



Colorado Water & Growth Dialogue: Addressing the Dilemma The Keystone Center 4/2014

In Colorado and other western states, local land use decisions are commonly disconnected from current and future water supply realities and from the cumulative land use decisions of myriad other decision makers. The cumulative effect of this disconnect, according to a University of Montana study, is that land use decisions increasingly “run headlong into concerns about the sustainability of water resources and the impacts of withdrawals on aquatic ecosystems, recreational resources, and other public values.”

In an effort to address this dilemma, the Keystone Center is launching a two-year dialogue to bring together influential water providers, land use planners and developers, economic development interests, public officials, and other key stakeholders. The goal of the dialogue is to move closer to a sustainable balance between water and growth by documenting and demonstrating effective policies, strategies, and practices for measurably reducing the water footprint of new development and redevelopment.

The dialogue framework was developed by the Colorado-based Keystone Center and a committee of land use and water professionals from the Colorado Water Institute, the Lincoln Institute of Land Policy, Denver Water, the Denver Regional Council of Governments (DRCOG), the Sonoran Institute, and the Colorado Department of Natural Resources. The framework is a 5-stage two-year process that will be guided by a Working Group of influential land and water professionals. The 5-stage process is described below in two overlapping phases that roughly coincide with years 1 and 2. A two-year budget is also attached.

Phase 1 - Year 1

1. Select and convene the Working Group (WG)
2. Identify and explore potential policies, strategies and practices, and barriers to achieving the goal.
3. Research land use/water demand data and lessons learned in other places, and collaborate with other research efforts.

Phase 2 - Year 2

4. Engage stakeholders in a defined Front Range geography in a scenario planning process to demonstrate alternative land use approaches and their water use consequences under current projections and future uncertainties.
5. Build consensus for best policies, strategies and practices for achieving the goal and develop a Roadmap for getting there.

Dialogue Stages and Projected Outcomes

The project's projected outcomes are tied to the five stages of the Water and Growth Dialogue outlined above and are described in more detail in this section.

Phase 1

Stage 1: Identify and convene a Working Group of influential land and water professionals

Working closely with the committee, the Keystone team will identify and assemble a core “Working Group” of influential water suppliers, land planners, developers/builders, economic development professionals, conservationists, and government officials who acknowledge the dilemma and are motivated to engage in collective action to address it. The Working Group will address the overarching question: *How can we better integrate land and water use decisions in ways that measurably reduce the water footprint from land development while enhancing the economic viability and quality of life for present and future Coloradans?*

The Working Group will stay engaged throughout the project, will provide expert advice and overall direction to the project, and will reach consensus on a strategic Roadmap for achieving the project goal. The stages may evolve once the project is underway however the project goal and projected outcomes will not change. The Working Group will build from the core project committee identified above.

Projected Timeline: June 1 - June 30, 2014

Stage 2: Identify and explore tangible and impactful outcomes, strategies, and barriers

The Keystone team will facilitate the Working Group in a focused dialogue to identify and explore tangible and impactful strategies that, if achieved, will measurably “move the needle” on the water and growth dilemma by reducing the water footprint of new development and redevelopment over existing uses and projections. The Working Group will also prioritize strategies for best achieving those outcomes and will identify and explore anticipated barriers to their implementation. Part of this stage will help inform CWCB’s statewide water supply and demand planning efforts.

Projected Outcomes:

- A better informed and engaged Working Group and a preliminary set of strategies, policies and best practices that will be explored, tested and refined throughout the project
- Recommendations will be forwarded to CWCB for consideration in Colorado’s water supply and demand planning efforts

Projected Timeline: July 1 - Sept 30, 2014

Stage 3: Modeling, data needs and lessons learned

With the assistance of the Working Group, the Keystone team will assemble a research team to identify, better understand, and quantify land use planning and development approaches and strategies that have shown promise in Colorado and similar places for effectively reducing the water footprint from land development. Research findings will be analyzed for their potential fit in Colorado and may be tested in Stage 4 of the dialogue. Information gathered from the research will be shared through dissemination strategies in Stage 5. This effort will also be coordinated with similar research. Part of this effort will be accomplished for consideration in Colorado’s water supply and demand planning efforts. The research will include the following kinds of analyses:

