Cedar Mill Creek Flood Remediation Collaborative

Declaration of Cooperation

October 2018

Oregon Solutions

CMCFRC DECLARATION OF COOPERATION

TABLE OF CONTENTS

1. INTRODUCTION

1.1 DEFINITIONS

Terms used herein:

- CMNJ = Cedar Mill and North Johnson Creeks
- Collaborative = the Oregon Solutions designated Cedar Mill Creek Flood Remediation Collaborative process as a whole
- Cooperating Partners = signers to this Declaration of Cooperation and any additional entities that may join the effort in the future
- Declaration = Declaration of Cooperation
- Watershed Enhancement and Flood Resiliency Work Program = inclusive of the Cooperating Partners' multiple concurrent approaches to fostering watershed enhancement and flood resiliency, including shared decision-making tools, and policy, programmatic, and project-based initiatives. Additional details can be found in Section 4.53
- WEFRSC = Watershed Enhancement and Flood Resiliency Steering Committee, referenced in Section 4.3

1.2 BACKGROUND

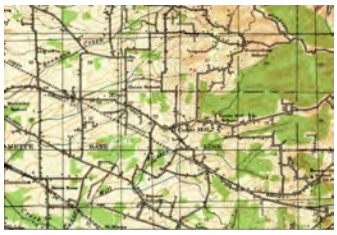
Cedar Mill Creek and its major tributary, North Johnson Creek, drain an urbanized basin in the northeastern portion of the Tualatin River watershed in Washington County. This formerly forested basin begins in the Tualatin Mountains (a.k.a., West Hills of Portland). The two creeks flow to the southwest through progressively gentler topography, under U.S. Highway 26, and eventually join in Beaverton between Walker Rd. and Murray Blvd., just east of the Nike campus. They flow as Cedar Mill Creek into the Tualatin Hills Nature Park, where the creek joins a remnant of a formerly much larger wetland complex in and around the confluence with Beaverton Creek. Beaverton Creek meanders west to Rock Creek and eventually to the Tualatin River.

The fate of the CMNJ watershed is closely tied to the physiography and land use history of the Tualatin River watershed. Located in northwestern Oregon west of Portland, the Tualatin River watershed drains 712 square miles and is a significant tributary of the Willamette River. Several major streams flow into the Tualatin River in addition to Rock Creek, including Scoggins, Gales, Dairy, and Fanno Creeks.

Human activities have influenced the Tualatin River Basin for centuries. Native Americans burned the plains of the Tualatin Valley to promote hunting, and harvested wapato, camas, berries, and other native plants for subsistence. The early 1800s brought fur trappers, who dramatically depleted beaver populations. Settlement followed shortly thereafter; the precursor to Washington County was one of the first four districts established by the Territorial Legislature in 1843. Settlers drained wetlands formed by beavers, cleared streams of wood, and moved or straightened the streams to establish extensive farms. The old-growth forests were extensively logged starting in the 1850s, with logging continuing to the present day in the forested mountains fringing the Tualatin basin. As decades passed, cities were developed, roads were built, and the population began to expand. The CMNJ watershed is now part of the densely populated area in Washington County that includes southwest Portland, Beaverton, Tigard, Tualatin, Sherwood and Hillsboro, rather than the more sparsely populated agricultural areas near Scholls, Gaston, Banks, Mountaindale, and North Plains, or the forests of Oregon's Coast Range, northern Tualatin Mountains, and Chehalem Mountains.

Cedar Mill / North Johnson Creeks: Stormwater Impacts from a Changing Landscape

From the earliest settlements in the Cedar Mill / North Johnson (CMNJ) basin, agriculture, logging, and other activities have altered the way water flows across the landscape. Development and population growth in the area has increased dramatically in recent decades. The late 1940s saw the first subdivision built in the watershed at Marlene Village, located south of US Highway 26 and east of Murray Blvd; the course of Cedar Mill Creek was altered to go around rather than through the middle of this subdivision. Until the mid-1960s, subdivisions were located south of the Sunset Highway but by 1970, multiple subdivisions just north of the highway were built in the Cornell and Barnes Road corridors, along with commercial development to support the growing population. In the 1980s and 1990s, development moved further northeast into the West Hills; by 2002, most of the watershed had been developed. The maps below show the progress of development from early settlement through to the present.



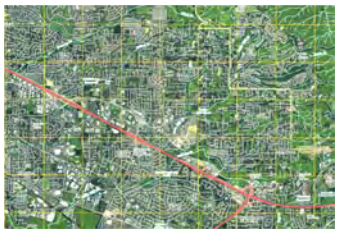
Circa 1940

Circa 1952

Circa 1961

Circa 1970

Circa 1990



Circa 2017

The reshaped landscape displayed above has affected the ability of the watershed to be resilient in the face of change. Because of development in uplands and within floodplains that modified historic stream patterns, stormwater runoff has changed and varying degrees of flooding are common in portions of the creek corridors, even during relatively small rainfall events. Increased stormwater flows present additional challenges along stream corridors as well, including erosion and bank instability, and altered ecosystems.

Many of the flooding-related issues along the creeks have been studied in the past. While flood mitigation has not been the primary charge of agencies performing past evaluations of the watershed, engineering analyses have identified potential projects to mitigate flooding at specific individual sites. Existing programs to regulate further development in the floodplain and provide limited capital improvements are in place and functioning. However, to date, a comprehensive, coordinated watershed-wide effort to promote watershed enhancement and flood resiliency in the CMNJ area has not been undertaken.

Urbanization since the end of World War II has been the primary human activity within the CMNJ watershed, and has had substantial effects on the natural environment (see inset above). Beginning in the 1970s, environmental protection regulations were developed to help reduce the impacts of urbanization on the landscape, improve water quality and protect at-risk species, but even with these regulations, urbanization has continued to result in degradation of the stream system and impacts to adjacent infrastructure. Altered watershed conditions and encroachment into floodplains have resulted in increased flooding, and fish and wildlife habitat has been reduced and impaired. Ongoing watershed dynamics, including a changing climate, have exacerbated these challenges, and the ability of ecological systems to adapt and be resilient to change continues to be impacted by human actions.

Comprehensive Understanding

Watersheds are complex systems that support numerous ecologic and social connections throughout the landscape and community. Watersheds:

- Control the conveyance of stormwater runoff through stream channels, wetlands, soils, and subsurface geologic materials;
- Support vital habitat and species diversity;
- Influence water quality, recreation, and commerce; and
- Provide an important opportunity for people to connect with and experience nature.

Thus, actions taken within a watershed must take this variety of conditions and processes into account. Interventions within stream and floodplain systems can have measurable effects upstream and downstream that can be difficult to understand and mitigate without substantial analytical effort. The multifaceted nature of watersheds suggests that any attempt to address the risks of flooding requires a comprehensive understanding of the multitude of dynamics at play and a willingness to address the condition of the watershed on a system-wide landscape level.

1.3 PROBLEM STATEMENT

Chronic flooding, erosion, bank instability and other detrimental stormwater impacts within the CMNJ watershed affect the entire community by adversely impacting property values, diminishing quality of life for residents, and reducing the ability of businesses to succeed. The resultant effects on water and natural habitat quality, instream complexity, and vegetation diversity reduce natural processes' ability to support a healthy, resilient ecosystem despite increased flows. Though multiple agencies continue to address these challenges through system maintenance and improvement as well as targeted watershed enhancement projects, flooding, erosion, and bank instability continue to present significant problems in the basin.

Although elimination of flooding is impossible, ample opportunities exist to reduce the risks and impacts from increased flows and build a community that can continue to thrive amid changing stormwater dynamics. It has become clear that successful watershed enhancement and promotion of flood resiliency is dependent on employing a holistic approach. Addressing these complex issues will require close and lasting coordination between partners and a commitment to shared stewardship of the watershed, which is integral to the ecological, social, and economic health of the community.

2. CMCFRC COLLABORATIVE PROCESS/METHODOLOGY

2.1 OFFICIAL OREGON SOLUTIONS DESIGNATION

In 2017, Oregon Solutions conducted an assessment, interviewing major stakeholders and other potential project partners about whether the Oregon Solutions approach could assist efforts to mitigate flooding problems and better address future stormwater management within the CMNJ watershed. Interviewees consistently expressed a strong opinion that existing programs were not adequate and an Oregon Solutions project involving all affected property owners, agencies, entities, and stakeholders was not only a good idea but essential for success.

Governor Kate Brown's June 2017 letter officially designating the Cedar Mill Creek Flood Remediation Collaborative (Collaborative) as an Oregon Solutions project can be found in Appendix C. The Collaborative's founding vision was:

> *Enhance the natural functions of Cedar Mill Creek and North Johnson Creek corridors to manage flood risks in a manner that provides high quality natural habitat, while reducing flood hazard impacts on flood-prone residential and commercial properties.*

2.2 EVOLUTION OF THE COLLABORATIVE

As indicated by the Governor's designation, the Collaborative was formed as a means for addressing the impacts of flooding within the CMNJ area. A diverse range of agencies and organizations (Cooperating Partners) came forward to participate, offering a wide variety of expertise, resources, and organizational capacity. However, while flooding was the catalyst for establishing the Collaborative, the Cooperating Partners quickly identified the need to address flooding in a wider context of systemic watershed health. Healthy, resilient watersheds, with robust ecosystems and stable channels are better able to withstand the impacts of increased stormwater flows. Accordingly, the Watershed Enhancement and Flood Resiliency Work Program developed by the Collaborative (referenced in Section 4.5 of this Declaration), describes investment in multiple concurrent approaches, including:

- Development of shared decision-making tools to ensure a common base of usable information;
- Policy and programmatic initiatives to increase the community's resiliency amid increasing stormwater flows; and
- Infrastructure projects to address conveyance, sedimentation, water storage, and natural resource enhancement.

2.3 COLLABORATIVE STRUCTURE

The Collaborative was structured to be an inclusive process, bringing to the table a wide variety of stakeholders from local governments, special districts, business organizations, state and federal agencies and non-profit groups. These representatives contributed unique and varied perspectives across diverse interests such as recreation, environmental conservation, stormwater management and transportation, among others. A Community Engagement Team was formed to specifically gain feedback from the property owners and other interested parties in the basin. A comprehensive list of organizational representation among the Collaborative's various committees can be found in Appendix D.

2.31 Steering Committee

The Steering Committee, chaired by the Collaborative's convener, was comprised of senior representatives from Washington County Department of Land Use and Transportation, Clean Water Services, and Tualatin Hills Park & Recreation District (THPRD). The function of the Steering Committee was to provide high-level leadership and direction for the Collaborative, identify key strategies and priorities, clarify responsibilities and objectives, and shape decision-making processes.

