQ (and other state agencies) should take a more active, declared, and advocacy role in support and development of water storage projects.
- The Plan should clearly identify areas in need of water and recommend alternatives and locations for new sources and storage.
- The state needs to provide sources of funding for new water supply storage projects;
- For those that have already funded and implemented water storage reservoirs, the effects of flow augmentation and the benefits during low instream flow should be credited to the purveyor.
- Recommendation should be revised to state that if a project receives its VWP and VMRC permits, DEQ will actively support the project with respect to any necessary federal funding.
- Challenge description should highlight the challenges Virginia will face if projects are not identified and advanced.

DEQ's Response:

DEQ acts within the limits of its statutory authority with respect to the development of water storage projects. An issue that was highly debated when the regulation was developed is that the water industry felt that the DEQ should be an "advocate" for local and regional water supply projects during the permitting process with other state and federal agencies. DEQ's interest in this issue is to permit projects that provide an adequate future water supply, meet a defined local need, and are the least environmentally damaging practicable alternative. When DEQ issues its permit, it defends the permitting decision and the project as environmentally protective. While caution is necessary when recommending specific impoundment sites to localities, regions, or other stakeholders, DEQ will consider identifying regions of the Commonwealth where additional storage is needed and be prepared to share any technical or scientific information that might assist localities and others to maximize available supply as they make these decisions. If a water purveyor is considering a storage project to meet demand, DEQ can facilitate information sharing and discussion among localities, state, and federal agencies and other stakeholders on regulatory issues. The creation of a state source of funding for new water supply projects is a matter for consideration by the General Assembly and State Water Commission rather than DEQ. It is not clear how any flow augmentation should be credited in the State Plan. In cases where this operation is defined by permit and known, it was taken into account by the cumulative impact analysis. DEQ defends its permits for projects in the federal permitting process in practice as part of the joint permit process. A

recommendation is not needed to change what is already being done. DEQ appreciates the comment to highlight the impacts of not implementing a particular project or projects. The State Plan was intended to identify all potential alternatives for meeting future supply and to keep them “on the table” as demands, affordability, and resource constraints change over time. That is why there is not a required designation of a preferred alternative for each local or regional plan. Therefore, it would be impossible to truly assess what the impact of not implementing the alternatives would be in any detail. Certainly it would not be beneficial to the state or local economy if demand could not be met in the future.

Challenge #5 Comments: Threats to Water Quality

- The Plan should focus on water supply, not water quality as it concerns aquatic life.
- Recommendation does not correlate to the description of threats.
- Unclear how August Low Flow and 7Q10 numbers can be used to address identified threats; any flow metric considered by DEQ in water withdrawal permitting actions must be based on peer-reviewed scientific studies specific to a particular basin.

DEQ's Response:

Water quality has a close, complex relationship with water quantity. DEQ is required to look at both water quality and water quantity in the State Plan and in the permitting process. Both must be considered when assessing the availability and sustainability of the resource in meeting demand. DEQ believes that the recommendation is consistent with the identification of possible threats to water quality, but will review this State Plan narrative and its associated rationale and revise, if necessary, in future plans. DEQ will continue to educate stakeholders on the relationship between the metrics used and the stated threats. The metrics used are the result of a significant peer review process and literature review. Study in each basin is not necessary for a metric to be statistically valid in describing a relationship that has been hypothesized.

Challenge #6 Comments: Understanding the Impact of Consumptive Use on Water Supply

- A methodology that can be easily used must be provided so consumptive use can be provided to DEQ.
- DEQ should evaluate all options available for improving estimates of water consumption prior to seeking a requirement for individual reporting of water consumption.
- Concern with the definition of consumptive use.
- DEQ possesses data that can be used to estimate consumptive use.
- The Plan does not clearly state the need for this info and how such would alter or benefit the recommendations or assessments.
- Supports the recommendation to strengthen the information base.

DEQ's Response:

DEQ made conservative estimates for the initial cumulative impact analysis, based on the information available. More accurate information on consumptive use will assist with developing a better understanding of the impacts on streamflow and impacts to downstream users, resulting in a more refined analysis. The process of adopting regulatory amendments is significant and would be expected to include the development of an advisory committee that would provide input on appropriate methods for measuring and reporting on consumptive use. If the Annual Water Withdrawal Regulation is amended to include reporting of consumptive use, reporting criteria/methodology will be provided. DEQ will look at available options for improving estimated consumptive use that are considered to be industry standards. The definition of consumptive use used in the State Plan reflects a search of the term in the regulations of other states and scientific literature. The same definition has been used in the permitting program. DEQ does have some information on consumptive use, but not for all users. This creates additional uncertainty in the conclusions that can be made and can improve with a consistent method that is not forced to combine measured data and literature values that may not reflect the consumptive use of individual users appropriately. DEQ appreciates the support of database improvements.

Challenge #7 Comments: Promoting Increased Conservation to Reduce Long-Term and Short-Term Demand

- Recommended conservation measures were submitted by one commenter.
- The Plan needs to address irrigation as a critical component of efforts to conserve water; better addressed at the state level.
- Recommendation is redundant with existing regulation and needs to be removed.
- Stating that “water conservation can reduce costs to consumers as use of water declines” is misleading and too simplistic; it fails to recognize the financial complexities and obligations associated with water utilities.
- A cost benefit analysis would be useful.
- The Plan must include water reuse as a specific recommended water conservation technique.
- There is no need to broadband conservation as a 24/7/365 requirement, but teach it and engage it when and where needed.
- Many water providers have increased conservation and awareness practices as much as possible; likely needed is better documentation from localities on what they have already done.
- Incentives are needed, and examples from other states would enhance the recommendation.

