

Lake Fork River Improvement Project: Phase II

**Final Report
March 31, 2019**



Prepared by:

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Submitted to:

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Executive Summary

The Lake Fork Valley Conservancy completed river improvements along approximately 3000 linear feet of the Lake Fork of the Gunnison, at the north end of the Town of Lake City. This is Phase II of a three phase project to improve the river through Town.

The overall goal of the Lake Fork River Enhancement Project is to improve the ecological health and recreational quality of Henson Creek and the Lake Fork River in the vicinity of Lake City.

Specific objectives are the following:

- 1) Increase fisheries habitat quality resulting in a 50% increase in brown and rainbow trout biomass;
- 2) Improve the hydraulics of the river to maintain existing or even reduce base flood elevation and facilitate effective bed load movement;
- 3) Improve bank stability to protect private and public assets along the river;
- 4) Provide quality recreational experiences along the river via increased public access, improved fishing and boating opportunities, and safer access to the river.

The project involved construction of several instream structures along the Lake Fork, primarily focusing on the Lake Fork River below 8 ½ Street Bridge. Additional work was completed just upstream of the 5th Street Pedestrian Bridge. In addition to river channel construction, we completed live transplanting of willows and cottonwoods during the channel construction process in fall of 2016 and planted 150 pole cuttings of willows and cottonwoods in the spring of 2017. These transplants thrived in summer of 2017 but suffered during the drought of 2018. We anticipate summer of 2019 to be much more amenable to transplant growth and recruitment due to high runoff and higher than normal projected precipitation.

Ten interpretive trail plaques were installed along the improved sections of Henson and the Lake Fork and are being used for environmental education with local youth. We added an extension trail on the Memorial Park terrace along with additional recreational infrastructure installed by the Town of Lake City.

LFVC purchased all of Block 4 and two lots in Block 13 in the Town of Lake City (approximately 2 acres), below the 8 ½ Street Bridge. This will be managed as an open space river park and kept in a natural condition with limited recreational infrastructure.

Final project cost was \$509,185.58, of which the WSRF grant covered \$232,944.70. This has been matched with \$276,240.88, from both cash and in-kind sources (54%).

INTRODUCTION AND BACKGROUND

Over the past century, the Lake Fork of the Gunnison and Henson Creek in Lake City, CO, have been significantly modified by channelization, heavy metals, and failure of upstream tailings dams. The Lake Fork Valley Conservancy (LFVC) began a planning process in 2009 to restore over 7,500 linear feet of river through Town. LFVC, in partnership with the Town of Lake City, completed Phase I improvements on lower Henson Creek and at the confluence with the Lake Fork in October 2014. This work covered 3,300 linear feet of river with a combined investment of over \$500,000.

Phase II of the River Project covers approximately 3,000 linear feet of the Lake Fork from the 5th Street pedestrian bridge downstream to past the sewage treatment facility north of Lake City (Figure 1). In the early 1980's, temporary berms were constructed at the north end of town to divert flood waters from the highway so that the Colorado Department of Transportation could engineer the slope beneath to withstand high flows, completed in the 1990's. High flows from 2011 to 2015 eroded much of the berm on the northwest side of the river, threatening private property and creating a highly unstable and braided channel (Figures 2-3). This area has great potential for restoration through the removal of the berms, realignment of the channel, and reestablishment of riparian forest and wetland vegetation, as visualized in Figure 4. Major project components include in-channel improvements and revegetation, installation of an interpretive river trail system with public/private signage, and acquisition of properties and easements to create an open space river park. River channel improvements and revegetation will enhance aquatic and riparian habitats, stabilize banks, improve hydraulics, and improve recreational experiences for anglers and boaters. The interpretive river trail system will help to increase knowledge and appreciation of the river's rich cultural and natural history and reduce trespass. Acquisition of properties for an open space river park will help preserve key riparian communities that are considered relatively rare, protect an important floodway through Town, and increase the amount of river available to the public.

OBJECTIVES

The overall goal of the Lake Fork River Enhancement Project is to improve the ecological health and recreational quality of Henson Creek and the Lake Fork River in the vicinity of Lake City.

Specific objectives are the following:

- 5) Increase fisheries habitat quality resulting in a 50% increase in brown and rainbow trout biomass;
- 6) Improve the hydraulics of the river to maintain existing or even reduce base flood elevation and facilitate effective bed load movement;
- 7) Improve bank stability to protect private and public assets along the river;
- 8) Provide quality recreational experiences along the river via increased public access, improved fishing and boating opportunities, and safer access to the river.

