



PARK CITY MUNICIPAL CORPORATION

STORM WATER MANAGEMENT PLAN

2008 ANNUAL REPORT

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SECTION 1.0 STORM WATER MANAGEMENT PLAN OVERVIEW

In accordance with Park City's Storm Water Management Plan, the purpose of this report is to submit to the Utah Department of Environmental Quality (UDEQ) the 2008 Annual Report. The intent of this document is to report the City's storm water quality improvement efforts and achievements for the year 2008 (**report summary**).

Similar to 2007, for the year of 2008, Park City Municipal Corporation (PCMC) achieved some very significant benchmarks that will have a direct benefit to improving the East Canyon Creek and Silver Creek Watersheds. Furthermore, many of the departmental environmental goals that were established last year were again exceeded this year as well as the continued expansion of conservation programs related to the control of non-point source pollution (NPS). Additionally, PCMC Building Department has also diligently enforced the City's environmental institutional controls, which also play a very important role for improving water quality within both watersheds.

For the year 2009, additional storm water quality improvements will be pursued as well as maintaining the current program goals and achievements. With that stated, the following content summarizes the 2008 Storm Water Management Plan activities for the year.

SECTION 2.0 EDUCATION AND OUTREACH

This year PCMC did not co-train with Summit County, instead the training was locally focused and consisted of informing stakeholders of Best Management Practices (BMPs) related to improving storm water quality. Similar to last year, PCMC donated to the **Swaner EcoCenter Nature and Water Festival** that was held on June 21st 2008 (\$2,500.00). This festival is intended to educate the public on surface water BMPs as well as conservation and nature awareness. Furthermore, Recycle Utah conducted **Sustainability Week and Earth Day** within Park City which was deemed a success. Related to training contractors, Ron Ivie (Building Official) spoke at the Park City Home Builders Association with a presentation titled "**How to make a Building Inspector Love You**". During that presentation, Mr. Ivie spoke about Park City's environmental challenges and the Building Code which mandates storm water controls on all construction permits within the city limits. Also discussed, were the storm water BMP requirements that are mandated by the Building Permit Mitigation Plans for each Construction Permit. The Mitigation Plan requires that the BMP controls be identified and specifies soil management procedures, and requires the contractor to control mud in egress and ingress areas. The Mitigation Plan requirements are enforced by Park City's Code Enforcement Officers and Building Inspectors. Furthermore, contractors are required to sign an **Attachment A**, which states that the contractor is aware of PCMC environmental ordinances and agrees to comply with the standards. This attachment also includes a diagram of acceptable BMP practices to be employed on a construction site. During all of the educational meetings the Park City Environmental Information Handbook and storm water brochures were distributed as an educational resource. In addition, on May 8th 2008, Jeff Schoenbacher spoke at the Yarrow Inn during the Annual Park City Board of Realtors Environmental Meeting and discussed environmental issues, including storm water quality. This meeting is held annually and is intended to keep the realtors up to date on the City's environmental programs and institutional controls.

Lastly, to assist the City on educating the public on environmental impacts; the Building Department created an innovative WebGIS application called "Park City Environmental Data Viewer" that can be accessed at <http://mapserv.utah.gov/ParkCityGIS>. That application has been a great success in several areas in regards to the educational outreach to numerous stakeholders. Those interested in the city's environmental impacts are now able to conduct internal research as it relates to identifying jurisdictional wetlands and streams, storm water educational information, and mine tailing impacts with associated heavy metal concentrations. Currently, the data viewer is averaging about a 150 service requests per day for those conducting due diligence within the city limits. Park City would like to thank AGRC for their assistance in developing the application and the East Canyon Creek Watershed Committee for the funding of this successful endeavor.

Subsection 2.1 Watershed Educational Signs

During 2008 only one educational sign was installed at the Prospector Park Biocell treatment unit. The sign was placed to educate the public on the wetland that treats the shallow ground water originating from the Prospector Park Development. The biocell treatment unit will be further discussed within [Subsection 7.1](#) of this report.



Picture 1: Constructed BioCell Prospector Park

No other signs are scheduled to be posted, unless an opportunistic area reveals itself for being used for education.

