



**GEORGE WEBER, INC.**  
**ENVIRONMENTAL**

**APPENDIX B - CLP WATER QUALITY ISSUES STUDY PARTICIPANTS IDENTIFIED**

**&**

**APPENDIX C - ACTIONS STUDY PARTICIPANTS WANT CONSIDERED**

**TO ACCOMPANY EXECUTIVE SUMMARY OF**

**CACHE LA POUFRE WATERSHED  
WATER QUALITY STAKEHOLDERS:**

**IDENTIFICATION,**

**ASSESSMENT OF POTENTIAL TO MOBILIZE TO  
PROTECT WATER QUALITY,**

**AND**

**STRATEGIC PLAN FOR MOBILIZING TO  
PROTECT WATER QUALITY**

**Submitted by:**

**George Weber**

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## **APPENDIX B**

### **CLP WATER QUALITY ISSUES**

### **STUDY PARTICIPANTS IDENTIFIED**

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#### **PROBLEMS: NATURAL & HUMAN CAUSAL FACTORS**

##### ***DROUGHT***

###### **Effects On Environment**

- Lower flows in river and streams.
- Rivers are getting smaller and disappearing.
- Stagnant pools of water in the lower CLP.
- Riparian areas, including wetlands, are getting smaller or disappearing.
  
- Lower flows can result in higher concentrations of contaminants.
- Contaminants include sediment, salinity, nitrates, and phosphorus.

###### **Effects On Achieving Regulatory Requirements**

- Drought places more and more pressure on resources and infrastructure.
  
- Lower flows, resulting in higher concentrations of contaminants make it more difficult to treat source water to achieve SDWA standards.
- Lower flows, resulting in higher concentrations of contaminants, make it more difficult to treat wastewater to achieve CWA - NPDES permit standards.
  
- Lower average flows over time could result in future CWA - NPDES permit renewals to have standards that are more stringent and difficult to achieve. NPDES permits use average 10-year flows in setting standards. In 2002, the CLP did not come close to the 10-year average flow. If this trend continues, this will pull the average 10-year flow down and affect permit standards.
  
- Regulating features that do not appear to exist (i.e., wetlands, riparian zones) in order to protect them is difficult.

###### **Effects On Resource Use**

- Limits or halts agricultural activity.
  
- Some people are frustrated with not being able to water lawn.
  
- New people don't understand this is an arid environment!

##### ***FIRE***

- Fire is a natural part of CLP ecosystem.
- Lower and mid elevation zones are particularly vulnerable.
  
- Lower and mid elevations of CLP watershed also subject to flood-producing thunderstorms.
  
- Severe wildfires, followed by intense thunderstorms, can create conditions (erosion, sedimentation, change in chemical parameters) that can have disastrous impacts on aquatic and riparian communities, water providers, and all human water users.

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## **APPENDIX B**

### **CLP WATER QUALITY ISSUES**

### **STUDY PARTICIPANTS IDENTIFIED**

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- Prescribed burns and fuel reduction have been proposed for mitigating wildfires.
- Are impacts of these known?
- Removing vegetation will increase runoff and sedimentation, at least temporarily.
- Fire will be with us always, even if action reducing fuel loads at a landscape or watershed scale is sustained for many years.

#### ***HUMAN DEMAND FOR CLP WATER IS GREATER THAN SUPPLY (FACT STATEMENT)***

- CLP River is over appropriated.
- Humans cannot continue to increase demands on the river with no end in sight.
- At some point there will not be enough water to satisfy demands.
  
- Removing much of the stream flow degrades CLP water quality.
- Degradation occurs through concentration of contaminants, and warming by the sun.

#### ***HUMANS CONSUME TOO MUCH CLP WATER (VALUE STATEMENT)***

- Intensity of human use is much greater than it should be from the standpoint of the health of ecosystems and other species.
- We're taking way too much water for our species.

#### ***WATER AUGMENTATION, STORAGE, WITHDRAWAL IMPACTS NATURAL SYSTEMS***

- Augmentation, impoundment, and withdrawal of water for municipal, industrial, and agricultural uses have caused excessive alteration of historic flow regimes.
- Water storage and diversion that facilitates municipal and agricultural water supply may augment or deplete flow in some channel reaches to the detriment of channel stability and aquatic habitat and biota.
- Upper CLP reaches impacted most significantly are: Poudre Pass Creek (affected by augmentation from Grand Ditch and Long Draw Reservoir), Chambers Lake (which receives water from the Upper Larimer River and stores water from Joe Wright Reservoir), and the Monroe Diversion, just downstream from Poudre Park.
  
- Low flows exasperate water quality problems, e.g., sediment, salinity, nitrates, and phosphorus.
  
- Low flows are a concern in the lower CLP too, for e.g., intertidal flows are common, and CLP flows at its intersection with College Avenue are 0-2 cfs 1- 30% of the time.
- Water "looks horrible" as river flows through Weld County.
- River is green where it intersects Highway 85.

#### **Seaman Reservoir Management**

- First, annual flushing of Seaman Reservoir seems to cause an inordinate amount of siltation in the river below the dam.
  
- Releases from Halligan Reservoir caused sedimentation of valuable trout habitat along that course of the river.

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## **APPENDIX B**

### **CLP WATER QUALITY ISSUES**

### **STUDY PARTICIPANTS IDENTIFIED**

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- Seaman Reservoir is the last containment on the North Fork before it joins the mainstem at a location visible to the public.
- Seaman might be viewed as the problem, rather than the recipient of sediment from above funneled through Stonewall Creek, Rabbit Creek, Pine Creek, and the North Fork CLP.
- Sediment will continue to be an issue on the North Fork CLP given sub-basin surficial geology, land cover, and land use.
- North Fork CLP watershed contains great expanses of rangeland that contribute elevated levels of suspended solids to the entire system.

