



Smart  
Waterloo  
Region



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Waterloo  
Region



# Smart Waterloo Region Proposal

  @SmartWatRegion

#smartwr #bestcommunity4kids

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# 1. Executive Summary

Waterloo Region is a community full of startups, tech companies, advanced manufacturing, high finance and world-class academic institutions. When the numbers showing that children and youth in the community weren't doing well, it was shocking. So regional stakeholders came together to try and understand what was going on. Why graduation rates were low. Why vulnerability to children in the early years was worsening.

The fact is Waterloo Region – like Canada as a whole – isn't the best place in the world to be a young person. It's average. (Maybe below average.) But that can change. And Smart Waterloo Region (SWR) is going to change it, by doing some of the things this community does best: collaborating, creating cool tech, innovating and getting the community involved.

## **Smart Waterloo Region Challenge Statement**

***We will become the benchmark community in Canada for child and youth well-being by using early intervention, youth engagement and a connected-community framework to create adaptive, data-driven programs and scalable learning technologies that improve early child development, mental health and high school graduation rates.***

The SWR initiative is a \$155M project. Its aim: to work with community partners, experts and tech companies to design, develop and deploy technology- and data-enabled programs and services with the intent to improve child and youth well-being. In partnership with UNICEF Canada, SWR will create and launch a data platform to collect, house, analyze and use data that feeds understanding of the complex nature of well-being, and to give the right people (children, youth, families) the right information or the right technology at the right time. The scope of SWR activity is intended to reach deeply and widely into the community to enhance child and youth well-being for as many residents as possible.

Through a ground-breaking partnership with UNICEF Canada, and based on significant evidence from community engagement and research, SWR has identified important root causes, areas of need and potential technology- and data-driven solutions that might help. SWR worked directly with children and youth, government, school boards, tech firms, child and youth service partners, Indigenous people and more to identify why and how technology- and data-enabled solutions might improve child and youth well-being, specifically in the areas of early childhood development, literacy, mental/emotional health and sense of belonging.

The list of solutions addresses nearly all aspects of the community - with supports for things such as for rural education, Indigenous STEAM programming and resources to help new Canadians get connected. And through the UNICEF Canada partnership, SWR will create the capacity to better understand the nature of well-being, and the impact of programming in Waterloo Region and – once scaled – across Canada through a data-rich platform. The SWR Data Collaborative platform, has proven that SWR can pull data from organizations of all sizes and all geographies to provide meaningful analysis on key factors related to child and youth well-being.

Waterloo Region does things differently. Some say it comes from barn raising roots - from a time when neighbours came together to help neighbours. Or it's from the entrepreneurial ecosystem which prizes agility and adaptability. Whatever the case, Waterloo Region is a small competitor in a big category, and every bit of funding goes further here. It makes a bigger impact.

Children and youth in this community need help. And that's what drives Smart Waterloo Region; the idea that everything planned here, can make a difference in every child's life, for the rest of their life. In short, when Waterloo Region wins, Canada wins.

## 2. Vision

Connected. Daring. Collaborative. These are hallmarks of Waterloo Region. It's a community with substantial assets, a strong economy, committed people and a grass-roots desire to affect change and increase the quality of life for everyone. Despite the success story of Waterloo Region, local children and youth are in trouble.

At least one in five children and youth in Waterloo Region are struggling in critical areas that are foundational to well-being: early childhood development, literacy, mental/emotional health and sense of belonging. This struggle will affect them for the rest of their lives. This is not acceptable. And what became crystal clear during Phase 1 and 2, through evidence gathering with community partners and engagement with children and youth, is that the community doesn't believe it is acceptable either.

Waterloo Region needs change. Smart Waterloo Region (SWR) has identified areas where technology and data can support well-being – areas such as skill development, fostering relationships between people, connecting children, youth and families to services, information, support, health, education - all building blocks of well-being and positive future outcomes.

It will happen. Waterloo Region will be transformed into the best community in Canada for children and youth. It won't stop there, though. The data, technology solutions, everything learned will be shared so Canada can be better too. SWR's collaboration with UNICEF Canada will help to make that a reality and help Canada become the best country to grow up in.

### What do the numbers say?

#### **Early Childhood Development:**

Approximately one in three children in Waterloo Region are vulnerable and not ready for school with the skills they need.

**Literacy:** Since 2013, approximately one in five students in Waterloo Region have not successfully completed the Ontario Secondary School Literacy Test (OSSLT).

**Mental/Emotional Health:** Approximately one in five youth in Waterloo Region do not report positive mental health.

**Sense of Belonging:** Only one in five youth in Waterloo Region report having a very strong or somewhat strong sense of belonging to their community.

### 2.1. Partnership with UNICEF Canada

UNICEF Canada is leading a movement to advance the well-being of children and youth across the country. Through its One Youth initiative, UNICEF Canada has set a bold goal for Canada to be the best place in the world to grow up in by 2030. UNICEF Canada and SWR share a common goal and have established a partnership to make a difference in Waterloo Region and across the country. This partnership includes the following:

- UNICEF Canada is supporting SWR as it adopts and adapts UNICEF Canada's Canadian Index of Child and Youth Well-being (CY-Index) for use in a local context. Other communities in Canada will be able to leverage SWR's learnings and tools for using the CY-Index, and measuring child and youth well-being at the community level.
- UNICEF Canada and SWR are collaborating to develop the Child and Youth Well-being Dashboard, based on the CY-Index in Waterloo Region. The Dashboard will be prototyped here and made available to other communities across Canada.
- UNICEF Canada and SWR will work with the Children and Youth Planning Table of Waterloo Region (CYPT) and other partners to develop a community survey of children and youth that will support critical data collection, innovate new approaches to engaging youth and build capacity to deploy the survey and engagement in other communities.
- UNICEF Canada will leverage and contribute the organization's global leadership to define and support the rights of children in relation to data across all stages of the implementation of the data cycle, including protection and participation.

- SWR and CYPT will support the design and implementation of UNICEF Canada’s approach to UNICEF’s global Child Friendly Cities Initiative (CFCI) – enabling public recognition of local government investment and goals to improve the conditions and quality of life for children and youth.
- UNICEF Canada will help connect international contributors to the planned Centre of Excellence for Child and Youth Well-being (Chapter 4) and identify opportunities to share good practice beyond Canada’s borders.

When UNICEF Canada leverages the local efforts of SWR, and SWR leverages the national work of UNICEF Canada, efforts and impacts of both will be greater. Children and youth in Waterloo Region, as well as the rest of Canada, are poised to benefit greatly from this partnership.

## 2.2. Why Waterloo Region

Waterloo Region leveraged its barn-raising beginnings, created a robust innovation ecosystem and is now recognized for excellence in technology, advanced manufacturing, finance and education across Canada and around the world. The talent, entrepreneurial spirit and research excellence are here. The policy makers, social researchers, governance experts and data experts are trained here. They live, work and raise families here.

A spirit of cooperation, camaraderie and concern is an integral part of Waterloo Region. It seeps into working life, neighbourhoods and is most evident in the concern community members show for each other. In short: Waterloo Region has the right constellation of attributes and attitudes to get this important work done. And it offers all types of communities in one: cities, small towns and rural townships. Waterloo Region is the perfect location to test, deploy and learn how to scale up and scale down solutions because every context exists right here.

Waterloo Region is not the largest community in the *Smart Cities Challenge*, and that’s an advantage. It’s small enough to move quickly, gain consensus easily and make things happen. It’s big enough to attract significant resources, find talent and capture important input from a broad cross section of people: all ages, all genders, all backgrounds. Most importantly, Waterloo Region punches above its weight.

- It’s nimble and adapts to challenges and changes quickly
- It’s responsive and can get the right answers from the right people in a phone call
- It’s innovative with more patents than anywhere else in Canada, and over 150 research institutes and innovation hubs
- It’s risk-taking and is the birthplace of ideas that have changed the world
- It’s ready. Agreements are in place, organizations, government and business are on board and the community is mobilized

In short, SWR will make a big impact. It will change the game because this community has the will, the resources and the desire to make a difference, to make all children and youth here – and in Canada – happy, healthy and safe.

*“Waterloo Region is not afraid of setting bold goals and measuring them. If every big city in Canada had such resolve, Canada would be much closer to the top of UNICEF league tables of child and youth well-being.” - UNICEF Canada, Where Does Canada Stand? 2019*

## 2.3. Wayfinding and Staying the Course

In Phase 1, SWR worked with CYPT and Wellbeing Waterloo Region (WWR) to select six areas of focus as the areas of greatest urgency for child and youth well-being, and areas where community organizations were ready to provide support:

- Bullying
- Early childhood development
- High school graduation
- Literacy
- Mental/emotional health
- Sense of belonging

### CYPT

The [Children and Youth Planning Table of Waterloo Region](#) is a community-wide partnership. The partnership includes over 500 individuals representing service providers, researchers, planning bodies and funders serving children, youth and families in Waterloo Region.

SWR and CYPT tested these areas in Phase 2 – seeking to better understand each area, as well as the interconnections between them. Research and analysis included collecting data across all dimensions of child and youth well-being, extensive community engagement (see Chapter 3), consultation with researchers and organizations at the forefront of child and youth well-being, and primary and third-party research (primarily occurring in Phase 1). The work also included direct engagement with children, caring adults and child and youth professionals to better understand and map the root cause issues getting in the way of greater impact.

This work led SWR to narrow to four areas of focus (early childhood development, literacy, mental/ emotional health and sense of belonging) and increase the importance of addressing root causes.

## Findings

### *Areas of Focus*

These are the four areas where SWR can have the greatest impact. The evidence SWR uncovered, and discussion with community partners, was clear: bullying and low high-school graduation rates are outcomes of poor experiences in each of these four focus areas. SWR implementation will focus on addressing the four areas described below – because they each contribute to meaningful well-being outcomes in general, and because research indicates that all have an impact on bullying and high school graduation. For example, children and youth (and all people) have a fundamental need to belong. When children and youth feel excluded by peers, their sense of belonging may become threatened, and they may attempt to solve the problem through bullying behaviour. Another example - the first five years of life are a critical developmental period. The experiences and health of children during this time set the foundation for thinking, cognitive and emotional skills. These skills are predictive of later success in many domains - including high school graduation.

Early childhood development	Literacy	Mental and emotional health	Sense of belonging
<p>The early years from conception to age five have the most important influence of any time in the life cycle on brain development and subsequent learning, behaviour and health.</p> <p>Early experiences and relationships help guide healthy cognitive, emotional, and social development.</p> <p>Investing in the early years has a direct impact on economic, social, and health outcomes for both individuals and society.</p>	<p>Literacy is strongly connected to well-being; Health Canada identifies literacy as a major determinant of health.</p> <p>Research has established a strong connection between literacy, economic security and well-being. Canadians with lower literacy skills are more likely to be unemployed, work in lower-paying jobs and live in low-income households.</p>	<p>Children and youth with good emotional health, and self-regulation skills, can better understand and manage their emotions and the emotions of others. This contributes to building healthy relationships with peers and caring adults in their life, and the ability to cope with challenges.</p>	<p>Feeling a social and environmental connection gives children and youth a sense of stability, helping them deal with challenges and uncertainty.</p> <p>Those with a strong sense of belonging are more likely to have social networks and be engaged in their community.</p>

### Root Causes

In order to make a real and lasting impact on child and youth well-being, work has to be done to address root cause issues. Root cause issues are harmful factors or conditions that have impact across a child or youth's life (see Chapter 3). By addressing issues that run underneath well-being challenges (e.g., unequal access to services, stigma) SWR can help shift the underlying, contributing factors and, in some cases, affect change across all focus areas simultaneously. SWR can create solutions that help move the needle on child and youth well-being in Waterloo Region through new applications of technology, or changes to policies or practices based on robust data.

*"The foundations for adult success and failure are laid down early in life. Children raised in disadvantaged environments start behind and usually stay behind throughout their lifetimes."*

*The Economics of Child Well-Being. IZA, 2012. <http://ftp.iza.org/dp6930.pdf>*

### Connectedness and Relationships

The development and deepening of significant collaborations within and outside Waterloo Region will continue to be a significant part of SWR. Notable collaborations have led to:

- A successful pilot of the SWR Data Collaborative which will allow the community to leverage data to better understand the well-being of children and youth
- The mobilization of technology firms and organizations in creating or tailoring open, scalable, interoperable, future-proofed solutions to help children and youth across Canada

- The integration of youth into the design and development of SWR strategic planning, project design, pilots and assessment
- The deepening of relationships with underserved and/or underrepresented segments of the community

### **Evidence-Informed Decision Making**

SWR has committed to decision making based on the best available evidence, gathered from a variety of sources including:

- Quantitative and qualitative data related to the well-being of children and youth (e.g., CY-Index Measures)
- Best available research (e.g., post-secondary partners, UNICEF Canada.)
- Engagement with community: school boards, social-service organizations, technology, data and privacy sectors, and children, youth and caring adults

### **Technology- and Data-Enabled**

Children, youth and families exist in a digital age. They interact with technology everyday. Technology-enabled solutions are reflective of the way the world works, and they allow for greater impact and reach. More children, youth and families will be able to benefit from the supports and information available in the community with the help of technology. SWR also provides an opportunity to intentionally examine the role of technology in society and foster a community dialogue on what is healthy and supportive, versus disconnected and harmful. This will help ensure that ultimately, the incorporation of technology is for the benefit of children, youth and families and not the detriment.

"If you can't measure it, you can't improve it." - Peter Drunker, management consultant, educator and author

People want to improve outcomes for children and youth. They want to know that their investment of time and other resources is making a difference. SWR will make available high-quality, meaningful data that will support the very best measurement and knowledge of child and youth well-being. Measurement will be possible like never before, and the ability to make improvements to child and youth well-being will be unprecedented.

## **2.4. Why Child and Youth Well-Being is Smart**

The 2017 [UNICEF Report Card Building the Future](#) ranks the well-being of children and youth in 41 countries. Canada is just...average, ranking at 25th. It's shocking and upsetting, because most assume Canada is faring well when it comes to well-being, and because everyone wants children to have the opportunity to live up to their potential. For a variety of reasons, that's just not happening; Canada isn't the best place in the world to grow up.

That's not the only reason why this community, and this country should be concerned with child and youth well-being.

*"From an economic perspective, what should be apparent is that children's health and wellbeing are the foundation of future economic success. Early interventions that address known public health problems in children can have enormous payoffs in the future."* [Raising Canada Report, 2018](#)

In Waterloo Region, businesses see an economic problem looming on the horizon. Companies know that employees weigh how the community supports children and youth (e.g., how local schools compare, family supports offered) as one of the first criteria when considering relocation. They understand that a community with poor child and youth outcomes will not attract talent. They also understand that children and youth are the future work force and the innovators of tomorrow. Unless they aren't; unless Waterloo Region continues to lag in fostering child and youth well-being.

SWR is an investment in the future. It's an investment in leveling the playing field for children, youth and families – especially those furthest from opportunity. It's an investment in better futures for young people and communities. And a better future for Canada.

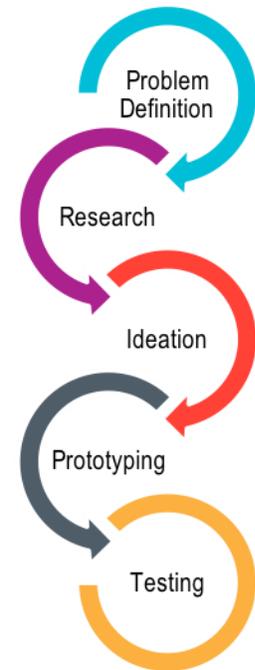
This is SWR's checklist. The insights and learnings that have served and will serve as touchstones for SWR. It looks simple, but it's not. Each of these has context that is unique to this community and this process.

<b>The Checklist</b>		
Base decisions on evidence	Solve systemic problems	Connect and collaborate
Address root causes	Enhance human connection	Measure everything, measure often
Engage community – often	Reach those furthest from opportunity	Data is power
Engage children and youth directly	Design for all	People want to help
Break down silos		

### 3. Engagement

SWR engagement is based on a continuous cycle of defining, developing and checking-in to make sure plans and projects accurately meet the needs of the community. (See Design Thinking in Chapter 8) Through the project, SWR has and will continue to:

1. Attract people from every corner, sector, group and age (because they are the community), and with them...
2. Describe and understand needs, gaps and problems (issues) through consultation and research
3. Check-in to verify that a) SWR has the right set of priorities and b) the right understanding
4. Come up with creative ways to solve, mitigate or reduce issues, and then test those ideas
5. Talk about what's going on – in person or through other channels – to update and include the community regarding progress, changes and needs
6. Refine approaches and repeat

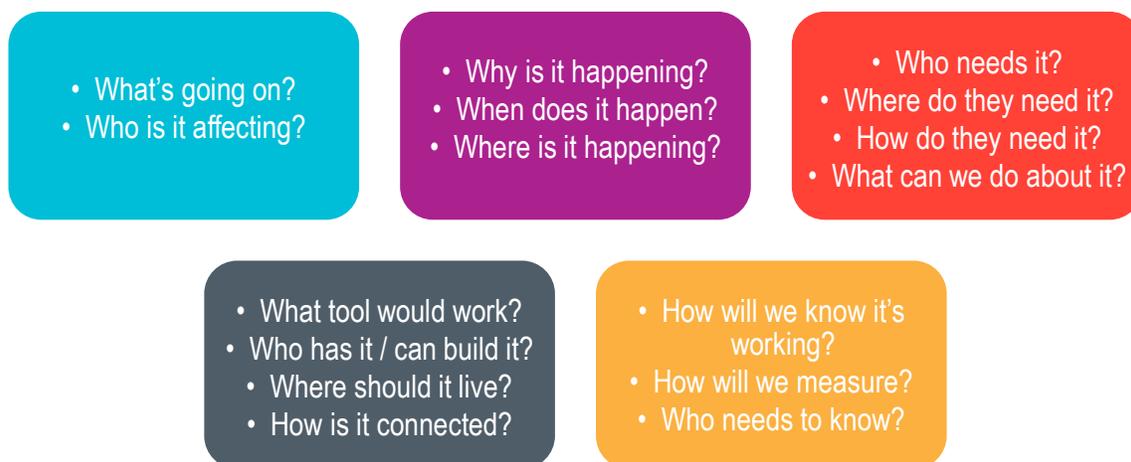


SWR used this engagement approach because it's important that this project is holistic and inclusive. Input happens continuously – at any point in the cycle, with any stakeholder. Engagement can include scheduled events like hackathons with youth, meetings with rural groups or an ideation session with a tech company CEO. It can also include spontaneous input like commentary via social media, or community conversations on changing policy.

#### 3.1. Phase 2 Engagement

Phase 2 was about fully defining the “problem” and thinking about how SWR might use technology to solve or alleviate it. Most of the work involved developing an evidence-based understanding of the constellation of root causes, socioeconomic effects, and social pressures that have an impact. Then it moved to, thinking about how to affect and measure using technology and data as enablers.

Phase 2 was intended to answer the following questions leading into implementation.



##### 3.1.1. Connecting to Expertise

SWR, CYPT and community partners explored child and youth well-being extensively. Activities included:

- Research (provincial, national), including direct engagement with children and youth.

