

## **Floodable Park for Stormwater Management Adaptation Action and Evaluation Plan**

Preparer: Kathy B. (Project Lead)

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This adaptation plan is entirely fictional. The plan is based on a case study presented in the video series [“Evaluating Health Adaptation for a Changing Climate.”](#)

This example plan is intended to be a resource for those who are developing community climate and health adaptation and evaluation plans.

## **PART 1. Description of Adaptation Action**

### **Brief summary of adaptation action**

Townsville City has experienced a 50% increase in extreme rainfall events from the preceding decade. Extreme rainfall is defined here as a single event exceeding the total monthly average for Townsville.

An increase in impervious surfaces in Townsville City, mainly parking lots, coupled with extreme rainfall events, have resulted in higher volumes of stormwater runoff that is overwhelming the city sewer system. Local epidemiologists observed increase in waterborne diseases due to an increase in pollutant exposure after extreme rain events. Pollutants typically found in Townsville City urban runoff include petrol pollution (oil and grease), heavy metals (lead and mercury), and bacteria and viruses that cause waterborne illnesses. Combined sewer overflow (CSO) events, in which stormwater overwhelms the city sewer system, leading to the release of untreated wastewater into local waterways, have been directly linked to higher waterborne illness.

To absorb the excess runoff, the city is piloting modifications to stormwater management using the greening technique of constructing a floodable park. The 16-acre floodable park will be designed to control and decrease flow rates by storing excess stormwater runoff and releasing it slowly into the sewer system once the risk of flooding has passed or by percolation into groundwater. The floodable park will reduce the total water volume entering the combined sewer system, reducing CSO events and therefore waterborne illness.

Additionally, a communication campaign will be launched to reach the intended population of Townsville City on how to prepare for days following an extreme rainfall event. The knowledge gained by residents is anticipated to help avoid risk of exposure to untreated water after an extreme rain event.

### **Identification of stakeholders and partners needed for overall action**

Community member experiences were prioritized in the planning of this project. The Stormwater Management Team (SMT) began the project by assessing the historical context of Townsville City. The SMT is composed of city planners, watershed and wastewater managers, epidemiologists, City Council Water Resource Task Force members, and local advocacy group members. The first step was to identify and invite existing community coalitions who focus on water safety and health equity to participate in the planning process. Specifically, members from the Townsville City's Fight for Clean Water and Safe Water for All organizations were invited to join meetings with SMT. Members from both organizations shared their own experiences and those of fellow community members who have been affected by CSO events. These members have agreed to provide feedback on how the project may affect community members and impact health. Conversations with these community stakeholders will occur during monthly Zoom meetings with the SMT where updates will be provided, and collective decision making among all participants will occur.

Along with these community members, additional stakeholders are involved to support planning and implementation of this adaptation action. This team has been created based on necessary skillsets and interest in participation.

Stakeholder Engagement Summary Table

Stakeholder name or group	Stakeholder category	Interest of perspective	Role in adaptation action
<i>Individuals or groups who have an interest in the adaptation</i>	<i>Typically fall into 1 of 3 categories: 1) Directly affected by the program or policy 2) Help implement the program, 3) Make decisions about the program—they are the most invested and affected by the evaluation findings.</i>	<i>What is their perspective of the adaptation action? For example, are they interested in the cost or effectiveness? Are they a critic?</i>	<i>What role will the listed individual or group play in developing or implementing this action plan?</i>
<b>City Planner Associate</b>	Help implement	Location, effectiveness, cost	Determining placement of floodable park
<b>Wastewater Specialist</b>	Help implement	Effectiveness	Set thresholds on water intake for pipes before release into lake occurs
<b>Water Quality Specialist</b>	Help implement	Effectiveness	Monitoring water quality
<b>Fight for Clean Water</b>	Directly affected	Effectiveness, equity, cost	Inform project team on community history and needs Provide feedback
<b>Safe Water for All</b>	Directly affected	Effectiveness, equity, cost	Inform project team on community history and needs Provide feedback
<b>City Council Water Resource Task Force Member</b>	Make decisions	Cost, effectiveness	Sets budget and expectations
<b>Epidemiologist</b>	Make decisions	Effectiveness, health	Investigate cause and risk for disease
<b>Neighborhood residents</b>	Directly affected	Effectiveness, timeline (disruption to daily activities)	Provide feedback and neighborhood perspective

**Climate hazard addressed**

This stormwater management project will address urban flooding caused by extreme precipitation and associated health effects.

