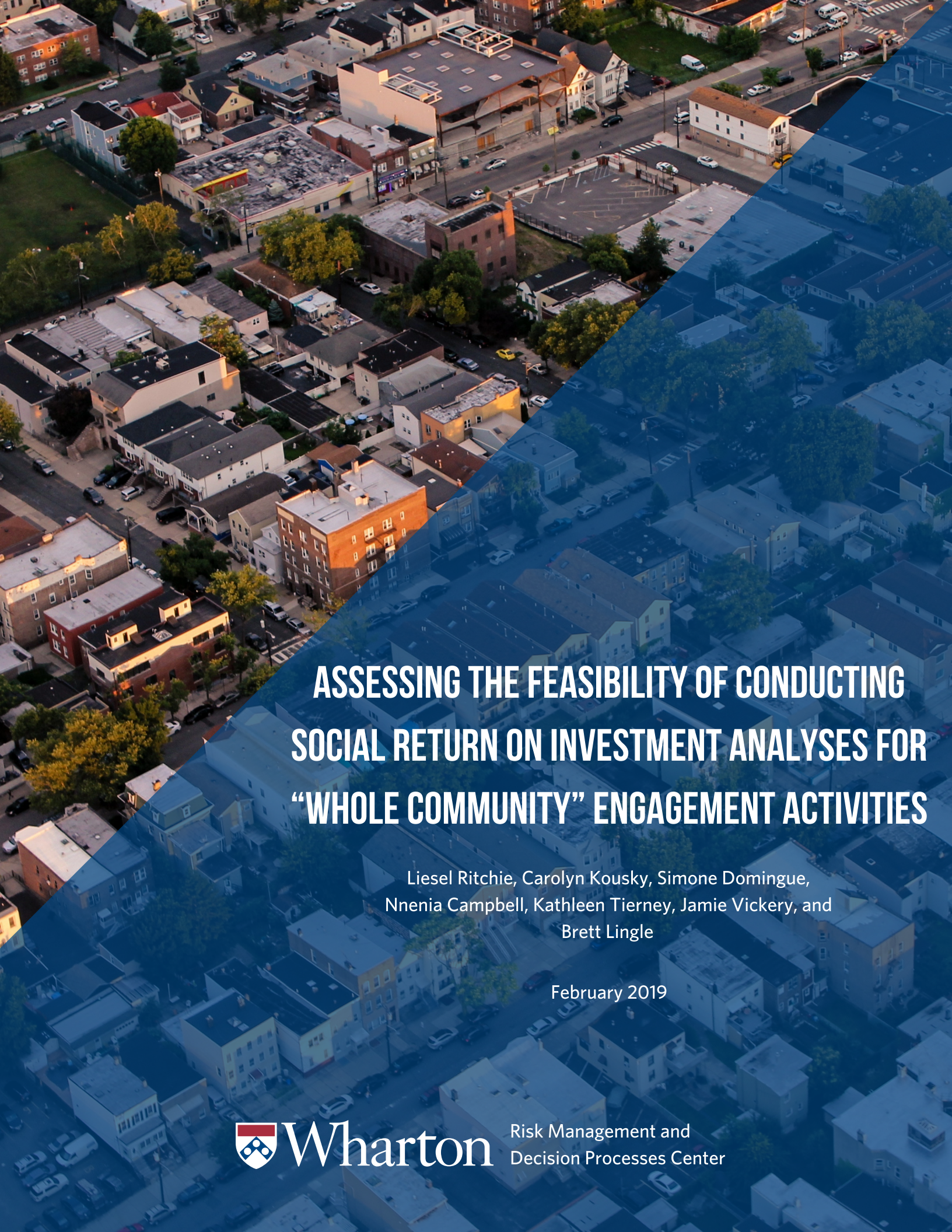




ASSESSING THE FEASIBILITY OF CONDUCTING SOCIAL RETURN ON INVESTMENT ANALYSES FOR “WHOLE COMMUNITY” ENGAGEMENT ACTIVITIES

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Risk Management and
Decision Processes Center

Assessing the Feasibility of Conducting Social Return on Investment Analyses for “Whole Community” Engagement Activities

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Executive Summary

Background and Approach

This study focused on the feasibility of using social return on investment (SROI) methods to evaluate “whole community” and resilience-building activities at the local level. SROI studies encompass these steps: (1) establish the study scope and identify stakeholders; (2) map project inputs to outcomes; (3) collect data and isolate attribution (causation); (4) value inputs and outcomes to the extent possible; (5) calculate SROI metrics; and (6) conduct sensitivity analyses.

The study team focused on the city of Tulsa and considered the extent to which data were available for an SROI analysis—that is, whether inputs, outputs, and outcomes could be both documented and quantified. Data collection methods for the study included literature reviews, extensive document analyses, and interviews with more than three dozen key informants in the city of Tulsa in late 2016 and early 2017. This study used the Disaster Resilience Network (DRN) as an organizational locus of activity.

Findings

The DRN is organized around three main programs, each of which involves partnerships with other organizations: the Disaster Resilient Cross-Cultural Council, the Disaster Resilient Business Council, and the Disaster Resilient Housing Council. Figure ES1 lists their past and present major activities.



Figure ES1. Tulsa's Main Resilience Programs and Activities

Inputs for programs included paid staff time; volunteer hours; costs of hiring trainers, facilitators, and interpreters; meeting space; production and distribution of printed materials; fees for training and certification; purchases of refreshments; production of videos; and travel expenses. Those who participated in programs also incurred additional costs.

Outputs included education and outreach, mitigation and preparedness planning, and coalition building for identifying vulnerabilities and resources at the neighborhood level. Community informants also described spin-off activities that they attributed to prior preparedness efforts. One was Tulsa's designation as one of the Rockefeller Foundation's "100 Resilient Cities," which provides funding for a chief resilience officer as well as potential technical assistance.

Regarding **outcomes**, because of a lack of empirical data, the study team could not determine the extent to which activities increased preparedness, led to actions that could reduce disaster losses, or produced other benefits, such as increased peace of mind and feelings of safety among Tulsa residents. Interviewees did identify two important outcomes of whole-community activities: increased social capital and higher levels of trust.

Conclusions

Based on the Tulsa research, the study team concluded that conducting a true SROI analysis in Tulsa—and likely in other communities—is not feasible at this time. This is because credible SROI studies require a focus on specific programs over specific time periods and despite their long experience with resilience-related programs, Tulsa agencies and organizations have not collected or retained the kinds of data needed for the conduct of an SROI study. Additionally, research within the preparedness/resilience domain faces special challenges with respect to economic valuation. Conducting a credible and defensible SROI study would require independent research with outside funding that could establish data needs *ex ante* and monitor programs over time.

Future Research

Nothing in this project summary is meant to imply that it is not feasible to assess whole-community activities using SROI and ROI methods. It is feasible, but those wishing to conduct such studies should be aware of several caveats. First, the interviews conducted for this study indicate that program personnel lack time and resources to collect and track the kinds of data needed for such analyses and that by and large they lack the expertise to conduct analyses on their own. Future studies should come with adequate additional funding and be carried out by qualified researchers. Second, SROI studies of awareness and preparedness programs in areas similar to disaster preparedness are limited, and many publications reviewed for this study that claim to have used SROI methods actually have not quantified or valued any outcomes due to the challenges with doing so. Third, methods for evaluating benefits from preparedness activities are less well developed than those for assessing mitigation activities and will require new market valuation studies. Given the challenges and costs associated with conducting rigorous and credible SROI analyses of whole-community activities, it might be prudent to select a few cases for thorough examination and use the results of those studies to guide broader research.

The report discusses all these points in greater detail. The research team has also developed a fourteen-step process for conducting SROI studies focusing on preparedness and resilience-enhancing programs.

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I. Introduction

This study sought to develop methods for assessing the return on investment from “whole community” disaster loss reduction activities by identifying and measuring the outcomes associated with community-based efforts in areas such as disaster preparedness, outreach, partnership building, and public education. An earlier FEMA-sponsored study, *Natural Hazards Mitigation Saves* (Multihazard Mitigation Council 2005), found that “brick and mortar” disaster mitigation projects save \$4 for every federal dollar spent. A recently updated version of this report found that these types of projects save \$6 for every dollar spent on mitigation (National Institute of Building Sciences 2017).

This study on whole-community activities focuses on preparedness and community engagement outcomes, which are more difficult to quantify but perhaps equally important. It also considers how investments, outputs, and outcomes associated with resilience-enhancing community programs can be measured in collaboration with local organizations and stakeholders. The study team selected Tulsa as a test site. With its long record of community-based disaster risk reduction activities, Tulsa is an ideal place to develop prototype approaches to measuring the return on investment for these activities—an approach that other communities may wish to use to better assess the costs and benefits of resilience-related activities.

Return on investment (ROI)—the net earnings of a project divided by costs—is an economic calculation traditionally used as a decision aid in the private sector for summarizing investments. ROI provides an easy metric for comparing projects by their expected returns. Over the past several decades, ROI has been increasingly used to evaluate public programs. This expansion has been accompanied by a broadening of what returns and costs are considered. When social benefits are included, the analysis is often termed social return on investment, or SROI. SROI is closely linked with other forms of program evaluation because it draws heavily on stakeholder engagement and uses logic models or impact maps to guide the analysis. The engagement process can be as important as calculating the SROI metric.

This report begins with a discussion of traditional ROI and emerging approaches to SROI. Next, we review Tulsa’s experiences with community-based disaster risk reduction activities, followed by a summary of more recent community-based resilience efforts supported by the city’s Disaster Resilience Network (formerly known as Tulsa Partners). The remainder of the report presents findings of our research in Tulsa, concluding with recommendations for a methodology that could be used to assess the return on investment from whole-community and resilience-building activities. The final section of the report discusses the effects of such activities on dimensions of social capital, including trust, that are critical for community resilience.

2. What Is Social Return on Investment?

Return on investment is an economic metric traditionally used to evaluate financial investments. ROI is the present value of net benefits (returns) from a project divided by the present value of project costs. Multiplying by 100 gives the ROI as a percentage. A ROI of 100 percent would mean that the returns

were 100 percent greater than (or twice) the costs. If benefits were exactly equal to costs, the ROI would be zero; there would be no net return to the project. A project whose costs are greater than its benefits would have a negative ROI. ROI is one of several economic metrics that can be used to compare the benefits and costs of a project or investment. Others include the benefit-to-cost ratio, the net benefits, and the internal rate of return.

The increasing use of ROI analysis reflects the push to apply economic approaches to evaluating a larger range of public policies and social programs. Because public initiatives have much broader objectives than the traditional financial investments for which the ROI methodology was developed, there has been a commensurate push to include the full range of benefits and costs, even those that accrue to external parties. These may be nonmarket benefits and costs that require special methods for valuation. Analyses that include social benefits are termed SROI—social return on investment. The development of SROI follows the expansion of triple-bottom-line thinking. SROI also aims to incorporate valuable aspects of program evaluation from other disciplines, such as use of logic models and focused stakeholder engagement. The principles of SROI articulated by Social Value UK (formerly the SROI Network) include involving stakeholders, understanding what changes, valuing the things that matter, including only what is material, not overclaiming, being transparent, and verifying results (Nicholls et al. 2012).