Subsection 2.2 Park City Environmental Information Handbook

This year the [Environmental Information Handbook](#) was not revised but provided to the public by mail and located in the building and planning department's front desk. This handbook continues to be instrumental in informing residents of the environmental ordinances and daily household practices that are applicable for minimizing storm water impacts. Presently, the handbook inventory is depleted, therefore for 2009, the book will be updated and an additional 1,500 handbooks will be printed and paid for with the Environmental Management System (EMS) budget (\$12,357.34). The handbook will be distributed to the following entities:

- Soils Ordinance Stakeholders

- Park City Citizens
- Real Estate Agents
- Contractors
- New Residents
- Watershed Stakeholder

Subsection 2.3 Building Department Education

PCMC Building Department continues to educate contactors who have been issued building permits within the city limits. As previously stated, when a building permit is issued the contractor is required to complete a mitigation plan template and sign an “Attachment A” certification that commits them to comply with the environmental ordinances. The Building Department permit window also provides the following information:

- **Park City Environmental Information Handbook**
- **Storm Water Brochures**
- **Mitigation Plans**
- UDEQ Information

PCMC Building Department Inspectors also continue to enforce and educate contractors on the storm water requirements within the signed mitigation plan. Inspectors typically issue a “**Stop Work**” order if storm water BMP’s are not installed on the job site. Typically, two warning notices are issued to the contractor with the third notice being a “Stop Work” order. After that order is issued the contractor has 12-hours to remedy the situation before the permit is withdrawn. For egregious enforcement incidents the inspector can issue an Administrative Civil Penalty notice that cites the entity with a \$25.00/per day fine.

Regarding large developments like the Empire Pass Development, **PCMC Norfolk/Woodside Avenue**, Park City Mountain Resort, **Alice Lode Remediation**, and the Montage Development a UPDES Construction General Permits and SWPPP is required. Furthermore, consistent with approved mitigation plans, no mud or sediment is allowed on roads and is enforced by the building inspectors. To assist the Empire Pass and Montage Developments street sweepers were procured in addition to employing a full time staff to remove mud and debris from gutters and city streets.

Subsection 2.4 Water Conservation Outreach and Education

The City Xeriscape Garden located at 1327 Park Avenue is maintained by the Parks Department and is used by the public to acquire landscaping ideas on drought tolerant plants that thrive within the Park City area. In addition to the garden, a comprehensive pamphlet is available at the Planning Department. PCMC believes that the promotion of xeriscape landscaping directly benefits storm water quality in the following instances:

- Less land disturbance will result in less erosion and sediment migrating off-site.
- Less application of herbicides, pesticides, and fertilizer results in a reduction of pollutant concentrations migrating off-site with storm water flows.

- Reduction in overall run-off volume.
- Lower water usage from the culinary system.

It should also be noted, that PCMC continues to implement the Conservation and Drought Management Plan, which defines the BMP's for conserving water. This plan includes enforcing irrigation ordinances, water management priorities, and public service announcements that are broadcast by the local radio and TV stations. Water conservation practices are also advertised on bus billboards navigating the city roads.

The code enforcement activity also includes educating the public on the presence of noxious weeds. This includes sending out noxious weed notices and reference books to citizens. Because of this effort, PCMC has noticed residents eradicating noxious weed species throughout Park City. The Noxious Weed Field Guide books are supplied by NRCS and paid for by the Open Space Manager. Additional noxious weed education is planned for 2009 as well as controlling invasive species within the open space parcels.

Another goal this year was the China Bridge expansion that includes the KPCW facility where the roof was planted to infiltrate water. The following picture depicts the roof of the shell building at China Bridge. As the vegetation continues to mature it is anticipated that additional water infiltration will improve.



Picture 2: KPCW Planted Roof.

Subsection 2.5 Residential Storm Water Brochure

The residential storm water brochure is still available in the following areas:

- Planning Department
- Building Department
- Library

In addition, on May 19th 2008, PCMC submitted to the Park Record a residential storm water brochure (brochure **front** and **back**) for the weekend circulation (\$510.00). The Park Record has 9500 subscribers and the storm water brochure flyer was placed in the Sunday paper as an insert. In addition, on February 22nd 2008 the City sent out the Soils Ordinance BMP Brochure to all

residents within the Soils Ordinance Boundary. This brochure explains the importance of the cap, Park City history, and residential BMPs that the public can employ to improve storm water quality and minimize risk of mine tailing exposure.

Subsection 2.6 Others Trained

On May 16th 2008, the Weber Basin Job Corps arrived with approximately 20 volunteers that planted native seed mix (150 lbs.) and trees (200 Red Osier Dog Wood, 200 Yellow Willow, 200 Choke Cherry) along the McLeod Creek stream corridor. During this time the volunteers also learn about PCMC Storm Water Management Plan and efforts that can be employed to minimize storm water impacts. Volunteers were given an overview of East Canyon Creek Watershed and the associated pollutant impacts that have resulted in the watershed being impaired and listed on the 303 (d) list. PCMC is very pleased to have the Weber Basin Job Corps involved and assisting with the implementation of the NRCS work plan. They have worked very hard for the past six years to improve the East Canyon Creek watershed.