**Challenge addressed and supporting evidence**

Townsville City’s Department of Public Health has identified urban runoff linked to CSO events as the primary cause of the city’s increase in waterborne illness cases. A Climate Impact Compendium revealed that extreme precipitation events will occur more often, especially in the U.S. Northeast region, and that Townsville City is currently unable to manage the increased volume of rainfall and runoff entering stormwater pipes, causing untreated water to enter Lake Bluewater. The proposed action will focus on

minimizing human exposure to untreated wastewater after an extreme rainfall event (defined above), especially for the residents with low incomes living in the city's most low-lying neighborhoods, Jackson and Point Place. Based on literature review evidence, funding available to address this problem, and the scale of the project based on city size (140 square miles) and population (498,715), this green infrastructure project has been selected to avoid stormwater volumes and reduce the risk of CSO events and waterborne illness caused by runoff pollutants.

### **Specific populations of focus and locations that will be included**

The proposed action will focus on minimizing human exposure to untreated wastewater after an extreme rainfall event (defined above), most directly for the residents with low incomes living in the city's most low-lying neighborhoods, Jackson and Point Place. The Jackson and Point Place neighborhoods are located on the south end of Townsville City and are home to approximately 4,560 residents.

This project is also meant to benefit Townsville City residents long-term. Townsville City residents utilize Lake Bluewater as a water supply for drinking and household use, as well as recreation. This boundary was selected based on data from the Watershed Management Optimization Support Tool paired with health data indicating that rates of waterborne illnesses have increased 20% since 2015.

### **Context**

This adaptation action will affect residents living in the nearby communities. Many in this community have experienced negative health impacts caused by contaminated water. There is a known level of distrust toward the city government due to this history. Typically, community members who are living in the lowest lying areas of the city have dealt with frequent flooding in the wetter months (typically March through June) and have encountered contaminated runoff by walking through flood water, drinking tap water, and accidentally consuming water during recreational activities at Lake Bluewater. Residents consuming city water are seeking solutions to avoid further risk of waterborne illness.

Additionally, this city rates high on the CDC/Agency for Toxic Substances and Disease Registry (ATSDR) Social Vulnerability Index (SVI) meaning the residents living in Jackson and Point Place are especially vulnerable to these kinds of climate impacts due to relatively high social vulnerability and low adaptive capacity.

### **Stage of development**

This project is in the planning phase. Design for the greening features started in 2020 after funding was secured. The pilot site will be selected by mid-2023 after environmental impact studies are completed. Contractor procurement will occur within this same time frame.

### **Social determinants of health**

This team has used the Vital Conditions framework to understand the influence of social determinants of health. Three of the seven vital conditions influenced the selection and development of this action:

- Meaningful work and wealth
  - This action will build in community perspective to understand on-the-ground dynamics, limitations, and everything the community needs. Providing an appropriate support system that develops community and people advancement is prioritized to advance equitable prosperity.
- Basic needs for health and safety
  - Physical and mental well-being starts with access to fresh air, clean water, and a secure home and community. This action will foster safer, more just communities.
- Reliable transportation
  - This action will address the need to move between home, work, school, and stores in daily life. Currently, residents in the Jackson and Point Place neighborhoods have been unable to avoid contact with untreated water after extreme rain events because many need to walk through flood water to get to work or school.

### **Resources and inputs**

The Mayor and City Council have come together to announce a grant received from the U.S. Department of Housing and Urban Development (HUD) that will primarily fund the project. CDC Building Resilience Against Climate Effects (BRACE) funds will also be available to support the project staff, including evaluation.

Additional funding is supported by existing community development block grant resources and Townsville City Redevelopment Authority programs.