2.32 Project Team

The Project Team consisted of representatives from the organizations anticipated to be signers of this Declaration. The Project Team served as the Collaborative's central decision-making body, tasked with considering the recommendations and input from the Technical Advisory Committee and members of the public, forging consensus among the various stakeholders at the table, and officially adopting documents such as the Shared Understanding Statement and the Declaration of Cooperation.

2.33 Technical Advisory Committee

The Technical Advisory Committee (TAC) included subject matter specialists from a variety of fields such as engineering, natural resource management, and waterway regulation. The role of the TAC was to draw upon its deep experience and expertise to develop recommended flood mitigation approaches for the Project Team's consideration. The TAC also incorporated several subcommittees and workgroups, focusing on topics including structural and non-structural solutions, governance and finance, regulation, infrastructure and land use, and ecological conditions and processes.

2.34 Community Engagement Team

The Community Engagement Team included public involvement professionals from several of the participating organizations, as well as assistance from an outside consultant, EnviroIssues. The objective of this team was to help build community awareness of the Collaborative effort and proactively gather community input concerning the severity and location of flooding impacts, as well as solicit feedback on proposed flood mitigation approaches. They did so by proactively attending local neighborhood meetings and events, hosting an interactive online open house, hosting live informational and feedback-gathering sessions, facilitating an educational watershed tour, and conducting extensive social media outreach, among other strategies.

3. INTENT AND STIPULATIONS

3.1 INTENT

This Declaration is intended to serve as a foundational blueprint for ongoing watershed enhancement and flood resiliency coordination and implementation within the CMNJ watershed. Flooding and other structural and ecologic impacts from increased stormwater flows in the area have historically presented an intractable challenge due to the complex causes and resource-intensive and multifaceted efforts required for response. This Declaration represents a sincere and sustained commitment among the Cooperating Partners to work collaboratively and proactively to address flood mitigation, ecological functional improvements and educational opportunities in the watershed, with the intention of easing flooding impacts and making comprehensive improvements over time.

The Cooperating Partners recognize that the challenges experienced in the CMNJ watershed are not unique; similar issues exist throughout the urbanized areas of Washington County. This Declaration is intended to serve as a model for governance, funding, implementation, and the range of solutions that can potentially be applied to other watersheds in the Tualatin River basin.

3.2 STIPULATIONS

It is understood by all parties that flooding in the CMNJ watershed is the result of many decades of changes, including human factors such as early alteration of streams, development that occurred before current regulations were in place, and significant population growth, as well as environmental factors including watershed topography and soils, locally high groundwater and a changing climate. No one factor is responsible for the current challenges, and no single initiative or entity can fully solve the problem. Rather, it will take shared responsibility and sustained coordinated effort by all parties, as well as substantial participation by individual property owners and the community, to successfully address and mitigate stormwater impacts, including flooding.

This Declaration of Cooperation does not constitute a binding contract between the Cooperating Partners. Usage of the terms “commitment” and “agree” within this Declaration is not meant to imply any kind of legal obligation. Rather, the language in this document represents a good faith agreement between stakeholders to address watershed enhancement and flooding concerns collectively and proactively, and to continue working together in a collaborative fashion into the future.

4. POINTS OF AGREEMENT

4.1 SHARED VALUES

The Cooperating Partners agree to a common set of values that will guide decision-making as this Declaration is implemented. These values were first articulated and agreed to in the Collaborative's Shared Understanding Statement, which can be found in Appendix B.

Comprehensive Watershed Perspective. Seek a long-term watershed-wide approach and perspective in addressing infrastructure, healthy ecosystems, governance, community, and watershed management.

Long-Term Resilience. Retain, enhance, and sustain a watershed and community that is economically and environmentally resilient year-round. Consider potential impacts from increased frequency and severity of flooding that could come from climate change, and plan for flood storage and/or other flood mitigation options. Be forward-thinking and develop progressive approaches to implementation and maintenance.

Financial Security. Address the cost of flooding impacts by reducing flood risks and related insurance costs to the extent possible. Seek to improve conditions for area businesses by promoting economic growth in balance with residential quality of life. Strive to be fiscally prudent when building and maintaining infrastructure in the watershed to minimize financial impacts.

Connected Habitats for Healthy Ecosystems and Community Wellbeing. Build on a legacy of habitat enhancement efforts in the Cedar Mill Creek / North Johnson Creek watershed to create an interconnected network of stream, wetland, and upland natural areas that support sustainable populations of native species, and places for people to enjoy and learn from nature.

Safe, Effective, Efficient Infrastructure Systems. Improve and maintain the community's ability to access urban amenities, jobs, recreation, and school, by providing cost-effective and hazard-resilient public and private facilities and infrastructure, and safe and efficient connections for multiple modes of travel. Continue to improve and maintain public infrastructure and protect natural systems. Manage the floodplain so the many risks associated with flooding are reduced or minimized where possible—for homes, businesses, and primary evacuation routes.

4.2 SHARED APPROACH

The Cooperating Partners agree an ongoing comprehensive watershed-wide approach is necessary to successfully promote flood resiliency and address legacy stormwater impacts within the CMNJ basin. As stated in Section 1.3, though elimination of flooding is impossible, ample opportunities exist to reduce the risks and impacts from increased flows and build a community that can continue to thrive amid changing stormwater dynamics. Successful watershed enhancement and promotion of flood resiliency is dependent on employing a holistic approach. Addressing these complex challenges will require close and lasting coordination between partners and a commitment to shared stewardship of the watershed, which is integral to the ecological, social, and economic health of the community.

Accordingly, the Collaborative has agreed upon a Watershed Enhancement and Flood Resiliency Work Program, which was conceived as a coordinated set of investments and actions involving the development of:

- Shared decision-making tools;
- Non-structural initiatives (policy/programmatic efforts); and
- Structural projects (potential physical infrastructure projects)

Individual Cooperating Partners are already actively pursuing several of these structural and non-structural initiatives and the Work Program is specifically designed to continue, and then build upon, these existing programs. Further Work Program details can be found under Section 4.5.

Decision-Making Tools

It is recognized that success among the Cooperating Partners in building resiliency within the CMNJ watershed will require a shared knowledge base from which to make decisions. The development of analytical capabilities to achieve such knowledge can enhance joint understanding of the state of the watershed and assist in identifying potential project and/or program opportunities.

Analysis of the feasibility and effectiveness of the potential watershed enhancement project and program concepts outlined in Appendix A, as well as optimization, prioritization, sequencing, and integration, will rely heavily on utilization of shared decision-making tools. Examples of analytical processes that may be incorporated into such tools include, but are not limited to:

- Hydrologic studies
- Hydraulic studies

- Development of monitoring sites to measure:
    - Water levels
    - Areal extent of surface flooding
    - Water quality
    - Riparian condition
- Floodplain map refinement
- Ecological benefit/impact analysis
- Project/program feasibility and effectiveness analysis
- Analysis of property acquisition opportunities
- Analysis of project or program contributions to Community Rating System scores (see Appendix A)
- Development of a project/program prioritization scheme, potentially in a rubric format, that considers fiscal factors, anticipated benefits, and conformance with the Shared Values (see Section 4.1)

Non-Structural vs. Structural Approaches

Flood management is often driven by crisis responses to site-specific problems, resulting in short-term solutions that do not address the larger dynamics or processes that are contributing to the issue. Non-structural approaches to flood mitigation (policy initiatives and/or programmatic efforts) are needed to complement and support structural approaches (physical infrastructure projects) and help ensure that efforts are coordinated and targeted at long-term community and ecosystem resilience, as well as the effective and prudent use of public funds. Non-structural approaches can provide an overarching tapestry of solutions incorporating policy, human behavior, nature-based and conservation elements. They work to increase the community's capacity to thrive amid changing stormwater dynamics. Such approaches allow for landscape-scale concepts to address ecological, social, and economic factors and provide important context to guide and connect site-scale projects. Additionally, non-structural approaches may be able to be implemented on a relatively shorter timescale and with less expense than structural projects, which tend to be more costly and have longer capital planning, funding, design and construction timelines. Design and implementation of all flood mitigation actions, whether structural or non-structural, needs to address sustainability in the face of changing climate and increasing development.

Non-structural and programmatic approaches can serve as a strategic umbrella for flood mitigation, providing:

- Links between ecological, social and economic processes, needs and goals within a watershed

- A broader understanding of how the stream and natural resource network interacts with communities and ecosystems
- A framework for targeting flood mitigation efforts to be more effective, equitable, and sustainable
- Improved community understanding of flood hazards and mitigation options, resulting in greater political support for both structural and non-structural approaches to flood mitigation
- Nature-based solutions like acquisition, enhancement or restoration of wetlands and floodplains and riparian areas
- Regulatory and land use planning guidance for other watersheds to minimize flooding-related impacts on existing and future development.

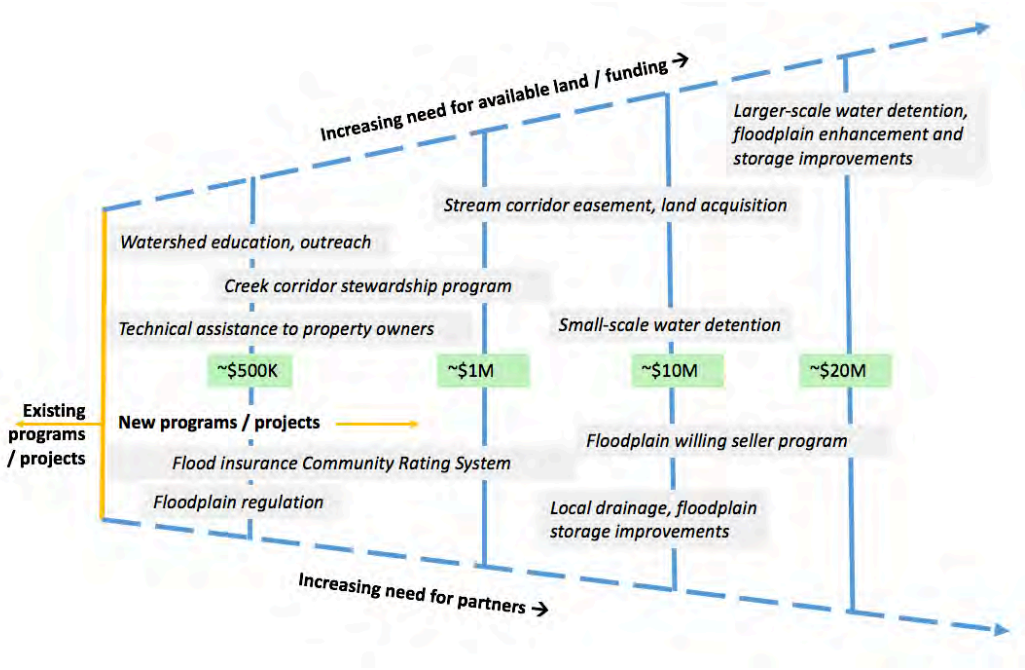
Non-structural approaches can help contribute to a future for the community in which:

- A designated organization assumes responsibility for coordinating the flood-mitigation efforts of multiple organizations to enhance long-term flood resilience in the watershed
- Floodplain condition and functions are improving in the face of changing climate conditions, continued development, and other sources of ecological, social, and economic change
- Community flood risk is reduced by increasing drainage complexity and natural conveyance, building a healthier and safer floodplain
- Non-structural and programmatic solutions help maximize the benefits of structural solutions and make them more sustainable and equitable
- Community members enjoy multiple benefits from improved floodplain function, including reduced flood impacts, greater economic resilience, increased public health and safety, cleaner air and water, better recreation opportunities, and improved fish and wildlife habitat
- Residents are benefiting from decreased insurance rates and access to resources under FEMA's Community Ratings System
- Residents and businesses better understand flood risks and how best to manage those risks
- The community has a plan for recovery from flood disasters, including voluntary buyouts for structures with repetitive flood damage, and the establishment of permanent open space on those properties
- The community provides a model for the rest of the state in terms of flood mitigation, effectual land use planning, and effective collaborative partnerships

Continuum of Implementation

The initiatives identified in this Declaration are intended to be enacted along a 'continuum of implementation.' As displayed in Figure 1 below, new initiatives beyond the continued execution of existing programs and projects will require increased resources, including funding and land as well as additional partnerships. A precise implementation timeline is not included in this Declaration; execution of new projects and programs will be contingent on identification of commensurate resources and identified in the Watershed Enhancement and Flood Resiliency Work Program.

