

Elk River Watershed Qukin ʔamakʔis Collaborative Monitoring Program

Second Year | 2022 Progress Report

July 14th, 2023



Highlights of the Year

As the Program Coordinator, I am happy to report that the Program is now fully up and running, with these highlights in 2022:

- Established the Steering Committee with ten participating organizations who approved the Terms of Reference.
- Established the Monitoring Working Group with twenty participating organizations.
- Established the Program's early years priority monitoring themes: Theme 1 Climate change driven flooding & drought, Theme 2 Fish habitat, and Theme 3 Ktunaxa land and water uses.
- Enabled three organizations to step up as Implementation Partners, with Elk River Alliance (ERA) and Living Lakes Canada (LLC) preparing to share the leadership of the monitoring programs for Themes 1 and 2 and Yaqit ʔa·knuq̓i'it (YQT) preparing to lead the monitoring program for Theme 3.
- Secured \$ 427,580 for the Program through financial contributions from the Elk River Alliance (\$ 176,400), Teck Coal Limited (\$ 165,000), Living Lakes Canada (\$ 48,680) and the Canadian Wildlife Federation (\$ 37,500).

Yours truly,



Anne-Caroline Kroeger
Program Coordinator
Elk River Alliance
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Welcome

The Elk River Watershed Monitoring Collaborative was launched on July 29, 2021, to combine data, knowledge, and resources of diverse groups for the mutual goal of understanding and “feeling the pulse” of the Elk River.

Nine organizations “signed on” to the Program and have committed to work collaboratively in good faith and with a good heart, making the following land recognition:

We, the Partners, recognize that our work takes place on the traditional land and waters of Yaqit Pa·knuqti 'it - ?akanuxunik ?amak?is - and more specifically, within Qukin ?amak?is - Land of the raven in Ktunaxa language.

CANADIAN WILDLIFE
FEDERATION



FÉDÉRATION
CANADIENNE DE LA FAUNE



Yaqit Pa·knuqti'it



Ministry of
Environment and
Climate Change Strategy



Teck

Steering Committee

The Steering Committee was established on October 20, 2022, with the participation of 14 individuals coming from ten participating organizations, endorsing this governance body to serve as the Program's highest-level decision-making body, directing and overseeing the following bodies:

- Monitoring Working Group
- Program Coordinator
- Implementation Partners

It endorsed the following:

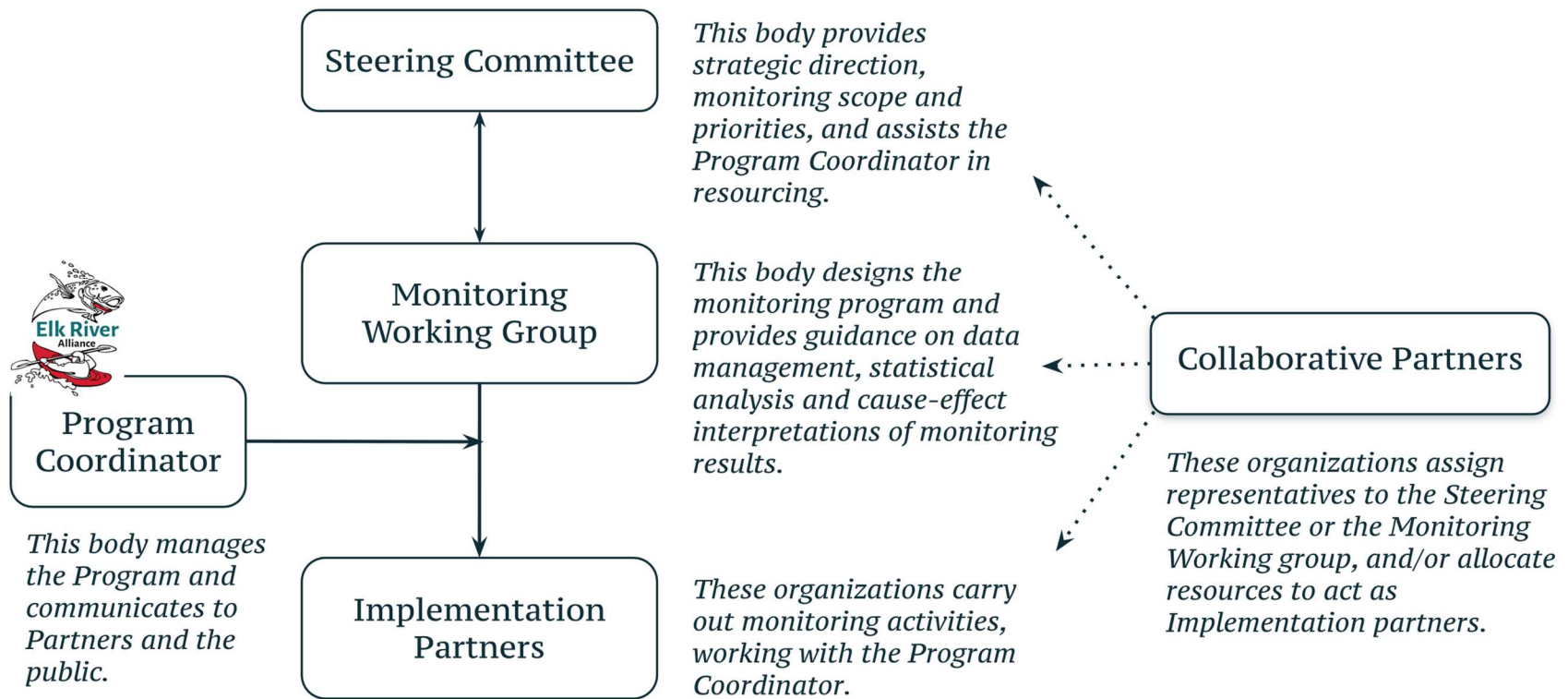
- Steering Committee Terms of Reference
- Program's Charter
- Program's Adaptive Monitoring Framework
- Program's early years priority monitoring themes