- Extensive engagement in the community including child and youth serving organizations, caring adults and youth. Included discussion about the challenges or barriers faced by children and youth.
- Examining system-wide child and youth well-being data to understand how children and youth are faring across all dimensions of well-being
  - Analysis of data over time to understand trends (i.e., where Waterloo Region is getting worse or better over time)
- Analysis of outcomes across municipalities, townships and – where possible – across neighbourhoods
- Accessing best practices from other communities, as well as national and international efforts related to child and youth well-being

### 3.1.2. Connecting to Community

Starting with known organizations through CYPT, and networks of CYPT member organizations, community networks and groups, SWR began collecting opinions, insights and information from the community. To get more deeply into the community, SWR accessed networks via organizations and individuals in the technology, education, social service sector and other partners to make connections and engage with the widest possible diversity of people in Waterloo Region including:

- Local youth: informal youth participation, as well as, the Smart Cities Innovation Council: Youth Unite Here (SCIC YUH, a group of local youth representatives who came forward on behalf of the community to co-design SWR activities and extend engagement efforts via their established networks)
  - Over 2,000 children and youth in the Region supported SWR through online supporting signatures
- Community and social service groups through the CYPT's 70+ member organizations, including: EarlyON Child and Family Centres, education, social and mental health organizations, central and rural libraries, community centres, etc.
- Rural community organizations: Rural Child and Youth Wellbeing Initiative (RCYW) and others throughout the townships
- Diversity and welcoming groups: Carizon, KidsAbility, OK2BMe and English language support, Indigenous, Low German, and multicultural groups
- Technology groups and companies, including: Communitech, CivicTech Waterloo Region (representing a cross-section of technology and data experts), and many others throughout Waterloo Region
- School Boards: conseil scolaire Viamonde, KidsAbility School Board, MonAvenir conseil scolaire catholique, Waterloo Catholic District School Board (WCDSB), and Waterloo Region District School Board (WRDSB)
- Post-secondary and research institutions: Conestoga College, Wilfrid Laurier University (WLU), the University of Waterloo and Perimeter Institute
- Partner municipalities: representatives from the three cities and four townships assisted
- Provincial organizations: Ontario Ministry of Education
- National organizations: UNICEF Canada, YMCA National Network

One of the amazing outcomes of community engagement has been that SWR has made stronger connections within Waterloo Region, including new relationships with organizations that are atypical in the child and youth well-being space (for instance, tech companies), and deeper working relationships with known groups (e.g., local Indigenous-serving organizations). SWR has identified a need to add more individuals and groups representing newcomers, non-English speakers, those with disabilities, voices of very young children and those living with low income to future engagements. In implementation, longer timelines will enable deeper relationships and support engagement with these community groups.

## 3.2. Events

In Phase 2, SWR undertook extensive community consultation - including organized meetings, youth workshops, communication outreach and events. These engagements spanned from one-on-one meetings through to large scale community forums. Key engagements throughout Phase 2 are included in the table below, representing over 1,500 participants. Each event was supported by community partners from different sectors in Waterloo Region.

Event	Description of Engagement
<b>1 CYPT and Youth Stakeholder Lab</b>	Root causes
<b>1 CYPT Stakeholder Lab</b>	Root causes problem statement session
<b>1 Youth Research Session</b>	Define meaningful youth engagement
<b>1 CYPT Working Group</b>	Root cause validation
<b>1 Youth Validation Session</b>	Root cause validation
<b>3 SWR Launch Events</b>	Raise awareness and engagement in SWR initiative, input via Conversation Toolkit
<b>5 Feedback Sessions</b>	Mini-engagements hosted by partners to engage children and youth and community members using the Conversation Toolkit
<b>4 Stakeholder Labs</b>	Idea generation of solutions by each area of focus
<b>4 Pop-up Events</b>	General ideas regarding child and youth well-being, and gather input into problem statements (i.e., root cause work)
<b>1 Youth Engagement Forum</b>	Design-thinking sessions co-designed with youth. Included idea generation, prototyping and testing around the prioritized problem statements (i.e., root cause), life skills
<b>1 Street Team Survey</b>	Youth Advisory members who leveraged their networks to get feedback re: general well-being and issues that their peers experience
<b>1 Hackathon</b>	Hackathon using the outcomes from Stakeholder Labs to iterate and create prototypes to inform solution development
<b>3 Pop-up Events</b>	Engagement re: problem statements and prototyped ideas to gather feedback and understanding
<b>10 Pop-up Events (4 facilitated)</b>	Testing of prototypes from Hackathon
<b>French survey, online</b>	Requested feedback regarding prototyped ideas, helped with validation

### Key Engagement Events - Phase 2

#### *Root Cause Stakeholder Lab*

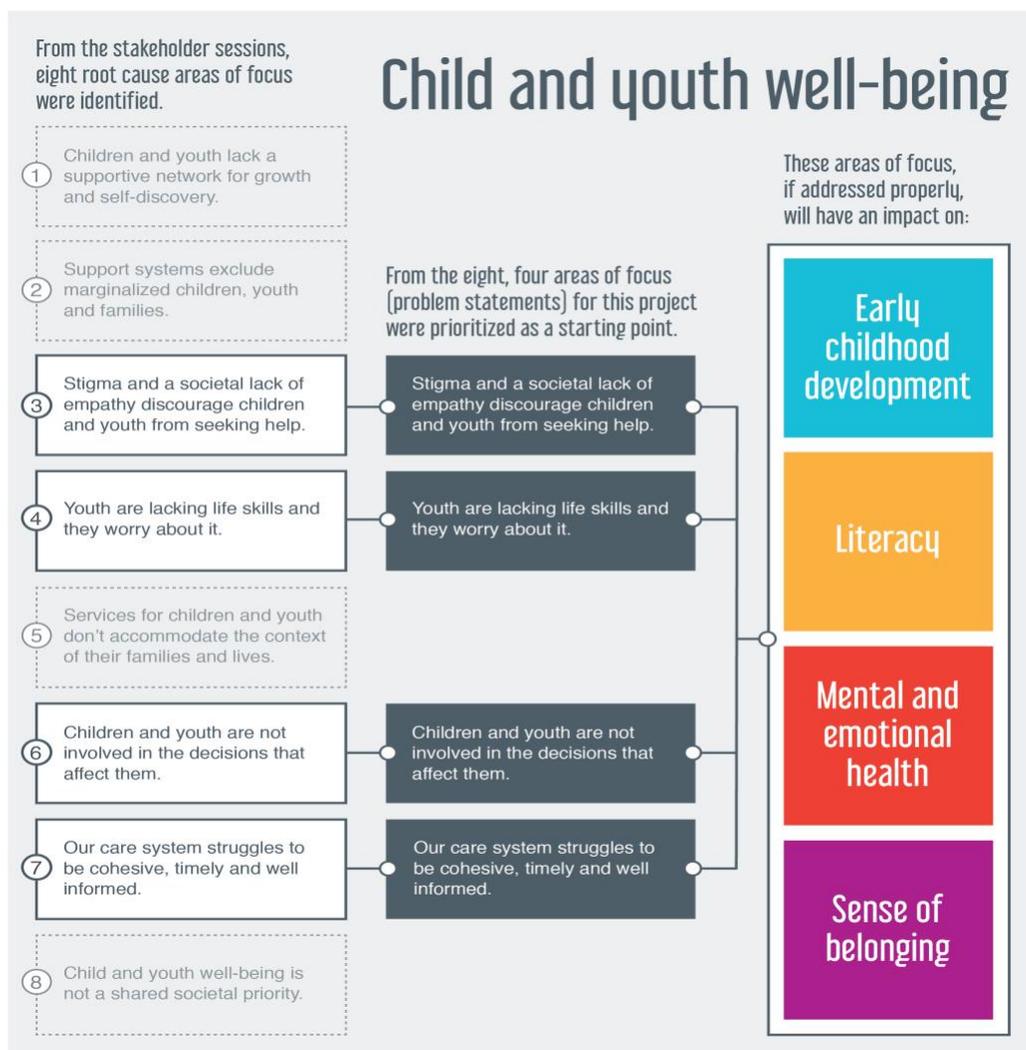
On June 12th, SWR and the CYPT brought 174 participants together to explore the obstacles to well-being children and youth face in this community. Participants included youth, parents, and representatives of child-serving organizations. The goal of the day was to map the problems that prevent improvements in child and youth well-being, define problems, and provide a foundation and common understanding for child- and youth-focused initiatives in Waterloo Region moving forward.

Participants worked in groups to identify obstacles in each of the original six priority areas, using a consensus building approach to uncover themes, and explore the many factors affecting child and youth well-being. Better understanding of the problem from the perspectives of those involved has led – and will continue to lead – to better solutions.

One of the event outcomes was an interconnected map of societal, socio-economic and systemic circumstances that impact child and youth well-being directly and indirectly. Exploring the layers, causes and symptoms that impede child and youth well-being led to the development of eight overarching root causes impacting SWR's focus areas (see

diagram below). This consultation led to further evidence development. The results had impact on SWR's go-forward strategy:

- Identification of two areas of focus (high-school graduation and bullying) as outcomes rather than distinct focus areas (see diagram below)
- Reduction of focus areas from six to four (early childhood development, literacy, mental/emotional health and sense of belonging)
- Identification of eight root causes impacting child and youth well-being
- Mapping the impact of root causes against areas of focus
- Identification of root causes having impact across more than one area of focus
- Prioritization of four root causes as a starting point for SWR



The exercise in naming obstacles and identifying root causes is one that could be replicated in other communities, to unearth important barriers and create a common framework for discussing and prioritizing efforts.

### Youth Hackathon

Child and youth engagement was a critical part of Phase 2. SWR wanted to make certain that the voices of young people were heard, they were directly involved in co-designing solutions, and that youth were part of ongoing implementation efforts. SWR hosted a large-scale, day-long, design-thinking Youth Engagement Forum on January 12<sup>th</sup>, 2019.

The Youth Engagement Forum brought together over 120 youth from across Waterloo Region. Attendees (ages 12-18) represented the diversity of different cultural, socioeconomic, LGBTQ2+, urban and rural communities.

Co-created with the Youth Advisory Committee, the Forum took shape as a mini-design cycle, with engagement activities created to define, research, ideate, prototype and test solutions with and for youth. From these activities SWR gained further insight into how young people think about well-being, confirming extensive research and helping to structure solutions.

The feedback received from the youth attendees was inspiring and electric. Many participants saw this opportunity as a time and place for their voices to be heard, where they took ownership and invested in their future.

Youth told SWR that these types of engagement events are important to them, including smaller, casual events held regularly in addition to larger forums. During implementation, SWR will host similar events and iterate on this experience, incorporating youth feedback to co-create future engagements.

### 3.2.1. Communications

To support engagement efforts and to create awareness and excitement throughout the community, SWR ran a robust communications campaign from November 2018 to February 2019. The campaign leveraged traditional media (print, radio, web), social media (Twitter, Instagram, Facebook) and the SWR website ([www.smartwr.ca](http://www.smartwr.ca)). Total impressions and reach totaled over 1 million.

#### Traditional media

- Radio ad campaign and radio interviews, reaching over 250,000 local listeners
- Articles about SWR ran in Kitchener Today and Waterloo Region Record print media, on the CBC and Global News websites, on 570News and CBC Kitchener-Waterloo radio stations and local podcasts

#### Social media

- From November 2018 to February 2019, the @SmartWatRegion Twitter handle received over 836,000 tweet impressions, and attracted over 400 new Twitter followers
- Attracted over 300 new Instagram followers
- Launched Facebook account, garnered feedback and input from social media channels in response to content

#### Website

- Over 5,000 community members were informed through the SWR website
- Engaged community members by asking in-depth and long form questions

In addition to traditional media, social media and website engagement, SWR leveraged an extensive network of communicators from partner and community organizations. This network promoted rich, shareable content provided by SWR, helping to raise awareness of events, general information and engagement opportunities in the community. This collaborative communication strategy was extremely successful and will be leveraged during implementation.

## Youth-Centred Design

SWR used UNICEF Canada's Youth-Centred Design process to gather feedback from children and youth. Including them in the design process yielded more meaningful, impactful and authentic solutions. [UNICEF Canada's Youth-Centred Design Toolkit](#) provides guidelines, workshop tools and techniques that child- and youth-centred organizations from anywhere in Canada can leverage to include children and youth in the development of policies, programs and other actions.

### 3.3. Engagement During Implementation

#### Insights Informing Implementation

All engagement, through implementation, will be iterative. Learnings, insights and feedback will support technology- and data-enabled solution development, project improvements, and will inform SWR practices, communication strategies and governance considerations. The following insights came from Phase 2 engagement and will remain central to engagement during the implementation phase.

- Address root causes to affect change
- Solutions must enhance – not replace – human connection
- Solutions must reach young people and families furthest from opportunity and of all ages
- Generate, refine, and test ideas that solve system issues

*“Old problems need fresh solutions, and that’s why listening and co-creating with youth is so important.” - Meena Waseem, age 17, SWR Youth Advisory Committee*

### 3.4. Implementation Engagement

Implementation will be about building, testing and refining solutions and results using an agile framework. SWR will use the continuous cycle of defining, developing and engaging to make sure beliefs, plans and projects accurately meet the needs of the community.

The timeline for engagement in implementation will be flexible but will loosely be structured around quarterly cycles that will provide a framework for the Implementation Team to plan, execute, learn and adapt. Each cycle will start with a kick-off and planning time when the team will identify engagement priorities, audiences, and tools. This will include the Youth and Adult Advisory Committees (see Chapter 7) and other key stakeholders. Each cycle will end with reflection in the form of a retrospective.

SWR cannot accurately prescribe the number of engagement events and the types of tool use ahead of time, as these approaches need to be flexible and oriented around the development of solutions (see Chapter 4).

#### Communications and Engagement

SWR will continue to communicate with the community via online and other media tools. Information regarding communication may be found in the Project Management section.

During the initiation kick-off and planning phase, SWR will develop a fulsome community engagement strategy with particular focus on meaningful child and youth engagement. The strategy will include a schedule for labs, surveys, youth events etc. as part of:

- Feedback to inform upcoming SWR engagement cycle plans
- Implementation of individual solutions

### 3.4.1. Engagement Tools and Events

SWR will continue to use proven tools and events to engage the community and feed the design cycle. These events will include:

Tools	
<b>Toolkit Labs</b>	The Idea Toolkit engages children and youth in creative activities that respond to the SWR focus areas. The Conversation Toolkit is designed to gather caring adults perspectives and engage parents of children too young to engage with the Idea Toolkit or other design-based activities (ages 4 and under).
<b>Online</b>	SWR will employ social media tactics using simple questions (i.e. Instagram story polls) to provide information and gain input. The website will include long-form questions for consideration and feedback and act as the central source for communications. Remote sessions (by video conference) and online surveys may help engage with rural, those with disabilities and multilingual stakeholders.
<b>Surveys</b>	SWR will continue to use surveys (online, in-person, facilitated) as appropriate to gather feedback from the community
<b>Hackathons</b>	SWR will work with partners in the technology sector to host a Hackathon event twice per year. Based on learnings from Phase 2, SWR will host smaller, integrated Hackathons with the technology, education and social services sectors and children and youth to co-create, iterate on and test solutions.
<b>Youth Events</b>	SWR will work with the Youth Advisory Committee and local children and youth to co-create and host youth events throughout implementation. Two large engagement events (similar to the Youth Engagement Forum) will be hosted throughout the year. Smaller events will also take place throughout the community, dependent on need and children and youth input. SWR will work with technology partners to integrate various technology such as gamification to support ideation.
<b>Summit Event</b>	The Child and Youth Well-being Data Summit is proposed as an annual forum to discuss the CY-Index, children and youth engagement in data, data-related innovations, and privacy and security issues relating to children and youth. The Summit would be held in partnership with UNICEF Canada, CYPT and other partners at the Centre of Excellence (COE) and draw an audience of researchers, social service organizations, youth and government representatives from across Canada and around the world.

### 3.5. Diversity During Implementation

SWR will reach a broad cross-section of the community by leveraging the existing relationships and networks of key partners involved in the SWR work. SWR will rely on the Youth Advisory Committee and Adult Advisory Committee to ensure SWR is inclusive and considerate of the diversity of residents and the ways in which various groups could be affected by projects.

In addition to engaging diverse groups of children and youth, SWR will employ the above listed tools to engage diverse groups of adults and older adults. Recognizing that diversity comes in all ages, genders, backgrounds and abilities, SWR will work to ensure the entire community is informed and engaged in the project through implementation.

## 4. Technology- and Data-Enabled Solutions

SWR views technology and data as enablers; tools to help Waterloo Region improve child and youth well-being. There has been a concerted effort to ensure that solutions are deployed where they will best help overcome a problem or increase the impact of service and supports to children and youth.

Technology- and data-enabled solutions are only one component of a human-centred approach. And while SWR looks to integrate and leverage these solutions where possible, it is equally important to build the appropriate protocols and relationships to support delivery, safety and privacy for individuals and families.

### 4.1. Policies

The best available evidence will inform the purposes for which data are used, and inform the conclusions drawn from any insights gained through data analysis and mining. As such, any technology- and data-enabled projects planned for SWR are shaped by this principle and the need for SWR to determine program/project success and impact against outcomes.

SWR will develop policies and standards for interoperability and future-proofing that will apply to any technology and data-related project. These policies and standards will be included in the development of RFPs and the evaluation of partnerships, products and services.

#### 4.1.1. Replicability and Scalability

SWR is committed to scaling technology- and data-enabled solutions, as well as the SWR measurement and engagement approaches, with other communities across Canada. Through implementation, SWR will take a three-level scaling approach:

1. Scaling solutions to reach urban and rural children and youth across Waterloo Region
  - a. Solutions developed and implemented with school boards will first be scaled across Waterloo Region schools, as identified by local school boards
2. Scaling solutions to communities across Ontario
3. Scaling solutions with other communities across Canada

This approach to scaling or transferring solutions allows SWR and partner communities across Ontario and Canada to consider localized factors such as: geography, culturally diverse populations, socio-economic factors and the capacity of service-delivery organizations.

SWR will use a knowledge-sharing platform to share evidence, approaches to performance measurement and engagement, and solution identification and development with partners across Canada. Communities, governments and organizations will be able to use the platform to inform and encourage the adoption and adaptation of programs to other communities. Specifically, SWR will scale and share:

- Technology- and data-enabled solutions
- Lessons learned and best practices
- Research on child and youth well-being, including data sharing, security, management and privacy
- Information on open architecture and open coding

#### 4.1.2. Interoperability and Future-Proofing

Interoperability will be a central tenet in the implementation phase. SWR will establish a standardized application programming interface (API) for inputting data into the SWR Data Collaborative (described below), which will allow for the development of new standards for data on child and youth well-being. This allows data to be the connective tissue across all technology- and data-enabled solutions and does not lock vendors into using specific development platforms or languages.

APIs will allow organizations to build technology solutions on platforms or apps that best meets the need of the end user and will allow organizations to create the highest quality experience possible. Doing so will improve the uptake and acceptance of the technology and increase the chances solutions will be successful in delivering greater insights. This makes it easier for data analysts to quickly work with the information as there is less time required to clean and normalize the data. In addition, the standards developed can be rolled out to other communities, multiplying the benefits of interoperability by allowing easier analysis across multiple jurisdictions.