### **Theory of change and logic model**

**Problem Statement:** Risk of waterborne illness has increased in Townsville City as extreme rainfall events are occurring more frequently. City pipes are overflowing after extreme rain events. They are unable to manage the volume of stormwater and runoff flow, resulting in more frequent CSO events in the city, with even sharper increases in CSOs affecting the neighborhoods of Jackson and Point Place.

**Hypothesis:** The construction of a floodable park will help manage flow rates by storing excess floodwater and releasing it slowly once the risk of flooding has passed. The benefit that floodable parks should provide is a reduction in stormwater runoff entering the combined sewer system, reducing the risk of CSO events directly linked to waterborne illness outbreaks in low-lying areas.

**LOGIC MODEL**

Townsville City Floodable Park and Communication Campaign Logic Model					
Inputs	Activities (A)	Outputs (O)	Outcomes		
			Short-term (ST)	Medium-term (MT)	Long-term (LT)
Funding Implementing partners Modeling tools	A1. Develop communication campaign focused on flooding risk  A2. Floodable park site location, design, and construction	O1. Educational mailer  O2. Public floodable park	ST1. Intended residents increase awareness of flooding and untreated water risk <sup>1,2</sup>  ST2. Intended residents avoid contact with untreated water <sup>1,2</sup>  ST3. Decrease in flooding of Jackson and Point Place sub basin <sup>3</sup>	MT1. Decrease in stormwater overflow events following an extreme rain event <sup>4</sup>  MT2. Fewer bacterial load released into watershed via combined sewer overflow <sup>5</sup>	LT1. Reduced waterborne illness cases due to CSO events in Townsville City <sup>6</sup>
Assumptions: <sup>1</sup> Intended residents receive and read informational mailer <sup>2</sup> Informational mailer provides new information <sup>3</sup> Floodable park is constructed as planned <sup>4</sup> Site selection and construction plan were appropriate based on rainfall projections <sup>5</sup> There is no other cause for increase in waterborne illness cases <sup>6</sup> Floodable park is effective in decreasing overflow of untreated water There are other potential benefits of a newly expanded greenspace with park infrastructure, including increased lower temperatures during hot dates, increased physical activity, and increased social connectedness among residents. Since these are not the focus of the SMT and the evaluation, we will not assess these.					

**Outcomes to be achieved, including health equity**

The goal of this action is to decrease CSO events and cases of waterborne illness due to excess runoff. In the short-term, there should be an immediate decrease in untreated water being released into the city water systems.

Intended outcomes include the following benefits that will be gained by 2024:

- Knowledge gain by intended residents of extreme rainfall and risk of exposure to untreated water
- Increased rainfall absorption in floodable park reducing total runoff volumes in local sewer systems

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- Less frequent combined sewer overflow events
- Decrease in waterborne illnesses

### **Methods & activities**

While currently in the planning phase (year 1), the following activities will take place:

- Engage the community to co-determine appropriate site selection near Jackson and Point Place neighborhood
- Gather community feedback and suggestions on how best to implement community awareness campaign, including identifying best method of dissemination
- Structure implementation by identifying who is responsible for each step; determining explicit timelines, measurable goals, and timelines for monitoring; and updating the plan
- Finalize plans written by project team and get approval from Mayor's office
- Confirm funding for the adaptation action and for sustained community outreach
- Form the evaluation team, consisting of internal staff members, contractors, and partner organizations

### **Anticipated challenges**

Projected climate and rainfall data will be used to design the floodable park. A challenge being considered is that future rainfall may exceed what is projected. Although we anticipate the floodable park to decrease overflow based on the projections, the SMT will track rainfall to measure how well projections align. This will provide guidance for future floodable park constructions.

While much of the funding for this action has been confirmed, some avenues of funding have yet to be approved. Currently, the team is planning in accordance with available funding and for how to utilize additional funding once approved. Additionally, large constructions tend to have various delays, although this has been factored into the timeline.

## **PART 2. Communications**

This section refers to communications activities that are part of the adaptation action, not dissemination of findings after the action has been implemented.