As per its Terms of reference, it serves to ensure that its decisions balance the full range of watershed interests without one interest unduly influencing the decision-making process:

- Invitations to join the Steering Committee go out to targeted organizations for the full range of watershed interests to be represented on the Steering Committee.
- Organizations put forward one individual to speak with the authority of their organization and serve for two years.
- Steering Committee members choose one individual from among themselves to serve as Chair to ensure all have an equal voice and weight in forming decisions.
- The Steering Committee meets twice yearly to evaluate, improve, endorse, or reject proposals on high-level strategic issues.

Partners will continue to work in 2023 to fill the eight vacant seats on the Steering Committee, with six seats currently served.

Organizational Chart



Composition of the Steering Committee

Provincial Government	Municipalities and Districts	First Nations Government	Resource industry	Recreational Groups	eNGOs	Observer
ENV (Patrick Williston)	City of Fernie (tbd)	Yaqit ʔa·knuq̓i'it (tbd)	Teck Coal (Matthew Gay)	Rod & Gun Club (tbd)	Elk River Alliance (George Greene)	Ian Sharpe
LWRS (Samantha Mertens)	District of Sparwood / or District of Elkford (tbd)	(tbd)	Forestry or energy industry (tbd)	Angling Outfitters (tbd)	Living Lakes Canada (Kat Hartwig)	
					Canadian Wildlife Federation (Nick Lapointe)	

Position to be assigned

Monitoring Working Group

The Monitoring Working Group provides technical direction to the Program's design and implementation, with twenty organizations allocating staff time.

Four meetings were held over the course of this past year:

- May 30, 2022 (9 participants)
- September 23, 2022 (6 participants)
- January 19, 2023 (21 participants)
- April 3rd, 2023 (22 participants)

It delivered the following:

- Program's adaptive monitoring framework to ensure the monitoring design evolves iteratively as new information emerges.
- Program's early years' priority monitoring themes, based on community outreach in the Program's inaugural year (2021).
- Monitoring questions for each theme.
- Work plan to assess publicly accessible online data on Themes 1 and 2 from existing monitoring programs to start answering monitoring questions.
- First foundational pieces of the monitoring program design for Themes 1 and 2, including stream response indicators, land use and climate stress indicators, and spatial boundaries.

