

Burnt Bridge Creek

Storm & Surface
Water Utility

Historic
Summary
1978-1997

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**BURNT BRIDGE CREEK
HISTORIC SUMMARY
1978 -1997**

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PURPOSE

The purpose of this report is to provide county staff and others with an overall view of the Burnt Bridge Creek (BBC) Storm and Surface Water Utility from its creation in 1978 to present.

Information contained herein may be used to:

- Help determine how to improve decision making and administration of the Utility.
- Identify key policies and directions, changes in State and Federal requirements, changes in technology and accepted practices, and changes in priorities over the past eighteen years.
- Provide a general evaluation regarding the effectiveness and success of the program by comparing Utility goals and public expectations with performance.

BACKGROUND

Pollution has taken its toll on Burnt Bridge Creek for decades. Public warnings against swimming or drinking creek water date back as far as 1936 when a child became sick with Typhoid after playing in the creek. For years there was talk of cleaning up Burnt Bridge Creek, although no action was taken even though the creek was used for recreational purposes.

In the 1970's concern over the pollution of Vancouver Lake again turned attention back to Burnt Bridge Creek. Grant funding was available for the rehabilitation of the lake, but not without a plan to clean up the source of pollution...Burnt Bridge Creek. This requirement, along with growing concern over stormwater run-off and urban flooding associated with the Creek prompted both City of Vancouver (City) and County government to consider a clean water program for Burnt Bridge Creek.

PLANNING FOR A UTILITY

Following recommendations outlined in a Burnt Bridge Creek report from the Regional Planning Council, the Clark County Commissioners signed a resolution in May of 1977 which stated the intention of the county to implement a clean water program for the Burnt Bridge Creek drainage basin in cooperation with the City of Vancouver.

The resolution recognized the following:

- BBC as an important natural asset to residents, serving recreational and aesthetic needs and providing natural drainage for a large portion of the county.
- Due to rapid urbanization and lack of good storm drainage programs the creek had deteriorated and become polluted.
- Protection of creek and aquatic life was an important responsibility and opportunity for the City and County.
- Clean-up of the Creek was vital to rehabilitation of Vancouver Lake, to which both the City and the County were committed.

The 1977 resolution (1977-12-29) directed staff of the City and County to find ways to establish a surface and storm water utility in cooperation with property owners, to coordinate implementation and develop standards for the following goals:

- Control runoff from all new development within the BBC Basin
- Storage of excess runoff
- Retention of the recharge function of all designated sink areas
- Provision of stream bank stabilization where necessary
- Creation of vegetative buffers for temperature control and habitat enhancement at selected locations.
- Treatment of first flush discharge from major storm drain systems
- Establishment of permanent comprehensive quantity and quality monitoring program
- Connection to sanitary sewer system as soon as possible of all developments within the basin currently served by septic tanks.

UTILITY ADOPTED

In September of 1978, following months of cooperative planning, the City of Vancouver and Clark County implemented the authority of RCW 36.89 and established, by separate ordinances, a surface water management utility in the Burnt Bridge Creek drainage basin. The Clark County ordinance included the unincorporated County areas in the basin, while the City of Vancouver ordinance included that portion of the basin within the City limits.

INTERIM MANAGEMENT BOARD

In 1979 an Interim Management Board was created to advise the City and the County on how to implement the program. The duties of the Interim Board dealt with defining the following:

- Develop a scope of work, financial implications, and funding options available.
- Recommend rates, work programs, budgets etc.
- Recommend to City Council and County Commissioners a permanent organization structure.
- Develop institutional arrangements for expansion of the service area and financing options for equitable treatment of customers in service areas.

PROGRAM GOALS

In a December 1979 report the Interim Board outlined the following program goals for the BBC Utility, under which the Utility has continued to operate with only minor modifications.

- Improve the quality of the water in Burnt Bridge Creek.
- Achieve water quality improvement as efficiently as possible.
- Establish priorities and deal immediately with the primary contributors to the problem.
- Pursue an achievable program with the least cost to the residents.
- Achieve an equitable funding program.
- Stop compounding the problems that already exist in the basin.
- Develop a program that has the ability to expand into other drainage basins in the County.
- Emphasize non-capital intensive solutions where feasible.
- Maximize public benefit of such a program by coordinating with existing programs and, where possible, achieving multiple use of drainage and water quality related facilities.
- Achieve an effective flood control program.