#### **Importation of Foreign Water Changes Quality**

- City of Fort Collins is trading a lot of CLP water for CBT water out of the northern reservoir.
- CBT source waters (e.g., Grand Lake) have higher levels of manganese from rocks.
- Higher levels of manganese cause higher charges to consumers.
- Distribution system needs to ‘blow out’ water one time per year because of high manganese.
- ‘Blow outs’ waste lots of water.
- Land use changes are increasing phosphorus levels in CBT water.

#### **Use of Thorton Water Could Reduce Flows, Concentrate Pollution**

- Concepts, such as contained in the decree in the City of Thornton’s “Consolidated Cases” (86CW401, et seq.) whereby South Platte River water is supplied to major irrigation companies, such as Water Supply and Storage Company, could result in a deterioration of quality in the lower reaches of the Poudre.
- Exercise of the conditional decree and consumption of the water outside of the CLP could result in a reduction of the historic flows (i.e., since settlement by Europeans), and thus, concentrate pollution.

#### ***GROWTH***

- “There are too many of us!”
- “Development is moving towards this place like crazy!”
- Eventually the entire stretch of River from Fort Collins to Greeley will be developed whether that means housing, open space, or related commercial enterprises.
- Growth will put great pressure to produce drinking water and treat wastewater.
- Growth -- ranging from recreation, housing, and commercial uses -- will contribute to water quality degradation in the entire CLP basin.
- As more land in the CLPR basin experiences urban uses, greater pressure is placed on ambient water quality---something most pronouncedly noticed in reservoirs and lakes
- As the upper reaches of the Poudre continue to be heavily used, there are increased hazards to the water quality for municipal (i.e., drinking water) purposes.
- Ex urban development in rural landscapes, i.e., subdivision into 35-acre ranchettes with horses.
- Houses and roads are being built.

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## **APPENDIX B**

### **CLP WATER QUALITY ISSUES**

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- Problems this is causing: changing water percolation and hydrology, dropping water tables, and septic.
- “Increased development also increases the potential use of fertilizers, herbicides and pesticides, all of which can find their way into the river. Increasing rates of urbanization tend to alter flow characteristics by increasing impervious surfaces, increasing rates of runoff and sedimentation, and reducing infiltration rates.”

#### ***RESIDENTIAL DEVELOPMENT IN THE WATERSHED***

- Housing in the watershed degrades water quality.
- Housing served by ISDS or outhouse may be contaminating ground water that eventually becomes part of the stream.
- Water is not monitored now to validate this.
- Claims that some homeowners have cracked their septic tanks with dynamite if they could not afford to maintain their septic system

#### ***RECREATIONAL USE OF THE RIVER AND WATERSHED***

- Watershed, river corridor in particular, is one of the more popular recreation areas along the Front Range.
- As Front Range continues to grow, recreational use anticipated to increase also.
- Increased use, increased risk that human and pet waste, and other contaminants (e.g., lead shot) will be introduced into the watershed, and the river and its tributaries.

#### ***Mishawaka Inn***

- Huge crowds gather at Mishawaka Inn in Poudre Canyon.
- Far too many people for Mishawaka sanitation facilities.
- Many attendees have dogs and/or spend the night in their cars parked along the highway.
- “I have seen cars parked for miles on each side of Mishawaka the morning after a concert. At times, there are far too many people and pets in the Poudre Canyon around the Mishawaka Inn. Larimer County has to do something. The owner just cannot be allowed to promote events that attract the kinds of crowds that exceed the parking and sanitation capabilities of his facility.”

#### ***Whirling Disease from Fishery Management***

- Whirling disease affecting fish populations.

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## **APPENDIX B**

### **CLP WATER QUALITY ISSUES**

### **STUDY PARTICIPANTS IDENTIFIED**

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#### **PROBLEMS: IMPACTS ON WATER QUALITY AND DEPENDENT HABITAT AND SPECIES**

##### *ALTERATION OF WATER CHEMISTRY, NUTRIENT LOADING, SEDIMENTATION, & DESTRUCTION OF RIPARIAN AREAS*

- Alteration of water chemistry, etc. through point and non-point source pollution.
- Sediment and nutrient loading on the river.
- Encroachment on and interruption of riparian areas (roads and urban development), including filling of associated wetlands. Very little federal protection for wetlands, e.g. 404, 1

##### *SEDIMENT*

- Annual flushing of Seaman Reservoir seems to cause an inordinate amount of siltation in the river below the dam.
- Releases from Halligan Reservoir caused sedimentation of valuable trout habitat along that course of the river.
- Seaman Reservoir is the last containment on the North Fork before it joins the mainstem at a location visible to the public.
- Seaman might be viewed as the problem, rather than the recipient of sediment from above funneled through Stonewall Creek, Rabbit Creek, Pine Creek, and the North Fork CLP.
- Sediment will continue to be an issue on the North Fork CLP given sub-basin surficial geology, land cover, and land use.
- North Fork CLP watershed contains great expanses of rangeland that contribute elevated levels of suspended solids to the entire system.
- Sediment is an issue in Segment 12 near the Greeley wastewater treatment plant, where sandbars form.
- Sedimentation occurs to a degree sufficient to affect the flow capacity of the river.
- Flow affects the ability of wastewater treatment processes to meet NPDES permit requirements.
- Thus, Greeley Public Works needs to dredge this section of the river periodically.

##### *UNCERTAINTIES: POTENTIAL CHANGE IN HYDROLOGY AND DISAPPEARANCE OF NATIVE SPECIES*

- How use of exhausted gravel mines, e.g., for water features associated with housing development, will affect hydrology and water quality is unknown.
- How pumping water to Windsor by a private developer will affect hydrology and water quality is unknown.
- Types and numbers of native species have declined in Front Range warm water fisheries. The reasons for this are not known.