DEQ's Response:

State Plan recommendations regarding specific uses like irrigation were not made, as there is some uncertainty about the benefits statewide. It appears from the initial data that there may be some localities and regions where reducing outdoor irrigation through conservation initiatives would have a significant

impact on water use. However, in a locality with little or no outdoor irrigation, a state-wide recommendation has no meaning. DEQ believes that these issues are best handled in the follow-up efforts that will be undertaken with stakeholders. As part of the ongoing planning process, increased conservation and planning efforts will be incorporated into the State Plan, and DEQ can facilitate as resources allow in the information exchange between water providers on best practices. Review of the local and regional water supply plans revealed significant diversity in the level of complexity of programs implemented throughout the Commonwealth. Many localities have no program in place with no data collection, no measures of success, or clear objectives, so DEQ does not believe the recommendation is redundant. The WSP Regulation simply requires that the local or regional plan report what existing efforts to conserve water are underway. The statement may be too simplistic, but is reasonable for a planning document as a general principal to reduce cost over the long term by reducing waste and conserving when appropriate. DEQ does not have funding for a cost benefit analysis and recommends that they be done locally to assess the reasonableness of water conservation efforts the particular locality may consider appropriate. DEQ agrees water reuse is an important means of conserving water, but it may not be the right tool for every system or locality. Therefore, DEQ has avoided recommending specific conservation techniques in the State Plan. DEQ does not question that some localities may be doing all that can be done in the area of conservation. DEQ agrees that better documentation of local efforts can only help reflect what is being achieved and that incentives would be useful. Future versions of the State Plan will consider adding examples of successful efforts from Virginia and other states on this topic.

Challenge #8 Comments: Critical Infrastructure Deficiencies

- Recommendation supported; assumption that emphasis will be on small water systems.
- DEQ should increase its efforts to obtain funding for critical infrastructure and expand its criteria for prioritizing funding beyond simply water loss.
- More concrete recommendations are needed, such as a fund established by the General Assembly recognizing the need to invest in infrastructure upgrades, sustainable planning, and revenue generation for water infrastructure.

DEQ's Response:

DEQ appreciates the support of this recommendation. DEQ does not believe that this issue is unique to small systems. Given resource constraints, however, the most likely initial focus will be on small systems. As noted in the recommendation, DEQ and VDH work together on issues related to water supply and would expect to work together on this effort. Conversations between the agencies regarding this topic have already begun. DEQ has no funding to aid in infrastructure replacement. At this time, such specific recommendations regarding infrastructure investments may be premature and are the purview of the General Assembly.

Challenge #9 Comments: Sea Level Rise, Changes in Precipitation Patterns, and Land Subsidence

- The significance of saltwater intrusion and sea level rise within the lower portion of the Coastal Plain and its impacts on groundwater should be enhanced to further exemplify the magnitude of the groundwater problem facing many coastal communities.
- Any work on modeling streamflow scenarios needs to be shared with localities early on.
- DEQ should assist as needed in understanding how any implications can be taken into account in local/regional water supply plan updates.
- Possible hydraulic fracturing activity is an emerging issue of concern, yet not addressed in the Plan.
- Recommendation is confusing; clarification about the purpose, intent, and implementation is needed.

DEQ's Response:

Water planners and providers have recognized that additional planning is needed to better understand the water supply implications of emerging issues such as sea level rise, changing precipitation patterns, and land subsidence. DEQ agrees with the commenters that further detail is needed in order to determine the extent and significance of each issue for localities. Some of this work is being contemplated now in conjunction with local or regional governments and federal agencies. DEQ anticipates assisting as resources allow and reflecting new information in subsequent versions of the State Plan. DEQ has maintained streamflow models since 2006, and they are the result of peer-reviewed models developed by the USGS. Access to the models can be made available to localities as they conduct continued water supply planning. DEQ's follow-up efforts are expected to assist localities and regions in understanding the implications of these issues as they continue to plan for their future water supply. Hydraulic fracturing was not addressed as a threat, as DEQ believes that the current programs in place and regulatory changes in the public comment process submitted by the Department of Mines, Minerals, and Energy are environmentally protective. DEQ will review the recommendation and modify as appropriate in the next version of the State Plan.

Challenge #10 Comments: Source Water Protection

- Good recommendation; assistance is needed at the state level to develop Source Water Protection Plans for sources that are either located in, or have watersheds in other jurisdictions.
- Other aspects, such as tracking hazardous materials handlers, should be considered.
- This is an unnecessary addition, given DEQ's limited resources and the fact that this program is already in place and working effectively.
- The Plan should include Best Management Practices related to agricultural runoff.

DEQ's Response:

DEQ appreciates the support of this recommendation. Public comments provided suggestions to be considered as this recommendation is implemented. Comments regarding resource limitations are noted. DEQ has no intention of duplicating efforts underway for source water protection, but to collaborate as necessary with state and local entities to protect the resources. DEQ believes that the recommendation is necessary due to the fact that many Source Water Protection Plans are not being implemented according to the review of local and regional water supply plans. DEQ believes that individual best management plans are best developed and implemented in this context as a part of ongoing planning when the issue is applicable within the planning unit. DEQ will assist as it can to identify when these conditions are appropriate in follow-up efforts.

Challenge #11 Comments: Conflict Resolution

- The Plan should recognize that DEQ has the authority to resolve conflicts through existing regulations to establish Surface Water Management Areas.
- The state should act as a fair and unbiased arbiter, but this has never occurred.
- The Plan should provide a mechanism for dealing with conflicts before they become a problem. This recommendation is consistent with the recommendations of the Water Supply Plan Advisory Committee.

DEQ's Response:

This topic was vetted extensively by the Water Supply Plan Advisory Committee, which concluded in its Final Report that "DEQ does not currently have any authority to resolve conflicts within the context of the SWRP (State Plan) beyond identifying them and facilitating discussion between localities and regions. Under the current regulatory framework, conflict arising from efforts to implement the State Plan can be resolved through the following methods: issuance of Virginia Water Protection Permits, litigation among parties, creation or use of a legislative or voluntary body (such as a river basin commission), and regulations (such as declaration of a Surface Water Management Area or Ground Water Management Area). Because these procedures are available, the Committee recommends no additional authority be created to resolve conflict at this time." DEQ plans to facilitate dialogue on issue resolution as anticipated during the development of the regulation. DEQ appreciates the comment regarding the consistency of this recommendation with that made by the Water Supply Plan Advisory Committee.

Challenge #12 Comments: Public Education and Outreach

- Caution is offered on educating the public on the importance of conservation during droughts; assumptions should not be made that more conservation during droughts will help through temporary or long term droughts; many have already cut back on demand to such a degree that discretionary demand has been diminished.
- More robust public education is needed beyond concern with supply shortfalls, but also alternatives such as water reuse that are available.

- Public education is a critical component of both achieving water conservation goals and gaining public support for measures needed to effectively manage Virginia's water resources.
- Public education measures should be complementary of the existing communication plans of local governments and water providers.
- Development of the Plan in and of itself is an important tool for education and outreach.