Figure 1: Continuum of Implementation



Partnership Approach

The Cooperating Partners appreciate that successful implementation of the watershed enhancement and flood resiliency initiatives envisioned within this Declaration will require good-faith, long-term collaboration between the various entities involved. The challenges of flooding and watershed management are complex and are caused by a variety of interconnected factors. As such, attempts to address these challenges will require sustained coordinated investment over a period of years and a commitment to shared stewardship of the watershed.

4.3 WATERSHED ENHANCEMENT & FLOOD RESILIENCY STEERING COMMITTEE

The Cooperating Partners acknowledge that fostering the long-term health of the watershed, including resilience against flooding, thriving ecosystems, stable banks and limited erosion will require ongoing attention and coordination between key regional partners. For this purpose, a Watershed Enhancement & Flood Resiliency Steering Committee (WEFRSC) will be established to provide a venue and mechanism for communication, cooperation and accountability among Cooperating Partners and to guide the implementation of future watershed enhancement and flood resiliency programs and/or projects, particularly in the interim period before a formal governance structure is established (see Section 4.4). One of the highest priority tasks for the WEFRSC will be to pursue development of shared decision-making tools, as referenced in Section 4.2, which will enable refinement of potential project/program feasibility and effectiveness, as well as integration, optimization, and sequencing of coherent implementation approaches.

While the WEFRSC will determine its specific structure and functionality at a later date, Clean Water Services and the Washington County Department of Land Use and Transportation will serve as the committee's co-coordinating entities. The coordination role will include providing a venue and administrative support for meetings, and general direction and leadership of the committee's proceedings. The WEFRSC will be comprised of staff-level members, and is expected to meet on a regular basis beginning in January 2019.

4.31 WEFRSC Members

The Key Members of the WEFRSC are the relevant governmental entities with jurisdiction in the CMNJ area. While the list of Key Members is subject to change, the initial group includes:

- Clean Water Services (co-coordinating entity)
- Washington County Department of Land Use and Transportation (co-coordinating entity)
- Tualatin Hills Park & Recreation District
- Tualatin Soil and Water Conservation District
- City of Beaverton
- City of Portland

4.32 WEFRSC Key Partners

The WEFRSC's Key Partners include other organizations with the expertise, resources, and/or organizational capacity to assist in the watershed resilience and enhancement initiatives identified in this Declaration. Key Partners for CMNJ area include:

- Tualatin River Watershed Council
- The Wetlands Conservancy
- Willamette Partnership

4.4 WATERSHED ENHANCEMENT & FLOOD RESILIENCY GOVERNANCE AND FUNDING

The Cooperating Partners recognize that successful long-term implementation of flood resiliency efforts will benefit from an institutional structure that centralizes flood mitigation coordination, development of public/private partnership opportunities, oversight, planning, and financing functions throughout the watershed. Such integration may ultimately indicate a need for the establishment of a new organization, or the assumption of watershed enhancement and flood resiliency responsibilities by an existing agency.

The Collaborative's Governance and Finance Subcommittee studied several models, including county service districts, drainage districts, intergovernmental agreements, and nonprofit corporations. A comparative matrix of their findings can be found in the Governance Model Comparison Matrix in Appendix E. While the WEFRSC will continue to evaluate potential long-term governance options, the Cooperating Partners believe Clean Water Services and Washington County Department of Land Use and Transportation will likely play pivotal facilitating and coordinating roles in any future institutional arrangement, subject to Washington County and Clean Water Services' Board's approval of the use of staff resources for this purpose.

The Cooperating Partners also recognize that implementation of initiatives identified in this Declaration beyond the continued execution of existing programs will require dedicated and sustainable funding. This reality may require new fees, charges or other financing tools. It is also recognized that some elements will require direct participation and financial support from the affected property owners. Grant funding for specific actions or initiatives will be sought where appropriate but grants are not expected to supply the majority of funding necessary to implement the flood resiliency initiatives included in this Declaration. A combination of rates, grants, private participation funding and other sources will likely be needed. The WEFRSC will continue to evaluate potential funding strategies.

4.5 WATERSHED ENHANCEMENT & FLOOD RESILIENCY COMMITMENTS

General Commitments

The following provisions represent general commitments among the Cooperating Partners in furtherance of watershed enhancement and flood resiliency within the watershed:

4.51 The Cooperating Partners agree to provide ongoing support for existing projects and programs that address stormwater impacts in the CMNJ basin.

4.52 The Cooperating Partners agree to continue taking possible watershed and flooding impacts into consideration in their operational decision-making processes.

4.53 The Cooperating Partners agree to proactively pursue and, as feasible and equitable, seek to implement the Watershed Enhancement and Flood Resiliency Work Program. The Work Program consists of the following elements:

- Continued enforcement of existing regulatory programs (e.g., land use, zoning, and drainage standards)
- Continued coordination and execution of capital improvement plans which consider stormwater management in a watershed context
- Cooperative investment in, and development of, shared decision-making tools, as explained in Section 4.2
- Enacting watershed enhancement and flood resiliency initiatives by drawing upon the Watershed Enhancement and Flood Resiliency Work Program Idea Bank, as explained in Appendix A.

4.54 The Cooperating Partners agree to explore additional watershed enhancement and flood resiliency approaches as appropriate in the future. Such exploration may include further study and/or consideration of proposals within the Watershed Enhancement and Flood Resiliency Work Program Idea Bank not yet seen as feasible, or exploration of new concepts. The WEFRSC will serve as a venue for discussion, vetting, and recommendation of proposals.

Organization-Specific Commitments

In addition to the general commitments outlined above, the Cooperating Partners make the following organization-specific commitments:

4.55 Beaverton Chamber of Commerce agrees to:

- Where practicable and appropriate, provide public and political support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing watershed enhancement efforts initiated through this Declaration

4.56 City of Beaverton agrees to:

- Actively participate as a member of the WEFRSC
- In collaboration with other Cooperating Partners, proactively pursue and seek to implement applicable elements of the Watershed Enhancement and Flood Resiliency Work Program, including, but not limited to, the following:
    - In cooperation with Washington County Department of Land Use and Transportation, administer the FEMA Community Rating System under the National Flood Insurance Program, referenced in Appendix A
    - As feasible and equitable, actively pursue and seek to execute applicable structural project proposals listed in Appendix A
    - As feasible and equitable, provide applicable support to other Cooperating Partners to assist their implementation of structural project proposals listed in Appendix A
- Where practicable and appropriate, provide general public and political support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing watershed enhancement efforts initiated through this Declaration

4.57 City of Portland agrees to:

- Actively participate as a member of the WEFRSC
- In collaboration with other Cooperating Partners, proactively pursue and seek to implement applicable elements of the Watershed Enhancement and Flood Resiliency Work Program, including, but not limited to, the following:
    - Continue to operate and maintain the stormwater system within its jurisdiction in a manner that meets the spirit of this Declaration

- As applicable, feasible, and in-line with Portland's legal and policy authority, provide support to other Cooperating Partners to assist their implementation of structural project proposals listed in Appendix A

- Where practicable, appropriate, and feasible, provide public and political support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration
- Continue regulation of new development for stormwater quality and quantity management under the City's Design and Construction Standards

4.58 Clean Water Services agrees to:

- Prior to December 1, 2018, bring an action to the Clean Water Services Board to authorize the District to serve as a co-coordinating entity for the WEFRSC, as outlined in Section 4.3
- In collaboration with other Cooperating Partners, proactively pursue and seek to implement applicable elements of the Watershed Enhancement and Flood Resiliency Work Program, including, but not limited to, the following:
  - Prior to January 1, 2019, in cooperation with Washington County Department of Land Use and Transportation, bring forward for Board consideration and approval, a three-year internal work program outlining specific projects, partnership developments, and policy discussions to be undertaken by the District
  - In cooperation with other Cooperating Partners, assist in implementing the Community Outreach initiative, referenced in Appendix A
  - Prior to May 1, 2019, implement new stormwater quantity regulations emphasizing Low Impact Development Approaches, prioritizing stormwater quantity management approaches that achieve multiple benefits within natural systems
  - In Fiscal Year 2019, complete a study of beaver activity and impacts within the watershed, referenced in Appendix A

- Where practicable and appropriate, provide public and political support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration
- Continue implementation of drainage projects, watershed enhancements, public information/education efforts and other capital initiatives
- Continue regulation of new development for stormwater quality and quantity under the District's Design and Construction Standards

4.59 National Marine Fisheries Service agrees to:

- Provide regulatory oversight, consistent with applicable authorities, for permitted entities in the CMNJ area as efficiently and effectively as practicable
- Participate in conversations about programmatic permitting approaches where appropriate
- Where practicable and appropriate, provide support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration

4.60 Nike agrees to:

- Continue cooperative partnerships with Washington County and Clean Water Services in the execution of transportation, sanitary sewer, and storm sewer projects located on or near the Nike campus
- Where practicable and appropriate, provide public and political support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration

4.61 Oregon Department of Environmental Quality agrees to:

- Provide regulatory oversight for permitted entities in the CMNJ area as efficiently and effectively as practicable
- Participate in conversations about programmatic permitting approaches where appropriate
- Proactively educate Cooperating Partners about which state-issued air, water, and materials management permits might be required for projects referenced in Appendix A, and identify information needed for permit applications to ensure a smooth process

- Connect Cooperating Partners to Department of Environmental Quality programs that administer low-interest loans for planning, design, and construction of wastewater and stormwater projects through the Clean Water State Revolving Fund
- Offer technical assistance for cleaning up brownfields, and help partners connect with opportunities through Business Oregon to complete environmental assessments
- Provide information about Prospective Purchaser Agreements if entities plan to acquire contaminated property, which will protect buyers from liability for environmental cleanup

4.62 Oregon Department of Land Conservation and Development agrees to:

- Provide regulatory oversight for permitted entities in the CMNJ area as efficiently and effectively as practicable
- Participate in conversations about programmatic permitting approaches where appropriate
- Where practicable and appropriate, provide support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration

4.63 Oregon Department of State Lands agrees to:

- Provide regulatory oversight for permitted entities in the CMNJ area as efficiently and effectively as practicable
- Participate in conversations about programmatic permitting approaches where appropriate
- Where practicable and appropriate, provide support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration

4.64 Oregon Department of Transportation agrees to:

- Provide oversight as appropriate for permitted entities in the CMNJ area as efficiently and effectively as practicable
- Participate in conversations about programmatic permitting approaches where appropriate
- Where practicable and appropriate, provide non-monetary support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration

4.65 Oregon Solutions agrees to:

- Take the lead in reconvening the Project Team within two years of the signing of this Declaration.
- Perform a post-project evaluation and share a summary of what was learned from the evaluation with the Project Team.

