February 9, 2015

Kevin Reidy & Ben Wade
Colorado Water Conservation Board
1313 Sherman St., Room 718
Denver, CO 80203

Dear Messrs. Reidy & Wade,

The Keystone Center is pleased to submit the following grant proposal for the Colorado Water and Growth Dialogue. We are grateful for the support of the Colorado Water Conservation Board in our efforts to engage stakeholders and generate and implement concrete, feasible, data-driven strategies to address the disconnect between water and land use planning in Colorado. Your continued support will enable this process and the individuals involved, to achieve our goals on this important issue.

Should you have any questions about our submittal, you can reach me as follows:

Matthew W. Mulica
The Keystone Center
1628 Saints John Rd
Keystone, CO 80435
Tel: (303) 531-5511
Cell: (406)240-9606
www.keystone.org

Thank you for your consideration,

Matthew Mulica

ORGANIZATION BACKGROUND

Founded in 1975 by Robert W. Craig, The Keystone Center is 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 leadership development in collaborative skills and processes.

PROJECT DESCRIPTION

Project Scope:

By 2030, Colorado is projected to experience a 65% increase in population and with it a substantial increase in demand for water by municipalities. In a state with limited water, this increase in demand will result in a water supply gap. This impending supply gap is a well-known and pressing problem for the future of Colorado. Thus far, strategies to address the gap have generally taken three forms: develop new supply and water storage projects, implement reuse projects and finally encourage water conservation. The Colorado Water and Growth Dialogue intends to explore and demonstrate how a fourth solution—the integration of water and land use planning should be utilized to reduce water demand from the development and re-development associated with the projected population increase. This approach to planning aims to direct and incentivize smart, water-wise growth in lieu of allowing pure market conditions to guide how Colorado grows.

The purpose of the Colorado Water and Growth Dialogue is three-fold: first, to demonstrate how much water can be saved through the integration of water and land use planning for homes and neighborhoods that will be developed or redeveloped in the future; second, to develop a consensus-based set of recommended water-saving strategies for communities that can be incorporated into their planning that recognizes the uncertainties of how and where people in the future will want to live; and third, to develop and disseminate an implementation plan for these recommendations that includes a demonstration of real water savings that can be achieved through strategic land use planning decisions while still meeting the current and future needs of the community.

Project Plan and Timeline:

As we enter our second year, we will continue to utilize a Technical Subcommittee to compile research and quantify the potential water savings of strategies. The Subcommittee has researched how land and water planning has been integrated in other places and will explore strategies (tools, techniques and approaches) that have potential to impact water use in Colorado. This research will be completed by February 15, 2015. DRCOG, Denver Water and Aurora Water have also been coordinating and developing a base-line water footprint for

DRCOGs 2040 UrbanSim model run. This analysis is expected to be completed by mid-February 2015.

Building on this technical information, the Working Group will meet in March 2015 to decide upon a set of strategies that have the most promise for reducing the water footprint of new and redevelopment. Using Denver Water and Aurora Water data as well DRCOG's UrbanSim and other models developed at the University of Arizona's Desert City Decision Center, the impact to the water footprint will then be determined for each strategy. The Working Group will next engage in a scenario planning process that will test the strategies against future uncertainties such as increased urbanization, climate change, economic downturns or upturns etc.

Beginning in approximately October 2015, the Working Group will utilize the lessons learned throughout the process and engage in a consensus-building exercise to develop and subsequently recommend a set of strategies for reducing the water footprint of new and redevelopment. These set of recommendations will then be reviewed and refined by a larger group of Thought Leaders (previously convened at REI in 2012) in late 2015 to test their ability to be implemented effectively. Beginning in January 2016, or earlier if progress permits, the Working Group will develop a dissemination and implementation plan. The set of recommended strategies will then be disseminated and the implementation plan acted upon by June 2016. *Please see the attached Action Plan for more specificity.*

LEADERSHIP

Since its inception the Colorado Water and Growth Dialogue has been convened by the Keystone Center and led by a Steering Committee of water and land planning professionals. This mix of expertise is a core strength of the Dialogue in that it was created by a cross-disciplinary group of planners that came to consensus on a path forward that relied on developing sound information and data at the outset. The Steering Committee has changed over time and is made up of Tom Gougeon, Gates Family Foundation; Peter Pollock, Lincoln Institute of Land Policy; Kevin Reidy, CWCB; Marc Waage, Denver Water & Teri Whitmore, DRCOG.