### **Communications objectives**

The goal of the communication strategy is to inform the residents of Townsville City of the issue of stormwater overflow and how the SMT and city government is planning to address and adapt to increased rainfall events. This includes a strategy to better inform the public when there is a risk of encountering untreated water and how to avoid illness.

The goal is that community residents have improved knowledge about how to protect themselves from post-flooding waterborne illnesses.

### **Communications activities**

A communication campaign will launch in Year 2 to message the intended population in Townsville City about how to prepare for days following an extreme rainfall event. The initial proposal is to hold a series of informational meetings and create an informational mailer to each household explaining the risk of unsafe water after an extreme rain event, who may be affected, what is being done to avoid risk of illness, and how best to protect themselves (e.g., avoid recreational swimming in river/lakes, use filtered water, check local media coverage, etc.). This communication may be sent in partnership with the city's water department messaging or monthly bills. Prior to finalizing these decisions, community feedback will be generated to inform the most suitable communication strategy. Our community partners will ultimately decide the best mode of communication.

## PART 3: Evaluation

### Stakeholder engagement

Evaluation Stakeholder Engagement Summary Table

Stakeholder name or group	Stakeholder category (primary, secondary, or tertiary)	Interest or perspective in the evaluation	Role in evaluation	Other considerations: cultural, logistical, historical or other factors that need to be considered to facilitate meaningful engagement
<b>City Council Water Resource Task Force Member</b>	Primary	Interested in effectiveness of floodable park in decreasing pipe overflow	Oversight, decision making with evaluation findings, and allocating resources	Will be direct voice for Mayor’s office
<b>Epidemiologist</b>	Primary	Interested in effectiveness of floodable park in decreasing waterborne illness	Data collection and analysis, providing recommendations from evaluation findings	Very knowledgeable of health burdens in Townsville
<b>Local water safety organization representatives</b>	Secondary	Interested in evaluation findings to learn if the problem is being addressed	Review results, disseminate to community, provide local recommendations	Has insight on best methods to communicate findings with residents
<b>City Planner Associate</b>	Secondary	Interested in evaluation findings and what potential changes will be required based on recommendations	Strategic planning decisions based on findings, provide plan for structural changes based on findings (if needed)	Very knowledgeable of construction plan and city ordinances (what’s possible)
<b>Wastewater Specialist</b>	Tertiary	Interest in findings, effectiveness of floodable park on stormwater flow	Provide data and review results	Expert geospatial analyst
<b>Water Quality Specialist</b>	Tertiary	Interest in findings, effectiveness of floodable park on water quality	Provide data and review results	Expert knowledge of waterborne pathogens
<b>Neighborhood residents</b>	Secondary	Interest in providing feedback/contributing to evaluation findings	Will support evaluation questions and data collection methods, review of findings	History of distrust and negative public sentiment about water management

### Cultural competence

It is critical to value the work and effort already established by the community to ensure their needs are prioritized. Residents and the city council have made it clear that water quality is a concern. Community organizations who have already established a mission and goal to see more equitable water quality standards for city residents are being consulted during the development of the adaptation action plan

and evaluation plan. Additionally, residents near the selected site location will be invited to join the evaluation team, in a capacity suitable to them. We will consult residents and our partner CBOs in designing the evaluation questions and data collection methods.

**Evaluation purpose\***

The evaluation will assess the effectiveness of our communications campaign by assessing the degrees to which intended residents have increased knowledge of stormwater flooding and how to avoid illness. The results will be used to identify other messages and strategies as needed.

Additionally, the evaluation will assess the effectiveness of the new floodable park in reducing CSO events. Evidence should ultimately support decision making about strengthening the adaptation action, justifying the resources used, and communicating with stakeholders. The results can also be used to justify building floodable parks in other similarly affected areas of Townsville, or other jurisdictions in the state.