4.66 Reser's Fine Foods agrees to:

- Continue cooperative partnerships with Washington County and Clean Water Services in the execution of transportation, sanitary sewer, and storm sewer projects located on or near the Reser's Fine Foods campus
- Where practicable and appropriate, provide public and political support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration

4.67 Tualatin Hills Park & Recreation District agrees to:

- Actively participate as a member of the WEFRSC
- Continue cooperative engagement with Washington County and Clean Water Services in the development of master plans for park facilities located in the CMNJ watershed, including consideration of stormwater management options
- In collaboration with other Cooperating Partners, proactively pursue and seek to implement applicable elements of the Watershed Enhancement and Flood Resiliency Work Program, including, but not limited to, the following:
    - In coordination with other Cooperating Partners, assist in implementing the Community Outreach initiative, referenced in Appendix A
    - In coordination with other Cooperating Partners, begin the establishment of a land easement and acquisition initiative, referenced in Appendix A
    - In coordination with other Cooperating Partners, conduct a study of beaver activity and impacts within the watershed, referenced in Appendix A
    - As feasible and equitable, actively pursue and seek to execute applicable structural project proposals listed in Appendix A

    - As feasible and equitable, provide applicable support to other Cooperating Partners to assist their implementation of structural project proposals listed in Appendix A
- Where practicable and appropriate, provide public and political support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration

4.68 TriMet agrees to:

- As feasible and equitable, provide applicable support to other Cooperating Partners to assist their implementation of structural project proposals listed in Appendix A
- Where practicable and appropriate, provide public and political support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration

4.69 Tualatin River Watershed Council agrees to:

- Serve as a resource to the WEFRSC as a Key Partner
- In collaboration with other Cooperating Partners, proactively pursue and seek to implement applicable elements of the Watershed Enhancement and Flood Resiliency Work Program, including, but not limited to, the following:
    - In coordination with other Cooperating Partners, assist in implementing the Community Outreach initiative, referenced in Appendix A
- Where practicable and appropriate, provide public and political support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration

4.70 Tualatin Soil and Water Conservation District agrees to:

- Actively participate as a member of the WEFRSC
- In collaboration with other Cooperating Partners, proactively pursue and seek to implement applicable elements of the Watershed Enhancement and Flood Resiliency Work Program, including, but not limited to, the following:
    - In coordination with other Cooperating Partners, assist in implementing the Community Outreach initiative, referenced in Appendix A

- Where practicable and appropriate, provide public and political support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration

4.71 Washington County Department of Land Use and Transportation agrees to:

- Prior to December 1, 2018, bring an action to the Washington County Board to authorize the County to serve as a co-coordinating entity for the WEFRSC, as outlined in Section 4.3
- In collaboration with other Cooperating Partners, proactively pursue and seek to implement applicable elements of the Watershed Enhancement and Flood Resiliency Work Program, including, but not limited to, the following:
    - Prior to January 1, 2019, in cooperation with Clean Water Services, bring forward for Board consideration and approval, a three-year internal Work Program outlining specific projects, partnership developments, and policy discussions to be undertaken by the County
    - As part of the Fiscal Year 2020 budget process, and in cooperation with the City of Beaverton, include a request for staff resources to administer the FEMA Community Rating System under the National Flood Insurance Program, referenced in Appendix A
    - In coordination with other Cooperating Partners, assist in implementing the Community Outreach initiative, referenced in Appendix A
    - As feasible and equitable, actively pursue and seek to execute applicable structural project proposals listed in Appendix A
    - As feasible and equitable, provide applicable support to other Cooperating Partners to assist their implementation of structural project proposals listed in Appendix A
- Where practicable and appropriate, provide public and political support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration
- Continue implementation of transportation projects that include cooperative stormwater management elements

- Continue regulation of new development within the floodplains under the County Development Code

4.72 The Wetlands Conservancy agrees to:

- Serve as a resource to the WEFRSC as a Key Partner
- In collaboration with other Cooperating Partners, proactively pursue and seek to implement applicable elements of the Watershed Enhancement and Flood Resiliency Work Program, including, but not limited to, the following:
    - Collaboratively work with applicable entities to explore and support flood detention and storage at its Corby Drive property, as referenced in Appendix A, including considering transfer of property ownership
    - In cooperation with other Cooperating Partners, assist in implementing the Community Outreach initiative, referenced in Appendix A
    - In coordination with other Cooperating Partners, conduct a study of beaver activity and impacts within the watershed, referenced in Appendix A
- Where practicable and appropriate, provide public and political support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration

4.73 Willamette Partnership agrees to:

- Serve as a resource to the WEFRSC as a Key Partner
- In collaboration with other Cooperating Partners, proactively pursue and assist in implementing applicable elements of the Watershed Enhancement and Flood Resiliency Work Program
- Where practicable and appropriate, provide public and political support for the Watershed Enhancement and Flood Resiliency Work Program and the ongoing flood mitigation efforts initiated through this Declaration

4.6 SIGNATURES

By signing below, the Cooperating Partners signify their support for this Declaration of Cooperation and their commitment to the provisions stated herein.

_____

Andy Duyck
Chair, Washington County /
Clean Water Services
Convener

_____

Marc Liverman
Willamette Branch Chief
Oregon-Washington Coastal Office
National Marine Fisheries Service

_____

Lorraine Clarno
President / CEO
Beaverton Chamber of Commerce

_____

Julia Brim-Edwards
Senior Director
Government and Public Affairs
NIKE, Inc.

_____

David Donaldson
Public Works Director
City of Beaverton

_____

Raihana Ansary
Metro Regional Solutions Coordinator
Office of Governor Kate Brown

_____

Michael Jordan
Director, Bureau of Environmental Services
City of Portland

_____

Leah Feldon
Deputy Director
Oregon Department of Environmental Quality

_____

Nora Curtis
Director, Conveyance Department
Clean Water Services

_____

Jim Rue
Director
Oregon Department of Land Conservation and Development

Bill Ryan
Deputy Director
Oregon Department of State Lands

April Olbrich
Coordinator
Tualatin River Watershed Council

Matthew Garrett
Director
Oregon Department of Transportation

Lacey Townsend
Executive Director
Tualatin Soil and Water Conservation District

Karmen Fore
Director
Oregon Solutions

Andrew Singelakis
Director
Washington County Department of Land Use and Transportation

Paul Leavy
Chief Financial Officer and Treasurer
Reser's Fine Foods, Inc.

Esther Lev
Executive Director
The Wetlands Conservancy

Ali Kavianian
Board President
Tualatin Hills Park & Recreation District

Sara O'Brien
Interim Executive Director
Willamette Partnership

Steven Witter
Executive Director
Capital Projects and Construction
TriMet

APPENDIX A:

WATERSHED ENHANCEMENT & FLOOD RESILIENCY WORK PROGRAM IDEA BANK

APPENDIX A: WATERSHED ENHANCEMENT & FLOOD RESILIENCY WORK PROGRAM IDEA BANK

APPENDIX A INTRODUCTION

The following matrices contain an idea bank of potential initiatives that, through holistic enhancement of the watershed, may promote resiliency against flooding in the CMNJ area. Matrix content is sorted into non-structural concepts (policy/programmatic efforts) and structural concepts (physical infrastructure projects).

The ideas listed were considered and preliminarily evaluated by the TAC during the Collaborative process. These draft concepts constitute a 'toolbox' of possible strategies for the WEFRSC to draw upon in implementing this Declaration.

Any eventual implementation of the concepts listed within the matrices will be dependent upon application of decision-making tools, as indicated in Section 4.2, which will enable refinement of feasibility and effectiveness, as well as integration, optimization, and sequencing of coherent implementation approaches. As stated in Section 4.3, development of decision-making tools will be a priority of the WEFRSC.

It is important to note that while the initiative ideas contained in the matrices represent many of the concepts that seem to be promising at this early stage of consideration, alteration of these concepts and/or use of alternate approaches may prove to be more advantageous due to changing needs and opportunities, further analysis, and the availability of funding.

APPENDIX A LAYOUT

As explained above, the Idea Bank matrices are sorted into non-structural concepts (policy/programmatic efforts) and structural concepts (physical infrastructure projects).

In addition to identification tags, location, and brief descriptions, columns within the matrices contain relative rating information based on the TAC's preliminary assessments of various concepts. Rating criteria include relative cost, timeline, effectiveness, feasibility, readiness to implement, long-term resilience, ecological health, and community vibrancy. The color-filled Assessment column (which includes the labels Potential, Needs Further Consideration, and Not Recommended at this Time), indicates the TAC's overall initial appraisal of the potential of each concept.

In addition, the matrices sort initiative concepts into type groupings. Non-Structural concept types include: financial impact mitigation, community education and technical assistance,

ecological study, regulatory approaches, and land easements / acquisitions. Structural concept types include: natural resource enhancement, detention / storage, and conveyance, among others. Examples of these concept categories are provided below.

APPENDIX A CONCEPT EXAMPLES

1. Financial Impact Mitigation Concept Example (Non-Structural)

Concept: Enroll in Community Rating System (CRS)

Example Description: The Community Rating System (CRS) is a national program developed by FEMA that rewards communities for taking additional actions (beyond the minimum required by the National Flood Insurance Program) to reduce and avoid flood damage and foster comprehensive floodplain management.

