



Proposal for Services Climate Action Plan

September 28, 2018



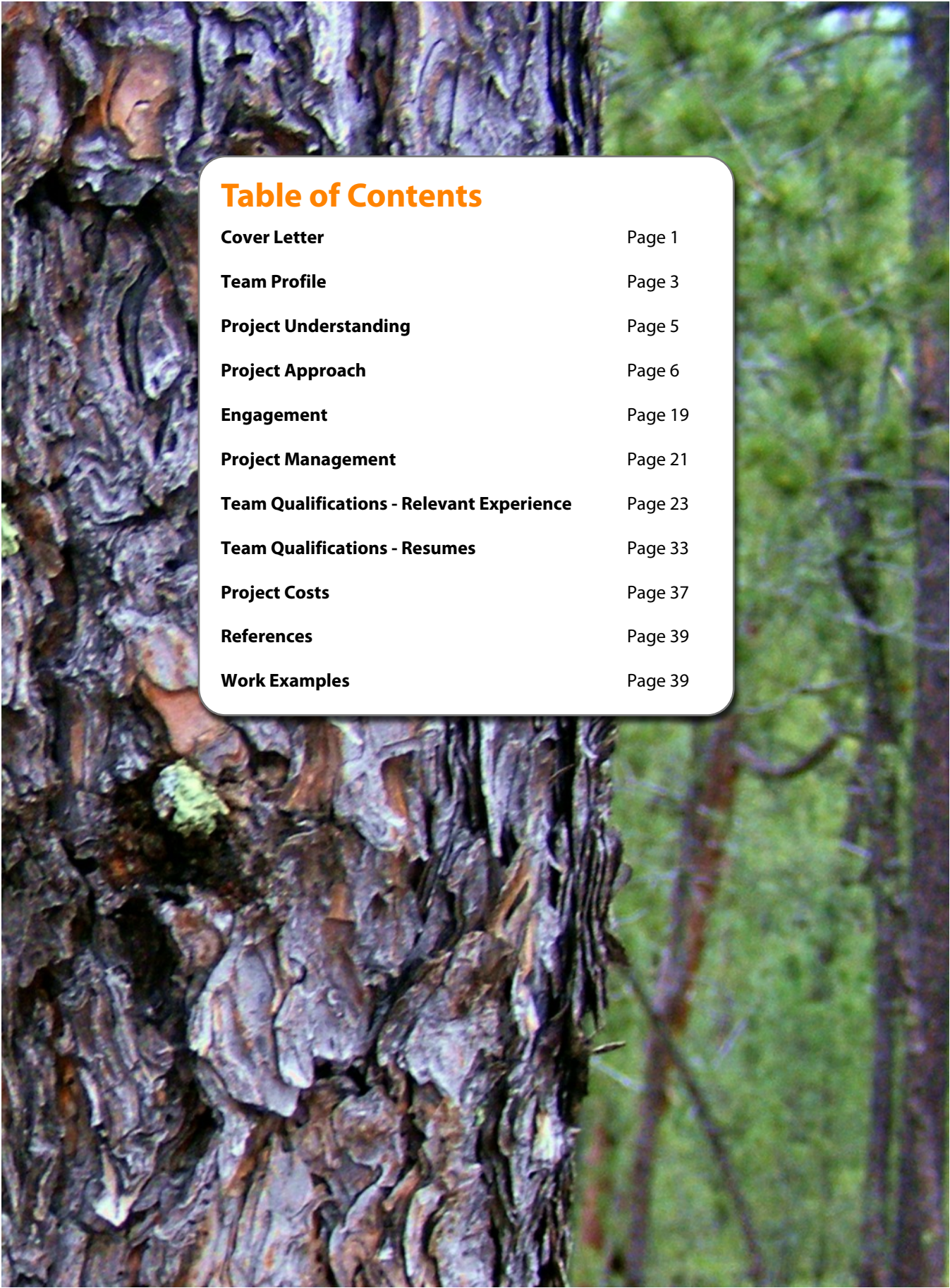


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Cover Letter

David Bennett
P.E., Public Works Director/City Engineer
801 Washington St
Northfield, MN, 55057

Subject: Request for Proposal for Climate Action and Adaptation Plan

Dear David and Evaluation Team:

We are excited at the prospect of working with the City of Northfield on this important undertaking that will not only shape a stronger future for the City, but serve as an example of leadership to the entire region.

We see a future that is carbon neutral, truly sustainable, and that supports equity and a higher quality of life for all. We believe the challenges we face in making that transition are, in fact, powerful opportunities to enhance livability, economic vitality, and equity. We believe the path to that future is arrived at through a process of collaboration, inquiry, and creativity. Being a part of that future is paleBLUEdot's only mission. As a result, you will find this team to provide high quality service energetically delivered within a flexible fee structure.

For your consideration, some of the highlights of our team include:

paleBLUEdot: Project Management and Lead

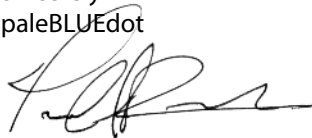
A certified Minnesota W/SBE firm, paleBLUEdot has one of the most extensive and recent portfolios of Climate Action planning, GHG assessments, , and public climate action outreach education in the region. Ted Redmond, project lead, brings 23 years of experience working with municipalities, counties, and state agencies on significant public planning projects, including over 30 Climate action efforts. Colleen Redmond brings a unique capacity for facilitating youth dialogue, and interactive "climate action design thinking" adult and youth workshops that provide the City with additional community engagement avenues.

Sustology: Technical Advisor

Sustology, a certified Minority Owned business under the Minnesota Unified Certification Program, is one of Minnesota's premier sustainability strategy development, implementation and communication firms focused on the built environment. Sustology's expertise includes corporate and organizational climate action planning, LEED Certification and gap analysis, and corporate sustainability reporting.

We are thankful for this opportunity to submit on this exciting project. Should you have any questions about our proposal, or wish to explore options further, please feel free to contact me at any time at the phone number or email address to the right.

Sincerely
paleBLUEdot



Ted Redmond
Principal, Vice President



paleBLUEdot's mission is to hasten the transition to a low carbon economy and to elevate the public discourse.



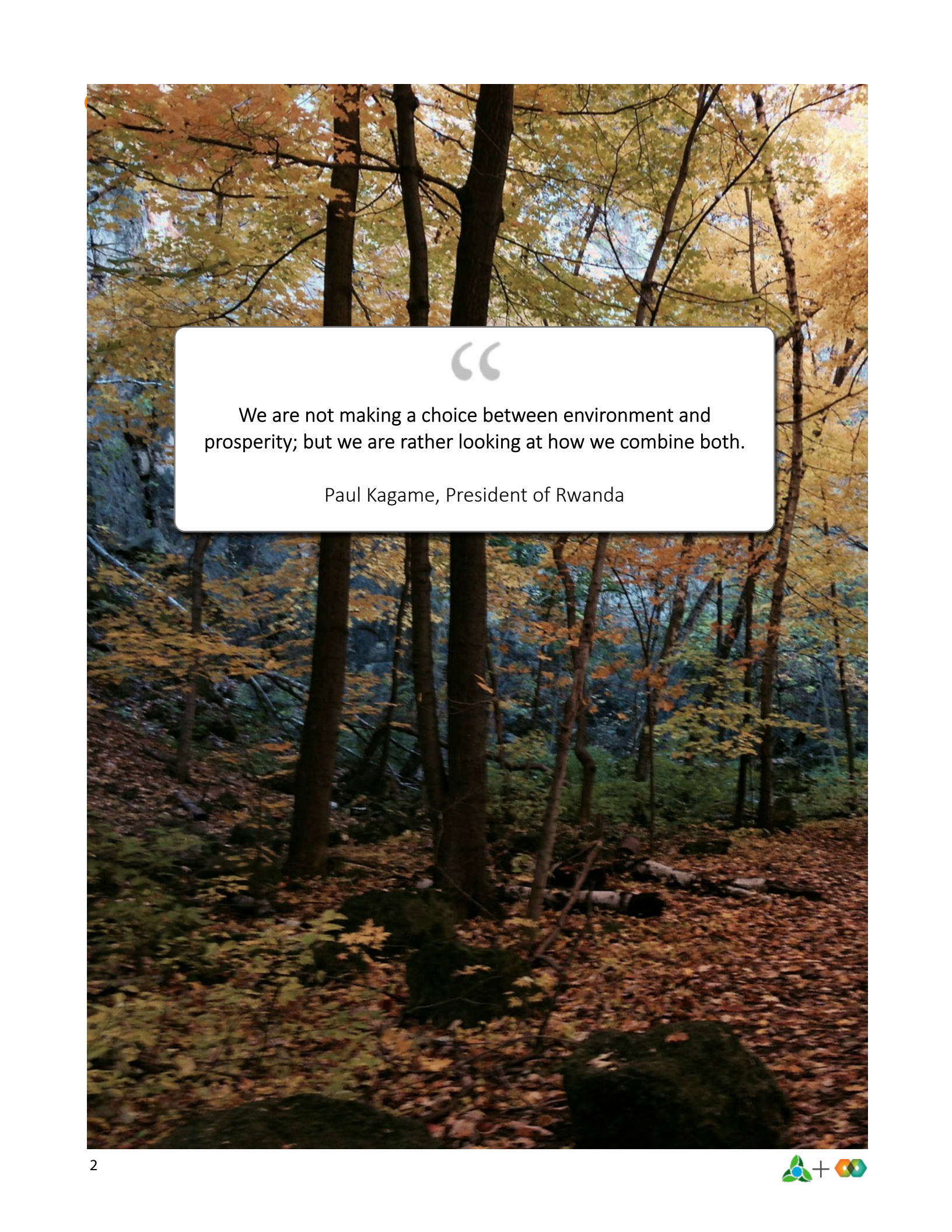
Sustology develops authentic sustainability strategies:
real metrics,
real goals,
real results.

Team History

Craig Wilson of Sustology and Ted Redmond of paleBLUEdot have collaborated on multiple projects since 2005.

Team Contact

Ted Redmond
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Suite 177
Maplewood, MN 55109
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We are not making a choice between environment and prosperity; but we are rather looking at how we combine both.

Paul Kagame, President of Rwanda

Team Profile

The paleBLUEdot team has extensive consulting experience with relevance to the skill set and services required by the City of Northfield Climate Action Plan. Our team functions as a collaborative, interactive team with fluid cross-discipline engagement promoting creative exchange.

Lead Firm



paleBLUEdot, a Minnesota LLC and S/WBE Certified Business, is a climate action, carbon management, and renewable energy consultancy firm established in 2014. Our mission is to support the transition to a low-carbon economy through an array of sustainability assessment, consultancy, and planning services, and through education that increases awareness and enhances public dialogue.

Serving this dual mission of consultancy and education, paleBLUEdot's principals represent a unique blend of professional expertise: Colleen Redmond, President, is an accomplished educator, a curriculum designer, and Design Thinking consultant and leads the firm's education and awareness outreach programs. Ted Redmond, Vice President, is a registered architect with over 23 years of practice providing assessment, programming, sustainability, and design services for well over 100 local, state and Federal projects

paleBLUEdot has extensive climate, carbon, and renewable energy planning experience from the scale of individual sites to community-wide efforts. Within the last two years alone, paleBLUEdot has completed 36 relevant community planning efforts in the State of Minnesota including climate vulnerability studies, vulnerable population assessments, climate action and adaptation plans, renewable energy potential studies and master plans, heat island mitigation plans, and tree canopy and green infrastructure carbon sequestration master plans.