PROJECT TASKS

TASK 1 – Project Design and Permitting

Description of Task and Outcomes

A 60% engineered design plan for river channel construction has been completed for Phase II of the river project, which includes an additional 2,500 linear feet of river not constructed as part of this funding (future Phase III of the project, currently partially funded). This was completed by our design engineer, Brett Jordan from HydroGeo Designs (HGD), out of Buena Vista, CO. Design details, construction drawings and construction were combined into a design-build program for Phase II with our contractor, WEBCO, Inc. HydroGeo Designs sub-contracted with WEBCO to form a highly effective Design Build team, who successfully completed Phase I for the LFVC. Detailed design drawings (Appendix A) and final report were submitted to CWCB along with all data, under Watershed Restoration Program Grant Order #POGG1 PDAA 20150000000000000290.

Hinsdale County Floodplain and US Army Corps of Engineers permit applications were approved in September 2016, prior to construction work. Permit approvals are contained in Appendix B. We were delayed in getting approvals due to added requirement by the Grand Junction USACE office to complete wetland delineation and cultural surveys. These reports can be found in Appendix C and D.

Status of Deliverables Timeline

Deliverables	Proposed Timeframe	Completed By:
Completion of 60% engineered design	Sept 2015 – February 2016	Design Drawings Oct 2015; Report April 2016
Flood plain, USACE permits	February – April 2016	Final approvals Sept 2016

TASK 2 - In-Channel Construction

Description of Task and Outcomes

All in-channel construction has been completed under this funding cycle. Construction work was done from the 5th Street pedestrian bridge downstream to below the sewage treatment facility north of town (Sheets 3, and 5-9 in Attachment B – Design Drawings). Construction work was completed by our existing contractor, WEBCO, Inc., with construction oversight by Brett Jordan, HydroGeo Designs.

Table 1 shows the work and costs originally proposed as part of the CWCB WSRA Scope of Work, compared to what was actually done in the field. Deliverables are construction of 3 cross vanes, 13 vanes, 3 j-hooks, 1 boulder habitat cluster, and 220 linear feet of floodplain sills. In addition, 4,010 cubic yards of floodplain material was reshaped and the old levees downstream

of 8½ Bridge were removed (see photo montage in Figure 5). Any shrubs and trees disturbed during reshaping were transplanted to newly created floodplains (see Task 3). We had to reduce the number of smaller structures such as clusters and vanes due to the large size of the boulders that were delivered. Once the large cross vanes and j hooks were constructed, we did not have enough rock to complete all proposed structures. But this ensures that these larger structures will withstand higher flood levels. Vanes we were able to construct were strategically placed in critical bends of the river to ensure stability.

Table 1. WEBCO's 60% Engineered design estimates compared to final construction costs.

	<i>Total Proposed in Phase II Design:</i>			<i>Completed:</i>	
<i>Item</i>	<i>Unit cost</i>	<i>number</i>	<i>Total</i>	<i>number</i>	<i>Final Cost</i>
Rock (CY)	\$120.00	970.5	\$116,460.00	986.5*	\$118,380.00
Cross vanes (equipment)	\$5,000.00	3	\$15,000.00	3	\$15,000.00
J hooks (equipment)	\$3,200.00	3	\$9,600.00	3	\$9,600.00
Vanes (equipment)	\$1,200.00	21	\$25,200.00	13	\$16,350.00
Bed Sills (equipment) (linear foot)	\$10.00	226	\$2,260.00	220	\$2,200.00
Boulder clusters (equipment)	\$315.00	10	\$3,150.00	1	\$315.00
gravel removal and channel reshaping	\$10.00	40100	\$62,500.00	4150	\$41,500.00
Transplants	LS		\$2,000.00	LS	\$2,200.00
Mobilization	LS		\$2,500.00	LS	\$3,350.00
Phase I structure maintenance (per hour)	\$200.00	10	\$2,000.00	10	\$2,000.00
Construction oversight (HGD)			\$30,000.00		\$24,000.05
Bonding			-	LS	\$7,753.00
TOTAL			\$270,670.00		\$242,648.05
*100 CY of rock was left over from Phase I. Webco charged for 886.5 CY during Phase II.					

Maintenance work was done on some structures. A couple of cross vanes had rocks that had tilted a bit during the high flows of 2015 and 2016. These were straightened. One cross vane pool was dredged a bit as it had filled in during these events. We removed some boulder clusters below the cross vane at the fishing pier at Memorial Park (Phase I). This is a popular swimming hole and the clusters were causing a hazard for people who were jumping into the hole beneath the cross vane. Three boulder clusters were removed.

Status of Deliverables Timeline

Deliverables	Proposed Timeframe	Completed By:
Mobilize equipment/ materials	Sept 2016	Sept 2016
in-channel construction	Oct-Nov 2016/spring-fall 2017	End of October 2016
Maintenance work (correction of cross vanes on Henson, removal of clusters at Memorial Park)	-	August 2018

TASK 3 – Revegetation

Description of Task and Outcomes

Areas previously denuded and those impacted from construction are being revegetated with native willows, poplars, alder and spruce, to bring back the natural riparian community that previously existed here and that is of high biodiversity significance in the state. In areas where live vegetation was to be moved to reshape the channel and banks, these materials were transplanted to newly constructed flood plain. This was done with great success in Phase I with 100% survivability of transplants. Transplants in Phase II showed good growth in 2017, but failed to thrive during the drought year of 2018. We hope that the high snow pack and run off in 2019 helps recover these plantings.