- Quantify water demand differences under various land uses and land use patterns
- Document promising land use and water planning strategies, tools, and best practices

- Identify barriers that perpetuate the water/growth dilemma and how they have been overcome
- Coordinate with other research including the Pace University Land Use Leadership Alliance

A portion of Stage 3 will focus on linking DRCOG's land use modeling program - UrbanSim - with Denver Water's water demand model, and in further developing the linkage if needed. The purpose of this two-part step is to 1) test the ability of the UrbanSim program to document and display water use trends of various land uses that are consistent with Denver Water's demand model and data and 2) further develop the linkage between UrbanSim and Denver Water's water use data, if needed, to obtain finer detail in the various land uses that will be modeled in Stage 4. The initial research is being performed by DRCOG and Denver Water through significant in-kind contributions by both entities.

Projected Outcomes:

- A more in-depth and detailed understanding of the water use consequences of land uses and land use patterns, and the strategies, tools, policies and best practices that have been used in other places to reduce the water footprint from development and redevelopment and overcome barriers. ■
- Recommendations to the CWCB for consideration in Colorado's water supply and demand planning efforts

Projected Timeline: Sept 1, 2014 - February 28, 2015

Phase 2

Stage 4: Scenario planning and demonstration

The Keystone team and Working Group will employ a scenario planning tool and collaborative process to demonstrate how alternative land use approaches may be applied in a specific geographic area along the Front Range of Colorado and the water use consequences of those choices. The scenario planning process will make efforts to span a continuum from urban areas that are ripe for redevelopment to suburban and rural areas that are ripe for new development. The geographic area will most likely be in the Denver metropolitan region as water and growth issues are particularly relevant there.

The Keystone team and Working Group will work closely with group members from Denver Water, the Lincoln Institute of Land Policy, the Sonoran Institute, and DRCOG, all eager to broaden their use of scenario planning tools by focusing on the Colorado water and growth dilemma. The scenario planning process will occur in three integrated parts including, 1) a situation assessment and convening process, 2) modeling alternative land patterns and their water use consequences in a relatively static and predictable future environment and 3) exploratory scenario planning in a dynamic and uncertain future environment.

The goal of Part 1, Situation Assessment and Convening, is to identify an appropriate geographic area along the Front Range of Colorado to host the modeling and scenario planning processes and convene a representative stakeholder group from that geographic area that will form a planning committee and engage with the Working Group in the modeling and scenario planning processes.

Projected Outcomes - Part 1:

- An informed multi-stakeholder planning committee that is ready to engage in the modeling and scenario planning processes within a relevant and well documented geographic area

The goal of Part 2, Modeling and Demonstration, is to demonstrate alternative land use patterns and approaches that show promise for measurably reducing the water footprint over the selected geography. The demonstration will use UrbanSim to engage the planning committee and Working Group in evaluating the benefits, costs and tradeoffs of various approaches, and will explore “what if” questions with regard to the consequences of land use and land development choices on water use. The modeling process will draw from the research in Stage 3 that focused on lessons learned in other places and on the quantification of water use from various land uses and land use patterns.

Projected Outcomes - Part 2:

- A better understanding of how the geographic area could be developed or redeveloped in ways that measurably reduce its water footprint
- Demonstration and documentation of the modeling tool and engagement process as a means for exploring alternative land use approaches and their value for better understanding, appreciation, and acceptance of the tradeoffs between land use and water use
- Improved planning with respect to both land use and water use
- Implementation of recommendations developed during the modeling and demonstration

The goal of Part 3, Exploratory Scenario Planning, is to test the resiliency of land use approaches demonstrated in Part 2 in the face of future uncertainties such as climate change, water shortages, and economic recession. The Keystone team will work closely with the Working Group, planning committee and stakeholders in projecting future uncertainties, examining the resiliency of various land use approaches in the face of such uncertainties, and identifying appropriate strategies for responding.