Picture 3: Weber Basin Job Corp Revetments.

As previously stated, PCMC contributed \$2,500.00 to the **Swaner Nature Preserve Water Festival**, which was attended by many city citizens on June 21st 2008. The intent of the festival is to educate the public on water quality issues and inform them of residential BMPs. The festival was held at Kimball Junction and PCMC believes it is events like this that increases public awareness in regards to improving water quality within the watershed.

SECTION 3.0 ORDINANCE ENFORCMENT ACTIVITY

The purpose of this section is to document PCMC enforcement activities related to implementing the institutional controls contained in the Building Department Code. PCMC currently administers several programs and regulations that either directly or indirectly focus on storm water runoff from construction, development sites, and biological sensitive areas within the City. The intent of these ordinances is to ensure that controls are in place to minimize water quality impacts and protect human health and the environment.

Subsection 3.1 Construction Mitigation and Storm Water Enforcement

Construction **mitigation plans** are required for all construction projects that require a building permit. The mitigation plans are reviewed and approved during the building permit and plan-check process. As specified in this plan, the contractor must control dust and mud from migrating from the construction site. Furthermore, BMP’s must be installed along the perimeter of the job site and storm water inflows (silt screen fencing, socks, straw bales). During compliance inspections, inspectors ensure that gravel is placed on ingress and egress areas to help control sediment loss from the job site. Also, the plan checkers require that submitted plans identify the proposed BMPs and where they will be installed. The following table summarizes the 2008 storm water enforcement activities for the building inspectors, code enforcement, and plan checkers:

Representative	Stop Work Order	Enforcement Inspection	Plan Check
Rich Novasio	35	65	
Dale Nichols	3	35	54
Jeff Schoenbacher	12	65	
John Allen	5	45	
Kurt Simister	12	75	24
Debbie Wilde	8	36	
Michelle Downard	6	36	25
Richard Carlile			87
Richard VonWeller		120	
Dennis Thomas		120	
Roger Evans			127
Dave Thacker		120	
Doug Thacker		15	

In addition, to storm water enforcement inspections, non-compliance was added to the Administrative Code Enforcement Hearing Program. This program was accepted by the City Council who understands that the enforcement of the Park City Municipal Code and applicable codes throughout the City is an important public service. The City Council position was that a comprehensive code enforcement system that uses a combination of judicial and administrative remedies is critical to gain compliance with these regulations. Failure to comply with an administrative code enforcement action requires the City Attorney to file a judicial action to gain compliance. Storm water non-compliance issues can be cited a daily fine of \$25 and a lien can be placed on the property. Since the program inception it has been an instrumental tool in the enforcement of problematic storm water issues.

Subsection 3.2 Soils Ordinance Capping Activity

The Original Soils Ordinance boundary, which mandates a clean-topsoil substrate cap of six inches for lots that exhibit elevated lead levels exceeding 200-ppm lead, had a substantial amount of activity this year. In addition to the clean-topsoil requirement, the ordinance also mandates the establishment of suitable grass cover or xeriscape (i.e. weed barrier fabric covered with bark or rock) to prevent the erosion of topsoil. To further protect the cap, the parking of

vehicles on these areas is prohibited in order to minimize sediment displacement and damage to the cap. The ordinance standards improve water quality within the Silver Creek Watershed by providing a barrier between storm water flow and the underlying mine tailings that are impacted with mine tailings. PCMC continues to thrive for 100% cap compliance for properties residing within the Soils Ordinance Boundary. Summarizing the capping activities for 2008, a total of 19 lots were capped this year within the Soils Ordinance Boundary. The Figure 1 represents 2007 activity and Figure 2 is the current cap compliance for properties residing in the original boundaries (lots depicted in red have been capped):