Technical Advisor



Founded in 2005, Sustology is a Minneapolis-based independent sustainability advisory firm. Sustology brings sustainable solutions to businesses, governmental agencies and non-profits using metrics, analysis, goal setting and communications. We focus on strategic initiatives that enhance the environment while providing tangible bottom-line results. Sustology is a small and nimble organization combining state-of-the-art sustainable design, innovative policy development and robust business analysis and project management with Principals who do the work, offering our client tremendous value and superior outcomes.

Sustology is registered under the City of Minneapolis' Target Market Program and is certified as a Minnesota Unified Certification Program (MNUCP) as a Minority Owned Business in the following NAICS codes:

541690 Energy consulting services

541620 Environmental consulting services

paleBLUEdot Certifications/Affiliations





Photo: Justin Zoll

Project Understanding

The City of Northfield is a regional leader in sustainability as clearly evidenced by the City's status as a Step 3 Greenstep City, it's current commitment in working with Xcel Energy's Partners In Energy program, the work of the Environmental Quality Commission, and the Climate Action Advisory Board. The City of Northfield has illustrated the importance of Climate Action planning to the community by making one of only six strategic priorities in the City's Strategic Plan for 2018-2020.

The City of Northfield's decision to develop a climate action and adaptation plan is timely and essential. Impacts from climate change are inevitable and already beginning to be felt. This requires governments to prepare in order to protect the public health and well being as well as the resilience of the community's infrastructure and economy. Taking mitigation and adaptation actions now not only is less costly than waiting, but enables thoughtful approaches which will enhance the vitality of the community. The City's approach in establishing the CAPAB, the six core areas, and fully engaging the public is strategic and represents an effective way to address this enormous challenge.

The creation of a climate action and adaptation plan is a visionary, collaborative process of technical research, meaningful community engagement, and strategy / policy development. The Northfield community has formidable resources to bring to bear in creating a high quality and meaningful vision for climate action in the City. Beyond the significant capabilities of the City of Northfield staff, commissions, and leaders, the City is home to Carlton College and St Olaf College, two of the most respected colleges in the region. In addition, a number of community efforts are already engaged in sustainability and climate action, including the Greater Northfield Sustainability Collaborative, Transition Northfield, ReNew Northfield, Northfield Food Action, The Center for Sustainable Living, and Just Food Coop.

Ultimately, the creation of a Climate Action Plan is not an end, but the beginning of a journey. The City of Northfield is well positioned for the meaningful long-range process which will make this journey a successful one for the community.

paleBLUEDot is recommending a comprehensive range of services. As outlined below, our team is recommending "Basic Services" meeting the requirements and intent of the RFP for both Phase 1 and Phase 2. In addition, our team is offering several "Optional Services" which we believe will deliver cost-effective services providing the City with robust additional support in immediate implementation, effective roll-out, and enhanced long-range effectiveness of the plan.

Looking Forward

By 2100, Northfield Can Expect:

Increase in annual average temperature:	5-10°F
Annual precipitation:	-13 to 15% With Significant Seasonal Variation
Increase in heavy precipitation events:	30%
Increase in Days above 95:	+54 days
Decrease in Days below 32:	-43 days
Increase in growing season:	30 days
Increase in Air Conditioning Demand:	300%

To serve the same size population, the projected increase in air conditioning demand will require an increase in city-wide electricity consumption of : **75%**

(Sources: US Climate Resilience Toolkit, University of Michigan, Climate Center, Environment Minnesota Research and Policy Center, Union of Concerned Scientists)



Project Approach

Work Plan - Phase 1 Basic Services Assessment

Project Kickoff

Successful project launch through a kick-off meeting to confirm relevant past and current studies and data from the City; reaffirm project goals and objectives; confirm project scope, methodology, and schedule; and identify respective project contacts. The Team will also begin identifying engagement groups as outlined in Section 6 of this proposal.

City Interaction: Kick-off meeting

Deliverables: Review of City data/reports and relevant policies; Kick-off meeting minutes (electronic document)

GHG Inventory

The paleBLUEdot team will develop city-wide GHG inventory and establish a baseline for future emission comparison. paleBLUEdot's GHG inventories are consistent with the requirements of GHG Protocol (www.ghgprotocol.org/), ICLEI Local Governments for Sustainability, and Global Reporting Initiative. GHG inventories will include Scope 1, Scope 2, and Scope 3 emissions and will be organized by the City's six Core Areas (materials and waste, energy, land, food, water and waste water, and transportation).

paleBLUEdot will also create a detailed sub-set of GHG emissions baseline for City Operations. This will enable the creation of appropriate Climate Action Measures oriented towards City Operations as well as towards community-wide measures.

Data will be collected from a wide range of sources including Xcel Energy Community Reports, State of Minnesota Department of Transportation, Minnesota Pollution Control Agency, US Department of Energy, and others. The paleBLUEdot team will also collect, review, and incorporate as appropriate the partial city-wide ghg emissions data included in the City's September 2018 Energy Report.

The completed City Wide and City Operations GHG Inventories will be finalized and included in a summary report, supporting both the development of the Climate Action Plan as well as serving as a public communication and education tool.

City Interaction: City Update in team progress meeting(s)

Deliverables:

City-Wide GHG Inventory and Baseline (electronic document)

City Operations GHG Inventory and Baseline (electronic document)

Climate Vulnerability Assessment

The paleBLUEdot team will develop a Climate Vulnerability Assessment for the City of Northfield. The assessment will include the identification of vulnerable populations within the community and possible impacts and risks associated with projected climate change for the region. paleBLUEdot will begin the Vulnerability Assessment with interview sessions with key City staff to collect city specific information regarding city staff resources and structure, city policies, and community resources which may contribute to the implementation of potential adaptation strategies.

The paleBLUEdot team will map the vulnerable populations within the City as well as existing City infrastructure and resources which may be capable of supporting climate adaptation strategies. These assessments will provide a basis for understanding vulnerabilities and resources which will support the decision making process needed for identifying and prioritizing climate adaptation measures to be included in the final Climate Action Plan.



Project Approach

Climate Vulnerability Assessment (continued)

Broad Climate Change Impacts and Risk Factors

The paleBLUEdot team will identify and summarize the broad climate change metrics already experienced, projected climate change impacts, and risk factors at a regional level. Data on Midwest will be collected from the US National Climate Assessment as well as the University of Michigan Climate Center. State of Minnesota specific data will be collected and summarized from State and National agencies, and regional university data sources. In addition, detailed climate projections, based on National Center for Atmospheric Research, will be developed for the City of Northfield.

Future climate-comparable communities will be identified for the City. The paleBLUEdot team will use data available from the University of Michigan's Cities Impacts and Adaptation Tool (CIAT) to identify communities of comparable size and characteristics in other regions who are currently experiencing climate similar to that projected for the City. Using this tool, our team's assessments will identify a custom network of climate peers whose current climate reflects how the subject city's may look in the future, providing the City of Northfield with "sister" cities which can be engage for sharing "lessons learned".

Climate Risk Factors

The paleBLUEdot team will identify, and quantify the primary climate risk factors facing the City of Northfield. The risk factors to be quantified will include:

- Flood data, risk, and histories
- Air Quality considerations
- Land Cover and tree canopy characteristics and extent
- Heat Island Characteristics and Temperature Impact
- Food Environment and Food Access considerations
- Population health data and characteristics from the Minnesota Department of Health
- Heart attack rates
- Asthma hospitalization rates
- heat related illnesses
- Vector Borne disease data.

Quantifying City Vulnerability

By overlaying the data and mapping of vulnerable populations with that of the climate risk factors and community resources, the paleBLUEdot team will describe in detail the specific vulnerabilities for the City. The "order of magnitude" for each risk as well as the areas within the City of vulnerability to each risk will be identified, quantified, and mapped.

Preliminary Climate Adaptation Strategies

The paleBLUEdot team will provide a detailed "Menu of Strategies" to articulate a range of appropriate climate adaptation measures for each risk category identified. Adaptation strategies will be drawn from sources including: Georgetown Climate Center Adaptation Clearinghouse; Climate Adaptation Knowledge Exchange; US EPA, State resources, and from paleBLUEdot's past Climate Adaptation efforts. This preliminary Menu of Strategies will then be used as the basis for refinement and finalization of Adaptation measures through the balance of the planning effort.

City Interaction: City Update in team progress meeting(s)

Deliverables: Climate Vulnerability/Vulnerable Population Assessment and Menu of Strategies (electronic document)



Project Approach

Goalsetting

Following the completion of the Phase 1 workscope, the paleBLUEdot team will work with the City of Northfield and the CAPAB to establish near, mid, and long-term climate action goals. Goals are anticipated to include both climate adaptation goals as well as climate mitigation goals (such as emissions reduction and renewable energy targets). Goals established will be organized in alignment with each of the six Core Areas established by the City of Northfield. Once approved by the City at the completion of Phase 1, these goals will provide guidance to the development and refinement of the Climate Action Plan in Phase 2.

City Interaction: Goalsetting Workshop meeting(s)

Deliverables: Climate Mitigation and Adaptation Guidance Document (electronic document)



Project Approach

Work Plan - Phase 2 Basic Services Technical Action Planning

Climate Action Plan

The primary goal for the CAP is to identify cost effective GHG reduction measures to meet GHG reduction targets while improving quality of life, building prosperity, enhancing community resilience, and facilitate climate change adaptation. The CAP should provide a format to coordinate the City's initiatives and department activities to achieve consistency with the community's climate goals while providing metrics for measuring progress.

An effective CAP must also recognize that long-range success will be achieved only through community-wide buy-in and should include an identification of strategies to facilitate community education, communication, and positive behavior change. The paleBLUEdot process and plan components outlined below are designed to deliver an effective and robust Climate Action Plan for the City of Northfield.

Climate Action Measures

The process to develop City of Northfield specific measures will include an identification of existing regional measures, sharing our team's extensive national measures database, identification of Best Practices through outreach to successful Cities nationally, and a synthesis of City of Northfield appropriate measures. Measures will be organized by GHG reduction area (e.g., transportation, energy, solid waste, climate change adaptation/resiliency, etc.). Honing City of Northfield specific measures will happen through the City staff, CAPAB, and Community Engagement efforts outlined in the Engagement section of this work scope

Identification of Existing Measures

Beginning the identification of appropriate measures, we will prepare a comprehensive list of existing local and regional policies, programs, and actions (collectively referred to as "measures") that support reduced GHG emissions and/or facilitate climate change adaptation and resilience. The list we develop will be coordinated with City staff to include existing policies.

National Measures Database

The paleBLUEdot team maintains a database of a measures implemented in Cities and Counties throughout the United States. This database is grounded not only in the team's 30+ Resilience, Vulnerability, and Action plans completed by the paleBLUEdot team, but also on-going reviews of plans and policies developed in other jurisdictions as well.

This database, combined with the team's experience, will provide the City with an in-depth understanding of the success, implementation challenges, costs, and GHG effectiveness of hundreds of measures with years of implementation history.

Best Practice Benchmarking

The paleBLUEdot team will develop a list collaboratively with City of Northfield staff of Cities and Counties with well-established Climate Action Plans and who may serve as effective national best practice resources. paleBLUEdot will then coordinate, and conduct "lessons learned" Best Practice Interviews with each selected City's CAP manager staff and associated technical advisors as appropriate.

Interviews will be conducted via video/teleconference and will be organized back-to-back in a one or two day session. The sessions will be coordinated to enable attendance by interested City of Northfield staff or CAPAB members.

Action Measure Categories



Energy



Transportation



Water



Materials
& Waste



Wastewater



Land Use &
Soil Carbon



Food



Project Approach

Climate Action Measures (continued)

Through our team's National Measures Database and this Best Practice benchmarking, the City of Northfield CAP planning effort will benefit from the knowledge, experience, 'lessons learned', and success of dozens of Cities nationally. The resulting list of potential CAP measures will be used in the initial community engagement workshops for introduction and CAP measure feedback outlined in this work scope's Engagement section.