The Keystone Center Team is comprised of Matthew Mulica, Doug Young and Hannah Lippe. Bio's and resumes can be found at: https://www.keystone.org/about-us-the-keystone-center/staff-2.html

CONTEXT AND FUNDING REQUEST

The Keystone Center requests a $49,500 grant from the Colorado Water Conservation Board.

The Dialogue is envisioned as a two-year, $250k process, and it is in its second year of funding. The first year was funded by the CWCB ($45k), Gates Family Foundation, Walton Family Foundation and Denver Water ($25k) (Note that $5k of TNC funding fell through). As the Dialogue enters the second round of fundraising, we are asking for similar funding from CWCB,

Gates and Walton. We will be asking that Aurora Water to provide funding in the amount of $30k to make up the balance of $125k. The Colorado Water and Growth Dialogue's annual budget has minimal impact on The Keystone Center's overall operating budget of approximately $4.5 million.

The concept of integrating water and land use planning is an increasingly discussed and important tool in meeting the future needs of the Coloradans. The CWCB has been working on the issue since 2009 and has included a chapter in the draft State Water Plan and Western Resource Advocates has been holding a series of Land Use Leadership Alliance (LULA) workshops for 2 – 3 years. The Colorado Water and Growth Dialogue will work hand in hand with Western Resource Advocates and the CWCB to ensure that all efforts are complimentary and striving toward the goal of better integrating land and water planning. The principles on these projects, Drew Beckwith and Kevin Reidy, are both engaged with our process, and we in turn have participated in their efforts.

OUTCOMES & EVALUATION

There have been positive outcomes already achieved within the Dialogue. The concept of integrating land and water planning involves increased communication and understanding between the complimentary agencies. For example, it is a step forward to now have DRCOG sharing modeling results with Denver Water and Aurora Water so that baseline water demand can be derived. The Technical Subcommittee will also soon be releasing research that describes and quantifies what is currently known about the water saving potential of integration. We will capture project-level metrics such as number of strategies implemented and where and will explore quantitative metrics as the strategies unfold.

The Dialogue will identify and prioritize 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 principal product is a report and roadmap that describes the most promising strategies for addressing the water and growth dilemma in Colorado, along with a specific implementation and dissemination plan.

Attachments

1. Detailed Project Budget
2. 2015 Colorado Water & Growth Action Plan
3. Proof of Workers Comp

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Colorado Water and Growth Dialogue

Scope of Work

May 11, 2015

I. Context

By 2030, Colorado is projected to experience a 65% increase in population[1] and with it a substantial increase in demand for water by municipalities. In a state with limited water, this increase in demand will result in a water supply gap. This impending supply gap is a well-known and pressing problem for the future of Colorado. Thus far, strategies to address the gap have generally taken three forms: develop new supply and water storage projects, implement reuse projects and finally encourage water conservation. The Colorado Water and Growth Dialogue intends to explore and demonstrate how a fourth solution—the integration of water and land use planning should be utilized to reduce water demand from the development and re-development associated with the projected population increase. This approach to planning aims to direct and incentivize smart, water-wise growth in lieu of allowing pure market conditions to guide how Colorado grows.

The concept of integrating water and land use planning is an increasingly discussed and important tool in meeting the future needs of the Coloradans. The CWCB held a symposium on the topic in 2009 and subsequently released the report Water Management and Land Use Planning Integration. Western Resource Advocates has been holding a series of Land Use Leadership Alliance (LULA) workshops that demonstrates techniques land use and water planners, developers and municipalities can use to integrate land and water planning within their communities. Colorado's draft State Water Plan also has a section dedicated to integrating land and water planning. However, there remains a need to fully understand and quantify how various land use planning decisions can optimize water savings.