**Evaluation questions\***

The evaluation questions are as follows:

1. To what extent do Townsville residents have increased knowledge about changing trends in extreme rain events/flooding? (outcome)
2. To what extent do residents have increased knowledge on how to protect themselves from encountering untreated water? (outcome)
3. To what extent were community residents and representatives consulted in decision making for this action? (process)
4. To what extent have CSO events decreased since the floodable park was implemented? (outcome)
5. To what extent have cases of waterborne illness decreased in the intended neighborhoods since the floodable park was implemented? (outcome)

**Evaluation design\***

Question	Design Approach
1. To what extent do Townsville residents have increased knowledge about changing trends in extreme rain events/flooding?	A quasi-experimental pre-/post-questionnaire will be sent to intended neighborhoods and two neighborhoods nearby for comparison. The comparison group will not receive flooding communication materials.
2. To what extent do residents have increased knowledge on how to protect themselves from encountering untreated water?	A quasi-experimental pre-/post-questionnaire will be sent to intended neighborhoods and two neighborhoods nearby for comparison. The comparison group will not receive flooding communication materials.

<p>3. To what extent were community residents and representatives consulted in decision making for this action?</p>	<p>Non-experimental/descriptive feedback via key informant interviews, document review (meeting minutes)</p>
<p>4. To what extent have CSO events decreased since the floodable park was implemented?</p>	<p>Non-experimental—will record overflow events following construction and compare to pre-floodable park events                  Quasi-experimental—interrupted time series by modeling expected trend based on data collected before implementing the floodable park and compared to data collected after the floodable park is implemented</p>
<p>5. To what extent have cases of waterborne illness decreased in the intended neighborhoods since the floodable park was implemented?</p>	<p>Non-experimental—track waterborne illness before and after creation of the floodable park in intended neighborhoods                  Quasi-experimental—track waterborne illness cases (contracted by skin contact and drinking supply) after extreme rain event in intended residents and comparison group (consisting of residents of neighborhoods of similar demographic not near the park but in the same watershed) following implementation</p>

**Health equity**

The site selected for the floodable park construction prioritized low-lying areas, which are most susceptible to flooding. Additionally, the SMT has prioritized two neighborhoods with a population of primarily residents with low incomes, who may have to walk through flood water to reach public transit and are reliant on public drinking water.

The evaluation team is currently seeking partnerships with local organizations to build an incentive system for participation in the communication campaign. This should better ensure a high response rate by residents of these neighborhoods to collect the most accurate evidence. These residents will also be asked to participate in key informant interviews following the construction to gather more in-depth qualitative data.

**Outcomes to be measured**

Year 2

We will measure the increase in resident knowledge on health risks associated with extreme rainfall/flooding events and how to stay safe from untreated water (individual-level outcome). Our goal is to document a 15% increase in knowledge from pre to post assessment. The evaluation team will also consider a directional measure if pre-test scores are high.

Year 3

We will measure the decrease in combined sewer overflow events (system-level outcome). The floodable park will be constructed to seek a 70% decrease in CSO events per extreme rainfall event.

Year 5

We will measure decreased cases of waterborne illness (health outcome). The evaluation team will track cases in the four weeks following extreme rain events in Jackson and Point Place. The intended neighborhoods will be compared to other low-lying neighborhoods in Townsville City with similar demographics.

**Data and data collection methods\***

Evaluation question	Data collection method (e.g., surveys, interviews, medical chart abstraction)	Source and latency of data (e.g., the recency of the data)	Frequency of data collection	Party responsible for collection	Due date
1. To what extent do Townsville residents have increased knowledge about changing trends in extreme rain events/flooding?	Pre-/post-questionnaire	Intended residents and comparison group will complete before and after communication campaign begins  Mail in questionnaire with QR code option	Pre-survey distributed year 2 ahead of communication launch and rain season  Post-survey distributed year 3 within 1–2 month of campaign, ahead of rain season	Local water organization evaluation team members will be responsible for survey distribution and data collection	Pre-survey Year 2  Post-survey Year 3  Data collection and analysis year 4
2. To what extent do residents have increased knowledge on how to protect themselves from encountering untreated water?	Pre-/post-questionnaire	Intended residents and comparison group will complete before and after communication campaign begins  Mail in questionnaire	Pre-survey distributed year 2 ahead of communication launch and rain season  Post-survey distributed year 3 ahead of rain season	Local water organization evaluation team members will be responsible for survey distribution and data collection	Pre-survey Year 2  Post-survey Year 3  Data collection and analysis year 4