Although cities and counties generally enroll in the CRS at the community level, it would be possible for the Cedar Mill Creek and North Johnson Creek Basin to enroll through Washington County and the City of Beaverton as lead entities. The goal could be to enroll this basin at a reasonably robust level (Class 4-6). CRS enrollment at such a level would reduce flood insurance premiums in the Special Flood Hazard Area by 20-30%, potentially freeing up private capital for flood risk reduction actions and building public support for flood management approaches. Following a pilot period, the County and City could choose to enroll their entire jurisdictions at a similar level.

Possible Benefits:

- Lower flood insurance premiums for activities already underway or proposed under this Declaration
- Through specific measures credited under the CRS:
    - Decreased flood risk and damages
    - Increased public awareness, including improved hazard disclosure and flood warning and response
    - Improved water quality (through decreased stormwater runoff), flood attenuation, and fish and wildlife habitat
- Incentive for ongoing investment and tool for tracking progress in promoting flood resiliency

* All concept examples are subject to further analysis / refinement using Section 4.2 Decision-Making Tools

2. <u>Community Education and Technical Assistance Concept Example (Non-Structural)</u>

Concept: Implement community outreach initiative

Example Description: Combination of education, outreach, technical assistance, and community science. Could involve the following:

- Outreach video helping residents understand flood issues in different parts of the watershed, building emotional connection along with knowledge.
- Pilot of a RainReady approach with neighbors adjacent to TWC Cedar Mill Preserve and perhaps one in Beaverton at the lower portion of the watershed.
- After several years, a consortium of groups could be engaged across the watershed with clear roles and capacity to:
    - Provide education and outreach (floodplains 101, welcome to the watershed, hazards outside the regulatory floodplain, realtor training, etc.)
    - Offer property-scale technical assistance to help manage flooding, and
    - Use community science to help build needed information and make decisions.

Such an initiative could help support other structural and non-structural strategies by identifying areas to prioritize and leading community education to help build awareness and support. This would involve developing strategies and activities that community members, organizations, and businesses can employ to address water management and flood mitigation.

Possible Benefits:

- Greater public understanding of flood risk, management options, and tradeoffs
- Better targeting of and greater support for other strategies
- Greater ability for landowners to manage flood impacts on-site (technical assistance)
- Better flood preparedness through landowner and realtor education

* All concept examples are subject to further analysis / refinement using Section 4.2 Decision-Making Tools

3. Ecological Study Concept Example (Non-Structural)

Concept: Conduct beaver distribution inventory and impact analysis

Example Description: Build on previous work CWS has conducted with USGS in Bronson and Fanno Creeks in the Tualatin Basin. Focus on urban streams in the Tualatin River basin, where flashy hydrographs and channel incision have resulted in simplified stream habitats.

As Clean Water Services and others consider restoration strategies that include encouraging beaver dam building or adding beaver dam analogs (BDAs) in urban streams, understanding the multi-faceted benefits and impacts of beaver dams and ponds could provide important context for anticipating and communicating realistic types and associated magnitudes of changes related to beaver dams, ponds, and habitat trajectories.

Possible Benefits: Such a study could be designed to reflect the linkages between physical and biological processes. In other watersheds, Clean Water Services has conducted surveys to link biological communities with changes observed at beaver-affected reaches being studied by USGS. Similar analysis could help factor ever-changing beave presence and impacts into basin wide flow analysis, opportunities, concerns and designs.

4. Regulatory Approach Concept Example (Non-Structural)

Concept: Establish greater floodplain protections from development or redevelopment

Example Description: Engineered approaches to flood management may be unlikely to be effective in the long-term if development in the floodplain is not effectively regulated. New development and redevelopment in flood-prone areas could increase flood impacts on other properties and reduce the capacity of the watershed to store and convey flood waters. Regulatory approaches could be applied within the 100-year floodplain and adjacent areas, possibly including limiting new development; establishing design requirements minimizing impacts to natural floodplain functions such as water storage, water quality, and fish and wildlife habitat; and requiring compensatory mitigation for impacts to floodplain functions.

* All concept examples are subject to further analysis / refinement using Section 4.2 Decision-Making Tools

Possible Benefits:

- Help maintain natural floodplain functions, including flood attenuation
- Slow or limit increases in flood frequency and severity
- In combination with other approaches, can help reduce flood frequency and severity and restore natural floodplain functions, including flood storage, fish and wildlife habitat, and water quality (by limiting sediment and runoff)
- Significant credit in Community Rating System

5. <u>Land Easement / Acquisition Concept Example (Non-Structural)</u>

Concept: Secure land easements and/or acquire properties where necessary

Example Description: Property easements and other tools could be used to allow public managers to access and modify private land for the purpose of protecting floodplain functions and preventing flood risk.

Voluntary buyouts of some properties could be used to establish permanent open space. Properties could be those affected by frequent or severe flooding, or where significant potential exists to enhance floodplain functions and improve flood dynamics.

Possible Benefits:

- Reduction in flood severity, frequency, and exposure
- Environmental co-benefits: water and air quality, fish and wildlife habitat, green space for recreation and improved health outcomes, aesthetics, and educational opportunities, etc.
- Potential for greater community resilience and social equity (but also potential for dislocation and gentrification)
- Supports and enables other strategies – easements often needed for county to help with flood management
- Significant credit in Community Rating System

* All concept examples are subject to further analysis / refinement using Section 4.2 Decision-Making Tools

6. Natural Resource Enhancement Concept Example (Structural)

Concept: Stream enhancement, floodplain storage at Peppertree Park / St. Andrew Wetland

Example Description: Enhancement of stream corridor and realignment away from adjacent homes, reducing incision and bank erosion. During all conditions, the creek would function better ecologically. Project would include control of invasive species. Development of park-like features, including paths/boardwalks and overlooks, would provide a “nature in the neighborhood” experience while also connecting the two neighborhoods.

Example Diagram:

* All concept examples are subject to further analysis / refinement using Section 4.2 Decision-Making Tools

7. Detention / Storage Concept Example (Structural)

Concept: Flood storage on lower North Johnson Creek at Corby Drive

Example Description: Divert high stormwater flow from Cedar Mill Creek to North Johnson Creek at Highway 26. Restrict flow near the North Johnson Creek culvert under Highway 26 to temporarily detain water in the wetland upstream of the highway.

Example Diagram:

* All concept examples are subject to further analysis / refinement using Section 4.2 Decision-Making Tools

8. Conveyance Concept Example (Structural)

Concept: Construct stormwater improvements (overflow relief path) at Tropicana

Example Description: Lower floodplain elevations for Tropicana / Prefecta area using bypass piping. During a moderate rainfall event, and just prior to start of flooding of the Tropicana / Perfecta neighborhood, flows would be conveyed around a "restriction" in the floodplain.

Example Diagram:

* All concept examples are subject to further analysis / refinement using Section 4.2 Decision-Making Tools

APPENDIX A MATRICES

The Watershed Enhancement and Flood Resiliency Work Program Idea Bank matrices are included in the following pages.

WATERSHED ENHANCEMENT & FLOOD RESILIENCY IDEA BANK – POSSIBLE NON-STRUCTURAL (POLICY/PROGRAM) CONCEPTS

ID	DESCRIPTION	TYPE	APPX. RELATIVE COST	APPX. RELATIVE TIMELINE	TAC ASSESSMENT	EFFECTIVE-NESS	FEASIBILITY / READINESS TO IMPLEMENT	LONG-TERM RESILIENCE / ECOLOGICAL HEALTH / COMMUNITY VIBRANCY
F	**Establish a community flooding education program** *Floodplain 101, Drainage 101, LIDA 101. Help residents understand their role in floodplain management, and their opportunities to be a part of the solution.*	Community Education / Technical Assistance	$	⏳	Potential	◐	●	◐
L	**Establish a community science program** *Community monitoring of channel incision, bank erosion, and other components of stream systems. Engage residents with watershed processes, provide real-time information during runoff events and more extensive biological data for understanding flood and related impacts.*	Community Education / Technical Assistance	$	⏳⏳	Potential	○	●	◐
A	**Establish a technical assistance program focused on flood-proofing** *Individual lot or neighborhood flood-proofing, flood elevation certificates, and consultation with knowledgeable flood insurance agents. Reduce flood insurance premiums where possible, potentially freeing up private capital for flood-proofing actions (supplemented with participation in the Community Rating System [Project C]). Requires willing program lead (e.g., external NGO/non-profit) to implement.*	Community Education / Technical Assistance	$	⏳	Potential	◐	◐	○
B	**Establish a technical assistance program focused on strategies other than flood-proofing** *Additional drainage management and runoff reduction assistance (e.g. Stormwater Stars), with or without habitat focus. Improve runoff retention and drainage function while mitigating for potential onsite water damage. Needs a lead organization to act as a "watershed concierge."*	Community Education / Technical Assistance	$	⏳	Potential	◐	●	◐
I	**Conduct a beaver distribution inventory and impact analysis** *Understand beaver impact on basin wide hydrology, water movement and flooding. Build on current USGS beaver inventory.*	Ecological Study	$	⏳	Potential	○	●	○
C	**Enroll in the National Flood Insurance Program Community Rating System** *Enroll at reasonably robust level (Class 4-6). Reduce flood insurance premiums where possible to free up private capital for flood risk reduction actions. Need to provide staff resources in flood management agencies to track activities.*	Financial Impact Mitigation	$	⏳⏳	Potential	○	◐	○

○ ⟷ ● Lower – Higher

*Idea Bank concepts require further analysis using Section 4.2 Decision-Making Tools

WATERSHED ENHANCEMENT & FLOOD RESILIENCY IDEA BANK – POSSIBLE NON-STRUCTURAL (POLICY/PROGRAM) CONCEPTS

J	**Obtain public entity surface stormwater drainage easement(s) along existing Cedar Mill / North Johnson Creeks between Walker Rd and Sunset Hwy.** *Provide access for stream corridor enhancement projects in support of hydromodification and flow management strategies. Entity to cause action to selective remove flow obstructions that will increase conveyance and increase stream side floodplain storage.*	Land Easements / Acquisitions	$$	⧗⧗	Potential	◐	○	◐
H	**Pursue stream easements or land acquisition to enhance natural floodplain functions and increase floodplain protection.** *Bring Cedar Mill / North Johnson into Clean Water Services' basin screening analysis in hydromodification program to identify parcels. Goes beyond Project J.*	Land Easements / Acquisitions	$$$	⧗⧗⧗	Potential	●	◐	●
D	**Create a willing seller program for existing structures** *Provide additional floodplain storage and reduce channel encroachment. Clearly outline geographic eligibility before launching. Program could be under the National Flood Insurance Program or independent.*	Land Easements / Acquisitions	$$$	⧗⧗⧗	Potential	●	○	●
G	**Establish greater floodplain protections from development or redevelopment** *e.g. lateral or vertical buffers on mapped floodplains to account for hydrologic and climate uncertainty. Maintain capacity in floodplain and recognize uncertainty in current and future hydrology estimates.*	Regulatory Approaches	$$	⧗⧗	Potential	●	○	●
E	**Promote individual homeowner rainwater harvesting through roof smart systems** *Systems would allow excess water back in system at appropriate times. Sustainable way to use water and control flooding. Each 1,000 square feet of impervious area must manage 25,000 gallons or rain per year.*	Community Education / Involvement	$	⧗	Needs Further Consideration	○	◐	○
K	**Acquire properties north of Commonwealth Lake to create flood storage** *Provide lands for flood storage without interfering with current Commonwealth Lake Park. Presents a retention opportunity if sufficient storage above seasonal high groundwater can be developed. Floodplain issues may exist if fill is needed to provide storage. Within 100-year floodplain.*	Land Easements / Acquisitions	$$	⧗	Needs Further Consideration	●	○	●