Synthesis of Measures

A successful Plan for City of Northfield will be rooted not only in learning from the success of other jurisdictions but also in establishing an City of Northfield specific plan. From the foundation work above, we will work with City staff and CAPAB members to assess opportunities specific to City of Northfield and identify those measures which have a successful precedence as well as create new measures most likely to meet the goals of the City, support the community's unique adaptation needs, and integrate successfully within the City's resources, and structure. The City, CAPAB, and Community Engagement sessions outlined in the Engagement section will also be used to collaboratively identify potential new or innovative CAP measures beyond this base research.

Once we have a comprehensive list, we will separate the measures into those that apply to municipal facilities/operations and those that apply to the community-at-large. These lists will form the basis of the draft Climate Action Plan for careful Quantification and Evaluation as well as review and input by City Staff, the CAPAB, and the Community Engagement effort outlined in our Engagement section of this proposal.

City Interaction: City Update in team progress meeting(s); Community Committee Charrette Session; Community Engagement Meetings

Deliverables:

Lists of Existing Measures (electronic document)

Lists of Additional Best Practice Measures (electronic document)

Recommended City of Northfield Climate Action Measures (electronic document)

Quantify and Evaluate Climate Action Measures

For each recommended City of Northfield Climate Action Measure, the paleBLUEdot team will conduct a range of quantitative analyses to inform the selection of measures to be included in the draft CAP. Specifically, we will quantify:

Cost / Benefit

Quantify the GHG reduction potential, implementation cost level, and potential savings associated with each measure. GHG emissions reductions will be quantified using established and transparent sources as well as standardized methodologies. Costs will include consideration of implementation and recurring maintenance and will be given in "very low, low, medium, high, very high" cost ranges with qualitatively defined value ranges. Savings will be qualitatively described as a range of annual savings resulting from implementation.

Regional Appropriateness

Each measure will be reviewed through a series of Regional Appropriateness "filters." These "filters" will be collaboratively established with the City and CAPAB and may include: unique geographic considerations; community demographic considerations; community resources; synergy with regional adaptation measures; ability of City to implement and support; potential for improvement of quality of life; and ability to enhance community resilience.



Project Approach

Quantify and Evaluate Climate Action Measures (continued)

Social Equity

Measures will be reviewed for compatibility with the City's social equity goals. Additional Social Equity "filters" may be collaboratively developed between the City, CAPAB, and paleBLUEdot. This interactive review process will also look to identify potential additional measures focused specifically on Social Equity strategies compatible with the CAP goals.

Economic Development Potential

City of Northfield can meet its long range emission reduction targets through a wide range of measures while expanding existing, and creating new, opportunities for local business growth. Many CAP measures also support economic prosperity through their potential economic savings. Our team will conduct a preliminary economic prosperity review of the CAP measures. This preliminary review will explore the job creation and economic development potential of all prioritized CAP measures, as well as identify potential additional strategies for economic development compatible with the CAP goals.

Each measure, along with its evaluation metrics (GHG reduction, costs, savings, regional appropriateness "filters", social equity, economic development potential, and other co-benefits) will be presented through an interactive charrette session to the City and the CAPAB. This will allow City staff and stakeholders to evaluate the measures, and get a sense of how each action contributes to the City's goals and GHG reduction targets. The paleBLUEdot team will also present these measures and evaluations through community engagement workshops as well as an on-line forum as outlined in this proposal's Engagement section, supporting broad input on the measures to carry forward. This process will result in an identification of the recommended measures to include in the Climate Action Plan.

City Interaction: City Update in team progress meeting(s); Community Committee Charrette Session; Community Engagement Meetings

Deliverables:

Cost-Benefit Table of Action Measures including GHG reduction, costs, savings, regional appropriateness "filters", social equity, and economic development potentials (electronic document)

On-Line Community Engagement Tool.

Recommended City of Northfield Action Measures (electronic document)

Strategies for Equity in CAP planning:

No Disproportionate Impacts
Shared Benefits
Accessibility
Engagement
Capacity Building
Alignment and Partnership
Relationship Building

Opportunities in the "Green" Economy:

Meeting the needs of the low-carbon economy will require specific skillsets, training, and education.

By considering the economic potential of CAP measures offers the opportunity to identify not only economic potential, but opportunities for increasing job training and skill sets among a diverse set of community members, adding pathways into the "middle class" and improved social equity.



Project Approach

Risks Addressed in Climate Adaptation Measures



Extreme
Weather / Temp



Flood



Air Quality



Vector-Borne



Food
Insecurity



Water
Quality



Waterborne

Climate Adaptation

Based on the findings of the risk and vulnerabilities assessment, The Climate Action Plan will lay out a set of Climate Adaptation recommendations to improve the resilience of City of Northfield and capacity of the City to respond to the impacts of climate change. Wherever possible, the recommendations will be based on regionally-specific data and quantitative analysis. Though as this is an emerging field of study, it is likely that regional specific data will be limited. In these instances recommendations will be based on an evaluation of existing best practices, while keeping in mind the specific context of City of Northfield. The report will prioritize and time-order the recommendations and also include a summary of the key-benefits associated with each recommendation. The paleBLUEdot team will utilize the tools and resources from Georgetown Climate Center, The Institute for Sustainable Communities, the Climate Change Knowledge Portal, and other leading resources.

The consultant team will facilitate a workshop with the City and CAPAB to conduct an initial screening of the preliminary action options established in the Menu of Strategies in the Phase 1 work plan. The screening will work to select a shortlist of potential measures that can be analyzed in more detail. Criteria used for screening will be created collaboratively with the City and typically include; affordability, technical feasibility, flexibility, effectiveness, and mitigation co-benefits.

The plan will include an overview and plan for implementation of the recommendations and will focus on actions within the City's bound of jurisdiction while also describing key areas where collaboration and partnership could aide in building community resiliency. The team will produce an Adaptation plan and report include text, maps, and graphics to visually convey the results.

City Interaction: City Update in team progress meeting(s); Community Committee Charrette Session; Community Engagement Meetings

Deliverables:

Draft Climate Adaptation Plan
Final Climate Adaptation Plan

15
miles

Distance southward the City
of Northfield's climate
experience moves every year.

Which is equal to moving

217
feet every day.

City on The Move

Projected changes in annual average temperatures and growing seasons will result in a change in the overall climate of Northfield. Summertime conditions for mid-twenty first century in Northfield are projected to be similar to the conditions currently felt 500 miles or further to the South.

According to the University of Michigan Climate Center, by 2040 summertime conditions in Northfield are anticipated to be similar to those today in Cape Girardeau, Missouri, Elizabethtown, Kentucky, Gainesville, Georgia, and Chester, Virginia.
(Source: University of Michigan Climate Center)

Project Approach

Work Plan - Phase 2 Basic Services Implementation, Monitoring, and Communication

Implementation Plan

An implementation and monitoring strategy will be developed to assist the City in moving forward with the identified climate action measures. The strategy will identify implementation timeframes for each measure, City departments or divisions responsible for implementation, performance indicators to monitor progress, and potential funding sources. It will also describe how the City will monitor CAP implementation and performance over time.

City Interaction: City Update in team progress meeting(s); CAPAB Meeting(s)

Deliverables:

Draft Implementation and Monitoring Strategy (electric document)

Final Implementation and Monitoring Strategy (electric document)

Master Northfield GHG reduction timeline to be incorporated into final CAP plan document

Monitoring

The paleBLUEDot team will develop an implementation monitoring tool customized to track the effectiveness of the City's CAP implementation efforts. The tool will track implementation and performance of each CAP measure, and will include a user guide, identified data sources, and responsible staff / City department. The final output will include summary tables, charts and other graphics showing the percentage of implementation complete, overall GHG reductions achieved, and measure-specific reductions that the City will be able to use in internal reports, funding proposals, and annual update reports. The paleBLUEDot team will also review options with the City for integrating a dashboard component of the Implementation Monitoring Tool into the on-line Community Action Toolkit outlined above.

City Interaction: City Update in team progress meeting(s); Community Committee Meeting(s)

Deliverables:

Implementation Monitoring Tool (Excel based electronic document)

CHAPTER 4		IMPLEMENTATION AND MONITORING					
Measure	Actions	Responsible Department	City Cost	City Savings	2020 GHG Reduction (MT CO ₂ e)	Performance Indicator	Implementation Time Frame
Municipal Operations							
Measure M-1: CAP Implementation. Establish a City CAP Coordinator and multi-departmental CAP implementation Team to implement, monitor, and report on the status of measures and actions identified in the CAP.	M-1.1: Form a multi-departmental CAP implementation Team that meets annually to implement, monitor, and report on the status of measures and actions identified in the CAP. M-1.2: Designate a City staff member on the CAP implementation Team to have lead responsibilities for implementing the CAP and monitoring progress. Duties of this position include coordinating the CAP implementation Team, preparing the annual CAP progress report to City Council, and coordinating the GHG emissions inventory and CAP updates. M-1.3: Provide CAP implementation and GHG reduction training to City staff.	Community Development	Medium	None	N/A	CAP Coordinator and CAP implementation Team established and one City staff training within one year of CAP adoption; CAP implementation Team meetings held annually through 2020	Near-Term
Measure M-2: Energy Efficient Lighting. Increase the efficiency of City-owned or -operated lighting.	M-2.1: Identify and secure additional funding to replace incandescent and mercury vapor street and traffic signal lights with LED, or other energy efficient lamps. M-2.2: Identify and secure funding to replace inefficient outdoor lights at City buildings and facilities as identified in the Vista Energy Roadmap.	Public Works	Low	High	224	80% of street and traffic lights replaced by 2020 (3,274 lights); Vista Energy Roadmap outdoor lighting project completed by 2020	Mid-Term
Measure M-3: Renewable Energy. Continue to install renewable energy systems on City property.	M-3.1: Identify cost-effective renewable energy opportunities for additional City properties and apply for federal, state, and utility grants and other funding opportunities when they become available.	Public Works, Administrative Services	Low	Medium	77	150 kilowatts of solar installed by 2020	Mid-Term



Project Approach

Climate Action Communication Framework

Drawing from best practices in climate communication, we will establish a Climate Action Communication Framework for engaging Northfield residents and businesses in positive actions throughout the CAP implementation phase. The Climate Action Communication Framework will communicate the City's Climate Action and Adaptation Plan; increase community awareness of positive, meaningful actions that residents and businesses can take; and begin the long-term process of activating ongoing buy-in and behavior change within the community. The framework will be developed collaboratively and establish a long-range communication schedule and implementation plan in support of successfully achieving the CAP goals.