SROI analysis is now used in a range of contexts to help garner support for activities, choose among projects within a limited budget, and evaluate interventions ex post. It can be used to set priorities, examine whether projects are yielding results, and improve project design to produce greater benefits. This is still a fairly young field of practice, however. As noted in a report for the Bill & Melinda Gates Foundation:

Some people expect to be able to compare the social value of various social programs similar to how they compare the financial return on investment (ROI) of various companies. This is not a reasonable or realistic expectation given that the infrastructure necessary to calculate social value creation for social programs is virtually non-existent. The infrastructure that makes financial ROI calculations possible (e.g. the accounting profession, brokers, financial analysts, financial reporting, financial concept development), has taken a long period of time ... to develop and there are still constant debates (Tuan 2008, page 6).

SROI provides a standardized approach to considering all benefits, costs, and trade-offs. That said, as will be discussed further below, using SROI to evaluate preparedness and resilience-building activities presents some challenges, most notably condensing multiple benefits that are difficult to value into a common metric (see Kousky et al. 2017). Additionally, SROI does not account for distributional issues that may be important policy objectives. SROI should therefore be only one component of decision-making or evaluation.

Several guides have been published on how to conduct an SROI analysis (e.g., nef 2007; Nicholls et al. 2012). They differ slightly but have the same general steps and approach. We choose to define the steps in an SROI analysis as follows:

1. Establish the study scope and identify stakeholders.
2. Map project inputs to outcomes.
3. Collect data and isolate attribution (causation).
4. Value inputs and outcomes to the extent possible.
5. Calculate SROI metrics.
6. Conduct sensitivity analyses.

First, an SROI analysis needs clear boundaries. The particular program, intervention, or policy being evaluated should be narrowly defined; considering all preparedness-related activities in a community would be far too broad for an SROI analysis. SROI analyses of particular activities could be aggregated upward to evaluate an overall program, but clear study boundaries are still needed. Bounding the analysis also requires limiting the time period being considered. This first step of the SROI study includes identifying all the relevant stakeholders; they play many important roles in SROI analysis, as we will discuss.

The second step is to map project inputs to the desired or anticipated outcomes. This is usually best accomplished with a logic model, theory of change, or impact map (e.g., Frank and Nason 2009). In a logic model, the inputs are the financial, human, and other resources invested in a program or initiative. The outputs refer to the “what” of the program or initiative, such as numbers of training sessions, people served, or materials developed or disseminated. The outcomes represent the effects, the “so what”: changes in awareness, knowledge, attitudes, skills, or behaviors. Logic models also consider other factors and programs that may influence outcomes. Figure 1 illustrates a logic model for SROI; the comparable components in an ROI analysis are shown in parentheses.

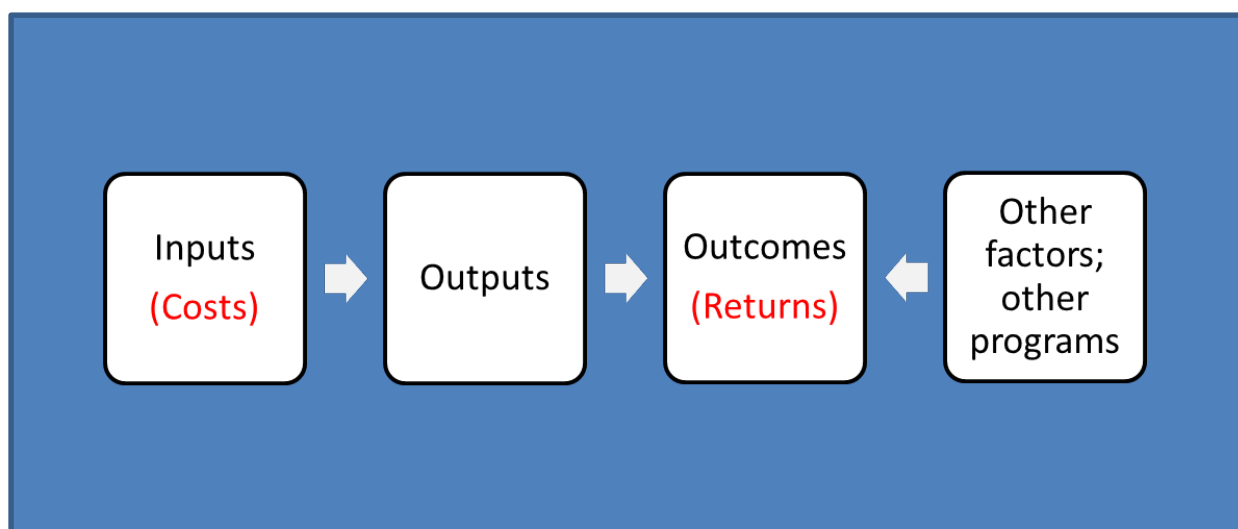


Figure 1: Components of SROI Logic Model (Comparable ROI Terms in Parentheses)

A logic model or impact map connects inputs to outputs to outcomes: pathways of change are identified and then linked to indicators for data collection. Co-benefits and co-costs of the program may need to be identified through interviews. For this reason, developing a logic model is best done in consultation with stakeholders.

The third step in SROI analysis is to collect data and identify attribution. Some input data may be unavailable or not routinely collected, however, or information may be scattered across people and organizations. Stakeholder interviews may be useful here. Interviewees should be prompted to consider nonmonetary inputs, such as volunteer time, in-kind contributions, and other nonfinancial inputs. Similarly, output and outcome data may be incomplete and necessitate specialized surveys. Once the data are in hand, the portion of the outcomes that are attributable to the intervention must be isolated. This is particularly challenging in analyses of disaster risk reduction activities, since many programs and policies may contribute to an outcome. For instance, a survey may be needed to assess how many residents took hazard mitigation action in response to a particular education campaign. If it is known at the start of a policy or program that an SROI analysis will be desired ex post, steps can be taken to collect the relevant data as the program unfolds: baseline conditions can be measured and data collected on the outcomes identified for the logic model.

Building on the data collection and determination of attribution, in step four the inputs and outcomes are quantified and, if possible, valued. For some things, valuation is straightforward. For instance, supplies can be valued at their cost, and the time of employees can be valued using their wages. Valuation of nonmarket goods and services is more difficult. Methods have been developed by economists—econometric approaches that use market data to determine the value of a nonmarket good, for example, and surveys designed to elicit the value individuals place on a particular outcome—but they can be time and resource intensive.

If valuation studies are beyond the scope of the SROI evaluation, estimates of values from other studies can be made through a “benefits transfer” process or assumptions can be made to generate back-of-the-envelope values. For instance, an SROI analysis of a CARE program that improved access to clean water for women in Laos had to assume how much time the project saved the women (analysts assumed one hour per day), and then assume a value of that time (they used studies from Bangladesh, Ghana, and Tanzania and found time valued at roughly 57 percent of income, then matched that with another Laos study on women’s average incomes) (CARE 2010). For disaster risk management, it may be necessary to make assumptions about how different outreach and training activities relate to behavior. For example, FEMA has found that talking about preparedness has a strong relationship with engaging in preparedness behavior, as does hearing about preparedness at work or school or from volunteer organizations (FEMA 2014). Justification for assumptions may be found in prior studies, but the studies must be appropriate for the given context. Are the assumptions plausible, and is the need for a monetized SROI metric great enough to justify their use? A review of SROI studies found that despite being the driver of SROI, social benefits are often treated simply as a “residual category,” demonstrating the challenge of including hard-to-monetize benefits in an ROI framework (Krlev et al. 2013).

Once all valuation has been completed, the fifth step is calculating the SROI metric. It may not be necessary, however, to fully monetize all inputs and benefits into a common metric. SROI can be one component of decision-making that includes consideration of inputs and outcomes that cannot fit into the SROI framework. Indeed, proponents of SROI analysis argue that the *process* of defining values, objectives, costs, and benefits among all stakeholders can be important in and of itself (Reinhard et al. 2014).

If any variables are uncertain, best practice suggests taking a sixth step: conducting sensitivity analyses. For example, because benefits and costs need to be discounted to current dollars, it is useful to use a range of discount rates to test the robustness of the result. If assumptions were made, these should also be varied to test the robustness of the SROI metric.

3. Study Site Context

Tulsa was chosen for this study because of the city’s decades-long disaster mitigation and preparedness activities, which over time have included whole-community activities. This term refers to preparedness activities that involve all groups in a community under the belief that preparedness is a shared responsibility, a concept promoted by the Federal Emergency Management Agency (FEMA). Located on the Arkansas River and within the Mingo Creek watershed, Tulsa has a long history of flood disasters, with major floods in 1923, 1970, 1974, and 1976, as well as an especially deadly and damaging flood in 1984. Over the 20th century, the city’s flood losses increased, in part because the city relied on levees and dams for flood protection and had allowed intensive development in the floodplain.

In response to repeated disasters—at one point, Tulsa led the nation in the number of federal disaster declarations—the city devised strategies to reduce flood losses. After flooding in 1974, the city designed and initiated the Mingo Creek Improvement project, which protected approximately 700 homes from

future flooding. Following another damaging flood in 1976, the city received federal funds to begin acquiring land in the floodplain to reduce exposure and preserve open space. The city also passed a moratorium on building in the floodplain, developed comprehensive floodplain and stormwater management programs, and established a flood early alert and warning system. After the 1984 flood, which left 14 people dead, the city relocated 300 homes and a mobile home park, began a detainment basin project with the Army Corps of Engineers, established a city department of stormwater management, and initiated a stormwater utility fee. Over time, the city has acquired 1,000 flood-prone properties, made decisions designed to preserve one-quarter of the floodplain as open space, and adopted strict flood-resistant building codes (Patton 1994; Meo et al. 2004; Bullock et al. 2008).

Its flood management initiatives earned Tulsa special recognition from FEMA in 2000 and from the Department of Homeland Security in 2003. The city currently has a Class 2 rating in FEMA's Community Rating System for flood risk reduction, meaning that because of the city's flood hazard management efforts, flood insurance rates for Tulsa residents are significantly lower than those in other flood-prone communities around the country. Very few communities attain this high rating.

Tulsa is also a national leader in preparedness programs for floods, tornadoes, and other disasters. The city received funding during the 1990s under FEMA's short-lived Project Impact program, which supported loss-reduction planning projects, community education, and the development of public-private disaster preparedness partnerships. When that program ended, Tulsa developed a spinoff organization called Tulsa Partners, which continued the work and was especially successful in public-private partnership building. One notable public education project involved a 2003 partnership to distribute disaster preparedness materials in 32 McDonald's restaurants in Tulsa. The city also became active in Citizens Corps, a Department of Homeland Security program to engage community volunteers in disaster preparedness and response activities. In 2006, Tulsa Partners joined with the Insurance Institute of Business and Home Safety to establish the Disaster Resilient Business Council. Another Tulsa Partners collaboration, with the nonprofit organization Save the Children, focused on disaster preparedness for day-care centers.

Other whole-community activities in Tulsa have extended beyond preparedness for extreme events. For example, in collaboration with the Tulsa Zoo, Tulsa Partners launched the Millennium Center for Green and Safe Living. This "center without walls" outreach provided environmental education programs for the public as well as information on both disaster-resistant and sustainable building materials and construction practices. The city also participates in the Mayors' Climate Protection Agreement, a project of the U.S. Conference of Mayors.

Decisions regarding floodplain management and other disaster loss reduction programs came about in a variety of ways. Repeated flooding led to the formation of citizens groups that pressured local government to act. Although community pressure was initially ignored, flooding in 1976 and the subsequent involvement of a member of Congress helped gain support. The Army Corps of Engineers was a source of technical information, and the passage of the Water Resources Development Act, which was championed by the same Congress member, also provided a stimulus for action. The 1984 floods

occurred only 19 days after the election of a new mayor, who subsequently organized a flood hazard mitigation team for the city. The mayor was assisted in these efforts by other local officials, including a city attorney, and by engineering consultants. Later, FEMA Project Impact funds provided support for coordinated local disaster loss reduction activities, and local businesses stepped in to continue these efforts when federal support ended (Meo et al. 2004).