Communities and vendors that create apps or programs with the intent to use the SWR Data Collaborative will be expected to use and adhere to the standardized API approach. Clear rules around use and licensing agreements will be put in place to provide the necessary legal framework. Standards around data collection will be codified and will inform how the data architecture is built so it can scale and be easily replicated in other jurisdictions. Use of open architecture and software will be encouraged to ensure solutions can be easily adapted and made accessible to other user groups. During the implementation phase, SWR will determine the best approach to developing the SWR Data Collaborative platform based on this criteria including whether to build a new platform or purchase an existing platform and customize it for SWR purposes.

Other standards affecting interoperability and scalability include:

- Data collected from the application of technology, the sharing of data through the SWR Data Collaborative, and the assessment of data will be used to inform future technology- and data-enabled solutions, and pilot projects
- Identification of trends, impacts, and progress towards targets based on data will be used to inform community partners, and to help develop criteria and the framework for development
- Open-source software will be used where possible and will allow for maximum flexibility when customizing solutions to the needs of other communities (see Vendor Responsibilities below)

#### 4.1.3. Usability, Accessibility and Diversity

Through Phase 2, SWR identified a number of diverse child and youth populations in Waterloo Region, including but not limited to: rural; newcomer; Indigenous; children and youth with special needs; and children and youth identifying as LGBTQ2+. While the technology- and data-enabled solutions described are intended to benefit all children and youth, specific programming will be targeted at notably marginalized or underrepresented children and youth. Moving forward, in selecting solutions and through the RFP process, SWR will develop criteria that favours solutions that are accessible to diverse populations (e.g., translation, transportation barriers, cultural diversity, disability).

### 4.2. Vendor Roles and Responsibilities

As a condition of funding, successful vendors will be expected to comply with relevant privacy legislation and the privacy and data principles developed by SWR. Standards for safeguards to protect data will be required from each vendor prior to the piloting or implementation of any solution. Vendors and researchers will also be subject to SWR Intellectual Property (IP) principles for any new technologies developed through the customization process or development process.

To support the continuous advancement of technology- and data-enabled solutions to improve child and youth well-being in Waterloo Region and across Canada, criteria will include factors relating to:

- **Open Framework:** the part or parts of the framework developed for SWR can be separated and shared as open source to developers, other communities and organizations building solutions for children and youth.
- **Open Tools and Open Product:** identification of any open-source tools that could be adopted for other solutions and what permissions are available for the customization of technology- and data-enabled solutions.
- **Restrictive but Open:** For vendors with licensed or proprietary code, vendors must be able to identify how SWR (or other communities) may gain access to full code after purchasing a vendor license.

For additional information regarding compliance, legislative and regulatory issues, please see Chapter 5.

### 4.3. Smart Waterloo Region Data Collaborative

At the centre of SWR is the SWR Data Collaborative. It will be a regionally-based collaborative dedicated to building a well-managed data system that overcomes the limitations of siloed data systems and resolves privacy and trust issues in sharing data. It will aggregate data on children and youth from a variety of regional, provincial and national sources, as well as local organizations serving children and youth and their families, to provide a comprehensive understanding of factors contributing to the well-being of children and youth. Combining this community data into one platform, the SWR Data Collaborative will allow our community to track and monitor the well-being of children and youth, and will enable data-informed decision making and problem solving.

The SWR Data Collaborative will allow users to store, share and analyze data using statistical tools, artificial intelligence (AI) and machine learning (ML), in a secure platform, accounting for all privacy and security considerations through effective governance and safeguards.

Through the development of the SWR Data Collaborative, SWR will work with partners to develop policies, procedures and protocols that outline appropriate levels of authorized access to the data and information being included.

#### 4.3.1. Child and Youth Well-being Dashboard

In partnership with UNICEF Canada, SWR will build Canada's first real-time Child and Youth Well-being Dashboard (the Dashboard). The Dashboard will allow SWR to ensure accessible, interoperable and open data approaches while maintaining the privacy of personal information, personal health information and confidential information in its custody and control.

The Dashboard will provide visual output for the information collated by the SWR Data Collaborative. The Dashboard will be the place for Waterloo Region families, child and youth service providers, educators, researchers and policy makers to learn more about how children and youth in Waterloo Region are faring using the CY-Index as a framework. It will be based on an open-by-design approach and will provide data to the different audiences in accordance with relevant legislation. These insights can help the community collectively lead change to create better outcomes and a better community.

As a central source for tracking the indicators required for the CY-Index, the Dashboard will help SWR benchmark Waterloo Region now and on an ongoing basis. By tracking indicators, the community can celebrate successes as well as inspire individuals and groups throughout the community to take action where it is needed most.

Once the Dashboard has been developed and tested, it can be rolled out to other Canadian communities. SWR will ensure open-source coding is used in development and provided to other communities wishing to adapt the Dashboard for their own use.

### 4.3.2. SWR Data Collaborative Pilot

Understanding the Data Collaborative platform exists in other jurisdictions (e.g., Silicon Valley Data Trust), SWR decided to pilot the platform during Phase 2. SWR piloted the SWR Data Collaborative to demonstrate:

- The benefit of multiple organizations working collectively to break down silos and set a strong foundation for good data governance
- The successful development of relevant data privacy and security requirements for data sets from a multitude of sources and with a variety of privacy requirements
- That new, actionable insights related to the well-being of children and youth can be gained when data is shared among partners
- The benefits of applying AI and ML to data analysis
- That new insights allow for a shared understanding of well-being of children and youth in the community, better decision-making and a platform for coordinated service delivery

Early childhood development is one area of focus for SWR and a measure found in the CY-Index. With this in mind, and in the interest of keeping the pilot manageable, early childhood development was selected as a focus for the SWR Data Collaborative pilot. Specifically, vulnerability to difficulties in learning for Senior Kindergarten (SK) children as measured by the Early Development Instrument (EDI).

#### *Leveraging Existing Research*

There are several factors influencing early childhood development outcomes. The Phase 2 Data Security and Privacy Committee (DSPC) selected key data points from a number of sources for inclusion in the pilot in order to explore relationships and the magnitude of factors influencing outcomes in the local child population. These sources included:

- Early Development Instrument (2010 and 2015)
- Kindergarten Parent Survey (2015)
- Healthy Babies, Healthy Children (2014-2018)
- Region of Waterloo licensed child care spaces and locations (2015)
- Canadian Census (2016)

#### *Analysis and Tools*

With the support of the Phase 2 DSPC, SWR used a variety of statistical software packages and methods to analyze the data, including geospatial analysis, descriptive statistics and correlations. SWR partnered with Communitech and Terrene Technology Inc. (an AI and ML company based in Waterloo Region), to explore and analyze the data. A random forest model was trained to calculate the importance of each variable in predicting early childhood development outcomes in relation to the other variables available in the SWR Data Collaborative. The importance of each variable was measured by calculating the increase in the model's prediction error after permuting the variable.

#### *Insight*

The analysis helped SWR understand the complexity of variables underlying well-being and early childhood development. For instance, there was a strong correlation ( $r^2=0.6$ ) between the percentage of children who scored low on one or more domains of the EDI (EDI, 2015) and the percentage of families who indicated they have no disposable income (KPS, 2015). Geographically, this relationship manifests in a trend where the areas with the highest proportions of children vulnerable to learning difficulties also tend to be areas with the highest proportions of families without disposable income. Areas with the lowest proportions for both factors tend to also coincide. Similar findings for the correlations between children vulnerable to learning and income variables from the 2016 Census

(Low-Income Cut Offs and Median After-Tax Income) appeared to validate this trend. Low-income status and lack of disposable income were also strongly correlated with several other factors related to child well-being.

Analysis also determined the relative importance of variables to an independent variable (i.e. the percentage of children scoring low on the EDI). The model found parents' level of education – particularly completion of high school – is important in predicting the percentage of children scoring low on the EDI.

### **Outcomes and Next Steps**

When SWR expressed intention to undertake this pilot, many organizations thought it would not be possible. SWR made it possible. The pilot proves that working in collaboration and the collection, use and analysis of data from different sources to access localized insights about child and youth well-being is not only possible, but fruitful. As a result of the pilot, SWR has committed to scaling the SWR Data Collaborative and the Dashboard. In addition, SWR has confirmation of the validity of scaling the SWR Data Collaborative and the Dashboard in implementation.

The findings from these exploratory analyses were intended as a demonstration of the power of collaborative data analysis. However, the results certainly suggest localized issues related to inequality and early childhood development where potential community action might be warranted. More rigorous research and exploration are recommended. In order to conduct more rigorous exploration, SWR will work with data owners to access, share and analyze data with more granularity.

As a result of the pilot, the Phase 2 DSPC has made adjustments to the SWR Data and Privacy Principles to ensure any AI or ML algorithms are explainable. That is, recommended action can be a) trusted and b) easily understood by humans. Further, the pilot validated the importance of being research-focused, having experience and expertise, and having people who understand and can interpret the context of the datasets and outcomes.

### **Limitations**

Data was piloted at the aggregate dissemination area (ADA). As such, caution should be taken about relationships between variables at an individual level. Furthermore, only five data sets were included in the pilot, while there are countless factors that are known to influence early childhood development.

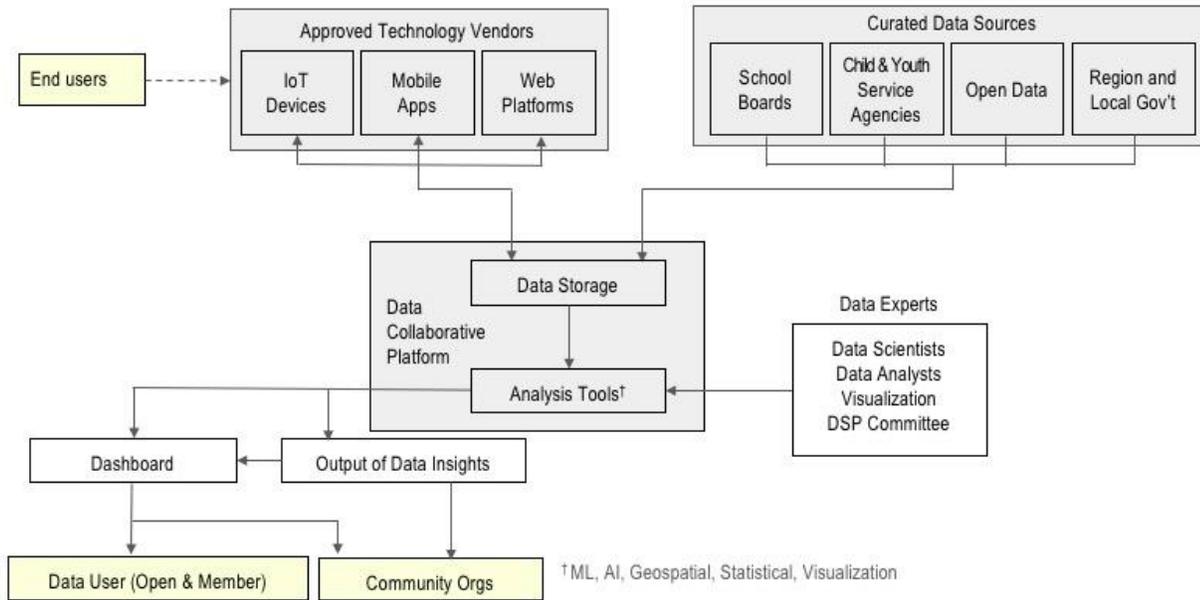
Calculating importance for a target variable when other variables in the data strongly correlate may result in the final calculated importance being “split.” This means the machine learning model places less importance on each individual variable. Results for this kind of analysis would be more accurate with a deeper version of this dataset with aggregate, more granular information from a greater number of regions. This would allow – with a high degree of confidence - the identification of the variables that are a root cause from those that are merely a side effect.

#### **4.3.3. SWR Data Collaborative: Security and Privacy Specifications**

The platform for the SWR Data Collaborative will be designed to provide authorized users the ability to access and contribute insights, learn from available data and make decisions that address the complex issue of child and youth well-being. Over time the platform will expand to include a multitude of data sources to help users better define relevant gaps, needs and challenges generally and regionally, and see relationships and trends like never before. The data will also be used to track progress of child and youth well-being over time. The technical specifications of the SWR Data Collaborative are outlined in the table titled Data Collaborative Security and Privacy Specifications below.

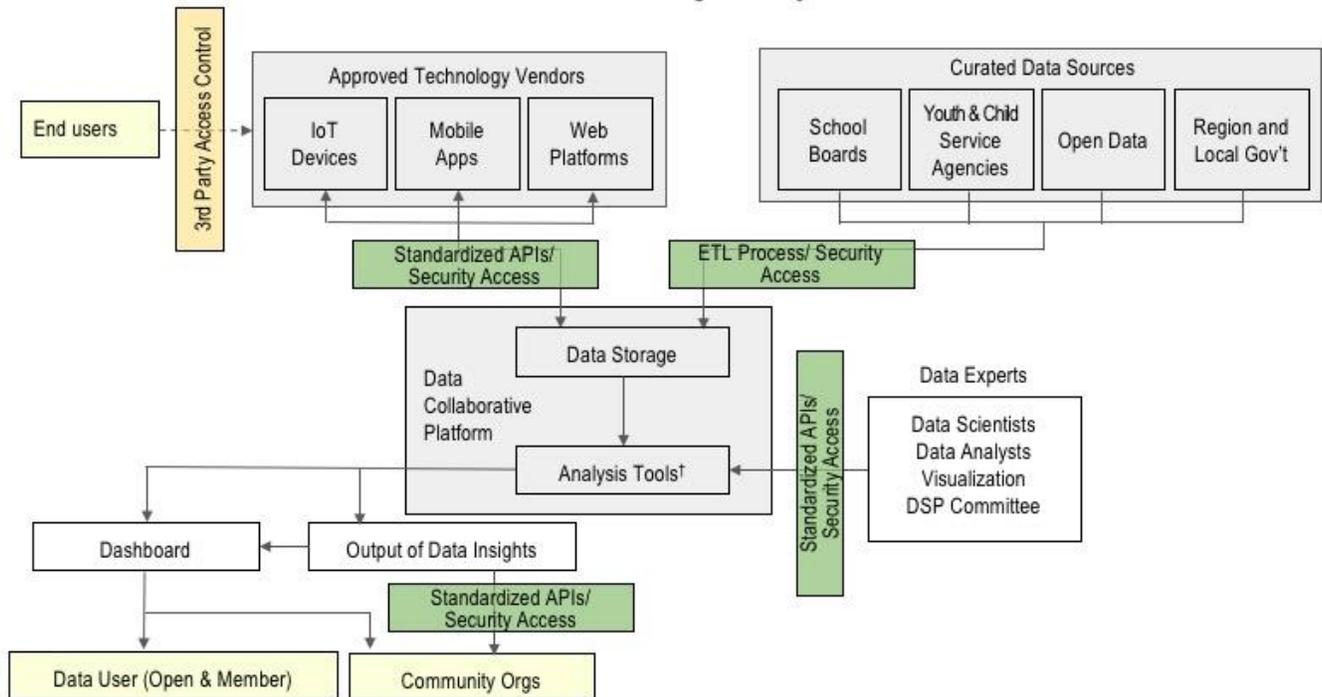
The platform will function as the heart of the SWR data ecosystem, a dynamic entity that connects data creators and data users. It will intentionally build data capacity in Waterloo Region and beyond. The diagram below describes the data flows, types, creators and users SWR anticipates will be part of the ecosystem.

### Smart Waterloo Region Ecosystem



The data ecosystem data flow controls, data governance and potential breach points of risk are outlined in the diagram below.

### Smart Waterloo Region Ecosystem



## Data Collaborative Security and Privacy Specifications

Element	Description	Notes/ considerations/ options
<b>Centralized data platform</b>	Data analysis and management software is stored and accessed on a centralized server. Ability to audit server provider security. Provider privacy breach notification procedure in place.	Server provider TBD. <ul style="list-style-type: none"> <li>ISO 270001 certified Cloud provider.</li> <li>Housed locally by the Region of Waterloo (or through a vendor selected through a RFP process)</li> </ul> Many current partners are connected through WREPNet fibre network, a secure network option that can operate outside public Internet.
<b>User Interface</b>	Authorized users access the platform through encrypted user interface such as: SSL Web Interface, Virtual Desktop Infrastructure (VDI).	
<b>Administrator(s)</b>	Administrator access granted to someone / people who will have access to the platform directly to administer the data platform. Administrator(s) will be responsible for administering the platform, including: <ul style="list-style-type: none"> <li>Granting authorized user access.</li> <li>Troubleshooting.</li> <li>Liaising with developers as needed.</li> <li>Loading data as per the defined security, privacy and licensing restrictions related to the data set.</li> <li>Auditing use of data to ensure licensing compliance and privacy controls.</li> </ul>	
<b>Data is secure (technical)</b>	All platform access is encrypted with current high security ciphers. Access by users with two factor authentication (password and secondary token). Information exchanged with user interface is encrypted in transit. Data in the platform server encrypted at rest. Software will have ability to track and audit and report user access and use of the platform and specific data sets.	SSL. VPN (using a password and secondary token to authenticate users to access platform).
<b>Data is secure (physical)</b>	Physical safeguards are in place to protect data platform. This may include: <ul style="list-style-type: none"> <li>24/7 security staff.</li> </ul>	Data centre best practices employed to secure data and platform.

Element	Description	Notes/ considerations/ options
	<ul style="list-style-type: none"> <li>▪ Security card access/biometric authentication.</li> <li>▪ Video surveillance system.</li> <li>▪ Mantraps for authorized person verification.</li> <li>▪ Intruder and door tampering alarms.</li> <li>▪ Secure managed loading dock.</li> <li>▪ Locked racks and cabinets.</li> <li>▪ Backups and backup power systems.</li> </ul>	<p>The extent of the physical security should be based on the location and risks present:</p> <ul style="list-style-type: none"> <li>▪ Shared data centre: all aspects needed.</li> <li>▪ Secure facility hosted locally by a partner: not all aspects are likely to be present.</li> </ul>
<p><b>Data is secure (administrative)</b></p>	<p>Administration policies and procedures to grant authorization to appropriate authorized users only.</p> <p>Each data set loaded has clearly defined licensing and use restrictions included as metadata. The data platform would ideally prevent (or warn) of any use that may contravene the allowable use of the data (e.g. will not report data sets of less than the allowable sample size).</p> <p>Use and access to data sets is tracked and audited regularly to prevent and detect breaches.</p> <p>Tracked data about use will be stored/retained for future use if needed.</p> <p>Authorized users will agree to terms of use and privacy policies (through Legal Agreement/Contract).</p>	<p>Ability for Administrator to create and run audit reports.</p> <p>Authorized users will also need to indicate agreement to terms of use at each log-on.</p>
<p><b>Data is safe from disaster</b></p>	<p>Data is backed up daily to a separate server at a separate location (meets the same criteria, including encryption in transit and at rest).</p> <p>Disaster recovery space.</p>	
<p><b>Data analysis tools available on platform server and VDI</b></p>	<p>Statistical analysis, visualization, geospatial processing tools as well as AI and ML.</p>	<p>Explore predictive analytics and/or ML tools.</p>
<p><b>Authorized user access</b></p>	<p>Users will log on to the platform using a two factor authentication process.</p> <ul style="list-style-type: none"> <li>▪ User passwords reset every 45 days.</li> <li>▪ Enforcement of minimum password rules such as 10 characters in length, etc.</li> <li>▪ Password locks after three attempts.</li> <li>▪ Password recovery through email.</li> </ul>	<p>Access through a software program that allows users to log-in and securely and privately access the platform environment.</p>

Element	Description	Notes/ considerations/ options
<b>Levels of access</b>	Administrator can assign unique user IDs. Users will have different access rights/levels including what data sets each user can access.	
<b>Automatic and manual retention and destruction</b>	Data platform will have the ability to apply retention schedules to data sets to comply with legislation and agreements with data owners. Destruction can also be done manually by the administrator. Ability for data to be permanently deleted.	Will need to determine how to permanently delete data in backups/replicated versions of system (from Disaster Recovery / Business Continuity perspective).
<b>Communication</b>	Ability for authorized users to communicate and share analyses securely within the data platform environment.	
<b>Reporting function</b>	Ability to export aggregated analysis through secure API.	No record level data will ever be reported. Suppression levels will be honoured to protect privacy.