The following deliverables are planned for the end of 2025:

- Overview of publicly accessible online data for Themes 1 and 2.
- Full monitoring program designs for Themes 1 and 2, with data quality objectives to ensure monitoring questions are addressed with sufficient confidence.
- Scope of additional monitoring work for Themes 1, 2, and 3, including cost estimates.

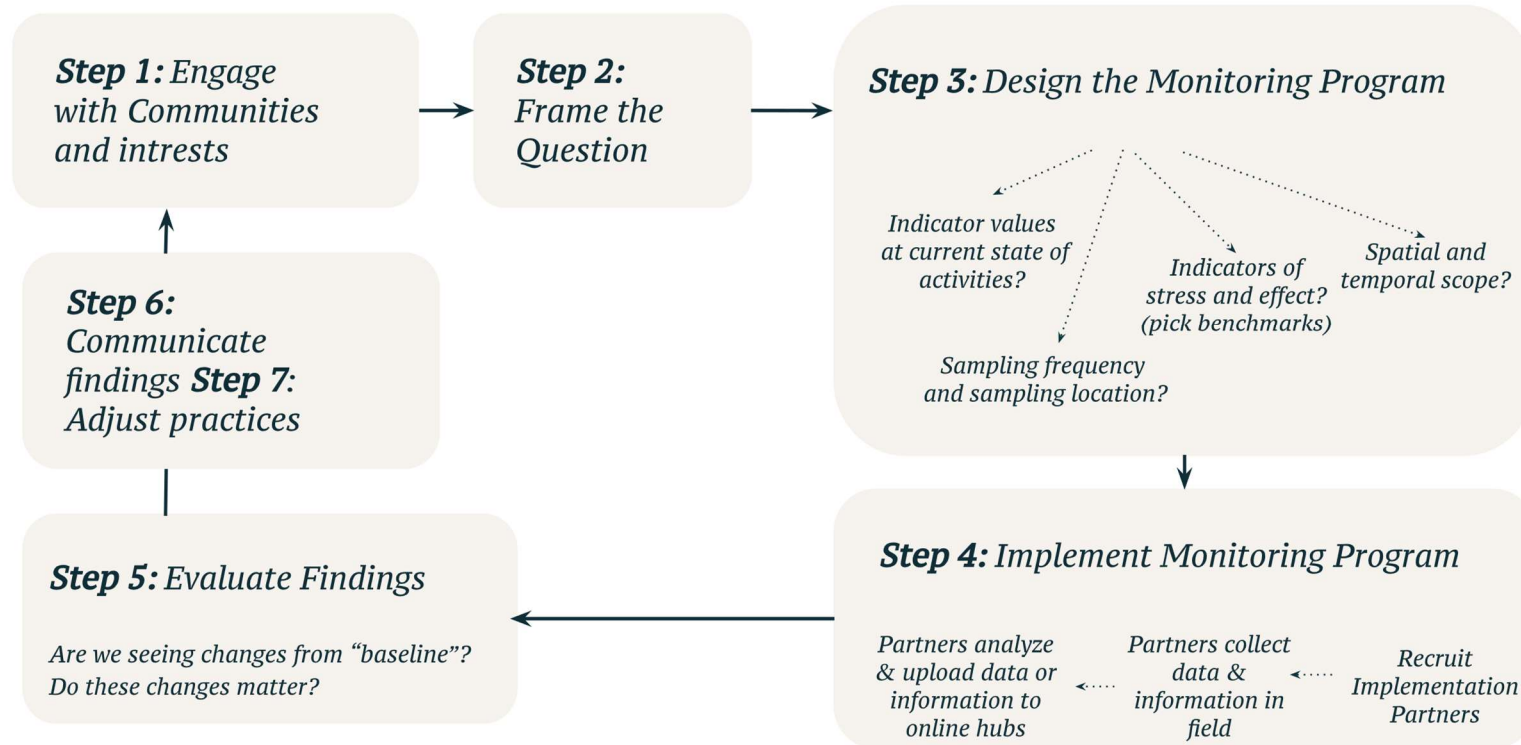
Composition of the Monitoring Working Group

