



**WILLAMETTE PARTNERSHIP**

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PREPARED FOR THE US SENATE SUBCOMMITTEE ON WATER AND POWER, COMMITTEE ON ENVIRONMENT AND NATURAL RESOURCES

March 24, 2021

RE: Hearing Natural Infrastructure

Senator Wyden, Senator Hyde-Smith, and distinguished members of the Subcommittee:

Thank you for the opportunity to be here with you today. My name is Bobby Cochran, and I'm our Partner for Community Resilience & Innovation at Willamette Partnership.<sup>1</sup> The Partnership is based in Oregon, and supports communities across the West in finding solutions that improve the environment, improve health, and create more inclusive economies. In particular, we implement solutions for natural infrastructure that saves \$ and gets better outcomes. We think the choice between the environment and the economy is a false choice, and natural infrastructure is an important part of any economic recovery and growth strategy.

Natural infrastructure is any approach that uses the processes of nature to provide a key service to communities—Things like filtering drinking water; Reducing flood risk; and increasing the ability to store snow and groundwater for later in the summer when we need it to grow food and drive industry.

A lot of towns, especially small and low income places, are trying to find new ways to do more with less and provide the kinds of opportunities for their kids to thrive, take over the farm, get good jobs, and grow up to raise their families in town. We need infrastructure investments that do multiple things at once. Most of the federal water infrastructure in Oregon was built more than 50 years ago—back before Phil Knight and Nike were making shoes in a waffle iron. We can do better than that. Here are some examples.

## EXAMPLES OF NATURAL INFRASTRUCTURE

### **OUR FORESTS AS RESERVOIRS: NORTH PLATTE RIVER & SIERRA NEVADAS**

Oregon is seeing less snowpack—a significant storage resource for much of the state. The Colorado River Basin is seeing snowpack declines across 90% of its monitoring sites, and that snow accounts for two-thirds of the inflow into major storage reservoirs in the Basin<sup>2</sup>. Attention to natural

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<sup>1</sup> <https://willamettepartnership.org/>

<sup>2</sup> Mote, P.W., Li, S., Lettenmaier, D.P., Xiao, M., and Engel, R. (2018). Dramatic declines in snowpack in the Western US. *Climate and Atmospheric Science*, Vol 1 (1): 2; Knowles, J.F., Harpold, A.A., Cowie, R., Zeff, M., Barnard, H.R., Burns, S.P., Blanken, P.D., Morse, J.F., and Williams, M.W. (2015). The relative contributions of alpine and subalpine ecosystems to the water balance of the mountainous, headwater catchment.

infrastructure can also increase groundwater recharge and increase water availability in the West's dry summers and fall. In Colorado's North Platte River, research is showing how restored forests that have the right mix of stand densities and canopy cover ensure rain gets into groundwater and snowpack stays shaded.<sup>3</sup> It is estimated that water yields from National Forests in the North Platte have decreased 11-13% and improved forest management could increase yields by 55,000 acre-feet. Similar research in California's Sierra Nevada forests estimate that improved forest management could increase water yields by 16% and delay snowmelt by days or weeks on the Tahoe National Forest.<sup>4</sup> Further, restoring forests can reduce fire upstream of existing reservoirs and irrigation/municipal diversions. Denver and Santa Fe have both invested in restoration of upstream federal forest lands, so fire doesn't expose masses of sediment that erode and fill those reservoirs up.

We don't always need a dam and a reservoir to store water. But natural infrastructure isn't magic either. It requires active management and investment, just like built infrastructure does. There is a role for Reclamation in partnering with upstream land managers to protect existing storage capacity and lean into the opportunity for natural groundwater storage.

And investment in natural infrastructure is especially good for the rural economy. Every \$1 million invested in natural infrastructure creates 15-24 jobs, and \$0.90 of every dollar actually stays in the local economy (i.e., local people can do the local work).<sup>5</sup>

#### **OUR STREAMS AS FILTERS: MEDFORD AND ASHLAND**

The cities of Medford and Ashland in Southern Oregon (the cities at the center of Reclamation's Rogue River Project) each had a challenge. We all take hot showers in the morning, and that warm water flowing through and out of the wastewater treatment plant was too warm to support salmon—a critical fish for us—culturally and economically. The cities had a choice. They could have spent \$16 million each building mechanical chillers. Those chillers would have cooled the water, but they also would have used a ton of energy. Instead, Willamette Partnership with groups like the state and The Freshwater Trust to restore several miles of local streams.<sup>6</sup> The natural infrastructure, streamside forests in this case, were planted at half the cost and 2 times the cooling

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Hydrological Processes, vol 29(22):4794-4808. Available at <https://onlinelibrary.wiley.com/doi/abs/10.1002/hyp.10526>.