#### 4.4. Smart Waterloo Region Technology- and Data-Enabled Solutions

SWR will improve the well-being of children and youth in Waterloo Region by leveraging the benefits of data and connected technology. That is, improved understanding of what children and youth need and how to help them thrive now and in the future.

##### 4.4.1. Selection of Projects

Technology- and data-enabled solutions were prioritized based on the following:

- Needs/themes that were heard via multiple engagement channels (e.g., Stakeholder Labs, Youth Advisory-led Street Teams, Hackathon, etc.)
- Evidence that the solution would impact child and youth well-being
- Connection to prioritized root cause(s)
- Connection to areas of focus
- Upstream/preventative in nature
- Opportunity to scale, via data/technology to achieve a broader impact in the province or across the country

#### Technology- and Data-Enabled Solutions

“We believe that smart demand, supply and use of data drives better results for children. When the right data are in the right hands at the right time, decisions can be better informed, more equitable, and more likely to protect children’s rights. Effective use of data can help us not just track results for children, but also shape those results with better insights about what’s working, what’s not, which children are thriving and which are being left behind.” UNICEF, 2017

- A reasonable and helpful role for data and/or technology in addressing well-being problems (i.e. solutions driven by problems, not by technology)

The table titled Technology- and Data-Enabled Solutions (below) summarizes the proposed solutions that will help SWR and community partners respond to the needs identified by stakeholders in the Phase 2 engagement process (see Chapter 3).

#### 4.4.2. Technology- and Data-Enabled Solution Projects

The technology- and data-enabled solutions described below are organized by the areas of focus and root causes, with distinct focus on solutions that enable data, research and knowledge across the community and organizations. While many solutions will bring multiple benefits to children, youth and families, the solutions have been grouped according to the area of focus believed to be most directly impacted by each particular effort. While solutions have been generated to add value to the children, youth and caring adults in the community at large, those believed to be particularly impactful to rural and Indigenous communities have been highlighted to indicate special focus on diverse populations. Requests for Proposal processes will occur for any project where the technology vendor and/or community service delivery partner has not yet been identified.

D = Data	E = Early Childhood Development	L = Literacy	M = Mental / Emotional Health	S = Sense of Belonging	R = Root Causes
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No.	Project Title	Description	Rationale	Implementation/Scaling
D1	<b>Centre of Excellence for Child and Youth Well-being.</b>  Status: NEW	Waterloo Region will create a Centre of Excellence (COE) for child and youth well-being in partnership with local post-secondary institutions, UNICEF Canada, CYPT, the technology sector, provincial and municipal governments, and others. The COE will be a space to focus on data, research, programming and knowledge mobilization related to child and youth well-being.	The COE will act as a knowledge centre and living lab. It will support community partners and other communities across Canada with access to child and youth well-being data, strategies and technology.	The COE will be housed in a new multi-use development made possible by a public-private partnership with HIP Developments and LAUNCH (an initiative to offer STEAM programming to children and youth)
D2	<b>SWR Data Collaborative and Child and Youth Well-being Dashboard.</b> See detailed description above.  Status: NEW			
D3	<b>Indigenous Child and Youth Data Strategy.</b>	In partnership with local Indigenous stakeholders, SWR will develop an Indigenous Data Strategy that	Indigenous community members have identified the need for better data on Indigenous children and	SWR will help explore and build an Indigenous Data Strategy that will accurately identify the state of well-

No.	Project Title	Description	Rationale	Implementation/Scaling
	Status: NEW	supports Indigenous child, youth and family well-being	youth, and more information about their needs.	being for Indigenous children and youth.
D4	<b>Community Child and Youth Well-being Survey.</b>  Status: PILOT	In partnership with the Ontario Trillium Foundation, UNICEF Canada, the Canadian Index of Wellbeing, CYPT and youth, SWR will develop and pilot a community child and youth well-being digital survey aligned with the CY-Index. The survey will collect data and report on how children and youth are faring through a standardized tool.	The CY-Index has identified key indicators of child and youth well-being, however the availability and validity of some of this data varies across communities. This project will develop a standardized measurement methodology and technology tools to collect data.	The digitized survey tool will be developed, piloted and implemented in Waterloo Region. SWR and partners will develop a knowledge mobilization plan to scale the tools and approaches to data collection to other communities across Canada.
D5	<b>Data Collection and Analysis in Schools.</b>  Status: PILOT (YDI) SCALE (MDI)	SWR will support WRDSB in refining and scaling use of the Middle Years Development Instrument (MDI) across Waterloo Region. SWR will support the development and pilot of a new tool - the Youth Development Instrument (YDI) - in collaboration with University of British Columbia (UBC).	There is currently a gap in high-quality, system-level data for children and youth in the middle and adolescent years. Data from these tools will provide student well-being data that will better inform planning and school environments.	Assist in administration of the MDI every 2 years, and subsequent data analysis. Develop, pilot and fully implement YDI in WRDSB schools.
E1	<b>CoHealth.</b>  Status: NEW	In partnership with the Waterloo Wellington Local Health Integration Network (WWLHIN) and First 2,000 Days, SWR will launch and scale CoHealth. CoHealth is a personal mobile health manager app, designed to digitize the discharge process following childbirth and improve parents' ability to care for themselves and their new baby. CoHealth also provides supports and key information over the first 5 years of a child's life.	Traditionally, parents are provided with a large amount of information following the birth of a child. This can be overwhelming and confusing. By making information timely, and easier to receive, it will increase opportunities to meet important child-health milestones and reduce missed information.	Upon discharge from hospitals parents will receive CoHealth to access supports. SWR, WWLHIN and First 2,000 Days to create awareness of CoHealth among service providers working with new parents. CoHealth will connect to Family Compass (R1) for system level information integration. Incorporation of literacy stamps for physicians using an Electronic Medical Record System.

No.	Project Title	Description	Rationale	Implementation/Scaling
				Other LHINs could scale CoHealth across Ontario.
E2	<b>Online Prenatal and Parenting Programming.</b>  Status: NEW Special Focus: Rural	SWR will work with Region of Waterloo Public Health and organizations supporting parents to create a prenatal program app built and adapted from Public Health's online prenatal program. This project will also digitize existing parenting courses.	The prenatal program app and enhanced online parenting course offerings will provide new parents greater access to critical knowledge and skills.	SWR will work with Public Health and other organizations supporting parents to promote the app and online course offerings. SWR will support the digitization of parenting courses and skills acquisition. The approach and results will be shared through the Ontario Family Health Managers network.
E3	<b>Digital Early Learning Portfolio.</b>  Status: PILOT	SWR and Conestoga College will create and pilot a digital child portfolio template. This portfolio will capture an individual child's learning and development through licensed early learning and child care environments. The portfolio will ensure easy data collection and access, security and privacy, and data analysis (including AI).	The digitized portfolio will allow for consistent and fulsome information to be captured per child, acting as a resource for parents and future educators. The portfolio will transition with the child into school - creating a profile of the child's strengths and learnings for educators and parents.	Develop the portfolio with multiple stakeholders (early years sector, technology sector, etc.) and user groups.  Pilot and field test within the lab school environments for security, usability and effectiveness.
E4	<b>Kindergarten Self-Regulation and Foundational Early Learning Skills.</b>  Status: SCALE	This project is a continuation of a WRDSB initiative that works to build a systematic, intense focus on the development of critical, interrelated skills (self-regulation, oral language, and literacy/numeracy development) in kindergarten.  The WRDSB Research Department is active in measuring the effectiveness of this intervention.	The program will reduce achievement gaps and developmental lags. Students at risk will be identified early, and participate in targeted, differentiated interventions.  Provides data literacy support for educators. Enables the creation of specific student strategies.	Improved skills are measured by automated pre- and post-test tools including the Kindergarten Self-Regulation tool, Reading Records, and oral language screener. Schools (10-12/year) will be chosen from a variety of demographics within Waterloo Region.
L1	<b>Tablets for Family Literacy.</b>	In partnership with Project Read, SWR will pilot a family tablet project for family literacy skill development	Deploying tablets to families in need who are participating in family literacy programs will improve	Deploy 30 tablets to families participating in the Family Literacy Program. Tablets will be equipped

No.	Project Title	Description	Rationale	Implementation/Scaling
	Status: PILOT	in families living in lower socio-economic conditions.	access to resources and training materials and strengthen skill acquisition.	with evidence-based family literacy software to support the Family Literacy Program.
M1	<b>Social- Emotional Learning in Schools.</b>  Status: SCALE	Scale current school board pilots that build social-emotional skills (e.g., hope, optimism, resilience) of teaching staff and students. This project uses robust data and measurements, and online supports, to build these social-emotional traits that predict health, happiness, and success throughout school and life.	Social-emotional skills are foundational to mental/emotional health. Children, youth and adults with greater social-emotional skills have greater resiliency in navigating life challenges and are more likely to experience success in school (as well as life in general).	Support Social-Emotional Learning pilots in current boards and scale to new schools based on school communities that demonstrate greater needs in the social-emotional space. Fully implement over the next five years. Collect meaningful data and insights to measure and report on success, while informing ongoing program iteration.
M2	<b>Social- Emotional Learning for Caring Adults.</b>  Status: NEW	Focus on social-emotional skill development (e.g., hope, optimism, resilience) for caring adults (e.g., parents, coaches, etc.) with a technology- and data-enabled approach. Digital assessment of social-emotional skill and knowledge, in-person and online training, and community supports.	When caring adults create a culture and model social-emotional skills, it reinforces their importance in children's lives and further supports this skill acquisition and fosters a community culture of well-being.	Digital assessments of caring adults to create baseline and inform macro state of adult social-emotional fluency and inform training development. Offer in-person, web, mobile and location-based training. Collect meaningful data and insights to measure and report on success, while informing ongoing program iteration.
M3	<b>Virtual Counseling.</b>  Status: PILOT  Special Focus: Rural	To increase access points to mental health supports for children, youth and families. SWR will partner with the WWLHIN and the Rural Child and Youth Wellbeing (RCYW) initiative to pilot the offering of virtual counseling using telemedicine technology.	Remove the need to attend mental health appointments in person. Allow more individuals to participate in counselling services regularly and consistently.	Pilot in rural townships where there may be more limited access to mental health supports, and then scale up to more locations where appropriate.
M4	<b>Youth Mental Health Services App.</b>	In partnership with community mental health service providers,	Phase 2 feedback from youth indicated mental/emotional health	Create a responsive, integrated, interactive mental health app with

No.	Project Title	Description	Rationale	Implementation/Scaling
	Status: NEW	develop a one-stop app where youth can confidentially access mental health information, resources and support services. Incorporate a social platform where children and youth can seek services and engage with each other.	supports – in the right format, place and time – are lacking and that current resources are challenging to navigate while online.	accurate system level information, to provide confidential supports to youth. Include chatbot preliminary assessment function, appointment booking capability, online community, connection to the Family Compass platform (R1).
M5	<b>Incentivizing Health Activities App.</b>  Status: PILOT	In partnership with the UW Games Institute and other partners, develop and pilot an app to incentivize children and youth to proactively undertake activities to maintain or enhance their mental or physical health.	Incorporate gamification techniques to make physical and mental health activities more engaging, rewarding, and interactive for children and youth.	Work with the Games Institute and other community partners to develop and test the app. Explore features that allow children and youth to set up clubs or networks to participate in virtual youth-led group/team activities.
S1	<b>Connected Community Spaces.</b>  Status: PILOT  Special Focus: Rural, Indigenous	Through a partnership with Rogers Communications and local area municipalities, build high-speed internet to support program and service delivery in townships. Connected Community Spaces also include the COE (D1) and the local Indigenous EarlyON, designed to support Indigenous children, youth, and parents with programming and service supports.	Youth and caring adults with devices may not have access to cellular data and rely on free Wi-Fi, to get connected where available. Many township families do not have access to high-speed Internet outside of school. Only 3 of 11 township libraries have fibre. They are not able to leverage technology and data to the full extent possible to support learning and development.	Connected Community Spaces will provide ubiquitous fibre to township libraries and community centres, expand the hotspot borrowing program across Waterloo Region libraries and community centres, and be a conduit for program delivery. This project will include implementation of a single WiFi Service Set Identifier (SSID) and pilot 5G technology across Waterloo Region and consider an open-source model to improve scalability. Support technology programming customized to Indigenous needs in Waterloo Region, and e-platform supports.
S2	<b>Connected Outdoor Spaces.</b>	Pilot the use of technology to make it easier to connect to and enhance experiences at outdoor and	Make it easy for children, youth and families to connect to outdoor spaces, activities and physical and	Pilot in 10 different outdoor spaces across Waterloo Region.

No.	Project Title	Description	Rationale	Implementation/Scaling
	<p>Status: PILOT</p> <p>Special Focus: Indigenous</p>	<p>recreation spaces. Including sensor technology at outdoor spaces, app-based supports to encourage physical fitness, mapping features and information about coordinated outdoor activities run by organizations and municipalities. Partner with Indigenous groups to create digitized historical information areas at meaningful outdoor sites and link to current Indigenous programming and services for families.</p> <p>Undertake a research project with the UW that uses an evidence-based app to measure the impact of the physical outdoor environment on child and youth well-being.</p>	<p>mental health benefits. Celebrate and recognize local Indigenous history and culture, and encourage Indigenous youth to explore and create digital content.</p>	<p>Make information on available outdoor spaces (e.g., parks, schools, trails) digitally available, in real-time. Allow youth and families to book outdoor spaces through a connected platform for recreational activities. Incorporate sensor technology to help keep spaces safe and monitor usage.</p> <p>Encourage apps to support physical fitness and activities.</p> <p>Create connected app that people can follow along with information on Indigenous history and to access information and resources.</p>
S3	<p><b>Engaging and Innovative Learning Environments (Third Teacher).</b></p> <p>Status: SCALE</p>	<p>Support WCSDB efforts to incorporate digital technology, kinesthetic outlets and innovative classroom equipment to support higher levels of student engagement and the development of important technology skills.</p> <p>The tools and technologies, as well as classroom design elements can be enhanced by our community partners and will feed forward to post-secondary partners who also wish to see this type of learning environment fostered.</p>	<p>Well-being of children and youth in a learning environment is enhanced by both higher levels of engagement as well as the resources available within the classroom setting. Various modalities of learning are supported when students are able to be up and moving in their learning environments.</p>	<p>Leverage technology as a positive learning tool with innovation supports to learning environments (e.g. classrooms, libraries), including Chromebooks, technology equipment (e.g. 3D Printers) and maker spaces.</p> <p>Incorporate stationary bikes and modular equipment into learning environments.</p> <p>Scale Third Teacher Design Principles to 9 schools per year, over 5 years. The 15 high social-risk index schools will be prioritized.</p>
S4	<p><b>Digital Citizenship Strategy.</b></p>	<p>SWR, UW, Communitech and other community partners will develop a</p>	<p>Increased understanding of the impact of interaction with and via</p>	<p>The strategy will focus on how to best interact with technology, how to</p>

No.	Project Title	Description	Rationale	Implementation/Scaling
	Status: PILOT  Special Focus: Rural (Low German Mennonite)	digital citizenship strategy for children, youth and caring adults. This strategy will help our community to better understand and navigate new social complexities that increased interaction with technology, and in online spaces, introduces.  With the RCYW initiative, SWR will develop and pilot customized programming for LGM population on internet safety.	technology, to support awareness of how technology may support or hinder development and well-being. Waterloo Region's rural LGM community does not typically engage with technology though some use apps on mobile devices. Increase awareness of digital safety and other issues.	conduct oneself in an online environment and appropriate exposure to technology. Tools and resources will be developed and shared with youth and families through existing partnerships with service providers. SWR will work closely with the RCYW initiative to develop and share specific tools and resources for the LGM population.
S5	<b>Meaningful Volunteering Platform (VolunteerAttract).</b>  Status: SCALE	The Volunteer Action Centre (VAC) is a network of nearly 200 community and neighbourhood organizations supporting volunteer needs. In partnership with the University of Waterloo, VAC developed a cloud-based interactive database of volunteer positions for Waterloo Region called VolunteerAttract. This project would scale VolunteerAttract to help youth find volunteer opportunities in Ontario, across Canada and with the Canada Service Corps.	Phase 2 found one of the biggest drivers of volunteering is the opportunity for youth to make meaningful change. But youth volunteering rates are on the decline. VolunteerAttract will connect youth to more meaningful volunteer opportunities, and hope to increase volunteerism.	SWR will support scaling of VolunteerAttract in Waterloo Region. Working with VAC, Volunteer Canada and youth, further work will align volunteer opportunities with the UN's SDGs, and develop gamification-based volunteer matching technology. VolunteerAttract will be scaled nationally. Volunteer Canada will provide mentorship and training to all volunteer centres that choose to adopt the new approach.
S6	<b>E-Mentorship Matching.</b>  Status: PILOT	SWR will work with partners like Big Brothers Big Sisters of Waterloo Region to encourage corporate support of mentoring for children and youth in Waterloo Region, including the development of a pilot e-mentoring platform.	E-mentoring supports connecting caring adults to children and youth, increasing the positive impacts of mentorship and helping children and youth build life skills. E-Mentoring will help overcome distance and isolation.	The platform will include a mentoring matching function and enable mentors to communicate with their mentee in an interactive manner. E-mentoring would develop a safe and structured relationship via the platform.

No.	Project Title	Description	Rationale	Implementation/Scaling
S7	<b>Strengthening Newcomer Pathways.</b>  Status: PILOT	In partnership with the YMCA of Cambridge, Kitchener-Waterloo (YMCA CKW), SWR will help to build a new e-platform (including mobile compatible app and chat features) for the Newcomer Youth Program to reach more newcomer youth and connect them to available service providers, programs and community activities in Waterloo Region.	The YMCA Newcomer Youth program provides youth with knowledge and tools to help them integrate into Canadian society, alleviate fear and loneliness, and develop an authentic sense of belonging. The platform and apps will help more newcomer youth experience the benefits of this program.	The new e-platform will use drip messaging to guide youth to local supports and opportunities based on date of arrival. The platform will collect data to inform program delivery services that can be scaled. The platform will be scaled across Canada, with support from the YMCAs of Vancouver, Edmonton, Calgary, and Quebec (Montreal and Quebec City).
S8	<b>Welcoming Newcomer Families to Licensed Child Care.</b>  Status: PILOT	SWR and Conestoga College will pilot engaging technology and innovative apps to support the expansion of an early-learning program that integrates healthy child development with English language learning; and expand educators' understanding of the varied life experiences of newcomer Canadians.	The incorporation of technology will increase supports for newcomer families and children in licensed early learning and child care settings. The increased connection to the program will reap greater early learning and developmental outcomes.	Development of technology-enabled supports to capture and co-author family experiences. Creation of a virtual Human Library of newcomer experiences, shared across the community. Opportunities to expand to other licensed child care programs in Waterloo Region will be explored upon evaluation of the pilot.
S9	<b>Re-Engagement of Students.</b>  Status: SCALE	Work with local school boards to support re-engagement of youth who have left the school system, or are at risk of leaving the school system.	The goal is to set children and youth on a positive trajectory to academic engagement and/or to facilitate the earning of credits toward graduation. Innovative and relationship-based interventions have demonstrated success with re-engaging students and reconnecting them on a path to graduation.	SWR and school boards will leverage technology platforms to support re-engagement efforts. Predictive analytics will be used to facilitate the development of early intervention strategies to support increased graduation rates.
S10	<b>Indigenous Child and Youth Leadership Program.</b>	WRDSB's Indigenous Children and Youth Leadership Program (land-based learning) is an effort to engage Indigenous students from	By engaging Indigenous students in critical thought through interaction with the land and understanding of nature and its relation to science, we	Development of digital resources. Technology-enabled professional development strategies (e.g. e-learning modules).