Provincial Government	Municipalities and Districts	First Nations Government	Resource industry	eNGOs	Recreational Groups	Experts
ENV (Margot Webster)	City of Fernie (Joanna Line)	Yaqit ʔa-knuq̓i'it (Jason Gravelle)	Teck Coal (Cait Good)	Elk River Alliance (Stella Swanson)	Kootenay Fly Shop (Josh McSkimming)	Jon Bisset & co. (Jon Bisset)
LWRS (Samantha Mertens)	Elkford (Jesse Huisman)	Ktunaxa Nation Council (Kamila Baranowska)	Forest industry (tbd)	Living Lakes Canada (Paige Thurston)		University of Calgary (Kelly Munkittrick)
FOR (Chris Williams)	Sparwood (Andre LeBlanc)			Canadian Wildlife Federation (Nick Lapointe)		MacHydro (Ryan MacDonald)
	RDEK (Kara Zandbergen)			CLEAR (Karen Bergman)		University of Lethbridge (Stewart Rood)
						University of Waterloo (Bill Annable)



Position to be assigned

Adaptive Monitoring Framework



Early Years Priorities

Theme 1: Climate change-driven flooding & drought

Elk River Alliance and Living Lakes Canada to lead this monitoring program.

Provide information to increase our understanding of time trends and spatial patterns of extreme flows to support effective planning, mitigation, and management decisions—indicators: water flow, water turbidity, and water temperature.

Theme 2: Fish habitat

Elk River Alliance and Living Lakes Canada to lead this monitoring program.

Provide fish habitat quality/quantity information to understand and help safeguard fish habitat throughout the watershed - indicators: water flow, water temperature, water column turbidity, water chemistry, and benthic invertebrates (CABIN method).

Theme 3: Ktunaxa land and water use

Yaqit ?a-knuqhi'it to lead this monitoring program and govern the monitoring results coming out of it.

Provide information to support the recognition, protection, and restoration of Ktunaxa land and water uses in Qukin ?amak?is.

Indicators: traditional Ktunaxa land and water uses and current Ktunaxa land and water use.

Implementation

In March 2023, the Chair of the Steering Committee asked Partners which roles and responsibilities they would want to take on to help answer the Program's early years monitoring questions:

- Step up as 'Implementation partners' to carry out monitoring activities in Qukin ?amak?is, either through new monitoring activities or through the expansion/upgrade of existing monitoring activities.
- Provide support as 'Contributing partners, Knowledge holders, and experts', sharing data and knowledge from existing monitoring programs and allocating staff time, as appropriate, to the Monitoring Working Group.

Three organizations stepped up as Implementation Partners:

- Elk River Alliance and Living Lakes Canada are prepared to lead the monitoring programs for Themes 1 and 2.
- Yaqit ?a·knuqti'it is prepared to lead the monitoring program for Theme 3.

In 2022, the Elk River Alliance and Living Lakes Canada installed two hydrometric stations to log water level and temperature measurements at 15-minute intervals. These two hydrometric stations were established along with site elevation benchmarks at Lizard Creek on July 27, 2022 (with the assistance of MacHydro) and Forsyth Creek on August 10, 2022.

After establishing these two hydrometric stations, ERA began collecting manual water-level measurements in 2022 using elevation benchmarks, survey equipment and corresponding in-stream discharge measurements during wadable conditions (low to moderate flow) using the mid-section method and the SonTek FlowTracker 2.

ERA, LLC and MacHydro staff and volunteers received training on June 6, 2022, from the BC Ministry of Environment and Climate Change Strategy Hydrometric Supervisor Jonathon Jeffery on hydrometric monitoring methods

and the BC RISC standards to ensure consistency of the community-based hydrometric monitoring programs throughout the province.

ERA will upload the hydrometric program data to Living Lakes Canada's Columbia Basin Water Hub (the Water Hub).

In 2023, implementation work on Themes 1 and 2 will involve:

- Establishing stage-discharge rating curves for hydrometric stations, with the support of MacHydro, and then uploading discharge data to the Water Hub.
- Installing two additional hydrometric stations – one at Alexander Creek and one at Morrissey Creek – and working collaboratively with the City of Fernie to expand their Smart Sensor water level logging station on Coal Creek into a full hydrometric station.
- Creating standard operating procedures for this hydrometric program.
- Finding solutions to assist hydrometric monitoring in high-flow (non-wadable) conditions.



