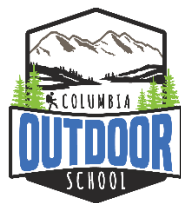


JOSEPH CREEK MANAGEMENT FRAMEWORK



Columbia Outdoor School

Box 759

Cranbrook, BC

Table of Contents

Background	2
Initiative Background	3
Joseph Creek Management Framework:	3
Framework Vision:.....	4
Framework Process	4
Objectives and Outcomes	5
Partnership Consortium and Community Partnerships	5
Water Protocol.....	6
Data Analysis:.....	7
Project Identification	9
Decision Making Models/Tools:	10
Leveraging Opportunities:.....	10
Budget.....	11
Evaluation - Monitoring/ Measurable / Evaluation Benefits	12
Moving Forward (the Future)	13
References.....	15
Appendix	16

Background

Joseph Creek flows North from Joseph Mountain through the City of Cranbrook and into the St. Mary's River. Historically this creek was considered "the most important juvenile (trout) recruitment stream in the lower St. Mary River drainage." (Duncan, 2014) . A significant fishery resource, this was also a cultural gathering place for the Ktunaxa Nation and the Aq'am people. In 1898 when the Canadian Pacific Railway established the Crowsnest Pass line through the Kootenay's, Cranbrook became the major centre of the region and in 1905, Cranbrook was incorporated as a city. Since this time, the community and the region has been developing and changing, growing and influencing the land around them. The creek has been used as a drinking water source, channelized, used as a storm water management system and recreation amenity. In the 1920's the creek was dammed and the Idlewild reservoir was created - the primary drinking water source for Cranbrook. The creek and the reservoir remained the Cities drinking water source until the mid-1970's, when the Phillips Reservoir was created. The Phillips Reservoir, currently one of the Cities primary sources of drinking water infrastructure, is located South of Cranbrook along the Gold Creek Road and is supplemented by Gold Creek through a diversion. (Appendix A – Drainage Map)

Today the creek is not functioning as a healthy ecosystem. Development, sedimentation, encroachment, water use/requirements, urbanization, invasive species, habitat destruction, infrastructure requirements and years of channelization have significantly affected the health of the creek. Several studies and reports have been conducted over the last several decades, documenting the creeks ecosystem health, as well as the influences on this. Much of these reports provide prescriptions as to how to restore a functioning ecosystem for specific species – highlighting specific creek functions and/or species-specific restoration requirements. However, often these prescriptions do not consider the multi-dimensional influences of the creek, nor the cultural values, community knowledge and infrastructure requirements of this system.

Over the last several decades, various organizations and groups have made attempts to improve the creek. These efforts have been isolated and small in scale, focusing on one species or ecosystem influence. With the best of intentions and the science of the day, cleanup efforts, park developments, habitat enhancement, recreation amenities and education efforts have occurred. This historic approach, of many of these organizations, to working with the regulatory agencies has been one of advocacy, often taking an adversarial accusatory position placing blame on current decision makers for past decisions and their influences on the functions of the Creek – guilting or shaming to make change happen. Today the community is looking to take a positive, constructive, collaborative approach, focusing on solutions, science, innovation and opportunities – leaving historic decisions in the past to learn from and move forward.

Today many people in our community, especially our children, have a disconnect to nature and natural spaces – technology, urbanization and societal pressures have changed the experience and interactions, people once had with the outdoors. Much of our society has not participated in the outdoors and although there is renewed interest many don't know how to do this. As the population ages and people near retirement there is a certain amount of nostalgia that people feel towards the Creek - how it used to be, how they used to interact with it and how they want the next generations to see it. The leadership of the day and the scientific community, now have a greater understanding as to the value that ecosystems, nature connection and the role that water plays in a healthy community. With this new understanding and a change in the demographics of our community we are seeing shifts in how people value and interact with the natural environment.

Initiative Background

In Spring of 2015 the City was investigating funding options for the replacement of the Idlewild Dam. This investigation led to a larger discussion regarding the health of the entire Joseph Creek system and the pressures facing it. The discussions centered around the following: ***That Joseph Creek and the surrounding landscape should be a healthy, functioning system capable of supporting the ecological and community infrastructure requirements; the enhancement of recreation, historic and cultural assets; and inspire the community to connect to the Creek.***

These discussions led to the creation of an initiative to develop the Joseph Creek Management Framework, a way to support the Creek to becoming a healthy functioning system. In November of 2016 the City engaged Columbia Outdoor School (formally Blue Lake Forest Education Society) to be the administrator/coordinator of this initiative.

Joseph Creek Management Framework

The Joseph Creek Management Framework is a living document that will guide decision makers into making the most “sustainable decisions”, in and around the Creek, taking into consideration their multi-dimensional nature. For the purposes of this initiative “sustainable decisions” means to take a greener approach to development, enhancing natural spaces and services, while mitigating the potential environmental impacts of development and fostering sound economic principles. Sustainable decisions look to “green” the community and its infrastructure by preserving as much as possible of the natural environment and by promoting designs that soften the footprint of human interactions - using “green infrastructure” that mimics nature in function, or strives to reduce impacts on ecological systems. (Rutherford, 2007)

This Framework looks to:

- Capitalize on community nostalgia – (How the Creek was),
- Support the new City administration and leadership direction to be innovative,
- Foster partnerships and collaborative efforts towards a common vision,
- Enhance the College of the Rockies scientific presence,
- Enhance and develop a sense of place / pride – new interactions and community connections with the surrounding environment,
- Augment current curriculum changes with local place based learning opportunities,
- Link and manage community priorities already identified by community processes, and
- Strategically tackle current infrastructure requirements of the community with the inclusion of science and sustainability into community decision making.
- Engage with the Ktunaxa Nation and specifically Aq'am Community by incorporating their knowledge, culture, history and philosophies into the multi-dimensional collaboration with the communities surrounding Joseph Creek.

Framework Vision

To shift community perspectives and interactions with the Creek, the surrounding environment and the people, through the development of a shared Framework that will appeal to and build on the assets of the community; having a multi-dimensional impact while maintaining a healthy functioning creek system. The Framework will restore, support and maintain a healthy functioning system, and change community interactions with the Creek.

Framework Process

This Framework will establish 6 Filter Groups (Sectors) and break the Creek into 8 Reaches (Sections). A collaborative community process will identify information to build a Standardized Data Set to be used in the development of benchmarks for the Filter Groups and Reaches. These benchmarks will guide the living framework and the development of tools to evaluate the tradeoffs of decisions in and around the Creek. A “Consortium”, a group of partners will be established, to manage the living Framework and assist in the collaborative management of the Creek system. Overtime these benchmarks and the tools will change and grow, as additional information, data, projects and partnerships are developed. The Framework will establish Projects that will work to move the Creek towards the benchmarks of each Filter Group – analyzing the outcomes of these projects and adjusting the Framework based on these outcomes.

The Framework is comprised of the following parts with the following goals:

1. **Partnership Consortium and Community Partnerships** - To foster positive/constructive multidimensional community partnerships and collaborations
2. **Water Protocol:** To commit the Partnership Consortium to a philosophical approach to demonstrating water leadership and innovation, ensuring long-term integrated water management.
3. **Data Analysis:** To collate into a dynamic Framework document, existing scientific and community data identifying barriers, challenges and opportunities to achieve the Initiative mission.
4. **Project Identification:** To identify projects that will advance the Framework Mission
5. **Decision Making Models/Tools:** to develop a decision-making model/tool that will guide community leaders in sustainable decision making.
6. **Leveraging Opportunities:** To leverage dollars, relationships, and effort to enhance the regions capacity.

Objectives and Outcomes

Partnership Consortium and Community Partnerships

Goal - To foster positive/constructive multidimensional community partnerships and collaborations

Objective–

1. Develop a Partnership Consortium
2. Develop the Initiative Partners
3. Identify potential Project Partners
4. Identify experts and develop filter groups
5. Develop a communications/marketing plan for the community
6. Facilitate and coordinate framework and initiative development
7. Mediate and foster relationships

Outcomes (as of May 31, 2017) –

- Presentations and meetings were made to Regional District of East Kootenay (RDEK), School District No. 5 (SD5), Ktunaxa Nation Council (KNC), Habitat Conservation Trust Fund (HCTF), Columbia Basin Environmental Educators Network (CBEEN), Columbia Basin Trust (CBT), Aq'am, Columbia River Inter-Tribal Fisheries Commission (CRITFIC), College of The Rockies (COTR),

Cranbrook History Centre, Community Futures East Kootenay, Cranbrook Chamber of Commerce, Mainstreams Environmental Society, University of Victoria Teachers Program, East Kootenay Regional Science Fair, Cranbrook Community Forest Society and Vast Environmental Resources.

- Partnership Consortium is the governing organizations to the Initiative. This is still developing with the following membership:
 - Ktunaxa Nations Council (KNC)
 - Aq'am
 - City of Cranbrook (COC)
 - Regional District of East Kootenays (RDEK)
 - College of the Rockies (COTR)
 - School District No.5 (SD5)
 - Columbia Outdoor School
 - Initiative Partners are those organizations that are guiding the development of the living Framework. This group consists of organizations that have expressed an interest in providing guidance and support to the Initiatives development. This group has had one meeting to date and is providing Framework feedback, expertise, ongoing implementation and management.
 - Project partners are specific to the implementation of specific projects. This is inclusive of portions of a project. Discussions have been occurring with several non-profits, service clubs and individuals regarding involvement in components of various projects. Ie: Fish habitat installations, stream cleanup, volunteer plantings.
 - Experts have been identified and meetings have occurred with all filter groups.
 - Filter worksheets are being compiled and a preliminary summary of each filter has occurred.
 - Initial works has occurred in developing a communications/marketing plan for the Initiative and will develop through the summer. This communications/marketing plan is ongoing and will start, in consultations with City staff, with the projects in and around Idlewild park.
-

Water Protocol

Goal - To commit the Partnership Consortium to a philosophical approach to demonstrating water leadership and innovation, ensuring long-term integrated water management.