DEQ's Response:

As reflected in the state Drought Assessment and Response Plan, DEQ anticipates promoting the concept of measured and graduated responses to drought consistent with their severity. DEQ agrees additional topics beyond supply and demand are appropriate and can be developed and implemented over time. DEQ agrees that public education is critical in achieving conservation and buy in by citizens. Suggestions submitted in the public comments are helpful in planning public education, and outreach. DEQ agrees with the importance of state and local coordination of public education messages. DEQ acknowledges that the State Plan can serve the stated purpose.

JLARC Study

In the 2015 Session, the Virginia General Assembly approved HJ 595, HJ 623, and SJ 272 directing the Joint Legislative Audit and Review Commission (JLARC) to study Virginia's water resource planning and management. JLARC is directed to (i) assess the extent to which ground and surface water consumption is unsustainable, the potential effects of any unsustainable consumption, and the risk of overconsumption in the future; (ii) assess the effectiveness of the state's permitting process for ground and surface water withdrawals; (iii) assess the effectiveness of state and local water resource planning, particularly with regard to groundwater, including the role state and local plans play in water withdrawal permitting; (iv) examine the adequacy of the funding and staff levels for managing Virginia's water resources; (v) consider the need for strategies and practices preserve or increase the amount of groundwater and surface water available for consumption; and (vi) review any other issues and make recommendations as appropriate. JLARC shall complete its meetings the first year by November 30, 2015, and for the second year by November 30, 2016, and the chairman shall submit to the Division of Legislative Automated Systems an executive summary of its findings and recommendations no later than the first day of the next Regular Session of the General Assembly for each year.

Table 1. State Plan as a Living Document Work Plan			
Task	Description	Target Completion	Milestone
Review VA Hydro for functionality	Ensure tabs and other navigation are intuitive; Ensure maps are accurate and adequate; Review all pages for spelling, accuracy, etc.	10/31/2015	VA Hydro is ready for migration to new platform
Migrate to new VA Hydro platform	Ensure all information transferred; Ensure system is user-friendly, clear; Review all pages for accuracy	01/31/2016	VA Hydro is ready for internal testing and pilot preparation
Pilot project preparation	Develop protocol regarding access of VA Hydro (Water Supply Planning and Annual Water Withdrawal Reporting); Determine and document expectations of participants; Develop a schedule for review and completion of the pilot project	02/29/2016	Pilot project ready for external presentation and testing
Initiate Pilot Project	Identify interested stakeholders; Meet with pilot participants, provide training, review expectations	03/31/2016	Pilot project begins
Pilot project complete	Results and comments from participants reviewed; Changes made in VA Hydro as appropriate; Develop training webinar that incorporates suggestions and comments from pilot project	08/31/2016	VA Hydro ready for public release
Interactive Plan ready for public release	Localities, regions, and other stakeholders notified of living document release; Conduct training webinar and post to DEQ website; Provide regional training opportunities upon request; Provide and announce mechanism for receiving and responding to questions and input from stakeholders	10/31/2016	Plan used as a living document
Review and update of the Plan	Incorporate updated software and other tools as they become available to improve the Plan; Provide local and regional drought pages; Update and conduct webinar and other training as needed	Ongoing	Update, improve, and refresh the Plan for stakeholders' use
Provide periodic updates	Include Plan conclusions following annual Cumulative Impact Analysis; Explain any new tools available on VA Hydro; Update locality- or region-specific information as appropriate (electronic/part of Annual Water Resources Report)	At least annually	Public kept aware of Plan status and updates

March	4	Manassas Rotary Club
	16	Accomack-Northampton Planning District Commission
	19	Crater Planning District Commission
	20	Northern Neck Chief Administrative Officers
	26	West Piedmont Planning District Commission
April	2	Commonwealth Regional Council
	9	Richmond Regional Planning District Commission
	22	Middle Peninsula Planning District Commission
	28	Commonwealth Regional Council
May	6	Hampton Roads Planning District Commission - Utility Directors
	8	James River Basin Association
June	15	George Washington Regional Council
	25	Roanoke Valley-Alleghany Regional Commission
	25	New River Valley Regional Commission
July	16	Region 2000
	23	Southside Planning District Commission
August	19	Cumberland Plateau Planning District Commission
	26	Rappahannock-Rapidan Regional Council
September	2	Mount Rogers Planning District Commission
	16	Water Jam, Virginia Beach
October	5	DEQ Southwest Regional Office Presentation
	5	LENOWISCO Planning District Commission
	6	Virginia Municipal League Conference Richmond Marriott
	19	Central Shenandoah Planning District Commission
	27	Tentative For Northern Virginia Regional Commission
November	5	Thomas Jefferson Planning District Commission
November	12	Tentative for Upper James RC&D Council
December	11	VAPA Virginia Chapter Board of Directors

Table 3. 2015 State Plan Public Comments

General Comments
<p>King William County Less regulated localities should be brought to a comparable level before counties such as King William see additional regulations applied.</p>
<p>Fairfax Water Consider the success of the Metropolitan Washington Area Potomac River water supply agreements and plans as it contemplates a statewide water supply planning approach. Concerned that the draft State Plan does not accomplish the requirements set forth in the Code to prepare basin-specific reports or meet the re State Plan requirement to prepare a State Water Supply Plan; concerned that the scope and content of the draft extends well beyond the authority given to DEQ through the Code. Full cognizance must be taken of water utilities' ongoing obligations, such as those of Fairfax Water.</p>
<p>Crater Planning District Commission Groundwater management is an issue that could affect this region. Please make sure we are informed of any future developments on this matter.</p>
<p>James City Service Authority State Plan good first step, but does not constitute a plan; there are no goals, objectives, milestones, or timeframes; does not discuss how the state will help localities with long range water supply issues (financially, technically, or otherwise).</p>
<p>Hampton Roads Planning District Commission State Plan provides a comprehensive summary of water supply sources and demands in VA. Does not support the submittal of the State Plan to the Governor, Senate Committee on Agriculture, conservation, and Natural Resources, and the State Water Commission.</p>
<p>Newport News Waterworks State Plan is an impressive undertaking by DEQ in both magnitude and scope.</p>
<p>West Piedmont Planning District Commission Inconsistent percentages for groundwater demand. Confusion with CWS and SSU_LG; request consideration of placing parentheses after each use of abbreviation or use different abbreviations.</p>
<p>City of Richmond DPU shares Mission H2O's concern that the purpose and power of a state water supply plan not be lost within a state water resources plan. Both types of plan are critical, but DPU urges that more emphasis and clarity be given to the Plan's water supply elements. DPU applauds VA and DEQ for determining to assess and plan for future water needs and solutions, particularly with respect to the need for sustainable, cost-effective, reliable, clean, safe drinking water. State Plan marks a good collective start, and DPU pledges to work with DEQ and others in helping to ensure that VA's long-term water supply needs are met. Supports comments submitted by Mission H2O and VAMWA concerning draft State Plan.</p>
<p>Loudoun Water State Plan caution related to the effect of reuse on downstream users is incomplete and misleading. A more complete understanding of the effect of reuse considers the net water balance caused by the use of reclaimed water v. potable water.</p>
<p>Hampton Roads Sanitation District The state's first ever comprehensive water supply plan presents an opportunity to craft a visionary strategy that addresses many of the future challenges through holistic water resource management. This plan falls significantly short. Though a water shortfall is clearly identified under the drought critical condition, the plan fails to identify a strategy for addressing this shortfall. Though the State Plan identifies an over allocation of currently permitted withdrawals in the Potomac Aquifer independent of drought conditions; the plan fails to address this challenge.</p>