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## **APPENDIX B**

### **CLP WATER QUALITY ISSUES**

### **STUDY PARTICIPANTS IDENTIFIED**

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#### **PROBLEMS: HOW HUMANS ARE RESPONDING, OR NOT**

##### *CLEAN WATER ACT IMPLEMENTATION*

##### **Changing Stream Classifications – Several Problems**

- Under the CWA, CDPHE reviews and revises stream segment classifications periodically. A classification may change, although real water quality parameters may not. Consideration of revisions to stream segment classification has and potentially will continue to spur conflict among local stakeholders. Revision to a higher classification may make achieving NPDES permit limits more difficult and costly for dischargers of treated wastewater and may constrain potential future development from occurring. Revision to lower classifications may allow water quality to become degraded over time from what it is now. Within the CLP basin, this issue has been raised for CLP Segment 12 and Box Elder Creek specifically.
- Generically, there is a concern on the lack of communication and coordination among stakeholders with interests in water quality matters. An example of this is the inclusion of Segment 12 as 'impaired' in the Draft 303d list this past year. CDPHE did not have access to all the stream water quality data gathered by municipal dischargers. On the basis of limited information, CDPHE declared the entire segment 12 to be impaired. It took effort on part of the various dischargers to conclusively demonstrate that only a small fraction of Segment 12 experienced impaired water quality. This is typical of municipal stakeholder concerns relating to water quality issues. The absence of a central coordinating entity in such an arena is a source of concern for wastewater treatment service providers because poor, inadequate information can lead to erroneous decisions by CDPHE and WQCC in imposing stream classifications and water quality standards that can adversely impact NPDES permit standards, making it costly for each entity to have to individually respond to CDPHE.
- TMDL is like fixing a load in toto for eternity. Either you treat new growth or you can't have growth.
- Future nutrient criteria implementation will affect NPDES permit standards and the costs of treating wastewater. Currently, comprehensive nutrient standards for surface waters are lacking under the CWA. Historically, EPA attention regarding nutrients has focused on reservoirs, drinking water, and nitrates. EPA will require states to have to have nutrient standards for ALL surface waters by 2003 - 2004. As NPDES permit standards become more stringent, the costs of treating wastewater probably will increase with the need to remove nutrients.

##### **Water Quality Regulations Not Stringent Enough**

- The stream classification process can encourage water quality degradation rather than protection. This is the case with Box Elder Creek, for which state and basin water users did not go after classification for the standard being met now. The problem is due to the analytical method the stream classification process uses – a 'use attainability analysis' (UAA). UAA essentially takes a 'snapshot' of use now, rather than accounting for potential uses. In the case of Box Elder Creek, a lower classification was given (i.e., 2a) reflecting current uses, rather than a higher classification (1b) that would reflect the strong potential for human contact (e.g., kids swimming) in the near future given the surrounding area is zoned for urban development. Wellington is constructing a wastewater treatment plant that will discharge to this stream. Although their current NPDES permit sets standards corresponding to the higher stream classification, concern was expressed that

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## APPENDIX B

### CLP WATER QUALITY ISSUES

### STUDY PARTICIPANTS IDENTIFIED

---

Wellington may argue for a lower standard reflecting the current stream classification in the future if the capability of their treatment becomes stressed.

- “As more land in the CLPR basin experiences urban uses, greater pressure is placed on ambient water quality---something most pronouncedly noticed in reservoirs and lakes. Wastewater treatment plants that discharge to lakes and reservoirs should be enjoined from continuing to use lakes for such discharges or should be asked to treat water to a more stringent standard.”
- Concern was expressed regarding nitrates and phosphates specifically.
- “What is being done in this area? Are these stakeholders (e.g., Fort Collins, Windsor, Greeley, Eastman-Kodak) waiting for mandated regulations before initiating ways to reduce nitrates and phosphates?”
- “Sediment not a regulated pollutant. I have a problem with that. I feel it is a big pollutant. It impacts biological systems and carries lots of chemical pollutants.”
- “Narrow regulatory parameters concerning wastewater impact on downstream users and aquatic habitat.” Seems that there are coliform, or sediment levels permitted to exist downstream from wastewater treatment plants, based in part on dilution. I feel like they can manage a waste stream based on how much pollution is in the river at any given time. It doesn’t cover, or consider, non-human uses, or biological health. It seems to be driven by what lobbyists and industry want. It’s not accountable to the whole picture.”
- Quality of discharges by wastewater plants owned by the City of Fort Collins and South Fort Collins Sanitation District are problematic.
- Six irrigation companies withdraw downstream of these. Downstream water has been observed to turn green when stored – “...seeing it turn green, makes you wonder, then think where it comes from, i.e., sewage, lots of images go through people’s minds’.
- “Fort Collins just leased Fossil Creek, putting sewer water into this. People can’t use it. You do tubes, smells like sewer plant. When irrigate you smell like a sewer plant, go home and wash off. They should do much better job than minimum standards.”
- The Rawhide electric power generating facility must remove nutrients from the water it withdraws so that it does not clog its cooling towers. The facility withdraws just downstream of the discharge of the second wastewater treatment plant.

#### **Achieving NPDES Permit Standards Is Difficult In Low Flows**

- Low flows occurring during the past year, if they continue, are a source of concern.
- Flows in the lower CLP are intermittent at times.
- Kodak NPDES permit requires a minimum flow of 16 cfs to be in the river. The Kodak discharge is 8 cfs. Kodak has lagoons where they can store discharge during low flows. The CLP has remained below this threshold at times. When the Pleasant Valley Pipeline becomes operational, CLP flows may be significantly lower during winter.
- Natural environmental and human factors affecting long term flow (e.g., drought, water supply development and management, land and water use management) can affect future NPDES permit standards and the potential feasibility and costs of future wastewater treatment. CDPHE uses 10-year average flow data as a primary component establishing an overarching parameter within which other parameters are set during the NPDES permit renewal process.