The Phase II area below the 8 ½ Street Bridge requires intensive revegetation work beyond transplants and natural recruitment due to the significant amount of flood plain reconstruction that took place here. A grant was submitted to American Rivers in December 2015 to fund the cost of revegetation along the highly denuded area below 8½ Street Bridge (in oval area of Figure 1). This grant was to cover costs for materials and labor to be provided by Wildlands Restoration Volunteers. We were unsuccessful with this proposal.

LFVC applied for a small grant from US Fish and Wildlife Service Partners and received \$3,000 to plant willow and poplar pole cuttings. We hired a local contractor to dig 150 holes to a depth of base flow ground water table in early April 2017. FFC Fencing out of Monte Vista, CO, then cut 50 cottonwood and 100 willow poles and planted in these holes. Each cutting was fertilized with root stimulator, backfilled with surrounding substrate, and covered with weed barrier fabric (Figure 6). In addition, we have purchased native grass and forb seed to broadcast in the area this coming summer. We had initially planned to seed last year but the drought of 2018 was severe and we decided to wait for more favorable conditions. As with the transplants discussed above, the pole cuttings showed good growth during the 2017 season, but failed to thrive in 2018. We hope that this year's conditions help revive the growth of the cuttings.

This area will need ongoing revegetation efforts due to the difficult substrate in the wider floodplain area. We will continue to search for funding to cover this vital project component.

Figure 4 shows what we hope the area will look like once we manage to get significant vegetation to establish.

Status of Deliverables Timeline

Deliverables	Proposed Timeframe	Completed By:
Design completed by Wildlands Restoration Volunteers	NTP+ 90 days	April 2017 by FFC Fencing, Monte Vista
Revegetation	Fall of 2016 and 2017	Pole plantings April 2017; seeding June 2019

TASK 4 – Interpretive River Trail System

Description of Task and Outcomes

- 1) Design and install an interpretive trail system along Phase I and Phase II sections of the river.*

LFVC coordinated the design and implementation of the first phase of an interpretive trail system along existing and new trails along Henson Creek and the Lake Fork (see map Figure 7). This system is helping to increase knowledge of river systems and appreciation for the asset this river provides the community. LFVC has used these plaques for environmental education programs with local youth and adults.

LFVC has already completed design and installation of 10 plaques and installed these in the early summer of 2018 (See Appendix E for final plaque images). We will design and install an additional eight plaques in 2020, depending on funding. The remaining plaques will cover the following topics:

1. Pump House Park and the Town Well System
2. Those Pesky Invasives!
3. Geology of a River Valley
4. Ocean Wave Smelter and Dam
5. History of Pete’s Lake Wetlands
6. Macroinvertebrates
7. To be determined during design phase
8. To be determined during design phase

We have completed relevant sections of an accompanying guide book that gives more details on each topic for the first ten plaques. This will be published for use by trail walkers, once the remaining eight plaques are designed and installed.

A new trail was constructed on the Memorial Park terrace that was built in 2014 as part of Phase I. This trail was completed by the Hinsdale County Trails Commission in the summer of 2015.

The town also installed a gazebo and landscaping. See Figure 8 for a view of this very aesthetic and much visited recreational space.

2) Install signage that clearly demarcates public and private lands along the river in Town.

To date, river users have not really understood where the public-private interface exists and trespass inevitably results, especially if recreational use increases with river enhancements. Public access signage will be installed to guide users to public portions of the river. This effort will help to reduce potential conflicts and improve support of local land owners for current and future restoration efforts.

Unfortunately, we did not receive the funding to cover this component. However, under current UGRWCD watershed planning funding, we are working on a River Recreation Corridor Plan that will include placement of these types of signs, in addition to future river channel improvements, riparian enhancement, and recreational infrastructure. This plan is projected to be completed by spring of 2020.

Status of Deliverables Timeline

Deliverables	Proposed Timeframe	Completed By:
Install existing plaques (10 completed)	NTP + 60 days	Installed May 2018
Complete design of 6 additional plaques	September 2016 – February 2017	Not funded – proposed 8 new plaques and currently seeking funding
Install new plaques (6)	June 2017	Not funded – currently seeking funding
Install public/private boundary signs	September 2016 – February 2017	Not funded – proposed as part of the Lake Fork River Recreation Corridor Plan to be completed 2020
Complete interpretive trail guide	May 2017	Will be completed in 2020, concurrent with installation of final eight plaques
Construct new trail in open space park area	Summer 2017	Completed summer 2015

TASK 5 – Open Space River Park land and easement acquisition

Description of Task and Outcomes

The area below the 8½ Street Bridge (in the oval in Figure 1) has never been developed, although being primarily private parcels owned by the Main Family, Brad Griffith, and Silver

River Estates at the time we submitted this proposal. This area has great potential to be a public open space river park, granting residents and tourists greater access to the river, which is currently limited, and protect an important flood zone within the town of Lake City.