Objective –

1. Develop the water protocol's contents

2. Communicate individually with Partnership Consortium membership regarding protocol content
3. Execution of the water protocol
4. Educate the community regarding the protocol
5. Conduct a signing celebration

Outcomes (as of May 31, 2017) –

- Discussions are occurring with the Ktunaxa Nation and Aq'am representatives to infuse the original document with Ktunaxa language and philosophies. Once this is completed we will distribute the draft protocol to the Partnership Consortium. Once the Partnership Consortium agrees to the draft protocol we will work to execute this document with the Partnership Consortium signatories.
 - This Protocol will then be presented to the public during a public celebration in the fall.
-

Data Analysis

Goal - To collate into a dynamic Framework document, existing scientific and community data identifying barriers, challenges and opportunities to achieve the Initiative mission.

Objective -

1. Divide the creek into appropriate geographic segments “reaches”. These reaches will enable analysis of the data both creek wide and reach specific – reducing the initiative into manageable components.
2. Analyze, utilizing existing research and filter groups, the cultural, ecological, educational, recreational and economic values of the Joseph Creek system.
3. Analyze, using existing planning documents and filter groups, the infrastructure requirements/opportunities for the Joseph Creek system.
4. Compile filter group analysis and summarize existing data
5. Identify gaps in data

Outcomes (as of May 31, 2017) –

- The Creek has been broken into 8 reaches. A visual depiction of the Framework process and the reaches can be found in Appendix B – Framework Process Diagram

Reach Descriptions:

Reach 1- The Mouth of the Creek to the CPR Crossing - This portion of the creek flows North to the St. Mary's River from the CPR crossing. It meanders through rural properties adjacent to a significant roadway and through St. Eugene Golf Resort and Aq'am Community. Primarily this portion of the Creek contains natural riparian functions and normal edge flow as it enters the mission.

Reach 2- From the CPR Crossing to the Sewage Lagoons - This portion of the Creek flows North along the Western side of the City of Cranbrook sewage lagoons and the eastern side of a golf course and through rural development lands that have been influenced by ranching, farming and forestry to the crossing. Much of this portion of the creek retains natural riparian values and natural meandering of the creek edge.

Reach 3- From Sewage Lagoons to the Tamarack Mall - This portion of the Creek flows North and is significantly channelized and with multiple flow alterations. It is primarily bordered by commercial properties from the Mall to the Terra Lee development. This section of the creek crosses the highway at 22nd street North and reverts to a more native riparian with minimal alterations to the creek bed to the lagoons.

Reach 4- From the Tamarack Mall to Baker Park - This portion of the Creek flows through the heart of the City of Cranbrook and is bordered by both private and commercial lands. This Creek is significantly impacted by development. Significant portions of the creek have been channelized and with multiple flow alterations. This portion of the Creek is also influenced by both Hospital and Jim Smith Creeks as well as Elizabeth Lake Wetlands.

Reach 5- From Baker Park to Kinsmen Park - This portion of the creek flows North towards Baker park running through the City of Cranbrook bordered on both sides by private land and Northwest through Kinsmen Park. This reach of the Creek is significantly channeled in the lower portion as it approaches Baker park.

Reach 6- From Kinsmen Park to Idlewild Reservoir - This reach flows Northwest to Kinsmen Park through the City of Cranbrook and is bordered on both sides by private lands and includes the Idlewild Lake/park facility. This portion of the Creek has significant elevation change.

Reach 7- From Idlewild Reservoir to Phillips Reservoir - This reach includes Phillips Reservoir and flows North to the head of Idlewild reservoir. Private lands are adjacent to the creek with multiple land uses.

Reach 8- From Phillips Diversion to Headwaters – Flowing Northeast from the headwaters South of Cranbrook in the valley between Cranbrook Mountain and Mount Joseph, through a forested partially logged valley. This reach is inclusive of the diversion structures and is influenced by Gold Creek.

- Data collection has been occurring. (Appendix C – Master Filter Group Collection Sample). Information has been collected and a preliminary summation of this

information is occurring based on the Filter Groups and reaches. This preliminary summary is attached in Appendix D – Preliminary Filter Group Data Summaries. These summaries will be used in the creation of data sets that will help to guide the creation of the Filter Group Benchmarks and Standards – the minimal statistics and criteria required for each Filter Group, to achieve a healthy functioning system).

- As the living framework advances this data and information will continue to be augmented and influence the analysis.
 - Initial Identification of information/data gaps is occurring. A draft summary of this information is included in Appendix F – Information/Data Gap Preliminary Summary
-

Project Identification

Goal - To identify projects that will advance the Framework Mission.

Objective -

1. Identify projects based on the Framework Data Analysis that:
 - a. Tells the historic/cultural story for the creek system.
 - b. Creates habitat (aquatic/terrestrial) that will improve the health of the creek system.
 - c. Improves water quality and quantity (flow) within the creek system.
 - d. Enhances and creates access by community to education opportunities in and around the Creek.
 - e. Capitalizes on economic development opportunities
 - f. Enhances and creates community recreation
 - g. Augments/enhances/fosters infrastructure and city planning innovation
2. Compile a project list that identifies potential project partners and those funded.
3. Identify project components for replication, learnings, collaborations and financial leveraging.

Outcomes (as of May 31, 2017) –

- Project Identification based on Data Analysis, identified priorities, leveraging and readiness is ongoing. A draft project list is being compiled and included in Appendix G – Draft Master Joseph Creek Framework Project List
- 2017 priority projects have been discussed with the Partnership Consortium with the following outcomes.
 - Willow/Invasive Education materials and outreach - 15th Ave and 1st Street S.

- Idlewild Lake Riparian Enhancement – School Engagement/Community Celebration.
 - Idlewild wetland expansion/development – habitat monitoring/data collection
 - Phillips Reservoir
 - East Side Siltation Project
 - Diversion Planting
 - Historical inventory of data and locations
 - Fish Habitat Installations at Idlewild/Web camera installation
 - Turtle initiative (habitat development/ demographic variation/population variables)
 - HCTF & CBFWCP large grant proposals
 - Communications plan development
 - Legal ownership/Authority plan

- Potential project partners have been identified and discussions/meetings with many of these to cultivate conversations regarding organizational fit is ongoing. Meetings specific to the above 2017 priority projects have occurred with:
 - Ktunaxa Nation Council
 - Regional District of East Kootenay
 - Columbia River Intertribal Fisheries Commission
 - Aq'am
 - School District #5
 - College of the Rockies
 - VAST Environmental Resources
 - City of Cranbrook
 - Topcrop
 - Flex mse
 - Sandor
 - Shaw
 - Freshwater Fisheries Society
 - Columbia Basin Trust
 - Evergreen Foundation
 - Habitat Conservation Trust Foundation
 - BC Hydro
 - Boy Scouts of Canada
 - Columbia Basin Environmental Education Network

Decision Making Models/Tools

Goal - to develop a decision-making model/tool that will guide community leaders in sustainable decision making.

Objective

1. Research existing sustainable decision-making models/tools
2. Identify appropriate tools for use with this Initiative
3. Develop a decision-making model/tool kit
4. Communicate learnings and their overlap outside of Joseph Creek

Outcomes (as of May 31, 2017) –

- Conversations have been occurring with various organizations regarding models and tools for sustainability. Discussions specifically with College of the Rockies have occurred regarding existing housing strategy work and its potential application in this instance.
 - Other research is actively occurring regarding sustainable decision-making tools.
-

Leveraging Opportunities

Goal - To leverage dollars, relationships, and effort to enhance the region's capacity

Objective -

1. Create a database of funding opportunities
2. Develop a fund development plan for the Initiative
3. Administer and coordinate the Initiative.
4. Develop project plans
5. Coordinate and apply for funding opportunities as appropriate

Outcomes (as of May 31, 2017) –

- An ongoing database has been developed with potential funding opportunities.
- Research into possible project partnerships and funding is currently taking place.
- A fund development plan (shelf ready proposal) for the initiative (Framework Implementation) is being developed to enable quick access of funding when it becomes available. Funding has already been applied for and accessed (RDEK, HCTF) for the Framework development.
- Individual project plans are being developed and implemented for the 2017 priority projects. Implementation of these projects is already in the works and applications have been submitted for funding many of these projects already. (NWCF, BC Hydro x2)
- Discussions are currently occurring with many volunteer organizations/community organization, corporate sponsors and local business

that could participate in many projects or potentially raise funds for these projects.

- Discussions will take place with City Staff regarding a fundraising campaign to augment Idlewild Park funding and enhance the initiative fully. We anticipate this campaign to be shortly.

Budget

Joseph Creek Framework Initiative Revenue: (as of May 31, 2017)

Initiative Revenue Sources	Requested	Confirmed
City of Cranbrook	\$65,000	\$65,000
RDEK	\$5,000	\$5,000
Habitat Conservation Trust Fund	\$5,000	\$5,000
BC Hydro (Education)	\$5,000	\$5,000
Totals	\$80,000	80,000

The City of Cranbrook has provided initial seed funding to develop this framework and bring together the consortium of partners. In addition, the Regional District of East Kootenay has agreed to contribute up to \$5,000 towards the development of the plan and projects along the creek, the Habitat Conservation Trust Foundation has agreed to contribute \$5,000 towards the development of a larger multiyear project proposal for the restoration of the creek.

Initiative Expenses: The initial budget for the Initiative has been broken into the 6 Framework Goals; Partnership Consortium and Community Partnerships, Water Protocol, Data Analysis, Project Identification, Decision Making Models/Tools, Leveraging Opportunities

Partnership Consortium and Community Partnerships	Total Estimate: \$5,000
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Meeting and collaborating with identified community organizations to assist with future projects, priority development and guidance, coordinate development of a sustainability decision tool kit for community decision makers. Community presentations and education outreach and website communications.