The report further recommended that Clark County be the responsible agency for the program and the establishment of a permanent Advisory Board with representation from affected groups.

WORK PROGRAM

To achieve the established goals, the Board also developed the following work program elements:

Regulatory

Complete regulatory tasks pertaining to Vancouver Lake Grant, future development, septic systems, and agricultural practices within the basin.

Planning

Adopt a single plan for the drainage area pertaining to public and private actions in the basin. A 1979 Burnt Bridge Creek Plan to be reevaluated and amended as necessary. The plan will be reviewed annually to insure relevancy and compensate for new developments or data.

Criteria Manual

Draft a uniform system criteria manual for design and maintenance of drainage facilities. The manual to also to address development standards for management of increase surface runoff from new developments; 1) Developers of non-residential property to be encouraged to provide on-site runoff management facilities, and 2) Policy to be established for credit for payment to regional facility fund in lieu of on-site facilities.

Inventory of Structural Deficiencies

Identify all structural deficiencies in existing drainage facilities that may need capital improvements.

Septic System Identification and Elimination

Identify the number and location of all existing septic systems in the Burnt Bridge Creek Basin. Identify linkage between septic systems and water quality problems. Begin enforcement of mandatory program to require elimination of septic systems in areas contributing to water quality problems.

Monitoring Programs

Create a program of inspections and monitoring to determine cost-effectiveness of various management practices as well as public priorities dealing with street sweeping or basin cleanouts. Identify and quantify specific problems contributing to poor water quality and flooding for future guidance and capital improvements.

Drainage Districts

Evaluate the role of existing drainage districts.

Maintenance Program

Establish a maintenance program for existing system, detention ponds, creek channel, vaults, etc. The Criteria Manual to set maintenance standards.

Flood Control Improvements

Conduct cost-effective analysis and flood control measure proposed in 1979 capital improvement report.

AUTHORITIES ESTABLISHED

In July of 1980 an intergovernmental agreement was signed between the City and County to establish administrative procedures of the Utility. The agreement formally established authorities, service areas, and the Utility Advisory Board. Clark County was specified as responsible for administration of the Utility program, with full and exclusive power and authority to operate and manage the utility.

ADVISORY BOARD

The Advisory Board consisted of five members; two appointed by the City - a city employee and a non-employee; two appointed by the County - a county employee and a non-employee; and a fifth member jointly appointed by the City Mayor and Chair of the Board of County Commissioners. The duties of the board were to recommend priorities for the utility work program, recommend fees and budgets, and coordinate with other involved agencies.

Original members were; Jerry Fay, Clark County, Vernon Stoner, City of Vancouver, Dan Milwicz, Robert Tokarczyk, and Louis Natta. John Ostrowski, Clark County Public Works was the staff person assigned to the board, however, later became chairman after transferring employment to the City of Vancouver.

Meetings of the Advisory Board continued with various changes in membership until September of 1987 when meetings were discontinued by mutual agreement of the Director of Public Works, George Stillman and Board Chairman John Ostrowski. It was felt the Board had served its purpose and was no longer necessary.

The adopted 1996 Burnt Bridge Creek Plan called for a new citizen board to be established in 1998. This new group serves as a utility sounding board and provides input on priorities for the watershed.

RATES ESTABLISHED

Annual Utility rates were established by County ordinance in June of 1980. The ordinance specified single family residences to be charged \$15; multiple family and private schools to be charged \$110 an acre; and commercial industrial properties to be charged \$143 per acre. Vacant land, in its natural state and not contributing runoff was/is exempted. Also exempt were public and government properties as long as their drainage systems conformed to the Criteria Manual for storm drainage design, construction, and maintenance, and were perpetually maintained without cost to the Utility.

The adopted rates were significantly lower than those initially recommended by the Interim Management Board. The Board's first recommendation was \$25 per year, for single family residences, to accomplish the established goals of the Utility. However, a reduced rate of \$15 was finally settled upon, eliminating the funding for capital improvements and acquisitions until a future study could be completed.

By adopting lower fees than recommended, many of the program goals could not be met. Furthermore, without any increase in fees in sixteen years, inflation has further reduced the effectiveness of the utility in meeting its original goals.

A rate reduction for senior citizens was adopted in 1981 after numerous letters, phone calls and a petition were received. As a result, qualifying seniors are eligible for a 50% reduction in their utility fees.