1) Complete appraisal of private properties and easements/donations

LFVC hired Arnie Butler, Conservation Appraiser out of Grand Junction, to complete appraisals for the parcels and public access easements in this area. Final appraisals were completed in fall of 2016. He provided appraised values for total land purchase of the Main property, donated Silver River land, and 25 foot access easements along the river (see Appendix F for appraisals).

2) Complete transaction for donation of approximately 1.5 acres of Silver River parcel to the LFVC.

The Silver River parcel is a total of 4 acres. They had initially agreed to donate the western portion of the property to LFVC, divided down the middle of the river, which is just under 2 acres and adjacent to the Main parcels to the north along the west side of the river (Figure 9). The donated value of this portion of the property is \$25,000.

This step entailed initiating a sub-division process with Hinsdale County, which required a survey. We completed the survey in spring of 2017 (Appendix G), but the land owners did not agree to move forward with the sub-division process. At this point we are not certain if this donation will happen, but we are still in discussions with the land owners.

3) Purchase of Main parcels

The Main family parcels contain all of Town of Lake City's Block 4 and Lots 31 and 32 of Block 13 (approximately 2 acres). LFVC purchased the property in February 2017 with an owner financed promissory note, interest free if paid off within three years (Attachment H). Purchase price was \$165,000 as per appraisal. LFVC made a down payment of \$65,000 plus closing costs, using funds from the Gates Family Foundation and donations. UGRWCD later provided a grant for \$70,000 toward the purchase price. The final \$35,000 will come from private donors. We will pay this loan off by end of 2019.

4) Public access easements

In addition to acquiring the above lands, we had initially planned to also place a 25 foot public access easement along the river channel. The transaction costs were to be covered with a \$33,000 grant from CPW's Fishing is Fun Program, including payment to LFVC of the value of the easements. However, after we were awarded the grant, the State of Colorado restricted use of FiF funding for easements or land acquisition, so now these funds will be used for river channel construction in Phase III of the Project.

We will place the acquired Main parcels under a deed restriction that allows public access and limited recreational development on the land to maintain more natural conditions. We will also do this for the Silver River property, if donated. This will ensure that the flood way and adjacent

flood plain are protected in perpetuity. Recreational development options along this reach will be identified as part of the Lake Fork River Recreation Corridor Plan. We will then explore possible donation to the Town of Lake City to add to their park system.

Status of Deliverables Timeline

Deliverables	Proposed Timeframe	Completed By:
Appraisals	September 2015 – January 2016	September 2016
Survey of Silver River subdivision	February 2016	Spring 2017
Complete sub-division process	February – April 2017	Survey done in spring 2017. Sub-division process on hold.
Complete Main land purchase	Summer 2016	February 2017
Complete easement transaction	Summer 2016	Not done. Deed restrictions to be placed on Main property in 2020.

TASK 6 – Post Construction Monitoring

Description of Task and Outcomes

1) Channel surveys and structural assessments

Prior to Phase I construction, LFVC selected seven cross-section locations in the project reach. At each cross section the following was done: 1) identify and monument cross section end points; 2) perform detailed survey of each cross section; 3) perform a pebble count at each cross section; and, 4) establish photo points at each cross section (upstream, downstream and left and right bank directions. Standard Operating Procedures used for items 1-4 are from CDPHE's Measurable Results Project, also used by CWCBC).

After completion of channel construction and revegetation activities, the entire project area (Phase I and Phase II) was monitored in late summer and fall of 2017. The above methods were repeated at the same locations. Also, an assessment of structures was done using CDPHE's Structural Assessment SOP (See Appendix I - Monitoring Report prepared by HGD).

The in-channel surveys indicate that the structures are performing as designed and are meeting the project objectives and the success criteria set forth in the Colorado Measurable Results Program. The Henson Creek and confluence reaches have been in place since 2013-2014, having withstood four to five runoff seasons. During this time the reaches have met or exceeded the bank full discharge each year (excluding 2018) with one runoff season having a 10 year return interval runoff that was estimated to be almost twice the bank full discharge. The Lake Fork reach structures downstream of the 8 ½ Street bridge have been in place for two runoff seasons and the bank full discharge in the reach was exceeded in 2017.