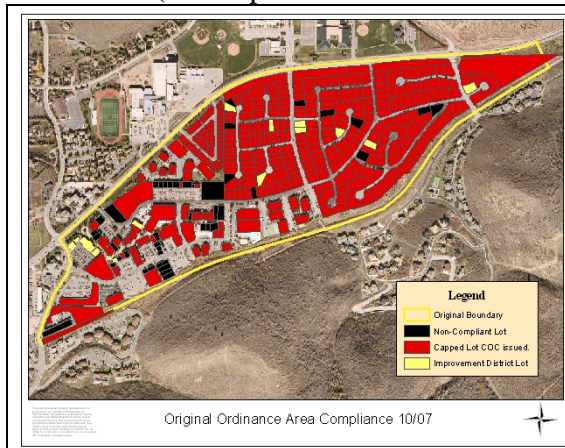


Figure 1: Prospector Map 10/08/07

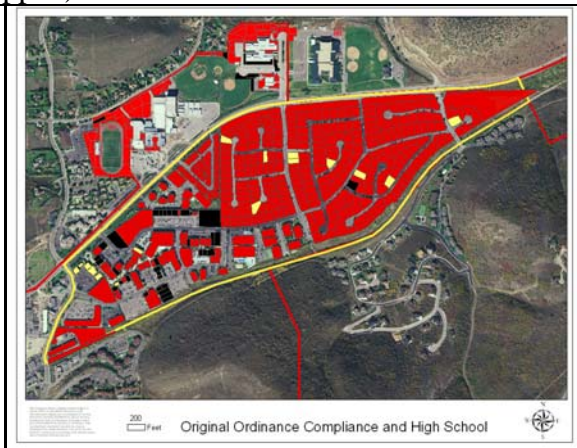


Figure 2: Prospector Map & High School 11/06/08

Subsection 3.3 Elimination of Potential Contamination Source

This year the city required the installation of four storm water separators within the city limits. Two, one thousand gallon separators were installed at the Public Works shop facility. One will be receive wash water coming from the wash bay and entering Silver Creek. And the second unit is intended to buffer water draining from the maintenance yard parking lot.



Picture 4: Public Works separator installation.

The last separator installed was at the **Park Station Hotel** which is an underground storm water reintroduction system that was installed August 18th 2008.

On August 8th 2008, after receiving a complaint from adjacent property owners, the PCMC issued an ACE Notice (#92 \$645.00) to Park Meadows Golf Course related to storm water run-off from the maintenance yard. As a result of enforcement, Park Meadows Golf Course installed the **SNOUT® Stormwater Quality Systems** for tertiary treatment of the run-off originating from the maintenance yard.

As mentioned in the 2007 Annual Report PCMC and King Development Group, LLC entered into the Voluntary Clean-up Program (VCP) with the Utah Department of Environmental Quality for the Alice Lode Mining site situated off of King Road. The Alice Lode Mining Claim comprises of 10.17 acres with 8.63 acres being owned by King Development Group and 1.54 acres owned by Park City Municipal Corporation (PCMC). The site was previously a silver mining claim that was operated from 1920 to 1935. PCMC successfully obtained Brownfield grant funding in 2003 resulting in a United States Environmental Protection Agency (USEPA) Targeted Brownfield Phase II Assessment being completed for this property.

The assessment revealed heavy metal contamination consistent with mine tailings exceeding USEPA's Risk-Based Concentrations for residential and industrial property. The Risk-Based Concentrations are thresholds that USEPA has determined to be protective to human health and the environment for given pathways and naturally occurring background concentrations in the Park City area. This year the Alice Lode was remediated in accordance with work plan and it is anticipated that a No Further Action Certificate will be issued in 2009. PCMC anticipates that the removal of heavy metal contamination from the Woodside Gulch will have a positive affect on the Silver Creek Watershed. Picture 4 depicts the remediated site with appropriate storm water controls installed.



Picture 5: Alice Lode Site.

Lastly, the Building Department submitted a substantial amount of comments for the Montage Development to address storm water run-off controls. The recommendations have been accepted for pre and post storm water controls for this project. The **Montage Resort** is being built within the Empire Canyon drainage which is a CERCLA site needing remediation for historic mine impacts and associated heavy metals.

Subsection 3.4 Illicit Discharge and Other Enforcement

During the year of 2008 two illicit discharges were addressed within the City limits; the discharges were related to a hydrochloric acid release and the improper disposal of pool water being pumped directly to streams.

The hydrochloric acid release was discovered after responding to an odor issue at the Sky Lodge. The basement area of the Sky Lodge was inspected and it was determined that the origin of the strong odor was from the sumps. Inspecting the storm water inlets on Main Street all had the same characteristics. At the same time, a Water Department staff member observed on 447 Main Street a contractor treating sheet metal to age prematurely (rust). This area was inspected and revealed that the contractor was applying rock salt and hydrochloric acid on the sheet metal for the metal to corrode prematurely. The run-off from this treatment was then allowed to run down the street and enter the storm drains where it accumulated. By volume the amount of corrosive waste was not allowed to flush through the storm water drain. Instead it was allowed to accumulate and react with the organics and inorganics within the pipe, thereby creating the odor. As a result, the subsequent gases within the system backed up into the pipes as well as the sump pipes that contribute to the storm water system (Sky Lodge). One sample was procured and Kurt Simister retrieved a Muriatic acid product container from the dumpster at 447 Main. To mitigate the situation, the fire hydrants at Main and 6th Street were opened to purge the accumulated acid from the storm water system. This was done for 45 minutes and during this time the maintenance supervisor was contacted for Sky Lodge who conveyed that the odor had dissipated. The responsible party was fined \$2,500.00 to recoup the costs for emergency response activities and staff time.