Western Tidewater Water Authority

DEQ should assist public water suppliers in EVGMA find and fund alternative sources. Groundwater must remain available as a drought resistant source. State Plan does not address groundwater as a resource to carry public water supplies through drought periods. The State Plan should expressly recognize that groundwater supplies should be a tool available to public water supplies to compensate for diminished surface water supplies during low flow and/or drought conditions.

Betty Lucas

Virginia's proposed plan should identify large water users as the major source of consumption problems to concentrate on conservation controls on individual users; include protection for exemptions of private wells and make human needs a priority; concern with RockTenn Paper and Franklin Paper Mills withdrawal amounts.

Hanover County

Executive summary: The "rich in water resources" statement in first sentence is subjective and should not be in a fact based report. Although much of the first paragraph is subjective. In last sentence remove the words "efficient and effective." Remove the words For the first time in Virginia's history. The approximate 32% increase in demand suggests that all additional demand will be from new withdrawals; edit as suggested.

Hanover County

Chapter 4, water use tables 4-1 through 5-4 use MGD as an annual number. This could be clarified annual average day.

David Ek

Ch 2 Waters sampled and thus reported on the list of impaired waters is not randomly selected, so statistical and spatial analysis is problematic. Quality of some figures when printed is blurred. Font size in legends is small. Ch 3 Two suggested changes to the text box that states "the character of Virginia's streams is a direct reflection of the geologic and physiographic provinces over which they flow." ...it would be more accurate to state that streams are a reflection of geologic and physiographic "processes" rather than "provinces." Several statements in this section appear to accept and repeat the common fallacy of the "water budget myth".... Water budget calculations cannot form the basis of determining the sustainability of aquifers or to assess groundwater withdrawal's affects upon the system....the degree of heterogeneity inherent in fracture-flow and conduit flow groundwater systems limits the amount and type of modeling that can be appropriately utilized. Basin Summaries could be strengthened by the inclusion of regional trends and spatial analysis, if there is data to support this. Definition of interbasin transfer needed? Concern about determination of 'headwaters." State Plan should include a clearly defined strategy in how to accomplish the recommendations complete with priorities and quantifiable metrics to gauge success. This should be a strategic plan.

Virginia Institute of Marine Sciences

The Plan could be strengthened through the inclusion of a more robust educational presentation on the physical characteristics and ecosystem services of the tidal freshwater areas. These areas are candidates for the SWMA. Consider the protection of drinking water as a priority in TMDL implementation; its incorporation into the process could increase awareness of water supply issues and have added benefits to target waterways. Presentation of aquatic flora and important fisheries founding during all or part of their life cycle in tidal freshwaters would assist in framing the importance of these areas to VA and Ches Bay.

Mission H2O

By converting the state water supply plan into a state water resources plan, DEQ has diluted the purpose and power of a water supply plan. Making conclusions that could potentially reduce water availability should not be done without first establishing the means for achieving the water necessary to meet those requirements. Instead, the Plan identifies the regulatory implications of predicted water demands without critically evaluating the legitimacy of those demand predictions. Moreover, by focusing on the regulatory implications, the Plan further restricts water availability without identifying concrete alternative sources to offset those restrictions. While water quality and other regulatory programs will impact the assessment of water needs, the Plan focuses too much on these other impacts and too little on water supply planning itself.

Mission H2O

State Plan lacks a cost-benefit analysis. Evaluation of the cost impacts of the issues raised by the Plan must include the potential effects on a community, economic or otherwise, to put restrictions on them.

Mission H2O

State Plan should prioritize the challenges and provide more context and discussion about how to proceed. The three most critical issues highlighted in the Plan to Mission H2O are the need for not only sufficient data and valid local/regional data; the need for additional water storagesites and recommendations for how to locate and develop such sites; and support for development of incentives, including funding, for improvements to water infrastructure (both upgrades to existing infrastructure and development of new infrastructure).

Mission H2O

Making statewide conclusions about water needs is misleading. Statewide 32% increase in 2040 demand does not take into account reductions in water usage that have been achieved in the past, and that per capita demand is decreasing. App B provides a better picture of future demand.

Loudoun Water

Agrees with need to update the State Plan at five-year intervals to reflect most recent plans, data, and projections; State Plan must be a dynamic and iterative planning tool for all beneficiaries of VA's water resources.

Information from Water Supply Plans

Loudoun Water

State Plan should footnote significant changes that have occurred since information was provided in water supply plans.

Fairfax Water

Water use info for Fairfax County is not consistent with information included in NVRWSP. DEQ needs to check the information, as it appears that both FW retail and wholesale water sales are reflected in the snapshot for Fairfax County.

James City Service Authority

30-day comment period for State Plan was too short, insufficient time for stakeholders to discuss the report with each other.

Chesterfield County

Information from water supply plan was submitted in 2007 and there have been significant developments that impact projections and water supply capacities. Specific changes were requested.

Newport News Waterworks

Snapshots provided on localities we serve do not truly reflect the water uses by locality. These should all be reviewed and updated. In addition, we also serve a section of James City County, but no mention is made of this on the James City County sheet.

Hanover County

P 244 Update Hanover interbasin transfers to include Hanover's purchase from the City of Richmond which originates in the James River as identified on page 22 of Hanover-Ashland WSP. App D: CWS demands 2010 in the snapshot do not agree with the information submitted in the Hanover/Ashland plan. Also, SSU_SM population and demands for 2010 in snapshot do not agree with the information submitted in the Hanover/Ashland WSP. Also, snapshot info for people using private groundwater wells for residential water supply does not agree with WSP. Request inclusion of a new additional alternative not mentioned in the WSP: South Anna River and the Little River could be used to supply the Verndon Quarry.

