



Economic Impact Analysis Virginia Department of Planning and Budget

9 VAC 25-760 – State Water Control Board James River (Richmond Regional West) Surface Water Management Area September 6, 2002

The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with Section 2.2-4007.G of the Administrative Process Act and Executive Order Number 21 (02). Section 2.2-4007.G requires that such economic impact analyses include, but need not be limited to, the projected number of businesses or other entities to whom the regulation would apply, the identity of any localities and types of businesses or other entities particularly affected, the projected number of persons and employment positions to be affected, the projected costs to affected businesses or entities to implement or comply with the regulation, and the impact on the use and value of private property. The analysis presented below represents DPB's best estimate of these economic impacts.

Summary of the Proposed Regulation

The proposed regulations will establish James River metropolitan area as a surface water management area. With this designation, the Department of Environmental Quality (the department) will be required to initiate voluntary or mandatory water conservation measures on large water users depending on the severity of low flow conditions. The water use restrictions will be implemented through permits, certificates, or voluntary agreements that will be effective at times of drought conditions.

Estimated Economic Impact

The proposed regulations will declare James River in the Richmond metropolitan area as the James River (Richmond Regional West) Surface Water Management Area.¹ Primary goals of the proposed regulations are to protect the instream and offstream beneficial uses of water and

¹ This area include mainstream of the James River and all tributaries to the James River and their watersheds between the James River upstream from the southeastern toe of the Interstate 95 bridge in the City of Richmond to the southwestern toe of the US Route 522 bridge in Goochland and Powhatan Counties.

to provide a coordinated approach in managing and allocating the scarce surface water resources during low flow conditions in the designated portion of the James River. Instream beneficial uses include protection of fish and wildlife habitat, maintenance of waste assimilation capacity, recreation, navigation, and cultural and aesthetic values. Offstream beneficial uses include domestic (including public water supply), agricultural, electric power generation, commercial, and industrial uses. Note that in times of drought there is a trade off between instream and offstream uses. If too much water were allocated to one type of uses, the other uses would suffer. Thus, a balanced approach is beneficial when making water allocation decisions.

The proposed regulations will introduce a mandate for the department to include in facility permits water use restrictions for times when low stream conditions exist in the designated surface water management area. Currently, the agency has the discretion to include water use restrictions in facility permits, but there is no regulatory mandate to implement them. With the proposed changes, the water use restriction decisions will be made in accordance with the existing regulations² that require the consideration of beneficial instream and offstream uses. So, the decisions on use restrictions will be made on a case-by-case basis. To identify the beneficial uses and determine appropriate permit conditions, the department plans to require applicable users to develop and submit water conservation plans. A water conservation plan is a description of specific measures or practices that will be implemented under low flow conditions and that will result in a reduction in water usage when compared to normal usage during a comparable period. These plans are expected to provide the department the information about how a particular user plans to implement restrictions during low flow conditions.

The proposed regulations will establish three levels of flow conditions below which tiered permit conditions will become effective for the users of more than 300,000 gallons of water per month in the designated area. The public water suppliers and other users will be subject to different permit requirements. At the first tier, when the 14-day rolling average flow in the designated surface water management area falls below 2,142 cubic feet per second (approximately 30% of mean annual flow), the permits issued to both public water supplies and any other persons will be effective. The department plans to establish frequent reporting requirements and wise water use requirements in all of the permits when the first tier low flow

² 9 VAC 25-220-10 et seq.

condition is met. Currently, users are required to submit annual reports for monthly withdrawals. With the proposed changes, monthly reports of daily water usage are planned to be required during low flow conditions. Examples related to wise water usage at homes are finding and fixing leaky faucets, toilets, or pipes, installing low-flow showerheads and taking shorter showers, turning off the water when brushing teeth, shaving or washing dishes, running the washing machines and dishwashers only with full loads, adjusting sprinklers to avoid watering sidewalks and driveways, landscaping with drought tolerant plants, reducing landscape watering time, turning off automatic sprinklers when it rains or during cooler weather, using broom instead of hose to clean side walks, decks, or other surfaces. Similarly, wise water usage at work may involve increasing employee awareness of conservation, doing a water audit to find ways to save, and using recycling systems for cooling towers and ice machines.