Projected Outcomes - Part 3:

- Report with recommendations describing the prioritized options for implementation
- Report describing and evaluating the exploratory scenario planning process and a strategy for its dissemination and use
- Change in the mode of thinking among participants about future uncertainties and their capacity to anticipate, plan, and adapt to such uncertainties
- Increased understanding of the connections between land use and water demand/supply and a greater appreciation of the perspectives of others who depend on limited water resources
- Identification of potential actions to lower the water footprint through land use strategies tested for robustness across a variety of future conditions
- Improved planning with respect to both land use and water use
- Implementation of recommendations developed during the scenario planning process

The scenario planning stage requires significant in kind support and funding from organizations and agencies that will benefit from the dialogue. In kind support for the stage comes from DRCOG, Denver Water, the Lincoln Institute of Land Policy and the Sonoran Institute.

Projected Timeline: October 1, 2014 - September 30, 2015

Stage 5: Consensus and dissemination

The Keystone team will facilitate the Working Group in compiling and reviewing the findings of stages 2-4 and will bring the group to consensus on the most effective strategies for achieving the goal. The Keystone team will assist the group in prioritizing key strategies, further developing and refining the strategies, and






developing a consensus-based report that will describe the strategies, their rationale, and barriers to their implementation. Finally the Working Group will develop a dissemination strategy to get the report and findings into the hands of key policy and decision makers and stakeholders.

Outcomes:

- Final recommendations for statewide water supply and demand planning
- A consensus report containing the dialogue process and stages, key findings and lessons learned, and strategies, policies and practices for achieving the stated goal
- A report and Roadmap describing the most promising strategies, policies and best practices that will result in measurable reductions in the water footprint from new development and redevelopment over conventional approaches
- An informed Working Group committed to the implementation of the Roadmap
- Elevated understanding of the water and growth dilemma and solutions for addressing it
- Increased understanding of the water use consequences of land use choices and increased use of strategies, policies and best practices that have shown promise in other places
- Better informed stakeholders about the water and growth dilemma and strategies for addressing it

Projected Timeline: June 1, 2015 - March 31, 2016

Estimated Timeline

2014/16	Phase 1		Phase 2	
	June	Oct	Apr/May	Oct
1. Convene Working Group				
2. Identify Outcomes, Strategies & Barriers				
3. Lessons Learned in Other Places				
4. Scenario Planning & Demonstration				
5. Consensus & Implementation				

The Keystone Center and Collaborators

Founded in 1975, the Keystone Center is a non-profit organization (501c3) established as an impartial, objective, and independent facilitator of the nation's most challenging policy debates. To accomplish this, The Keystone Center brings together public, private, and civic leaders to discuss their differences, share knowledge, and work towards lasting solutions. Today The Keystone Center shapes public policy in the areas of environment, energy, public health, agriculture, and education through initiatives focused on Colorado, the West, and the Nation. Our tools include Keystone dialogues; facilitation and mediation of contentious disputes; public participation and stakeholder engagement; collaborative process design; independent science panels and joint fact-finding; advisory boards; and professional training and development in collaborative skills and processes. The Keystone Center is strongly committed to the sustainable use of our resources, including water.

The Keystone Center is collaborating with a deep bench of organizations to make the project happen. Among them are an early partnership with the Colorado Water Institute and an ongoing project committee composed of representatives from the Lincoln Institute of Land Policy, the Sonoran Institute, Denver Water,

DRCOG and the Colorado Department of Natural Resources. In addition, the Keystone Center is collaborating with Western Resource Advocates' Land Use Leadership Alliance (LULA). Finally, we are informally collaborating with some 40 Colorado "thought leaders" who will continue to provide input.