Water Protocol	Total Estimate: \$1,500
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The bulk of the costs associated with this goal are for the signatory ceremony.

Data Analysis	Total Estimate: \$31,000
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The bulk of the initial work focused in two areas; review of existing information and development of new information.

Existing:

Estimates: \$18,000

As a great deal of information has already been produced regarding Joseph Creek, a review and collation of existing ecological, land use/policy, planning/infrastructure, historical/cultural, education, and recreation information and the coordination and development of the initiative.

New Information:

Estimates: \$13,000

Consulting with local experts and organizations, creek barriers and opportunities were identified. Collating existing information with current gaps, barriers and opportunities was completed and the development of a draft framework document were completed. Consultations with the community to finalize the plan were completed and produce a final framework plan to guide the future of the project.

Project Identification	Total Estimate: \$15,000
-------------------------------	---------------------------------

The projects identified and prioritized for implementation in 2017 will be coordinated and implemented in partnership with other consortium partners.

Additional funding proposals that have been applied for with the amount requested and amount received indicated in the chart below.

Funding Source	Requested	Actual
NWCF	\$59,715	\$51,000
BC Hydro (Community Greening)	\$10,340	\$4,500
Columbia Basin Trust small grant	\$5,000	TBD
BC Hydro (Community Grant)	\$5,000	\$5,000

Decision Making Models/Tools	Total Estimate: \$4,500
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Leveraging Opportunities	Total Estimate: \$18,000
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The development of a funding database available for future projects will assist partners and organizations with future planning of projects. Funding proposals such as Habitat Conservation Trust Foundation, National Wetland Conservation Fun, Columbia Basin Trust etc will be completed, to enhance and leverage funds already contributed towards the project. Fundraising campaigns will also be developed to offset capital projects etc.

Evaluation - Monitoring/ Measurable / Evaluation Benefits

The Initiatives success will be measured based on the completion of the objectives for each of the 6 goals. This will be reviewed on a quarterly basis and will direct the ongoing development of the living framework and the annual workplan.

The initiative will identify a Standardized Data Set for each Filter Group. Each project moving forward will collect appropriate data to populate this Data Set. This data will then be used to record and identify influences on the system and provide information that will guide the living Framework development and the initiatives falling out of this work.

For each Creek Reach and Filter Group the Framework Initiative will identify benchmarks that will move the Initiative vision forward. Through utilizing the Decision-Making tools projects will be evaluated against their ability to meet/exceed identified benchmarks. This evaluation will then influence the project workplans moving forward in the future.

Moving Forward (the Future)

Future considerations

It is anticipated that future projects will be undertaken by community groups, individuals and consortium partners. The initiative coordinator will connect groups together to ensure partnerships are developed and projects capitalize fully on funding opportunities and best bang for our buck. Projects will be self-funded, externally funded or through volunteers and donations. Complete watershed restoration will require an organization capable of cross interest coordination and facilitation as well as the management and coordination of those projects. An annual budget should be allocated to ensure this ongoing work is completed and effectively managed. This coordination is best accomplished by a third-party organization that can ensure community outreach, involvement and ownership – taking the pressure off City staff to deal with issues outside of their regulatory authority and creating a buffer/mediator between organizations.

It is the hope of the Consortium Partnership and the Initiative Coordinator that organizations within the community will take ownership of appropriate projects and will work to see these through. The Coordinator will ensure that the work to date is used as a model and foster community partnerships moving forward.

2017 identified projects (Appendix H – 2017 Identified Projects and Workplan)

- Willow/Invasive Education materials and outreach - 15th Ave and 1st Street S.
- Idlewild Lake Riparian Enhancement – School Engagement/Community Celebration.
- Idlewild wetland expansion/development – habitat monitoring/data collection
- Phillips Reservoir
 - East Side Siltation Project
 - Diversion Planting
- Historical inventory of data and locations

- Fish Habitat Installations at Idlewild/Web camera installation
- Turtle initiative (habitat development/ demographic variation/population variables)
- HCTF large grant proposal
- Communications plan development
- Legal ownership/Authority plan

Identification of new projects for future years will be influenced by the monitoring and evaluation pieces of the 2017 projects and the feedback from the community and Partnership Consortium.

Next steps – The Partnership Consortium will help to facilitate priority projects and identify and facilitate the implementation and partnership collaborations on individual projects. Continue to touch base with Framework and ensure that this is still relevant. Facilitate project development, relationship development and collaborative ideas

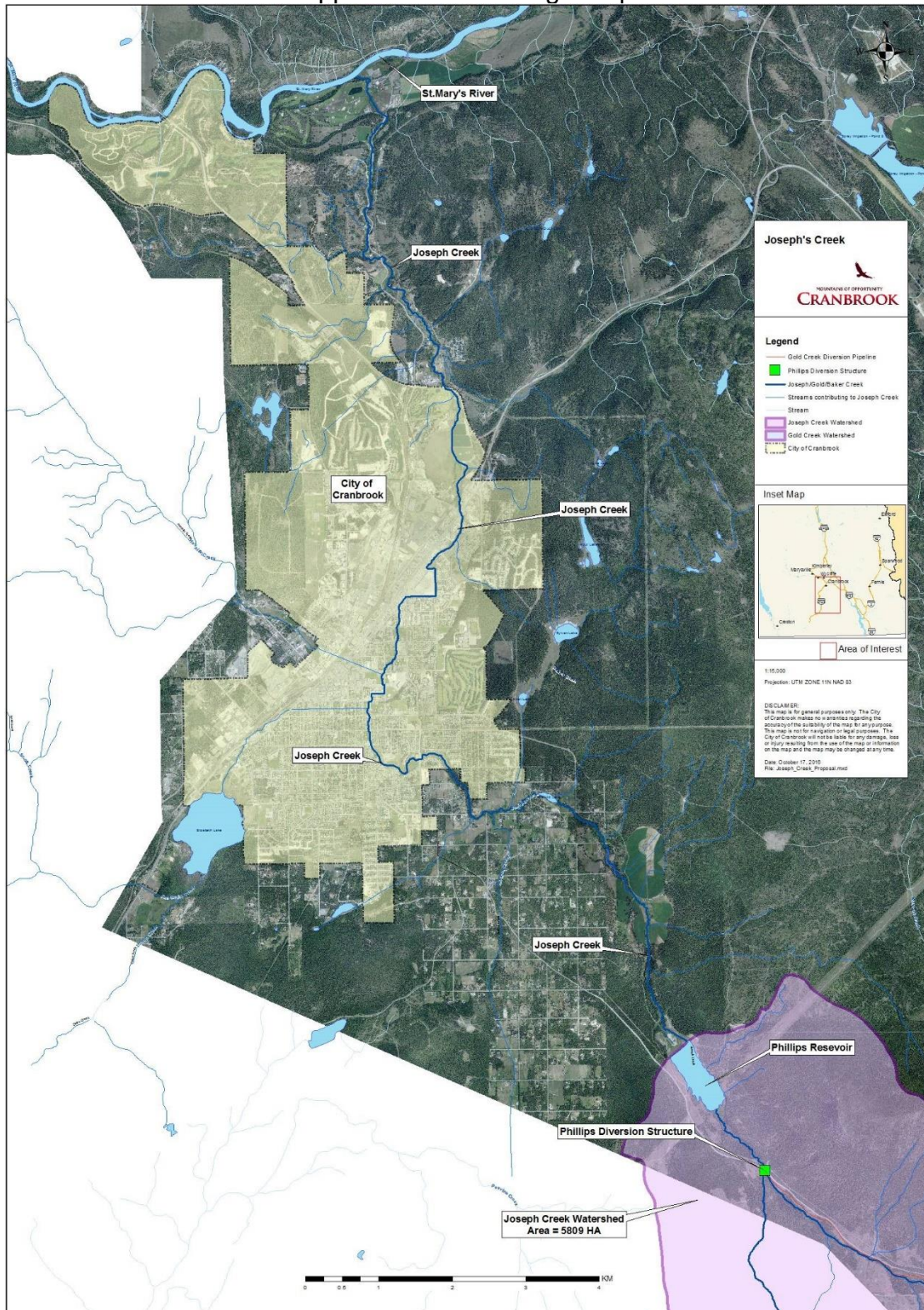
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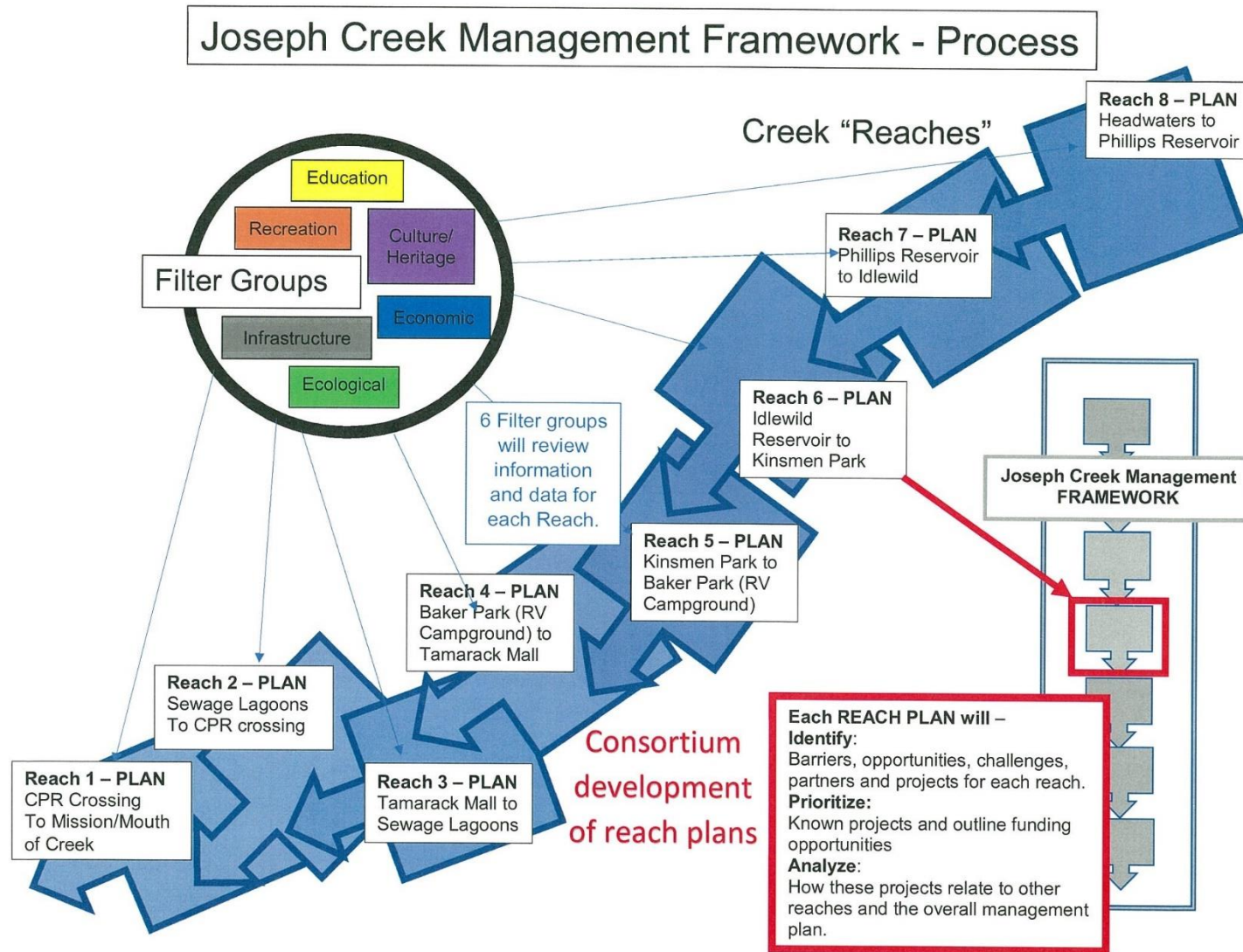
Appendix