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## **APPENDIX B**

### **CLP WATER QUALITY ISSUES**

### **STUDY PARTICIPANTS IDENTIFIED**

---

#### **Industrial Pollution**

- Discharge levels from existing and future industrial installations.
- Even though they clean the water, i.e., to achieve NPDES standards, there are discharges from Kodak, ConAg, and municipal waste water plants.
- Concerns and questions were expressed about the Eastman-Kodak facility.
- In the past, the state has listed CLP sections as not meeting standards, primarily because of Kodak. Has this problem been solved? Eastman Kodak discharges remain questionable. They are responsible for doing their own water quality testing, and are essentially unmonitored by the state for long periods.
- Kodak disposes of sludge using land application in a field between the plant and river, in addition to discharging into the river directly. CDPHE is supposed to enforce RCRA standards, and has stated that the site is in compliance. Some doubt that the site is in compliance, and think that the CDPHE statement was a result of political pressure associated with the Executive Director's Office. According to stories in the Denver Post, Rocky Mountain News, and local media, heavy metals are seeping into the ground water. CDPHE has "glossed over" this, but several environmental groups are questioning this and find the acceptable levels not palatable.

#### **Need to Provide 'Best' Waste Water Service to New Developments**

- Growth is resulting in several jurisdictions coming together in the North Front Range I-25 corridor. Is it practical (e.g., economically efficient) or feasible (e.g., technically within CWA constraints) for all these 'separate' jurisdictions to provide wastewater treatment? What is the 'best' way to do this?

#### ***TRANSPORTATION NETWORK IS A SOURCE OF POLLUTION***

- Roads serve as a source of sediment from erosion and from winter road sanding.
- For roads that parallel stream channels, much of the sediment ends up in the stream network.
- Winter road sanding also can introduce salts into the stream network.
- Erosion from roads or streambanks may affect channel morphology, channel stability, and aquatic habitat at the site scale at levels that are not detectable at the mouth of the watershed. Bedload sediment can have significant impacts on pool depths and macroinvertebrates. (Bedload may NOT be a problem for drinking water suppliers as it may be settled out easily at water treatment facilities.)

#### **Spills, Especially in the Canyon**

- Traffic using the road system also increases the chronic low-level introduction of petrochemicals as well as greatly increasing the risk of hazardous materials spills.
- The problem certainly applies throughout the watershed, but was noted for the upper CLP where roads range from State highways to low standard two-tracks.
- Of particular concern, is State Highway 14 that parallels much of the upper mainstem CLP.
- Highway 14 is heavily traveled.

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## **APPENDIX B**

### **CLP WATER QUALITY ISSUES**

### **STUDY PARTICIPANTS IDENTIFIED**

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- Traffic includes automobiles and transporters of petroleum and hazardous material products, including 'honey trucks'.
- The Upper CLP is subject to hazardous material spills that get into the river, primarily related to auto accidents.
- Canyon is an inappropriate route for transporting hazardous materials.
  
- First responders do not think about notifying anyone.
- Lack of a notification system
- Lack of a list of things to do, e.g., notify water systems to close the intake gates.
- Lack of a better response than 'just close the intake gates'.
- Lack of sufficient guardrails.
- Lack of data about quantities of hazardous materials are going up and down the canyon.
  
- Colorado State Patrol (CSP) issues special permits for transporting specific hazardous materials in the canyon.
- CSP has not been responsive to past complaints.
- CSP does not have a public participation component as part of its permit process.
  
- Are the Arapahoe-Roosevelt National Forest, Fort Collins, and others working on these problems?

#### ***CSU FOOTHILLS CAMPUS LUST COVER-UP***

- Several years ago a former employee raised allegations that a petroleum tank was buried at the CSU Foothills Campus to hide it from EPA inspectors. The allegations resulted in a lawsuit and the Court ordered CSU to clean this up. What is the status of the tank? Is the person or persons responsible still in a position of responsibility at CSU?

#### ***NON-POINT SOURCE POLLUTION***

- Nonpoint discharges from stormwater and agriculture constitute major sources of potential pollution problems.
- Nonpoint discharges limit the effectiveness of regulatory measures limiting pollution from point source discharges.
  
- Water quality monitoring is showing change in water quality parameters continuing in reaches that are downstream of the last point discharger. The data suggests that the continuing degradation in water quality is due to the effects of non-point source pollution.

#### ***STORMWATER NON-POINT SOURCE POLLUTION***

##### **Storm Water Pollutants and Impacts**

- "We see strange things floating down river, don't always know what or the source."
- Floating trash and sediment have been observed.
  
- When development occurs, streets, parking lots, etc. send runoff containing contaminants (e.g., petroleum products, lawn care chemicals) to the river.

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## **APPENDIX B**

### **CLP WATER QUALITY ISSUES**

### **STUDY PARTICIPANTS IDENTIFIED**

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- Stormwater flows from increasing development could adversely affect water quality.
- Stormwater is thought to have these impacts on downstream irrigation reservoirs: increasing nutrient concentrations, algal blooms, low dissolved oxygen, and possibly fish kills.
- If growth within the CLP basin continues at the present rate, the pesticides and nutrients load from urban stormwater might exceed that of agriculture. (USGS NQWA measures higher concentrations of pesticides, herbicides, and nitrates in surface waters at the north end of the urban Front Range than in surface waters in agricultural lands. Pollution has been measured as decreasing in a 'recovery zone' between Brighton and Greeley. The improvement in water quality is thought to be due to a combination of factors: bio-chemical digestion of pollutants, ultra-violet radiation, bacteria breaking it down, and adsorption. As land use in the lower basin changes from agricultural to urban, water quality issues associated with agriculture present a diminishing trend.

#### **NPDES MS4 Program Implementation**

- City of Greeley MS4, Phase 2 NPDES permit program needs to conduct significant outreach and cooperate with a number of different individuals, programs, and organizations within and outside of the city. The program is in early stages of implementation.

#### **Fort Collins Utilities Storm Water Infrastructure Design Problems**

- One landowner complained, "Fort Collins plans their storm drainage system from the top and working down. It should be the other way around."
- He explained that Fort Collins was channeling water from a 5' X 24' conduit within 300 feet of his property into a 30" pipe on his property. He is fearful that if a big storm occurs, his 30" pipe will get wiped out and his property flooded.
- He also complains that the pond by his house, formerly a good water storage facility, has been filled with sediment from massive new construction, land scraping, etc. up gradient from his property. He wants Fort Collins to clean his reservoir.