○ Lower ⟷ ● Higher

*Idea Bank concepts require further analysis using Section 4.2 Decision-Making Tools

WATERSHED ENHANCEMENT & FLOOD RESILIENCY IDEA BANK – POSSIBLE STRUCTURAL (INFRASTRUCTURE PROJECT) CONCEPTS

ID	DESCRIPTION	TYPE	LOCATION	APPX. RELATIVE COST	APPX. RELATIVE TIMELINE	TAC ASSESSMENT	EFFECTIVE-NESS	FEASIBILITY / READINESS TO IMPLEMENT	LONG-TERM RESILIENCE / ECOLOGICAL HEALTH / COMMUNITY VIBRANCY	NOTES
10	**Create flood storage and stream enhancement at Peppertree Park / St. Andrew wetland** *Include stream realignment toward east side of vacant parcels. Provide relief for Sunset Slope subdivision. Reduce invasive plants and provide more floodplain interaction than currently possible.*	Natural Resource Enhancement	N. Johnson Cr. between Butner Rd. and US26, downstream of Project 8	$$	⧗⧗	Potential	◐	●	●	Likely high groundwater limits storage potential, but ability to move channel away from homes
8	**Create flood storage on lower North Johnson Creek at Corby Drive Wetland Conservancy wetland** *Divert high stormwater flow from Cedar Mill Creek to North Johnson Creek at Highway 26. Restrict flow near the North Johnson Creek culvert under Highway 26 to temporarily detain water in the wetland upstream of the highway.*	Detention / Storage	N. Johnson Cr. between US26 and Barnes Rd., just upstream of Project 10	$$$	⧗⧗⧗	Potential	●	●	◐	Potential for permitting challenges at prior wetland mitigation site
13	**Construct extended dry detention/water quality pond at Sundown Way** *Use existing Leahy Road right-of-way for site. Subdivision was constructed prior to requirement for quality or quantity controls.*	Detention / Storage	West Haven – Sylvan neighborhood	$	⧗	Potential	◐	●	●	Easy retrofit opportunity with ROW
17	**Expand floodplain storage at Miller Rd. and Bartholomew Dr. culvert area** *Expand storage with resulting peak stormwater runoff attenuated using culvert entrance adjustments.*	Detention / Storage	Miller Rd. and Bartholomew Dr.	$$	⧗⧗	Potential	●	●	◐	Good stage-storage relationship
18	**Expand floodplain storage at Miller Rd. and Cornell Rd. culvert area** *Expand storage with resulting peak stormwater runoff attenuated using culvert entrance adjustments.*	Detention / Storage	Miller Rd. and Cornell Rd.	$$	⧗⧗	Potential	●	●	◐	Good stage-storage relationship

○ ⟷ ● Lower Higher

*Idea Bank concepts require further analysis using Section 4.2 Decision-Making Tools

WATERSHED ENHANCEMENT & FLOOD RESILIENCY IDEA BANK – POSSIBLE STRUCTURAL (INFRASTRUCTURE PROJECT) CONCEPTS

ID	DESCRIPTION	TYPE	LOCATION	APPX. RELATIVE COST	APPX. RELATIVE TIMELINE	TAC ASSESSMENT	EFFECTIVE-NESS	FEASIBILITY / READINESS TO IMPLEMENT	LONG-TERM RESILIENCE / ECOLOGICAL HEALTH / COMMUNITY VIBRANCY	NOTES
19	**Expand floodplain storage at NW Lovejoy and 118 Ct culvert area** *Expand storage with resulting peak stormwater runoff attenuated using culvert entrance adjustments.*	Detention / Storage	NW Lovejoy and 118 Ct	$$	⧗⧗	Potential	●	●	◐	Good stage-storage relationship using existing embankment
46	**Construct overflow relief path at Tropicana** *Annual robust ditching program to maintain high flow path from Cedar Mill to North Johnson Creek.*	Conveyance	South of Tropicana neighborhood, between CM and NJ creeks	$	⧗	Potential	●	●	◐	Relieve rainfall-related flooding by improved drainage around storm system
25	**Implement conveyance system improvements in the Devonshire area** *Add additional storm sewer and upsize the existing system.*	Conveyance	Devonshire upstream of Walker Rd	$$	⧗⧗⧗	Needs Further Consideration	◐	○	○	Improves local drainage but may translate problem downstream
34	**Upsize culvert at Rita Dr** *Replace culvert to reduce water surface elevation. Cedar Mill Creek overflows its bank upstream of culvert and can flood Tropicana area.*	Conveyance	Rita Dr. near Butner Rd.	$$	⧗⧗⧗	Needs Further Consideration	●	●	●	Property owner coordination/easements
35	**Raise outfall invert elevations basin-wide** *Elevate existing outfall inverts to above the 2 year water surface elevation so storm system can drain to creek.*	Conveyance	Basin-wide	$$$	⧗⧗⧗	Needs Further Consideration	●	◐	●	Example at Marlene Village was not feasible (too flat); other areas might work
38	**Improve stormwater pipes at Devonshire / Far Vista** *Reinstall outfalls above 2 year water surface elevation to reduce frequent flooding.*	Conveyance	N. Johnson Cr. Between Murray Rd. and Commonwealth Lake	$$	⧗⧗	Needs Further Consideration	◐	◐	○	Relieve rainfall-related flooding by allowing better drainage in storm system
39	**Conduct stormwater pipe capacity improvements throughout watershed**	Conveyance	Throughout watershed	$$$	⧗	Needs Further Consideration	○	◐	○	Upsizing pipes and culverts to convey flows may increase flooding downstream.

○ Lower ⟷ ● Higher

*Idea Bank concepts require further analysis using Section 4.2 Decision-Making Tools

WATERSHED ENHANCEMENT & FLOOD RESILIENCY IDEA BANK – POSSIBLE STRUCTURAL (INFRASTRUCTURE PROJECT) CONCEPTS

ID	DESCRIPTION	TYPE	LOCATION	APPX. RELATIVE COST	APPX. RELATIVE TIMELINE	TAC ASSESSMENT	EFFECTIVE-NESS	FEASIBILITY / READINESS TO IMPLEMENT	LONG-TERM RESILIENCE / ECOLOGICAL HEALTH / COMMUNITY VIBRANCY	NOTES
40	**Replace North Johnson Creek culvert under Walker Road**	Conveyance	Between Walker Rd. and Murray Rd.	$$	⧗⧗	Needs Further Consideration	Not scored			Add on to pending Washington County project?
44	**Realign Willow Brook Apartment Driveway** *Remove two 90° bends in North Johnson Creek to reduce hydraulic constriction. Replace large private driveway culverts.*	Conveyance	Just upstream of Walker Rd.	$$	⧗	Needs Further Consideration	○	○	◐	
5	**Create additional Miller Rd culvert storage (in addition to projects 17 & 18)** *Approximately 4 culverts. Incidental flood storage to reduce incision of headwater streams downstream of Barnes Road.*	Detention / Storage	Miller Rd.	$$$	⧗⧗⧗	Needs Further Consideration	◐	◐	○	Would require Miller Road to be a robust temporary dam.
6	**Create Commonwealth Lake Park flood storage** *Could include real-time control. Would provide storage in lower basin.*	Detention / Storage	Commonwealth Lake Park	$$	⧗⧗⧗	Needs Further Consideration	◐	◐	○	May not make sense without additional available flood storage above static groundwater elevation
9	**Conduct Foothills Park storage and upstream water quality improvements** *Grading in Foothills Park and upstream riparian area to realign creek and create off-line 6.9 acre-feet detention facility. Turf could be revegetated with native plants in water holding area.*	Detention / Storage	Foothills Park and upstream area	$$	⧗⧗	Needs Further Consideration	◐	●	◐	Possible significant impacts on wetlands and recreational infrastructure.
11	**Create combined wetpond / detention facility near NW 86th Ave and Copeland St** *Install a combined water quality and flow control facility for 50 ac upstream drainage basin.*	Detention / Storage	NW 86th Ave. and Copeland St.	$$	⧗	Needs Further Consideration	●	◐	◐	

○ Lower ⟷ ● Higher

*Idea Bank concepts require further analysis using Section 4.2 Decision-Making Tools

WATERSHED ENHANCEMENT & FLOOD RESILIENCY IDEA BANK – POSSIBLE STRUCTURAL (INFRASTRUCTURE PROJECT) CONCEPTS

ID	DESCRIPTION	TYPE	LOCATION	APPX. RELATIVE COST	APPX. RELATIVE TIMELINE	TAC ASSESSMENT	EFFECTIVE-NESS	FEASIBILITY / READINESS TO IMPLEMENT	LONG-TERM RESILIENCE / ECOLOGICAL HEALTH / COMMUNITY VIBRANCY	NOTES
15	**Develop flood control impoundment on Cedar Mill Creek, 300 feet upstream of NW Cornell Rd** *Purchase land to install 47.5 acre (350 acre-feet) detention facility. Small dam / Sutro weir with low flow fish passage.*	Detention / Storage	Upstream of NW Cornell Rd.	$$	⧗⧗⧗	Needs Further Consideration	◐	○	◐	Property ownership is complicated and could prove challenging
16	**Expand floodplain storage at Valeria View Drive Crossing of North Johnson Creek** *Expand storage with resulting peak stormwater runoff attenuated using culvert entrance adjustments.*	Detention / Storage	North Johnson Creek at Valeria View Dr.	$$	⧗⧗⧗	Needs Further Consideration	●	○	◐	Flow restriction design could be challenging due to culvert shape. Question of embankment suitability.
31	**Excavate terrace margins adjacent to Reser's SW parking lot(s) to increase floodplain volume and associated storage** *Grading to connect floodplain area near TriMet Station.*	Detention / Storage	Reser's Fine Foods	$	⧗	Needs Further Consideration	●	◐	●	Ratio of excavation to storage achieved would be 2-3 to 1.
32	**Create Combined Wetpond / Detention Facility near SW 90th Ave / Catlin Gabel School** *Install a combined water quality and flow control facility. Work with Catlin Gable to install detention facility around ball fields.*	Detention / Storage	SW 90th Ave. / Catlin Gabel School	$$	⧗⧗⧗	Needs Further Consideration	◐	◐	●	May have impacts to vegetated corridor and forest area in good condition
41	**Install water quality retrofit and real-time control at Murray Blvd and Walker Rd** *Install water quality treatment for 36" storm pipe; add flow control.*	Detention / Storage	Murray Blvd. and Walker Rd.	$$	⧗	Needs Further Consideration	○	◐	●	Ensure all catch basins can be routed to water quality facility or use water quality manhole before discharging to creek
42	**Create Forest Heights detention facilities and additional water quality facilities (other than Mill Pond)**	Detention / Storage	Forest Heights	$$$	⧗⧗⧗	Needs Further Consideration	○	○	◐	No locations yet identified