- Appendix A – Drainage Map
- Appendix B – Framework Process Diagram
- Appendix C – Master Filter Group Collection Sample
- Appendix D – Preliminary Filter Group Data Summaries
- Appendix E – Filter Matrix
- Appendix F – Information/Data Gap Preliminary Summary
- Appendix G – Draft Master Joseph Creek Framework Project List
- Appendix H – 2017 Identified Projects and Workplan Draft

Appendix A – Drainage Map



Appendix B – Framework Process Diagram



Appendix C – Master Filter Group Collection Sample

Joseph Creek Framework Project

Introduction:

As part of a collaborative community initiative that is working to achieve a management vision for Joseph Creek from stem to stern the information collected in these worksheets will help to build the guiding framework for the Joseph Creek Project. Information is being collected from experts and knowledgeable organization through 8 filter groups (Education, Recreation, Infrastructure/Planning, Culture/History, Economic, Ecological and Community). This information will combine to develop the Joseph Creek Framework – a document that will guide decision makers with a single vision for the creek and surrounding land that incorporates multiple values, needs and priorities and provides the data required for the “Consortium” a group of partners, to manage the Creek system collaboratively.

Please keep this working vision/objective for the creek in mind as you complete these worksheets: **Restore Joseph Creek and the surrounding landscape to a functioning system by incorporating the following values (Education, Economic, Culture/History, and Ecological) and needs (Recreation, Infrastructure/Planning, and Community)**

Filter Group Worksheets**Filter Group Description:**

Resource/Reference Material Available: (Existing Documentation)

Discussion: (Please consider the entire creek within this section). Complete information to the best of your knowledge - for each bullet.

- Who’s Roles/Responsibilities/Authority
- What Legislative Functions
- Are there known Data gaps
- How does this filter group impact the Creek wide vision/goals? How does/can this impact Project Vision?
- How does this filter group interact with other filter groups?

Creek Wide Influences: (please describe in your opinion the Creek Wide Barriers/Obstacles/Challenges to achieving the vision.)

- **Barriers/Obstacles/Challenges**
- (i.e.) CHALLENGE -
-

Reach Plan Worksheet**Reach Description/Map:**

The Creel has been divided into 8 individual reaches. Separate plans will be development identifying specific data to each reach with action plans developed.

Reach 1- The Mouth of the Creek to the CPR Crossing**Authority/Responsibility:**

- Province of BC, RDEK and City of Cranbrook

Reach Description:

This portion of the creek flows North to the St. Mary's River from the CPR crossing. It meanders through rural properties adjacent to a significant roadway and through St. Eugene Golf Resort and Aq'am Community. Primarily this portion of the Creek contains natural riparian functions and normal edge flow as it enters the mission.

Discussion & Reach specific Influences with regards to your filter group: (please focus on each bullet)

- Human Interaction
- Specific Barriers
- Specific Opportunities
- Specific Challenges

Current/Future Budgeted Priority Projects: (where funded)**New Projects (Low Hanging Fruit):****Reach 2- From the CPR Crossing to the Sewage Lagoons****Authority/Responsibility:**

- Province of BC, RDEK and City of Cranbrook

Reach Description:

This portion of the Creek flows North along the Western side of the City of Cranbrook sewage lagoons and the eastern side of a golf course and through rural development lands that have been influenced by ranching, farming and forestry to the crossing. Much of this portion of the creek retains natural riparian values and natural meandering of the creek edge.

Discussion & Reach specific Influences with regards to your filter group:

- Human Interaction
- Specific Barriers
- Specific Opportunities
- Specific Challenges

Current/Future Budgeted Priority Projects: (where funded)**New Projects (Low Hanging Fruit):****Reach 3- From Sewage Lagoons to the Tamarack Mall****Authority/Responsibility:**

- Province of BC and City of Cranbrook

Reach Description:

This portion of the Creek flows North and is significantly channelized and with multiple flow alterations. It is primarily bordered by commercial properties from the Mall to the Terra Lee development. This section of the creek crosses the highway at 22nd street North and reverts to a more native riparian with minimal alterations to the creek bed to the lagoons.

Discussion & Reach specific Influences with regards to your filter group:

- Human Interaction
- Specific Barriers
- Specific Opportunities
- Specific Challenges

Current/Future Budgeted Priority Projects: (where funded)**New Projects (Low Hanging Fruit):****Reach 4- From the Tamarack Mall to Baker Park****Authority/Responsibility:**

- Province of BC and City of Cranbrook

Reach Description:

This portion of the Creek flows through the heart of the City of Cranbrook and is bordered by both private and commercial lands. This Creek is significantly impacted by development. Significant portions of the creek have been channelized and with multiple flow alterations. This portion of the Creek is also influenced by both Hospital and Jim Smith Creeks as well as Elizabeth Lake Wetlands.

Discussion & Reach specific Influences with regards to your filter group:

- Human Interaction
- Specific Barriers

- Specific Opportunities
- Specific Challenges

Current/Future Budgeted Priority Projects: (where funded)

New Projects (Low Hanging Fruit):

Reach 5- From Baker Park to Kinsmen Park

Authority/Responsibility:

- Province of BC and City of Cranbrook

Reach Description:

This portion of the creek flows North towards Baker park running through the City of Cranbrook bordered on both sides by private land and Northwest through Kinsmen Park. This reach of the Creek is significantly channeled in the lower portion as it approaches Baker park.

Discussion & Reach specific Influences with regards to your filter group:

- Human Interaction
- Specific Barriers
- Specific Opportunities
- Specific Challenges

Current/Future Budgeted Priority Projects: (where funded)

New Projects (Low Hanging Fruit):

Reach 6- From Kinsmen Park to Idlewild Reservoir

Authority/Responsibility:

- Province of BC and City of Cranbrook

Reach Description:

This reach flows Northwest to Kinsmen Park through the City of Cranbrook and is bordered on both sides by private lands and includes the Idlewild Lake/park facility. This portion of the Creek has significant elevation change.

Discussion & Reach specific Influences with regards to your filter group:

- Human Interaction
- Specific Barriers
- Specific Opportunities
- Specific Challenges

Current/Future Budgeted Priority Projects: (where funded)

New Projects (Low Hanging Fruit):

Reach 7- From Idlewild Reservoir to Phillips Reservoir

Authority/Responsibility:

- Province of BC, RDEK and City of Cranbrook

Reach Description:

This reach includes Phillips Reservoir and flows North to the head of Idlewild reservoir. Private lands are adjacent to the creek with multiple land uses.

Discussion & Reach specific Influences with regards to your filter group:

- Human Interaction
- Specific Barriers
- Specific Opportunities
- Specific Challenges

Current/Future Budgeted Priority Projects: (where funded)

New Projects (Low Hanging Fruit):

Reach 8- From Phillips Diversion to Headwaters

Authority/Responsibility:

- Province of BC, KNC, Aq'am and RDEK

Reach Description:

Flowing Northeast from the headwaters South of Cranbrook in the valley between Cranbrook Mountain and Mount

Discussion & Reach specific Influences with regards to your filter group:

- Human Interaction
- Specific Barriers
- Specific Opportunities
- Specific Challenges

Current/Future Budgeted Priority Projects: (where funded)

New Projects (Low Hanging Fruit):

Appendix D – Preliminary Filter Group Data Summaries

HISTORIC/CULTURAL**SUMMARY CULTURE/HERITAGE Filter****Filter Group Description:**

The identification and preservation/conservation of the human legacy of physical artifacts and intangible stories that are inherited from past generations of creek users; inclusive of buildings, monuments, landscapes, natural heritage/biodiversity, folklore, traditions, language and artistic expressions.