Tulsa Partners changed its name to the Disaster Resilience Network in 2016. The city continues to gain recognition for its resilience-enhancing efforts. For example, Tulsa recently joined the Rockefeller Foundation’s “100 Resilient Cities” initiative, which provides support for a chief resilience officer position as well as various types of technical assistance.

4. Study Methods

The content for the findings section of this report was generated from interviews conducted with 43 individuals in Tulsa during a total of 29 sessions in late 2016 and early 2017. Our approach to identifying the Disaster Resilience Network (DRN) activities and potential study participants involved an extensive combination of search methods, described in Sections 4.1 and 4.2. Section 4.3 presents our sampling approach and describes the fieldwork process.

4.1 Identifying Whole-Community Preparedness Activities

To identify the DRN’s community preparedness activities, we relied on three primary resources: the Tulsa Partners website (now the DRN website), the network’s annual reports, and local newspaper articles dating back to 2003.

Beginning with the website, we identified programs, events, trainings, and disaster preparedness resources. DRN’s three main programs—the Disaster Resilient Business Council, the Disaster Resilient Cross-Cultural Council, and the Disaster Resilient Housing Council—each has its own space on the organization’s website and provides information on current activities, ongoing events, and links to additional resources. We created a database in Excel of all the activities discussed.

We also examined DRN’s annual reports from 2004 to 2014 (the latest available) to identify important activities and initiatives in each year. Through this exercise we were able to identify recurring events and ongoing programs. This provided a sense of the network’s various outreach efforts, including community gatherings in which DRN members participated and various events and presentations where group leaders were present.

Finally, we did a Lexis Nexis search of *Tulsa World* newspaper articles using the key words “Tulsa Partners,” the name under which DRN’s activities took place until late 2016. This yielded 27 articles between 2003 and 2016. The articles allowed us to identify additional programs and to confirm the importance, reach, and potential community awareness of programs already in our database.

Our next step was to group the activities in five categories: tools, training, and guidance; partnerships and networks; tailored engagement; outreach and communications; and provision of information. We aggregated activities as needed, rather than listing each instance of an event. For example, we listed “Disaster Resilient Cross-Cultural Council booths” as one activity, as opposed to counting all instances when a booth was staffed. Certain activities fit into more than one category. For example, a workshop on disaster preparedness for special-needs populations fit in both “tailored engagement” and “tools, training, and guidance.”

In preparation for in-person interviews, we additionally organized the activities into six categories based on DRN’s established programs and the intended audience of the remaining activities: the Disaster Resilient Business Council, the Disaster Resilient Cross-Cultural Council, the Disaster Resilient Housing Council, professional engagement, citizen and community engagement, and children and family engagement. Ultimately, this framework allowed us to better conceptualize the group’s work, especially for identifying the potential outputs and outcomes of each activity.

4.2 Identifying Disaster Resilience Network Stakeholders

As a precursor to selecting potential study participants, we searched DRN’s website, annual reports, Facebook page, and monthly newsletters for information on stakeholders, both individuals and organizations.

First, we gathered materials from DRN’s website, which contains descriptions of major programs, annual reports from 2004 to 2014, and biographical summaries of DRN leaders. We used this information to identify individuals and organizations affiliated with the major programs noted above. These stakeholders were listed in two Excel spreadsheets, one for individuals and one for organizations. For the list of individuals, we added fields for organizational affiliation, leadership position, the DRN program in which he or she was involved, and contact information. For the list of organizations, we added fields for the DRN program, potential contact person, and any local chapter.

Next, we analyzed DRN’s Facebook page, in addition to monthly newsletters, for content pertaining to stakeholders’ involvement. Names and information on potential stakeholders were gleaned from recent posts on the Facebook page, dating back to September 2016, and from information in the monthly newsletters, dating back to March 2016. Additionally, we used the results of the Lexis Nexis search, described above, to identify more individual stakeholders; these names were added to the Excel spreadsheet.

Finally, we added members of DRN who had served in past leadership capacities. The names of former board members, executive committee members, and advisory council members were drawn from annual reports. That process yielded a list of more than 135 potential interviewees.

4.3 Selecting Study Participants and Conducting Fieldwork

During a visit to Tulsa in early December 2016, we shared the list of stakeholders developed through our independent search process with the current DRN advisory board. Board members reviewed and helped refine and prioritize the list. They told us, for example, that some individuals listed were now deceased, that others had left the area, and still others had only minor involvement in organizational activities. Using a purposive sampling approach targeting those who were likely best positioned to provide substantive responses to our research questions, we identified “high-priority” interviewees who would be able to share their experiences with resilience-building activities in Tulsa and make observations about whole-community engagement efforts in the area. Of particular importance in our selection process was ensuring that each interviewee could provide information on the inputs and outcomes of DRN programs or the resilience-building activities of significant community stakeholders.

We contacted potential study participants beginning in December 2016, and a team of four researchers conducted interviews in Tulsa on January 10–17, January 23–26, and February 10, 2017. One interview took place via telephone on February 6, 2017. The structured interview guide (see Attachment A) was designed to examine topics associated with social return on investment for whole-community and resilience activities. It was piloted with six members of the DRN leadership in December 2016 and revised before the first interviews in January 2017. We obtained approval of our protocols to conduct this research on December 14, 2016, from the University of Colorado’s Institutional Review Board (Exempt Status of protocol #16-0790). Interviews were audio-recorded and ranged from 20 to more than 90 minutes, on average lasting approximately one hour.

Ultimately, we spoke with 43 people. Interviewers’ hand-written notes were cross-checked with the audio version of each interview, quality-checked for accuracy, and then coded and analyzed according to emergent themes. Results of these analyses are presented in the remainder of this report, along with interviewee quotes and narratives that highlight consistent trends in the data and support the research team’s main findings.

5. Whole Community and Tulsa’s Resilience-building Activities

The nation’s preparedness goal, as outlined in Presidential Policy Directive 8, is “A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.” This forms the basis of the whole-community approach to disaster management. All members of a community have a role to play in preparedness: individuals, families, neighborhoods, businesses, nonprofit groups, faith-based organizations, schools, the media, and all levels of government. FEMA refers to whole community as a philosophical approach to emergency management that understands, assesses, and involves the needs of everyone in a community. It is guided by three principles: (1) understand and meet the actual needs of everyone in the community; (2) engage and empower all parts of the community; and (3) strengthen what is working well in a community (FEMA 2011). FEMA believes that taking a whole-community approach leads to a more resilient community.

“Whole community” is a very broad term, and many types of activities can fall under its umbrella. Most whole-community activities are outreach and information dissemination efforts and meetings to trade information and learn about the needs of different groups. Despite a hope or expectation that such activities may prompt direct actions to reduce disaster losses, hazard mitigation can be considered a separate activity. Whole-community activities may often be seen as those that foster preparedness or increase readiness to respond in a crisis.

Interviews in Tulsa made clear that community members do not use the term “whole community” to refer to their activities. They often speak instead about resilience. Resilience-building activities are those that both reduce the damage of a disaster and help a community recover faster and better. Whole community approaches can help build resilience, but not all actions taken to improve resilience are whole community actions.

In this report, we refer to “whole community” only sparingly, since study participants typically did not use the term, but we consider activities that do indeed fall under the whole community approach (see Section 5.1). These are activities done to inform, educate, engage, or learn from all members of the community. They can all be considered as enhancing preparedness or resilience, although they are not an exhaustive list of resilience actions in Tulsa. In particular, we exclude most hazard mitigation measures as falling outside the whole-community umbrella, even though improved mitigation might be an outcome of a whole-community activity. In the remainder of this report, we use the terms whole-community activities and resilience-building activities to capture the range of ongoing efforts in Tulsa.

DRN conducts a range of resilience activities to help diverse communities and stakeholders throughout Tulsa prepare for disaster. The bulk of the group’s work is structured around three core programs: the Disaster Resilient Business Council, the Disaster Resilient Cross-Cultural Council, and the Disaster Resilient Housing Council. Activities generally have one of three themes—professional engagement, youth and family engagement, and citizen and community engagement—each of which covers an array of past and present initiatives, collaborations, and events (Figures 2, 3).

Disaster Resilient Cross-Cultural Council



- Distributes multilingual preparedness brochures at community events
- Hosts community outreach events
- Conducts America's PrepareAthon Workshop with Latinos en Prensa
- Disseminates public service announcements in 11 languages
- Provides emergency supply kit information

Disaster Resilient Business Council



- A Day without Business Symposium
- IBHS Open for Business classes
- Write your Plan/Test your Plan Workshop
- Community Resilience Speakers Bureau
- Long Term Care Facilities Workshop
- Business continuity and emergency classes for non-profits
- Presentations and regional collaborations

Disaster Resilient Housing Council



- Green Building Resource Library
- Oklahoma Strong-Construction
- Green Country Sustainability Forum
- Fourth Friday Green Bag Lunch
- Low impact projects
- Workshops and events for builders
- Education and collaborative demonstration projects

Figure 2: Tulsa's Main Resilience Programs and Activities

Youth and Family Engagement



- Save the Children Resilient and Ready Workshops
- Child Care Emergency Preparedness Training
- Save the Children's Child Friendly Space Training (training in setting up these spaces in shelters, aid centers)
- Family disaster kit resources
- Family disaster plan resources

Citizen and Community Engagement



- CERT Training
- Mayor's Citizen Corps
- Safe & Secure Training classes
- Storm Spotter Training
- Target CPR initiative
- Disaster Preparedness for Special Needs Populations Workshop
- Special Needs Shelter Exercise
- Tornado and wildfire preparedness clinics

Professional Engagement



- Disaster Assessment Workshop for Architects and Engineers
- FORTIFIED & FORTIFIED-Wise training
- Table-top Disaster Scenario Exercises
- Citizen Corps website and database
- Natural Hazard Mitigation Association
- and Resilient Neighbors Network
- Community Resilience Speakers Bureau

Figure 3: Whole-Community and Resilience-Building Themes

5.1 Disaster Resilient Cross-Cultural Council

The Disaster Resilient Cross-Cultural Council is a grassroots network that helps communities across Tulsa prepare for disaster by making outreach and educational materials linguistically accessible. Comprising multicultural and multilingual groups, it also works with representatives of diverse populations to improve emergency communications and provide support for hazard mitigation planning.

The council uses multiple platforms to circulate preparedness information. It has a regular presence at community events, where it sets up information booths and distributes multilingual preparedness brochures. Its organizational members also hosted community outreach events, such as a recent “Deaf Town Hall” to improve communications with first responders and a public health fair for the Burmese community. It also issues public service announcements and provides emergency supply kit information in 11 languages.

5.2 Disaster Resilient Business Council

The Disaster Resilient Business Council is a 10-year-old partnership between the public and private sectors that seeks to educate Tulsa’s small businesses and nonprofit organizations about the importance of emergency and continuity planning, provide networking opportunities for organizations and individuals interested in expanding these capabilities, and encourage private sector involvement in disaster resilience planning. The council is made up of representatives from insurance companies, banks, academia, consulting groups, the Insurance Institute for Business and Home Safety, the Tulsa City-County Health Department, and the Tulsa Regional Chamber, among others. Through conferences, classes, and other outreach activities, the council helps small businesses improve their planning capabilities for all types of emergencies, including fire, wind, flood, and power loss.