The second tier requirements will be effective when the 14-day rolling average flow falls below 1,428 cubic feet per second (approximately 20% of mean annual flow). At this level, public water supplies will be required to initiate voluntary water use restrictions and permits issued to other persons will contain provisions limiting water withdrawals. The magnitude and type of water use restrictions for non-public water supplies will depend on the beneficial uses. These users may include land and farm owners and commercial and industrial businesses. The voluntary water use restrictions that the public water suppliers will be required to initiate may include reducing grass watering between certain times, days, or watering no more than a number of times in a week, reducing the use of automatic watering devices for purposes of irrigation, watering gardens, landscape areas, trees, shrubs, and other outdoor plants, reducing the use of water for washing paved surfaces such as streets, roads, sidewalks, driveways, parking areas, tennis courts, and patios, reducing the use of water for the operation of ornamental fountains, and artificial waterfalls, reducing the use of water for non-commercial washing or cleaning of cars, trucks, trailers, and boats, and reducing tap water served in restaurants, or other places. The goal of voluntary use restrictions is to reduce water demand by approximately 10-15%.

Finally, the third tier requirements will be effective when the 14-day rolling average flow falls below 714 cubic feet per second (approximately 10% of mean annual flow). At this level, public water supplies will be required to initiate mandatory water use restrictions. The nature of mandatory water use measures are similar to voluntary use restrictions except that mandatory compliance is required and written warnings and monetary fines may be issued by public water

supply authority to enforce compliance. The goal of mandatory use restrictions is to reduce water demand by approximately 20-25%.

The department estimates that the proposed regulations will require about a dozen large users to obtain permits or certificates. These users include publicly owned City of Richmond and Henrico County public water supplies, state owned James River Correctional Center, about 3-5 agricultural users, and about 4-7 industrial and commercial users. Pursuant to Surface Water Management Act, riparian owners have the right to withdraw reasonable amount of water from the designated management area. Thus, users prior to 1989 will be issued a certificate rather than a permit, but the department does not know how many users may be in this category. Additionally, the department plans to allow the users to propose voluntary restriction agreements in lieu of permits or certificates. Under a voluntary agreement, all reporting requirements must be satisfied and the users must agree to reduce their withdrawal by a magnitude comparable to that would result under a permit or certificate. Multiple users may propose a voluntary restriction agreement as well. Currently, there are two individual users with voluntary restriction agreements.

The costs that will be introduced by the proposed regulations include costs associated with permit and certificate fees, with reporting requirements, with developing water conservation plans, with restrictions on withdrawals, and with processing of permits by the department. The department will charge users a one-time \$9,000 fee for a permit application and a \$6,000 fee for a certificate application. Also, there are costs to users associated with monthly reporting of daily stream levels in terms of expenses such as staff time, office supplies, postage, or labor and overhead expenses in general. Further, the development of water restriction plans may introduce new costs to some users. The department believes that public water supplies already have enough resources to develop their conservation plans. The other users are believed to be able to easily demonstrate their needs for water in these plans without requiring consultant services and may already have their daily withdrawals documented. Two sources are thought to be without currently available daily withdrawal records. This may increase the time for plan preparation for these two users. Likewise, the department will likely incur some additional costs in terms of staff time and other expenses needed to process permit applications.

The other costs are in terms of restricting water use or reducing demand during low flow conditions. Water use restrictions are expected to impose adverse economic effects on agricultural, commercial, and industrial users as well as the public water supplies during low flow conditions. The households receiving water from public water supplies may bear significant costs as well in terms of the activities they may no longer perform. The planned method by which the restrictions will be determined and implemented will likely play an important role in determining economic effects. Though not specifically spelled out in the regulation, it appears that the users will be provided an opportunity through voluntary use restrictions or through conservation plans to identify the uses they wish to reduce during low flows. This will likely provide some flexibility to users in terms of minimizing potential costs during drought conditions. Since the department has the ultimate authority to determine the nature and magnitude of withdrawal restrictions in the permits, the extent of the flexibility that will be provided to users and consequently the magnitude of the reductions in the costs that would result without this flexibility are not known.