The other illicit discharge was related to draining swimming pools and Jacuzzi's within the stream. The City now requires that these facilities be drained into the sanitary sewer system instead of the watershed.

PCMC also sent out reminder notices to all gas stations (**Maverick** and CFN Fueling Facilities) that utilize an oil/water separator to treat storm water run-off originating from the facility. The intent of this notice is to remind gas stations that in order for the separator to work, it must be maintained. All the stations that received this notice **replied** to the city that their units were serviced and therefore functional. Periodic inspections of these units are conducted by the Environmental Coordinator to verify they are working properly.

Finally, PCMC Building Department required the **Park City Mountain Resort** to install storm water controls around the horse corral area and rebuild Negro Hollow in accordance with a **Utah Department of Natural Resources Stream Alteration Permit**.

SECTION 4.0 OPEN SPACE PROPERTY ACQUISITION

PCMC has been very proactive in acquiring open space and recognizes that open space designations have many benefits related to improving storm water quality. The open space program is funded from a variety of sources including a \$10 million open space bond. Currently the total **open space portfolio** that is owned by PCMC is over 4,000 acres of land. This acreage includes more than three miles of riparian/stream protection zones to buffer McLeod Creek and

Silver Creek from storm water runoff impacts. PCMC has focused on acquiring open space properties that are considered sensitive lands, including steep slopes, wetlands, stream riparian areas, visual corridors, wildlife habitat, and agricultural lands. PCMC believes the open space properties provide storm water runoff protection by allowing increased water infiltration, and stream bank and wetland protection. During 2008, an additional 100 acres was donated by Talisker related to the PC Heights Development. In addition, Summit County and Park City Municipal officials are pleased to announce their conceptual agreement with the Boyer Company to acquire two parcels of approximately 680 acres of open space. Each parcel is approximately 340 acres in size. One parcel is located on the west side of Hwy 224 at Kimball Junction and the other land is located adjacent to Round Valley across Hwy 40 from the Utah Department of Transportation (UDOT) facility.

SECTION 5.0 DEPARTMENT COMPLETED MEASURABLE GOALS

As specified in PCMC Storm Water Management Plan, annual goals are established for each department every year, with the intent of pursuing projects that have the potential of improving water quality. This section is intended to document the goals that were completed for 2008.

Subsection 5.1 Building Department

The Building Department completed the goals that were established for 2008. As stated in Subsection 3.1 the building inspectors have been diligent in enforcing the mitigation plan requirements and verifying contractors install storm water BMPs (**Stop Work Warning Notice**).

PCMC Building Department believes that further education will continue to be an important component in order to get all contractors up to date on the City's Building Code SWMP requirements. During the spring of this year the city enforced the Storm Water Management requirements for the Montage Resort located within Empire Canyon. The site deemed deficient in controlling sediment, therefore the developer was required to redesign the sediment detention basins.

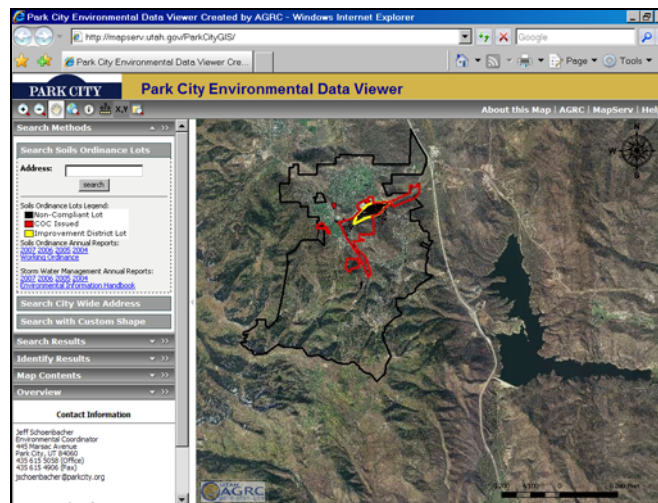
As previously stated, the plan checkers continue to require that all building plans identify storm water BMPs and the specific locations where they are installed. Contractors are still required to read and sign an "**Attachment A**" certification. The certification states that they will comply with the signed mitigation plan and they understand PCMC environmental ordinances. Also, attached to all signed "**Attachment A**" certifications is a diagram of **approved storm water management controls**.