One major activity is “A Day Without Business,” a daylong conference held every few years that helps businesses and nonprofits develop emergency and continuity plans and prepare for scenarios that could affect their operations. The conference features speakers, panels, and breakout sessions led by business and emergency managers and other disaster experts. Building on the success of these conferences and other business continuity classes (e.g., the Insurance Institute’s Open for Business classes and nonprofit continuity classes), DRN started hosting Write Your Plan/Test Your Plan workshops to provide direct, detailed guidance on emergency and continuity plans. Additionally, the Disaster Resilient Business Council makes its members available to all types of organizations for presentations and one-on-one mentoring.

5.3 Disaster Resilient Housing Council

The Disaster Resilient Housing Council is a collaborative venture between DRN and other entities to promote sustainable living and building practices. It promotes education about sustainable development for design professionals, built environment decision-makers, and the public. Using partnered approaches and collaborations, it advocates for stronger building standards, safer construction practices, and hazard mitigation. Major activities include hosting workshops and events for builders,

participating in education and collaborative demonstration projects, as well as partnering with the Insurance Institute for Business and Home Safety on the FORTIFIED Home High Wind and Hail program in Oklahoma.

5.4 Additional Activities

The rest of DRN's activities generally focus on engaging with youth and families, citizens and communities, and professionals. One of the recent activities for youth engagement was the DRN-sponsored "Save the Children Resilient and Ready" workshop. This program with Save the Children uses stories and games to teach children about preparedness topics, such as evacuation and safety planning. In partnership with other organizations, DRN has sponsored child-care preparedness trainings to improve the disaster readiness of Tulsa's child-care facilities, and child-friendly space trainings to ensure children have a safe place to be in disaster centers and shelters. DRN also provides an array of resources and information on its website to help families develop their own disaster kits and plans.

Through its citizen and community engagement activities, DRN educates the public about disaster preparedness and provides several opportunities for everyday Tulsans to get involved in making their communities more resilient. DRN and other partners sponsor activities such as preparedness workshops for special-needs populations and tornado and wildfire preparedness clinics. The group has also been a major proponent of Community Emergency Response Team trainings that educate and train volunteers in basic disaster response skills like fire safety, disaster medical operations, and light search-and-rescue. Similarly, other community partners sponsor storm-spotter and CPR trainings to increase individual citizens' capacity to prepare for and respond to emergency situations.

6. STUDY FINDINGS

In this section we present the findings from our analyses of the qualitative interview data. We use logic model terminology (described in Section 2) to frame this discussion. Briefly, the inputs are the financial, human, and other resources invested in a program or initiative. The outputs refer to what a program or initiative does (e.g., numbers of training sessions, people served, materials developed or disseminated). The outcomes represent the "so what," or the effects of a program or initiative (e.g., changes in awareness, knowledge, attitudes, skills, behaviors).

Sections 6.1–6.3 focus on Tulsa study participants' information about the types of input, output, and outcome data associated with resilience-related efforts that might be used to conduct SROI. These results also shed light on the availability of such data. Section 6.4 provides interviewees' feedback on the appropriateness and feasibility of conducting SROI on their resilience-building activities. Section 6.5 includes participants' insights regarding factors that influence the success of community resilience efforts, as well as challenges to implementation.

6.1 Inputs

Study participants were involved in resilience-building activities and programs in the Tulsa community, as discussed in Section 5. The study team questioned those who were heavily involved in these initiatives about the resources—referred to here as the inputs—used to conduct the activities. These inputs, when valued, are the costs in an SROI analysis. Many of the participants stressed the importance of leveraging resources to cover or reduce the inputs. In this section, we describe the programmatic and stakeholder data that could be used to calculate costs for an SROI analysis. We also discuss how participants were able to reduce costs or produce greater benefits by leveraging resources through partnerships.

6.1.1 Direct Inputs

Participants identified a range of inputs required to develop and operate the community resilience programs and activities examined in this study. These included direct inputs, such as supplies and personnel time. As described below, participants also provided examples of investments that stakeholders made to undertake the activity or produce the outcome or benefit.

Programmatic inputs. Programmatic inputs included a range of resources and materials. The degree to which these costs were routinely tracked within organizations varied. For example, some participants gave a ready estimate of a cost or easily identified who tracked costs within their organization. In contrast, other inputs, such as in-kind donations, could not be easily quantified by participants. The inputs listed by participants fell into the categories listed below.

- **Staff time.** Participants said that staff time, both paid and unpaid, was a major input into programs. This input includes time spent preparing for, conducting, and breaking down events. One participant who conducted public meetings referred to these activities as *“other duties as assigned”* because they were not explicitly part of his¹ job description. Participants generally did not formally track the time they devoted solely to these activities, but many gave estimates. For instance, one city employee estimated that preparing a one-hour presentation would take 40–60 hours when *“starting from scratch.”* Staff may also devote time to writing grant proposals to cover the costs of programs.
- **Volunteer hours.** Volunteer time was essential to run many community resilience programs. For example, the Disaster Resilient Business Council and the Disaster Resilient Housing Council were chaired by volunteers who expressed passion for what they did to *“build a better community.”*

¹ In the remainder of the report, we will alternate masculine and feminine pronouns without regard to the interviewee's actual gender.

- Other personnel. Participants sometimes mentioned having to hire trained personnel—contractors, trainers, facilitators, and interpreters—to carry out activities. For instance, the Map Your Neighborhood program needed a trained facilitator, and the Disaster Resilient Cross-Cultural Council’s activities needed trained interpreters.
- Meeting facilities. Participants discussed the need for physical space for public meetings and trainings. Many participants used free spaces provided by libraries, churches, or universities. Though free to the organization, these spaces involve an opportunity cost that an SROI analyst would need to consider, but in many cases it may be negligible. One participant involved in Map Your Neighborhood described using free space from the city for initial trainings and then moving activities to the homes of community members.
- Materials. Brochures, training packets, DVDs, handouts, and items for disaster kits were among the items participants needed. Interviewees listed printing and copying as significant expenses. One participant covered these costs out of her own pocket. Participants usually sought out publicly available training materials, such as educational modules from the Red Cross, to avoid the costs of preparing new materials.
- Training and certification fees. Some programs provided certified trainings to individuals and organizations. For example, the Medical Reserve Corps offered CPR training and incurred costs for hiring instructors and printing certificates. And the Long Term Care Facilities Workshop, hosted by DRN, paid a board of examiners for its continuing education units.
- Direct mailings: Some outreach tactics involved directly mailing members of the public. For example, as part of the Community Rating System, the city sent brochures to residents who lived in a FEMA-mapped 100-year floodplain. One participant involved in this program noted that the printing and postage costs for direct mailings were substantial but believed this strategy was effective.
- Refreshments. Participants who hosted public meetings on flood awareness often provided refreshments for attendees. One participant said that offering refreshments was a way of boosting public turnout: she strived for “*food, free, and fun*” when planning events.
- Audiovisual equipment. Some activities required audiovisual equipment to produce videos, DVDs, and television programs. For example, the Disaster Resilient Cross-Cultural Council produced a series of emergency preparedness videos in several languages. The equipment and production (filming, editing) were provided pro bono by partners at Tulsa Community College. Presumably, those involved at the college could estimate their time and equipment costs for an SROI analysis.

- Travel expenses. Participants mentioned travel costs as another input. For instance, travel funds were needed to send staff to training events and to transport volunteers to trainings or other community events.

Stakeholder inputs. Community stakeholders also needed resources to participate in resilience activities—an input some participants recognized as a cost. Nevertheless, no organization formally tracked any metrics or data on the costs to community members for child care, registration fees, travel expenses, time, or labor.

6.1.2 Leveraging Resources and Capabilities

Participants offered examples of how they leveraged resources and capabilities through relationships to cover costs and accomplish program goals. This approach was an integral, regular part of their work. One interviewee said, *“We don’t do a lot that we have to pay for, so it is always about partnering to provide things. I don’t have money, so I look to partners.”* For a complete SROI analysis, the leveraged and donated resources must be accounted for as inputs or costs—a challenge because information must be collected from multiple groups and individuals.

Many participants said that partnering was achieved by forming relationships and formal agreements that could then be mobilized to garner additional resources, human capital, and donations. One organization made use of the unique skill sets and resources of its volunteers: staff who led the Medical Reserve Corps said they had acquired medical equipment for animal response because a volunteer who also worked at the Tulsa Humane Society had donated it. Likewise, following a destructive tornado in Tulsa County, the County Long Term Recovery Group partnered with the city and philanthropic organizations to obtain additional recovery funds: the city leveraged HUD Community Development Block Grant funds and philanthropic organizations purchased some materials and donated some funds directly to reconstruction projects. One interviewee discussed the importance of collaborating to leverage resources, noting that *“we stretch our dollars with partnering.”* Another example involved the production of emergency preparedness videos in 11 languages: the Disaster Resilient Cross-Cultural Council enlisted partners from Tulsa Community College who volunteered their time to film and produce the videos. One participant said about the endeavor, *“it’s all about connections in putting together videos.”*

6.2 Outputs

Resilience-building efforts in Tulsa produced a wide range of outputs. Most organizations maintained some data about their activities for funders’ reporting requirements and internal reviews. Several interviewees said that additional information about their operations was available but was not necessarily collected or aggregated systematically. Below we describe the various activities that supported resilience in Tulsa. We then discuss the kinds of data that could potentially be incorporated into SROI analyses.

6.2.1 Activities

The resilience-building efforts of study participants tended to cluster into three main areas—educational outreach, preparedness and mitigation planning, and coalition building—plus spinoffs from those activities.

Educational outreach. Participants created materials and made presentations to educate the public about natural hazards and encourage preparedness. For example, the Disaster Resilient Cross-Cultural Council developed videos in multiple languages as part of its outreach to the community’s growing immigrant and refugee populations. A council member described the need for these activities:

People were confused about what to do with certain hazards, so [we] educate communities that are new to the U.S. if they are not used to a specific disaster (for example, tornadoes)—especially as this comes to the sirens that go off. Some people didn’t know what they meant, so [we] educated them.

Preparedness and mitigation planning. A few organizations focused on disaster planning and hazard mitigation measures. For instance, Morton, an ambulatory health center in an underserved community, received a federal grant to purchase a generator so that during power outages, it could be a shelter for residents that are dependent on health care equipment. The center’s leaders also worked with local emergency planners so that this capacity could be part of disaster response plans.

Coalition building. Some programs focused on creating community networks for disaster response. Map Your Neighborhood, for example, helped residents form neighborhood-level groups that could be activated during emergencies. The program provided training on how to identify vulnerable groups, record assets, and mitigate hazards. The neighborhood groups then designated block captains to manage this information and facilitate mobilization in the event of a disaster. More commonly, Voluntary Organizations Active in Disaster (VOAD) and other coalitions helped enhance the community’s overall disaster response and recovery capacity by forming partnerships, engaging in collaborative planning activities, and coordinating across agencies to address service and resource gaps in disaster-stricken areas.

Spin-off programs. A few interviewees suggested that the experience gained by participants in Tulsa’s resilience network had created opportunities and enabled them to launch new programs. For instance, one emergency manager credited the network’s decades of disaster resilience efforts with laying the foundation for the Rockefeller Foundation’s designation of Tulsa as one of its 100 Resilient Cities. In another example, a nonprofit representative credited efforts to engage Native American leaders in VOAD activities with inspiring internal initiatives geared toward supporting disaster planning and resilience in tribal communities.