The three representative channel sections for the project reach on the Lake Fork downstream of the 8 ½ Bridge were surveyed pre-project in the fall of 2016 and post-project in the fall of 2017. These cross sections spanned the entire valley bottom up to the adjacent hillslopes to capture the contours of the pre-existing flood levees and the newly constructed flood plain post project. The fall 2017 cross section survey reveals that the project reach has maintained its designed single thread meandering form and maintained sediment transport and stability in a reach previously subject to channel braiding aggradation and channel instability, even during the high flow of 2017.

2) Photo monitoring

Photo monitoring along constructed reaches of Henson and the Lake Fork was completed prior to construction in 2013 and 2016, as well as after construction, using the CWCB's SOP for Collection of Stream Restoration Monitoring Photographs. We used the same cross sections for our photo monitoring as those used for the above cross sectional surveys (see map in Appendix I for locations). These results are in Appendix L.

3) Vegetation monitoring

We had planned to do vegetation sampling during the summer/fall of 2018, using the protocols described in Appendix J, which would also have included sapling survival counts and macro-invertebrate sampling as per BLM's Utah BugLab protocols: (<http://www.usu.edu/buglab/MonitoringResources/MonitoringProtocols/#item=26>). However, extreme drought significantly curtailed vegetation growth. The cottonwoods and willows we planted barely survived, if at all, but we hope this year's high snow pack and run off help ameliorate that. We plan to conduct vegetation monitoring this coming summer and fall (2019).

4) Fish biomass monitoring

In September, 2015, CPW sampled fish biomass in lower Henson, one site being located within our improvement area (fish sampling station GU0639, Appendix K). This site was not sampled prior to completion of habitat improvement structures, so it is not known to what extent fish populations have improved since completion of the project. If the upstream sample site is a reasonable comparison with pre-project conditions, it appears that the habitat improvement project may have doubled fish densities and biomass. Pre and post habitat improvement fisheries assessments conducted by CPW on the lower Lake Fork at Red Bridge documented similar improvements in fish densities, biomass, and numbers of quality sized fish. CPW is planning to repeat these protocols in the Phase II river improvement area on the Lake Fork this year or next.

5) Long term monitoring

LFVC and the Town will continue to monitor structures annually for three years following completion of the project (summer/fall 2019-21), documenting the condition of treatments and identifying problems that may develop. Periodic maintenance (average every five years) is planned just below the confluence of the Lake Fork and Henson to remove bed load that will

accumulate during years of high flow (bank full or higher). This has been incorporated into the engineered design. In-channel structural maintenance will be dealt with as needed (e.g. after larger flood events).

Status of Deliverables Timeline

Deliverables	Proposed Timeframe	Completed By:
Pre-survey data	-	Submitted to CWCB in previous reports
CPW Fish Survey (Appendix J)	-	Completed 2015. Future survey summer of 2019.
post construction channel/pebble count surveys	Aug-Sept 2018	October 2017 (Appendix H)
post-construction vegetation and macroinvertebrate surveys	Aug-Sept 2018	Pole cuttings counted August 2017; Vegetation survey and macros done 2019-20
post-project structure assessment	Sept 2018	October 2017 (Appendix H)

TASK 7 - Project oversight and administration

Description of Task and Outcomes

This task involved the coordination of project activities and administration of grants.

Status of Deliverables Timeline

1) Deliverables	Proposed Timeframe	Completed By:
a) project coordination	Throughout Project	March 31, 2019
b) reimbursement requests	15 days after end of each quarter or as needed	Three submitted
c) semi-annual reports	Every 6 months. First report due 6 months from NTP	Updates provided with first two reimbursement requests
d) final report	Mar 31, 2019	March 31, 2019

PROJECT EXPENDITURES

Final project cost was \$509,185.58, of which the WSRF grant covered \$232,944.70. This has been matched with \$276,240.88, from both cash and in-kind sources. Table 2 shows total expenditures broken down by Task and Table 3 breaks this down further by sources of match.

In our initial work plan budget to CWCB we had estimated a total match of \$367,522. Of this total amount, \$109,877 was to come from unconfirmed sources that in the end did not get awarded. These include the following:

- 1) American Rivers to cover revegetation costs - \$23,300;
- 2) EPA Five Star Restoration - \$37,377 to cover in-channel construction and interpretive river trail Phase II;
- 3) Gates Family Foundation – we asked for \$105,000 but only received \$60,000, for purchase of the Main property;
- 4) Town of Lake City - unable to provide in-kind equipment time - \$4200.

Consequently, we did not meet our total projected project cost of \$600,470 because our match requirement was short by \$91,291.12. Despite this setback, we were still able to fund 54% of the project costs with matching grants and donations.

Table 2. Summary of all expenditures by Task, from September 21, 2016 through March 31, 2019.