<sup>3</sup> MacDonald, L.H. and Stednick, J.D. 2003. Forests and Water: A State-of-the-Art Review for Colorado. CWRRI Completion Report No. 196. Fort Collins, CO: Colorado State. Available at <https://www.fs.usda.gov/treearch/pubs/59257>.

<sup>4</sup> Bales, R.C., Battles, J.J., Chen, Y., Conklin, M.H., Holst, E., O'Hara, K.L., Saksa, P., and Stewart, W. (2011). Forests and Water in the Sierra Nevada: Sierra Nevada Watershed Ecosystem Enhancement Project. Available at <https://ucanr.edu/sites/cff/files/146199.pdf>.

<sup>5</sup> <https://www.oregon.gov/oweb/data-reporting/Pages/economic-impacts.aspx>.

<sup>6</sup> <https://www.thefreshwatertrust.org/case-study/medford-water-quality-trading-program/#:~:text=What%20is%20water%20quality%20trading,environmental%20benefits%20for%20compliance%20purposes>.

benefit of those chillers. Reclamation also invested in adjacent stream restoration as a cost-effective way to meet its Endangered Species Act mitigation obligations. But that's not all. This September, the Alameda Fire ripped through the Bear Creek Valley. But those restored streamside forests acted as fire breaks, preventing the fire from destroying more affordable homes and saving millions in local and federal disaster relief costs. Even more, the replanting has created new businesses—nurseries to grow plants and good-paying jobs for off-season fire and forestry crews.

Cities all over the West are using similar natural treatment. Boise, OR is paying a farmer for a sediment basin that removes that last nutrients from its wastewater. Prineville, OR uses a treatment wetland that doubles as a city park that helped them significantly reduce the fees they charge businesses.

### **OUR PARKS AS FLOOD CONTROL: LOS ANGELES, DENVER, AND OKLAHOMA CITY**

And finally, natural infrastructure can improve health while it protects us from floods. In Los Angeles, Sun Valley Park got new baseball and soccer fields and trees in 2006. It is a place to relax or run around most days. We know that time in nature can measurably improve mental and physical health. Just 2 hours outside<sup>7</sup> a week or simply greening a vacant lot in town showed measurable health improvements.<sup>8</sup> But when a really rainy comes, the park gathers, treats, and infiltrates stormwater from 21 acres of homes and businesses—reducing flooding and adding 30 acre feet of water back in the aquifer for later use. The project cost \$7 million to build.

The National Recreation and Park Association is supporting Environmental Learning for Kids<sup>9</sup> to improve aging gray stormwater infrastructure through the Montbello Open Space project, located in the far northeast section of the city and county of Denver, Colorado. The project involves the restoration of 5 acres in Montbello, one of the city's largest neighborhoods, and development of a new park that is designed specifically to mimic the native Colorado prairie ecosystem; employ green infrastructure techniques to improve stormwater flow; accommodate frequent storms; withstand a 100-year flood event; improve water and environmental quality; and improve wildlife habitat in this arid landscape. To allow for additional infiltration, water will collect on the park site prior to releasing the flows into a detention pond on the health clinic site, thereby capturing and filtering all water that flows into the public storm sewer. This project will collectively manage over 2 million gallons of stormwater per year and will be complete in 2021.

Oklahoma City is reorienting roads to include more natural infrastructure in ways that helped manage stormwater, but it also had the effect of slowing traffic, and increasing downtown business because more people stopped and shopped, and stayed longer.<sup>10</sup>

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<sup>7</sup> <https://www.newscientist.com/article/2206249-two-hours-a-week-spent-outdoors-in-nature-linked-with-better-health/>.

<sup>8</sup> <https://why.org/articles/greening-vacant-lots-improves-mental-health-in-philly-communities/>.

<sup>9</sup> <http://www.elkkids.org/>.

<sup>10</sup> <https://www.okc.gov/home/showdocument?id=11814>.