○ Lower ⟷ ● Higher

*Idea Bank concepts require further analysis using Section 4.2 Decision-Making Tools

WATERSHED ENHANCEMENT & FLOOD RESILIENCY IDEA BANK – POSSIBLE STRUCTURAL (INFRASTRUCTURE PROJECT) CONCEPTS

ID	DESCRIPTION	TYPE	LOCATION	APPX. RELATIVE COST	APPX. RELATIVE TIMELINE	TAC ASSESSMENT	EFFECTIVE-NESS	FEASIBILITY / READINESS TO IMPLEMENT	LONG-TERM RESILIENCE / ECOLOGICAL HEALTH / COMMUNITY VIBRANCY	NOTES
22	**Conduct headwater stream channel rehabilitation** *Reduce sediment loading from headwaters streams. Include rehabilitation of water quality facilities upstream of Mill Pond and continue to support upstream beaver activity. Consider grade control downstream of Mill Pond Road and in Bonney Slope.*	Natural Resource Enhancement	Headwater streams	$$$	⧗⧗⧗	Needs Further Consideration	○	○	●	Could be done in stages in conjunction with other area projects
27	**Remove pond storage and restore wetland at Mill Pond**	Natural Resource Enhancement	Mill Pond	$$$	⧗⧗	Needs Further Consideration	○	●	●	
33	**Complete Evergreen St floodplain reconnection** *Reconnect historic floodplain to creek near 90° creek bend. Model shows the creek overflows and can flood Tropicana/Perfecta area.*	Natural Resource Enhancement	Evergreen St.	$$	⧗⧗⧗	Needs Further Consideration	◐	○	●	No easement over private property
43	**Conduct floodplain enhancement at Willow Brook Apartments** *Enhance and connect the floodplain through the apartment complex to engage the floodplain more often.*	Natural Resource Enhancement	Walker Rd. Near Murray	$	⧗⧗⧗	Needs Further Consideration	○	◐	●	
2	**Floodplain enhancement project including removal of accumulated sediment in creek area between Jay St and Jenkins Rd** *Reinstate previously-existing flood storage on site.*	Sediment Removal	Nike superblock	$	⧗	Needs Further Consideration	○	●	○	Evaluate natural resources impacts
21	**Create Marlene Village high-flow bypass** *Upstream of Butner Road.*	Conveyance				Not Recommended at this Time	◐	○	○	Would pass the problem downstream
23	**Improve Taylor Street culvert near Valeria View Drive**	Conveyance	Between 10600 and 10474 SW Taylor St.			Not Recommended at this Time	(not scored)	(not scored)	(not scored)	Too little storage available
4	**Add static flood control at Mill Pond** *Use real-time control to manage flooding. Specific strategies would depend on the future disposition of the pond.*	Detention / Storage				Not Recommended at this Time	○	○	○	Other options at the site would be better

○ ⟷ ● Lower ⟷ Higher

*Idea Bank concepts require further analysis using Section 4.2 Decision-Making Tools

WATERSHED ENHANCEMENT & FLOOD RESILIENCY IDEA BANK – POSSIBLE STRUCTURAL (INFRASTRUCTURE PROJECT) CONCEPTS

ID	DESCRIPTION	TYPE	LOCATION	APPX. RELATIVE COST	APPX. RELATIVE TIMELINE	TAC ASSESSMENT	EFFECTIVE-NESS	FEASIBILITY / READINESS TO IMPLEMENT	LONG-TERM RESILIENCE / ECOLOGICAL HEALTH / COMMUNITY VIBRANCY	NOTES
12	**Create combined wetpond / detention facility near SW 90th Ave on North Johnson Creek**	Detention / Storage				Not Recommended at this Time	●	◑	○	Forested area with high ecological value
30	**Elevate Reser's parking lot south of Jenkins Road** *Build on pier structures to maintain cut/fill balance. Similar to Public Storage facility on Fanno Creek at Denny Road.*	Other				Not Recommended at this Time	○	○	○	Not likely to be compatible with site use, costs likely disproportionate relative to benefits, doesn't address all problems at site
36	**Install storm pump system near Marlene Village** *Pump surface water to a detention facility when creek reaches design water surface elevation.*	Other				Not Recommended at this Time	(not scored)	(not scored)	(not scored)	Not a sustainable solution; pumps will clog
1	**Remove sediment at SW Murray/Walker intersection** *Scheduled for 2019-20*					*Already in progress*				*Already in progress*
26	**Achieve cross-sectional conveyance improvements via careful material removal around the water adjacent wood piles at THPRD Trestle Path over Beaverton Creek**					*Already in progress*				*Already in progress*
28	**Rehabilitate Nike Merch Building pond** *Remove invasive plants and sediment. Mitigation for project impacts.*					*Already in progress*				*Already in progress*
45	**Replace and upsize Butner Culvert**					*Already in progress*				*Already in progress*

○ ← Lower — Higher → ●

*Idea Bank concepts require further analysis using Section 4.2 Decision-Making Tools

APPENDIX B:

SHARED UNDERSTANDING STATEMENT

Cedar Mill Creek Flood Remediation Collaborative

Shared Understanding Statement

The Cedar Mill Creek Flood Remediation Collaborative will develop a Declaration of Cooperation to guide future flood remediation actions in the Cedar Mill / North Johnson Creek watershed for years to come. It will not be possible to solve all flooding concerns, but future actions in this watershed will be directed toward minimizing and/or mitigating flooding impacts. The Project Team agrees any approach to flood remediation in the Cedar Mill / North Johnson Creek watershed should be based upon these values, process principles, and key approaches.

VALUES TO GUIDE OUTCOMES

The values outlined below are derived from the community that live, work, and do business in the Cedar Mill Creek / North Johnson Creek project area. These values direct our collective work through the Oregon Solutions project and beyond. The Cedar Mill Creek Flood Remediation Collaborative will consult these values in striving to reach a consensus on how best to balance and optimize outcomes for the community.

1. **COMPREHENSIVE WATERSHED PERSPECTIVE.** Flood remediation strategies should have a long-term watershed-wide approach and perspective in addressing infrastructure, healthy ecosystems, governance, community, and watershed management.

2. **LONG-TERM RESILIENCE.** Retain, enhance, and sustain a watershed and community that is economically and environmentally resilient year-round. This effort should consider potential impacts from increased frequency and severity of flooding that could come from climate change, and plan for flood storage and/or other flood mitigation options. Be forward-thinking and develop progressive approaches to implementation and maintenance.

3. **FINANCIAL SECURITY.** Address cost of flooding impact by reducing flood risks and related insurance costs to the extent possible. Seek to improve conditions for area businesses by promoting economic growth in balance with residential quality of life. Strive to be fiscally prudent when building and maintaining infrastructure in the watershed to minimize financial impacts.

4. **CONNECTED HABITATS FOR HEALTHY ECOSYSTEMS AND COMMUNITY WELLBEING.** Build on a legacy of habitat enhancement efforts in the Cedar Mill Creek / North Johnson Creek watershed to create an interconnected network of stream, wetland, and upland natural areas that support sustainable populations of native species, and places for people to enjoy and learn from nature.

5. **SAFE, EFFECTIVE, EFFICIENT INFRASTRUCTURE SYSTEMS.** Improve and maintain the community's ability to access urban amenities, jobs, recreation, and school, by providing cost-effective and hazard-resilient public and private facilities and infrastructure, and safe and efficient connections for multiple modes of travel. Continue to improve and maintain public infrastructure and protect natural systems. Manage floodplain so the many risks associated with flooding are reduced or minimized where possible—for homes, businesses, and primary evacuation routes.

PROCESS PRINCIPLES

Oregon Solutions will add critical value by facilitating and engaging stakeholders' interests in developing strategies and projects to mitigate flooding impacts and enhance floodplains along Cedar Mill Creek / North Johnson Creek. These principles direct the way the Collaborative will go about its business, building interest and striving toward consensus with diverse stakeholders.

1. **COLLABORATIVE DECISION-MAKING.** Residents, employers, employees, property owners, agencies, and organizations work cooperatively and share responsibility for developing, implementing, and monitoring a comprehensive approach to flood remediation. Participants respectfully challenge ideas and decisions when they disagree, and actively work to balance individual interests and strive for consensus on common goals. The project outcomes reflect a blending of perspectives, mandates, and resources.

2. **URGENCY, FOCUS, AND ACTION.** Timeliness and a predisposition for action are critical to capture opportunities and help mitigate immediate flooding threats to the watershed community and natural habitat. Now is the time to map the future of the area and develop a coordinated strategy for future action that fosters greater engagement of the community within the watershed for their collective future. The effort builds on decades of investigation, planning, action, and monitoring a comprehensive and resilient approach.

3. **OPEN AND TRANSPARENT PROCESS.** All who lead and participate in the effort to bring about equitable and positive change in the watershed are committed to honest and open dialogue with their neighbors and with the public agencies that serve them. The partnering public agencies acknowledge and accept their special responsibility for ensuring the diverse people who live, work, and own property in the watershed know about the effort, have adequate information to advocate for their community, make decisions about their property, and have access to impact and influence public decisions.

4. **INCLUSIVITY.** Those who live, recreate/play, do business, and own property in the watershed are engaged to identify opportunities, needs, and issues to enhance life and business in the future. Public agency partners acquire and provide necessary information, technical support, an array of possible solutions, and resources to seize opportunities and address community-identified problems. We will draw upon the community's diverse perspectives to develop approaches and guide changes in the area. The process and resulting strategies, policies, and plans identify, build on, and enhance the capabilities, knowledge, skills, and assets of the community.

5. **EQUITABLE ACCESS.** Proposed changes and programs will be evaluated based on their potential impacts to existing and future residents and businesses. Together, Collaborative participants share a commitment to advancing actions that sustain or improve conditions for community members, with particular focus on contributing to neighborhood stability and the ability of community members to continue to thrive in the area.

KEY CONSIDERATIONS AND APPROACHES

The Cedar Mill Creek Flood Remediation Collaborative will seek to incorporate the following considerations and approaches, within the context of the project's values, in developing a basin-wide watershed flood remediation strategy. While there can be no single solution, a range of potential strategies or approaches will be used to the extent possible within available time and resources of this project.