Task	Task Description	Total Projected Cost (Including Match)	WSRF Funds	Cumulative WSRF Expenditure	Remaining WSRF Funds	Original Proposed Match	Cumulative Match Expenditure	Remaining Match	Total Expenditures (including Match)
1	Project Design and Permitting	33,950.00	0.00	0.00	0.00	33,950.00	23,890.03	10,059.97	23,890.03
2	In-Channel Construction	248,270.00	201,948.00	201,948.00	0.00	46,322.00	40,700.05	5,621.95	242,648.05
3	Revegetation	20,800.00	0.00	0.00	0.00	20,800.00	3,000.00	17,800.00	3,000.00
4	Interpretive Trail System, new trails	22,950.00	0.00	0.00	0.00	22,950.00	14,240.94	8,709.06	14,240.94
5	Open Space Acquisition	229,500.00	0.00	0.00	0.00	229,500.00	172,634.64	56,865.36	172,634.64
6	Monitoring	13,000.00	13,000.00	12,971.70	28.30	0.00	1,867.00	-1,867.00	14,838.70
7	Project Management	32,000.00	18,000.00	18,025.00	-25.00	14,000.00	19,908.22	-5,908.22	37,933.22
	TOTAL	600,470.00	232,948.00	232,944.70	3.30	367,522.00	276,240.88	91,281.12	509,185.58

Table 3. Expenditures broken down by Task and sources of match.

Task	Task Description	Cumulative WSRF Expenditure	Cash and in-kind Contribution by Partners*:				Gates Family Foundation	Hinsdale County Trails (in-kind)	Cumulative Match	Total Project Cost
			CWCB CWRP	UGRWCD	LFVC	USFWS Partners				
1	Project Design and Permitting	0.00	\$19,950.00	\$0.00	\$3,940.03	\$0.00	\$0.00	\$0.00	\$23,890.03	\$23,890.03
2	In-Channel Construction	201,948.00	\$0.00	\$0.00	\$40,700.05	\$0.00	\$0.00	\$0.00	\$40,700.05	\$242,648.05
3	Revegetation	0.00	\$0.00	\$0.00	\$0.00	\$3,000.00	\$0.00	\$0.00	\$3,000.00	\$3,000.00
4	Interpretive Trail System, new trails	0.00	\$0.00	\$4,250.00	\$6,390.94	\$0.00	\$0.00	\$3,600.00	\$14,240.94	\$14,240.94
5	Open Space Acquisition	0.00	\$0.00	\$76,670.00	\$35,964.64	\$0.00	\$60,000.00	\$0.00	\$172,634.64	\$172,634.64
6	Monitoring	12,971.70	\$0.00	\$0.00	\$1,867.00	\$0.00	\$0.00	\$0.00	\$1,867.00	\$14,838.70
7	Project Management	18,025.00	\$0.00	\$6,375.00	\$13,533.22	\$0.00	\$0.00	\$0.00	\$19,908.22	\$37,933.22
	TOTAL	\$232,944.70	\$19,950.00	\$87,295.00	\$102,395.88	\$3,000.00	\$60,000.00	\$3,600.00	\$276,240.88	\$509,185.58

* CWRP - CWCB Watershed Restoration Program; UGRWCD - Upper Gunnison River Water Conservancy District; LFVC - Lake Fork Valley Conservancy; USFWS - US Fish and Wildlife Service

LIST OF FIGURES

Figure 1. Comprehensive River Enhancement Project Area. Phase II is in and downstream of the oval and also upstream near the 5th Street Pedestrian Bridge. Phase III will be the remaining areas between 2nd Street and 8 ½ Street Bridge. See Appendix A for Design Drawings.

Figure 2. Channelization along the river through placement of gravel berms in the 1980's.

Figure 3. Photos of area pre-flood (2009) and post-flood (2014).

Figure 4. A graphical rendition of improvements on the Lake Fork below the 8 ½ Street Bridge in Lake City with trail and revegetation within the proposed open space river park.

Figure 5. Reshaping of the flood plain below the 8 ½ Street Bridge.

Figure 6. Photos of pole planting work in spring of 2017, transplant budding, and natural recruitment.

Figure 7. Trails Map showing locations of first ten plaques. Plaques LF5 and LF6 are not completed and will be part of next phase design. Finished plaques are found in Appendix E.

Figure 8. Developed park space on the confluence terrace at Memorial Park. LFVC constructed the terrace in 2014 as part of Phase I and the extended trail in 2015. The town installed the gazebo and other recreational infrastructure in 2015.

Figure 9. Proposed open space park area showing purchased and acquired parcels, as well as Town public lands. The red hatched area is the initially proposed area for fishing access easements. We will not know what this will look like in terms of ownership and easement until after completion of the River Recreation Corridor Plan.