In 1986, State law was changed, making public lands subject to collection of Utility fees. Subsequently, in 1987, County ordinance was also modified and approved to reflect this change. Fees were calculated and all appropriate public entities were notified of their obligation. As with private properties, public properties are eligible to appeal their rate if the property provides for, or mitigates a portion of, their storm water runoff on-site.

One exception is property considered state highway right-of-way, which, under State law, can only be charged only 30% of the regular rate. To date, all public entities have paid their required share with the exception of one federal agency, which is contesting its requirement to pay.

In 1997 utility rates were increased to \$21 for single family residences; \$185 an acre for multi-family; and \$240 an acre for commercial properties. This was the first rate adjustment since the establishment of utility rates in 1980.

BILLINGS

Following formation of the Utility, the method of billing was subject to extensive research by staff and a private consultant hired by the Utility. Initially, billings were to be included on tax statements, however this was soon determined not to be legal.

The first of seven billings for 1981 were mailed out in February of 1981. Payments were received by the Utility Section staff, then turned over to the Public Works Accounting staff for depositing with the Treasurer's Office. The Auditor's Office was then responsible for the accounting of revenue and expenditures within the Utility Fund.

Numerous articles about the Utility and its associated fees appeared in local papers. The County held open houses and sent out mailers informing the public of the Utility's formation and upcoming fees. In spite of this outreach effort, there was a significant public outcry of surprise and objection in response to the new fees.

A number of residents refused to pay the new fees, which resulted in home liens being filed against around 1,000 homes. One opponent to the new fees was Ken Teters, a former County Commissioner. Mr. Teters felt the formation of the Utility and subsequent fees were illegal and, in an effort to rescind the "tax", filed a lawsuit in Clark County Superior Court. In 1983, after 18 months the lawsuit failed when the courts ruled the Utility fees were legal and appropriate.

In 1986, after experience and further study, it was determined to be more efficient and cost effective to transfer responsibility for billing and collection to the Treasurer's Office. Also, billings were changed from seven cycles to one cycle mailed in February and due April 30th. In 1997, billing dates were again changed and are now mailed in May and due in June.

SYSTEM DEVELOPMENT CHARGES

Utility staff, in a 1987 BBC Utility Report, recommended the adoption of "system development charges" for new development. This was in response to capital expenditures recommended in a 1986 BBC Flood Control Study by Clark County staff.

Under the established rate schedule, most capital construction money was generated from existing basin occupants. This was not considered an equitable funding systems since a large number of drainage improvements were necessary because of new development. In an effort to require future development to "pay its own way" and finance the identified capital improvement program, the following charges were recommended:

<i>Land Use</i>	<i>System Development Charge</i>	
Single Family	\$2,340	(per acre)
Multi-Family	\$3,250	"
Commercial	\$4,250	"

The charges, however were never formally adopted. Instead, developers had the option of paying a drainage "contribution" equal to the proposed system development charge. By paying the drainage contribution a developer was relieved of any requirements to control runoff from their development.

In 1993, collection of drainage contributions was discontinued by the Water Quality Manager because the contributions did not adequately compensate for the impacts of increased runoff from new development. Without the option of drainage contributions, developers had to construct on site stormwater facilities on all new development sites where county facilities did not exist.

PROGRAM ACHIEVEMENTS

Regulatory

In 1981 the Utility completed tasks associated with the Vancouver Lake Grant and 208 Water Quality Program. A drainage and erosion control inspector was hired to deal primarily with emerging problems in enforcing run-off and the erosion control ordinance. This regulatory function was an ongoing task of the Utility.

Stormwater regulations were adopted by the County in 1981 and work began on a Criteria Manual in cooperation with the Water Resources Committee of the Home Builders Association. The Criteria Manual was to deal with issues such as drainage policy and authority, hydrology, hydraulics, detention volume calculations, and detention systems design and calculations. A comprehensive Criteria Manual covering *both* design and maintenance issues was never completed, however a design manual was drafted.

In the early 1990's a new series of water resource protection ordinances were adopted by the county to protect Burnt Bridge Creek and other waterbodies. These laws included:

- Wetlands Protection Ordinance - January 1992
- Erosion Control Ordinance - February 1993
- Stormwater Control Ordinance - January 1994
- Vegetation Clearing Ordinance - May 1994

Planning

The 1981 work program called for a master drainage plan to be prepared, including an analysis of existing easements and easements required for a Utility maintenance program. The firm, Parametrix Inc. was selected as the consultant for this plan, dealing with flood control and capital improvements.