Example BRACE Adaptation and Evaluation Plan

		with QR code option			
3. To what extent were community residents and representatives consulted in decision making for this action?	Key informant interview	Interviews will begin ahead of construction launch. Residents will sign up to participate via post survey.	Two phases of interviews: first held ahead of construction, second held 2 months following end of construction	Evaluation lead (Kathy B) and resident representative (Stacey K.)	Data collection will be complete in year 4. Potential changes will be made following first interview. final reporting will be complete in year 5.
4. To what extent have CSO events decreased since the floodable park was implemented?	Combined sewer overflow data (including historic)	Townsville City wastewater monitoring database  Rainfall tracking database (local weather station data)	Daily monitoring with focus on days following extreme rain events	Evaluation lead (Kathy B.) and graduate student	Data collection will be continuous, and analysis will begin in Year 4.
5. To what extent have cases of waterborne illness decreased in the intended neighborhoods since the floodable park was implemented?	Watershed water quality monitoring  Syndromic surveillance data	Hospital, ER, and clinic syndromic surveillance	Daily monitoring two weeks following extreme rain events	Evaluation lead (Kathy B.) and grad student	Data collection will be continuous, and analysis will begin in year 4.

**Indicators and standards\***

Evaluation question	Indicators	Standards (what constitutes "success"?)
1. To what extent do Townsville residents have increased knowledge about changing trends in extreme rain events water?	Combined average posttest score compared to average pretest score	Positive difference from control group
2. To what extent do residents have increased knowledge on how to protect themselves from encountering untreated water?	Combined average posttest score compared to average pretest score	30% increase in post-test scores
3. To what extent were community residents and representatives consulted in decision making for this action?	Meeting minutes	<p>Documentation that a community stakeholder scan was conducted annually</p> <p>Documentation that meeting day, time, and location was accessible to community stakeholders</p> <p>Standing meeting agenda includes opportunities for community feedback and inclusive decision making</p> <p>80% of external meetings included at least one representative of community residents</p>
4. To what extent has pipe overflow decreased since the floodable park was implemented?	Monitor overflows—how often and for how long	Alignment with modeling which predicted 70% decrease in overflow occurrence

<p>5. To what extent have cases of waterborne illness decreased in the intended neighborhoods since the floodable park was implemented?</p>	<p>Monitor water quality based on Clean Water Act standards</p>	<p>15% decrease in bacteria and pathogen threshold exceedance events</p>
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**Analysis plans**

Outcome analysis:

1. To what extent do Townsville residents have increased knowledge about changing trends in extreme rain events water?
  - a. Pre-/post-score descriptive statistics
  - b. Change in pre-/post-survey scores, comparison to control group
2. To what extent do residents have increased knowledge on how to protect themselves from encountering untreated?
  - a. Pre-/post-score descriptive statistics
  - b. Change in pre-/post-survey scores, comparison to control group
3. To what extent have CSO events decreased since the floodable park was implemented?
  - a. Interrupted time series
  - b. Track and record overflow occurrences within the watershed (everything downstream from park) before and after creating the floodable park
4. To what extent have cases of waterborne illness decreased in the intended neighborhoods since the floodable park was implemented?
  - a. Track number of threshold exceedances of bacteria and pathogens before and after creating the floodable park
  - b. Syndromic surveillance system data tracking

Process analysis:

1. To what extent were community residents and representatives consulted in decision making for this action?
  - a. Descriptive statistics
  - b. Qualitative sentiment/thematic analysis

**Plans to use process results or implementation evaluation results\***

Findings generated from process results will be used to confirm with partners whether the needs and objectives of the action were implemented as planned. The intent is to show that residents and intended population needs have been met and that the city is prioritizing effective actions to protect health. Findings will be used during the next phase of planning to make any necessary adjustments and prepare for the next stage.