Mission H2O

Water supply is inherently local in nature, so lumping all of the local/regional plans together to make state-wide conclusions about water needs is misleading. The Plan reaches a conclusion, expressed in the Executive Summary (page xii), that there will be an increase in water demand of 32% by 2040. Including this statement without any context does not provide an accurate picture. Major Basin Summaries provide a better and more complete picture of future demand.

Rapidan Service Authority (RSA)

RSA has numerous interbasin transfers in the Greene County system from the Rappahannock into the James. These interbasin transfers have existed since RSA's inception, the early 1970s. Interbasin transfers consist of numerous single house connections to a 10 inch water main serving thousands of connections. This comment is only to document this fact.

David Ek

Page 186: this section speaks to the Potomac but there is mention of a 2.5 MGD discharge permit to the Rappahannock which is repeated in the Rappahannock River section.

Projections
<p>Fairfax Water State Plan should include information on water use and population growth in VA over the past several decades. Critical analysis of statewide per capita demand projection is needed, as national trends indicate that per capita water use has gradually declined in recent years.</p> <p>Hampton Roads Sanitation District Validation of projected water demand, population projections, and per capita water use should be reviewed. The projected consumption rates in the plan appear to be overestimated. Data from the last 20 years does not support a strong correlation between population growth and water demand; this trend should be acknowledged. There is inherent uncertainty with projecting population growth and per capita water use; this should be incorporated into the plan.</p> <p>West Piedmont Planning District Commission VA population figures inconsistent.</p> <p>Newport News Waterworks The water demand projections presented in the plan should be reviewed. We assume that the numbers are simply an agglomeration of the individual plans. However from our experience, despite growing population, per capita water demand is decreasing suggesting that a one to one correlation with population growth is not accurate.</p> <p>David Ek Ch 5 ...regional analysis is suspect due to the reliance on demand predictions provided in local/regional water supply plans. DEQ established no criteria for these local predictions; putting much weight in analyzing their findings is suspect. VEC v Weldon Cooper population projections.</p>

Beneficial Uses
<p>Loudoun Water Emphasis that preference shall be given to human consumption over all other uses.</p> <p>James City Service Authority Concerned that DEQ is not prioritizing human consumption in practice.</p> <p>Hampton Roads Planning District Commission State Plan should clearly state that meeting water demands for human consumption is the highest priority and address how demands associated with population growth should be accomplished.</p>

Newport News Waterworks

State Plan seems to intentionally raise the emphasis on instream needs and all but dismisses the priority that has historically been given to human consumptive needs.

Western Tidewater Water Authority

State Plan should clarify that the term “beneficial use” has a distinct meaning for surface water and groundwater and that references to beneficial uses that apply only to surface waters be stated as such.

Alternative Sources, including Reuse

VA Association of Municipal Wastewater Agencies

Primary reason for commenting on the draft State Plan is to recommend greater consideration of reclaimed water as a resource and to recommend that the Commonwealth continue to work to remove barriers to water reuse. DEQ and the State Plan should facilitate the availability of reliable, safe, and cost-effective sources; disappointed that the State Plan all but ignores the existing regulatory barriers to wastewater reclamation and reuse. The State Plan observes that water reclamation and reuse is “not commonly used by localities in the Commonwealth.” However, the plan does not take the next step to address why this tool is not more commonly used.

Loudoun Water

State Plan should be amended to strongly "promote and encourage the reclamation and reuse of wastewater" and articulate the benefits derived from reuse, per the Commonwealth's explicitly stated public policy.

Newport News Waterworks

The plan mentions consideration for desalinization for alternative sources of water but does not offer any potential answers for brine disposal, which is a major challenge with such a water supply.

Western Tidewater Water Authority

DEQ should take an active role (1) assisting public water suppliers in developing alternative supplies for the region and (2) promoting the state funding for new sources and infrastructure.

VA Association of Municipal Wastewater Agencies

Requests that DEQ add the following to the Water Supply Challenges and Recommendations in Chapter 6: “Challenge: Regulatory Barriers to the Use of Wastewater Reclamation and Reuse.” VAMWA further suggests that DEQ include a recommendation along the following lines: Recommendation: DEQ will coordinate with other agencies, including the VDH and DHCD, to identify regulatory obstacles to the availability of wastewater reclamation and reuse as an attractive, reliable, and cost-effective water supply. At a minimum, any regulatory requirements that (1) substantially increase the cost of projects, (2) unnecessarily lengthen the process for obtaining approval for projects, or (3) lessen the reliability and usefulness of projects to the provider or user should be considered obstacles. DEQ and its coordinating agencies will work to modify or eliminate any identified regulatory obstacles that are not necessary for material and substantial protection of public health and safety or the environment.

Hampton Roads Planning District Commission

State Plan should describe how DEQ and other state agencies will advocate for funding and permitting for additional water sources.

Hampton Roads Sanitation District

Water reuse must go beyond industrial and irrigation uses. Indirect potable reuse (IPR) is a common, yet unrecognized practice and the state must acknowledge this and seize the opportunity to broaden the use of treated wastewater as an alternative water supply. Much of the treated water in the HRSD service area is lost to downstream uses following discharge to the tidal James, York, and Atlantic. Reuse of this otherwise wasted water provides a significant opportunity. IPR through aquifer replenishment has the potential to sustain groundwater supplies throughout much of the EVGWMA as opposed to the more localized benefits associated with reservoir augmentation. VA must face water supply challenge head-on and adopt policies which strongly incentivize water reuse as a means to preserve this resource; remove barriers to reuse.

Ches Bay Nutrient Land Trust

Encourages DEQ to recognize trading as a potential strategy for addressing water demand. In Challenge #4: "...assist as appropriate in any efforts to optimize use of the source." It is unclear what this means or how DEQ will assist. More detail is needed. DEQ should clearly identify where more storage is needed, include suggestions for creating incentives for companies willing to develop such sites, and serve as an advocate and ally in the federal permitting process.

Hanover County

The State Plan is somewhat single dimensional focusing almost solely on surface and groundwater, generally discounting nontraditional sources to meet projected 2040 demand. Nontraditional water sources, such as water reclamation and reuse, desalination, and interconnection are not commonly used by localities in the Commonwealth and address/eliminate burdensome roadblocks.