No.	Project Title	Description	Rationale	Implementation/Scaling
	Status: SCALE Special Focus: Indigenous	kindergarten to grade 12 in memorable, meaningful and transformative outdoor learning experiences that encompass Indigenous perspectives, values and practices.	anticipate an increase in Indigenous student success in education.	Development of an online tool for shared learning.
R1	<b>Family Compass Platform.</b>  Status: SCALE Special Focus: Rural	Family Compass (FamilyCompassWR.ca) is an existing platform created by CYPT, Special Needs Strategy Planning Table of Waterloo Region (SNS) and Moving on Mental Health. The platform provides a single online starting point to make it easier for families and youth to navigate services and find help, particularly for families of children with developmental concerns. SWR will help evolve the Family Compass to make improvements to the platform itself, as well as connect other applications: - OneList - parents receive information, apply for licensed early learning and child care and help manage schedules. Parenting Now - parents connect with and learn from other parents, acquire parenting skills and information. Recreation Fee Assist - parents and youth find and sign-up for child and youth recreation, sports and educational supports. Where	Family Compass was originally developed in response to feedback from families that the system of supports for children and youth was difficult to navigate. Family Compass has served as a helpful system access and navigation resource, and its value and usage would increase through evolution of the platform.	Evolve Family Compass and include mobile compatible applications and connected resources (i.e., OneList, etc.) Leverage AI to help users navigate, book and register for available services and programs. Add data collection and monitoring capacity to determine what services are being used and usage rates. Develop interoperability between organizations for shared intake and spin-off apps or solutions. Add real-time and automation functionality to OneList to show available early learning and child care providers. Add online parenting supports (e.g., courses, gamification, chatbot features) to Parenting Now. Incorporate smart technology to review the Fee Assist submissions.

No.	Project Title	Description	Rationale	Implementation/Scaling
		applicable, families prequalify for subsidized supports.		
R2	<b>Shared Electronic Health Record.</b>  Status: PILOT	In partnership with the SNS and CYPT, SWR will support a pilot project that uses EMHware to collate electronic medical records between service organizations. EMHware enables opening of a client file portal for multiple service providers working with the same family, as well as the family themselves.	Currently, multiple service providers support in the same family with intervention supports do not have a way to engage in a shared client record. A lack of a shared record can make it challenging for service providers to provide efficient help, and to have a fulsome understanding of the history of supports.	Create platform for shared records. Open records in the database to other service providers. Explore opportunity to open to families. Develop a common online service plan template that would allow families and service providers to review modify and comment.
R3	<b>Neighbourhood-Based Program/Service Delivery.</b>  Status: PILOT  Special Focus: Rural, Indigenous	SWR, the Region of Waterloo, area municipalities and other partners will map community assets at the neighbourhood level (e.g., infrastructure, spaces, after-school programs) and get this information to the community. SWR Data Collaborative will support community partners to identify where further community programming or supports are needed most (e.g., literacy, mental health). There will be a specific focus on meaningful options for after-school care, support and/or skill development between 3:00-6:00 p.m. – identified as a vulnerable time for children and youth.	Youth and parents identified the importance of having knowledge of and access to programs, technology, mental health supports and other social services close to home. Service providers also identified inequity of program delivery across neighbourhoods. This project will provide a better understanding of community resources and programming available. Community partners need to understand what exists, identify opportunities for new programs, and strengthen the transition from school to after school opportunities.	SWR will map community assets by neighbourhood and connect to Family Compass (R1). Parents, caring adults, service providers and youth will be able to learn what, where and when programming exists in their community. Connected Community Spaces will be prioritized to support after-school technology-enabled programming and supports (S1).
R4	<b>STEAM Programming for Underrepresented Children and Youth.</b>	In partnership with various technology and community partners, SWR will support connecting underrepresented children and youth	STEAM continues to be an important area of learning and skill development for children and youth in today's world. However some	Scale STEAM in the Early Years to focus on providing a child development laboratory incubator where technology-enabled teaching,

No.	Project Title	Description	Rationale	Implementation/Scaling
	<p>Status: SCALE, Early Years and STEAMing Ahead</p> <p>Status: NEW, (Perimeter) Special Focus: Indigenous</p>	<p>with STEAM learning opportunities. To start: STEAM in the Early Years with Conestoga College strengthens the interest of young children in STEAM. STEAMing Ahead with the Business and Education Partnership (BEP), will scale STEAM learning experiences in K-12 classrooms across WCDSB.</p> <p>Perimeter Institute and partners will develop Indigenous STEAM Programming that explores societal issues through science, art and local Indigenous ways of knowing.</p>	<p>population groups are less exposed to these opportunities, or receive less encouragement to pursue STEAM opportunities.</p>	<p>materials and equipment can be explored and investigated Scale STEAMing Ahead to 15 schools per year.</p> <p>Work with Indigenous leaders, artists and youth to shape the Indigenous STEAM program.</p> <p>Adapt Qaujimagatugangit and Science Inspired Art Program workshops to include traditional Indigenous knowledge and culture. With Perimeter Institute, scale the Indigenous STEAM Programming plan across Waterloo Region and to other communities across Canada.</p>
R5	<p><b>Future of Work and Learning.</b></p> <p>Status: PILOT</p>	<p>Communitech will work with Manulife Financial, Deloitte, BEP, community service providers and SWR to leverage Future of Work and Learning programs to develop and pilot programming to support children and youth in gaining life skills (e.g., financial literacy). This project will leverage Waterloo Region's technology sector to create experiences that expose youth to career opportunities and pathways to attain work success.</p>	<p>In Phase 2, youth shared they would benefit from more life skills training. Some youth also shared that they carry a lot of anxiety around career preparation and skill requirements. Services and training exist but youth do not feel like they know how to access those supports and services.</p>	<p>Future of Work and Learning provides work-based experiences, hands-on knowledge, connections to local career opportunities and helps youth be successful in the workplace.</p> <p>Includes: innovation labs, professional development workshops, worksite tours, job shadowing and preparation events, and financial literacy training. Technology will include gamification, e-learning programs, camps and workshops.</p>
R6	<p><b>In Pursuit of Racial Justice.</b></p> <p>Status: SCALE</p>	<p>Support WRDSB to build equity consciousness and improve student and staff awareness of racism, white privilege and the systemic barriers to equity. Increase recognition of, and</p>	<p>WRDSB aspires to be more inclusive and reflective of the lived experiences of students, families and community.</p>	<p>Development of digital resources and technology-enabled professional development materials. An online tracking tool for shared learning will be developed.</p>

No.	Project Title	Description	Rationale	Implementation/Scaling
		challenges to, oppressive systems and behaviours. Increase educators' knowledge of social justice as it pertains to race.		Opportunities to expand this program beyond WRDSB will be explored.
R7	<b>Child Friendly Cities Initiative.</b>  Status: NEW	SWR and CYPT will support the co-design and implementation of UNICEF Canada's approach to UNICEF's global Child Friendly Cities Initiative (CFCI). CFCI ties to the Rights of the Child and SDGs. This will enable public recognition of community and municipal investments, and goals, to improve the conditions and quality of life for children and youth at a community level. We will work with the City of Leeds, UK to share learnings and best practices.	Having a strong foundation to the SWR project rooted in the UN Convention on the Rights of the Child and the SDGs is a critical component to becoming the benchmark community in Canada for child and youth well-being.	Work with UNICEF Canada and other interested communities to establish the criteria for CFCI designation. Determine first phase implementation locally of CFCI goals. Scale implementation of CFCI goals.

## 5. Data Security and Privacy

SWR will leverage data to track and monitor progress; improve the performance of specific projects and activities; inform decision making and policy change; and fundamentally change how partners in the community come together to study, understand and ultimately improve the well-being of children and youth in Waterloo Region. SWR will ensure the security of information and data, defend against security breaches, and protect the personal information and privacy of children and youth in our community. This chapter outlines SWR's commitment to responsibly managing and protecting data.

### 5.1. Preliminary Privacy Impact Assessment

Through Phase 2, SWR completed a comprehensive Preliminary Privacy Impact Assessment (PPIA) to evaluate any organizational or privacy risks. The Information and Privacy Commissioner of Ontario's (IPC) office was consulted through this process and its guidance was incorporated. The PPIA and PPIA supporting documents have been submitted. The following recommendations have been identified by SWR and will be incorporated in implementation:

1. A PPIA, and where necessary full Privacy Impact Assessment (PIA), will be completed to evaluate any organizations or privacy risks for each project outlined in Chapter 4. Each PIA will include:
  - A comprehensive review of data minimization and de-identification efforts, for which SWR will engage the expertise of a de-identification expert specifically for the SWR Data Collaborative.
  - Where appropriate, an analysis of best practices and recommendations from the October 23, 2018 International Conference of Data Protection and Privacy Commissioners Resolution on E-Learning Platforms.
2. SWR will complete a comprehensive Threat Risk Assessment (TRA).
3. SWR will consult with the Region of Waterloo's Ethics Board to explore whether projects relating to research and collection of data for children and youth meets the ethics review requirements. An ethics review will be completed if recommended by the Region of Waterloo's Ethics Review Board.

### 5.2. Data Governance and Accountability

SWR will be administered by the Regional Municipality of Waterloo (the Region of Waterloo), led by an Advisory Committee who will guide the organization's strategic direction. For data and privacy, the Advisory Committee will be supported by the SWR Data Security and Privacy Committee (DSPC). The DSPC will advise SWR on all matters regarding data, privacy and security; and will support the PIA processes, the development of technical standards and guidelines, and the development of the SWR Data Collaborative. Where SWR has yet to develop a data principle, the Region of Waterloo Privacy Policies and Procedures will be followed. For more information related to governance, please see Chapter 7.

#### 5.2.1. SWR Data and Privacy Principles

SWR's approach to data management is grounded in the SWR Data Principles, developed by the Phase 2 SWR DSPC, listed below. Upon implementation, SWR will review and update the Data Principles as well as any relevant privacy policies, procedures or protocols to guide all activity related to data security and privacy.



Figure 1: Policies will be created for all stages of the data cycle.

## **Privacy and Data Rights of Children and Youth**

SWR will protect, respect and realize the rights of children and youth, as outlined in the Convention of the Rights of the Child developed by UNICEF ([https://www.unicef.org/crc/index\\_30160.html](https://www.unicef.org/crc/index_30160.html)). SWR will follow five general principles from UNICEF's Industry Toolkit for Children's Online Privacy and Freedom of Expression (2018).

1. Children and youth have the right to privacy and protection of their personal data
2. Children and youth have the right to freedom of expression and access to information from a diversity of sources
3. Children and youth have the right not to be subjected to attacks on their reputation
4. Children and youth's privacy and freedom of expression should be protected and respected in accordance with their evolving capacities
5. Children and youth have the right to access remedies for violations and abuses of their rights to privacy and free expression and for attacks on their reputation

## **Engaging Children and Youth in the Data Cycle**

SWR is committed to developing and using data in collaboration with children and youth, and – where appropriate – parents and other caring adults. This approach better supports individual rights and well-being, giving children and youth a voice in how data is chosen, collected and used. SWR will work to engage children and youth in all stages of the data cycle: deciding what to measure; collecting data; data analysis, and using and sharing data insights.

## **Evidence-Informed**

SWR will approach data, as well as the security and privacy of data, through an evidenced-informed lens. SWR will use the best-available research to inform data use, insights gained, and conclusions drawn from data analysis and mining. In partnership with CYPT and other key partners, SWR will continue to engage individuals and organizations across many sectors together to better understand the factors that influence the well-being of children and youth. SWR will develop and foster trusted relationships with community partners across sectors. This trust will facilitate information sharing, capacity building and coordinated action to support improved outcomes for children and youth.

## **Artificial Intelligence and Machine Learning**

Any AI or ML algorithms used to explore or analyze data collected by SWR will be explainable, in plain language, to the point that the actions it recommends can be trusted and easily understood by the public.

## **Accessibility**

SWR is committed to accessible, interoperable and open data approaches while maintaining the privacy of personal information, personal health information and confidential information in its custody and control. SWR will follow accessibility legislation and standards as outlined by the Accessibility for Ontarians with Disabilities Act (AODA). Specific policies and practices related to accessibility will be developed through implementation.

## **Intellectual Property Considerations**

SWR will develop fulsome IP policies, procedures and protocols including foreground and background IP, upon implementation. Where possible and feasible, SWR will use existing technology and data-related solutions from private-sector entities; these entities will retain IP rights to the solution. In the event that SWR is a co-owner of foreground IP or uses another entity's background IP, SWR will secure an irrevocable, royalty-free, perpetual license to use the IP for the project. These solutions will exchange data with the SWR Data Collaborative through the standardized API, as described in Chapter 4.

If SWR develops a net-new solution it will do so under an open-source license. Other communities will be able to freely use the solutions. And open-source code will generate a developer community that will build new functionality and/or increase robustness of the solutions. All users, including SWR, will benefit from new functionality.

SWR will also examine licensing options such as GNU General Public License or Common Development and Distribution License. The selection of licensing will be on a case-by-case basis for each solution.

## **Leveraging Open Data**

The value generated by open (and big) data would be a significant benefit to SWR and – by scaling – to other communities in Canada. SWR and the DSPC will leverage the Government of Canada’s open data and information strategies to inform guidelines and processes for the SWR Data Collaborative. These will help establish consistent approaches to open data and open information available on the Dashboard.

The promise of open data lies in the application of human imagination to the uncovering of insight, and the creation of new products, services and uses for consumption and benefit to individuals and to society.

**Creating Transparency** thus making relevant information easier to find

**Enabling Experimentation** to discover need, expose variability and improve performance

**Segmenting** populations and users to customize actions, products and services

**Replacing/Supporting** human decision making with automated algorithms

**Innovating** new business models, products and services

According to a consultation document created by Canada’s research granting councils, “In many cases, we are no longer data limited; rather we are “insight” limited. For this purpose, we need an advanced digital infrastructure ecosystem that supports the seamless access, use, re-use and integrity of data, and to focus on establishing and operating the processes required to collect, manage, analyze, interpret, share and archive big data. This ecosystem must integrate means for researchers from all sectors to utilize the technology effectively since the human infrastructure is as important as the technological. There also must be coherence, coordination and alignment across the diverse elements of the digital infrastructure.” (Capitalizing on Big Data, Government of Canada, 2016)

## **Openness**

SWR will make detailed information about governance, data principles, policies and practices relating to the management of personal information available and readily accessible to the public. SWR will follow Region of Waterloo’s Privacy Complaint Procedure which provides guidance on responding to complaints about the handling of personal information or personal health information.

## **Ownership and Control**

Much of the data used by SWR will be from secondary data sources, including publicly available open data. As such, ownership and control of data (including the right to review and/or approve of use of the data by platform authorized users, prior to the publication of results) will continue to be held by the original data owners, as outlined by relevant legislation, policies or agreements.

SWR will have custody and control over any new information or data derived or collected through implementation, including the SWR Data Collaborative. Policies and processes will be developed to determine who would have access to the data and the use, disclosure and retention of data.

## **Use, Disclosure and Retention**

### ***Primary Data Collected by SWR***

Personal information and personal health information will only be used for the purpose for which it was obtained. The use of personal information or personal health information for any other purpose will require the consent of the individual, or will be released as required by law enforcement. Personal information and personal health information will be retained in accordance with SWR policies.

All individuals have the right to see any of their personal information collected, analyzed and shared by SWR. Individuals may challenge the accuracy of personal information and ask for corrections.

### ***Secondary Data***

Where secondary data sources are being used, SWR will adhere to the relevant use, disclosure and retention policies outlined by the original data owner and relevant legislation, policies and agreements. All individuals have the right to see any of their personal information collected, analyzed and shared by SWR. All requests related to secondary data will be referred back to the original data owner.

### ***Consent***

SWR will ensure each individual is aware of and consents to the collection, use and disclosure of new personal information or personal health information.

Children's privacy is best protected where children or legal guardians (on a child's behalf) provide free and informed consent for the processing of personal information. For consent to be meaningful, it must be sought in a manner and form that matches each individual's level of understanding. To obtain meaningful consent from children, SWR will communicate in plain language and will consider the use of innovative techniques (e.g. diagrams, images and videos) to explain to children (and/or their guardians) how their personal information would be used.

### ***Accuracy***

SWR will ensure that personal information and personal health information is accurate, complete and up-to-date as is necessary for data use or disclosure. SWR will strive to avoid data poverty; data collection methods and instruments will ensure individuals, cohorts and groups are adequately represented in order to avoid analytical bias. Only valid and reliable data, as identified by the DSPC, will be used or disclosed.

### ***Data Minimization and De-identification***

SWR will pursue minimally invasive data collection alternatives where possible, implement data minimization and de-identification of all personal information at the earliest opportunity and mitigate the potential for re-identification. Where secondary data sets are used, all personal information or personal health information that is not relevant to the use outlined by the DSPC will be excluded.

### ***Limiting Collection and Disuse***

SWR will limit the collection of personal information or personal health information to the data needed for the purposes identified by the DSPC. Only information that is required will be collected. As part of Data Management and Use Policy development, the SWR DSCP will follow Responsible Data (RD) processes including policies for deletion and/or archiving after intended use, initiation of compliance checks during and after use, mitigation of unintended use and ongoing measures to remain transparent to the public.

### 5.3. Security and Safeguards

SWR will adopt Privacy by Design Principles, as developed by Dr. Ann Cavoukian, former Information and Privacy Commissioner of Ontario. SWR will protect personal information, personal health information and confidential information and ensure secure storage and transmission of data and assurance of effective cybersecurity. Administrative, technical and physical safeguards to prevent unauthorized access, disclosure, copying, use or modification will be considered.

SWR will follow the Region of Waterloo's Privacy Breach Procedure until full SWR procedures have been developed. Upon implementation SWR will review and make additions to the Privacy Breach Procedure if appropriate, including the identification of key stakeholders that will be part of the SWR security breach response team and the actions that need to be taken to ensure compliance with Canada's privacy regulations.