Photos 1 and 2:

Jonathon Jeffery (Hydrometric Supervisor, MOECCS) trained 14 staff (ERA, LLC, MacHydro) and volunteer citizen scientists in hydrometric data collection methodology on June 6, 2022, on the Elk River in Fernie, BC.



Photos 3 and 4:

Ryan MacDonald (Senior Hydrologist, MacHydro), Jillian Hallborg (Controller, MacHydro), Kaileigh McCallum (Ecologist & Hydrometric Program Manager, Elk River Alliance), Chad Hughes (Executive Director, Elk River Alliance) and Josh Dube (Summer Student, Elk River Alliance) working together to install a hydrometric station at the mouth of Lizard Creek on July 27, 2022.



Photo 5:

Chad Hughes (Executive Director, Elk River Alliance) and volunteer Nicolas Francoeur-Leblond (Senior Water Quality Engineer, Teck Coal Limited), installing ERA's second hydrometric station, in August 2022 at Forsyth Creek.

Community Outreach

Large-scale community outreach happened at the 2nd Annual Forum on December 8-9, 2022, with the following activities:

- **Public talk** entitled “Elk Valley Land and Water” on December 8th, 2022, from 7-8 pm, at the Fernie Arts Stations. Evgeni Matveev, Communication & Outreach Coordinator for the Elk River Alliance, presented on forestry, coal mining and linear development impacts on Elk Valley waterways. 80 individuals attended in person, and 122 views are counted on ERA’s YouTube channel ([here](#)) for the video film.
- **Partner’s Meeting** on December 9th, 2022, from 9 – 12 am, at the Kootenay Learning Campus, in Fernie. 14 individuals attended in person, and 19 individuals attended online.

In 2023, the following deliverables are planned:

- Program’s website to be launched in June 2023.
- Program’s communications protocol to be established with Partners to decide on the rules for inward ‘partner-to-partner’ and outward ‘partner-to-public’ communications.
- 3rd Annual Forum in December 2023

ELK VALLEY

LAND & WATER



**What is the extent of forestry in the Elk Valley?
What are the selenium levels in the water?
How do urban centers impact our water quality?**



FREE PUBLIC LECTURE

Join us for a presentation and discussion session on how humans impact Elk Valley waterways. The Elk River has received national and international attention for our land-use impacts, and as citizens of this land it is vital to stay informed. During this presentation you will learn facts on diverse land-uses and how the Elk River Watershed Monitoring Collaborative plans to bring organizations together to make sure we understand the state of our watershed.



Presenter: EVGENI MATVEEV

*Communication & Outreach Coordinator,
Elk River Alliance*



**THUR, DEC 8
7-8 PM
FERNIE ARTS STATION**



Elk River Watershed
Monitoring Collaborative

PROGRAM PARTNERS



Ministry of
Environment and
Climate Change Strategy



Partners' Meeting

Friday, December 9, 2022, from 9 - noon

Kootenay Learning Center: Ghost rider Room or online participation

Restricted to Partners - planning for 6-12 in-person and 6-12 online participants.

Part 1 | 5 Opening & welcome [10 mins] [9:00 to 9:10 MT]

Part 2 | 5 Update on initiative [30 mins] [9:10 to 9:40 MT] [G. Greene, AC Kroeger]

Partners introduce themselves and explain why they care about monitoring. Looking back over these past 12 months: What decisions have we taken? What actions have we taken? What results did we obtain? What have we learned from our efforts so far?

Program progress [10 mins] [9:10 to 9:20 MT] [A Kroeger] including organizational chart and Partners logos.

Data sharing [10 mins] [9:20 to 9:30 MT] [M. Finkle-Aucoin & Jeremy Krogh] Water Hub vs EnMods quick tour and goal to develop interoperability between these two databases.