Hanover County

Supports the comments submitted by the Virginia Association of Municipal Wastewater Agencies regarding the suggested additional Chapter 6 Challenge and Recommendation pertaining to reclamation and reuse. VAMWA's comments align with the aforementioned general reclamation and reuse statements.

Mission H2O

State Plan does not include any analysis of the potential alternative sources identified at the local level; it is necessary to highlight potential impediments to alternative sources identified in the local/regional plans.

Mission H2O

Should identify and vet alternative water sources, as well as include concrete recommendations on how to further identify and implement alternative solutions - should be primary goal of the State Plan. Potential alternatives that should be included: stormwater; a water trading program, providing incentives for individual water use reductions. Instead, the Plan identifies the regulatory implications of predicted water demands without critically evaluating the legitimacy of those demand predictions. Moreover, by focusing on the regulatory implications, the Plan further restricts water availability without identifying concrete alternative sources to offset those restrictions. While water quality and other regulatory programs will impact the assessment of water needs, the Plan focuses too much on these other impacts and too little on water supply planning itself.

Safe Yield

Mission H2O

The term "safe yield" is used throughout the Plan. It is unclear what this term means, and how it is being applied in this document. (explanation provided).

VA Department of Health

Proposed definition of "safe yield" cited in the report is of concern. The phrase "can be" is subjective and the time period/duration of the "volumetric rate" is not specified in the definition. Provided language from the Waterworks Regulation.

Withdrawal Permits

King William County

The State Plan should make every effort to maintain current permitted withdrawal amounts.

James City Service Authority

Duration of permits should be re-evaluated. Ten year permits are quite short in the context of long range water supply planning.

Hampton Roads Planning District Commission

The State Plan should acknowledge that the 10-year permit period does not align with the typical 30-year period needed to finance major water infrastructure projects.

Middle Peninsula Planning District Commission

Requiring monitoring wells to be paid for by those requesting a permit is a cost shifting strategy that places additional burdens on the private sector thus further hindering economic development. The General Assembly should provide cost share grants or low interest loans to partner with the private sector for monitoring wells.

Western Tidewater Water Authority

Permit periods do not align with reality of utility operation and finance. Utility decisions are generally made over a 30-year planning horizon. The State Plan should recognize this problem and recommend that the permitting periods be extended to greater align with the realities of utility planning and financing.

Bill Lucas

RockTenn paper mill in West Point, VA should be required to reduce its permitted withdrawal and recycle processed water.

Cumulative Impact Analysis / Flow Metrics

Fairfax Water

The four flow metrics selected for cumulative impact analysis by DEQ do not accomplish the objectives required by the Code of VA. The figures in the State Plan indicating graphical changes in flow by HUC present a misleading picture of the potential impacts of cumulative withdrawals and need to be modified to reflect actual changes by linear river or stream segments rather than across entire HUC areas.

Dominion Resources Services, Inc.

Request that the discussion of potential flows in the York River Basin include a discussion of the regulation of the releases from Lake Anna Dam so that readers are provided context of the associated issues.

Virginia Institute of Marine Sciences

Clarification within the Plan is needed regarding the August Low Flow metric regarding its applicability to tidal freshwaters. We recommend that DEQ consider the development of minimum requirements for tidal freshwaters.

Understanding the Impact of Unpermitted Water Withdrawals (Challenge #1)

Fairfax Water

The State Plan should acknowledge that, in all cases, grandfathered water withdrawals are limited to the specific volume of water that can be withdrawn through the capacity of the intake structure. The State Plan needs to acknowledge that all SSU_LG and CWS are required to have DRCP.

Middle Peninsula Planning District Commission

Unpermitted withdrawals continue to place stress on available water resources. Permit parity is needed. Economic development opportunities cannot wait 2+ years for permits, while those unregulated continue to consume water. DEQ must be provided adequate financial resources and staff to timely manage and issue permits.

Michael Collins Director of Public Works City of Harrisonburg (personal comments)

Meeting with unpermitted withdrawers in prioritized areas of low instream flow is a good approach (provides a list of values). DEQ should be extremely cautious to enter into SWMA designation, but should favor cooperative agreements instead; provides explanation

Newport News Waterworks

Leadership role is needed to assist localities with guaranteeing quality and quantity of their supplies in a concurrent effort while considering any operational rules for any un-managed water supply sources.

Western Tidewater Water Authority

Any effort to regulate unpermitted surface water withdrawals must protect existing users and prioritize public water supplies WTWA staff request that DEQ clarify that any "future options" contemplated by the State Plan will protect public water supply capacity.

VA Water and Waste Authorities Association

Does not believe DEQ should amend its regulations to encompass these grandfathered rights and that doing so would exceed its legislative authority; opposed to DEQ collecting information about these withdrawals, although most are already covered under the Virginia Water Reporting Regulation. Not opposed to truly voluntary agreements by grandfathered rights holders as to how they will manage their unpermitted withdrawals. Do not support any governmental regulation of these rights beyond what is currently permissible by law.

City of Richmond

DPU concerned with how the State Plan addresses "grandfathered withdrawals" from VA's surface waters and the suggested need for further controls on such withdrawals. The State Plan should include a broad discussion of legal rights that pertain to the withdrawal and use of surface waters in VA.

Dominion Resources Services, Inc.

Consideration of changes to these statutory provisions have not been justified and are not warranted. However, we do support the discussion regarding DEQ's interest to voluntarily coordinate with specific exempted withdrawals to identify options to reduce potential impacts to beneficial uses during low flow periods.

Mission H2O

Using the terms "grandfathered" and "unpermitted" interchangeably is misleading. Statement on P 11 "DEQ has limited operational information on unpermitted withdrawals" is not accurate, based on VWP exemption requirements for these users. It is unclear what additional "control" or operational restrictions DEQ would be seeking as a part of the solution.

James City Service Authority

The State Plan seems to imply that SWMA be created and permitted similar to GWMA; this would seem to be the first step to develop a truly comprehensive water resources plan.

Gaps in Water Withdrawal Reporting, Differences in Reporting Thresholds between WSP and VVWR Regulations, and Lack of Adequate Data (Challenge #2)

Michael Collins, Director of Public Works, City of Harrisonburg (personal comments)

An interactive, real time, self entered database is a good idea versus the once per year reporting requirement now in effect.

Middle Peninsula Planning District Commission

The General Assembly must provide adequate resources to DEQ to partner with local governments if mandated to provide this data to DEQ.