#### ***AGRICULTURAL NON-POINT POLLUTION***

##### **Threat to Agriculture from Urban Development**

- Struggle between agriculture and urban development, and the corresponding shift of water use from historical agricultural uses.
- Notion of blaming agriculture for problems is bad.

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## **APPENDIX B**

### **CLP WATER QUALITY ISSUES**

### **STUDY PARTICIPANTS IDENTIFIED**

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#### **Irrigation Water and Return Flow Management**

- Agricultural use of water can impair water quality by reducing flows as water is withdrawn from the river for irrigation; and transporting fertilizers, pesticides, feedlot waste, and soil (sediment) into the river.
- CDOW has documented incidents of farmers causing fish kills.
- Farmers have applied pesticides to ditch water to clean them of algae; the water then flowed back to the river.
- A truck wash resulting in a fish kill is facing a major violation.
- Irrigation system inefficiency is a problem that needs to be addressed in the basin.

#### **Agriculturalists Will Need Financial Incentives to Change Behavior**

- A CLP stakeholder group will need to provide financial incentives to landowners and agriculturalists, if it promotes actions requiring them to do something.

#### **Grazing Pollutes the Water and Destroys Riparian Habitat**

- Domestic livestock can serve as pathways to introduce pathogens into the water supply and destroy riparian habitat.
- Several active grazing allotments are present in the upper watershed.
- Cattle graze on riverbanks and in the river.
- Cattle have impacted some stream reaches and not others.
- Hewlett Gulch is noticeably polluted.
- A slick oily appearance in the upper portions of the creek along with blackened algal growth shows that something is amiss in the creek.
- Appears to drain an area where livestock operations are located above public lands.
- Graves ranch cattle on a state trust lease at the mouth of the canyon were mentioned specifically
- Grazing -- Counterpoint
- Graves doesn't have a lot of cows.
- Domestic water suppliers have not informed ARNF that cattle pose problems that cannot be eliminated by treatment, so use of the watershed for grazing and source water does not seem incompatible.
- Historically, levels of livestock grazing have continued to fall dramatically, by orders of magnitude, so grazing is declining as a potential source of water quality problems in the upper CLP.

#### **Achieving Representation and Participation by Agricultural Interests in Potential CLP Stakeholder Group Will Not Be Easy**

- It will NOT be as easy to include representation for agriculture and the producers of commercial agricultural products in finding equitable solutions preventing run-off of fertilizers and pesticides, although it will be incumbent on a CLP stakeholder group to involve them.

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## **APPENDIX B**

### **CLP WATER QUALITY ISSUES**

### **STUDY PARTICIPANTS IDENTIFIED**

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#### *WATER QUALITY DATA, NO COLLABORATION OR COMPREHENSIVE DATA*

- Collaborative, cooperative monitoring of water quality through the CLPR basin has not been carried out.
- Consequently, there is inadequate water quality information available on the waters within the CLPR basin.
- Data, from a comprehensive perspective (e.g., parameters, geographic coverage) appears to be unavailable.
- We don't have water quality monitoring of CLP reaches potentially affected by residential development, and ISDS in particular. Past monitoring efforts were not cost effective.

#### *COMMUNICATION PROBLEMS*

##### **Among CLP Water Quality Stakeholders**

- Effective communication is lacking among CLP water quality stakeholders with interests in an issue.
- A recent example concerns CDPHE listing Section 12 in the draft 303(d) impairment list, and efforts by some wastewater dischargers to have portions of the section removed from the list.
- Agilent would like better communication and warnings that specific water quality parameters affecting their processes potentially will change.
- They have resolved most past communication issues with their supplier, Fort Collins Utilities.
- Potentially they would benefit from better communication with stakeholders regarding changing source water quality parameters.

##### **Public Needs to be Educated and Aware About --**

- Water quality issues – a crisis does not seem to be perceived or concern the general public right now -- water quantity is the crisis in the public eye right now.
- Water conservation.
- Watersheds, the role of watersheds, and the complexity of relationships among factors and issues.
- One notable example, and a source of conflict among some CLP water quality stakeholders are the complex relationships among forest management, water yield, drought, and fire hazard.

##### **No CLP Forum**

- An open forum for discussion of comprehensive CLP water quality issues is lacking.
- Currently, different organization in the area have particular water quality interests and concerns, but do not have a forum where they may discuss issues that may affect multiple agencies, individuals, and interests.
- Local basin-wide influence on decisions affecting water quality is lacking.
- For example, the Triennial Review provides an opportunity for local stakeholders to present why they think certain standards should hold, but local stakeholders have not achieved consensus

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**APPENDIX B**  
**CLP WATER QUALITY ISSUES**  
**STUDY PARTICIPANTS IDENTIFIED**

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among interests. Local stakeholders potentially would be more effective in this process if they could go to the Colorado Water Quality Control Commission saying the ‘stakeholders’ group had achieved consensus on an issue.

- A CLP water quality stakeholder group will need to develop funding.
- All stakeholders may be unaware of all potential funding sources

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## **APPENDIX C**

### **ACTIONS STUDY PARTICIPANTS WANT CONSIDERED**

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#### **ACTIONS ADDRESSING PROBLEMS ASSOCIATED WITH NATURAL & HUMAN CAUSAL FACTORS**

##### ***DROUGHT***

1. Develop data on trends in associated with CLP wetlands.

##### ***FIRE***

2. Reduce fuel for fires on steep slopes with excessive undergrowth.
3. Do controlled burns.
4. Educate to promote defensible space.
5. Educate the public regarding:
  - Fire is a natural part of the ecosystem in the CLP watershed as well as much of the Front Range and will always be with us; and
  - Many years will be required to significantly reduce fuels at the landscape or watershed scale, even with the National Fire Plan to increase fire suppression staffing and to facilitate an increase in fuels reduction work.