Administrative, technical and physical safeguards will be implemented to prevent unauthorized access, disclosure, copying, use or modification. SWR will consider the following:

#### Administration safeguards

- Audit log of all system changes/searches
- Audit logs maintained to identify and review usage patterns; supports proactive and reactive auditing based on triggered events (privacy audits)
- Ability to create audit reports
- Ability to restrict access to data based on user rights/roles
- Unique user IDs
- Username and password required to access system
- Ability to force password changes every 45 days and set password criteria e.g. 10 characters in length, includes 1 uppercase and/or special symbol and/or number, and locks after 3 attempts
- Ability to apply a records retention schedule to permanently delete or archive data as required

#### Technical safeguards

- SSL for establishing an encrypted link between a web server and browser
- Encryption for data at rest

#### Physical safeguards

- Servers located in Canada
- 24/7 security staff
- Security card access/biometric authentication
- Surveillance system
- Mantraps for single person verification
- Intruder and door tampering alarms
- Secure, managed loading dock
- Locked racks and cabinets
- Backups and backup power systems

For specific SWR Data Collaborative security and safeguards, refer to Chapter 4.

## 6. Performance Measurement

This chapter provides an overview of SWR's performance measurement framework based on the CY-Index. This chapter also outlines SWR's approach to evaluation and the logic model for implementation - including the activities, outcomes and indicators identified to track and monitor success.

### 6.1. The Canadian Index of Child and Youth Well-being

Many Canadians believe Canada is one of the best places to grow up. Unfortunately, the data and stories from children and youth indicate there is room for improvement. In response, UNICEF Canada developed the CY-Index as a framework to communicate to Canadians what this country is like for children and youth (from birth to 18), track progress for child and youth well-being and guide action to address the greatest challenges.

UNICEF Canada launched the beta CY-Index in November, 2018 and continues to finalize the framework based on feedback from experts and Canadians. The CY-Index measures 125 indicators over 9 dimensions of children and youth's lives (as outlined in the diagram below). The CY-Index examines:

- Important aspects of the lives of children and youth that are, and are not, getting better over time
- Where there are smaller, and where there are wider gaps in outcomes between children
- Where Canada does better than, and lags farthest behind, peer countries
- The extent to which the SDGs most relevant to children and youth are realized
- The opportunities for, and impacts of, investments, programs and policies



## 6.2. Waterloo Region: The Canadian Benchmark for Child and Youth Well-being

With support from UNICEF Canada and community partners, SWR will adopt, adapt and test the CY-Index in a local context. UNICEF Canada has done the foundational work to develop the framework and indicators important in measuring the well-being of children and youth. When applying the CY-Index, SWR will work to overcome data limitations including unavailability of national indicators due to small sample size, or inability to disaggregate to the Census Metropolitan Area (CMA). The adaptations will help inform application of the CY-Index to smaller communities across Canada.

SWR will use the CY-Index to better understand the well-being of children and youth in Waterloo Region, to monitor changes over time and to understand how local children and youth are faring compared to the rest of the country. In addition, the CY-Index will become a shared measured framework for Waterloo Region, for example:

- Waterloo Region currently uses the CIW to measure and monitor the well-being of the population generally. While it is a powerful tool, it does not capture the experiences of children and youth effectively. The CY-Index dovetails well with the CIW.
- Using the CY-Index framework, local data will be shared through the Child and Youth Well-being Dashboard. The results will help SWR identify where the community needs to target activities and resources to support children and youth.

The development of local measures, best-practices, and a data sharing and analysis platform (SWR Data Collaborative and the Child and Youth Well-being Dashboard, see Chapter 4) will be prototyped in Waterloo Region and made available across Canada. Other Canadian communities will be able to implement these measurement structures to see how their children and youth are faring.

## 6.3. Performance Measurement Plan

The activities, outputs and outcomes identified in the Logic Model are organized by the areas of focus and root cause, as well as a focus on data, research and knowledge.

### Approach to Evaluation

With the support of community partners, including Wilfrid Laurier University, SWR will use a combination of an outcomes-based and developmental evaluation approach to measure results at all stages of implementation.

Outcomes-based measures will assess if SWR and the technology- and data-enabled solutions (outlined in Chapter 4) have made a difference in the well-being of children and youth. SWR has identified – based on research, data and consultation with community stakeholders – specific indicator targets to track progress. The complexity of child and youth well-being and the implementation of technology- and data-enabled solutions add an additional layer of challenge in measurement. SWR will also, therefore, rely on developmental evaluation to assess the responsiveness of SWR to the needs of Waterloo Region, and to monitor the strides being made as SWR progresses. Desired outcomes and specific indicators may change over time as the community changes. SWR recognizes the importance of being nimble and adaptable in its approach in order to better reflect the reality and ever-changing needs of children and youth and the environments in which they live.

### 6.3.1. Logic Model

The following is a high-level summary of the logic model.

Smart Waterloo Region			
Waterloo Region will be the benchmark community for child and youth well-being in Canada			
	Technology & Data Enabled Activities/Outputs	Immediate and Intermediate Outcomes	Long-Term Outcomes
Data, Research & Knowledge	<ul style="list-style-type: none"> <li>Centre of Excellence</li> <li>Canadian Index of Child and Youth Well-being</li> <li>SWR Data Collaborative &amp; Dashboard</li> <li>Indigenous Data Strategy</li> <li>Data Collection and Analysis in Schools</li> </ul>	<ul style="list-style-type: none"> <li>Improve knowledge and awareness of child and youth well-being and influencing factors</li> <li>Increase data and research capacity</li> <li>Improve responsiveness of programs and services to meet the needs of children, youth and families</li> <li>Increase in identification of needs</li> </ul>	<ul style="list-style-type: none"> <li>More children are ready and have the skills needed to start school</li> </ul>
Early Childhood Development	<ul style="list-style-type: none"> <li>CoHealth</li> <li>Online Prenatal and Parenting Programming</li> <li>Digital Early Learning Portfolio</li> <li>Kindergarten Self-Regulation &amp; Foundational Early Learning</li> </ul>	<ul style="list-style-type: none"> <li>Improve community awareness of programs, services and supports</li> <li>Improve access / decrease barriers to programs, services and supports</li> </ul>	<ul style="list-style-type: none"> <li>Improve literacy among children</li> </ul>
Literacy	<ul style="list-style-type: none"> <li>Tablets for Family Literacy</li> </ul>	<ul style="list-style-type: none"> <li>Increase use of programs, services and supports</li> </ul>	<ul style="list-style-type: none"> <li>Improve literacy among youth</li> </ul>
Mental/Emotional Health	<ul style="list-style-type: none"> <li>Social-Emotional Learning for Children, Youth and Caring Adults</li> <li>Virtual Counselling</li> <li>Youth Mental Health Service &amp; Incentivizing Health Apps</li> </ul>	<ul style="list-style-type: none"> <li>Increase knowledge and skills among caring adults</li> <li>Increase in life skills among children and youth</li> <li>Increase in social-emotional learning skills</li> </ul>	<ul style="list-style-type: none"> <li>Improve social-emotional well-being among children.</li> </ul>
Sense of Belonging	<ul style="list-style-type: none"> <li>Connected Community Spaces (Indoor &amp; Outdoor)</li> <li>Engaging and Innovative Learning Environments</li> <li>Digital Citizenship Strategy</li> <li>Volunteering Platform</li> <li>Youth e-Mentorship</li> <li>Newcomer Youth &amp; Family Supports</li> <li>Re-Engagement of Students</li> <li>Indigenous Child and Youth Leadership Program</li> </ul>	<ul style="list-style-type: none"> <li>Increase in children and youth being involved in decisions that affect them</li> <li>Improve cohesion and timeliness of the system</li> <li>Increase in empathy toward children and youth and their well-being</li> <li>Increase in children, youth and caring adults feeling supported</li> </ul>	<ul style="list-style-type: none"> <li>Improve mental/emotional health among youth</li> </ul>
Root Cause	<ul style="list-style-type: none"> <li>Family Compass Platform</li> <li>Shared Electronic Health Record</li> <li>Neighbourhood-Based Service/Program Delivery</li> <li>STEAM Programming for Underrepresented Children and Youth</li> <li>Future of Work and Learning</li> <li>In Pursuit of Racial Justice</li> <li>Child Friendly Cities Initiative</li> </ul>	<ul style="list-style-type: none"> <li>Increase in engagement of children, youth and caring adults</li> <li>Improve child and youth well-being outcomes including, but not limited to:                             <ul style="list-style-type: none"> <li>Academic success</li> <li>Physical activity and health</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Improve the levels social cohesion</li> <li>Increase sense of belonging among youth</li> </ul>

### 6.3.2. Long-Term Outcomes and Performance Indicators

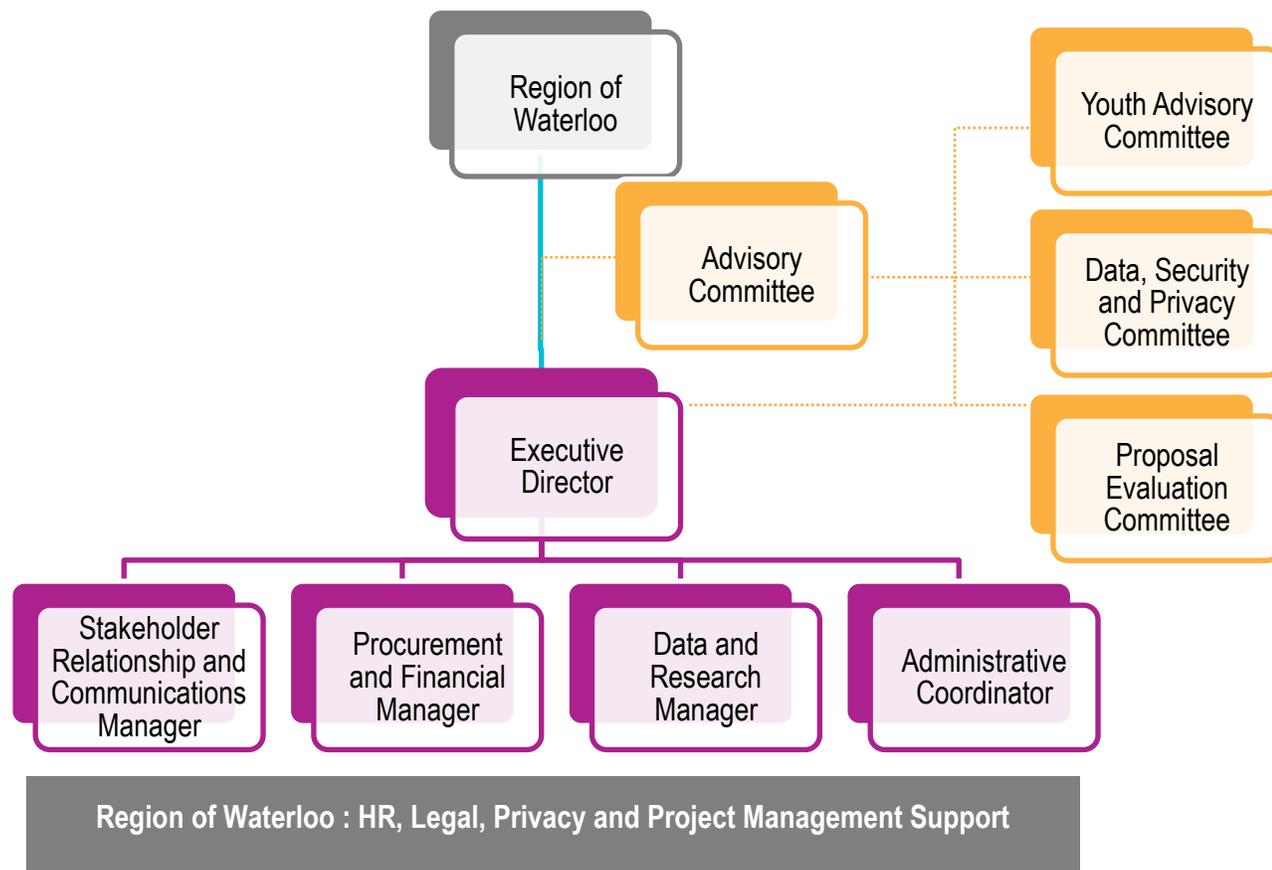
The CY-Index will be the framework by which SWR measures and monitors the well-being of children and youth in Waterloo Region. This table outlines the long term outcomes and associated performance indicators which have been selected as key determinants of success for local child and youth well-being. These can be measured to understand the impact of programming over the short, medium and long-term. Where appropriate, CY-Index indicators have been identified as the performance indicators for SWR and are identified as such. † Indicators used here are congruent with those included in UNICEF Canada’s CY-Index

Area of Focus	Long-Term Outcome	Indicator	Source	Baseline	Target (2024)
Early Childhood Development †	Decrease the percentage of children not ready for school with the skills needed.	Percentage of Senior Kindergarten (SK) children in Waterloo Region who are vulnerable to difficulties in learning on the Early Development Instrument (EDI) (scoring low in one or more domains <10th percentile).	EDI, Ministry of Education (2015)	32.8%	26.0%
Literacy †	Increase the percentage of children reading well in primary school.	Percentage of all Grade 3 students at or above the Provincial Standard for reading.	Grade 3 EQAO, EQAO (2016)	67.0%	75.0%
Literacy †	Increase the levels of reading achievement among Grade 10 students.	Percentage of fully participated students (first time eligible) who were successful on the Ontario Secondary School Literacy test (OSSLT).	Grade 10 OSSLT, EQAO (2016)	82.0%	85.0%
Mental / Emotional Health †	Improve the social-emotional well-being of children.	Percentage of SK children in Waterloo Region who are vulnerable in the emotional maturity domain (i.e., scoring low, < 10th percentile) on the EDI.	EDI, Ministry of Education (2015)	14.8%	12.0%
Mental / Emotional Health †	Increase the percentage of youth self-reporting positive mental health.	Percentage of youth, 12 to 17, having positive self-rated mental health.	CCHS, Statistics Canada (2014)	80.4%	82.0%
Sense of Belonging † (proxy)	Increase the level of social cohesion in Waterloo Region.	The level of social cohesion, as measured by the Social Cohesion Index.	Kindergarten Parent Survey, Offord Centre (2015)	7.6 / 10	8.2 / 10
Sense of Belonging †	Increase the level of sense of belonging to the local community among youth.	Percentage of youth, 12 to 17, with a “very strong” or “somewhat strong” sense of belonging to their local community.	CCHS, Statistics Canada (2014)	78.6%	84.0%

## 7. Governance

SWR brings together the Region of Waterloo and the seven area municipalities, the social service and technology sectors, business community, post-secondary institutions and children, youth and families. This chapter outlines SWR's governance framework, including the roles and responsibilities of partners and the SWR Implementation Team.

### Organizational Chart



### 7.1. Committees

#### 7.1.1. Advisory Committee

SWR will be guided by a 12-15 person Advisory Committee consisting of community members with a vested interest in the well-being of Waterloo Region's children and youth. Members will be drawn from the public and private sectors and will include representatives from municipalities, child and youth service providers, education and technology and key partner organizations. The Advisory Committee will include a minimum of three youth members from the Youth Advisory Committee (described below). Members will represent the diversity of Waterloo Region (e.g., cultural, gender, geography, etc.).

The Advisory Committee will have delegated authority from Region of Waterloo Council for implementation oversight and decision-making. The Committee will guide the strategic direction of SWR and ensure it stays true to its guiding principles; be responsible for the approval of sound strategic investments (projects, time, marketing resources, etc.); expenditures and funding agreements; and help to connect SWR to the broader community. Additionally, the Advisory Committee shall be responsible for establishing policies and protocols for SWR and supporting committees, and modifying these as needed. Terms of Reference (TOR) outlining the roles and responsibilities of the Advisory

Committee will be developed and approved by Region of Waterloo Council. Initial nominations for Committee members will be solicited from the organizations or sectors represented on the Phase 2 Advisory Committee.

### **Supporting Committees**

In addition to the Advisory Committee, SWR will have three sub-committees to support vital functions such as engagement, performance measurement and procurement.

#### **Data, Security and Privacy Committee**

The Data, Security and Privacy Committee (DSPC) will be comprised of approximately 10 data, research and/or privacy experts from the social service sector, post-secondary education, government, and private organizations who will advise SWR on all matters regarding data, privacy and security. Recommendations from the DSPC will be forwarded to the Advisory Committee. DSPC members will be nominated by organizations or sectors represented in the Phase 2 DSPC and approved by the Advisory Committee. DSPC responsibilities will include:

- Oversight of the SWR Data Collaborative, including ongoing privacy and security considerations
- Supporting ongoing performance measurement
- Supporting completion of PIAs and Threat Risk Assessments
- Ensuring privacy policies and practices are followed (including relevant municipal, provincial and federal privacy regimes), and ensuring adherence to SWR Data and Privacy Principles

#### **Proposal Evaluation Committee**

The Proposal Evaluation Committee (PEC) will consist of 4-5 community representatives responsible for reviewing submissions from Requests for Proposals (RFP) generated by SWR. PEC members will have procurement and technology evaluation experience and will make recommendations to the Advisory Committee. Initial nominations for PEC members will be solicited from the organizations or sectors represented on the Phase 2 Advisory Committee and DSPC, and approved by the Advisory Committee. PEC responsibilities will include:

- Development – in conjunction with the DSPC and the SWR Implementation Team – of a decision-making framework for analysis of appropriate engagement, technology and data solutions (e.g., scalability)
- Review of RFP documentation prior to release to the public
- Coordination of reviews and approvals of RFP
- Review and evaluation of RFP responses in accordance with decision-making framework
- Recommending selected solutions to SWR Advisory Committee for approval

#### **Youth Advisory Committee**

The Youth Advisory Committee (YAC) will include 20-25 members, between the age of 13 and 18, representing the geography and diversity (age, gender, those with disability, etc.) of young people from across Waterloo Region. The YAC will provide feedback on engagement, participate in engagement and communications, provide feedback on strategy and solutions, and act as community ambassadors for SWR. Term limits will be outlined in the TOR. There will

### **Youth Governance Best Practices**

Through the existing Youth Advisory Committee and extensive youth engagement, SWR has developed a set of recommended practices for youth governance.

- Assign real responsibilities
- Flexible role structure
- Routinized, weekly or bi-weekly meetings
- Meet in interesting, creative places
- Use an app like Slack to facilitate communications
- Support youth leadership with training, tools and resources
- Build trust over the long term
- Engage and challenge adults
- Add sub-committees to channel interests
- Build relationships with other youth groups

be an open call for YAC members via an application process. YAC members will be approved by the Advisory Committee. YAC responsibilities will include:

- Co-design of engagement solutions from a youth perspective
- Support SWR Implementation Team to develop communications and media strategies for youth
- Participate in SWR and other community events as community ambassadors of SWR

## 7.2. Smart Waterloo Region Implementation Team

SWR will be staffed by a dedicated team charged with managing the project activities that will help achieve the SWR Challenge Statement. The SWR Implementation Team will manage project plans and finances, implement activities, engage committees, coordinate with Infrastructure Canada and manage relationships with community partners, children and youth. The SWR Implementation Team will consist of five full-time equivalent (FTE) staff employed by the Region of Waterloo and funded through the *Smart Cities Challenge*.

The SWR Implementation Team will be housed in the Region of Waterloo Planning Development and Legislative Services Division. Additional administrative support will be provided by the Region of Waterloo including: Project Management, Legal and Privacy expertise. SWR will leverage the Region of Waterloo’s practices and policies for employee recruitment, management, and professional development.