The Building Department was also active in public outreach, in distributing the **Environmental Information Handbook**, **Park Record Flyers**, and **Ordinance BMP Homeowner Brochure** and contractor training sessions. Lastly, any construction that results in ground water entering the excavation the Building Department requires that the contractor obtain a UDEQ "dewatering permit" and comply with the BMP's within the permit. This has resulted in contractors becoming more conscience and creative about the management of shallow groundwater that accumulates on site. Because of this requirement contractors are constructing on-site sumps and water is being pumped to a de-watering well or French drain. It should be noted that if the

structure is being built with a sump (i.e. within a parking garage), the plan checkers are requiring an in-line oil/water separator.

The Building Department also launched the first municipal Environmental WebGIS site in Utah, providing free, public access to environmental data and conditions in the City. The Environmental WebGIS allows users to gather and map a wide range of local environmental information including compliance with the City's soils ordinance, the location of mine hazards and tailing sites, regulated flood zones and wetlands areas and watershed boundaries. Environmental information can be mapped at the city level, tailored to an area of town, or narrowed down to a specific address. In addition to the mapping capabilities of the website, users also can download a number of regulatory reports prepared by the City including current remediation projects. The Environmental WebGIS is a cooperative project between Park City Municipal Corporation, Utah Automated Geographic Reference Center, and the East Canyon Creek Watershed Group using ESRI GIS Mapping Software. The data viewer has been recognized by ArcNews and the International GIS Users Conference. The viewer can be seen at the following link:

- <http://mapserv.utah.gov/ParkCityGIS/>



Picture 6: Environmental Data Viewer.

Subsection 5.2 City Engineer Department

The City Engineer Department continues to pursue the goal of requiring storm water BMPs and sediment detention basins for all projects. This year several detention basins were installed at various developments within the city. The following are the locations of these units:



Picture 7: Silver Star Wet Detention Basin and Gabion.

Picture 7 represents one of the detention basins and gabion reinforced channel that was re-built at the Silver Star Development after last year's failure. The development installed rock gabions blankets on all landscaped drainages of the site and rock armored the detention basins.



Picture 8: Detention Basins at City Hall renovation.

Picture 8 represents the construction wet detention basin installed on the north side of the City Hall. This site is controlled under a Voluntary Clean-up Program Site Management Plan and in accordance with the plan these detentions were required to contain run-off. During the renovation of City Hall they will remain until the project is completed.



Picture 9: Alice Lode Remediation Wet Detention Basin.

During the remediation of the Alice Lode Site a down gradient detention basin was constructed to contain pollutants on-site. This unit remains in place and is planned to be a permanent fixture for this location to contain up gradient sediment.



Picture 10: Alice Lode Steep Slope Stabilization.

It should also be noted that Park City requires the installation of erosion control stabilization matting on the steep slopes and Picture 10 represents the efforts being done at the Alice Lode remediation project.

The City also required the Montage Resort in Empire Canyon have adequate sediment detention systems for controlling run-off originating from this project. During the spring of 2008 the proposed detention was deemed inadequate, therefore Ron Ivie (Building Official) required that the detention system be rebuilt and redesigned to accommodate run-off.

Lastly during the construction of Norfolk/Woodside Avenue the City Engineer required that the storm water accumulation structures be equipped with 8" silt traps as pictured in Picture #11. These units are maintained and pumped on annual basis by the Public Works Department – Streets Department. A total of 34 units were installed this year within developments and on street projects within Park City.



Picture 11: 8" Silt Trap.

Subsection 5.3 Parks and Golf Department

The Park and Golf Department continue to be very proactive in controlling non-point source pollution originating from PCMC facilities. This department is responsible for maintaining the Park Avenue staged sediment trap that was constructed in 2003. This year the sediment trap was excavated once, resulting in the removal of 14 tons of sediment (November 7th 2008).

The course also oversees the two sediment vaults situated directly west of the course that receive the Silver Star Development run-off and those two units were cleaned out four times this year and the sediment reintroduced on site.



Picture 12: Silver Star Development wet vault.

Other efforts include, the golf course continuing to maintain several designated buffer areas throughout the course. The buffer areas reside along all streams and ponds that are within the golf course.

Finally, the Parks Department has increased the number of dog waste dispensers, to a total of 17, which are situated throughout the City. These dispensers are used and serviced frequently and the staff continues to supply these stations with bags for the public's convenience. The cost the Parks Department incurs in purchasing these units is \$50/unit.

Subsection 5.4 Water Department

PCMC Water Department for the year 2008 was instrumental in educating the public on the importance of water conservation practices. This commitment is well defined in the City's Water Conservation Plan, which was written and promulgated into a City ordinance in 2003. During the year, the department actively enforces the water conservation ordinance by issuing citations. Conservation education continues to be an ongoing effort in order to see changes in entrenched water use habits. A common public perception is that water conservation means restricting or curtailing customer use as a temporary response to drought. Though water use restrictions are a useful short-term drought management tool, the department emphasizes lasting long-term improvements in water use efficiency while maintaining the quality of life. Water conservation is doing more with less, not doing without. It is the department's goal to successfully send this message to the community.