LIST OF APPENDICES:

- A. Design Drawings for in-channel improvements
- B. US Army Corps Permit and Approvals
- C. Wetland Delineation Report
- D. Cultural Survey
- E. Installed Plaques
- F. Appraisals
- G. Alpine Surveying plat of proposed Silver River sub-division
- H. Closing documents – Main Property
- I. Structural Monitoring Report
- J. Vegetation monitoring protocols
- K. CPW Fish Survey
- L. Photo Monitoring Results

Figure 1. Comprehensive River Enhancement Project Area. Phase II is below the 8 ½ Street Bridge and also upstream near the 5th Street Pedestrian Bridge, within the ovals below. Phase III will be the remaining areas between 2nd Street and 8 ½ Street Bridge. See Appendix A for Design Drawings.

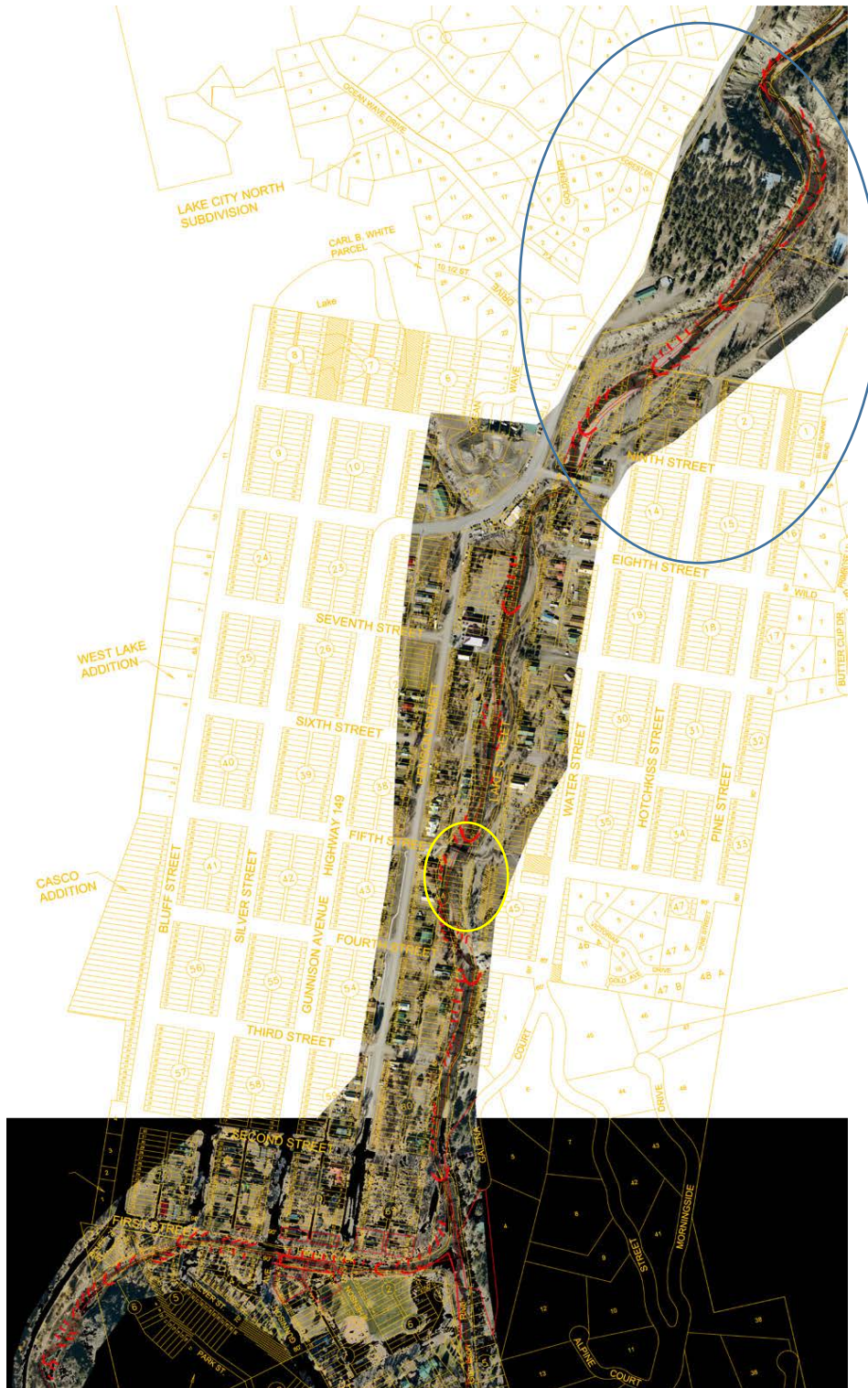


Figure 2. Channelization along the river through placement of gravel berms in the 1980's.