The completed plan, released in early 1984, identified capital improvements necessary to control flooding in the basin. A significant finding was that on-site runoff controls were ineffective in controlling stormwater runoff and that flood management must be addressed on a regional approach.

Following the 1984 Flood Control Study, a Capital Improvement Plan (CIP) and financing package were completed in 1985 identifying 18 million dollars in capital improvements. These improvements were later addressed in a 1987 BBC Utility Report. The plan recommended system development charges to compensate for the effects of new development. Because of this plan, the Utility was awarded a Department of Ecology Grant of \$163,000 in 1985 and another \$55,000 in 1986. However, no new local funding, e.g. system development charges, were implemented.

Due to changes in project priorities, completion of some projects, and changes in funding, a Five Year Capital Improvement Program (1989-1993) Report was completed in 1989 updating the priority list established in 1987.

In 1996, building upon previous knowledge, an extensive watershed planning effort by Clark County staff resulted in the adoption of the Burnt Bridge Creek Watershed Plan by Clark County. Responsibilities for Burnt Bridge Creek within the City limits was also transferred to the City of Vancouver in 1996.

Inventory of Structural Deficiencies

A complete inventory of structural deficiencies was included in the 1987 Burnt Bridge Creek Utility Report which identified 18.3 million dollars of capital improvements for main channel BBC, nine sub-basins, and two major sink areas. The 1987 Technical Report on Main Stream Burnt Bridge Creek identified one million dollars in improvements alone and was included in the Utility Report.

Septic System Identification and Elimination

The existence of septic systems within the basin was immediately recognized as a major source of pollution in Burnt Bridge Creek. Soil conditions in many areas of the basin do little to slow the flow of septic effluent into the creek.

In 1981, the work program called for primary pollution sources to be identified and program established to connect those failing septic tanks to public sewer. It was recognized that this would be a phased in connection program, and several years were expected to accomplish this task.

It was also recognized in 1981 that the Oakhurst subdivision was a significant source of septic pollution into BBC. Public sewer was identified as the only answer to this water quality problem. Subsequently, a Local Improvement District was formed resulting in connection of this area to public sewer.

In 1982 the Health District estimated the number of septic systems in the basin at 9,587, calculated from the recorded number of sewer hook-ups with the City of Vancouver. This method of calculation was felt to be most accurate, short of dye testing each household, which was seen to be prohibitive at the time. In 1986 these figures were revised to approximately 7,500 septic systems.

In 1992 the Utility completed an extensive septic tank inventory using dye testing to further identify the location of septic systems. As a result, it was determined of the 22,251 developed properties in the basin, 6,999 were using a septic tank disposal system. Of this number, 1,596 had public sewer available.

Through the cooperative efforts of the Utility, the City of Vancouver, and the SW Washington Health District, over 900 septic tank systems have been eliminated in the BBC Basin. Many of these were replaced with sewer connections following the formation of LID's (Local improvement districts) in three of the worst areas suspected of fecal contamination.

The Utility plays only a supporting role in the elimination of septic systems. The City of Vancouver, as the sewerage agency, has control over the sewer system. Homeowners on septic systems cannot legally be required to hook up to sewer without a declaration of a public health *emergency* by the Health District, which has not been issued. However, as a penalty, they are billed at the same rate as sewer customers. Funds collected as penalties are used to fund the Septic Tank Elimination program initiated in 1992 by the City of Vancouver.

The Septic Tank Elimination Program provides monetary assistance to households wishing to connect to public sewer. Due to the popularity of this program, failing systems are prioritized first. Only those households with sewer lines available are eligible for the program. The next step for the City is to extend sewer lines to all other areas in their service district, however this will take an estimated 20 years to complete.

Monitoring Programs

Water Quantity

The purpose of water quantity monitoring is to provide site-specific data for a number of applications, such as trends or changes in run-off compared to rain storm intensity, level of pollution "loading" in the stream, and the correlation of stream flow to rainfall. This relationship can be used to calibrate a hydrologic computer model to simulate water movement within the watershed. From the model, engineers can

determine the necessity for, and size of, drainage facilities and other structures that prevent flood damage or otherwise minimize the impacts of land use changes.

Clark County began water quantity monitoring in March of 1976 when the County took over operation and maintenance of two precipitation gauges previously maintained by a consultant as part of the 208 Grant Study of the Burnt Bridge Creek Watershed. These are located on the roofs of Fort Vancouver High School, 5700 E 18th Street and Orchards Elementary School at 7000 NE 117 Avenue.