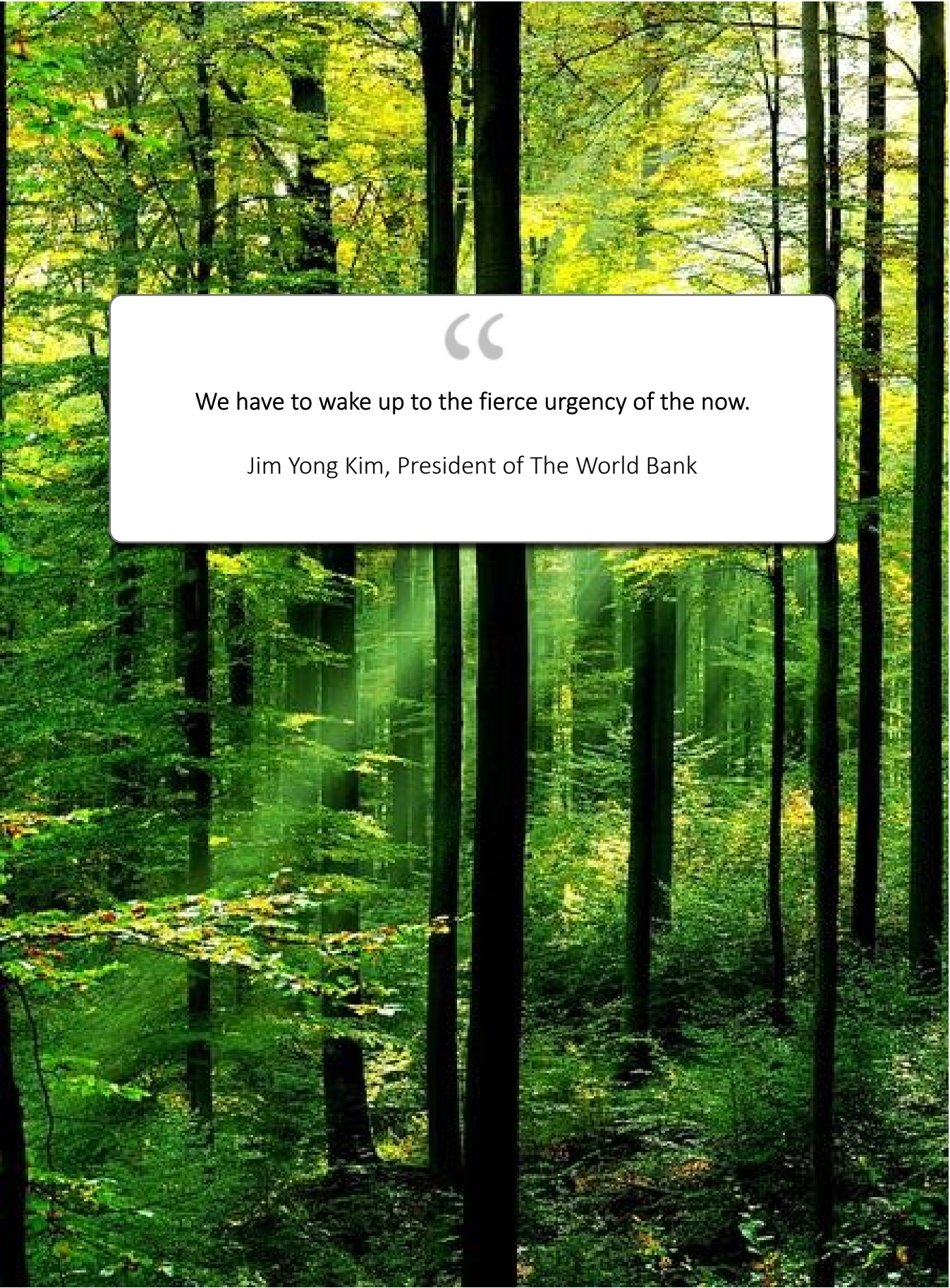
The Climate Action Communication Framework will include a detailed communication plan and communication materials for each quarter of the first year of CAP implementation, including prioritized goals for community awareness, education, and behavior change for each quarter of the year. Through meetings with City staff we will identify key messages, calls to action, and strategies for engagement/message delivery by target audience.

City Interaction: City Update in team progress meeting(s); CAPAB Meeting(s)

Deliverables (electric documents): Long-range Communications Framework Guide; Detailed 2019/2020 Communication Implementation Plan; Four quarterly "call to action" communications



"Call To Action"
Communication
examples



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We have to wake up to the fierce urgency of the now.

Jim Yong Kim, President of The World Bank

Project Approach

Work Plan - Phase 2 Optional Services

The following services expand on the specific requirements outlined in the Climate Action and Plan RFP. These Optional Services reach beyond the traditional boundaries of a typical Climate Action Plan (CAP). We offer these Options to the City of Northfield as we believe they can cost effectively increase the implementation impact, success, and effectiveness of the Climate Action Plan. Recognizing all projects exist within the context of budgetary constraints, these Options can be viewed as “a-la-carte” options providing the City with control and flexibility to select only options that meet the City’s goals and budget.

Option 1: Youth Engagement

Working collaboratively with members of the City, community, Northfield Public Schools, and other stakeholders, paleBLUEDot will assist in the development of a Youth Engagement mechanism. The goal is to establish ongoing inclusion of young people in the CAP process and implementation, and to build the foundation for the next generation of CAP planning, and progress towards the City’s long-range goals. This cooperative effort will focus on youth Education, Awareness, and Engagement in regards to climate change and the positive steps outlined in the City’s action plan:

Education: building or reinforcing key background knowledge in regards to climate change and the need for positive steps such as the city’s action plan.

Awareness: creating a growing understanding of and appreciation for the City’s Climate Action Plan and current action measures.

Engagement: involvement of high school youth in design thinking activities in order to seek feedback to improve current efforts as well as develop new and innovative ideas for future projects.

City Interaction: City Update in team progress meeting(s); Youth Engagement Committee Meeting(s)

Deliverables:

The final deliverable will be collaboratively determined. Deliverable to be similar to one of these options: youth presentation toolkit; components to integrate into existing school curriculum; annual design thinking workshop toolkit.



Youth Design Thinking Workshop

Project Approach

Option 2: Community Action Toolkit

Toolkits support “crowdsourcing” change in order to improve plan implementation. Toolkits provide resources to help inform and motivate the public. Ideally, toolkits contribute to an on-going climate action dialogue within a community. Community Action Toolkits can help accelerate CAP effectiveness by helping community members gain knowledge, build skills, understand actions they can take, and identify ways of “spreading the word”. Toolkits can also establish a two-way communication platform, establishing an on-going process for the City to seek new understandings and ideas from the community at large; empowering community members to help solve challenges and design new solutions in support of the long-range CAP goals.

Through our previous climate science research, community action engagement, and content development, paleBLUEDot has developed a Community Action Toolkit Suite (CATS). This on-line suite is organized in three categories: Learn, Take Action, Engage. Our team proposes to begin the City of Eau Claire Community Action Toolkit starting with the CATS suite.

From that base, our team will collaborate with the City and Climate Action Steering Committee to: confirm toolkit goals; review preliminary content; identify gaps in the toolkit related to City of Northfield needs; identify additional content appropriate to support City of Northfield toolkit goals; develop and refine Toolkit content; and review final draft toolkit suite of content for feedback and finalization. This process will enable us to collaboratively develop a City-specific action toolkit rapidly and cost effectively.

City Interaction: City Update in team progress meeting(s); CAPAB Meeting(s)

Deliverables:

Review of paleBLUEDot Community Action Toolkit Suite
City Community Action Toolkit (on-line; electric documents)



paleBLUEDot Community Action Toolkit Suite*

Learn

- Climate Change 101
- Climate Risks and Vulnerability
- Family Carbon Footprint Calculator
- City's Climate Action Plan
- City's Climate Adaptation Plan

Take Action

- City, State, and National programs
- City's CAP “Calls to Action”
- Reduction Tools, Tips, and Resources
- Community Connections

Engage

- Resources for Youth Climate Conversation Toolkit
- Design Thinking Toolkit (if selected)
- Climate Action Social Media Network
- Feedback Forum

* The CATS resource should be seen not as a pre-defined toolkit, but rather as a prototyping tool supporting a rapid start to a customized

Option 3: Northfield Climate Action Outreach and Education Video

We suggest developing a social media-friendly video communicating material (relevant carbon metrics, opportunities and achievements related to Northfield's Climate Action Plan that can be easily understood and shared by stakeholders. Ultimately, this video will help policy makers, staff and stakeholders to be able to quickly and easily understand and contextualize Northfield's Climate Action Plan. This will enable Northfield to reach a broader audience and to help policy makers and staff make the case for the implementation of the Climate Action Plan. The video content can be included on the Project Website, available for embed on the City's website, and shared through social media.

City Interaction: City Update in team progress meeting(s);

Deliverables:

Northfield Climate Action Outreach Video





“

In the year 2065, on current trends, damage from climate change will exceed global GDP.

Andrew Dlugolecki, General Insurance Development

Engagement

The paleBLUEdot team will employ a range of engagement methods to support widespread, diverse stakeholder participation cost effectively. Participant feedback for the Steering Committee and Community Engagement sessions will be supported through meeting facilitation, small group engagement, and, when appropriate, through the use of PollEverywhere interactive electronic real-time polling integrated into presentation formats. Our proposed engagement plan, to be reviewed and refined with the City, is based on the following:

City Staff

The paleBLUEdot team will engage City Staff in multiple ways. Our proposed staff engagement plan, to be reviewed and refined with the City at project kick-off, includes:

A: Project kick-off session (see “Work Plan” section)

B: regular progress updates and project management meetings with City’s Project Manager (see “Project Management” below)

C: City Department Climate Action Charrette Session(s); overview CAP process; identify existing departmental policies/codes which support GHG reduction. City departmental representation at CAPAB charrettes 2 and 3 also recommended.

D: Select City representation at the Best Practices Interview sessions (see “Work Plan” section)

E: Draft report review session(s)



CAPAB

Our proposed plan for CAPAB engagement, to be reviewed and refined with the City and the CAPAB, includes six sessions over the timeframe of the project. as follows:

A: Meeting for Project Kick-off to review project scope, process, goals and expectations, timeline, and to confirm Steering Committee engagement; conduct sessions with the six core area subcommittee groups individually.

B: Four Charrette sessions:

1) Review of climate impact vulnerability assessment and GHG inventory; Review of preliminary “Menu of strategies” for adaptation and mitigation; Collaboratively define mitigation and adaptation measure evaluation criteria

Inter-meeting activity: Provide advance copies of Charrette Session Two best practice strategies to subcommittees for preview.

2) Review national dataset and best practice mitigation / adaptation strategies; subcommittee feedback by category; joint committee feedback; “brainstorming” additional Northfield specific measures and strategies. Note; team recommends city departmental representation at this session

Inter-meeting activity: Provide advance copies of Charrette Session Three shortlisted strategies to subcommittees for preview.

3) Review shortlisted strategies with cost/benefit evaluation and Community Engagement Feedback; subcommittee feedback by category; joint committee feedback; finalization on measures to carry forward. Note; team recommends city departmental representation at this session

Engagement

CAPAB (continued)

B: Four Charrette sessions (continued):

- 4) Review of paleBLUEdot Community Action Toolkit Suite; identification of additional functionality/component needs

C: Meeting for review of Draft Climate Action and Adaptation plan; Review of Draft Community Action Toolkit

Community Engagement

Quality Community Engagement provides local communities, residents, businesses, institutions, stakeholders, and interested parties with opportunities to become actively involved in development of the City's CAP and the evaluation of associated environmental issues. Our proposal, to be reviewed, refined, and tailored for and with the City of Northfield, includes:

Workshop Sessions

A: Initial CAP Outreach sessions including (1) resident group workshops, (1) business/institutional group workshop. Sessions focused on introduction of issues and CAP goals/process; overview of vulnerabilities; review of possible/best practice measures; interactive feedback on measures and opportunity to identify additional ideas.

B: Interim CAP Outreach sessions including (1) resident group workshops, (1) business/institutional group workshop. Sessions focused on review of "shortlisted" measures and evaluation against criteria; interactive feedback on measures and opportunity to provide additional input.

C: Climate Action and Adaptation Plan review: A community-wide workshop providing an opportunity for overview of the final draft plan documents, strategies, and recommendations. Session style may be Town Hall Meeting style, Open House type, or Workshop.