Monitoring program [10 mins] [9:30 to 9:40 MT] [K. McCallum] Presentation of the existing monitoring programs and partners' contributions to existing monitoring efforts in the Elk Valley - in terms of water temperature, water flow and CABIN (benthic invertebrate) monitoring

Breakfast & Coffee Break [60 mins] [9:40 to 10:00 MT]

Part 3 | 5 Monitoring design working session [1.5 hours] [10:00 to 11:30 MT] [Stella Swanson]

Review and develop monitoring designs for three monitoring themes using Steps 1, 2, and 3 of the Adaptive Monitoring Framework

Theme 1: Climate change-driven flood and drought

Theme 2: Fish habitat

Theme 3: Ktunaxa land uses

Part 4 | 5 Communications working session [10 mins] [11:30 to 11:40 MT] [Evgeni Matveev]

What frequency and channels of communication do we want for our collaborative monitoring efforts and monitoring results?

Part 5 | 5 Twelve-month work planning and fundraising [20 mins] [11:40 to 12:00 MT] [George Greene]

Looking forward to the next 12 months:

What is our draft work plan for the next 12 months?

What are everyone's responsibilities in terms of fundraising?

What expectations do we have regarding success in terms of this initiative?

Financial Resources

Partners contributed **\$427,580** to the Program, including:

- \$176,400 from the Elk River Alliance
- \$48,680 from Living Lakes Canada
- \$37,500 from the Canadian Wildlife Federation
- \$165,000 from Teck Coal Limited

The Program's expenses in the years 2021 and 2022 summed up to \$230,600. With contributions of \$277,580 from Partners, \$46,980 of the surplus was achieved and carried over as deferred revenue for 2023.

The projected 2023, 2024 and 2025 expenses are estimated at \$1,443,000. With \$150,000 of contributions from Partners and \$46,980 of revenue carried over, the funding gap is projected to be \$1,246,020.

To help close this funding gap, the Program Coordinator will:

- Engage partners in joint fundraising activities by developing a coordinated fundraising plan
- Develop direct financial donation agreements with participating organizations (partners) and funding organizations (non-partners)
- Develop in-kind support agreements with participating organizations (partners) and funding organizations (non-partners) for allocating human resources and monitoring equipment to the Program

Table 1: Finances in 2021 and 2022

Program year	Program coordination	Theme 1: Flood & drought	Theme 2: Fish habitat	Theme 3: Ktunaxa land and water
2021 (year 1)	\$ 55,000 - Teck	\$ 16,600 - ERA	\$ 30,000 - ERA	-
2022 (year 2)	\$ 55,000 - Teck \$ 6,880 - LLC	\$ 20,400 - ERA \$ 11,800 - LLC \$ 37,500 - CWF	\$ 44,400 - ERA	-
Income	\$ 116,880	\$ 86,300	\$ 74,400	\$ 0 <u>\$ 277,580</u>
2021 (year 1)	\$ 25,000	\$ 16,600	\$ 30,000	-
2022 (year 2)	\$ 59,000	\$ 61,000	\$ 39,000	-
Expenses	\$ 84,000	\$ 77,600	\$ 69,000	\$ 0 <u>\$ 230,600</u>
Carry-over	+ \$ 32,880	+ \$ 8,700	+ \$ 5,400	+ \$ 0 <u>+ \$ 46,980</u>

Table 2: Projected Finances for 2023, 2024, and 2025

Program year	Program coordination	Theme 1: Flood & drought	Theme 2: Fish habitat	Theme 3: Ktunaxa land and water
2023 (year 3)	\$ 55,000 - Teck \$ 32,880 deferred	\$ 45,000 - ERA \$ 30,000 - LLC \$ 8,700 deferred	\$ 20,000 - ERA \$ 5,400 deferred	-
2024 (year 4)	-	-	-	-
2025 (year 5)	-	-	-	-
Income	\$ 87,880	\$ 83,700	\$ 25,400	\$ 0 <u>\$ 196,980</u>
2023 (year 3)	\$ 88,000	\$ 107,000	\$ 44,000	\$ 50,000
2024 (year 4)	\$ 145,000	\$ 232,000	\$ 100,000	\$ 100,000
2025 (year 5)	\$ 145,000	\$ 232,000	\$ 100,000	\$ 100,000
Expenses	\$ 378,000	\$ 571,000	\$ 244,000	\$ 250,000 <u>\$ 1,443,000</u>
Shortfall	(\$ 290,120)	(\$ 487,300)	(\$ 218,600)	(\$ 250,000) <u>(\$ 1,246,020)</u>