##### ***REDUCE WATER CONSUMPTION***

6. Modify human settlement and development patterns and water discharge and land-use practices to minimize anthropogenic alterations of water chemistry, turbidity, etc.
7. Have land use appropriate for the semi-arid environment.
8. Research to conduct a coordinated assessment of future water need and demand. Address the following questions:
  - How much do we really need?
  - For what?
  - How do we manage?
  - Do we need more structural storage and diversion facilities, or do we use water more efficiently?
9. Change the 'use it or lose it' aspect of Colorado water law.
10. Expand the concept of 'beneficial use' in Colorado water law to include recreational and environmental concerns.
11. Establish in-stream flows and appropriate flows for wildlife.
12. Adopt urban area water conservation measures.
13. Impose real prices, reflecting the real costs of using natural resources, in this case water. This respondent is not advocating increasing the cost of water for agricultural use, but for new subdivisions.
14. Adopt increasing block rate structures for water (i.e., the more you use the more you pay).
15. Install water meters.

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## **APPENDIX C**

### **ACTIONS STUDY PARTICIPANTS WANT CONSIDERED**

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16. Landscape appropriate for the semiarid environment (e.g., use native species).
17. Change homeowner association covenants requiring water-intensive blue grass lawns.

#### ***WATER AUGMENTATION, STORAGE, & WITHDRAWAL IMPACTS***

18. Manage flows in river holistically.
19. Leave more water in the river for the other species that live in this area and re-establish more natural flow patterns.
20. Institute reasonable minimum stream flows
21. Educate the public on how water managers are instituting minimum streamflows now.
22. Act to keep the lower river as healthy as possible for its human users and its native occupants given the increased pressure on it. Consider increasing flows to accomplish this, regardless historical flows.
23. Manage low water flows best by flow control and more storage.
24. Research and assess the potential hydrologic impacts of the aggregate industries developing gravel pits and water features for future housing developments.
25. Research to determine what the project to pump water to Windsor will do to local and CLP hydrology.
26. Act to protect existing healthy habitat by:
  - Monitoring streams;
  - Considering a CLP riparian habitat restoration project;
  - Prioritizing healthy habitat for native species;
  - Completing wetlands mapping and developing more precise wetlands maps (suitable for legally defensible protection programs);
  - Developing data monitoring trends in wetlands geographic extent and health; and
  - Continuing or expanding funding of trails and open space.

#### **Seaman Reservoir Management**

27. Mitigate Seaman flushing somehow.

#### **Importation of Foreign Water Changes Quality**

28. Stop trans basin diversions.

#### ***GROWTH***

29. Do appropriate planning for new developments.
30. Have water available to support new developments.
31. Modify human settlement and development patterns and water discharge and land-use practices to minimize anthropogenic alterations of water chemistry, turbidity, etc.

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## **APPENDIX C**

### **ACTIONS STUDY PARTICIPANTS WANT CONSIDERED**

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#### ***RESIDENTIAL DEVELOPMENT IN THE WATERSHED***

32. Identify ISDS as a problem formally and implement solutions.
33. Monitor ISDSs.
34. Identify sources of leaks, notify homeowner of leaky ISDSs, and identify ways to help homeowners to make repairs who can't afford to do on their own.
35. Educate property owners relying on ISDS regarding easily implemented problems.
36. Monitor bacteria or coliform in the river below residences and/or concentrations of residences to determine problem areas.
  
37. Research if all subdivisions within CLP watershed can be served by central or clustered sewer and wastewater treatment.

#### ***RECREATIONAL USE OF THE RIVER AND WATERSHED***

38. Research to monitor recreational use patterns.
39. Monitor bacteria or coliform in the CLP below developed recreation sites and through areas of heavy recreational use.
  
40. Educate the public by producing and issuing a steady stream of media releases focusing on the limits of the rivers and reservoirs in northern Colorado to sustain recreational activities.
  
41. Improve management of private and public recreational facilities in the lower and upper CLP to protect water quality, for example:
  - Educate CLP users;
  - Increase the number of toilets;
  - Locate toilets better (e.g., away from the river?); and
  - Increase the number of trash receptacles and increase pick-up.

#### **Mishawaka Inn**

42. Research to assess the water quality problems associated with Mishawaka Inn.
  
43. Do not allow Mishawaka Inn to continue to promote and conduct events attracting crowds of a size exceeding the capacities of its parking and sanitation facilities.
44. Make Mishawaka Inn provide port-a-potties sufficient for accommodating the crowds attending special events.

#### **Fishery Management**

45. Clean stock-raising facilities.

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## **APPENDIX C**

### **ACTIONS STUDY PARTICIPANTS WANT CONSIDERED**

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#### **ACTIONS ADDRESSING PROBLEMS ASSOCIATED WITH WATER QUALITY AND RELATED IMPACTS**

##### *SEDIMENT*

46. Institute sediment control standards for all activities that cause sediment to be deposited in the river, e.g., agriculture, construction, cities, etc.
47. Do controlled burns to reduce the risk of sedimentation and contamination.
48. Restore native riparian habitat.
49. Research the possibility of using old gravel pits for sediment control.
50. Research to conduct an inventory and assessment of gravel pits.

##### **Annual Flushing of Seaman Reservoir**

51. Mitigate Seaman flushing somehow.

#### **ACTIONS ADDRESSING PROBLEMS ASSOCIATED WITH HUMAN RESPONSE TO WATER QUALITY ISSUES**

##### *CLEAN WATER ACT IMPLEMENTATION*

##### **Changing Stream Classifications**

52. Maintain current water quality. Accept no further degradation of water quality.
53. Upgrade stream classification to 1a on Box Elder Creek, Fossil Creek, and CLP Segment 12.
54. Recognize existing land and water uses.
55. Research to determine if and where streams would be dry if wastewater treatment plants were not discharging and amend water quality regulations if and as appropriate.
56. Realize that higher water quality standards will be more important as the basin becomes urbanized.

