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The Dollars and Sense of Watershed Ecosystem Services

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growth plans, redirecting sprawl around transit centers, maintaining growth allocations, and creating a new policy called “Metro Vision”, which seeks to concentrate fifty percent of the new housing and seventy-five percent of the new employment in urban centers. The next steps for Aurora include major revisions to tap fees and rates, new park and open space dedications, re-zonings along the urban centers, and designation of new urban centers.

Overall, the panel provided a detailed overview about how land use issues and water use issues significantly affect each other, and how developers need to address both concerns.

Devon Bell

THE DOLLARS AND SENSE OF WATERSHED ECOSYSTEM SERVICES

Nearly four hundred guests attended the twenty-third annual Rocky Mountain Land Use Institute (“RMLUI”) conference, which addressed the topic “Moving Beyond Recession: What’s Next?” The conference drew private and municipal planners, land use attorneys, public officials, developers, and many others to the University of Denver Sturm College of Law for three days and presented over forty panels of speakers.

The session titled “The Dollars and Sense of Watershed Ecosystem Services” included a moderator and three speakers that explained what ecosystem services are—specifically relating to watersheds—and offered examples ranging from the global context to local watershed protection efforts.

“Ecosystem services” are the collective benefits humans receive from a healthy, well-functioning ecosystem. To give a simple example, upstream vegetation filters harmful contaminants out of water as it moves downstream. Ecosystem services fall into four categories: supporting services, regulating services, provisioning services, and cultural services. Watershed ecosystems primarily provide a regulating service in the form of cleaner water for human use because healthy ecosystems naturally purify water. The panelists used watersheds in Colorado as an example. When watersheds in high elevations are healthy, cleaner water flows into reservoirs, allowing water providers like the Denver Board of Water Commissioners (“Denver Water”) to save money on purification. The panelists focused on how watersheds and users can fund and provide ecosystem services that can help to maintain healthy watersheds.

Devon Buckels, a member of the American Institute of Certified Planners, moderated the panel. Buckels works for the Environmental Protection Agency as an Urban Waters Partnership Coordinator and serves on the Denver Sustainability Advisory Council. Through these positions, he plays an important role in the South Platte River Urban Waters Partnership, making his background well suited for moderating a discussion on watershed ecosystem services.

The first panelist, Kate Hamilton, an independent consultant and member of the Colorado Governors’ Climate and Forest Task Force, offered a global perspective on ecosystem services. Hamilton studies what water users currently pay for ecosystem services worldwide. She stressed that this is different than measuring the value of ecosystem services because the value incorporates many different considerations and indirect benefits that actual payments do not.

Hamilton divided ecosystem services payments into three major groups: (i) payments made by companies driven by regulation, (ii) payments made by governments, and (iii) purely voluntary payments, such as Earth Day tree-planting. Hamilton pointed out that the phrase “ecosystem services” encompasses a wide range of services from carbon sequestration and trading, to pest control and air purification. She remarked that unlike other environmental markets such as carbon trading, watershed ecosystem service programs require unique tailoring for each watershed.

Hamilton stated that watersheds receive the most money globally of any ecosystem service. Hamilton also described “watershed payments” as essential to the management of our “natural infrastructure” because they identify and protect the benefits ecosystem services provide that we depend on, like pollution filtration or flood control. However, Hamilton noted that amongst watershed services programs, there is a great variation in the degree of monitoring and measurement of the benefits watershed payments provide. This issue makes it difficult for economists to quantify the impact of these programs.

The next speaker was Travis Warziniack, a U.S. Forest Service (“USFS”) economist with the Rocky Mountain Research Station’s Human Dimensions program. Warziniack focused on the evaluation of watershed ecosystem services with respect to providing safe drinking water. According to Warziniack, the USFS’s “Forests to Faucets” surface drinking water program identifies key watersheds that would benefit from watershed payments. To qualify for the program, an area of USFS land must supply drinking water, be threatened by development, and must have consumer demand for the water. Warziniack mentioned that USFS land is the largest single provider of water in Colorado, supplying around sixty-eight percent of the state’s surface water; indeed, the federal government owns nearly forty percent of Colorado land.

Warziniack also discussed Code of Federal Regulations 36 § 219.1 (“USFS Rule”), which sets forth rules and regulations pertaining to National Forest system land management planning. This 2012 USFS Rule provides a legal structure that compels the USFS to employ ecosystem services programs in conjunction with other uses of the land.

He expressed frustration with the drafting of this section of the USFS Rule. Warziniack suggested that many USFS foresters would prefer to take an approach similar to zoning in the municipal land use context—that is, the USFS would prefer to designate certain areas for elk habitat, other areas for hiking, and separate areas for watershed conservation. However, the 2012 USFS Rule requires multiple uses of the same land. Thus, areas selected for watershed conservation often must perform another function, such as allowing mountain bike trails. Warziniack indicated that the USFS Rule prevents foresters from using their discretion in implementing their preferred forest management techniques. In light of the USFS Rule and greater general publicity of forestry practices, Warziniack submitted that the renewed widespread interest in forest management by non-foresters stems from fiscal concerns caused by wildfires. As recent wildfires have demonstrated, the alternative to responsible forest management and strategic watershed ecosystem service payments is extraordinarily expensive.

Finally, Don Kennedy, an environmental scientist and member of Denver

Water's Planning Division discussed watershed management and wildfire impacts. Kennedy said that over the past century or so, authorities have not properly managed Colorado's forests due to the low value of Colorado timber, leading to adverse impacts on Colorado water sources.

For example, Kennedy stated that this situation contributed to the larger and more frequent wildfires that Colorado has experienced in recent years. Kennedy highlighted the 1996 Buffalo Creek fire that consumed nearly 12,000 acres in about four and a half hours. Two months after the fire, a two-inch rainstorm created massive problems for Denver Water. The rainwater carried a large load of sediment with debris that included charred trees, propane tanks, heavy metals from burnt trees, and dissolved oxygen into the Strontia Springs Reservoir. Denver Water paid more than thirty million dollars to dredge the reservoir. This attempt to make the water potable failed, however, because it failed to remedy the water's high manganese content. Kennedy offered several mitigation techniques that, if used as preventative measures, would have been drastically cheaper and more effective than dredging the reservoir. The potential mitigation techniques ranged from straw bale check dams and contour felling of trees, to salvage logging and hydro-axing of trees to prevent sediment from getting into reservoirs.

The panel then addressed questions from the audience, one of which was, "how is Denver Water paying for its watershed ecosystem services program?" Don Kennedy explained that Denver Water does not include line item fees on bills to customers; instead it incorporates the cost of the program into rates. He added that grants from the federal government and other partnership opportunities have helped to reduce the program's cost for customers.

The RMLUI's 2014 conference was a success due to informative panels like this one. Each panel focused on timely and pressing issues while providing innovative approaches to consider for the future.

Emily Dowd

CELEBRATING 40 YEARS OF SUCCESS AND CHALLENGES FOR COLORADO'S INSTREAM FLOW PROGRAM

Denver, Colorado January 15, 2014

*"O, dear daughter, be not discomforted!
They can attempt to possess your beauty
Beyond measure, without sufficient ends
And looking glasses, frenzy, berserk, de-
Hydrate marvels they have engineered in
Fact, conveyance, deed, statute, law, decree,
Cannot substitute for the Natural Stream
Of your loving boundless intimacy."*

-Excerpt from "Mother to Daughter," written and read by Justice Gregory J. Hobbs, Jr. in celebration of the fortieth year of Colorado's instream flow law January 15, 2014.