Resource/Reference Material Available: (Existing Documentation)

- Cranbrook Achieves
- Newspapers (1898 -1974) to 2011 Three newspapers Herald, Prospector and Courier. Townsman
- Sawmill records/industry records
- Reports and studies
- Photographic evidence
- Ariel photographs 1962
- Smith creek (research)
- Dam and history of Idlewild
- Archeological record done by Wayne Choquette
- Digital file of outflows
- Ktunaxa Nation – Traditional Knowledge and Language Sector
- Aq'am – Elders, Records and Documentation

- **Who's Roles/Responsibilities/Authority –**
 - Partnership Consortium
 - Columbia Basin Institute of Regional History
 - Cranbrook Archives Museum and Landmark Foundation
 - Ktunaxa Nation Council
 - Provincial Government
 - Federal Government
 - City of Cranbrook

- **What Legislative Functions –**
 - Heritage Branch, guidelines and building structural issues, Heritage BC, archeological site evaluations with province

- **Are there known Data gaps –**
 - opening of Idlewild... missing that part of the story, newspapers are written on the time, gaps that were not necessarily reported by paper.
 - Oral Ktunaxa Nation history

- Cultural points of interest and Ktunaxa Language associated with Creek/Names
 - CPR history
 - Creek/City boundaries and changes overtime
- **How does this filter group impact the Creek wide vision/goals? How does/can this impact Project Vision?**
 - Tells the story of community, paints the picture of what it used to be and how we used to interact with the Creek. This is the inspiration for people to remember the “better” days – nostalgia for places and memories
 - **How does this filter group interact with other filter groups?**
 - Oral history collection. This is really an opportunity to share how it was and where it could get to once again. Much of this filter groups interaction with the other groups will help to position the impacts to the creek but it will also help to paint richness and colour to works happening.
 - Ktunaxa language and history needs to be included throughout the creek system and the works taking place.

Creek Wide Influences: (please describe in your opinion the Creek Wide Barriers/Obstacles/Challenges to achieving the vision.)

- **Barriers/Obstacles/Challenges/Opportunities**
- Finances, funding – often an under services sector. Accessing grants for much of the required work. This will take some time to develop and research.
- Cultural things to bring them back it is a barrier... won't replace these sites... interpretive signs to keep memories. Acknowledgement of existing sites that are already gone,
- Obstacles the desire to work collaboratively with other organizations. Historically these groups have not worked well together. This is a challenge as intellectual property concerns and artifact ownership/storage often play a role in this tense dynamic.
- Telling the story of the name of the Creek - St. Josephs Creek.... Story of this Chief Joseph,
- City boundary expansion and usage of the Creek.

Reach specific Filter Group Barriers/Obstacles/Challenges/Opportunities

Reach 1- The Mouth of the Creek to the CPR Crossing - *This portion of the creek flows North to the St. Mary's River from the CPR crossing. It meanders through rural properties adjacent to a significant roadway and through St. Eugene Golf Resort and Aq'am Community. Primarily this portion of the Creek contains natural riparian functions and normal edge flow as it enters the mission.*

- Mission history and culture,
- mission school Story
- Aq'am and Ktunaxa Nation story
- Hotel campground development Tourism Opportunities

Reach 2- From the CPR Crossing to the Sewage Lagoons - *This portion of the Creek flows North along the Western side of the City of Cranbrook sewage lagoons and the eastern side of a golf course and through rural development lands that have been influenced by ranching, farming and forestry to the crossing. Much of this portion of the creek retains natural riparian values and natural meandering of the creek edge.*

- Brickworks within this area,
- Gardens Chinese gardens,
- CP Rail project... where the rail was laid and the railway museum. Fort Steele. Cranbrook divisional headquarters and what brought it here....
- Isadore canyon. (Chief Isadore story)
- Aq'am and Ktunaxa Nation story

Reach 3- From Sewage Lagoons to the Tamarack Mall - *This portion of the Creek flows North and is significantly channelized and with multiple flow alterations. It is primarily bordered by commercial properties from the Mall to the Terra Lee development. This section of the creek crosses the highway at 22nd street North and reverts to a more native riparian with minimal alterations to the creek bed to the lagoons.*

- Right angle diversion, for the Tamarack Mall site, this was for the Tamarack Hotel originally. Tell the story of the towns development
- Historical trading with landowners. Private land ownership and title. How planning decisions were made.
- Aq'am and Ktunaxa Nation story

Reach 4- From the Tamarack Mall to Baker Park - *This portion of the Creek flows through the heart of the City of Cranbrook and is bordered by both private and commercial lands. This Creek is significantly impacted by development. Significant portions of the creek have been channelized and with multiple flow alterations. This portion of the Creek is also influenced by both Hospital and Jim Smith Creeks as well as Elizabeth Lake Wetlands.*

- Swimming pool / gyro pool,
- When did the City boundary change,
- Baker Park home, deer farm, custom home, baker estate, original contract of Baker buying the land, archeological record campsite and hunting grounds.
- Stories of the creek, farm markets etc... by
- Chinese market gardens
- Joseph prairie area for the Ktunaxa Nation, archeological sites.

- Major changes that were done to the creek for the Tamarack mall or the for the Tamarack Hotel.
- Cranbrook Dairy story
- Interpretive information of what was there and what is missing.
- Aq'am and Ktunaxa Nation story past and present day (Government Building)

Reach 5- From Baker Park to Kinsmen Park - *This portion of the creek flows North towards Baker park running through the City of Cranbrook bordered on both sides by private land and Northwest through Kinsmen Park. This reach of the Creek is significantly channeled in the lower portion as it approaches Baker park.*

- Haras farm,
- Creation of the Kinsman park,
- Sawmills
- Walla Walla Trail and the Dewdney Trail,
- Fish Hatchery that is now the girl guides hall – the story of the hatchery and it's historic role.
- Interactive and interpretive camping location hands on recordings historic maps and tours.
- Aq'am and Ktunaxa Nation story

Reach 6- From Kinsmen Park to Idlewild Reservoir - *This reach flows Northwest to Kinsmen Park through the City of Cranbrook and is bordered on both sides by private lands and includes the Idlewild Lake/park facility. This portion of the Creek has significant elevation change.*

- Mackenzie pond,
- City Irrigation ditch,
- Kootenay Orchard school (17th on where the old school was) old school was located here on the orchard not current Kootenay orchard school.
- MacKenzie sawmill,
- Interactive heritage mini flume, topography, old working sawmill, old micro hydro examples - used the creek for electrical generation.
- Aq'am and Ktunaxa Nation story

Reach 7- From Idlewild Reservoir to Phillips Reservoir - *This reach includes Phillips Reservoir and flows North to the head of Idlewild reservoir. Private lands are adjacent to the creek with multiple land uses.*

- Family was expropriated by City for the reservoir to be built,
- Dairy farm,
- Prominent families
- Aq'am and Ktunaxa Nation story

Reach 8- From Phillips Diversion to Headwaters – *Flowing Northeast from the headwaters South of Cranbrook in the valley between Cranbrook Mountain and Mount Joseph, through a forested partially logged valley. This reach is inclusive of the diversion structures and is influenced by Gold Creek.*

- Human Interaction – ranching, logging, Philips Ranch where reservoir is and location.
- Likely data gaps that likely will exist as this wasn't located in the City and much of the research available is from old newspaper articles.
- Phillips reservoir history,
- Mertle the elephant and Cranbrook Mountain
- Prominent families
- Aq'am and Ktunaxa Nation story

ECOLOGICAL

SUMMARY FILTER GROUP ECOLOGICAL

Filter Group Description:

Analysis of the connection of how living organisms relate to each other and their physical surroundings. This is inclusive of many of interdisciplinary fields such as biology, geography, fisheries, chemistry, and natural sciences. Understanding how the biodiversity of the creek influences ecological functions inclusive of; species identification, life processes and interactions, movement of resources/materials through the creek system, system function, biodiversity and abundance, water science (filtration, quantity, quality, erosion controls).

Resource/Reference Material Available: (Existing Documentation)

- 50 years' worth of data collection and recommendations.
- Documentation and resources still under review by experts.
- **Who's Roles/Responsibilities/Authority**
 - Provincial Authority
 - Federal Authority
 - Fish and Wildlife Compensations
 - Ktunaxa Nation
 - Aq'am
 - City of Cranbrook
 - Regional District of East Kootenay
- **What Legislative Functions**
 - Federal, Provincial and Municipal Regulatory Acts/Bylaws
- **Are there known Data gaps**
 - Need to ground truth Fish Barriers from previous studies
 - Need to develop appropriate species/habitat prescriptions

- Need to identify species/monitor systems
 - Optimal Flow strategy for Creek
 - Identification/analysis of Water Quality causes ie: sedimentation, pollutants and dissolved oxygen in the Creek
 - Source of native plant materials/species
 - Prescription for native plantings
- **How does this filter group impact the Creek wide vision/goals? How does/can this impact Project Vision?**
 - This filter group will have a significant impact on the others. For example without making improvements for habitat requirements for Fish the “recreational fishing values” and “Economic Development tourist values” cannot find success. Projects associated with this filter will have immediate visual impacts and increase the momentum for people to see the overall value of the FRAMEWORK.
 - **How does this filter group interact with other filter groups?**
 - This filter group is the primary linkage to all the other filter groups and the activities associated with this filter group will directly impact the success of achieve the identified values of the other filter groups

Creek Wide Influences: (please describe in your opinion the Creek Wide Barriers/Obstacles/Challenges to achieving the vision.)