Newport News Waterworks

Any usages that are not reported should be recorded; direct input of data seems to be a reasonable request, but is already being done for surface supply withdrawals.

Hanover County

DEQ should do more than simply coordinate with localities; they should coordinate available state data and there should be no resubmitting of data to DEQ.

Mission H2O

Accurate data is needed to better manage water resources. Obtaining this data should be a priority. Such data is readily available for surface water. Costs associated with development of SOW should not be borne solely by groundwater users.

**Quantifying Current and Future Risks to Groundwater Availability
Outside Groundwater Management Areas (GWMA)
(Challenge #3)**

Michael Collins, Director of Public Works, City of Harrisonburg (personal comments)
Supports DEQ recommendation

Newport News Waterworks

Expanding the monitoring capability and gaining a better understanding of groundwater resources outside of the managed areas is a reasonable goal. For years GWMA permittees are required to perform expensive, targeted groundwater research efforts. This approach seems fair and should be expanded to areas and other basins where needed.

Hanover County

The State should take the lead and work with USGS and other applicable state and federal agencies to establish the observation well networks, as this is a statewide issue.

Mission H2O

Industrial and agricultural water users are not identified in the list of stakeholders referenced in the recommendation and should be.

**Reservoir Site Development
(Challenge #4)**

Loudoun Water

DEQ encouraged to take a more active and declared role in support and development of water storage projects.

Fairfax Water

The State Plan needs to indicate that DEQ will promote and be a strong advocate for new water supply storage projects, and that the state needs to provide sources of funding for, and the means to facilitate the development of, new water supply storage projects.

Hampton Roads Planning District Commission

The State Plan should describe how DEQ and other state agencies will advocate for funding and permitting for additional water sources.

Hampton Roads Planning District Commission

The State Plan should clearly identify areas in need of water and recommend alternatives and locations for new sources and storage.

Middle Peninsula Planning District Commission

Coordination between DEQ and ACOE needs to take place prior to inclusion in the State Plan.

Michael Collins, Director of Public Works, City of Harrisonburg (personal comments)

DEQ should assist with efforts to construct new water storage projects. For those that have already funded and implemented water storage reservoirs, the effects flow augmentation and the benefits during low in stream flow should be credited to the purveyor.

Newport News Waterworks

State should take a more active involvement and leadership role to preserve good sites for reservoirs.

Western Tidewater Water Authority

Appreciates DEQ's commitment to assist with reservoir construction projects. Requests that DEQ further strengthen its commitment to supporting large-scale water supply projects by committing its willingness to become a partner in projects that will have a great public benefit.

VWWAA

Recommendation does not take a strong enough position on what DEQ could do to support a reservoir project. What the State Plan does not do is strongly state how the state could be an advocate for a reservoir project once a project has received its VMRC and VWP permits. Revise recommendation to state that if a project has received its VWP and VMRC permits, DEQ would actively support the project with respect to any necessary federal permitting.

Chesapeake Bay Nutrient Land Trust, LLC

DEQ’s recommendation is that “DEQ will assist, as appropriate, in any efforts to optimize the use of the resource.” It is unclear what this recommendation means or how DEQ will assist. More detail is needed in this recommendation. If the data gathered through the water supply planning process demonstrates that new reservoir sites are needed, the State Plan should more clearly identify where additional storage is needed thus creating an incentive and opportunity for the market to drive development of such sites. Additionally, DEQ’s recommendation could include suggestions for creating incentives for companies willing to develop such sites. Finally, DEQ must affirmatively commit to serve as an advocate and ally in the federal permitting process.

Hanover County

Given the need for additional storage and the impact a storage project in an upstream river segment can have on a downstream segment, the State should take a key role in regional reservoir development, based upon the data contained in the State Plan. Key reservoir sites should be identified.

Mission H2O

Challenge description should highlight the challenges VA will face if projects are not identified and advanced. Recommendation does not go far enough; DEQ should help identify or vet potential reservoir sites. DEQ should advocate for those projects, particularly through the federal regulatory process.

**Threats to Water Quality
(Challenge #5)**

Michael Collins, Director of Public Works, City of Harrisonburg (personal comments)
Supports DEQ recommendation.

Newport News Waterworks

The State Plan should focus on water supply, not on water quality as it concerns aquatic life.

Mission H2O

Recommendation directly relates to water quantity, despite the heading description of water quality; does not correlate to the description of threats. Unclear how AFL and 7Q10 numbers can be used to address identified threats.

Fairfax Water

It is imperative that any flow metric considered by DEQ in water withdrawal permitting actions be based on peer-reviewed scientific studies specific to a particular basin. The State Plan needs to clarify the derivation of the ALF and provide its quantity and reoccurrence interval for each river sub-basin in VA.

**Understanding the Impact of Consumptive Use on Water Supply
(Challenge #6)**

Michael Collins, Director of Public Works, City of Harrisonburg (personal comments)
Supports DEQ recommendation.

Newport News Waterworks

If required to report this number, a methodology must be provided that can be easily used to obtain this information.

Dominion Resources Services, Inc.

Consumptive use of water is the primary issue facing VA's future water supply. Requiring individual operators to estimate and report consumptive use, without first establishing the most appropriate methods and scale to estimate consumptive use is likely to result in estimates of water consumption that range widely in accuracy. DEQ should evaluate all options available for improving estimates of water consumption prior to seeking a requirement for individual reporting of water consumption, including development of improved sector/industry-specific consumptive use factors that are appropriate for VA prior to individual reporting.

Hanover County

Supports VAMWA suggestion to include a new Challenge/Recommendation re: reclamation and reuse.

VA Department of Health

Concern with definition of "consumptive use" and the recommendation to require annual reporting of this use. Definition and recommendation should be revised to obtain a more accurate reported measurement.

Mission H2O

It is unclear the purpose or need for performing such calculations (water lost to evaporation, transpiration, etc.). DEQ possesses data that can be used to estimate consumptive use. The State Plan does not clearly state the need for this info and how such would alter or benefit the recommendations or assessments already being performed.

Virginia Institute of Marine Sciences

Agrees with the State Plan regarding the difficulties raised by a lack of comprehensive withdrawal and consumptive data; supports the recommended intentions to strengthen the information base for ongoing activities.

Promoting Increased Conservation to Reduce Long-Term and Short-Term Demand (Challenge #7)

Stuart Nixon

Include ideas for conserving water (provided examples in two submittals).