6.2.2 Existing Data Associated with Outputs

Our team inquired about the kinds of output data that were reported to funders or otherwise routinely collected. Data collection and aggregation practices varied according to organizational accounting and assessment processes, programmatic requirements, and capacity.

Required data. Most existing data were collected as mandated under grant requirements or other accountability checks. These reports are easily accessible sources of information that could be used for an SROI study. Although reporting requirements varied across funders, the requested information typically included the following information:

- number of meeting and event attendees,
- counts of materials distributed,
- sign-in sheets,
- number of clients served,
- invoices and budget itemizations,
- progress and accountability reports,
- program participants' evaluation forms, and
- tax documents.

Other existing data and potential metrics. Program staff typically collected other information informally and as needed for particular tasks:

- website hits and social media interactions,
- constituent phone call and email logs,
- sign-in sheets,
- records of supplies and materials distributed, and
- anecdotal observations.

In the absence of a specific mandate, however, this information was not typically synthesized in ways that made it available for systematic review.

6.3 Outcomes

Notably, the kinds of outcomes interviewees described did not include information that would be essential to conduct SROI analysis. There was no indication that the whole-community and resilience-building programs discussed in this report had collected any data indicating whether their activities had increased preparedness, led to actions that reduced damages or saved lives, or made people feel safer. The lack of information on measurable outcomes should not suggest that these benefits did not occur, however. There could have been real benefits in terms of disaster risk reduction; they are just very difficult to track and quantify. In addition, the community has benefited in many other ways from the extensive work undertaken in Tulsa. Interviewees talked broadly about outcomes that extended beyond their programs' formal scope of work, mentioning spillover benefits that were extremely valuable to the

community. In particular, they cited enhancements to community social capital and the development of trust within and between organizations—outcomes that contributed to resilience in ways that could be appreciated only on a longer time scale.

6.3.1 Increased Social Capital

Many study participants called social capital a pillar of community resilience. They reflected on the relationships they had forged across sectors—organizational networks, connections between residents and community institutions—that could be activated in times of disaster.

Several interviewees said outreach to historically marginalized communities had produced benefits extending beyond emergency preparedness. For example, efforts to connect interfaith and cultural associations with law enforcement and other first-responder representatives opened channels of communication that could be used for disaster planning and response purposes, but these connections also helped reduce fear of authorities, which could in turn foster cooperation with law enforcement officials and community integration.

One interviewee recalled the time a group of Russian immigrants ran from the police: *“they did nothing wrong, but they were scared.”* A presentation by law enforcement representatives as part of the Disaster Resilient Cross-Cultural Council helped change the immigrants’ opinions and perspectives. *“It helped acclimate them to their new country.”*

In another instance, a local emergency manager believed that relationships built as part of disaster planning and response activities, such as those promoted by the local Voluntary Organizations Active in Disaster group, had moderated social unrest in the recent past. He said,

The value of building these bonds is invaluable. It changes the culture in a community, and we see this pay off. It’s common knowledge that we had a period last September [2016] of potential civil unrest here in Tulsa due to a police-related shooting that took place. Other communities had riots during these situations. Tulsa did not. ... Why did Tulsa not have the problems other communities had? I say it’s because of that investment in community from everyone. Those relationships are in place in this community. When we have a very challenging time to go through, we go through it together instead of against each other. That was a very difficult time for lots of folks, but people pulled together. They prayed together, they cried together. It was difficult for everyone, but we got through it without there being any destructiveness to it. We were able to build on relationships that were already in place. ... we’ve got to think beyond natural disasters and look at social issues and other things that come into play. All of this adds to resiliency. It comes back to relationships. It comes back to building bonds when you’re not actually having disasters, and involving people and including people in activities in your community. That’s paramount.

An examination of the extent to which civil unrest following the police shooting of Terence Crutcher in September 2016 was or was not shaped by social capital falls beyond the scope of this report. However, it is worth noting that three interviewees either explicitly or generally referenced this event in describing the importance of community engagement and connectedness, and participants more broadly endorsed the utility of connections between segments of the community in facilitating resilience to a range of social and environmental challenges.

6.3.2 Higher Levels of Trust

About one-third of interviewees discussed the importance of trust for their relationships within Tulsa's resilience network. Many outreach efforts built trust among community members and produced an array of benefits beyond engagement on disaster-related issues. Trust—an important dimension of social capital—fostered additional community engagement, more social capital, and more trust. Some described trust as the foundation for community engagement, information uptake, and prompts for action among members of the public.

Trust among organizational representatives. A government meteorologist responsible for communicating severe weather forecasts to state and local emergency managers explained how trust, built up over the years, enabled him to give this audience detailed information: *“I don’t have to give them the vanilla version [of the forecast] out of fear.”* This foundation of trust meant that he could share the best available data without concern for backlash if weather conditions unfolded differently than expected. On the inevitable occasions when extreme conditions failed to materialize, he explained, he had faith that emergency managers would understand the variability of forecast projections rather than questioning their value or second-guessing them in the future.

A local emergency manager reflected on the same relationship from the opposite perspective, describing how her work largely depended on the ability to trust community partners' expertise. She explained:

I don’t ask a meteorologist at the National Weather Service to justify their findings to me. They have college degrees, years of experience, years of training within their discipline. I take what they tell me at face value. As an emergency manager, I have to trust their judgment.

These comments indicate how trust developed as a result of whole-community activities and then, once established, helped individuals and groups collaborate effectively when a disaster threatened their community.

Trust from the community. Other participants described trust as a critical component of not just relationships but also successful public outreach. They viewed building trust as the first step in establishing themselves or their organizations as community allies, which in turn influenced the effectiveness of their programs and activities. Some called trust the first outcome of resilience-building

activities. Building trust with community members was considered both a pathway to effectively communicating about hazards and a mechanism for prompting behavioral change.

Participants who worked with vulnerable populations emphasized the need to create trusted connections to communicate about disaster-related issues. Many immigrant, minority, and refugee communities have historically had poor relationships with authorities, which undermined outreach. Several interviewees had sought to improve such conditions to make these communities more resilient. One administrator said,

I think there are pockets of people in Tulsa who understand that reaching marginalized communities takes an investment. Trust building takes a relationship—being bilingual isn't enough. By and large, that's not universally understood. There's an expectation that if [outreach] doesn't work when people address [only] mainstream, it's not their problem. A lot of agencies are starting to realize that they need people with relationships [and must] invest the time to create connections with affected communities.

By forging trusted relationships, these individuals were able to initiate discussions about how to support resilience in hard-to-reach communities.

Efforts to build trust and use the reputations of trusted actors were not limited to the vulnerable segments of Tulsa, however. Similar practices targeted the public more broadly. For instance, a television meteorologist said news personalities had a significant influence on their viewers' behavior and were thus responsible for communicating appropriately about hazard threats. As evidence, he cited an incident from 2013 in which an Oklahoma City weather broadcaster instructed TV viewers to get in their vehicles and flee an impending tornado. Many people acted on this directive, causing traffic jams that placed them directly in the storm's path before it fortunately changed course. Recognizing the weight that popular TV weather crews' reputations carried among Oklahomans, the governor convened a meeting between media representatives and the state emergency manager to improve messaging for future extreme weather events.

6.4 Considerations for Conducting an SROI Study

When asked to consider the possibility of conducting an SROI study of their activities or DRN more generally, participants made two primary points: the appropriateness of engaging in SROI analysis for their resilience-related efforts, and the feasibility of conducting SROI.

6.4.1 Appropriateness of Conducting an SROI Study

Many participants acknowledged that having the kinds of data produced as part of an SROI study could be beneficial in promoting cost savings and demonstrating the value of their resilience-building work. As one person put it, *"Having data would be valuable ... Data would make all the difference in reinforcing the good people have done and getting the word out."* More specifically, an interviewee commented, *"If you can find a way to put a price tag on that, that's fantastic."* Others expressed concerns that

unfavorable assessments could be used as justification for reducing support rather than improving programs: *“No one wants to talk about what they can’t do or what they’re not very good at, because they’ll lose funding in the future.”*

Even if SROI analysis was seen as useful, most participants raised concerns that some of the data would be inappropriate to collect. Interviewees were concerned, for example, about balancing the need for valuable data with protecting clients’ privacy. Some study participants noted potential difficulties in acquiring proprietary data (e.g., from insurance companies and businesses) that might help support an SROI study of resilience-related education and outreach.

Perhaps more relevant to the present report, several interviewees said that data collection and program monitoring must be approached with caution: given the burden of extensive data collection and their already limited resources, some saw a point of diminishing returns. According to one study participant:

We over-administer everything. It gets frustrating. Somewhere along the line, we lose track of what we’re actually trying to accomplish, which is to relieve the suffering and get people to think about disasters more than just when they hit.

Several interviewees expressed similar concerns, asking, *“Is it more cost-effective to evaluate your outreach, or to do more outreach with that money?”* and *“Is it better to spend those funds on monitoring and administration or on actual impact and outreach to the community?”* Another said, *“Tracking numbers and other measures can create challenges for program staff trying to accomplish actual goals.”*

One participant said it would take more than financial resources to implement programs and determine their outcomes:

Some problems can’t be solved with money. Throwing money at it doesn’t fix the problem. You have to put people together to collaborate on goals and objectives that can’t be measured without establishing metrics together. And some things just can’t be measured.

Some interviewees were uncomfortable with putting things in dollar terms. If people are reluctant to engage in monetization, then SROI might be an inappropriate exercise.

Others suggested that collecting the outcome data necessary to conduct SROI was beyond their mission and role. As they saw it, their organizations served primarily as conveners and facilitators and, in some cases, provided grants to other organizations that would bear responsibility for collecting data, analyzing outcomes, and using the information for decision-making. Typically, those in grant-making positions rely on the not-for-profit organizations they fund to collect data, and in most cases, only basic output data—numbers of people served, training sessions held, brochures distributed—is captured. One study participant was concerned about *“staying within the mission”* of his program, maintaining that *“it’s not really part of our job to collect, track, and utilize data for evaluation [or calculating SROI].”*

Conversely, several interviewees expressed a sort of “embarrassment” that they did not do a “better job” of collecting data and recording information about their programs. Typically, these comments were offered as people described how they operated with minimal funding and staff: most of their efforts, they said, went into delivering services or conducting activities rather than tracking the inputs, outputs, and outcomes.

Participants expressed concerns about accurately linking programmatic and other activities to outcomes. As one person said, *“You can log the initiative and response, but in terms of what is the outcome then, it’s very difficult to quantify. We’re not sure of the causality.”* Further comments touched on issues of causality, as well as the value of having experience in local communities:

Just because something happened on your watch, it doesn’t mean you caused it. Although we must look for data to make sure what’s being done is appropriate, forcing measures for things that can’t be quantified can be harmful and counterproductive—for example, being blamed for things over which [programs, organizations, or people] have no control. At some point, you have to trust people in a given position to know their expertise. Go to the right people with subject area expertise that you don’t have. Don’t ask experts to justify their decisions. They’re the ones who know what they’re talking about. Take what they’re saying at face value and let them be experts.

Participants believed that in the absence of data, understanding the local social environment was especially valuable for determining the effects of resilience-building activities. As one interviewee said:

If you spend time knowing what’s going on in the local context, you’ll be in a position to understand where things produce valuable returns. [Based on this], you’ll know what will be most effective and best use of time through trial and error.