**Plans for use dissemination\***

Audience for evaluation findings	Evaluation information of interest	Purpose of communicating to this audience (e.g., they make decisions about evaluation design/activities, they have requested to be updated, they will be presenting the finding elsewhere)	Potential dissemination formats (e.g., infographics, formal presentation, conference, manuscript)	Month and year of planned dissemination	Person(s) responsible for dissemination
Stormwater Management Team	Effectiveness, implementation	Implementation team and will be charged with adjusting plan	Results debrief meeting with recommendation one-pager	Fall 2025	Evaluation Team
Mayor and city council office	Effectiveness	Will make decisions on value of other greening initiatives	Presentation	Fall 2025	Evaluation Team
Townsville City residents (particularly intended pop.)	Effectiveness	Would like to stay updated on health risk aversion due to floodable park	Open discussion	Spring 2026	Evaluation Team

## PART 4. Project Management

This section is divided into two parts, to help planners conceptualize management for the adaptation action and the evaluation separately, since distinct planning and project management activities are often needed for each.

### A. Adaptation Action

#### Needed resources

No further resources are required.

#### Team roster, identifying roles and responsibilities

Individual	Role in Project	Responsibilities
Cinthia P.	SMT lead	<ul style="list-style-type: none"> <li>Coordinate SMT meetings</li> <li>Manage timeline</li> </ul>
Holly D.	Construction lead	<ul style="list-style-type: none"> <li>Coordinate with city planner on development</li> </ul>
Matt S.	Stormwater specialist	<ul style="list-style-type: none"> <li>Manage stormwater pipe threshold and monitoring</li> </ul>
Josh P.	Fight for Clean Water representative	<ul style="list-style-type: none"> <li>Represent community partners and residents</li> </ul>
Tobias M.	City Council representative	<ul style="list-style-type: none"> <li>Manage budget and contracts</li> </ul>
Kathy B.	Health representative	<ul style="list-style-type: none"> <li>Leads health assessments and integration</li> </ul>

#### Timeline with milestones and deadlines

- Year 1 (2022): Planning
  - Climate impact compendium (Nov. 2021)
  - Finalize partners and SMT (Feb. 2022)
  - Collaborate with residents
    - Communication campaign methodology (May 2022)
  - Site selection
    - Candidate review (June 2022)
    - Open forum discussion (Aug. 2022)
    - Final selection (Oct. 2022)
- Years 2–3: Implementation

## Example BRACE Adaptation and Evaluation Plan

- Communication campaign initiated
  - Pre-survey (knowledge assessment) distributed
  - Climate challenge communication product developed and distributed
- Floodable Park construction
- Year 4: Data collection
  - Stormwater flow
  - Resident post-survey
- Year 5: Evaluation and Reporting
  - Community open forum
  - Evaluation analysis and dissemination

### B. Evaluation

#### Needed resources

The goal is to obtain additional evaluations expertise in natural resources management if funding allows. This could be done via a services contract. If not, we will plan to find affordable evaluation training to help implement an effective evaluation and use CDC and other evaluation resources available online.

Progress is still required on developing an incentive program with local organizations to benefit participants of the communication campaign and evaluation.

#### Team roster, identifying roles and responsibilities

Individual	Role in Evaluation	Responsibilities
Kathy B.	Evaluation lead	<ul style="list-style-type: none"><li>● Manage timeline, design, and implementation of evaluation</li><li>● Hire evaluator or obtain training for evaluation team</li></ul>
Cynthia P.	Project lead	<ul style="list-style-type: none"><li>● Oversee evaluation progression</li><li>● Ensure data available</li></ul>
Bobby F.	Graduate student	<ul style="list-style-type: none"><li>● Lead overflow and water quality data collection and analysis</li></ul>
Stacey K.	Resident representative	<ul style="list-style-type: none"><li>● Lead communications campaign and process evaluation data collection</li></ul>

#### Timeline with milestones and deadlines

Year 1: Evaluation planning (2022)

- Confirming evaluation team
  - Hire evaluator

Years 2–4: Data collection

## Example BRACE Adaptation and Evaluation Plan

- Communication pre-/post-survey
- Stormwater overflow data
- Qualitative

### Year 5: Analysis and reporting

- Analysis
- Dissemination of findings
- Planning for next steps