Thus, the purpose of the Colorado Water and Growth Dialogue is three-fold: first, to demonstrate how much water can be saved through the integration of water and land use planning for homes and neighborhoods that will be developed or redeveloped in the future; second, to develop a consensus-based set of recommended water-saving strategies for communities that can be incorporated into their planning that recognizes the uncertainties of

1. SWSI II: http://cwcb.state.co.us/public-information/publications/Documents/ReportsStudies/TechnicalRoundtableReportFinalDraft.pdf

how and where people in the future will want to live; and third, to develop and disseminate an implementation plan for these recommendations that includes a demonstration of real water savings that can be achieved through strategic land use planning decisions while still meeting the current and future needs of the community.

II. Core questions

The primary questions the Dialogue aims to answer are as follows:

- How can we better integrate land and water planning so that water plays a more prominent role in land use choices, while enhancing the economic viability and quality of life for present and future Coloradans?
- Which land use approaches and patterns show the greatest promise for reducing the water footprint from urban and suburban new development and redevelopment?
- What are the most practical and effective strategies for achieving these land use approaches and patterns?

III. Scope

- *Goal:* The goal of the dialogue is to produce, disseminate and work to implement a set of recommendations that will reduce the water footprint of new development and redevelopment through land use planning decisions.
- *Focus:* The strategies will include structural and designed efficiencies that will increase water savings prior to residents moving into homes. The Dialogue *will not* address customer-based behavior modification conservation activities.
- *Phases:*
    - Phase I-Strategy development: The Working Group and subgroups will develop and come to consensus on, a set of recommended strategies that have shown through research and modeling to measurably reduce the water footprint of new and re-development.
    - Phase II- Implementation: The Working Group will work with Thought Leaders (policy makers, other planners and developers etc.) to determine a dissemination and implementation plan.
- *Geography:* The Denver water and Aurora water service areas
- *Planning time horizon:* 2040
- *Stakeholders:* Water providers, land use planners, developers, economic development interests, public officials, and other key stakeholders

IV. Definitions

- **Land use:** refers to how land is developed and how humans use the land
- **Water footprint:** refers to the water use of a particular area of land
- **Exploratory scenario planning:** is a process in which participants develop sets of circumstances - or scenarios- that are plausible, and assumed to be equally likely to occur, in order to understand the implications of water-saving strategies. These are stories or narratives about future conditions. Utilizing the scenarios, the participants will look at the implication of future uncertainties such as increased urbanization, climate change, economic downturns or upturns etc.

- **Strategic Management Levers:** Activity, approach or practice that is shown to measurably reduce the water footprint of new development and re-development. These are management tools, usually regulations and incentives.
- **Incentives:** Drivers that will be used to encourage developers and the market to change. These may include incentives such as lower system development charges from water providers or lowered impact fees from towns.
- **Regulations:** Mechanisms for codifying or otherwise implementing the strategies. These may include Master Plans, Municipal Codes, legislation and/or Comprehensive Plans among others.

V. Scope of Work and Timeline

Task 1 – Strategy development
Timeline: June 9 – June 30, 2015
The Keystone team will:

- Facilitate the Technical Subcommittee in coming to consensus on a draft set of land use patterns to recommend to the Working Group that has the most potential for lowering the water footprint of new and redevelopment. These strategies will be drawn initially from the research conducted by Clarion Associates.
- Facilitate the Working Group in adding (and potentially subtracting) from the recommended set to come to consensus on a set of land use patterns that will be explored.
- Facilitate the Working Group in further developing the land use patterns strategic management levers by including additional qualitative and quantitative details.
- Facilitate the Working Group in discussing the possible strategic management levers and developing an initial list to be explored.

Task 2 – Modeling of strategies
Current – July 30, 2015
The Keystone Team will:

- Facilitate the Technical Subcommittee's further development and refinement of the land use patterns to include the variables and proxy variable that will enable the use of UrbanSim and the Denver Water Demand model. The model runs will provide quantifiable water savings and allow a comparable analysis among the land use patterns.
- If need be, facilitate the development of a bridge model that will allow for the two models to accept each other's outputs and thus be better integrated.