1. **THE "GLIDE PATH."** Identify, to the extent possible, the projected severity and impact of flooding in the watershed if no further remediation is taken. Factors to consider include changes in weather patterns, ecological trends, development patterns, and regulatory frameworks.

2. **CURRENT AND PLANNED INFRASTRUCTURE & DEVELOPMENT.** The collective flood remediation approach should incorporate consideration of any existing or planned public infrastructure and private development that may impact flooding in the watershed.

3. **HYDROLOGY.** Any flood remediation approach should consider how water is distributed and moves across the watershed, taking into account the water cycle, water quality, and natural and constructed drainage.

4. **SEDIMENT TRANSPORT.** Consider the anticipated patterns and flooding impacts of sediment transport in the watershed.

5. **REGULATORY ISSUES AND PROCESSES.** Understand the current framework of regulatory requirements and look for opportunities to bring greater efficiencies in coordinating and streamlining regulations to effectively deliver flood remediation techniques.

6. **LAND USE PLANNING.** Consider, as appropriate, how best to balance land use zoning and development requirements that support regional and local land use goals but may impact the severity of flooding in the watershed.

7. **INDIVIDUAL PROPERTY APPROACHES.** Explore opportunities for individual property approaches to flood remediation in the watershed.

8. **NON-STRUCTURAL APPROACHES.** Consider non-structural approaches to managing flooding in the watershed, (including policies and laws, public awareness raising, training and education, and purchases of properties subject to repetitive and/or severe flood losses).

9. **COMPREHENSIVE PARTICIPATION IN FLOOD REMEDIATION.** Ensure participants in any comprehensive flood remediation approach include public agencies, private employers, property owners, and other affected stakeholders in the watershed.

10. **GOVERNANCE.** Develop a collaborative and integrated governance approach to implement the agreed-upon flood remediation strategy.

11. **COST/BENEFIT.** Strive to achieve flood remediation approaches that maximize watershed benefits while exercising fiscal prudence. As part of this consideration, identify the trade-offs of different approaches.

12. **INCORPORATE BEST PRACTICES.** Whenever possible, incorporate flood remediation best practices including infrastructure techniques, storm water management, environmental preservation and enhancement, property owner incentives, and governance structures.

APPENDIX C:

GOVERNOR'S OREGON SOLUTIONS DESIGNATION

KATE BROWN
Governor

June 19, 2017

Honorable Andy Duyck
Washington County Board of Commissioners
254 N First Avenue
Hillsboro, OR 97124

Dear Chair Duyck:

I am pleased to learn Washington County's Department of Land Use and Transportation and the Clean Water Services District have requested that the Washington County Cedar Mill Creek Flood Remediation Collaborative be designated as an Oregon Solutions project. After reviewing your request and the assessment conducted by Oregon Solutions staff, I believe this project supports Oregon's Sustainable Community Objectives.

By this letter, I am designating the Washington County Cedar Mill Creek Flood Remediation Collaborative as an Oregon Solutions project and appointing ***you (Washington County Commission Chair Andy Duyck) and Tualatin Hills Park and Recreation District Board of Directors President Jerry Jones, Jr.*** as the project co-conveners. Co-conveners lead the multi-agency and stakeholder process in evaluating and prioritizing projects, coordinating permitting strategies, and sequencing improvements to mitigate flooding impacts on private and public properties.

Oregon Solutions is in a unique position to manage a process that will include residents and business owners subjected to chronic flooding. This approach brings together partners in a neutral and collaborative way to develop solutions to reduce these long-standing flooding problems and identify opportunities for mutual benefits in terms of housing stability, economic development, and the environment in this flood-prone area of Washington County.

I am pleased to see your enthusiasm in working collaboratively. While there have been a number of efforts to address this multi-faceted flooding problem in the past, it is expected that by having all of the necessary stakeholders working together you will realize positive results. By integrating and leveraging resources, this project has the potential to ensure success. Please keep the Governor's office updated on this effort and thank you for your work and commitment thus far.

Sincerely,

Kate Brown

Governor Kate Brown

KB:jlb/lh

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APPENDIX D:

ORGANIZATIONAL REPRESENTATION

CEDAR MILL CREEK FLOOD REMEDIATION COLLABORATIVE

ORGANIZATIONAL REPRESENTATION

Project Convener

Andy Duyck, Chair, Washington County Board of Commissioners △

Project Team

1. Beaverton Chamber of Commerce	Lorraine Clarno
2. City of Beaverton	David Donaldson
3. City of Portland, Bureau of Environmental Services (BES)	Amin Wahab
4. Clean Water Services (CWS) △	Nora Curtis
5. National Marine Fisheries Service (NMFS NOAA)	Brad Rawls
6. NIKE	Daniel Boultinghouse
7. Oregon Department of Environmental Quality (DEQ)	Cheryl Grabham
8. Oregon Department of Transportation (ODOT)	Kristen Stallman
9. Regional Solutions, Office of the Governor, State of Oregon	Raihana Ansary
10. Reser's Fine Foods, Inc.	Paul Leavy
11. Tri-met	Joe Recker
12. Tualatin Hills Park & Recreation District (THPRD) △	Doug Menke
13. Tualatin River Watershed Council	April Olbrich
14. Tualatin Soil and Water Conservation District	Aaron Shaw
15. Washington County △	Andrew Singelakis
16. The Wetlands Conservancy	Esther Lev
17. Willamette Partnership	Sara O'Brien

△ Steering Committee

Core TAC

1. Clean Water Services**	Anne MacDonald, Co-Chair
2. Washington County**	Rocky Brown, Co-Chair
3. City of Beaverton**	Mark Boguslawski
4. City of Portland, BES*	Amin Wahab
5. DLCD	Dave Lentzner
6. DSL	Melinda Butterfield
7. NIKE	Daniel Boultinghouse
8. NMFS*	Brad Rawls
9. Reser's Fine Foods**	David Welsh
10. THPRD*	Bruce Barbarasch
11. Wetlands Conservancy*	Esther Lev
12. Willamette Partnership*	Sara O'Brien

*Representative serves on both Project Team and TAC
**The organization has a different representative on the Project Team

TAC Subcommittees

Ecological Conditions and Process

1. Clean Water Services	Abbey Rhode/Anne MacDonald
2. DSL	Melinda Butterfield
3. NMFS	Aaron Beavers/Janine Castro/Brad Rawls
4. ODFW	Tom Murtagh
5. THPRD	Bruce Barbarasch
6. Washington County	Stephen Cruise
7. Wetlands Conservancy	Esther Lev
8. Willamette Partnership	Sara O'Brien

Infrastructure and Land Use

1. City of Beaverton	Mark Boguslawski
2. City of Portland – BES	Amin Wahab
3. Clean Water Services	Jadene Stensland
4. DLCD	Dave Lentzner
5. ODOT	Kristen Stallman
6. Reser's Fine Foods	David Welsh
7. Tri-Met	Joe Recker
8. Washington County	Rocky Brown/Andy Back/Matt Costigan
9. J. Peterkort & Company	Brady Berry

Governance and Finance

1. City of Beaverton	David Donaldson
2. Clean Water Services	Jerry Linder
3. Washington County	Andrew Singelakis/Clark Balfour/Rocky Brown

Regulatory

1. Clean Water Services	Anne MacDonald/Abbey Rhode
2. DLCD	Dave Lentzner
3. DSL	Melinda Butterfield
4. NOAA	Brad Rawls/Marc Liverman
5. Reser's Fine Foods	David Welsh
6. Willamette Partnership	Sara O'Brien/Carrie Sanneman
7. USACOE	Jaimee Davis
8. DEQ	Sara Christensen

Community Engagement Team

1. Clean Water Services	Shannon Huggins / Mark Jockers
2. EnviroIssues	Alex Cousins / Seth Baker
3. THPRD	Bob Wayt
4. Washington County	Mike Dahlstrom / Melissa De Lyser

Other Partner/Resource Organizations (available to assist as needed)

1. Bonneville Power Administration
2. Metro
3. Portland General Electric
4. Portland Metropolitan Association of Realtors
5. Oregon Department of Fish & Wildlife
6. Portland Home Builders Association
7. Tualatin Riverkeepers
8. US Federal Emergency Management Agency

APPENDIX E:

GOVERNANCE MODEL MATRIX

Oregon Solutions
Cedar Mill Creek

TOPICS	New 451	Existing 451 (CWS)	Drainage 547 (New)	IGA Entity See Notes 1/4	Non-Profit See Notes 1/4/5	SWCD 568 See Notes 1/4/5
Formation Decisionmaker	BCC	BCC	BCC	BCC/Council	Incorporation/SOS	State Dept. Ag
Vote						
Remonstrance	Y	N	N	N	N	Y
Automatic	Y	Y	N	N	N	N
Boundaries By Sub-Basin or Larger	Y	Y	N See Note 2	Y	Y	Y
Governance Existing Elected Body Separate Elected Board	BCC	BCC	New	Existing Boards or Councils	New	Separate Existing
Powers to Implement						
Ordinances	Y	Y	Y	Each Party / Delegation	N Note 6	Y
Enforcement	Y	Y	Y	Each Party / Delegation	N	Y
Self-Insurance Program	Y	Y	Y	Y	?	N?
Community Rating System	Note 7	Note 7	Note 7	Note 7	Note 7	Note 7
Finance Tools Available						
Assessments with Bonds	Y Y	Y Y	Y Y	Each Party / Delegation No Gen. Obligation Bond	N See Note 6 N	Y Y
Rates	Y	Y	Y	Each Party / Delegation	Y	N
Property Tax	Y Note 3	Y Note 3	?	Each Party	N	Y
GO Bonds	Y Note 3	Y Note 3	Y	Each Party	N	Y
Rev Bonds	Y	Y	?	Each Party / Delegation	N	?
SDCs Connection	Y	Y	Y	Each Party / Delegation	Y	?
Grants RDPO?	Y	Y	Y	Y	Y	Y
Donations	Y	Y	Y	Y	Y	Y
Public/Private Partnership	Y Note 4	Y Note 4	Y	Y Note 4	Y Note 5	Y Note 4
Eminent Domain	Y	Y	Y	Each Party / Delegation	N	Y
Public Contracting	Y	Y	Y	Each Party / Delegation	N	Y
Records	Y	Y	Y	Each Party / Delegation	N	Y

Note 1: Most likely, these entities would be used for non-structural solutions to implementation of a plan or technical assistance. All can enter into cooperative agreements. See Note 4 as well.
Note 2: Focus by sub basin or smaller
Note 3: Property tax and G.O. Bond requires voter approval
Note 4: Ability to enter into agreements with private entities
Note 5: Ability to enter into agreement with public entities
Note 6: Non-Profit may do under recorded covenants, conditions and restrictions
Note 7: Cities and County performs CRS functions

orsolutions.org