Later in 1978, three stream flow monitoring gauges on BBC were also taken over by county Staff. These are located on BBC at the crossings of NE 2nd Avenue, E 18th Street, and NE Royal Oaks Drive.

Water Quality

Since 1980 between 3,000 and 4,000 water quality tests have been performed annually by the SW Washington Health District, contracting with the Utility. Up to thirteen sites are sampled monthly for a range of chemical, physical, and biological characteristics as well as for stream dwelling bugs. Information on the species occurring in the creek, combined with knowledge of their sensitivities to various forms of pollution, generates information on the overall pollution stress experienced by the creek and provides a better understanding of the creek itself.

According to the 1994 BBC Water Quality report, water quality in Burnt Bridge Creek still exceeds federal and state standards. However, some improvements have been made on tributaries, such as St. Johns and Peterson's Ditch. While water quality has not improved in Burnt Bridge Creek itself, levels have held steady in the face of years of intense development in the basin.

Maintenance Program

Debris removal began immediately after the formation of the utility. In the first two years of operation, over nine miles of channel was cleaned of debris. Items removed from the stream and its banks include 737 tires, 30 beer kegs, 10 fifty-five gallon drums, 36 shopping carts, 6 sofas, a washing machine, one 750 gallon tank, a hot water heater, a car frame, various auto parts and numerous wood debris jams.

Two full time staff are currently devoted to maintenance and upkeep of BBC and its tributaries. A major task is debris removal, especially before and after a significant rainstorm when garbage and vegetation can block culverts and drains. Year round the maintenance staff removes tires, toys, logs, grocery carts and hazardous waste from the stream and its banks.

Maintenance also includes the construction or repair of fences along the creek and treatment facilities, watering and fertilizing plants at restorations sites, vegetation management along the stream corridor, clean-up and maintenance of swales, and excavation for construction of stormwater facilities. Maintenance staff is often involved in correcting erosion problems caused by increased run-off. Stream banks, weakened by erosion, need to be stabilized and often require the installation of rip-rap or other materials to prevent collapse and further damage.

Flood Control Improvements

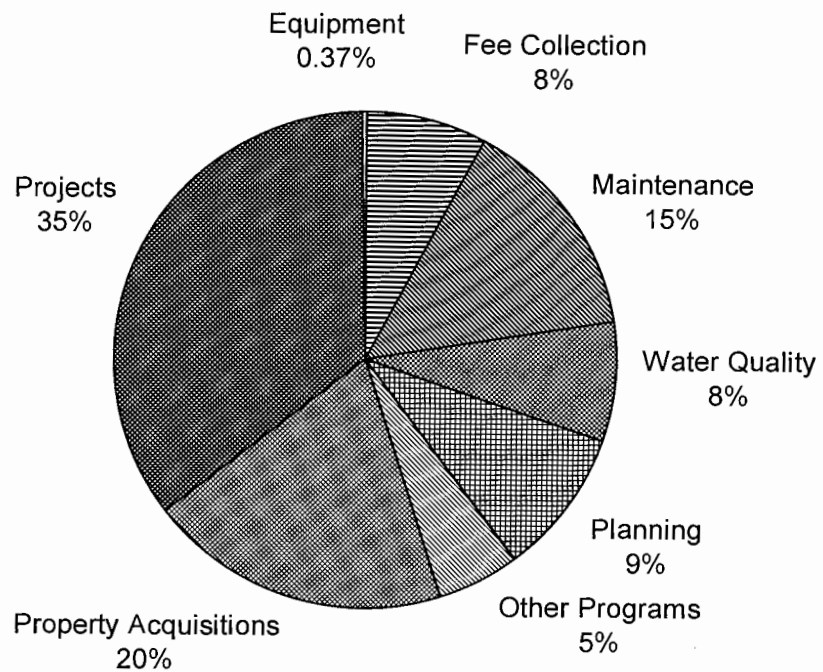
Numerous projects have been completed since the formation of the utility to improve flood control. These include channel maintenance and erosion control, construction of storm lines, construction of stormwater detention facilities, and property acquisitions and easements. (*refer Appendix B Significant BBC Projects*)

BUDGET

These charts show total revenue and expenditures of The Burnt Bridge Creek Utility from 1981 to 1997. Refer to Appendix C for complete breakdown of Utility expenses by year.