Task 3 – Exploratory scenario planning
Timeline: July 1 – October 31, 2015
Note: CWCB 50% report due October 31, 2015

In partnership with the Desert City Decision Center and the Western Lands and Communities (WLC) program (assuming WLC grant exception), the Keystone Team will facilitate the Working Group in evaluating the effectiveness of the strategies to lower water footprint of new and development against future scenarios of uncertainty. Scenarios will be constructed by the Working Group and include such things as population growth rate and climate change.

Task 4 – Consensus-building on a recommended and vetted set of strategies
Timeline: November 1 – December 31, 2015

The Keystone team will facilitate the Working Group in a consensus-building process focused on the following questions:

- Which land use planning strategies appear most effective and stand up against future uncertainties?
- How can policy makers and planners be most effective in helping move Coloradans closer to long-term sustainability between water and growth?
- What key actions should be taken and by whom?

Task 5 – Reporting and documentation of recommended strategies
Timeline: Current - December 31, 2015
Note: CWCB 75% report due December 31, 2015
The Keystone team will develop a report that documents the process, outcomes as well as the recommended strategies. The report will identify barriers and potentially effective modes of implementation..

Task 6/Phase II – Implementation
Timeline: January 1 – June 1, 2016
Note: CWCB Final Report due June 1, 2016
The Keystone Team, as well as a subgroup of the Working Group will enact the dissemination and implementation plan developed by the Working Group. This will potentially involve communicating with community land planners and water providers the results of this Dialogue so that they are better informed of the affect that land use policies can have regarding water use and lowering the water footprint of new and redevelopment.

The Dialogue report will also be provided to the State as part of their State Water Plan and SWSI efforts and disseminated broadly to planners, developers and policy makers.

VI. Detailed process overview:

Phase I

1. Convene the Working Group
2. Technical Subcommittee to conduct research on strategies to integrate land and water planning used in other analogous locations that could be implemented in Colorado to lower the water footprint. Identify areas of uncertainty that may need further research and/or modeling.

3. Utilize DRCOG's 2040 UrbanSim model-projection of land use development as a baseline condition (this assumes integrating land and water planning has not been done). Subsequently use Denver Water and Aurora Water data to determine what the water use would be under this baseline condition.
4. Convene the Working Group to review the recommended land use patterns and suggest other patterns that will represent the full range of demand scenarios under higher density develop types. The Working Group will provide specific recommendations of 8-10 actual neighborhoods that represent the land use patterns.
5. Denver Water and Aurora Water staff will subsequently develop water use profiles for each of the 8-10 land use pattern examples.
6. The Working Group will discuss the strategic management levers that have the potential ability to result in increased density. These may include zoning, incentives, and regulations among others.
7. Engage the Working Group in a scenario planning process that will test the agreed-upon strategic management levers against several population growth rates. Please note, that at this point in the process it is difficult to know the various elements that will be built into the scenarios. The Working Group will work in concert with the Desert City Decision Center staff to develop and model the scenarios. The scenarios will also be developed with extensive input from the CWCB staff to ensure that they are transferable to the impending SWSI update.
    a. DRCOG's UrbanSim model and Denver Water and Aurora Water data will be utilized to determine the water footprint of the various scenarios and compare them against the baseline no-action condition.
    b. Please note that this will be an iterative process of implementing different zoning, incentives and regulations and determining how the density of the region reacts based on UrbanSim runs.
8. Exploratory scenario planning - test the agreed upon strategic management levers against future uncertainties including climate change, economic and social change, etc.
9. Come to consensus on a set of recommended strategic management levers for integrating land and water planning that will reduce water use from new and redevelopment. This consensus-building process will include conversations of barriers to implementation and reflects the outcomes of the scenario planning process and deliberations.

Phase II

10. Utilize the information gathered by the Land Use Leadership Alliance (LULA) and the research commissioned by the Dialogue as well as Working Group expertise to determine a path toward implementation.