6.4.2 Feasibility of Collecting and Analyzing Data Suitable for Conducting SROI

Moving beyond whether SROI analysis is appropriate, interviewees questioned its feasibility, citing the resources required to collect and analyze input, output, and outcome data—primarily, personnel time and expertise. Determining what kinds of data programs can reasonably collect, analyze, and use is a critical issue. Although most community partners agreed that certain types of evaluation data (i.e., data that could also be used for SROI) would help them improve their programs and decision-making, they cautioned that it was not always possible to obtain this information.

A majority of interviewees believed that tracking basic output data was possible, given the right circumstances and resources. One suggested that output data might be relatively easy to get:

I don’t think getting that information would be hard. I could tell you who had that information. We are accountable to funders. They require that information. [In some cases it] may be a matter of just pulling up a spreadsheet.

Another said that although some data were available, program personnel would need time and expertise to compile and analyze it. Participants also explained that reports to different entities require different information, so a single type of data collection would likely not serve all purposes, including that of SROI.

Other participants described input and outcome data as difficult to gather and track. For example, some inputs (e.g., costs of workshops, printing and distribution, salaries, meeting space) might be relatively straightforward and easy to calculate, but other input data—especially for unfunded resilience activities—would be burdensome to generate.

Limited time and expertise, other organizational priorities, and concerns about effectively measuring resilience activities were cited as consistent challenges throughout the interviews. These issues tended to be embedded in the broader context in which resilience-related activities occur: organizations and groups are already operating with limited resources.

Limited time for follow-up: Many study participants said that they and their staff members simply could not afford to dedicate time to follow-up data collection and reviews of outcomes. Although they acknowledged that more information could prove useful for decision-making and program improvement, these types of efforts were considered secondary to implementing activities. This was an issue of personnel and staffing, according to most interviewees, again reflecting the scarcity of funding for groups engaged in promoting resilience. One person put it simply, “Our staff are already so overburdened.” Another interviewee offered the following:

[Current data collection] activities are being done on top of other full-time responsibilities. This is challenging with regard to fitting in around other priorities. Disasters occur [and drain resources] on top of ongoing commitments too, so this is par for the course.

Similarly, two study participants noted that monitoring the effectiveness of their activities was not a priority, so follow-up efforts received little attention:

Our biggest obstacle is that we don’t have the tools to measure our effectiveness—no surveys, no focus groups, [nothing] like that. That’s just not an area where we’ve been told to focus and it’s not going to be in the foreseeable future, unless something comes out of the [Rockefeller 100 Resilient Cities] program.

One individual involved with data collection efforts for community education and outreach made these observations about the process:

Survey development was time consuming and yielded few measurable outputs. We didn’t have many resources to put toward measurement and data collection from participants. If there had been resources and dedicated staff toward measurement of these products—an institutional mandate—we might have been able to obtain better

data. [We also] need more support to help plan events and ensure participation—administrative support for things like event planning and [evaluation of our efforts].

Limited expertise. Representatives of some organizations said that they and their staff did not have the expertise to collect the necessary information and conduct SROI analysis. Some offered potential solutions to this challenge. For example, two interviewees described how they had tapped local university support:

In the past we had [paid] interns through DRN. This was instrumental in implementing the survey and getting data. Again, this was helpful because students were interested in this work and they did a good job and produced helpful outcomes. This was also good because that was their only task. They didn't have to wear all the hats staff here did.

Others described having attempted to collect data about their programs but had determined over time that it was too cumbersome, that they lacked expertise in this area, and that they did not have the capacity to analyze the information once it was collected. The intersection of so many resilience-related programs, as well as organizations and agencies involved in post-disaster recovery efforts, represented additional challenges. As one study participant indicated, “For recovery efforts, there are so many different levels of service, [it's] hard to know who's collecting information and how to go about getting it.”

Measuring effectiveness. In some instances, the broad and diverse nature of Tulsa's disaster- and resilience-related programs—particularly those with limited or no financial support and small staffs—meant that it would be difficult to measure their effectiveness. Ultimately, the prospect seemed daunting or unrealistic to most interviewees, as the following quotes indicate:

It's difficult to measure the effects of outreach programs. Every year we review and update activities and impacts based on things we can measure. But the most difficult task is to measure impact [outcomes]. If we had resources and expertise on evaluation, this would be helpful ... Even just someone to follow up on cases and see what actions are taken—whether residents took the recommended actions.

I think it's pretty simple—if we fund a mitigation project, there's a dollar value associated with that. You have to fill out a cost-benefit analysis. That's fine. That's a measurement you can go back to. But if you're looking at measurement of life changes, of people affected by [resilience efforts], we're not measuring that.

Many interviewees could distinguish between output data (e.g., hits on a website, brochures mailed) and more outcome-oriented data (e.g., changes in attitudes, actions, or behaviors). The quotes below were typical:

[Many programs] measure outreach activities, but not impacts or outcomes. It's hard to do and to know about impacts. Most just follow best practices [determined by] the field.

[For example], the media is a major partner in informing the public. So we push out [public service announcements] and they inform the public about the heat. It's very difficult to get a metric about outcomes—how many deaths did we prevent? We don't know.

[Our ultimate outcome] in the humanitarian/nonprofit sector is that at the end of the day, someone didn't come to a shelter because they learned what to do and respond appropriately. There is no way of valuing the absence of people needing services.

It's challenging to track outputs but even harder to track outcomes. It's hard to know how many lives were saved [as a result of a program or outreach], but you can track whether people put together a plan or have a disaster kit ... Attitudinal measures might serve as outcome indicators, such as whether people feel safer after having taken some preparedness action or having participated in a program.

Other participants talked about how the effectiveness of resilience-building activities might be informed by understanding connections between people, groups, and organizations in the Tulsa community:

Yes, it's hard to measure. If you know you have network contacts with leaders of certain communities, you can contact them directly ... You can't explain this in percentages, but you know you delivered the message. This can be one kind of measurement—and how rapidly you can mobilize these communities. Sometimes you may not have a direct connection with leaders, but you have gatekeepers in mind.

DRN's overall goal is to create a culture of resilience. In this context, one study participant expressed hope that Tulsa residents will “*think more about the potential long-term benefits of improving resilience [rather than just focusing] on the short term.*” She suggested that effective measures of resilience could focus on how much people are thinking about resilience activities and being proactive:

By figuring out ways to measure changes in these areas—in mindsets—maybe then we could share levels of success ... The time element is essential. We have to be patient in measuring resilience. We have to give it a chance to be successful. The metrics will come.

SROI-related recommendations from study participants. Interviewees generally recommended that agencies and researchers consider the appropriateness and feasibility of SROI analysis, as described in the previous sections. Some recommendations were specific, such as making sure that evaluation forms and surveys are short and easy to complete and include checklists for program managers and volunteers. One study participant suggested that breaking data collection into a “*small number of steps with manageable chunks*” would be helpful. Interviewees also recommended that funders interested in SROI analyses provide specific guidance and tools for relevant data collection.

Perhaps of more relevance to this study, interviewees indicated that to gain traction, SROI evaluations would need to be part of regular funding channels. One participant said,

I would argue for a percentage of funds for evaluation. Maybe up to 3–5 percent. This gets back to the question: “how much do you cut against the bone.” For every x dollars of donations, this much goes to evaluating success. It’s probably easier to do that with grants and programs where money is earmarked. I have included this evaluation piece as part of grant requests. I want that money to be set aside to hire evaluators.

Another interviewee agreed:

It is helpful for the data collection requirement to be part of funding, along with guidance on the frequency, method, and type of collection that needs to be done. It’s hard to get funding for things that can’t be measured. Having built-in time [to discuss] lessons learned is huge. Sometimes that is set up with the project, and lessons learned with whole team afterward, too. Not everyone does it because at the end it is hard to keep people dedicated. ... It’s hard to make people come back and talk about it again. The better projects have managers who build that in. [But] even in the best-planned projects, by the time you get to lessons learned, people are sick of it ... You can’t wait too long. People don’t remember things.

6.5 Factors Influencing Tulsa’s Community Resilience Efforts

Although this research did not explore factors that contribute to successful community resilience building, Tulsa study participants spoke at length about things that influenced their work. They also saw broad challenges to resilience building in Tulsa, including organizations’ limited capacity to conduct resilience activities and measure effectiveness. Although not directly related to the SROI methodology, these themes emerged as important aspects of community resilience building in Tulsa more generally and provide a context for future SROI efforts.

6.5.1 Components of Effective Resilience Activities

Participants who were involved in community resilience programs described aspects that they believed were integral to achieving program goals. They also elaborated on conditions that they felt made the community better able to withstand shocks in general. These are described here, followed by a discussion of the challenges to implementing resilience-building activities in Section 6.5.2.

Tailored messaging. Participants pay attention to the channels used to reach specific populations and say that these channels must be trusted for the target audience to receive the message. Materials and messages must be culturally appropriate, delivered by a cultural broker, and carefully crafted to evoke an appropriate response in target communities. For example, one participant observed that members of the Russian immigrant community were more likely to respond to messaging delivered in coordination with the church. Likewise, a participant who worked with the Disaster Resilient Cross-Cultural Council described how she used preexisting networks—such as Facebook groups—to disseminate information to the deaf community. A participant who worked with the YWCA said thoughtful messaging from the right sources can counter “the rumor mill” that might spread misinformation. Another participant explained

how Spanish-language media forums helped clarify miscommunications about disaster response, reducing social vulnerability in Spanish-speaking communities.

Community buy-in. Some participants stressed that residents must see the value of a program for their community to fully support it. One participant explained that this buy-in happens when the community is able to define its needs from the beginning and cited an example involving the Long Term Care Facilities Workshop. Attendance for this event was high because organizations had articulated specifically what they needed to gain from it. Others attributed much of the success of Project Impact to the commitment of community residents who helped keep the program running after funding ended. One participant recalled that *“the community took ownership of the program”* and that residents were therefore invested in seeing it through.

Champions. Participants also spoke of the importance of people who spearheaded programs and advocated for their continuation. These *“champions,”* described as representatives from different sectors who would fight for a program in the face of resistance, were often considered integral to program success. One interviewee said, *“You must have community champions, legislative champions, support politically. If you don’t have this, you can gather all the data you want, but things won’t happen.”* Several interviewees recounted the role of champions in Tulsa’s past flood mitigation efforts; these champions included local journalists and supportive political figures.

Working across sectors. Study participants said working across the public, private, and civil sectors was essential for building resilience. One city employee indicated that the support of the development community was necessary for implementing effective hazard mitigation programs. Another interviewee recalled the importance of working with multiple groups in developing Tulsa’s stormwater criteria, saying that they were the product of collaboration among the county, city, firms, and development engineers, and that it was crucial to get *“dissenters”* on your side. Participants elaborated on how connections between groups mattered for creating local conditions that fostered resilience. One interviewee, who worked on a program that integrated refugee populations into the broader community, stated that an *“interconnected community is one [that is] able to withstand shocks.”* An emergency manager echoed that sentiment by stressing the role of nonprofits in bolstering individual resilience, saying, *“I realize that each of those programs that goes out and helps people in the community gives them resiliency against disasters and whatever goes on in life because we’re propping them up.”*

6.5.2 Challenges to Community Resilience-building Efforts

In discussing efforts to build community resilience more broadly, interviewees identified a range of obstacles that hindered their work and limited community engagement in resilience activities. These observations tended to center on tepid community support, due to lack of recent disaster experience, and resistance to communication about hazards from developers and others in the building industry. Interviewees also related broader community conditions to difficulties in public outreach.