Barriers/Obstacles/Challenges/Opportunities

- Freshet flows below Phillips Reservoir
- Stream flows in summer below reservoir and licensed water withdrawals
- Timing of Storm water runoff.
- Fecal coliform levels
- Suspended sediment - water quality criteria for protection of aquatic life.
- Pollutants increased concentration throughout the creek. Sources, monitoring and reduction opportunities.
- Water temperatures and the requirements for protection and enhancement of aquatic life.
- Dissolved oxygen - water quality criteria for protection of aquatic life

Creek-wide Recommendations: (Oliver, 2000)

- Barriers to fish passage should be removed –ground truthing based on existing research to identify all barriers will need to occur.
- Develop and OPTIMAL FLOW STRATEGY describing the release of water from Phillips reservoir bypass (timing and minimum flow requirements)
- Water conservation program expansion.
- Storm water pollutant sources should be identified and remedied. The City and BC Env should work in co-operation to identify business activities that might contribute

pollutants to the storm drain system and work with these businesses to control release

- A public awareness program should be implemented that embraces the environmental values of the creek
- Revegetate the bypass channel and/or placement of whole trees and logs over the channel for shade
- Restore and create riparian cover all along creek
- Fencing and off channel water sites for cattle
- Reduce sediment introduction through storm sewers
- Installation of baffles within culverts
- Restructuring of the waterfalls in Baker Park. Creation of a series of step pools is recommended
- In channel habitat restoration including the addition of large woody debris.
- Research opportunities for overbank flooding
- Construction of wet detention ponds or constructed wetlands - for storm sewer sediment inputs and water storage

Reach Specific Summaries:

Summaries associated with individual reaches are still ongoing as there is significant overlap between various reaches and the actions required to remedy issues. As the framework develops and specific Creek-Wide Ecological strategies are developed individualized Reach projects will be identified.

ECONOMIC DEVELOPMENT

SUMMARY – ECONOMIC DEVELOPMENT

Filter Group Description:

Economic Development means the utilization of resources as it relates to human choices and current economic conditions. What are the causes and effects of decisions around resource allocation and planning; and how will these effect the future economy, behaviors and leadership of the communities.

Resource/Reference Material Available: (Existing Documentation)

- ICSP
- OCP
- Whistler Economic Analysis
- Government of Canada - National Parks Economic Analysis
- Doctor Recruitment Analysis – Divisions of Family Practice
- Invest Kootenay
- Tourism Kootenays/ Tourism Materials
- Cranbrook Destination Marketing Organization
- Barriers to Business/Business Walks – Cranbrook Chamber of Commerce

Discussion:

- **Who's Roles/Responsibilities/Authority**
 - Community Futures
 - Columbia Basin Trust
 - Local Governments
 - KNC
 - Aq'am
 - Cranbrook Chamber of Commerce
- **What Legislative Functions**
 - Western Economic Diversification?
- **Are there known Data gaps**
 - Perhaps the data exists but has not been compiled properly to allow for effective analysis. Need to determine tools for analysis and benchmarks.
 - How can this information be used to entice folks to stay in our community – new resident attractions –
 - Interviews with young professionals regarding what was important for them coming, what is here? How important is the environment to creating lifestyle that folks want to relocate to here? – build business here?
 - Don't have definitive analysis as to why folks would move here or stay here
- **How does this filter group impact the Creek wide vision/goals? How does/can this impact Project Vision?**
 - For both the Creek wide vision/goals as well as project visions the economic influences should be considered. There needs to be a balance fiscally to what projects are happening and how innovation, partnerships and clear benchmarks for economic development will assist in ensuring that the value is included in the processes.
- **How does this filter group interact with other filter groups?**
 - This influences all of them – overlapping circle concept. Need to improve or create better dialogue on this subject.

To consider –

- Managing desired outcomes for economic development is difficult as based on perspectives of individual involved and often no parameters or outcomes are established to enable folks to have the same vision.
- Entrenched rivalries between community organizations will make it difficult to find commonality i.e. – business community/arts groups
- These rivalries may need to be overcome in order for this to work properly.

Creek Wide Influences: Barriers/Obstacles/Challenges/Opportunities

- Organizational history and entrenched attitudes/issues business, arts, social
- Ownership issues with economic development and who is responsible for doing this work

- Money and Human resources (limiting factors for many projects) -
- Potential legislative issues associated with creek wide management
- Empowerment of staff and people to do their jobs – ie City staff enforce building codes don't have to take this to council for approval.
- Snow pack and climate change influences on the flood risk and water quality
- Wildfire suppression and interface risk management
- Public/private land use interface
- Green economy – accessibility - Trails do impact communities and better connecting systems with better systems for folks to look at free doesn't cost anything to participate and has intrinsic value to why people stay and move to here. Nice are of town to move to buying and selling real-estate.
- How accessible and open the system is and how we maintain this.

Reach specific Filter Group Barriers/Obstacles/Challenges/Opportunities

Reach 1- The Mouth of the Creek to the CPR Crossing - *This portion of the creek flows North to the St. Mary's River from the CPR crossing. It meanders through rural properties adjacent to a significant roadway and through St. Eugene Golf Resort and Aq'am Community. Primarily this portion of the Creek contains natural riparian functions and normal edge flow as it enters the mission.*

- Water quality and quantify flood mitigation issues
- Public/private land influences and recreation access
- Tourism and heritage fishing sites
- Recreation trails system
- St. Eugene RV park and education/recreation/tourism promotion
- Destination marketing
- Golf course impacts/environmental issues

Reach 2- From the CPR Crossing to the Sewage Lagoons - *This portion of the Creek flows North along the Western side of the City of Cranbrook sewage lagoons and the eastern side of a golf course and through rural development lands that have been influenced by ranching, farming and forestry to the crossing. Much of this portion of the creek retains natural riparian values and natural meandering of the creek edge.*

- Water quality and quantify flood mitigation issues
- Public/private land influences and recreation access
- Tourism and heritage fishing sites
- Recreation trails system
- Connection to the community forest
- CPR strategy assessment economic values
- Transportation, sewage lagoon etc.... important to function of the community. Economic offset to challenges

Reach 3- From Sewage Lagoons to the Tamarack Mall - *This portion of the Creek flows North and is significantly channelized and with multiple flow alterations. It is primarily bordered by commercial properties from the Mall to the Terra Lee development. This section of the creek crosses the highway at 22nd street North and reverts to a more native riparian with minimal alterations to the creek bed to the lagoons.*

- Water quality and quantify flood mitigation issues
- Public/private land influences and recreation access
- Tourism and heritage fishing sites
- Recreation trails system
- Connection to the community forest
- Sewage lagoons/strategy
- More challenges with commercial owners who back on to the creek. Possible set back issues etc. Mediation solution and conversations with businesses....
- Transportation, sewage lagoon etc.... important to function of the community. Economic offset to challenges

Reach 4- From the Tamarack Mall to Baker Park - *This portion of the Creek flows through the heart of the City of Cranbrook and is bordered by both private and commercial lands. This Creek is significantly impacted by development. Significant portions of the creek have been channelized and with multiple flow alterations. This portion of the Creek is also influenced by both Hospital and Jim Smith Creeks as well as Elizabeth Lake Wetlands.*

- Water quality and quantify flood mitigation issues
- Public/private land influences and recreation access
- Tourism and heritage fishing sites
- Recreation trails system
- Connection to the community forest
- Make improvements to this area, heart of downtown, illegal activities happening within this section. Build initiatives to assist in reducing crime and improving appearance.
- Parking/willow/opportunities strategy to deal with infrastructure/ecology

Reach 5- From Baker Park to Kinsmen Park - *This portion of the creek flows North towards Baker park running through the City of Cranbrook bordered on both sides by private land and Northwest through Kinsmen Park. This reach of the Creek is significantly channeled in the lower portion as it approaches Baker park.*

- Water quality and quantify flood mitigation issues
- Public/private land influences and recreation access
- Tourism and heritage fishing sites
- Recreation trails system
- Connection to the community forest

Reach 6- From Kinsmen Park to Idlewild Reservoir - *This reach flows Northwest to Kinsmen Park through the City of Cranbrook and is bordered on both sides by private lands and includes the Idlewild Lake/park facility. This portion of the Creek has significant elevation change.*

- Dam infrastructure maintenance and risk management
- Water quality and quantify flood mitigation issues
- Public/private land influences and recreation access
- Tourism and heritage fishing sites
- Recreation trails system
- Connection to the community forest

Reach 7- From Idlewild Reservoir to Phillips Reservoir - *This reach includes Phillips Reservoir and flows North to the head of Idlewild reservoir. Private lands are adjacent to the creek with multiple land uses.*

- Philips reservoir infrastructure risk management insurance
- Wildfire suppression/risk management
- Agriculture and crown land tenures
- Public/private land use interface
- Recreation amenities and trail development opportunities
- Water quality and treatment requirements

Reach 8- From Phillips Diversion to Headwaters – *Flowing Northeast from the headwaters South of Cranbrook in the valley between Cranbrook Mountain and Mount Joseph, through a forested partially logged valley. This reach is inclusive of the diversion structures and is influenced by Gold Creek.*

- Agricultural uses of crown land and range impacts to watershed
- Snow pack and climate change influences on the flood risk and water quality
- Wildfire suppression and interface risk management issues
- Water licensing
- Public Access

EDUCATION

SUMMARY FILTER GROUP EDUCATION

Filter Group Description:

The identification of activities that facilitate learning or the collection/dissemination of knowledge, skills, beliefs or habits – that have a formative effect on the way we as humans think feel or act in relation to the creek. This education can occur in either a formal or informal setting, and are inclusive of all ages consisting of both quantitative and qualitative measurable results.

Resource/Reference Material Available: (Existing Documentation)

- New BC Curriculum
- Stream Keepers / Mainstreams
- Blue Lake Water Studies program
- COTR Strategic planning and technicians training
- Place based learning and inquiry learning models

- **Who's Roles/Responsibilities/Authority**
 - SD5
 - COTR
 - Columbia Outdoor School
 - CBEEN
 - Regional EEPISA (BCTF)

- **What Legislative Functions**
 - Curriculum and technical certifications

- **Are there known Data gaps**
 - None Identified

- **How does this filter group impact the Creek wide vision/goals? How does/can this impact Project Vision?**
 - Without Education filter we would not be able to shift community perspectives and interactions with the Creek. It is through education that people begin to interact differently and will understand the multi-dimensional impacts on the system and how we can maintain a healthy functioning system.