### SWR Implementation Team Roles and Responsibilities

Position	Responsibilities	FTE	Start
<b>Executive Director</b>	SWR Implementation Team lead and a non-voting member of the Advisory Committee Report to Advisory Committee Leads reporting to Infrastructure Canada Supporting the PEC Project management Lead, relationship management Primary, spokesperson/media contact for initiative	1.0	Fall 2019
<b>Stakeholder Relationship and Communications Manager</b>	Reporting to the Executive Director Communications and community engagement lead Community relations, joint project management with partners Communications, marketing and engagement lead, support with project implementation and the YAC	1.0	Fall 2019
<b>Data and Research Manager</b>	Reporting to the Executive Director Support the DSPC (non-voting member) Lead the development, implementation and maintenance of the SWR Data Collaborative Lead ongoing performance measurement and evaluation Lead the development of and adherence to privacy policies, procedures and legislation	1.0	Fall 2019
<b>Procurement and Financial Manager</b>	Reporting to the Executive Director Non-voting member of the PEC and financial management lead Financial management of grants and operations, disbursement and contract management, government reporting, contract management (flow-through funding)	1.0	Fall 2019

Position	Responsibilities	FTE	Start
<b>Administrative Coordinator</b>	Reporting to the Executive Director Assists with administrative needs of SWR, the Advisory Committee and Supporting Committees Project management assistance as needed	1.0	Fall 2019

### 7.3. Partners

There are over 100 organizations involved in SWR to date. These partners include social-support agencies and technology companies, school boards, municipal government and universities. The following table outlines partnerships key to implementation at time of writing and the project(s) involvement for each partner. (See Chapter 4 for Project Descriptions)

Partners will also be brought into SWR as activities move forward. Please note that the organizations outlined below are directly engaged in SWR activities. A complete list of letters of contribution. Financial and in-kind support is outlined in Chapter 10.

#### Overview of SWR Partners

Partner	Project Code	Role
UNICEF Canada	D1, D2, D4, R7	Performance Measurement, Scaling
Children and Youth Planning Table of Waterloo Region	D1, D2, D4, R1, R3, R7	Project Development, Partner Facilitation, Community Engagement and Awareness, Performance Measurement, Research
School Boards in Waterloo Region	D2, D5, E4, M1, S2, S3, S4, S9, S10, R4, R3, R6	Program Delivery, Partner Facilitation, Engagement, Performance Measurement, Community Engagement and Awareness, Research
Post-Secondary Institutions	D1, E3, S2, S4, S5, S8, R4	Research, Project Development, Program Delivery, Prototyping, Impact Modelling, Performance Measurement, Governance Policy Support
LAUNCH and HIP Developments	D1, R3, S1	Program Delivery, Connected Community Space Provider
Communtech Corporation	S4, R5	Data Sharing and Capacity Building, Performance Measurement, Program Development and Delivery, Advisory Services, Technology Partner Facilitation, Use of Space
Vidyad	NA	Use of Space, Technology Partner Facilitation, Project Development
Regional Municipality of Waterloo and Area Municipality governments	D2, E2, S1, S2, R3, R7	Program Delivery, Administrative Support, Connected Community Space Provider
Rogers Communications	S1	Connectivity Providers
Ontario Ministry of Education	D1	Data Sharing and Analysis, Education Technology Piloting, Research, Scaling
YMCAs of Cambridge and Kitchener-Waterloo	E1, S7, S9, R1	Program Delivery, Scaling

Partner	Project Code	Role
YMCAs of CKW, Greater Vancouver, North Alberta, Calgary, Winnipeg, Quebec, Greater Halifax	S7	Program Delivery, Scaling
Volunteer Action Centre Waterloo Region, Volunteer Canada	S5	Program Delivery, Scaling
Waterloo Wellington Local Health Integration Network	E1, M3	Program Delivery, Scaling
Philanthropic Foundations	NA	Funding Partner
Big Brothers Big Sisters of Waterloo Region	S6	Program Delivery
Sustainable Development Solutions Network	D1, D2	Performance Measurement, Scaling
Rural Child and Youth Wellbeing Initiative (Collaborative Project Partners)	M3, S4	Rural Program Delivery Partner, Scaling
Anishnabeg Outreach	S1, R3	Indigenous Program Delivery
Perimeter Institute and Inuksuk High School	R4	Indigenous Program Delivery, Scaling
Ontario Centre of Excellence for Child and Youth Mental Health	D1	Research, Scaling
District School Board of Niagara	D1	Data Research, Program Design
KW Counselling Services	R1	Project Delivery
Social Venture Partners	NA	Organizational Capacity Building
Waterloo Region Small Business Enterprise Centre	R5	Program Delivery
Cambridge Chamber of Commerce and Kitchener-Waterloo Chamber of Commerce	NA	Private Sector Partner Facilitation, Project Development
Homewood Research Institute	D1	Research, Prototyping, Scaling
Leadership Waterloo Region	R5	Program Delivery
Business and Education Partnership of Waterloo Region	R4, R5	Program Delivery
Waterloo Regional Police Service	NA	Program Delivery, Community Engagement
Ontario Trillium Foundation	D4	Research, Community Engagement, Scaling
Canadian Index of Wellbeing	D4	Research, Community Engagement, Scaling
Special Needs Strategy Planning Table	R1, R2	Project Development
Project Read	L1	Program Delivery

## 8. Project Management

SWR is an ambitious undertaking. It has to be. It has to address the concept of well-being with multi-variate, collaborative, boots-on-the-ground programming and services enabled by integrated technology. SWR will provide direct support for the design, testing and deployment of the projects outlined in Chapter 4 through engagement activities, planning, connections to resources and hands-on management. Community partners – specifically service delivery providers – will be responsible for program and service delivery to children, youth and caring adults.

### Agile Project Management and Design Thinking

SWR will employ agile project management and design thinking principles. This will allow SWR to manage and develop iteratively, so insights discovered during development and testing can be incorporated into ideation of the next version(s). This approach creates a high degree of alignment and buy-in from stakeholders and community members, and is well-suited to complex initiatives where the requirements are constantly evolving and solutions are not yet known.

### Transition Team

The Phase 2 team will continue to facilitate and support start-up activities necessary for SWR operations until the necessary positions (see Chapter 9) are filled. Staff will be hired in accordance with talent attraction and recruitment processes and policies in place at the Region of Waterloo as appropriate (see Chapter 9). As such, SWR staff will have the necessary skills and knowledge to administer and oversee project implementation including reporting, vendor selection and management of data, risks and finances.

### Leveraging Community Expertise

SWR will work with experts and staff from partner organizations (e.g., Communitech, post-secondary institutions, CYPT) to ensure project design, implementation and stakeholder management are inclusive and the projects accurately reflect community needs. Where necessary, SWR will use consultants for engagement activities, data platform development (e.g., programming), data analysis, ideation and prototyping, performance measurement and economic impact modelling.

The Advisory and Proposal Evaluation Committees will help to ensure SWR community representation and participation in the implementation of projects and the selection of vendors. Please see Chapter 7 for additional information regarding the responsibilities of SWR Committees. For information on Financial Controls relating to expenditures and procurement, please see Chapter 10.

### 8.1. Project Activities

The Chart below outlines the project activities, timelines, milestones, dependencies and sequencing for each SWR project. All projects outlined herein require funding – in whole or in part – through the *Smart Cities Challenge* grant. Chapter 4 provides an explanation of each project and the expected outcomes are outlined in Chapter 6, including the outcome codes (e.g., D1) relating to the logic model.

### Communications Planning

SWR will consult with stakeholders, youth and partners to develop a Communication Strategy and associated tactical plan. Throughout implementation, SWR will further evolve the SWR brand, develop messaging for specific audiences, generate awareness, drive the use of SWR programs and services, keep the community informed, build and strengthen relationships, and encourage the community to engage with SWR.

SWR will use agile methods and leverage community support – including consultation with children and youth – to develop strategies, plans, tactics and communications tools. This will enable SWR to provide relevant information and

respond quickly to new information, outcomes and community-engagement feedback. Core elements of SWR communications will include:

- Sharing SWR activities, outcomes, reports and evaluations
- Development of internal, external and social media communication plans, protocols and instruments
- Creation of a sub-brand developed with, and for local children and youth
- Identification of audiences and subsets (e.g., rural youth, Indigenous youth, newcomer youth), rational audience groupings, communications requirements (e.g., language, place, ability) and appropriate tools/media
- Creation of tailored messages with and for youth, children, caring adults, community members, diverse groups (e.g., Indigenous, rural) and other stakeholder groups (e.g., technology sector, media, government)
- Development of communications tactics, tools and events

### 8.1.1. Operational Timeline

Activity	Start	Finish	Milestones	Dependencies
<b>Regional Municipality of Waterloo, Council Delegation</b>	Aug 2019	Sep 2019	Delegated authority to SWR Advisory Committee for: approval authority of projects, selection of vendors, and budget approval	Operational, governance structure, and financial controls established Advisory Committee Members identified
<b>Advisory Committee</b>	Sep 2019	Nov 2019	Advisory Committee established Terms of Reference and meeting schedule completed	Regional Municipality of Waterloo, Council Delegation
<b>Office Location and Infrastructure</b>	Aug 2019	Oct 2019	Temporary and long-term office location secured	N/A
<b>Staffing</b>	Aug 2019	Dec 2019	Executive Director hired (October) operational staff hired by end of December	N/A
<b>Operational Policies</b>	Aug 2019	Nov 2019	Draft Operational Policies completed Conflict of Interest Policies completed	Council delegation Advisory Committee established
<b>Financial and Risk Management Controls</b>	Aug 2019	Dec 2019	Draft financial controls completed Financial and project reporting framework completed Draft risk management controls for project management completed	N/A
<b>Request for Proposals Process and Policies</b>	Aug 2019	Dec 2019	Project scoping and expert/partner Engagement process established Procurement policies established Criteria committee selection process completed Project approvals process established	N/A
<b>Partnership and Community Updates</b>	Sep 2019	Dec 2024	Monthly updates to community partners Social media and website updates on start-up	N/A

Activity	Start	Finish	Milestones	Dependencies
<b>Community Engagement</b>	Sep 2019	Dec 2024	Engagement plan scoped Integration of gamified engagement Completion of 8 - 12 stakeholder, youth, or public engagement sessions (Annual) Insights report completed (Annual) Data and results from engagement integrated into program design, data collaborative, and RFP scoping for other SWR projects (Annual)	Engagement consultant secured Gamified Solutions identified and customized for engagement
<b>Develop Communication Strategy and Plans</b>	Jun 2019	Dec 2024	Outline communications strategy for implementation Develop crisis communications plan Build communications plan including supports for accessibility and inclusion (Annual)	Hiring of communications manager Consult stakeholders and partners



### 8.1.2. Project Timeline

Due to the volume of projects in SWR Implementation, the table below shows start, end and duration only.

No	Name	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024	Q4 2024	
D1	Child and Youth Well-being Public Awareness Campaign																						
D1	Building Data Capacity																						
D2	SWR Data Collaborative and Dashboard																						
D3	Indigenous Children and Youth Data Strategy																						
D4	Community Child and Youth Well-being Survey																						
D5	Data Collection and Analysis in Schools																						
E1	CoHealth																						
E2	Online Prenatal and Parenting Programming																						
E3	Digital Early Learning Portfolio																						
E4	Kindergarten Self-Regulation and Foundation Early Learning Skills																						
L1	Tablets for Family Literacy																						

No	Name	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024	Q4 2024
M1	Social-Emotional Learning in Schools (WRDSB)		█	█	█	█	█	█	█	█	█	█										
M2	Social-Emotional Learning for Caring Adults		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
M3	Virtual E-Counselling						█	█	█	█	█	█										
M4	Youth Mental Health Services App			█	█	█	█	█	█													
M5	Incentivizing Health Activities App						█	█	█	█	█	█	█	█	█	█	█					
S1	Indigenous Connected Community Space			█	█	█	█	█	█	█	█											
S1	Wi-Fi Network SSID											█	█	█	█	█	█					
S1	Connected Community Spaces		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
S2	Connected Outdoor Spaces		█	█	█	█	█	█	█	█	█	█	█	█	█							
S2	Digitization of Local Indigenous Historical Content						█	█	█	█	█	█	█									
S3	Engaging and Innovative Learning Environments (Third Teacher)			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
S4	Digital Citizenship Strategy		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
S4	Internet Safety - Low German Mennonite Population									█	█	█	█	█	█	█	█	█	█	█	█	

No	Name	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024	Q4 2024
S5	Meaningful Volunteering Platform (VolunteerAttract)		█	█	█	█	█	█	█													
S6	E-Mentorship Matching							█	█	█	█	█	█	█	█	█						
S7	Strengthening Newcomer Pathways				█	█	█	█	█	█	█	█	█									
S8	Welcoming Newcomer Families to Licensed Child Care			█	█	█	█	█	█													
S9	Re-Engagement Program (WCDSB)		█	█	█	█	█	█	█	█	█	█	█									
S9	Re-Engagement Program (WCDSB)		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█					
S10	Indigenous Child and Youth Leadership Program	█	█	█	█																	
R1	Family Compass Platform					█	█	█	█	█	█	█	█									
R1	OneList					█	█	█	█	█	█	█	█									
R1	Parenting Now					█	█	█	█	█	█	█	█									
R1	Recreation Fee Assist						█	█	█	█	█	█										
R2	Shared Electronic Health Record	█	█	█	█																	
R3	Neighbourhood- Based Program/Service Delivery in Connected Community Spaces			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
R3	After School Community Connections					█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
R4	Indigenous STEAM programming		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█

No	Name	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024	Q4 2024
R4	STEAM in the Early Years																					
R4	STEAMing Ahead																					
R5	Future of Work and Learning																					
R6	In Pursuit of Racial Justice																					
R7	Child Friendly Cities Initiative																					
	French School Boards and KidsAbility School Board (Scaling of Prioritized WRDSB and WCDSB solutions)*																					
	Future Technology- and Data-enabled Solutions*																					

\*New technology- and data-enabled solutions to support achieving SWR outcomes. Funded by community partners.

## 9. Implementation and Risk

### 9.1.1. Duty to Consult with Indigenous Groups and Modern Treaty Obligations

SWR is committed to supporting the well-being of Indigenous children, youth, and families in Waterloo Region. During the Phase 2 proposal development process, engagement with local Indigenous community representatives identified technology- and data-enabled solutions that will support well-being for Indigenous children, youth, and families (Refer to Chapter 4). Through partnerships with Indigenous-serving organizations and community members in Waterloo Region, the SWR proposal will develop and implement solutions locally and share with other communities across Canada.

Waterloo Region is located in south-western Ontario with the Grand River flowing through a large part of the municipality. Waterloo Region does not have a First Nations reserve within or adjacent to the municipality. The Region of Waterloo completed an assessment of the SWR proposal and has identified the following four claims of the Six Nations of the Grand River that may involve the Region of Waterloo:

- a. Claim to the bed of the Grand River and islands thereon
- b. Claim to the tow path lands along the Grand River
- c. Claim to hunting and fishing rights in southern Ontario pursuant to the Nanfan Treaty of 1701
- d. Claim to the six mile area on either side of the Grand River

The Region of Waterloo has not identified any other First Nations treaty right or claim to lands within Waterloo Region. The identified Six Nations' claims entail a claimed right of ownership or use of lands within Waterloo Region that may be adversely affected through new development or infrastructure within the municipality. The SWR proposal, which relates to the development of enhanced social support programs for youth, does not involve such new developments or infrastructure works.

### 9.1.2. Community Employment Benefit

#### Skilled, Talented and Diverse

SWR follows fair and equitable hiring practices as outlined by the Region of Waterloo (<https://www.regionofwaterloo.ca/en/regional-government/accessibility-and-diversity.aspx>) and, as such, is mandated to attract and retain a skilled, talented and diverse workforce. Local labour market dynamics and the nature of the project suggest opportunities will be most likely for the following target groups: youth, women, recent immigrants (new comers), Indigenous people, and social enterprises (through value of contracts given).

#### Procurement and Partner Practices

Procurement practices will emphasize opportunities for target groups (Chapter 9). Requests For Proposals (RFP) will include a stipulation that vendors must provide and report on employment opportunities against established Community Employment Benefits (CEB) requirements.

In addition, SWR will collect employment data from community partner organizations involved in the creation, deployment and management of SWR-funded projects. These organizations will be encouraged to provide inclusive and meaningful employment and/or procurement opportunities for Canadians in the target groups noted.

#### Reporting

SWR will target and report Community Employment Benefits (CEB) requirements annually during the project funding period. The report will include data about employees and contractors from the target groups specified as employed by

SWR, vendors and community partners. Upon successful award of the *Smart Cities Challenge* grant, SWR is pleased to work with Infrastructure Canada to specify reporting requirements and goals including, but not limited to, number of hours by target population, value of contracts and qualitative narration regarding successes and challenges.

### 9.1.3. Climate Lens Assessment (CLA)

The projects outlined in the SWR do not apply to climate change adaptation, resilience or disaster mitigation projects.

### 9.1.4. Other Applicable Laws, Regulations and Policies

SWR will ensure that the implementation of all projects identified in the proposal are in compliance with all applicable laws, regulations, and policies in Waterloo Region, Ontario, and Canada.

## 9.2. Risk Mitigation Framework

SWR will use a risk management framework to identify and assess categories of risk appropriate to the organization’s strategy. The framework outlined below is adapted from the Deloitte Enterprise Risk Assessment model for use in innovation hubs and not-for-profits. This framework includes six broad categories of risk. The categories and types of risk are outlined below. Application to each chapter is referenced in each risk area.