Complacency. Participants representing diverse sectors involved in community resilience activities described having difficulty getting buy-in from residents who lacked experience with disasters. For example, some qualified the city's history of success in floodplain management because many people felt that flooding was no longer a concern. Other participants connected complacency in the community to lack of funding for hazard mitigation. For example, one interviewee indicated that Tulsa had not updated its stormwater management plan because it was not a funding priority. Interviewees also expressed concerns that priorities would not change until there was another disaster, since such events spur public interest in mitigation. As one emergency manager put it, *"We have a very small window of opportunity to actually get investment from individuals and communities—and it's usually right after something bad has happened."*

Resistance from developers. In many instances, Tulsa's resilience-building community has encountered opposition to efforts to promote disaster mitigation. Some participants had formed alliances with the development community in the past but said this group could be a source of opposition to current and future hazard mitigation measures. Floodplain education and outreach activities frequently sparked opposition, as builders considered such efforts *"bad press"* for their developments. Others encountered pushback on safe building initiatives, such as attempts to regulate the *"fortified home"* building standards, because political support for code enforcement and other actions varied among communities. Likewise, one interviewee mentioned resistance to building standards, noting that the roofing industry was opposed to higher standards because they stood to lose revenue from such measures.

Barriers to community engagement. In many cases participants cited specific difficulties in reaching the public, engaging with residents, and getting the buy-in needed for increasing community resilience. For instance, interviewees noted the time and financial commitment that it took to retain volunteers. Participants expressed similar concerns about holding public meetings or events, a type of outreach that was often effective but limited in scope. One participant had spent time putting on an event that only one person attended. Other participants identified the segregation and social isolation of some communities as issues that rendered risk communication difficult. One participant found it difficult to reach Tulsa's ethnic communities, which come from 63 nations:

We often think of "who are the majorities?" Tulsa is still a very segregated community. Some communities are insulated without the same access to information about warnings, alerts, and knowledge.

Other study participants indicated that the ambiguity of the term *"resilience"* made outreach on the topic difficult. One interviewee, for example, expressed concern that the broader community did not connect the term with the benefits of resilience work.

6.5.3 Limited Capacity

Study participants elaborated on conditions within their organizations that hindered progress toward enhancing community resilience. They described how limited capacity posed a barrier to participating in

community resilience-building work and assessing its results. Specific obstacles tended to be rooted in the following three concerns.

Priorities. In some cases, resilience work—though considered important and valuable—was either tangential to an organization’s core mission or only one of several activities competing for internal resources. For example, disaster preparedness was not the main mission of most nonprofits that served particular vulnerable groups within the community. One organization’s representative, who also worked on the Disaster Resilient Cross-Cultural Council, called it a “*struggle*” to determine how much time and effort went into resilience activities that were less germane to the group’s main mission. Another interviewee noted that his/her department’s activities were just part of the larger mandate of the city government, and that resilience would not be a priority unless it became a central aim of the administration, adding, “*so many other things come first.*” Likewise, city employees mentioned that a major challenge was staying on top of multiple responsibilities: “*keeping all the balls in the air and keeping priorities straight*” was a barrier to effective community outreach on hazards.

Budget and funding constraints. Another primary limitation was the scarcity of funds to support resilience activities. For example, city employees said that their department did not have the resources to do more community outreach, and conducting sparsely attended meetings might be “*wasting resources.*” Justifying such expenditures was particularly challenging for organizations whose scope of activity was determined by outside funders or other project-specific funding restrictions. For example, one interviewee from a nonprofit noted that organizations had to keep abreast of what grantees wanted, adding that it was challenging to change that “*culture*” and influence how funding decisions were made.

Available staff and time. The time available for resilience work was also a barrier, since staff were often stretched thin across a range of responsibilities. One participant at a nonprofit explained, “*You could clone everyone here twice and there still wouldn’t be enough people to do these things. There are always things that could be done that we can’t get to.*” Several interviewees said that they did much of their disaster-related work on their personal time because their working hours were consumed with other activities. One said that fitting mitigation programming into the organization’s work was difficult because of a lack of resources—a problem compounded by reliance on volunteer time.

7. A METHODOLOGY FOR CONDUCTING SROI FOR WHOLE-COMMUNITY ENGAGEMENT ACTIVITIES

This report has summarized findings from the research team’s effort to analyze whole-community activities in Tulsa, using an input-output-outcome framework that relies heavily on stakeholder perspectives, accompanied by an effort to better understand what types of existing data might be used in an SROI study. The team identified inputs, outputs, and potential outcomes but found that it was not possible to monetize them, for reasons discussed in earlier sections of the report. Additionally, the team cautions that assessing the return on investment from whole-community preparedness activities is likely to be much more challenging than evaluating savings from brick-and-mortar mitigation measures,

where monetization approaches are clearer, recordkeeping is standardized, and existing models make it possible to calculate avoided losses. The team believes progress in assessing preparedness programs is possible, particularly through the use of SROI methods, provided adequate funding is available for such assessments. In this section of the report we make recommendations for how such studies can be conducted.

Section 7.1 provides guidelines for undertaking an SROI analysis of whole-community activities, informed by background research and the interviews conducted in Tulsa. One salient finding to emerge in Tulsa was that people in the community believed a primary benefit of whole-community activities was building social capital, which in turn conferred myriad benefits not just for disaster preparedness but for many other aspects of community life as well. Section 7.2 discusses this critical component of whole-community approaches.

7.1 Guidelines for Conducting an SROI of Whole Community Activities

Findings from the interviews conducted in Tulsa informed the development of our guidelines for carrying out an SROI analysis for whole community activities. These are summarized in the Step-by-Step SROI Guide in Attachment B. That guide takes the 6 basic steps of SROI and breaks them down into 14 smaller steps that are tailored to using SROI to assess whole-community and resilience-building projects. In this section, we discuss the guidance for those steps.

The very first step is ensuring that the community is supportive of undertaking an SROI analysis of one or more activities or programs. In Tulsa, we found enough interviewees who were concerned that SROI analysis might compromise engagement activities that we recommend that before any study is contemplated, community stakeholders are consulted and their concerns about study scope, methods, or costs are addressed. Because stakeholder participation is necessary to several steps of the SROI method, ensuring they are supportive at the beginning of the project is essential.

Next, a project budget must be drafted and funding secured. In our interviews, we found that the organizations involved in whole-community activities lack the funds, time, and expertise to conduct SROI analyses themselves. For that reason, any analysis would need to be funded externally. This includes not only funds to have experts undertake the analysis, but funding for extra data collection on inputs, outputs, and outcomes, since much of the needed SROI data are not routinely collected by organizations. It also includes funding for any nonmarket valuation studies that would be undertaken to value outcomes (See steps 10 and 11).

The third and fourth steps in our Step-by-Step Guide are the traditional first step in discussions of SROI methods. We have broken these steps into two parts here, given the requirements for evaluating whole-community investments. In Step 3, the scope of the study must be clearly defined. For whole-community activities, establishing the scope of the SROI analysis is critical. These activities can sometimes be ongoing and evolving, as opposed to constituting a one-time investment (as would be the case for hazard mitigation activities, for example), making it challenging to identify the boundaries of project activities, as well as start and end dates. In addition, many activities can fall under the whole-

community umbrella, and an SROI analysis requires a clearly defined intervention and time period of study. It will not be possible to calculate an SROI metric for “whole community” initiatives broadly, but it would be possible to estimate the SROI for particular activities. In Tulsa, for example, this might involve evaluating specific activities carried out by the Disaster Resilient Business Council or the Disaster Resilient Cross-Cultural Council.

After the particular programs for evaluation have been clearly scoped, then an SROI analysis requires identification of all the key stakeholders. The methods discussed in Section 4.2 of this report can be used for this stage of the assessment. These methods included searches of websites, reports, and publications, as well as a search of news articles over the relevant time period using Lexis-Nexus. In combination, these approaches will identify an initial target group of stakeholders. After that, a variation of “snowball sampling,” can be used, whereby the identified stakeholders are asked if there are other key individuals that should be included in the interviews.

The fifth step is to identify inputs, outputs, and outcomes associated with the project under study. Our approach in Tulsa can serve as a template for how to do this (see Attachment A). A structured interview guide should be created by the researchers and SROI analysts in collaboration with program leaders, with an aim of probing interviewees to think broadly about inputs, outputs, and outcomes. Note that when discussing these things with local stakeholders, as much as possible, the interviewers should use the language of the community in discussing their programs, as opposed to research jargon. Care should be paid to probing about inputs beyond the sponsoring organization, such as donations and potential costs to participants, as well as thinking about outcomes in other topical domains. It may only be ex post, however, that co-benefits, or spillover benefits, can be identified from projects, necessitating potentially both ex ante interviews (if SROI analysis is started before a project launches) and follow-up interviews. As we discuss in Section 7.2, one of the primary benefits of whole-community activities in Tulsa was building social capital, which in turn generated benefits beyond disaster risk management.

Next, a logic map or model is developed to link the identified inputs to outputs and ultimately to outcomes. The development of the logic model will be done by the researchers but must incorporate insights from stakeholders about the relationships and expected functioning of the program. The logic model should also include other contributors to the outcomes beyond those under control of the program. This is essential for informing Step 9.

The 7th step is developing data collection procedures for inputs and outcomes (or outputs as necessary). If SROI analysts are brought in before a program is undertaken, then data collection procedures can be developed and standardized to account for all inputs as a project is being undertaken or while a program is in operation. This can be useful in that in Tulsa we found that many organizations do not keep track of all inputs, making ex post analysis of costs difficult. For whole-community activities in Tulsa, many inputs are donated or leveraged, and data collection procedures would need to include gathering data from all supporting groups. Outcome data for SROI analysis would require follow-up surveys of participants; such surveys are also necessary to establish attribution in Step 9. Step 8 is implementing this data collection.

We isolate this as its own step to highlight that it will require funding and person-hours beyond the current capacity of local organizations.

Step 9 is separating attribution from contribution.² Many of the outcomes that whole-community projects may seek to promote are influenced by multiple factors, making it difficult to tease apart what portion of any observed outcome is attributable to the whole-community activity under study. For SROI analyses to be valid, it is important to determine that outcomes are the result of programmatic activities and not produced by factors independent of the intervention in question. Ex post, various methods can be used for this. The gold standard for attributing an outcome to a specific input is a randomized control trial. In many cases, however, this is not possible. Quasi-experimental methods can be a useful second-best approach. These are research designs that leverage variations in policies or programs that can plausibly be presumed to be akin to random assignment (perhaps conditional on some observable variables). When quasi-experimental methods are not viable, a range of econometric and statistical approaches can be employed in an effort to isolate effects.

For analysis of whole-community activities, follow-up surveys can be a useful tool to begin to isolate attribution when other methods are not feasible. For instance, if the logic model of the program suggests that an educational campaign may encourage greater preparedness, a follow-up survey of participants would seek to identify how many participants made changes in their preparedness as a result of the campaign. This was suggested as a sound approach in the Multihazard Mitigation Council study on savings from mitigation (2005) but was not actually implemented. Social scientists have also developed approaches to gathering data on social capital, trust, and other resilience-related outcomes of whole-community activities that could be employed as necessary.

The tenth step is to identify any nonmarket valuation studies that will be undertaken. Although the framework of ROI and other economic approaches have been used in cases in which full quantification and then monetization is not possible, converting all benefits and costs into a common, quantified denominator—usually dollars—is an aspiration of that approach. For benefits of avoided damages and avoided lives lost, there are many well-developed models that can be used. One is FEMA’s own HAZUS tool. The challenge with these kinds of estimations is attribution: what proportion of an outcome (e.g., mitigation) is actually attributable to the program under study? If surveys or other means generate data to answer that question, then estimating the avoided damages is straightforward (subject, of course, to all the limitations of the models). For obtaining values for goods and services not traded in markets, however, including “fuzzy” benefits such as peace of mind or better relationships with one’s neighbors, special studies are needed.