Project Website

The paleBLUEdot team will create a CAP project website supporting on-going, broad community feedback. The website will include a description of the preliminary Climate Action and Adaptation plan measures along with an integrated mechanism to solicit feedback through polling and open-ended comment questions. Community feedback will be collected in electronic documents and shared with the City and CAPAB members providing a summary of public input.



Alone we can go quickly, but together we can go far.

Segolene Royal
COP21 President

Principals of Community Engagement

Awareness

Education

Input

Decision-making

Transparent Process



Project Management

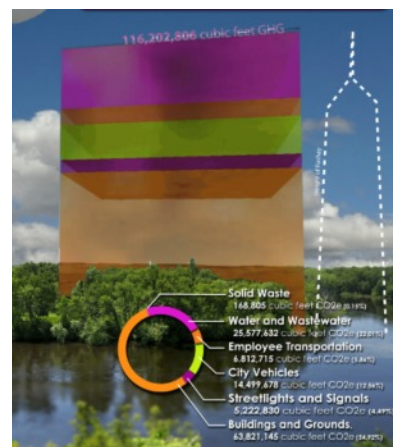
Key to all phases of this project will be consistent communication with project team members and City. To assure that the project goals are met, our team will lead regularly scheduled progress and update meetings with the City's Project Manager. Progress sessions will include both brief phone conferences and more in-depth, in-person meetings coordinated in advance based on work phases and schedule. The paleBLUedot team commits to timely responses, with all phone calls and e-mails being responded to within one business day.

Quality Assurance

The final Climate Action and Adaptation Plans will undergo a careful internal team Quality Assurance review. This review will be led by our Mitigation and Adaptation Strategy Specialist team member to help assure a high level of final document integrity.

Availability

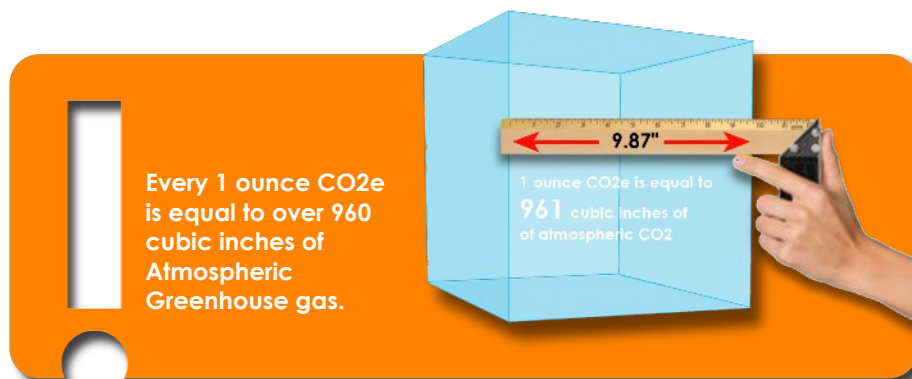
The paleBLUedot team is available to begin work on the City of Northfield Climate Action and Plan immediately upon approval to proceed. Existing project workloads support the appropriate engagement of all core project team members to facilitate a timely completion of the project meeting the final schedule to be established with City at project kick-off.



Visualization Example:
City GHG Emissions Infographic

Visualization

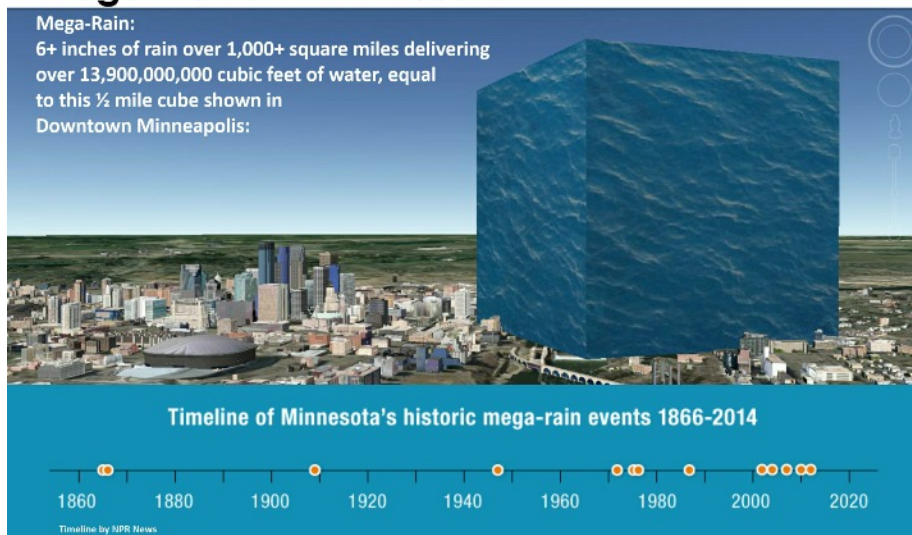
Much of the information included in the final Climate Action and Adaptation Plan are of a highly technical nature. Final reports will include a range of graphics intended to help communicate nuanced, technical information to a wide audience. In addition, Greenhouse Gas emissions will frequently be represented not only in the traditional terms of metric tonnage, but also graphically represented in terms of physical volume of atmosphere occupied by those emissions. These graphic representations are a unique hallmark of paleBLUedot's work in support of our core mission of elevating public discourse around climate action.



Visualization Examples from
paleBLUedot public summary reports

Mega-Rains in Minnesota

Mega-Rain:
6+ inches of rain over 1,000+ square miles delivering over 13,900,000,000 cubic feet of water, equal to this 1/4 mile cube shown in Downtown Minneapolis:





“

It's a collective endeavour. It's a collective accountability.

Christine Lagarde, Managing Director, IMF

Team Qualifications - Relevant Experience

The paleBLUEDot team has extensive consulting experience with relevance to the skill set and services required by the City of Northfield Climate Action Plan. A partial list of recent project experience by paleBLUEDot team members includes:

(36) Community Climate Vulnerability, Adaptation, and Action Planning

City of Maplewood
Community Wide Greenhouse Gas
Emission Baseline Assessment 2016
Maplewood, MN

City of Elk River
City Operations Greenhouse Gas
Emission Baseline Assessment 2016
Elk River, MN

Elk River Public Utilities
Operations Greenhouse Gas Emission
Baseline Assessment 2016
Elk River, MN

City of Maplewood City
Operations Greenhouse Gas Emission
Baseline Assessment 2015
Maplewood, MN

A Greater LA
Climate Action Framework
Los Angeles, CA

City of Akeley
Community Climate Vulnerability
Assessment and Adaptation Plan
Akeley, MN

City of Albert Lea
Community Climate Vulnerability
Assessment, Climate Action and
Adaptation Plan
Albert Lea, MN

City of Brooklyn Park
Community Climate Vulnerability
Assessment and Adaptation Plan
Brooklyn Park, MN

City of Brainerd
Community Climate Vulnerability
Assessment
Climate Action and Adaptation Plan
Brainerd, MN

City of Burnsville
Community Climate Vulnerability
Assessment and Adaptation Plan
Burnsville, MN

City of Chrisholm
Community Climate Vulnerability
Assessment and Adaptation Plan
Chrisholm, MN

City of Crookston
Community Climate Vulnerability
Assessment and Adaptation Plan
Crookston, MN

City of Duluth
Community Climate Vulnerability
Assessment
Climate Action and Adaptation Plan
Duluth, MN

City of Fairfax
Community Climate Vulnerability
Assessment and Adaptation Plan
Fairfax, MN

City of Faribault
Community Climate Vulnerability
Assessment and Adaptation Plan
Faribault, MN

City of Granite Falls
Community Climate Vulnerability
Assessment
Climate Action and Adaptation Plan
Granite Falls, MN

City of Kelliher
Community Climate Vulnerability
Assessment and Adaptation Plan
Kelliher MN

Leech Lake Band of Ojibwe
Community Climate Vulnerability
Assessment
Climate Action and Adaptation Plan)
Cass Lake, MN

(13) Organizational Climate Action Plans Including:

Mud Jeans, Netherlands
GHG Inventory and Reduction Plan

brm, United Kingdom
GHG Inventory and Reduction Plan

Gallery Drinkware, United States
GHG Inventory and Reduction Plan

City of Morris
Community Climate Vulnerability
Assessment and Adaptation Plan
Morris, MN

City of Oakdale
Community Climate Vulnerability
Assessment and Adaptation Plan
Oakdale, MN

City of Roseville
Community Climate Vulnerability
Assessment
Climate Action and Adaptation Plan
Roseville, MN

City of St Louis Park
Community Climate Vulnerability
Assessment and Adaptation Plan
St Louis Park, MN

City of Maplewood
Community Climate Vulnerability and
Resilience Assessment
Maplewood, MN

City of Maplewood
Community Wide Urban Tree Canopy
Survey and Landcover Carbon
Sequestration Potentials Assessment
Maplewood, MN

City of Warren
Community Climate Vulnerability
Assessment and Adaptation Plan
Warren, MN



Team Qualifications - Relevant Experience

(10) Renewable Energy Action Plans (partial list)

City of Maplewood Community-Wide Renewable Energy Action Plan / Solar Potentials Study
Maplewood, MN

City of Mountain Iron Community-Wide Renewable Energy Action Plan / Solar Potentials Study
Mountain Iron, MN

City of Albert Lea City-Wide Renewable Energy Action Plan / Solar Potentials Study
Albert Lea, MN

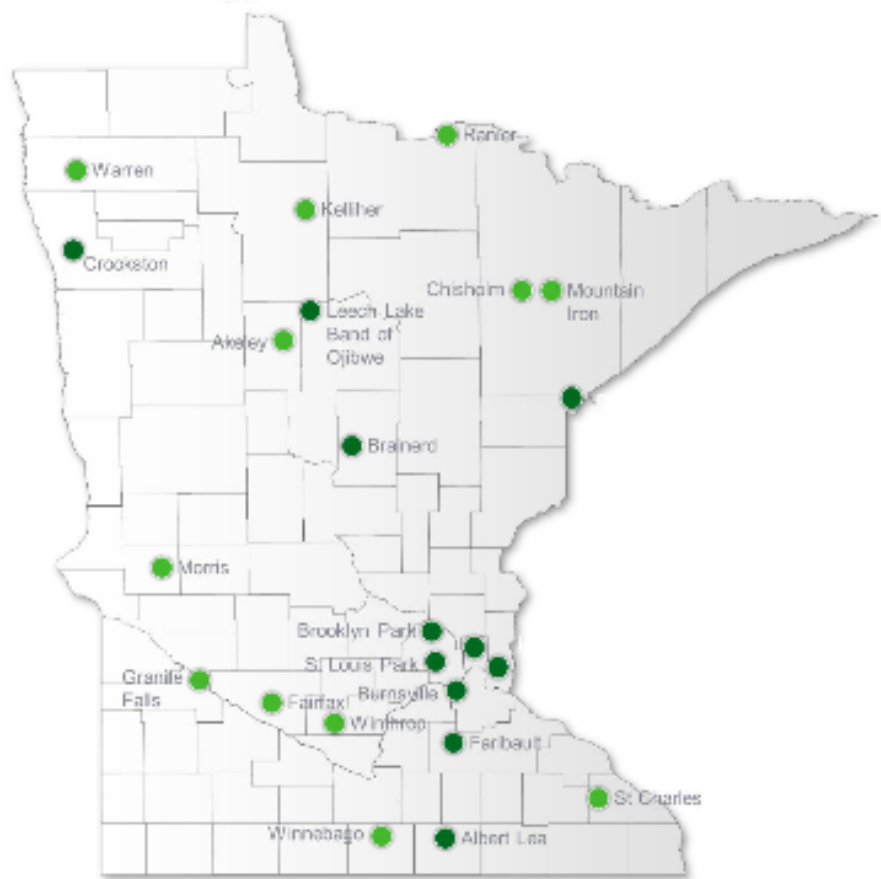
City of Faribault City-Wide Renewable Energy Action Plan / Solar Potentials Study
Faribault, MN