## PUT NATURAL INFRASTRUCTURE ON AN EVEN PLAYING FIELD

Natural infrastructure solutions are compatible with community needs and can serve a vital role in solving community infrastructure challenges. The federal government uses 240 separate programs to fund water infrastructure, research, data, and conservation.<sup>11</sup> However, most of those programs don't explicitly authorize and encourage natural infrastructure. We need to put natural infrastructure on an even playing field. That the small and low income communities I work with most would love a natural infrastructure option to consider if it saves money, increases water security, and builds a foundation for a strong economy. Floyd Dominy made Reclamation famous for its big projects, like Lake Powell, that helped feed the world and allowed more people to move West. But our challenge now is how to sustain communities, especially rural communities. Natural infrastructure can cost less, create better more local jobs, and improve health.

### **1. WE CAN CLARIFY THAT NATURAL INFRASTRUCTURE IS ELIGIBLE IN THE COUNTRY'S FEDERAL INFRASTRUCTURE PROGRAMS**

Natural infrastructure was explicitly authorized, even prioritized, in the 2020 Water Resources Development Act (WRDA) that passed as part of the omnibus bill at the end of the 116<sup>th</sup> Congress. We can do that with every program (e.g., Bureau of Reclamation, USDA Rural Development, Clean Water and State Drinking Water Revolving Funds, and how we manage our nation's forests and streams). Federal funding can also clarify that the community engagement, planning, and stewardship of natural infrastructure are eligible costs.<sup>12</sup>

Congress can also state its interpretation that natural infrastructure is a capital asset—just like a road or pump station. That designation allows local governments to capitalize the costs of restoring and caring for the streams, wetlands, and forests that serve their towns. And that in turn lets them issue the bonds, and partner with the private sector, to finance that work.

### **2. PRIORITIZE INFRASTRUCTURE THAT HAS MULTIPLE BENEFITS, ESPECIALLY EFFICIENCY AND REUSE**

No investment should solve for one problem anymore. For example, in Central Oregon, irrigation districts are upgrading leaky canals on several Reclamation projects into pressurized pipe. They're laying down broadband for rural towns and microhydropower in those same conduits. That rural broadband is then connected to real-time water gauging which allows for better water budgeting and moving water between farm, municipal, and habitat uses as needed during the year.

Bureau of Reclamation's WaterSMART and Cooperative Watershed Management programs can push these kinds of innovations further. USDA programs, like the Regional Conservation

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<sup>11</sup> <https://willamettepartnership.org/water-investment-ready-oregon/>.

<sup>12</sup> <https://www.nrpa.org/contentassets/0aa1178a2d944cbc8cb6fbc5ce31b266/greener-parks-for-health-policy-action-framework-web.pdf>

Partnership Program (RCPP), provide the space for farms and cities to come up with collaborative, good solutions that incorporate both built and natural infrastructure solutions.

### 3. DON'T JUST THINK ABOUT "SHOVEL READY"

The 2009 American Recovery and Reinvestment Act (ARRA) worked for some places, and left others behind. In Oregon, higher capacity towns could quickly put together project designs, permits, and applications. Rural Oregon didn't have that same capacity. Unemployment remained high, and still today lags behind our brothers and sisters in Portland.

As Congress thinks about its next 150-year approach to infrastructure investment we need to move beyond shovel ready in some key ways:

- Invest in the technical assistance and capacity building for rural and low income places to access federal aid (e.g., rural circuit riders and environmental finance centers)—but make sure there is also technical assistance for natural infrastructure solutions;
- Invest in the foundational information, such as groundwater basin studies, needed to do more accurate water budgeting and demand management—the same kinds of real-time management the electric sector is able to do;
- Plan and solve regionally—we need to look across city and state boundaries with coordinated approaches (e.g., for the Colorado, Columbia, or Mississippi);
- Give communities 1-3 years from the date of project application to spend 4
- Coordinate permitting so restoring streams and protecting forests doesn't take so much time or cost so much to get permits;
- Make sure it's clear that infrastructure needs to create resilient, inclusive economies and opportunities for all people to thrive in all places—no exceptions. Infrastructure tied just to increases in job numbers and export-led production won't create the kinds of economic liberty rural and urban places across the West are asking for.

Thank you again for the opportunity to share some of our thoughts on natural infrastructure. We are happy to continue the dialogue and support Congress' conversations however we can. Thank you for your service, and all the work you do and will do for this country.

Sincerely,



Bobby Cochran, PhD

Willamette Partnership