Economists have devised many methods to value inputs and benefits that are not priced in a market, collectively referred to as nonmarket valuation. These methods are designed to estimate people’s

² Causal attribution, valuation, social capital, and other topics discussed briefly in Section 7 are addressed elsewhere in this report in more detail.

willingness-to-pay (WTP), which is the amount they would pay to be equally happy with the policy or program as without. The two standard approaches for estimating WTP are referred to as revealed preference and stated preference. Revealed preference approaches infer WTP based on choices people make in other markets, whereas stated preference approaches try to use well-designed surveys to elicit WTP directly from individuals or groups. These studies can be costly and time consuming. To avoid the costs of launching new studies, analysts sometimes employ an approach called benefits transfer. This technique is used to estimate benefits in one situation by adapting or “plugging in” an estimate of benefits from another that is thought to be analogous. Many benefits discussed in the Tulsa interviews, however, have not been subject to valuation studies, making it impossible to use this approach. Taking estimates that are far afield from the particular benefit under study should only be done with caution. For instance, the first Multihazard Mitigation Council report for process grants did not have access to studies on process-related community-based activities, and so it used estimates from a study of the value of radon testing and another study on communicating landfill risk in order to estimate benefits for providing disaster warnings (Multihazard Mitigation Council 2005). The benefits in each of these cases could be quite different from those produced by disaster warnings, however, raising questions about whether these particular results are meaningful. Additionally, it would be necessary to have good estimates of the “reach” or “coverage” of warnings to estimate benefits.

Those kinds of challenges are likely one reason that we have so few examples of (S)ROI studies on disaster preparedness activities. Many reports and papers that claim to use SROI analysis fail to value most or even any of the important outcomes that are nonmarket goods and services. This is true across many topical areas, such as conservation, public health, and disaster risk management. Many “fuzzy” benefits are indeed extremely difficult to value, but if valuation is not undertaken—as was the case with many studies we reviewed—the evaluation is closer to a mixed-methods analysis or other approach to program evaluation and not actually an ROI or SROI study, even if the authors say it is. The hallmark of ROI and related economic analyses is their use of valuation. That said, many researchers have noted that the *process* of conducting an SROI study—defining objectives, accounting for all inputs, mapping outcomes, and attempting to identify attribution—can all be useful for a community, even if full valuation of all inputs and outcomes is not feasible. The SROI analyst will need to weigh all of these considerations in Step 10. Most probably, not all nonmarket outcomes can be valued credibly within the time and resource constraints of a whole-community SROI analysis. Step 10 thus determines which key outcomes will be subjected to valuation and Step 11 undertakes those analyses.

Step 12 is the valuation of the easier-to-value inputs and outcomes to the extent possible. Standard methods can be employed for these. Staff time can be valued at their wages, for example, and the cost of facilities can be estimated using standard rental rates in the community, even if facilities are provided free of charge. The range of inputs will need to be considered. As we saw in Tulsa, this includes things such as the cost of childcare for adults to attend training sessions. When exact costs are not known, estimates can be made from average rates for similar services in the community.

Once all of the valuation has been completed, Step 13, calculating the SROI metric, is simple arithmetic. The standard return-on-investment number is total benefits less costs divided by total costs. Thus, if

benefits equal costs, the (S)ROI is zero. When benefits are greater, there is a positive metric, and when costs are greater, there is a negative metric. This metric is usually multiplied by 100 and reported as a percentage. In Step 14, sensitivity analyses are conducted on any assumptions, such as the discount rate used to put all benefits and costs in present dollars. Sensitivity analyses can also include testing various values of uncertain benefits or costs, for example, the percent of people who report behavior change after receiving training or the benefit number used in a benefits transfer approach. Sensitivity analyses can be done variable-by-variable, or all variables can be changed simultaneously in a Monte Carlo simulation to produce a distribution of the possible SROI metric value.

Given the challenges and costs associated with a rigorous and credible SROI analysis of whole-community activities, it might be prudent to select a few cases for thorough examination and then use the results to guide other activities. Unless data collection can be sufficiently mainstreamed at low cost and a simple SROI tool developed to minimize staff time, SROI analysis is likely to be very expensive for assessing multiple activities in multiple communities. Undertaking a modified SROI of a few examples of whole-community approaches, however, could uncover useful information on the way these programs are operating and the wider benefits they have to the community—as in the case of Tulsa, where stakeholders stressed building social capital, discussed next.

7.2 The Bigger Picture: Enhancing Social Capital

When asked about the outcomes of the whole-community engagement activities, most participants in Tulsa talked about the building of social capital and related concepts. Social capital “refers to social networks, the reciprocity and trust generated by them among individuals, groups, and communities, and the value of these social networks for achieving mutual goals” (NIST 2016). Interestingly, participants did not emphasize more typical risk reduction benefits, but instead talked about the importance of developing closer community ties. This highlights the point that an SROI that attempted to predefine outcomes in terms of standard damages avoided and lives saved would miss some of the most important benefits of whole-community activities. Trying to value social capital in dollar terms is fraught and likely not very useful. That said, a substantial amount of research to date has focused on measuring social capital and developing metrics to measure the strength of social capital in a community, but without attempting to put a dollar value on it.

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ATTACHMENT A
STUDY INTERVIEW GUIDE



December 20, 1016

Interview Guide for FEMA SROI Study

Introduction (to be read to interviewee):

Your participation in this study is entirely voluntary and your responses will be kept anonymous. The information we are collecting is for **research purposes only**; it will be used by members of our research team at the University of Colorado and by our collaborators at Resources for the Future in Washington, D.C. Your responses, without identifying information, will be made public for research purposes after the project has ended. An Institutional Review Board responsible for human subjects research at the University of Colorado Boulder reviewed this research project and found it to be acceptable, according to applicable state and federal regulations and university policies designed to protect the rights and welfare of participants in research.

Your input is extremely valuable for our efforts to gain a better understanding of business recovery and resilience in your community. We are interested in your insights and opinions—there are no right or wrong answers to our questions. If there are any questions that you feel uncomfortable answering, you may decline to respond, and you may withdraw from the interview at any time. We estimate that your participation in this study will take about one hour. With your permission, we will audio-record our conversation so that we can be sure not to miss any important points. May we proceed?

(1) First, please tell us a bit about your experiences with “disaster resilience efforts” in the Tulsa area.

Probe: For how long have you been involved with? With which resilience activities programs have you been involved? What has been the nature of your involvement? Are there any particular activities that you consider to be your favorites? Are there any particular activities that you consider to be especially effective in helping to build resilience?

(2) What types of resources are required to conduct these activities/this program? What kinds of contributions has your organization made to make this activity or program possible?

Probe: For example, cost of training instructors, salary support, volunteer time/dedicated staff time, use or renting of facilities, equipment, materials handed out (e.g., brochures, reports, other educational materials), transportation, meals/snacks? Have grants funded these activities? Donations of other kinds?

(3) Are there data associated with the types of resources you described above?

Probe: For example, does the program or activity keep track of the costs associated with putting on the activity or program? For example, how much was spent on educational materials? Does it keep track of the amount of time spent by people who are involved (including volunteers) in conducting the activity or program? Does it keep track (e.g., through a sign-in sheet) of people who attend the activity or program as participants? If grants were used, is there grant reporting detailing how funds were spent? Is there a record of in-kind donations?

(4) If there are no data available for the inputs/resources required to carry out these activities/program, do you think it's appropriate and doable (in the future) to gather data about these? Do you think it's possible to keep track of this information? Do you think estimates could be made of past expenditures and time spent on activities?

(5) What would you say are/were the goals or objectives of the activity/program?

Probe: Were these goals/objectives met after the activity/program was implemented? What other impacts or benefits became apparent after the activity/program was implemented? Were there impacts or benefits that you did not anticipate (indirect benefits)? Were there any negative impacts that you did not anticipate? Were there costs associated with the activity or program that you did not expect?

Probe: For example, this would include things like number of participants in the activity or program (attendees at a meeting, individuals trained), development of disaster plans, development of business continuity plans, grants or other resources that may have been received as a result of the activity or program, expanded networks/partnerships.

(6) Did the activity or program lead to the development of any other activities or programs?

(7) Are there data associated with the impacts, benefits, or expected outcomes that you described above?

Probe: Have any programs surveyed participants afterward about what they learned or how it changed their perceptions or behavior?

Probe: For example, does the activity or program keep track of the numbers of individuals who were trained through participating in a workshop or activity? Does it keep track of other outcomes, such as the development of a disaster or business continuity plan? Is there information about other benefits related to the program, such as networking opportunities/partnerships formed? Grants that might have been received as a direct or indirect result of participation in the activity or program? Are there data available on number of retrofits or mitigation activities?

(8) If there are no data available for the outcomes or benefits of these activities/program, do you think it's appropriate and doable (in the future) to gather data about these? Do you think it's possible to collect data about the benefits and outcomes of these activities?

(9) Is there anything else you would like to add or to share with us about the value of building resilience in Tulsa?

ATTACHMENT B

SROI STEP-BY-STEP GUIDE

SROI

STEP-BY-STEP GUIDE

STEP

01

ENSURE COMMUNITY
IS SUPPORTIVE OF
SROI ANALYSIS.

Conduct meetings and
presentations with local groups
and officials.



STEP

02

ESTABLISH PROJECT
BUDGET AND SECURE
FUNDING.

Identify funding and experts to
conduct SROI that are external to
community.



STEP

03

DETERMINE STUDY
SCOPE.

Identify programs/projects for
evaluation.
Hold meetings with locals to
determine which project(s) are
appropriate.
Determine timeline for project(s).



STEP

04

IDENTIFY STAKEHOLDERS.

Conduct web and media surveys.
Review reports and newspaper articles.
Use snowball sample interviews to
identify key informants.



STEP

05

IDENTIFY
STAKEHOLDER INPUTS,
OUTPUTS, AND
OUTCOMES.



Conduct stakeholder interviews
using structured interview guide.

STEP

06

CREATE
LOGIC MAP.

Incorporate stakeholder feedback
regarding inputs, outputs, and
outcomes.



STEP

07

DETERMINE DATA
COLLECTION
PROCEDURES FOR
INPUTS/OUTPUTS.

Use stakeholder interviews
to identify relevant data.
Identify data gaps and develop
procedures for collecting needed
data.
Develop follow-up surveys to collect
missing outcome data.

SROI

STEP-BY-STEP GUIDE



STEP
09

DETERMINE ATTRIBUTION.

Conduct post-event surveys to link the activity to perception or behavior change.



STEP
11

CONDUCT VALUATION STUDIES.

Use revealed preference methods, stated preference methods, and benefits transfer methods.



STEP
13

CALCULATE SROI METRIC.

If over time, discount to present values.



STEP
08

IMPLEMENT DATA COLLECTION.

Secure funding to undertake additional data collection.

STEP
10

IDENTIFY NECESSARY NON-MARKET VALUATION STUDIES TO BE UNDERTAKEN.

Determine which outcomes will require valuation studies.

STEP
12

VALUE OTHER INPUTS AND OUTCOMES.

Use standard approaches where non-market studies not needed.



STEP
14

CONDUCT SENSITIVITY ANALYSES.

Conduct sensitivity analyses using variable-by-variable analyses or Monte Carlo simulations.