City of Tuskegee Solar Potentials Study and Master Plan
Tuskegee, AL

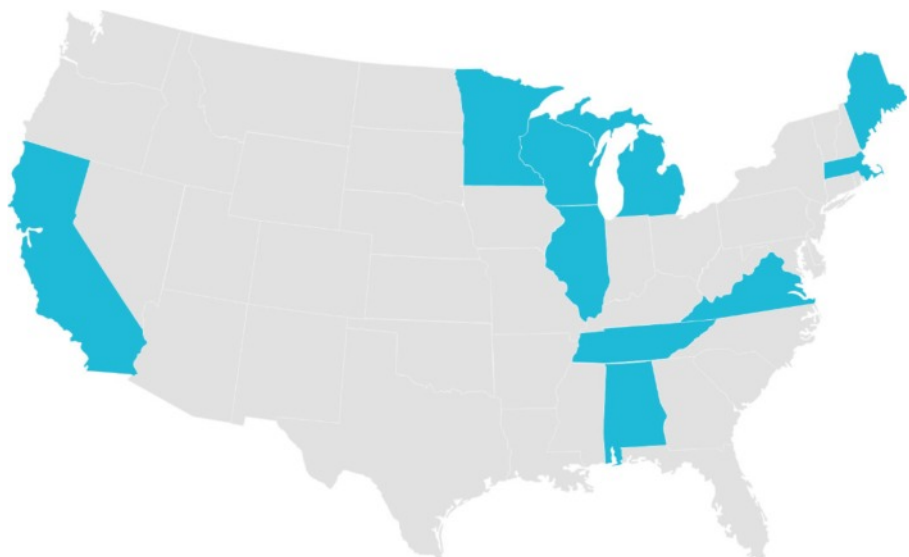
City of Marion Solar Potentials Study and Master Plan
Marion, AL

Ramsey County Parks and Recreation System-Wide Renewable Energy and Net Zero Master Plan
Multiple Sites, Ramsey County, MN

paleBLUEdot Minnesota Climate and Energy Action Planning Project Map



paleBLUEdot National Climate and Energy Action Planning Project Map



Team Qualifications - Relevant Experience

City of Maplewood

Community Wide Greenhouse Gas Inventory Baseline Assessment
 City Operations Inventory Baseline Assessment
 GHG Reduction Action Recommendations
 Climate Vulnerability Assessment
 Climate Adaptation Framework
 City-Wide Renewable Energy Goal Setting
 Renewable Energy Potentials Study
 Community Action Toolkit

paleBLUEDot created a comprehensive Greenhouse Gas emissions inventory, baseline assessment, and reduction action recommendations for community-wide emissions as well as full City Operations. As a part of this process paleBLUEDot generated the City operations baseline inventory for all categories as well as peer reviewed previously established Community-Wide GHG inventories established for the Regional Indicators Initiative (RII). paleBLUEDot's services expanded data to cover components not originally included in RII. Greenhouse Gas inventories were created based on internationally recognized protocols including the GHG Protocol standard and the ICLEI Community GHG Protocol.

paleBLUEDot also identified and prioritized feasible and cost-effective GHG reduction measures as recommended next steps for the City. Reduction measures were identified for all GHG categories including Energy, Buildings and Grounds, Streetlights and Signals, Vehicles, Travel and Transportation, Water and Wastewater, and Municipal Solid Waste.

paleBLUEDot developed community education and communication presentations for general GHG awareness development, identification of opportunities for personal engagement, a summary of the City's GHG baseline and action items, and publication content for the City's city-wide and city staff communications newsletters. paleBLUEDot's communication assistance also included the development of an on-line Community Action Toolkit and internal city communications for staff, City commissions, and City Council.



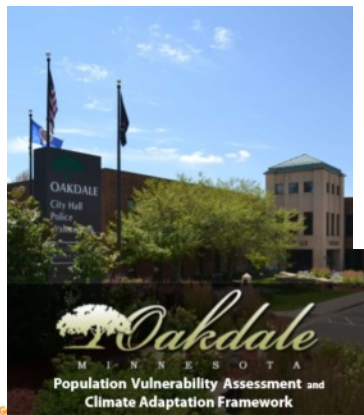
Team Qualifications - Relevant Experience

City of Oakdale

Community Climate Vulnerability Assessment and Adaptation Plan

paleBLUeDot created a comprehensive climate vulnerability, vulnerable populations assessment and Climate Adaptation Plan for the City of Oakdale.

The effort included a review of community and regional climate history and projections through the year 2100. A broad range of climate impacts and risks were identified and assessed for the community. Vulnerable populations were identified, quantified, and mapped. Climate risks were then quantified against the community specific characteristics, demographics, and geographic distribution. Climate risks were then organized and prioritized based on the specific vulnerabilities of the community. The final report included a range of detailed climate adaptation and mitigation strategies for community implementation planning.



Climate Adaptation and Resilience Goals

Goals are organized based on the primary goal are identified in the next section.

- C** Goals To **Build Capacity** For Prep:
- Goal C1 - Incorporate climate programs as a means to increase resilience while minimizing costs.
 - Goal C3 - Strengthen emergency management capacity to respond to weather-related emergencies.
 - Goal C4 - Improve the capacity of the community, especially populations most vulnerable to climate change risks, to understand, prepare for and respond to climate impacts.
 - Goal C5 - Enhance resilience of critical city operations.
 - Goal C6 - Enhance city's capacity for adaptation implementation.
 - Goal C7 - Secure funding to support City's adaptation efforts.

- H** Goals Responding To **Heat Stress And Extreme Weather**
- Goal H2 - Minimize health issues caused by extreme heat days, especially for populations most vulnerable to heat.
 - Goal H4 - Decrease the urban heat island effect, especially in areas with populations most vulnerable to heat.
 - Goal H3 - Improve the capacity of the community, especially populations most vulnerable to climate change risks, to understand, prepare for and respond to high heat and extreme weather.
 - Goal H5 - Enhance resilience of community tree canopy and park/forest land.
 - Goal H6 - Enhance the resilience of buildings within the community to extreme heat, weather, and energy and fuel disruptions.
 - Goal H8 - Expand access to distributed solar energy in low-income communities in order to lower energy bills, increase access to air conditioning, and decrease carbon pollution levels.
 - Goal H10 - Strengthen social cohesion and networks to increase support during extreme weather events.
 - Goal H11 - Increase the resilience of natural and built systems to adapt to increased timeframes between precipitation and increased drought conditions.

- A** Goals Responding To **Air Quality Impacts**
- Goal A1 - Reduce auto-generated particulate matter, tailpipe pollutants, waste heat, and ozone formation.
 - Goal A2 - Increase and maintain air quality for residents and businesses.

- F** Goals Responding To **Flood Vulnerability**
- Goal F2 - Increase the resilience of the natural and built environment to more intense rain events and associated flooding.

- FI** Goals Responding To **Food Insecurity and Foodborne Disease Risks**
- Goal FI-1 - Increase food security for residents, especially those most vulnerable to food environment.

- W** Goals Responding To **Water Quality and Quantity Risks**
- Goal W1 - Increase the resilience of City's water supply in drier summers.

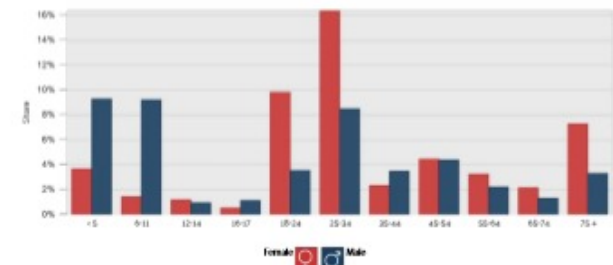
- E** Goals Enhancing **Economic Resilience In Support of Climate Resilience**
- Goal E1 - Leverage the economic development opportunities of the Green Economy



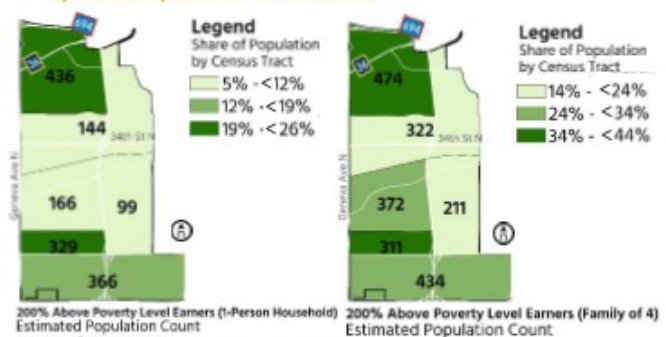
Poverty by Age and Gender

6.16% of the population in Oakdale, MN live below the poverty line. The largest demographic living in poverty is Female 25-34, followed by Female 18-24 and then Male <5.

The Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who classifies as impoverished. If a family's total income is less than the family's threshold than that family and every individual in it is considered to be living in poverty.



Map of Vulnerable Population Distribution Within Community



Source: Census 2017-2019 American Community Survey 5-Year Estimates



Team Qualifications - Relevant Experience

City of Faribault

Community Climate Vulnerability Assessment and Adaptation Plan
Renewable Energy Potentials Study

paleBLUEDot created a comprehensive climate vulnerability, vulnerable populations assessment and Climate Adaptation Plan for the City of Faribault. Our team is also currently engaged in the development of a Renewable Energy Potentials Study for the City.

The climate vulnerability and Climate Adaptation Planning effort included a review of community and regional climate history and projections through the year 2100. A broad range of climate impacts and risks were identified and assessed for the community. Vulnerable populations were identified, quantified, and mapped. Climate risks were then quantified against the community specific characteristics, demographics, and geographic distribution. Climate risks were then organized and prioritized based on the specific vulnerabilities of the community. The final report included a range of detailed climate adaptation and mitigation strategies for community implementation planning.

Climate Adaptation and Resilience Goals

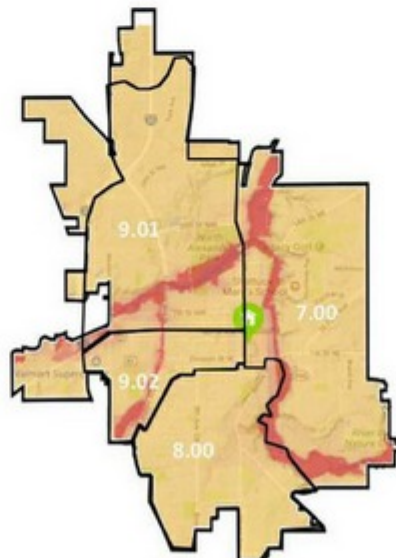
Goals are organized based on the primary anticipated climate change impacts they address. Detailed strategies for each goal are identified in the next section.



Goals To Build Capacity For Preparing For And Responding To Population Risks Of Climate Change Impacts

- Goal C1 - Incorporate climate change preparedness activities into existing local government plans and programs as a means to increase resilience while minimizing costs.
- Goal C2 - Improve effectiveness of on-going adaptation measures.
- Goal C3 - Strengthen emergency management capacity to respond to weather-related emergencies.
- Goal C4 - Improve the capacity of the community, especially populations most vulnerable to climate change risks, to understand, prepare for and respond to climate impacts.
- Goal C5 - Enhance resilience of critical city operations.
- Goal C6 - Enhance city's capacity for adaptation implementation.
- Goal C7 - Secure funding to support City's adaptation efforts.