##### **Water Quality Regulations Not Stringent Enough**

57. Monitor water quality of the river below the take-out locations of the municipalities of Fort Collins and Greeley to identify if and when problems arise and ensure that water quality is acceptable for irrigation use.
58. Prohibit wastewater treatment plants from discharging to lakes and reservoirs OR ask them to treat the discharges to a more stringent standard.
59. Install additional treatment processes at wastewater plants to reduce nitrates and phosphorus discharges within the CLP basin.

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## **APPENDIX C**

### **ACTIONS STUDY PARTICIPANTS WANT CONSIDERED**

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#### **Achieving NPDES Permit Standards**

60. Research the potential for using old gravel pits for mitigating low flows and aiding in achievement of NPDES permit requirements.
61. Research to inventory and assess gravel pits.

#### **Industry**

62. Encourage industry to treat wastewater appropriately and to conserve water.
63. Enforce state water quality regulations strictly.
64. Test Kodak discharges to the CLP to prevent organic and inorganic runoff of chemicals from their plants.

#### **Need to Provide 'Best' WW Service to New Developments**

65. Research the potential for developing a cooperative regional wastewater treatment facility in the Fort Collins - Timnath - Windsor area.

#### ***TRANSPORTATION NETWORK***

66. Research to conduct a travel management analysis to determine the minimum necessary number of roads to meet human needs in the watershed (this is probably more appropriate on ARNF lands in the upper watershed).
67. Improve the road maintenance practices implemented by the various entities that maintain roads in the watershed, including ARNF, State of Colorado, Larimer and Weld Counties, municipalities, homeowners groups, and private residents.

#### **Spills, Especially in the Canyon**

68. Be aware of and respond better to spills in the Upper Canyon.
69. Institute a notification system and list of things to do.
70. Have a better response to spills than just closing the municipal water system intake gates.
71. Institute rigorous public participation in the State Patrol process for granting permits to haul loads in the Canyon.
72. Listen, State Patrol, and respond to canyon residents and organizations requesting public participation in the canyon hauling permit process.
73. Limit the transportation of hazardous materials in the Canyon.
74. Install high quality guardrails wherever roads adjoin or cross the CLP River.

#### ***NON-POINT SOURCE POLLUTION***

75. Research to characterize and quantify non-point source pollution.

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## **APPENDIX C**

### **ACTIONS STUDY PARTICIPANTS WANT CONSIDERED**

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76. Monitor water quality of the river below the take-out locations of the Fort Collins and Greeley municipalities to identify if and when problems arise and ensure that water quality is acceptable for irrigation use.
77. Institute sediment control standards for all activities that cause sediment to be deposited in the river, e.g., agriculture, construction, cities, etc.

#### ***STORMWATER NON-POINT SOURCE POLLUTION***

78. Research to characterize and quantify stormwater contamination.
79. Research what would it take to develop an effective storm water program for areas not required to do so under NPDES.
80. Continue to improve stormwater management systems making these truly effective, including pretreatment regimes, education, and outreach
81. Conduct inspections and enforce laws and ordinances.
82. Educate the public regarding storm water issues.
83. Place signs on inlets (contributing storm water to surface waters).
84. Make use of the public to ensure compliance with the Fort Collins and Greeley Stormwater Programs.
85. Require subdividers and developers in incorporated and unincorporated areas to detain and treat stormwater flows sufficiently to satisfy water quality concerns before they escape the development.
86. Use undeveloped areas along river corridors to serve as buffers to urban runoff.
87. Create or rehabilitate riparian wetlands that could treat storm flow from urban and agricultural lands.
88. Institute a volunteer program for cleaning up and marking waterways.

#### ***AGRICULTURAL NON-POINT POLLUTION***

89. Work with manufacturers of pesticides and fertilizers to develop less toxic agricultural chemicals.
90. Develop a coordinated basin-wide project offering technical, educational, and financial assistance to farmers for the voluntary implementation of BMPs to improve and/or maintain water quality.
91. Do more to improve best management practices and their implementation.

#### **Irrigation Water and Return Flow Management**

92. Create and/or rehabilitate riparian wetlands that could serve to treat storm flows from agricultural lands.
93. Prevent or at least reduce irrigation runoff from farms, e.g., using ditches and holding ponds to capture and detain run-off.
94. Have state and federal agricultural agencies work with agricultural operators to implement techniques limiting return flows.

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## **APPENDIX C**

# **ACTIONS STUDY PARTICIPANTS WANT CONSIDERED**

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95. Regulate confined animal feed lots so that it does not contaminate ditch water that flows back to the river.
96. Develop programs to encourage water conservation.
97. Develop methods recognizing the importance of making water available for compatible and sustainable operations, e.g., a water bank or point system.

### **Agriculturalists Will Need Financial Incentives to Change Behavior**

98. Find ways to help communities and farmers implement BMPs to reduce pollutant discharges economically.

### **Grazing Pollutes the Water and Destroys Riparian Habitat**

99. Remove open-range cattle, at least in sections, from the river corridor.
100. Develop voluntary incentives for motivating a cattle owner to remove cattle from the river corridor.

### **Achieving Representation and Participation by Agricultural Interests in Potential CLP Stakeholder Group Will Not Be Easy**

101. Ensure that agricultural interests are represented and involved in a potential CLP stakeholders group.
102. Encourage agricultural producers to join a potential CLP stakeholders group and work toward filtering strategies for fields and feedlots close to the river.
103. Obtain the participation of a diverse group of people to obtain broad information and viewpoints, e.g., the benefit of leaky, inefficient irrigation ditches in supporting habitat.