Risk category	Risk, risk definition, mitigation
Strategic	<p><b>Governance and accountability: Governance (Ch 7)</b></p> <p>The risk that there are inadequate practices and processes to support good governance and effective accountability and oversight by the organization and its committees.</p> <p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ TOR outlining practices, processes, accountability, and conflict of interest developed and adopted for all committees</li> <li>▪ External expertise engaged to review governance practices and processes</li> <li>▪ Leverage or adopt existing governance and accountability practices at the Region of Waterloo</li> </ul>
Strategic	<p><b>Management governance and accountability: Governance (Ch 7)</b></p> <p>The risk that there are inadequate practices and processes to support good governance and effective accountability and oversight by the leadership team.</p> <p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ Annual review of governance and accountability practices and processes for SWR Implementation Team</li> <li>▪ Intensified governance and procedural reviews by Region of Waterloo to ensure governance policies and procedures are thorough and being followed</li> <li>▪ External expertise engaged to review governance practices and processes</li> </ul>

Risk category	Risk, risk definition, mitigation
Strategic	<p><b>Innovation: Technology- and Data-Enabled Solutions (Ch 4)</b></p> <p>The risk that the organization will not be able to develop/maintain programming, partnerships and networks to meet community needs.</p> <p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ Take inventory of the technology sector assets and expertise that will be made available to organizations, children and youth in the community (i.e. tools, testbeds, services, opportunities)</li> <li>▪ Leverage the existing network of community child and youth programs, services and technology experts as important community delivery partners</li> <li>▪ Develop or enable new program and service offerings only to fill gaps in the community and to address unmet needs of children and youth across all ages and groups</li> </ul>
Strategic	<p><b>Change management: Project Management (Ch 8)</b></p> <p>The risk that the organization will not adapt effectively to new strategic changes within the organization.</p> <p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ Develop a framework to annually assess the effectiveness of existing programs, partnerships and networks including gap analysis and measurement against organizational objectives</li> <li>▪ Encourage idea generation from the community to identify new and unmet needs or opportunities</li> <li>▪ Work with the Advisory Committee to determine the strategic rollout and allocation of funding to current and new initiatives in order to effectively meet SWR objectives</li> <li>▪ Develop a culture of responsiveness and resilience within the SWR</li> <li>▪ Clearly articulate – with delivery partners, firms and service organizations – the requirements to continually assess and adapt to the needs of the community’s children and youth</li> </ul>
IT and Operations	<p><b>Measurement and monitoring: Performance Measurement (Ch 6)</b></p> <p>The risk that the organization does not measure and/or monitor performance of programs against desired outcomes and needs of the community.</p> <p><b>Mitigation activities:</b></p>

Risk category	Risk, risk definition, mitigation
IT and Operations	<ul style="list-style-type: none"> <li>▪ SWR will use a Developmental Evaluation approach to assess the responsiveness of SWR to the needs of Waterloo Region, and to monitor the strides being made as SWR progresses</li> <li>▪ The Performance Measurement Plan will be evaluated every 6 months by the DSPC</li> </ul> <p><b>IT infrastructure: Data Privacy and Security (Ch 5)</b></p> <p>The risk that IT infrastructure does not align with business requirements and does not support availability, access, integrity and security of data (re: business continuity and inappropriately disclosed information.)</p> <p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ Refer to Table 4.4.3 Data Security and Privacy Considerations for mitigation activities for IT Infrastructure</li> </ul>
Public image	<p><b>Stakeholder relationship management: Engagement (Ch 3), Project Management (Ch 8)</b></p> <p>The risk that the organization does not establish and effectively manage relationships with key stakeholder groups (i.e., community groups, government, youth, families).</p> <p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ Establish formal relationship agreements with the SWR and its Advisory Committee to select, engage, and work with appropriate partners – this will include relationships with community groups (including children and youth), companies, service delivery partners, government</li> <li>▪ Develop a stakeholder management plan to frame clear messaging and responsibilities for key organizational management, Advisory Committee and other committee members</li> <li>▪ Hire and equip personnel with adequate reputation/media training to establish, maintain or represent the organization’s mission, vision and brand with relevant stakeholders, the public, children and youth</li> <li>▪ Engage in a customer segmentation exercise to identify market/customer/stakeholder segment, needs, gaps and relevant communications requirements</li> <li>▪ Enable customer relationship management strategies, technologies and personnel to manage and maintain robust relationships with children, youth, the community and partners</li> </ul>
Public image	<p><b>Funding relationship management: Financial (10)</b></p> <p>The risk that the organization does not establish and effectively manage relationships with its funding partners.</p>

Risk category	Risk, risk definition, mitigation
Public image	<p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ Establish a MOU or Contracts with funding partners that outlines funding parameters over implementation period</li> <li>▪ Reporting strategies established to normalize project updates relating to funding from partners</li> <li>▪ Annual review meetings with funding partners and forward planning meetings to adjust funding flow or project activities</li> </ul> <p><b>Reputation, public and media relations: Project Management (Ch 8)</b></p> <p>The risk that the organization is not able to effectively manage its brand and reputation across media channels (e.g., press releases, internet, social media).</p> <p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ Develop and annually review communications and engagement plan targeted at public, stakeholders, and youth</li> <li>▪ Communications plan will include strategies and activities to build brand/reputation</li> <li>▪ Establish SWR response plan for inquiries from media including identification of key SWR implementation team or Advisory Committee members</li> </ul>
Human resources	<p><b>Recruitment of management and staff: Governance (Ch 7)</b></p> <p>The risk that the organization is not able to attract and retain the necessary resources to effectively manage programs, operations and to deliver on its mandate and achieve objectives.</p> <p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ SWR will work in consultation with the Region of Waterloo’s HR Department and industry experts to recruit and retain employees with the skills and experiences necessary</li> <li>▪ SWR will offer competitive compensation to employees and provide ongoing professional development</li> </ul>
Human resources	<p><b>Retention of management and staff: Governance (Ch 7)</b></p> <p>The risk that the organization is unable to retain the necessary resources to effectively manage programs, operations and to deliver on its mandate and achieve its objectives.</p> <p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ Capacity building and training opportunities for staff to support continuous development</li> <li>▪ Integration of Region of Waterloo’s values and ethics into operations</li> </ul>

Risk category	Risk, risk definition, mitigation
Financial	<p><b>Financial recording and reporting: Finance (Ch 10)</b></p> <p>The risk that financial transactions are not properly processed, reviewed, reported and disclosed to ensure that there are no errors or omissions to financial reporting.</p> <p><b>Mitigation Activities:</b></p> <ul style="list-style-type: none"> <li>▪ Class A estimates will be completed prior to the issuing of Requests for Proposals or establishing partnership agreements</li> <li>▪ The Region of Waterloo's team of Procurement, Financial and Legal professionals will be available to assist the Executive Director, Procurement and Financial Manager, and Advisory Committee on procurement and cash flow issues. Delays in completion and substandard performance will be addressed through the contracts that are established for the performance of the work including potential penalties for non-performance or delays</li> <li>▪ The Region of Waterloo's vendor performance program will be leveraged to ensure that non-performing vendors do not get subsequent work on the Smart Cities project.</li> <li>▪ Cash flow issues will be mitigated by arrangements with the Region of Waterloo for temporary financing</li> </ul>
Legal and compliance	<p><b>Fraud, misappropriation and theft: Implementation and Risks (9)</b></p> <p>The risk that the organization is susceptible to fraud, misappropriation and theft perpetrated by employees or external parties.</p> <p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ Annual reporting to Region of Waterloo Council on status of implementation</li> <li>▪ Annual 3rd party audits of finances (the Region of Waterloo currently uses KPMG LLP for annual audits)</li> <li>▪ Region of Waterloo review and intervention in operations and implementation of project</li> </ul>
Legal and compliance	<p><b>Government agreements: Privacy Data and Security (Ch 5); Implementation and Risk (Ch 9)</b></p> <p>The risk of not complying with agreements set out with the government, including restrictions on use of government funding.</p> <p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ The DSPC will complete a PPIA for each solution identified in Chapter 4, which will ensure compliance with relevant privacy legislation</li> <li>▪ The PPIA completed as part of Phase 2 has been submitted.</li> <li>▪ The Region of Waterloo completed an assessment of the Crown's duty to consult</li> </ul>

Risk category	Risk, risk definition, mitigation
Legal and compliance	<ul style="list-style-type: none"> <li>▪ The Region of Waterloo’s team of Procurement, Financial and Legal professionals will be available to assist the Executive Director and Advisory Committee on compliance with agreements set out with the government, including restrictions on use of government funding</li> </ul> <p><b>Privacy and confidentiality: Privacy Data and Security (Ch 5)</b></p> <p>The risk that the privacy and confidentiality of personal information and/or sensitive health or personal data is compromised.</p> <p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ The DSPC will complete a Privacy Impact Assessment and Threat Risk Assessment for implementation and conduct ongoing privacy and security checks</li> <li>▪ Development and signing of a Memorandum of Understanding (MOU) outlining data and privacy requirements for all project participants and/or vendors</li> <li>▪ Ongoing adherence to all Privacy by Design Principles</li> <li>▪ Development and implementation of an Enterprise Risk Management framework for proactive management and monitoring of cyber security threats</li> <li>▪ The PPIA completed as part of Phase 2 has been submitted.</li> </ul>
Legal and compliance	<p><b>Safety: Technology- and Data-Enabled Solutions; Implementation (Ch 4)</b></p> <p>The risk that delivery of services/programs may result in adverse and/or unforeseen outcomes to children/youth.</p> <p><b>Mitigation activities:</b></p> <ul style="list-style-type: none"> <li>▪ Prior to implementation of each project, a preliminary impact and risk assessment will be completed to ensure activities contribute to SWR outcomes</li> <li>▪ Appropriate liability and insurance requirements will be built into partnership agreements</li> <li>▪ A Threat Risk Assessment will be completed prior to each project to assess for unforeseen outcomes to children and youth</li> </ul>

### 9.2.1. Quarterly Assessment

Quarterly, the SWR Implementation Team will review each of the dimensions, and assess their likelihood of occurrence as well as the potential impact of each risk, should it be left unaddressed. Management will use the quarterly assessment to advise the Advisory Committee as to which risks are most in need of monitoring versus immediate action, along with the details of any recommended risk mitigation activities.

### Risk Assessment Tool

Level	Likelihood		Impact	
	Potential	Description	Potential	Description situation or condition
1	Almost Certain	Expected to occur, several times, within the year (90%+)	Severe	Extreme: permanent or long-term damage to the organization's ability to achieve objectives. Front-page news for an extended period.
2	Likely	Will occur one or more times, within the year (41-89%)	Major	Endurable: with the proper management, the organization can endure in achieving objective. Front-page news for a short time.
3	Possible	Should occur at some point, within a year (21 – 40%)	Moderate	Effort: management effort is required to minimize impact at achieving objectives. Moderate to negative attention.
4	Not likely	Could occur at some point, within the year (5 – 20%)	Minor	Managed: managed under normal circumstances as organization is achieving objectives. Short-lived attention.
5	Remote	May occur, exceptional circumstances, within the year (<5%)	Negligible	Absorbed: absorbed through normal activities as organization is achieving objectives. No attention.

The Advisory Committee will monitor variances in the level of risk and determine its level of comfort with the risk management plan. It will also assume responsibility for the fulfilment of the obligations and responsibilities outlined in the contribution agreement with the Infrastructure Canada including all financial responsibilities of the organization.

## 10. Financial

### 10.1. Phase 2 Summary

Phase 2 activities were supported by a \$250K grant from Infrastructure Canada, and leveraged 3:1 (\$750K) by other funding and in-kind support. The Region of Waterloo and the seven area municipalities matched the grant with a contribution of with \$250K. Additional in-kind support from the Region of Waterloo, area municipalities and community partners included: staff, communications support, community engagement assistance and advisory services. The Phase 2 work plan and preliminary project budget (grant funds and matching) were outlined in a public report to the Region of Waterloo Council in the summer of 2018.

Over \$200K of Phase 2 funding was used for community engagement. This work was vital. It has informed the development of priorities, measurement requirements, and the development of technology- and data-enabled solutions identified in this application. Costs included retention of a human-centred design consultant, with extensive experience in working with children and youth, to develop and facilitate Phase 2 engagement, connect insights to action, and scope future engagement needs (Chapter 3).

The remaining \$50K of *Smart Cities Challenge* Phase 2 funding was used to design and launch a community awareness campaign to encourage citizens to participate in the *Smart Cities Challenge*, and administer the development of the final application.

Matching contributions from the Region of Waterloo and area municipalities were allocated to staffing for Phase 2 projects (including engagement, community awareness, project management, and technology- and data-enabled solutions), SWR application development, administrative/legal support and partner relationships development.

## 10.2. Contributions from Other Sources

SWR has received overwhelming support from the community with cash and in-kind pledges totalling over \$100M. It is an amazing testament to the belief Waterloo Region and the nation have in this project, in creating better futures for Canada's young people.

Summary of Cash and In-Kind Support	
Third Party Support (Program/Service Delivery, Technology Development, Infrastructure, Outreach)	17,674,900
Applicant Support (Region of Waterloo and Area Municipalities)	60,860,000
Lyle S. Hallman Foundation and the Astley Family Foundation	26,400,000
<b>Total</b>	<b>\$104,934,900</b>

NOTE: SWR has expressions of interest from Ontario, British Columbia, Alberta, Quebec, Manitoba, Nova Scotia, and Nunavut to aid in scaling SWR solutions in other communities. Funds are not committed and, as such, are not included in the SWR initiative as scoped in this document. Scaling partners will help to bring these solutions to other communities. \$200K has been allotted to SWR to support working with other communities to scale solutions.

## 10.3. Financial Considerations

SWR is a \$155M project. From the ground up with support to programs working directly with families, and from the top down with multidisciplinary research to understand the nature of well-being, the scope of SWR activity is intended to reach deeply and widely into the community to enhance child and youth well-being for as many residents as possible. As such, this is an initiative with many sub-projects and a variety of sources of funding.

SWR has tried to present financial information in a clear, simple format. If additional cost information on a project-by-project basis is required, SWR is happy to work with Infrastructure Canada to expound on budgets and expenditures.

Large projects are not without risks including procurement issues, delays in completion, cash flow issues and substandard performance/deliverables by contractors. The Region of Waterloo's team of Procurement, Financial and Legal professionals would be available to assist the Advisory Committee on such matters. Delays in completion and substandard performance could be addressed through the contracts that are established for the performance of the work including potential penalties for non-performance or delays. A vendor performance program could be utilized to ensure that non-performing vendors do not get subsequent work on the SWR project. Cash flow issues could be mitigated by arrangements with the Region of Waterloo for temporary financing.

## 10.4. Sustainability

Projects outlined in this proposal are focused on enhancements that do not require ongoing financial support. Expenses are predominantly at the front end of each project and are associated with the creation, adoption or implementation of technology or data-enabled solutions, programs or supports. Implementation will occur over the five-year funding period.

### In Waterloo Region

Community partner organizations – school boards, municipalities, the 70 member organizations of the Children and Youth Planning Table – are established and funded. They form the delivery network for solutions implemented through the SWR initiative. Subsequent solution use and management will be normalized as part of the infrastructure of existing community partner operations, ensuring long-term delivery past the five-year *Smart Cities Challenge* funding period.

Local philanthropic organizations like the [Lyle S. Hallman Foundation](#) and the [Astley Foundation](#) are already investing in existing SWR projects and will provide future funding for child and youth well-being projects beyond 2024. To support SWR projects over the next five years, each organization has allocated new cash allocations totalling \$26.4M (\$26M from Lyle S. Hallman Foundation, \$400K from Astley Foundation).

Infrastructure-related projects with long-term impact (e.g., installation of fibre networks) are one-time costs. These will provide benefits to children and youth in the community long after the funding period. SWR will not cover ongoing fees related to licensing and usage which will normally be covered by the Region of Waterloo and/or municipalities.

The Region of Waterloo and area municipalities are committed to ongoing alignment of \$12M per annum toward child and youth programming that supports SWR. This will include delivery of programs and services through connected community spaces. Annual funding from the municipalities is not contingent upon Federal funding through the *Smart Cities Challenge*, and will continue post 2024.

[HIP Developments](#) and [LAUNCH](#) will host the COE – rent-free, for 20 years – in a new build in the heart of the City of Waterloo. The COE will be located in the LAUNCH space: a 40,000 square-foot, five-floor facility dedicated to STEAM culture for kids. This generous contribution, valued at over \$5M, will ensure long-term sustainability of the Centre and its support for programming, research and technology development.

## 10.5. Financial Tools, Controls and Accounting Methodologies

The Region of Waterloo is a municipal government with a \$1.5 billion annual operating and capital budget. The SWR project will leverage the Region of Waterloo's extensive experience in stewarding public funds and reporting on annual operations and capital projects, including major infrastructure projects such as Light Rail Transit. SWR operations and processes will be overseen and approved as required by the Advisory Committee with assistance from the Region of Waterloo's Finance team.

The Region of Waterloo utilizes fund accounting for the purpose of distinguishing restricted funding from general funding. As such, all financial information for SWR can be segregated and reported separately from financial activity for the Region of Waterloo. Related expense activity will be mapped based on prescribed eligibility criteria and funds received pursuant to an agreement in support of this project will be held in a separate account. All disbursements from the SWR funding account will reconcile with eligible expenses as outlined by Infrastructure Canada.

Financial reporting will be provided to Infrastructure Canada as required by a contribution agreement and/or disbursement schedule. The Region of Waterloo's financial statements are audited annually by KPMG LLP and a separate audit for SWR project funding will be supplied upon request.

### Financial Controls

During development and implementation, each project will track expenditures, time, and changes (Agile framework). Financial performance will be measured – on a project-by-project basis and for the overall initiative – using an Earned-Value Management (EVM) system to accurately measure planned versus actual spend. EVM will provide the necessary measurement control to accurately determine cost and schedule variances, and schedule and cost performance indices.

Project expenditures and performance analyses will be provided to the Advisory Committee on a quarterly basis to inform risk management reviews (Chapter 5). An annual report will be released publicly by Q2 each year. It will update Regional Municipality of Waterloo Council and the community on the status of implementation and expenditures.

### 10.5.1. Project Estimates

The budget supplied is based on the initial project scoping for the purposes of this application. Costs may change subsequent to the development of a full Scope of Work and RFP process for each project.

Technology- and data-enabled solutions are outlined in Chapter 4. Estimates for these projects are based on information supplied by technology companies, and actual costs incurred by municipalities or child and youth service delivery providers. Costs to scale pilot projects run in Phase 2, and community partner projects slated for scale are based on existing financial data.

Costs for Administration, Community Engagement and Community Awareness were developed based on staffing estimates at the municipal level, actual costs for Phase 2 engagement activities, and actual costs for campaigns carried out by community partners. The following table summarizes project expenditures by cost category.

Smart Waterloo Region Budget (Project Expenditures)							
Expenditures	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	Total Project Costs	Total Grant
	Total	Total	Total	Total	Total		
<b>Community Outreach</b>	455,000	455,000	450,000	450,000	450,000	2,260,000	2,000,000
<b>Administrative</b>	900,000	900,000	900,000	900,000	900,000	4,500,000	4,500,000
<b>Tech and Data Projects</b>	19,439,980	27,850,980	29,132,980	24,814,420	19,626,280	120,864,640	43,399,300
<b>Other Projects</b>	5,300,000	5,300,000	5,300,000	5,300,000	5,300,000	26,500,000	100,000
<b>Total Expenditures</b>	<b>\$26,094,980</b>	<b>\$34,505,980</b>	<b>\$35,782,980</b>	<b>\$31,464,420</b>	<b>\$26,276,280</b>	<b>\$154,124,640</b>	<b>\$49,999,300</b>

Timing assumptions:

- Annual Start Date - Q4 2019 - Q4 2020
- Contribution Agreement Start Date - Q4 2019
- Contribution Agreement End Date - Q4 2024

The Region of Waterloo requests an advance of 50% of yearly funding in Year 1 and Year 2, in order to support swift scaling of piloting and proven projects. Please see the end of this section for budget information. Note: Budgets are provided on legal-sized pages.

### Procurement Controls

Each project within the implementation phase (see Chapter 4) has an allocated budget (Chapter 10) and will require Class A estimates prior to execution. Scaling projects have identified implementation delivery partners, however New and Pilot projects will require a complete Request For Proposal (RFP) process to identify vendors. All RFPs will be posted via an open, public process and will specify requirements for timing, deployment, ownership, and privacy of data collected or used in the technology- and data-enabled solution. (See Chapter 5 for details)

Community partners (e.g., Communitech, researchers, youth) will help define the Scope of Work (SOW) for each technology- and data-enabled solution. This process will help ensure that the right technologies are developed, customized and adopted. Community input will a) inform the development of each RFP, b) help identify the child and youth services delivery partner(s) who will be responsible for delivering each solution and c) help identify the resources required to deliver the solution. Projects must:

- Align against outcomes for SWR projects
- Engage multiple players (more than two)
- Foster partnerships across child and youth-serving, private, public, academic, and research organizations
- Adhere to data requirements as outlined in Chapters 4 and 5