One focus of the City's conservation plan is to address peak summer usage levels and in particular, what can be done to reduce this use over the short-term until new sources become available. Currently, the City has experienced strong demand during the summer because of the demand for irrigation and other elective uses. This peak seasonal demand is driven by high community standards for the appearance of properties both in the residential and commercial sectors.

In addition, the conservation program focuses on enhanced education and public outreach, enacting new conservation ordinances and implementing water audits for high users during peak seasonal demand periods. The department's public education program included participation in the annual Recycle Utah Water Festival with a booth demonstrating the volume of water lost through leaks. In addition the following topics are conveyed:

- Screenings during AWWA Water Week.
- Screening of water conservation cartoons prior to the weekly film series feature coupled with Water conservation giveaways.
- Publishing conservation cartoons in the Park Record.
- Flipside publications.
- Monthly conservation message on water bills in summer months.
- Public service announcements and live interviews via radio to encourage customers to voluntarily cut-back water use during peak months.
- Direct mailing to notify customers of irrigation guidelines and ordinance/violation fee changes if any.

In August, 2008 the City adopted a Water Waste ordinance prohibiting wasteful outdoor watering that falls directly onto impervious surfaces and causes unnecessary run-off. PCMC saw increased participation by citizens volunteering to sign up for the "Third Day" landscape-watering program. During the irrigation season, the department actively enforced the water conservation ordinance by continuing to issue citations to customers who violate the every other day watering ordinance and the hourly watering restrictions of 7:00 pm to 10:00 am and by increasing the citation fees. The fines start at \$150 and increase incrementally to a maximum of \$750 per day.

Also in the summer of 2008, Park City the department instituted the Outdoor Water Audit program. Similar to a home energy audit, an outdoor water audit is performed by certified professional who visits the home and evaluates the efficiency of the existing irrigation system and makes recommendations for improvements. In the summer of 2008, the City began working with a local certified landscaper to offer this service. The City plans to track participating accounts over 5-year period to determine the effectiveness of this measure.

Regarding the installation of water lines, the Water Department installed a 12” waterline called the Boothill Transmission Line and it crossed Silver Creek. As a result a stream alteration permit was obtained and storm water BMPs employed as depicted in Picture 13.



Picture 13: Silver Creek Crossing Boothill Transmission Line.

SECTION 6.0 CONSERVATION RESERVE PROGRAM (CRP)

This year the Weber Basin Job Corps planted 200 Yellow Willows, 200 Red Osier Dogwoods, and 200 Choke Cherry trees within the McLeod Creek stream corridor in accordance with NRCS work plan for the area. Approximately 100 lbs. of refuse was removed from the stream and disposed of by the Parks Department. For the past four years the city has been working to enhance the 23 acres of Conservation Reserve Program (CRP) stream corridor, which is designated as permanent riparian buffer. To date, the Weber Basin Job Corps volunteers have planted more than 5,400 trees within the buffer area and 850 lbs. of native seed mix has been hand broadcast and established within the buffer zone. Because of these efforts the McLeod Creek stream corridor has improved substantially with establishment of native grasses and trees. Pictures 14 and 15 depict the improvements being made to McLeod Creeks.



Picture 14: CRP Crew 2008.



Picture 15: CRP Crew 2008.

PCMC is very appreciative of the Weber Basin Job Corps volunteers and look forward to their continued participation in the program. It should also be noted that the Job Corp crew also installed eight Christmas tree revetments in areas that were prone to erosion during the spring run-off. These areas will be followed-up in 2008 and new Christmas trees will be anchored to the posts in order to maintain the functionality of the revetments.



Picture 16: CRP Planting Crew May 08.

The City Council unanimously approved entry into the Conservation Reserve Program and 23 acres were enrolled on June 1st, 2003. Lastly, it should be noted that these effort coincide with the revised TMDL for East Canyon Creek Watershed. The East Canyon Creek Watershed Committee retained SWCA consulting group that made recommendations this year within a presentation that summarized the revisions for both the East Canyon Reservoir and East Canyon Creek TMDLs. This presentation can be viewed at: www.swca.com/login and entering a login name “East Canyon” with the password being “TMDL”.