James City Service Authority

The State Plan needs to address irrigation as a critical component of efforts to conserve water; better addressed at the state level than the locality level.

Fairfax Water

This recommendation is redundant with existing regulation and needs to be removed. The statement "Water conservation practices can...reduce costs to consumers as their use of water declines" is misleading.

Middle Peninsula Planning District Commission

The State Plan must include water reuse as a specific recommended water conservation technique especially in the Coastal regions where saltwater intrusion is a threat to the aquifers.

Michael Collins, Director of Public Works, City of Harrisonburg (personal comments)

At this time there is no need to broadband conservation as a 24/7/365 requirement, but teach it and then engage it when and where needed.

Newport News Waterworks

Water demand has decreased sharply and not just locally, but across the nation. This is due to many factors, including, changes in the plumbing code, appropriate pricing of water, the establishment of a water conservation ethic among the public, and some other factors. Many water providers are "already there" regarding increased conservation awareness and practices. Any new VWPP and groundwater permits already require a plan be developed and implemented. What may be needed is better documentation from localities on what they have already done to give credit for progress already made.

Hanover County

The statement is too simplistic and fails to recognize the financial complexities and obligations associated with water utilities. As conservation programs become more successful, the fixed costs will need to be shifted to the consumer, such as debt, bond covenants, maintenance and personnel.

Mission H2O

Additional reductions in water demand through conservation efforts are not so readily achieved and are more costly. A cost benefit analysis would be useful for this challenge and recommendation. Incentives are needed and examples from other states would enhance the recommendation.

**Critical Infrastructure Deficiencies
(Challenge #8)_**

Michael Collins, Director of Public Works, City of Harrisonburg (personal comments)
Supports DEQ recommendation.

Newport News Waterworks

Determining the loss of water can be difficult for localities. Funding for infrastructure is a worthwhile goal; assumption that emphasis will be on small water systems.

Western Tidewater Water Authority

Requests that the plan recommend that DEQ increase its efforts to obtain funding for critical infrastructure and expand its criteria for prioritizing funding beyond simply water loss.

Mission H2O

More concrete recommendations are needed. Examples: General Assembly established fund recognizing the need to invest in infrastructure upgrades, sustainable planning and revenue generation for water infrastructure.

**Sea Level Rise, Changes in Precipitation Patterns, Land Subsidence
(Challenge #9)**

Middle Peninsula Planning District Commission

The significance of saltwater intrusion and sea level rise within the lower portion of the Coastal Plain and its impacts on groundwater should be enhanced in the State Plan to further exemplify the magnitude of the groundwater problem facing many coastal communities.

Michael Collins, Director of Public Works, City of Harrisonburg (personal comments)
Supports DEQ recommendation.

Newport News Waterworks

Some water providers are already working to gain a better understanding of the possible implications of changes in precipitation and sea level conditions. Any work on modeling streamflow scenarios needs to be shared with localities early on and DEQ should assist as needed in understanding how any implications can be taken into account as updates are made to regional and individual water plans.

Middle Peninsula Planning District Commission

Possible hydraulic fracturing activity in our region is an emerging issue of concern not addressed in local plans or considered in future demand projects. Future plan updates should recognize this potential new user and possible polluter of groundwater. Saltwater intrusion and sea level rise should be enhanced to further exemplify the magnitude of the groundwater problem facing many coastal communities.

Virginia Institute of Marine Sciences

The effects of sea level rise and saltwater intrusion on the relationship between water supply and aquatic resources in tidal freshwater areas should be incorporated into the Plan to a greater degree (provides explanation).

Mission H2O

Recommendation is confusing; clarification about the purpose, intent and implementation of this recommendation is needed.

**Source Water Protection
(Challenge #10)**

Middle Peninsula Planning District Commission

The State Plan should include BMPs related to AG water runoff into AG ponds and other water sources should be included in water resource plans to broaden opportunities for funding sources for implementation. Recognition that there is a disparity of regulatory burden between AG uses, legally recognized unpermitted users and permitted users. A level of uniformity is needed.

Michael Collins, Director of Public Works, City of Harrisonburg (personal comments)
Supports DEQ recommendation.

Newport News Waterworks

Good recommendation, but many localities have sources that are either located in, or have watersheds in other jurisdictions. Assistance is needed at the State level to help localities to develop and implement SWPP for those areas for which they have no control. Other aspects, such as tracking hazardous materials handlers within watersheds, should be considered.

Mission H2O

Unnecessary addition, given DEQ's limited resources and the fact that this program is already in place and working effectively.

**Conflict Resolution
(Challenge #11)**

Fairfax Water

The State Plan should recognize that DEQ has the authority to resolve conflicts through existing regulation to establish SWMA.

Michael Collins, Director of Public Works, City of Harrisonburg (personal comments)
Supports DEQ recommendation

Newport News Waterworks

Most conflicts over water resources have traditionally been resolved by localities. State could act as a fair and unbiased arbiter, but that really has not occurred, and is not likely. The State Plan should provide a mechanism for dealing with conflicts before they become a problem, but does not appropriately address this issue.

Mission H2O

Consistent with the recommendations of the WSPAC. Mission H2O members support its inclusion.

**Public Education and Outreach
(Challenge #12)**

Michael Collins, Director of Public Works, City of Harrisonburg (personal comments)

Public education should be in alignment with the purpose as stated under Challenge #7: At this time we do not need to broadband conservation as a 24/7/365 requirement, but teach it and then engage it when and where needed. Actual designated conservation periods may be one out of the box approach to begin education and practice.

Newport News Waterworks

Caution is offered on educating the public on the importance of conservation during droughts. Assumptions should not be made that more conservation during droughts will help through temporary or long term drought conditions. The reality is that the public, businesses and industries have already cut back on their water demand to such a degree that most of the discretionary demand that could be cut back during a drought has been very much diminished. Future droughts, if worse than those in the recorded past, could have very detrimental effects on our citizens. The need for developing future water supply projects should be championed at the state and federal levels rather than putting up roadblocks. The State Plan should take on more of an advocacy role for water supply rather than an inventory and enforcement role.

Hampton Roads Sanitation District

More robust public education is needed beyond concern with supply shortfalls, but also the alternatives such as water reuse that are available.

Mission H2O

Public education is a critical component of both achieving water conservation goals and gaining public support for the measures needed to effectively manage Virginia's water resources. Such public education measures should be complementary of the existing communication plans of local governments and water providers that are already in place. The development of the Plan in and of itself is an important tool for education and outreach.