Flood Vulnerability



Comparing Vulnerable Populations Within The City of Faribault

Population	Estimated Total	Share
Children	1,467	10-12%
Older Adults	3,394	24-26%
Disabled	2,559	18-20%
Economic Stress	3,989	28-30%
People of Color	3,565	25-28%
At Risk Workers	4,160	22-25%

Based on this view of Faribault population vulnerabilities, those living in Economic Stress, People of Color, Older Adults, and At-Risk Workers represent those with the most significant vulnerabilities.



Team Qualifications - Relevant Experience

City of Maplewood

Tree Canopy and Carbon Sequestration Study

The intent of this study was to support the City of Maplewood's understanding of the extent of City-Wide tree canopy, grass, and impervious surface coverage. From these baselines, the study then calculated:

City-Wide tree and green infrastructure benefits

Tree canopy economic value

Tract-level heat island contribution calculations

Stormwater runoff and tree canopy stormwater contribution calculations

City-wide carbon sequestration baselines

With this understanding, the study established appropriate goals and strategies to improve the environmental impacts and opportunities of land coverage within the City including heat island mitigation and carbon sequestration strategies. As a visionary planning document, the goals established for the City are both a “stretch” as well as achievable.

URBAN TREES, BETTER AIR QUALITY

Trees in cities can remove up to a quarter of the particulate matter pollution in their immediate vicinity. And when planted between a source of pollution and an apartment building, school or hospital, urban trees can help protect human health.



1 https://www.washingtonpost.com/national/health-science/why-one-dc-doctor-is-prescribing-walks-in-the-park-instead-of-pills/2015/05/28/03a54004-fb45-11e4-9ef4-1bb7ce3b3fb7_story.html?utm_term=.6720c6d6f545

1-2

Maplewood Tree Canopy Survey and Carbon Sequestration Study

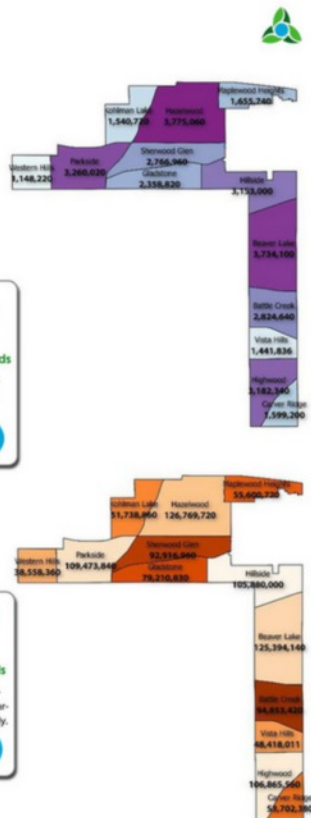
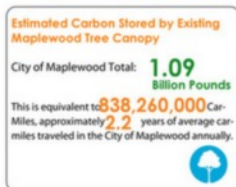
paleBLUEdot

Maplewood Tree Canopy Benefits

Pollution Absorption - Carbon

By volume, Carbon Dioxide pollution is the largest man-made emission contributing to Global Warming. Throughout the City of Maplewood, 224,615 metric tonnes of CO2 pollution is produced by vehicles. This is a volume of man-made greenhouse gas atmosphere equal to over 4.4 billion cubic feet annually.

Carbon Sequestration occurs throughout the growing season of all plants. Long-term carbon storage occurs within the tree/plant structure in the form of the plant material as well as below-grade in the form of soil carbon. 3,663 pounds of CO₂ sequestered produces 1 pound of carbon stored.



Recommendations

Recommendations - Goals

Based on the 2040 Tree Canopy Cover and 2040 Heat Island Reduction goals outlined in the previous pages, we offer the recommended Goals below. In Section 8 a range of recommended strategies to support each of these goals is provided.

Lawns and Grasslands

- L1: Increase pollinator supportiveness of lawns and grasslands in City of Maplewood
L2: Increase Carbon Sequestration values of lawns and grasslands in City of Maplewood

 Tree Canopy

- T1: Promote Heat and awareness and education among residents and businesses
- T2: Increase tree canopy coverage city-wide to meet long-term canopy goals for each neighborhood (see page 7-2 and 7-3)
- T3: Increase resilience of Maplewood tree canopy
- T4: Increase carbon sequestration potential of new plantings
- T5: Improve tree canopy mortality rates
- T6: Create economic development potential in support of tree canopy health and expansion
- T7: Increase stormwater retention and reduce water runoff
- T8: Create strategic compatibility between city wide tree canopy and renewable energy goals

 Heat Island Mitigation

- H1: Promote Heat Island awareness and education among residents and businesses
H2: Decrease Heat Island impacts of pavement in Maplewood
H3: Decrease Heat Island impacts of buildings in Maplewood



7-10

Maplewood Tree Canopy Survey and Carbon Sequestration Study

paleBLUEdot



Team Qualifications - Relevant Experience

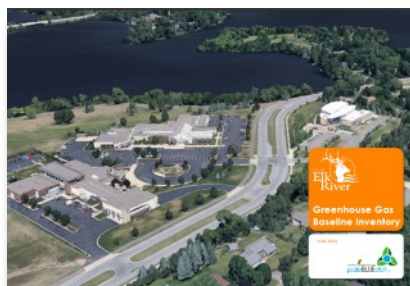
City of Elk River

City Operations Inventory Baseline Assessment
GHG Reduction Action Recommendations
Infographic Communications

paleBLUEDot created a comprehensive Greenhouse Gas emissions inventory, baseline assessment, and reduction action recommendations for full City operations. As a part of this process paleBLUEDot also peer reviewed previously established Community-Wide GHG inventories established for the Regional Indicators Initiative.

Greenhouse Gas inventories were created based on internationally recognized protocols including the GHG Protocol standard and the ICLEI Community GHG Protocol. paleBLUEDot also identified and prioritized feasible and cost-effective GHG reduction measures as recommended next steps for the City. Reduction measures were identified for all GHG categories including Energy, Buildings and Grounds, Streetlights and Signals, Vehicles, Travel and Transportation, Water and Wastewater, and Municipal Solid Waste.

paleBLUEDot is currently developing and will be facilitating a public outreach program, including a community educational workshop as well as an infographic to support on-going City communications.



Team Qualifications - Relevant Experience

City of Minneapolis Park and Recreation Board

Sustology was retained by the Minneapolis Park and Recreation Board (MPRB) to evaluate and communicate the MPRB's sustainability efforts toward climate action planning, stormwater management, the urban tree canopy and racial equity. Sustology analyzed MPRB data, which had previously been in silos and relatively unknown, and developed four social media friendly videos summarizing the MPRB's impacts. The video received over 100,000 visits and shares in less than a month. To date, the videos are one of the MPRB's most successful communication efforts, with the "net zero carbon footprint" video with the most visits and shares.

The videos can be viewed here:



<http://www.bluedotregister.org/northfield-examples>



Team Qualifications - Relevant Experience

City of Minneapolis Solar Demonstration Projects

Sustology wrote, received and project managed a \$1M grant from Xcel Energy for five solar demonstration projects for the Minneapolis Park and Recreation Board (MPRB). This effort was a practical implementation of the MPRB's climate action mitigation efforts. The project won a 2016 State Leadership in Clean Energy (SLICE) Award from The Clean Energy States Alliance. Sustology also created the video below about the project, which has been visited and shared by over 100,000 stakeholders.

The video can be viewed here:

<http://www.bluedotregister.org/northfield-examples>



Team Qualifications - Relevant Experience



University of Minnesota, Morris

The University of Minnesota Morris is a small liberal arts college located in Morris, Minnesota—an agriculturally-based community in the western part of the state, approximately 100 miles northwest of Minneapolis. The origins of the University of Minnesota Morris date back to 1887 with the Morris Industrial School for Indians, which eventually became the West Central School of Agriculture. In the 1950s, the University of Minnesota began phasing out its regional agricultural school and the residents of the Morris region convinced the University to develop the campus as a liberal arts college. Since the opening of the current campus in 1960, Morris has developed a reputation as one of the leading public liberal arts colleges in the United States. In an effort to rebrand itself as a sustainable campus, the University retained Sustology to lead a major sustainability initiative in their master planning effort.

SOLUTION

Sustology served as the sustainable design consultant for the development of a campus master plan, working with the landscape architecture firm Oslund and Associates. Sustology analyzed the campus through a sustainability diagnostic that studied the campus with inputs and outputs of materials and energy flow in order to integrate a deeper level of sustainability into the master plan and provide a framework for dramatically reducing the campus' overall carbon footprint. Sustology analyzed food systems, waste streams, purchasing practices, transportation modes, water consumption patterns, and energy use. The results and recommendations from this analysis were incorporated into the campus master plan.

THE BOTTOM LINE

The University of Minnesota Morris is now considered one of the most sustainable campuses in the United States with advancements such as onsite renewable energy production, enhanced stormwater management, and reemphasis on local agriculture.

Team Qualifications - Resumes



Ted Redmond
Project Role:
Lead

Ted will be the project team lead, responsible for final deliverables.

Community Leadership (partial)

Board Member - Alliance for Sustainability

City of Maplewood
Environment and Natural Resource Commissioner

Climate Reality Project, Leadership Corps Member

Education

Bachelor of Architecture, with Honors, University of Detroit

Recent Speaking and Training Engagements

University of Michigan, Great Lakes Adaptation Forum 2018: *"Beyond Borders: Low-Cost Opportunities for Engaging Limited-Resourced Communities in Climate Action Planning"*

Michigan State University: *"Climate Vulnerability and Climate Action Opportunities for the City of Lansing"*

City of New Berlin, WI: *"Climate Vulnerability in New Berlin"*

City of New Berlin, WI
"Potential for Renewable Energy in New Berlin"

US Department of Energy
"Solar PV Training for Professionals", City of Newark, NJ

US Department of Energy
"Solar PV Training for Professionals", City of Boston, MA

US Department of Energy
"Solar PV Training for Professionals", City of Minneapolis, MN



Ted has over 23 years of experience leading planning efforts for local governments. Ted also has experience facilitating public engagement and input processes, both as a professional consultant as well as through his many years as a community volunteer leader. He has an expertise in delivering community vulnerability and adaptation, Greenhouse Gas, energy, and water consumption Inventories and Reduction Action Plans. His recent experience includes assessments and mitigation/adaptation efforts for 36 communities and 13 non-governmental organizations.

Ted is also a national solar pv technical expert for the US Department of Energy. His work with the DOE includes technical assistance for community driven solar projects nationally as well as serving as a national solar technology trainer for architects and engineers.

Relevant Experience

(49) Community and NGO Climate Vulnerability, GHG Inventory, Adaptation and Action Plans (partial list):

City of Maplewood, Climate Vulnerabilities Assessment; Climate Adaptation and Action Plan (in progress); City-Wide renewable energy potentials study and target goal setting; Community-Wide Tree Inventory, Climate Vulnerability Review, and Sequestration Potentials Study; Greenhouse Gas Inventory & Reduction Plan

City of Faribault, Climate Vulnerabilities Assessment; Climate Adaptation Framework; Solar Potentials Study

City of Elk River, Greenhouse Gas Inventory, Reduction Plan, Community Engagement Communication

City of Albert Lea, Climate Vulnerabilities Assessment; Climate Adaptation Action Plan (in progress); City Wide Renewable Energy Planning

City of Burnsville, Climate Vulnerabilities Assessment; Climate Adaptation Action Plan (in progress)

State of Minnesota, MPCA, Climate Adaptation Goals and Menu of Strategies for Minnesota Communities

Elk River Public Utilities, Greenhouse Gas Inventory and Reduction Plan

MUD Jeans, Amsterdam Netherlands, Supply Chain Climate Vulnerabilities Assessment, Greenhouse Gas Inventory, Reduction Study and Carbon Neutral Action Plan

Registrations and Affiliations (partial)

Registered Architect, State of Minnesota
International Living Future Institute
Climate Action Reserve
Climate Adaptation Knowledge Exchange
American Society of Adaptation Professionals
GHG Management Institute
US EPA ENERGY STAR Partner
National Council of Architectural Registration Boards

Team Qualifications - Resumes



**Craig
Wilson**
Project Role:
Technical

Craig will serve as the team's buildings and land use strategy specialist and will lead video communication content development

Craig Wilson is a Managing Partner at Sustology where he focuses on creating sustainable solutions for clients.