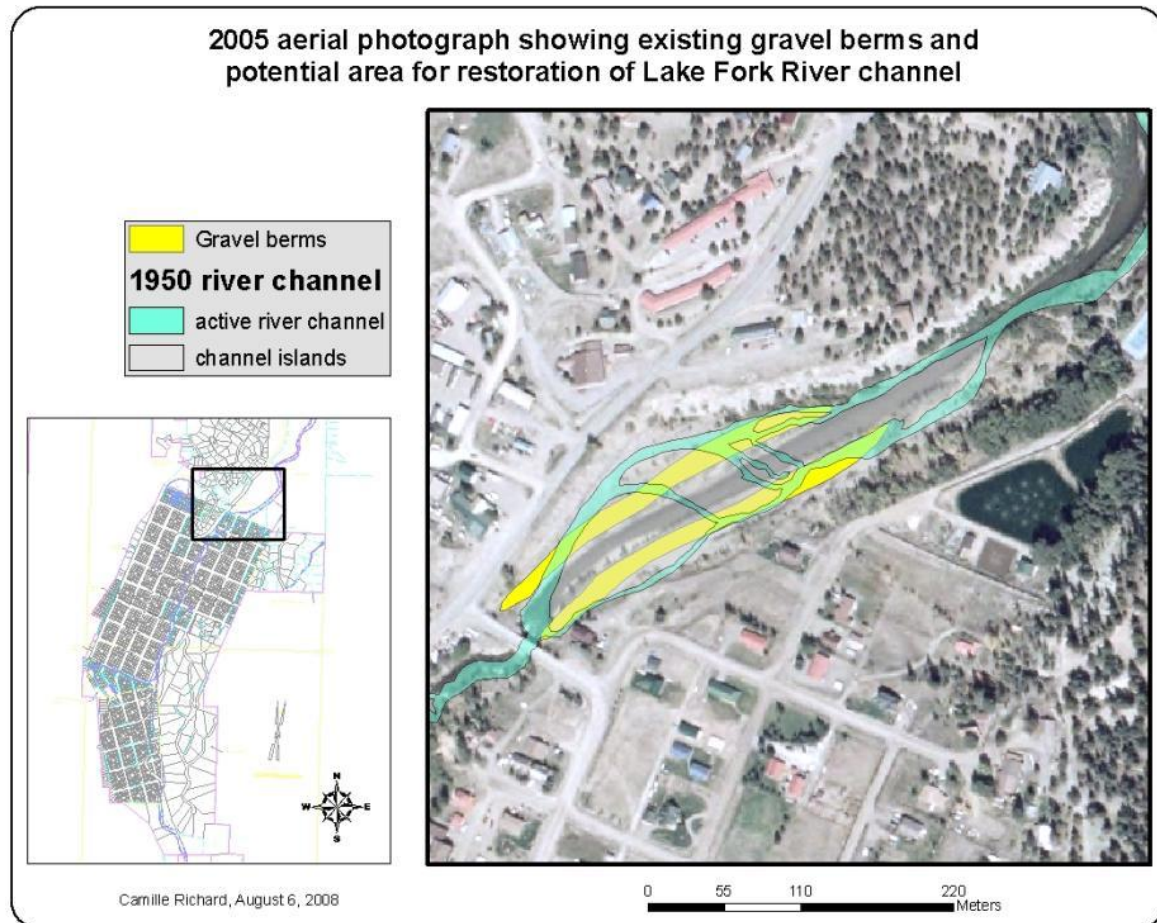


Figure 3. Pre-construction photos of area pre-flood (2009) and post-flood (2014 and 2016). In 2015-16, many of the trees on the left bank were lost. The first photo shows the gravel berm on the west side. This one was mostly washed out with the high flows in 2014-16 (third and fourth photos). The second photo shows the old gravel berm on the east side of the river, which was removed.



Figure 4. A graphical rendition of proposed improvements on the Lake Fork below the 8 ½ Street Bridge in Lake City with trail and revegetation within the proposed open space river park.



Figure 5. Reshaping of the flood plain and structure installation below the 8 ½ Street Bridge (fall 2016). The second to last photo is looking back toward the bridge and shows where a large area of berm was removed. Last photo is the area after one year of high flow (fall 2017).



Figure 6. Photos of pole planting work in April 2017. The 4th photo shows a transplant sprouting leaves in late May, 2017. The last photo shows natural recruitment that is occurring along the river bank after high flows.



Figure 7. Trails Map showing locations of first ten plaques. Plaques LF5 and LF6 are not completed and will be part of next phase design. Finished plaques are found in Appendix E.



Figure 8. Developed park space on the confluence terrace at Memorial Park. LFVC constructed the terrace in 2014 as part of Phase I and the extended trail in 2015. The town installed the gazebo and other recreational infrastructure in 2015.



Figure 9. Proposed open space park area showing purchased and acquired parcels, as well as Town public lands. The red hatched area is the initially proposed area for fishing access easements. We will not know what this will look like in terms of ownership and easement until after completion of the River Recreation Corridor Plan.