To summarize, SWCA recommended that the following water quality endpoints be set for East Canyon Creek: Dissolved Oxygen (DO) is set at a 1 day minimum concentration of 4.0 mg/l. The second goal is for biomass (total periphyton and macrophytes) be limited to 6.3 mg/cm². The recommendations to meet these endpoints include reducing the rate of biomass photosynthesis by 25% through channel shading, narrowing the base flow channel by 33%, or increasing the base flow by 5 cfs. While each of these recommendations is capable of meeting the endpoints on their own, the endpoints will most likely be reached through a combination of the practices related to the three recommendations. PCMC position is that by installing the

retirements and the planting of trees along the stream will result in an increase in shading. The following pictures represent the types of conservation improvements spanning from 2002 to present. For more information on the East Canyon Creek Watershed TMDL the following link has been established:

- <http://www.waterquality.utah.gov/TMDL/index.htm>



Picture 17: CRP Area 2002.

Picture 18: CRP Area 2008.

SECTION 7.0 MONITORING AND SAMPLING

During 2008, the [2007 East Canyon Watershed Sub Basin Water Quality Monitoring Results report](#) was released which was funded by Summit County. This report revealed that PCMC has significantly reduced the level of contaminants (phosphorous and total suspended solids) in the East Canyon Creek watershed. In 2000, Park City was identified as a major contributor to nearly 50 percent of the total phosphorous load within the watershed. However, the recent study that was released in 2008 reflects these areas significantly being reduced to 18 percent. PCMC attributes the improvement in water quality to Park City's Storm Water Management Plan that went into effect in 2002.

Lastly, Park City performs visual water quality monitoring during precipitation events at various locations within the city limits.

Subsection 7.1 Prospector Drain

This year PCMC with oversight from Dr. Fitch from the University of Missouri Rolla Civil Environmental Engineering Department and David Reisman who is the Director of USEPA's ORD Engineering Technical Support Center and National Risk Management Research Laboratory built the full-scale biocell for treating the Prospector Drain. As stated in previous annual reports this system is intended to treat the Prospector Drain outfall, thereby reducing the zinc and cadmium load to the Silver Creek Watershed. Picture 19 represents the unit during construction on October 7th 2008.



Picture 19: Biocell pictured to the west.

Last year the **vault** upstream from the full-scale wetland was constructed and will act as a bypass, in the event the flow exceeds the treatment capacity. This unit also has flow meter installed in order to monitor the flow entering the biocell as well as the flow bypassing the treatment unit.

The biocell project has been a four effort with three of those years operating a pilot project to research if this unit would work. **Attachment 19** contains the results for the pilot cell to June 5th 2007 and **Attachment 20** contains a summary of the sampling results for the Prospector Drain. Furthermore, Dr. Fitch has written a complete analytical summary of the results from the pilot and it is represented as **Attachment 21**. Park City employed several experts that need to be recognized for the final design. Dr. Fitch designed the unit, Al Mattes and Bill Duncan from Nature Works Remediation as well and David Reisman with USEPA provided technical oversight. Counterpoint Construction was awarded the bid to construct the unit that was completed on October 18th 2008. At this time the cell has been filled and is currently shut-in to allow the bio inoculant to become accustomed to the environment.

Currently, the redox potential (ORP) in the influent is about 240 mV, and the in-situ sample points are 40 mV. Therefore, the influent is aerobic (~4 mg/L D.O.) and the substrate now is approaching anaerobic. Although values are not precise, the following reference chart depicts ORP and expected metabolism.

- http://www.frwa.net/TRAINING/WASTEWATER/methods_of_controlling_nitrogen%20OC.htm

As a reference point, the oxidizing potential for disinfection is in the +600 to +700 mV range. Once field measurements for the wetland in situ value are below -200 mV, which is indicative of sulfate reduction the unit will be operational. However, this will be a slow gradual process since short circuiting by flushing the unit is detrimental to the anaerobic process.

Subsection 7.2 Golf Course Water Sampling

During the year of 2008, Park City Golf Course (PCGC) procured 6 water quality samples this year at seven locations on the course where perennial streams enter and exit the golf course. The samples are analyzed for the following analytical constituents:

- Nutrients
- Total suspended solids (TSS)
- Visual observation

The samples were taken to BYU laboratory and the results have not been received to date, however they will be summarized in a report at the end of the year. In previous years there have been no problems detected and it is anticipated the same will be experienced this year. This monitoring assists PCGC to detect fertilizer leaching and assess management practices. The sampling frequency for this monitoring is done once every other month during the winter and once per-month during the golf season.

SECTION 8.0 HOUSE HOLD HAZARDOUS WASTE COLLECTION

The City recognizes that as the population grows the need to develop a household hazardous waste program becomes more evident. Therefore, the City continues to promote Recycle Utah's efforts in regards to the Household Hazardous Waste Collection events.