- **How does this filter group interact with other filter groups?**
 - This is the glue that connects all of the filter groups together and it holds the greatest promise as much of the opportunities available within each reach are connected to the education function.

Barriers/Obstacles/Challenges/Opportunities

- Collaboration and ability for groups to work together
- Logistical issues/ funding – costs, access and ability of teachers to include education pieces throughout curriculum
- Historic/opinions that contradict the science today
- Shifting perspectives
- New training and hands on experience
- More collaborations among key education organizations and building partnerships
- Life lone learning (multi-generational experiences and values)
- Habitat development requirements

- Habitat enhancement and structures
- History and Culture
- Climate change, water quantity and quality
- Agricultural impacts to creeks and crown land
- Harvesting in watersheds and snow pack relationships
- Aquafer connections and how water flows
- Wildfire suppression/risk management
- Water quality and treatment requirements
- Interactive experiential educations techniques
- Education centre/learning classroom
- Connection to the community forest
- Fishery
- Invasive Species education and outreach
- Social structure/crime education and ownership
- Sewage lagoons/strategy infrastructure demands and uses
- Water quality and pollution mitigation
- Wildlife identification and monitoring, habitat enhancement

Reach Specific Barriers /Obstacles/Challenges/Opportunities.

Education doesn't split into reaches. Education opportunities exist within each reach and creek-wide depending on what initiatives are being focused on.

RECREATION

SUMMARY - RECREATION

Filter Group Description:

The identification of activities of leisure for human enjoyment, amusement or pleasure to foster outlets for expression of essential community social health and wellbeing. Recreation activities are inclusive of activities that are communal or solitary, active or passive, built structures or natural surroundings.

Resource/Reference Material Available: (Existing Documentation)

- Rec master plan
- Idlewild master plan
- ICSP ? ?
- Cycle and trail network plan
- OCP section 14
- Community Forest Master plan
-

Discussion:

- **Who's Roles/Responsibilities/Authority –**
 - City Leisure Services Department,
 - Regional District East Kootenay
 - Provincial Government
 - Federal Government

- **Are there known Data gaps –**
 - Community water recreation usage (swimming holes
 - Community connectivity to the water and creek space
 - Dog interactive zones. swimming holes usage of creek space and vibrancy.
 - Don't need another study but the "value" assessment from a recreation perspective of the Creek is needed.

- How does this filter group impact the Creek wide vision/goals? How does/can this impact Project Vision?
 - Recreation is how we as humans interact and use the creek. From a simplicity point it is the Recreation interests of the tax payers that will help to drive the additional projects and augmentation opportunities to much of the other filters – specifically infrastructure/planning/Ecology.

- How does this filter group interact with other filter groups?
 - Like Education this is part of the connection that people have to the Creek. Much of the Recreation interests can be coupled and used to enhance initiatives throughout the Creek – connecting people to it.

Creek Wide Influences: (please describe in your opinion the Creek Wide Barriers/Obstacles/Challenges to achieving the vision.) Opportunities

- **Barriers/Obstacles/Challenges**
- Connectivity and public access...along the creek,
- Good potential enhancement to existing access space to look at enhancing what is there and folks access to creek...
- Connection trails network.... Linking transportation and accessibility
- Valuation of recreation and the creek resources... "Rec plan "
- Fishing opportunities, experiential tourism, heritage opportunities

Reach specific Filter Group Barriers/Obstacles/Challenges/Opportunities

Reach 1- The Mouth of the Creek to the CPR Crossing - *This portion of the creek flows North to the St. Mary's River from the CPR crossing. It meanders through rural properties adjacent to a significant roadway and through St. Eugene Golf Resort and*

Aq'am Community. Primarily this portion of the Creek contains natural riparian functions and normal edge flow as it enters the mission.

- Golf and fishing
- Trail connecting (st. Eugene and Shadow Mountain)
- Cultural tours and Aq'am
- Historic sites and St. Eugene
- Gambling and food

Reach 2- From the CPR Crossing to the Sewage Lagoons - *This portion of the Creek flows North along the Western side of the City of Cranbrook sewage lagoons and the eastern side of a golf course and through rural development lands that have been influenced by ranching, farming and forestry to the crossing. Much of this portion of the creek retains natural riparian values and natural meandering of the creek edge.*

- Mod bogging
- Community forest
- Trail between the mission and the City
- Bike grand fondo

Reach 3- From Sewage Lagoons to the Tamarack Mall - *This portion of the Creek flows North and is significantly channelized and with multiple flow alterations. It is primarily bordered by commercial properties from the Mall to the Terra Lee development. This section of the creek crosses the highway at 22nd street North and reverts to a more native riparian with minimal alterations to the creek bed to the lagoons.*

- Rotary trail, link behind... spots behind eagle homes wind along creek enhancing trail users, benches shade sit by the creek enhancing trail portion.
- Connections to the Rails to Trails corridor
- Destination marketing accessibility trails
- Green space at the mall / mall Strategy
- Commercial development along Victoria ensure any trails and tradeoffs.

Reach 4- From the Tamarack Mall to Baker Park - *This portion of the Creek flows through the heart of the City of Cranbrook and is bordered by both private and commercial lands. This Creek is significantly impacted by development. Significant portions of the creek have been channelized and with multiple flow alterations. This portion of the Creek is also influenced by both Hospital and Jim Smith Creeks as well as Elizabeth Lake Wetlands.*

- ATC there is park by the Annex... like to do some improvements how? Still looking at this. Some plantings etc... Quite natural space
- WF Place and recreation amenities beside this
- Baker Park used to be pool

- Campsite
- Swimming/wading pool
- Mckinnon park section.... Basketball court and enhancement to that space.
- Benches and trees along there
- Trails network
- Cultural sites/ heritage sites
- RV park barren interface and the swimming pool replacement

Reach 5- From Baker Park to Kinsmen Park - *This portion of the creek flows North towards Baker park running through the City of Cranbrook bordered on both sides by private land and Northwest through Kinsmen Park. This reach of the Creek is significantly channeled in the lower portion as it approaches Baker park.*

- Sports (soccer fields playground sledding skating – swimming?)
- Wetland area
- Trails development
- Dogs
- Swimming
- Kinsmen park use
- Soccer program
- Tennis / pickle ball court recommissioning.
- Dogs
- Enhance nature viewing trails
- Major storm water catchment swimming hole
- Interpretation education piece
- DE manicure some portions to reduce maintenance and operations costs.

Reach 6- From Kinsmen Park to Idlewild Reservoir - *This reach flows Northwest to Kinsmen Park through the City of Cranbrook and is bordered on both sides by private lands and includes the Idlewild Lake/park facility. This portion of the Creek has significant elevation change.*

- Idlewild knowledge
- Private land access issues... just before Kinsmen park
- Fish ladder
- Dog improvements
- Trail development sites and issues
- Heritage sites
- Spray park splash/swimming at reservoir
- Archeological sites
- Fishing
- Birding
- Turtle watching and
- Cultural story, picnic and BBQ areas
- Sports (disc golf playground sledding skating – swimming?)

- Idlewild
- Bridge
- Dogs

Reach 7- From Idlewild Reservoir to Phillips Reservoir - *This reach includes Phillips Reservoir and flows North to the head of Idlewild reservoir. Private lands are adjacent to the creek with multiple land uses.*

- Hiking, similar to how folks use crown land but preference is not to use this..
- this is a party area.... Where folks go to party and gravel pits etc.
- off leash dogs/interface with agriculture
- Private property practicality it is just better to not promote or enhance any recreation. Crossing horses, atv, hikers from gold creek into novak area corridor.

Reach 8- From Phillips Diversion to Headwaters – *Flowing Northeast from the headwaters South of Cranbrook in the valley between Cranbrook Mountain and Mount Joseph, through a forested partially logged valley. This reach is inclusive of the diversion structures and is influenced by Gold Creek.*

- Hiking, similar to how folks use crown land but preference is not to use this.
- this is a party area.... Where folks go to party and gravel pits etc.
- off leash dogs/interface with agriculture

INFRASTRUCTURE/PLANNING

(work is on-going for this filter group)

SUMMARY – INFRASTRUCTURE/PLANNING

Filter Group Description: Infrastructure / Planning

Human required physical structure for the functionality of the built environment inclusive of storm water management, flood controls, bridges, culverts and residential and commercial developments.