11. Convene the Thought Leaders to review the recommended strategies and discuss the best way to implement them.
12. Implement recommended strategy or set of strategies and disseminate the recommendations through the appropriate identified channels. This implementation and dissemination plan will be further fleshed out by the Working Group.

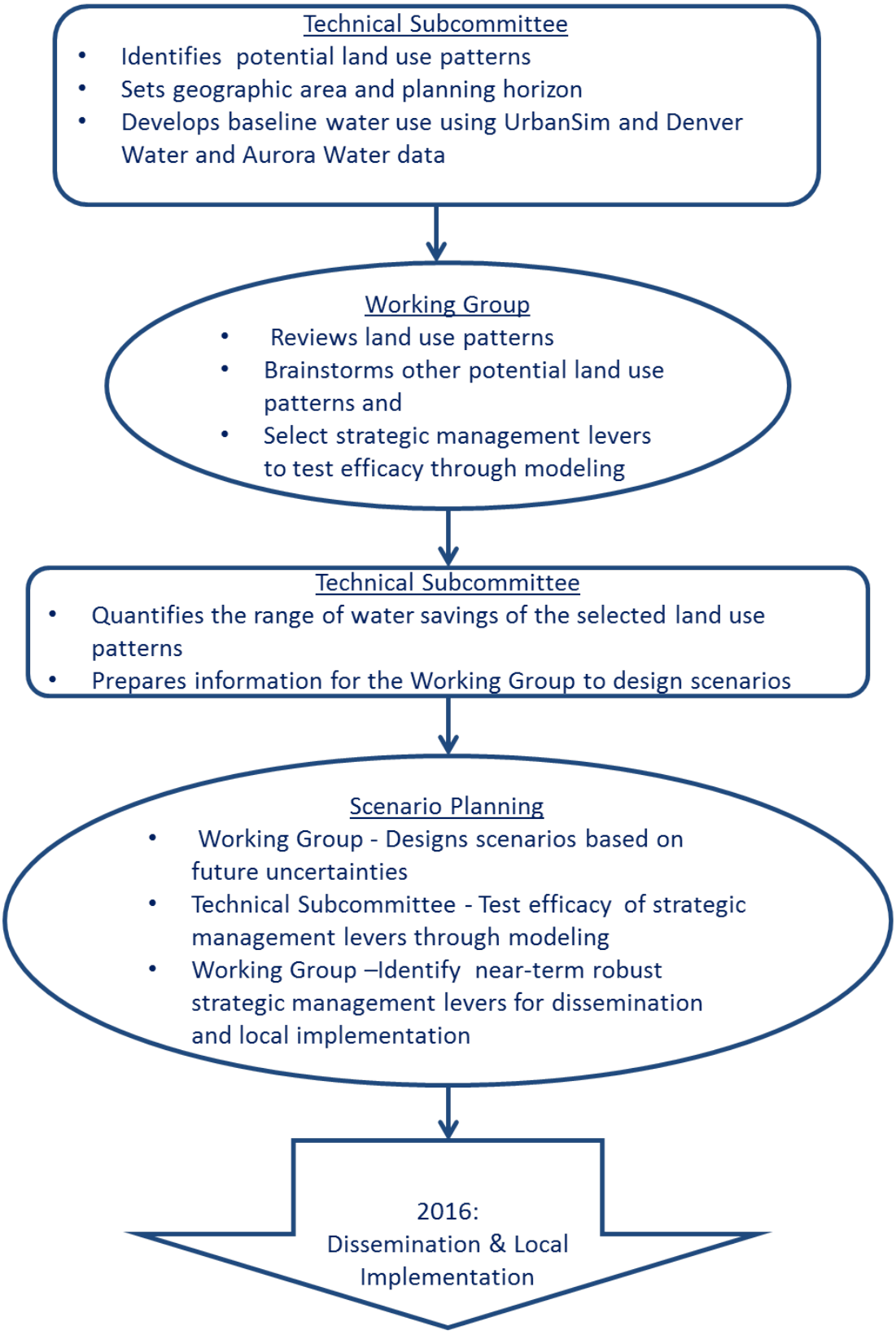
VII. Meeting topics – *Note dates subject to change based on progress*