The project will be led by Todd Bryan, Ph.D., with co-facilitation and project management assistance from Matthew Mulica. Todd is a senior associate with the Keystone Center and has worked in the environmental and natural resource field for 30 years, with more than 20 years as a mediator, facilitator, and trainer. Todd has MS degrees in water resource management and landscape architecture from the University of Wisconsin, a Master of Public Administration from Harvard University, and a Ph.D. from the University of Michigan. Matt is an associate with the Keystone Center and has previously worked as a water resource planner for Denver Water. Matt has BS degrees in marketing and management from the University of Montana and a MS in Conflict Resolution from Portland State University.

Funding and In-Kind Support

The Keystone Center estimates the project at \$125k per year for two years. To date, Keystone has received partial funding for Year 1 from the Walton Family Foundation (\$25k) and The Nature Conservancy (\$5k). In addition, the Gates Family Foundation has committed to funding the project (\$25k) provided the remaining Year 1 funds can be secured. Denver Water has committed to funding the modeling and data collection component of Stage 3 (\$25k). The remaining amount is being sought through the CWCB's Water Resource Conservation Public Education and Outreach Grant (\$45k). CWCB funds for year one will be used to support Phase 1 Stages 1 through 3 - Working Group development; the identification of tangible and impactful outcomes, strategies, and barriers; and research on lessons learned in other places.

Generous in-kind support for the project is coming from DRCOG, Denver Water, the Lincoln Institute of Land Policy, and the Sonoran Institute through their participation on the Project Committee and Working Group and in their assistance in the research and scenario planning components. The value of in-kind support is estimated at \$85,200 over two years (\$41,200 in Phase 1 and \$44,000 in Phase 2).

Progress Reports

Progress reports will be submitted to funders at 50%, 75%, and 100% completion of year one of the project. Excepted deadlines for progress reports are October 31, 2014, January 31, 2015, and May 1, 2015.

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Keystone Center
Project Budget
 Colorado Water and Growth Dialogue

TASKS	Keystone Center Labor Hours/Rate						Total Labor Costs	Direct Costs				CWCB Grant Request	In-Kind Cash				
	Todd Bryan		Matt Mulica		Project Coordinator			Direct Costs					Walton Family Foundation	Gates Foundation	Nature Conservancy	Denver Water	Total Cash in kind
	HOURS	SUB TOTAL	HOURS	SUB TOTAL	HOURS	SUB TOTAL		Transportation and lodging	Reasearch and Modeling component	Logistics and Copying	SUB TOTAL						
Stage 1-Identify and Convene Working Group	64	\$12,992	64	\$6,208	40	\$0		\$50	0	50		\$10,000	\$25,000	\$0	\$5,000	\$0	\$30,000
Sub-Total	64	\$12,992	64	\$6,208	40	\$2,400	\$21,600	\$50	\$0	\$50	\$100	\$10,000	\$25,000	\$0	\$5,000	\$0	\$30,000
Stage 2-Identify Strategies and Define Barriers	120	\$24,360	120	\$11,640	60	\$0		\$100	0	50		\$18,000		\$25,000		\$0	\$25,000
Sub-Total	120	\$24,360	120	\$11,640	60	\$3,600	\$39,600	\$100	\$0	\$50	\$150	\$18,000	\$0	\$25,000	\$0	\$0	\$25,000
Stage 3-Research Lessons Learned from Other Places	120	\$24,360	120	\$11,640	40	\$0		\$100	25,000	50		\$17,000	\$0		\$0	\$25,000	\$25,000
Sub-Total	120	\$24,360	120	\$11,640	40	\$2,400	\$38,400	\$100	\$25,000	\$50	\$25,150	\$17,000	\$0	\$0	\$0	\$25,000	\$25,000
Total Project Costs	304	\$61,712	304	\$29,488	140	\$8,400	\$99,600				\$25,400	\$45,000					\$80,000

CWCB Grant Request	\$45,000
Partner Contributions	
In-Kind Cash \$	80,000
Total \$	125,000