Resource/Reference Material Available: (Existing Documentation)

- City of Cranbrook 5-year plan
- Flood Management Plan
- ICSP
- OCP
- **Who's Roles/Responsibilities/Authority –**
- **Are there known Data gaps –**

- **How does this filter group impact the Creek wide vision/goals? How does/can this impact Project Vision?**
- **How does this filter group interact with other filter groups?**

- **Creek-wide Barriers/Obstacles/Challenges/Opportunities**

Reach specific Filter Group Barriers/Obstacles/Challenges/Opportunities

Reach 1- The Mouth of the Creek to the CPR Crossing - *This portion of the creek flows North to the St. Mary's River from the CPR crossing. It meanders through rural properties adjacent to a significant roadway and through St. Eugene Golf Resort and Aq'am Community. Primarily this portion of the Creek contains natural riparian functions and normal edge flow as it enters the mission.*

Reach 2- From the CPR Crossing to the Sewage Lagoons - *This portion of the Creek flows North along the Western side of the City of Cranbrook sewage lagoons and the eastern side of a golf course and through rural development lands that have been influenced by ranching, farming and forestry to the crossing. Much of this portion of the creek retains natural riparian values and natural meandering of the creek edge.*

Reach 3- From Sewage Lagoons to the Tamarack Mall - *This portion of the Creek flows North and is significantly channelized and with multiple flow alterations. It is primarily bordered by commercial properties from the Mall to the Terra Lee development. This section of the creek crosses the highway at 22nd street North and reverts to a more native riparian with minimal alterations to the creek bed to the lagoons.*

Reach 4- From the Tamarack Mall to Baker Park - *This portion of the Creek flows through the heart of the City of Cranbrook and is bordered by both private and commercial lands. This Creek is significantly impacted by development. Significant portions of the creek have been channelized and with multiple flow alterations. This portion of the Creek is also influenced by both Hospital and Jim Smith Creeks as well as Elizabeth Lake Wetlands.*

Reach 5- From Baker Park to Kinsmen Park - *This portion of the creek flows North towards Baker park running through the City of Cranbrook bordered on both sides by private land and Northwest through Kinsmen Park. This reach of the Creek is significantly channeled in the lower portion as it approaches Baker park.*

Reach 6- From Kinsmen Park to Idlewild Reservoir - *This reach flows Northwest to Kinsmen Park through the City of Cranbrook and is bordered on both sides by private lands and includes the Idlewild Lake/park facility. This portion of the Creek has significant elevation change.*

Reach 7- From Idlewild Reservoir to Phillips Reservoir - *This reach includes Phillips Reservoir and flows North to the head of Idlewild reservoir. Private lands are adjacent to the creek with multiple land uses.*

Reach 8- From Phillips Diversion to Headwaters – *Flowing Northeast from the headwaters South of Cranbrook in the valley between Cranbrook Mountain and Mount Joseph, through a forested partially logged valley. This reach is inclusive of the diversion structures and is influenced by Gold Creek.*

Appendix E – Filter Matrix

This Appendix is currently under development

Appendix F – Information/Data Gap Preliminary Summary

Filter Groups	Data Gaps	Influences to other Filters
Heritage	<ul style="list-style-type: none"> • Some gaps in information outside of City boundaries. Dependant on newspaper information. • Gaps in Ktunaxa/Aq'am cultural knowledge 	Education
Economic	<ul style="list-style-type: none"> • Gaps in to properly assessing the economic values/functions • Gaps in knowledge as to why people relocate here. 	Infrastructure Planning Ecological Heritage Education Rereation
Ecological	<ul style="list-style-type: none"> • Need to ground truth previous studies findings to determine if still accurate. • Need to develop appropriate species/habitat prescriptions • Need to identify species/monitor systems • Optimal Flow strategy for Creek • Identification/analysis of Water Quality • Source of native plant materials/species 	Recreation Economic Education
Recreation	<ul style="list-style-type: none"> • Community water recreation usage • Community connectivity to the water and creek space. the “value” assessment from a recreation perspective of the Creek is needed • Dog interactive zones. 	Economic Education Ecological
Education	None at present	Recreation Economic Development
Infrastructure Planning	Still Developing	Recreation Economic Development Ecological

HISTORIC/CULTURAL

- **Are there known Data gaps –**
 - opening of Idlewild... missing that part of the story, newspapers are written on the time, gaps that were not necessarily reported by paper.
 - Oral Ktunaxa Nation history
 - Cultural points of interest and Ktunaxa Language associated with Creek/Names
 - CPR history
 - Creek/City boundaries and changes overtime

ECOLOGICAL

- **Are there known Data gaps**
 - Need to ground truth Fish Barriers from previous studies
 - Need to develop appropriate species/habitat prescriptions
 - Need to identify species/monitor systems
 - Optimal Flow strategy for Creek
 - Identification/analysis of Water Quality causes ie: sedimentation, pollutants and dissolved oxygen in the Creek
 - Source of native plant materials/species
 - Prescription for native plantings

ECONOMIC DEVELOPMENT

- **Are there known Data gaps**
 - Perhaps the data exists but has not been compiled properly to allow for effective analysis. Need to determine tools for analysis and benchmarks.
 - How can this information be used to entice folks to stay in our community – new resident attractions –
 - Interviews with young professionals regarding what was important for them comping, what is here? How important is the environment to creating lifestyle that folks want to relocate to here? – build business here?
 - Don't have definitive analysis as to why folks would move here or stay here

EDUCATION

- **Are there known Data gaps**
 - None Identified

RECREATION

- **Are there known Data gaps –**
 - Community water recreation usage (swimming holes)
 - Community connectivity to the water and creek space
 - Dog interactive zones. swimming holes usage of creek space and vibrancy.
 - Don't need another study but the "value" assessment from a recreation perspective of the Creek is needed.

INFRASTRUCTURE/PLANNING

(work is on-going for this filter group)

- **Are there known Data gaps –**
 - Legal ownerships and responsibilities Public/Private Land
 - Stormwater analysis (watershed review)
 - Innovation in storm water/sediment technology
 - Planning/building code checklist for works in and around the creek
 -

Appendix G – Draft Master Joseph Creek Framework Project List

Reach	Project Title
Creek-Wide	Film Documentary - Aerial and photography of existing creek
Reach 5	St. Mary's Wetland Drainage Storm-water Catchment
Reach 8	Philips Reservoir Diversion Planting
Creek-Wide	Recreation Requirements by Reach - Creek Values/uses
Reach 6	Flume reconstruction and Historical Interpretation
Reach 6	Children's Splash/Interpretive Stream - Idlewild
Creek-Wide	Fish Barrier Removal
Creek-Wide	Invasive Fish Species Removal Project
Creek-Wide	Water Monitoring Program
Creek-Wide	Data Monitoring Program
Reach 6	Fish Ladder
Reach 1	Economic Development/marketing at St. Eugene
Reach 1	Education programs at St. Eugene and the new RV Park
Creek-Wide	economic values of recreation/fishing
Creek-Wide	Culvert Infrastructure Assessment
Reach 3	Sewage Lagoons
Reach 1-3	Trail between Visitor Centre and St. Eugene
Creek-Wide	Large Woody Debris/in channel restoration work
Creek-Wide	Public Private land use

Creek-Wide	Invasive plants/ yellow willow replacement
Creek-Wide	pollution and encroachment of Private land into Riparian
Reach 4	Pedestrian Access across the Creek
Creek-Wide	Channelization issues / rehabitat the creek
Creek-Wide	social/crime issues
Creek-Wide	access by schools to learning themed sites
Creek-Wide	stormwater Education sites and analysis
Creek-Wide	education on pollutants and community runoff (minerals/etc,..) - business/City/Environ/community
Creek-Wide	Dissolved Oxygen issues and attempts to improve
Reach 5	Water fall at Baker park (Fish Barrier)
Reach 5	Community fishing Pond/pool wetland at Baker park
Creek-Wide	Optimal Flow strategy
Creek-Wide	overbank flooding/wetland development/stormwater control
Reaches 6-8 and Reaches 1-3	Fencing and off channel watering for cattle
Reaches 6-8	working with upper reach water users to promote water retention to enable optimal Flow Strategy - water licensing
Creek-Wide	landowner programming restoration improvements
Creek-Wide	water licensing landowner use and analysis
Creek-Wide	Trail network development linking all the community trails together
Creek-Wide	historic site map and walking tour/tourism link bar code

Creek-Wide	signage/brand for information outreach
Creek-Wide	website development for information/social media
Creek-Wide	Community Fund through the Community Foundation for enhancement and ongoing works for the Creek
Reach 6	linkage between Idlewild and Community Forest
Creek-Wide	Asses where the tributaries enter the Creek (insertion points) Confluence. Conflux
Creek-Wide	Assess the water flow and impacts to each tributary Water Quality, Quantity and Flow....
Reach 4	Tamarack Mall Strategy Creek
Creek-Wide	destination marketing packaging and community education pieces
Creek-Wide	junior forest ranger/aqam training
Creek-Wide	college technician training
Creek-Wide	Lab - water technician programs
Creek-Wide	teacher training hands on skills
Reach 6	Idlewild Education Centre
Creek-Wide	IPP / micro hydro
Creek-Wide	Capitalize on new curriculum at all levels with education functions
Creek-Wide	field school functions and partnerships with Wetland
Creek-Wide	linkages between high schools colleges etc with mentorships with the COTR

Appendix H – 2017 Identified Project Work Plan Draft

Joseph Creek Worklist by Project

Fish Habitat Structure:

- Connect with fish groups
- Connect with Kelly Laatch
- Find rock, stumps, cable, epoxy
- Crane and trucking
- Installation crew
- Kids groups?
- Presentation to Shaw
- Web cam installation

Idlewild Planting:

- Plant order
- Meet with Top Crop
- Meet with Interior Reforestation
- Small CBT grant submitted
- Soil and machine needs
- Set planting and events schedule
- Find volunteers/equipment
- Coordinate with school district
- Site layout plan
- Lower lake level
- Boat for planting shorelines and fingers
- Signage

Funding:

- HCTF
- CBFWCP
- CBT – Large
- Evergreen
- Green Infrastructure

NWCF Grant:

- Negotiate Contract
- Review application for components
- Develop monitoring plan
- Develop wetland prescriptions
- Find equipment, material needs
- Permitting?
- Riparian planting
- Bat houses
- Turtle sunning logs

- Turtle habitat
- Implement baseline collection
- Meet with MSE
- Develop plan for islands
- Connect with COTR and/or Mt Baker on Island installation
- Plants for island?
- Signage
- Education plan development
- Listed species habitat enhancement

Communications Plan:

- Meet with Chris Zettle
- Facebook
- Website
- Coordination with city
- Presentations
- Fundraising plan

Willow/Invasive outreach plan:

- ??

Legal Ownership/Authority Plan:

- ??

Water Protocol:

- Finalize wording
- Discuss final with partners

Consortium:

- Present framework to City
- Send Framework out to partners

Misc:

- Rob Gay meeting and RDEK Presentation?
- Bonnie Harvey follow up