### ***WATER QUALITY DATA, NO COLLABORATION OR COMPREHENSIVE DATA***

104. Monitor the river in a comprehensive and systematic fashion, as the CBT is being monitored.
105. Monitor the river, and identify problems and solve them.
106. Use the information for a variety of purposes such as determining appropriate water quality standards and classifications, for NPDES permit renewals, identifying potential sources of contamination, and assisting with future land use decisions.
107. Identify problem pollutants and their major sources, and address these on a priority basis and through a cooperative process.
108. Monitor for bacteria or coliform below developed recreation sites and through areas of heavy recreation use.
109. Monitor water quality below the Fort Collins and Greeley municipal take-out locations to identify if, and when, problems may arise making the water unacceptable for irrigation use.
110. Monitor water quality monitoring up and down stream of discharge points.
111. Monitor for salinity and determine if this is an issue in the CLP.
112. Monitor for nitrate and phosphorus contamination in the CLP.

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## APPENDIX C

# ACTIONS STUDY PARTICIPANTS WANT CONSIDERED

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- 113. Document the potential for nitrate and phosphorous contamination from runoff.
- 114. Develop collaboratively, a centralized and accessible database of water quality, including data collected by various studies over many years.
- 115. Develop more data collaboratively.
- 116. Coordinate data collection among stakeholders.
- 117. Include data developed in the future.
- 118. Develop future data using similar and approved methodologies.
- 119. Develop standardized metadata.

### *COMMUNICATION PROBLEMS*

#### **Public Needs to be Educated and Aware About --**

- 120. Educate the public to create a sense of community ownership and responsibility for the watershed.
- 121. Educate the public about why there is a water quality concern in the CLP basin and what should be everyone's role.
- 122. Educate the public using signage on the CLP Trail.
- 123. Educate people about their role as polluters and how we all live downstream.
- 124. Educate residents and people in the landscaping industry regarding the impacts of fertilizer and pesticide use on the river and how to minimize their use.
- 125. Educate people about water conservation.
- 126. Educate the public about the limits of rivers and reservoirs in northern Colorado to sustain recreational activities. Do this using a steady stream of media releases, as well as other mechanisms.
- 127. Reach out to and educate landowners, particularly those adjacent to the river.
- 128. Educate the public concerning where the larger group is coming from, the actions it is taking, the reasons these are being taken – if CLP water quality stakeholders form a stakeholder forum.
- 129. Educate the public about wetlands, including the need for wetland protection, benefits wetlands provide (e.g., water quality, flood hazard mitigation, etc.).

#### **Bilateral Communications Issues**

- 130. Continue communication between Fort Collins and Agilent concerning variations (i.e., long and near term, large and small) in finished water quality parameters.
- 131. Institute communication between Agilent and Fort Collins source water providers (i.e., NCWCD, USBR) concerning variations (i.e., long and near term, large and small) in finished water quality parameters.
- 132. Improve communication between Louis Swift and Fort Collins concerning several issues including sedimentation and dredging of his pond, design of stormwater infrastructure above his property, and quality of wastewater treatment plant discharges to Box Elder and Fossil Creeks.

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## APPENDIX C

# ACTIONS STUDY PARTICIPANTS WANT CONSIDERED

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### No CLP Forum

133. Institute a CLP Forum.

134. Do this soon, before damage is done to the watershed and before local policies become so rigid that we lose the opportunity to modify them as needed to protect the watershed

135. Institute a CLP Forum having the following general characteristics and mission:

- Involves all areas of interest in the basin;
- Open forum for discussion of comprehensive water (“all types”) quality issues;
- Comprehensive forum for the discussion of issues that may effect multiple agencies, individuals, and interests;
- Action group;
- Develop creative options for improving and protecting CLP water quality;
- Environmental, water quality, and restoration projects;
- Coordination on water quality;
- Regional intergovernmental cooperation;
- Cooperative planning;
- Comprehensive water resource planning and management involving all interested stakeholders; and
- Public education.

136. Conduct more specific activities including:

- Address drinking water, wastewater, stormwater, recreational, and habitat uses of the river;
- Manage the growth and the pressure on the system continuously;
- Assess and protect water quality, watershed-wide, collaboratively;
- Identify CLP basin water quality concerns of all potential stakeholders;
- Develop aquatic and riparian habitat data and analyses and share these;
- Offer technical, educational, and financial assistance to farmers for the voluntary implementation of BMP’s to improve or maintain water quality in a coordinated basin wide project;
- Identify and assist in attaining grants that can be used to achieve the many goals of this organization.
- Review development using criteria designed to protect riparian areas and water quality;
- Find equitable solutions to preventing run-off containing fertilizers and pesticides involving producers and agricultural users;
- Exert local and basin wide influence on public policy decisions effecting water quality and strive to achieve goals of the group; and
- Strive for consensus among stakeholders concerning stream classifications and standards and present these and the rationale to the Colorado Water Quality Control Commission during the Triennial Review.

137. Develop membership representing and involving

- All types of stakeholders;
- Agricultural interests; and
- Landowners, water rights owners, gravel producers, and project sponsors.

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## APPENDIX C

### ACTIONS STUDY PARTICIPANTS WANT CONSIDERED

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138. Have ground rules "... to assure protection of the rights of land and water rights owners, preservation of mineral resources for extraction and accommodation of extraction, and to facilitate and coordinate the needs of the various project sponsors and the communities or interests that they represent."

139. Consider the following organizational features:

- Quasi governmental entity;
- IGAs (intergovernmental agreements);
- Planning agreements;
- Watershed authority;
- Becoming the 208 planning agency for the Poudre Basin above Ft. Collins;
  
- Diverse multi-disciplinary broad;
- Directors should not be required to pay to join;
- Directors should have expertise about the watershed;
- Directors should be representative of an invested constituency in the watershed;
  
- Marketing to adequately publicize issues and to involve others in a fact-finding and decision-making effort; and
- Using "systematic development of informed consent" training guidelines may be a useful tool for receiving "buy-in" and acceptance of program objectives from landowners.

140. Consider funding the organization using:

- Membership fee structure that would create matching funding for grants to be used for various studies; and
- Grants available to help with many of the goals of this organization; someone should identify and assist in attaining these grants that can then be utilized for various purposes.