On the other hand, the proposed changes may achieve a better allocation of available water resources. The main goals of the water use restrictions during low flow conditions are protection and maintenance of beneficial instream and offstream values in the designated area during low flow conditions. With the proposed restrictions, a reasonably equitable distribution of water among different uses when the water supply is limited may be achieved according to aquatic, environmental, domestic, agricultural, commercial, and industrial needs.

Although the proposed regulations have the potential to protect instream and offstream uses through implementation of balanced restrictions on different water uses, economically more efficient outcomes may be obtained through a market-based solution. Under the proposed regulations, the department will have to make water use restriction decisions for the major users. As noted earlier, it appears that the users will be provided an opportunity to identify the uses they wish to reduce during low flows. This is likely to result in lower compliance costs associated with water withdrawal restrictions relative to that would result in under more prescriptive command-and-control type of regulations. However, with the proposed regulations, the department will still be making many decisions for the large users. These decisions will likely limit the user's flexibility in responding to water shortages and will likely result in some

additional costs that could be avoided under a different regulatory design that would efficiently allocate water among different uses.

The fact that during low flow conditions water supply do not meet the demand simply indicates that the price do not correctly reflect the scarcity of the resource. This means that the price of water, or the cost of obtaining it, is probably too low during the low flow conditions. Since the price does not reflect the true value and the incentive to conserve water is smaller than it should be, water demand exceeds the supply. The market-based solution to address excess demand during low flow conditions is to increase the price of water. This could be done, for instance, by imposing a drought fee on water during low flow conditions. This approach has certain advantages over the command-and-control type of regulations. It will guarantee that the water will be used where it is valued the most. Faced with higher price, the individual users will have complete discretion as to where to reduce their water demand. For example, they may no longer be willing to wash their cars with higher prices, but may wish continue to water their lawn if aesthetics is important to them. The values attached to water use by individuals are not known by the regulatory entity that imposes water restrictions on various uses. Similarly, a market-based approach will guarantee that users who value it the most will use the water. For example, a commercial car wash company may continue its operations while promotional free car wash offers may no longer be feasible. Again, this is likely to result in allocation of water where it is valued the most without any regulatory decisions being made on behalf of the users. In short, the price mechanism will likely to bring out the most efficient allocation of water among competing uses and among competing users.

Additionally, the costs associated with administering a market-based regulation will likely be much smaller relative to those that would result under a command-and control type of regulations. The type and number of decisions the regulatory entity has to make and consequently the associated administrative costs to conserve water will likely be much smaller under a market-based approach.

Finally, the drought fee revenues may be directed toward alleviating water shortage by other means. These may include demand-reduction measures such as education of public about wise water use, or about understanding instream values. Similarly, other means may include

supply-increase measures such as increasing water storage capacity, increasing transfer and conveyance capacity, increasing recycling through reuse and reclamation of water.

However, despite all of the advantages of a market-based approach, the department does not have the authority to charge a fee for the use of water nor does it have the authority to require existing public utilities adopt pricing schedules. Thus, currently, it is not feasible to implement a market-based approach to address water shortages during low flow conditions.

Businesses and Entities Affected

The proposed regulations will affect the users of the surface water in the designated portion of the James River Metropolitan area during low stream flows. It is estimated that about 10 to 15 users may be required to obtain permits or certificates. Additionally, households and entities receiving water from the two public water suppliers and entities that has business connections with the other users will likely be subject to some spillover effects. For example, some water from the designated area is sold to counties of Hanover, Chesterfield, and Goochland. These counties will likely be affected as well.

Localities Particularly Affected

The proposed regulations will specifically affect the City of Richmond and the counties of Henrico, Powhatan, Goochland, and Chesterfield because of their geographical relationship with the proposed surface water management area.

Projected Impact on Employment

It is likely that water use restrictions may have adverse effects on certain types of business activity such as agricultural, commercial, or industrial operations that rely on water withdrawn from the James River metropolitan area or the businesses receiving water from City of Richmond and Henrico County public water suppliers. For example, car wash, landscape, cleaning businesses or businesses for which water is an essential input seem to have a high chance of being negatively affected during low flow conditions. The anticipated reduction in the level of business activity in these areas may reduce the demand for labor temporarily until flow conditions reaches their usual levels.

Effects on the Use and Value of Private Property

The potential negative effects on the level of economic activity during low flow conditions in water intensive businesses may negatively affect the value of these businesses through reductions in profits.