Mr. Wilson brings seventeen years of experience in sustainable development and consulting. He has developed sustainable solutions for clients ranging from major metropolitan environmental policies to corporate sustainability strategies to major renewable energy and green infrastructure projects—both improving the environment as well as his client's bottom line. Prior to Sustology, he pioneered work across six continents in commercial real estate finance. Mr. Wilson has proven great leadership and creativity in developing practical results in the private, public and nonprofit sectors.

Mr. Wilson is adjunct faculty at the University of Minnesota College of Design, Past President of the American Society of Landscape Architecture (ASLA) Minnesota Chapter, and is a LEED Accredited Professional (LEED AP). He is also affirmed by the Minnesota State Supreme Court as a certified neutral alternative dispute resolution mediator under Rule 114 of the Minnesota General Rules of Practice for the District Courts, specializing in environmental and land use issues.

Education

B.A. Cultural Studies & Comparative Literature

University of Minnesota, *magna cum laude*

M.L.A. Master of Landscape Architecture

University of Minnesota, *cum laude*

M.U.R.P. Master of Urban and Regional Planning

University of Minnesota, *cum laude*

Certificate in Metropolitan Design

Metropolitan Design Center

LEED Accredited Professional (LEED AP)

U.S. Green Building Council

ISSP Sustainability Associate (ISSP-SA)

International Society of Sustainability Professionals

Certified Training Program Certificate

Global Reporting Initiative (GRI)



**Sean
Gosiewski**
Project Role:
Community
Engagement
Facilitation

Sean will support the facilitation of the community engagement workshops

Sean supports metro area cities to launch Environment and Sustainability Commissions and is currently convening resilient cities clusters among 40 metro cities that are working to include energy and resilience goals in their Comprehensive plans. Sean has 30 years of experience bringing community leaders together to envision and build sustainable communities, providing hands-on tools and training to build community, health, wealth and local resilience. He holds a Master's in Divinity from the Pacific School of Religion in Berkeley, CA, a B.A. summa cum laude in Speech Communications and Foreign Studies from the University of Minnesota, and speaks fluent Spanish. Sean received a Technology of Participation Champion's Award from the Institute of Cultural Affairs. Sean is a Certified Master Water Steward.

Education

B.A. Speech Communications and Foreign Studies

University of Minnesota

Masters in Divinity

Pacific School of Religion, Berkeley



Team Qualifications - Resumes



Zoe Elizabeth
Project Role:
Mitigation and Adaptation Specialist

Zoe will lead quantification and evaluation of mitigation and adaptation strategies.

Education

University of California, Master's in Urban Planning, emphasis on sustainable regional development and climate action

Zoe Elizabeth has deep expertise in greenhouse gas mitigation, climate adaptation, and urban sustainability. Trained as an urban planner with an emphasis on climate change and sustainability. Most recently, Zoe's career has focused on the intersection between research and implementation and she has overseen two groundbreaking projects that enable data-driven decision-making in the climate sphere.

Relevant Experience (partial list)

The State of The Region: Regional Vulnerability Assessment

Climate Vulnerability Assessment for greater Los Angeles.

AdoptLA

Coastal impact adaptation strategies planning for greater Los Angeles.

A Greater LA: Climate Action Framework

Project manager, contributing author

Led collaborative stakeholder driven and science based process to create a set of recommendations for climate mitigation and adaptation in Los Angeles.

<http://climateaction.la/>

City of Santa Monica Climate Action and Adaptation

Technical Advisory Member

LA County Metro Sustainability Report

Lead author for LA County Metro's first ever sustainability report. At the time of publication it was the most comprehensive sustainability report for any transportation agency in the nation.

State of Minnesota, MPCA, Climate Adaptation Goals and Menu of Strategies for Minnesota Communities



Colleen Redmond
Project Role:
Youth Engagement Lead

Colleen will act as educational design on this project facilitating the Youth Engagement Design Thinking workshop and generating the Enhanced Youth Engagement Mechanism toolkit.

Colleen will also lead the facilitation of the Youth Engagement meetings and workshops through the CAP planning process.

Colleen has twenty-six years of educational experience including nine years expertise in curriculum development and implementation of gifted education. Colleen is accomplished in designing and executing youth educational programming in the classroom and across a variety of age groups. In addition, Colleen has coordinated and participated in multiple design thinking initiatives both in the classroom and with district staff members.

Relevant Experience

Curriculum Development and Implementation - Gateway Program ISD 833
Programming Specialist - District 833 Gifted Education Department

Design Thinking Team, ISD 833

Design Thinking Process Coach/Facilitator - ISD 833 Summer Design Challenge

Community Climate Awareness Program Development and Implementation

MPCA State Fair Sustainability Stage

City of Maplewood Energize Maplewood Community Engagement

Youth Engagement, Avenues for Homeless Youth, City of Minneapolis

Climate Committee Bailey Elementary School

Community Engagement Gifted Education ISD 833

Lead Teacher ISD 833 Gifted and Talented

Leadership Team ISD 833 Gateway

Education, Affiliations, and Honors

Master of Education - Educational Leadership

Gifted Education Certificate - St. Thomas University

Minnesota Education Association

Minnesota Educators of the Gifted and Talented

National Association for Gifted Children

2015 Nominee Minnesota Teacher of the Year

2016 Nominee Presidential Award for Excellence in Math and Science Teaching





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Project Costs

Fee Proposal

As noted in our Cover Letter, paleBLUEDot exists as a mission-driven organization solely to advance climate action. As a result, you will find us a flexible, responsive, collaborative team providing high quality service energetically delivered and within a flexible fee structure. In that spirit, we present our fees in detail and with costs summarized by deliverable category for the Basic Services requested within the RFP as well as the Optional Services our team outlined in our Proposed Project Work Plan. We hope this provides a flexible “a-la-carte” selection of services desired by the City.

The paleBLUEDot team proposes a lump sum fee to include only the services ultimately selected by the City. Fees will be billed monthly for the team’s time spent towards progress on each item. The proposed lump sum fee for each service, including anticipated reimbursable expenses, are as follows:

Basic Services

Phase I

Project Kick-off	\$1,000
GHG Inventory	\$2,400
Climate Vulnerability Assessment	\$2,800
Goal Setting	\$1,000
Total Phase I Services:	\$7,200

Phase II

Climate Action Plan	\$23,500
Climate Adaptation Plan	\$7,500
Implementation and Monitoring	\$7,500
Climate Action Communication Framework	\$5,500
Meeting, Management, and Engagement	\$15,000
Total Phase II Services:	\$59,000

Estimated Reimbursable Printing*	\$800
Total Basic Services:	\$67,000

Phase II Optional Services

Option 1: Youth Engagement	\$5,000
Option 2: Community Action Toolkit	\$3,000
Option 3: Outreach and Education Video	\$5,000

* Printing costs shall be reimbursable expenses and are not team compensation. Estimated allowance shown is anticipated for City, CAPAB, and Community meetings. All final deliverables are anticipated to be electronic documents, minimizing impact of paper use, and not requiring reimbursable expenses. All other, non-printing, project expenses required for the delivery of the services outlined in our Proposed Work Plan are included in the values shown for each deliverable category.

Estimated Hours

The estimated hours, by project task and staff are outlined on the next page. Final hours expended may differ, however, the paleBLUEDot team is committed to delivering the full scope outlined in this proposal within the costs represented in this section.



Project Costs

Estimated Hours (continued)

To the left is a breakdown of the estimated hours for all Basic Services and Optional Services:

Project Costs

Basic Services										Optional Services										
Team member Reg Richmond Craig Wilson Zoe Elizabeth Sean Godlewski Colleen Richmond Graphic/technical Time Estimated Hours Subtotal Cost	Phase 1										Option 1: Youth Engagement									
	Kickoff										Development, Review, Implementation									
	Data Gathering and GHG Inventory										Option 2: Toolkit									
	Vulnerability Assessment										Development, Review, Implementation									
	Goalsetting										Option 3: Video									
	Climate Action Plan										Development, Review, Implementation									
	Implementation SWOT										Optional Services Totals									
	Identify Climate Action Measures																			
	Measure Evaluation																			
	Funding Sources																			
	Quality Assurance Review																			
	Adaptation Plan																			
	Climate Adaptation Planning																			
	Measure Evaluation																			
	Quality Assurance																			
	Monitoring, Implementation, and Reporting																			
	Implementation Plan																			
	Monitoring Plan																			
	CAP Report																			
	Quality Assurance																			
Climate Action Communication Framework																				
Identification of Communication Themes																				
Communication Implementation Plan																				
Year 1 Call To Action Communication Pieces																				
Meetings, Management, and Engagement																				
City Staff and Management Update Meeting																				
Climate Action Plan Advisory Board Meetings																				
Community Engagement																				
Project Website																				
Basic Services Totals																				

References



City of Burnsville

Climate Vulnerability Assessment
Climate Adaptation Framework
Climate Adaptation Action Plan (in progress)

Contact: Sue Bast, Environmental Specialist
100 Civic Center Pkwy
Burnsville, MN 55337
952-895-4524,
sue.bast@burnsvillemn.gov



City of Faribault

Climate Vulnerability Assessment
Climate Adaptation Framework
Climate Adaptation Action Plan (in progress)

Contact: Dave Wanberg, City Planner
208 1st Avenue NW
Faribault, MN 55021
507-333-0350,
dwanberg@ci.faribault.mn.us



City of Burnsville

Climate Vulnerability Assessment
Climate Adaptation Framework
Climate Adaptation Action Plan (in progress)

Contact: Sue Bast, Environmental Specialist
100 Civic Center Pkwy
Burnsville, MN 55337
952-895-4524,
sue.bast@burnsvillemn.gov



Leech Lake Band of Ojibwe

Climate Vulnerability Assessment
Climate Adaptation Framework
Renewable Energy Action Plan (in progress)

Contact: Brandy Toft, Environmental Quality Specialist

190 Sailstar Drive
Cass Lake, MN 56633
218-335-7429, air@lldrm.org



Minneapolis Park and Recreation Board

Sustainability Metrics Analysis and Videos
Solar Demonstration Projects
Headquarters Sustainability Plan

Contact: Jayne Miller, Superintendent (former)
45 South 23rd Street
Suite 101 · Pittsburgh, PA
15203-2120
412-682-7275



Pittsburgh Parks Conservancy

Sustainability Metrics Analysis and Videos

Contact: Jayne Miller, President & CEO
45 South 23rd Street
Suite 101 · Pittsburgh, PA
15203-2120
412-682-7275



University of Minnesota Morris

(with Oslund Associates)

Sustainability + Master Planning

Contact: David Motzenbacke, Principal, Motz Studios

3707 Harriet Ave S
Minneapolis, MN 55409
612-987-5971;
david@motzstudios.com

Work Examples

PaleBLUEDot has compiled a range of work samples relevant to the work plan outlined in this proposal. The work samples include assessments and action plans as well as communication graphics and video content. All samples are available for viewing on-line or downloading from our website. Please visit:
<http://www.bluedotregister.org/northfield-examples>

You may also access the website by scanning the code to the right:





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