Meeting Topics and Tasks	Date
Technical Subcommittee ▪ Utilize UrbanSim and the Denver Water Demand model to project demand reductions under various land use patterns defined by the Working Group ▪ Quantify water uses for the land use patterns Working Group ▪ Based on the results of modeling, discuss and define a set of strategic management levers that have the most potential for guiding the region toward the various land use patterns	June 2015
Working Group ▪ Engage in scenario planning process. ▪ Test strategic management levers against scenarios of future uncertainty (Technical Subcommittee)	July – September 2015
Working Group ▪ Finalize scenario planning ▪ Determine most robust strategic management levers ▪ Develop near-term strategic management levers and sign posts ▪ Discuss barriers to implementation and whether/how they can be overcome	September – October 2015
Working Group ▪ Consensus-building toward a set of strategic management levers that have the most potential for lowering the water footprint of development and redevelopment	November – December 2015
Working Group ▪ Review DRAFT Report and Finalize	December 2016

Working Group ▪ Begin Phase II – Implementation and Dissemination	January 2016

Please see the high-level Process flow-chart on the next page.

Colorado Water & Growth Dialogue – 2015 Process Chart



Colorado Water & Growth Dialogue – 2015 Process Chart

Technical Subcommittee

- Identifies potential land use patterns
- Sets geographic area and planning horizon
- Develops baseline water use using UrbanSim and Denver Water and Aurora Water data

Working Group

- Reviews land use patterns
- Brainstorms other potential land use patterns and
- Select strategic management levers to test efficacy through modeling

Technical Subcommittee

- Quantifies the range of water savings of the selected land use patterns
- Prepares information for the Working Group to design scenarios

Scenario Planning

- Working Group - Designs scenarios based on future uncertainties
- Technical Subcommittee - Test efficacy of strategic management levers through modeling
- Working Group –Identify near-term robust strategic management levers for dissemination and local implementation

2016:
Dissemination & Local Implementation

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Colorado Water and Growth Dialogue
Estimated Dialogue Budget - 2015/2016
April 15, 2015

	Phase 1					Phase 2	
	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	
	Strategy Development	Modeling of strategies to determine relative impact	Exploratory scenario planning	Consensus building on a set of final recommended strategies	Reporting and documentation	Implementation and dissemination	Subtotals
LABOR HOURS							
STAFF	**(hrs)**	**(hrs)**	**(hrs)**	**(hrs)**	**(hrs)**	**(hrs)**	**(hrs)**
Doug Young - Senior Policy Director	20	40	80	60	20	120	340.00
Matthew Mulica - Policy Facilitator	40	80	80	80	80	120	480.00
Hannah Lippe - Policy Facilitator	20	60	60	50	120	120	430.00
TOTAL LABOR HOURS	**80**	**180**	**220**	**190**	**220**	**360**	**1,250.00**

LABOR COSTS

STAFF	**RATE**	**($)**	**($)**	**($)**	**($)**	**($)**	**($)**	**($)**
Doug Young - Senior Policy Director	$150.00	3,000.00	6,000.00	12,000.00	9,000.00	3,000.00	18,000.00	51,000.00
Matthew Mulica - Policy Facilitator	$97.00	3,880.00	7,760.00	7,760.00	7,760.00	7,760.00	11,640.00	46,560.00
Hannah Lippe - Policy Facilitator	$80.00	1,600.00	4,800.00	4,800.00	4,000.00	9,600.00	9,600.00	34,400.00
TOTAL LABOR COST		**8,480.00**	**18,560.00**	**24,560.00**	**20,760.00**	**20,360.00**	**39,240.00**	**131,960.00**

DIRECT COSTS

Transportation	100.00	300.00	300.00	100.00	0.00	1,000.00	1,800.00
Logistics and Copying	40.00	100.00	100.00	300.00	200.00	500.00	1,240.00
TOTAL PROJECT COSTS	**8,620.00**	**18,960.00**	**24,960.00**	**21,160.00**	**20,560.00**	**40,740.00**	**$135,000.00**