ITEM	TOTAL 1981-1997
Revenue	\$12,785,498
Service Fees	10,127,066
System Dev. Charges	1,412,541
Grants	456,127
Interest	498,710
Other Sources	291,054
Expenditures	\$11,646,103
Administration	1,313,513
Fee Collection	831,170
Operations	3,897,471
Maintenance	1,561,597
Water Quality	800,835
Planning	969,432
Other Programs	547,607
Capital Improvements	5,621,949
Property Acquisition	1,980,575
Projects	3,604,128
Equipment	37,246

Distribution of Burnt Bridge Creek Expenditures 1981 - 1997



SUMMARY - ACCOMPLISHMENT OF GOALS

- Burnt Bridge Creek still has problems and is still impacted by the effects of urban runoff; pollution, erosion, and flooding.
- A key problem is public perception
The Utility was explained to the public as a means of meeting a whole series of important goals. However adequate fees were not adopted to meet these goals and system development charges were never adopted. Therefore, the utility has been severely handicapped from the beginning.

Also, the general public has been given an unrealistic expectation of how soon positive changes will be seen in the creek. Restoring nature takes time, as other communities involved in stream restoration have found.
- Over the past ten years the utility has used its limited funds to meet the following objectives:
 - Monitoring
 - Maintenance
 - Administration
 - Planning
- Money collected from developer contributions has been combined with a limited amount of fee and grant revenue to:
 - Purchase significant pieces of land
 - Build regional stormwater facilities, e.g. Meadowbrook, Parkway Ponds, Burton Fields, Glenwood
 - Improve and restore the stream channel
- Overall, BBC Utility has been effective in flood control, drainage, storage, open space and conveyance of stormwater. However, success has been minimal in lowering pollution levels, in part due to limited funding and the effects of intense and rapid development within the basin.

APPENDIX A: Significant Reports, Laws, Policy Changes, Etc.

YEAR	SIGNIFICANT REPORTS, LAWS, POLICY CHANGES	KEY POINTS
1977	<i>Burnt Bridge Creek Drainage Management Plan</i> Resolution signed by County Commissioners to implement clean water program in BBC in cooperation with City of Vancouver	<ul style="list-style-type: none"> Examined main channel of BBC and called for 3.4 million dollars in capital improvements. Grant funding for clean-up and restoration of Vancouver Lake dependent upon development and implementation of program to concurrently clean up Burnt Bridge Creek
1978	Adoption of drainage ordinances by both City of Vancouver and Clark County Burnt Bridge Creek Surface and Storm Water Utility formed by separate ordinances - City of Vancouver and Clark County	<ul style="list-style-type: none"> Required that storm water flow rates generated after development could not exceed flow rates prior to development As result, each development to construct drainage retention or detention facilities on site. Facilities proved expensive to maintain, expensive to construct and, even though "state of the art" at time of construction, have been less effective than anticipated in managing stormwater. <p>Utility Goals:</p> <ul style="list-style-type: none"> Improve quality of water in BBC Achieve improvement as efficiently as possible Establish priorities and deal immediately with the primary contributors to problem Pursue an achievable program with the least cost to residents Achieve an equitable funding program Stop compounding existing problems Develop a program that may be expanded to other basins Emphasize non-capital intensive solutions where feasible Coordinate with existing programs and plan multiple use facilities
1979	BBC Interim Management Board established	<ul style="list-style-type: none"> Charged with developing scope of work, recommending rates, work programs, budgets, service areas, permanent organizational structure and service areas.
1980	Intergovernmental agreement between City and County Rates established by County ordinance	<ul style="list-style-type: none"> Established authorities, service areas and Utility Advisory Board \$15 - single family, \$110/acre - multifamily, \$143/acre - commercial annually Public property exempt Property in natural state exempt
1981	Utility begins operations and billing	<ul style="list-style-type: none"> Over 1,000 irate callers following billings Liens filed against 1,000 homes for non-payment of bill Lawsuit filed against Utility in Clark County Superior Court
1984	<i>Burnt Bridge Creek Drainage Basin Flood Control Study</i> (Parametrix Inc.)	<ul style="list-style-type: none"> Identified 4.01 million dollars in improvements for BBC and its main tributaries
1986	State law changed to include public lands as subject to Utility fees. County ordinance modified to reflect this change in 1987	<ul style="list-style-type: none"> Fees calculated and public entities notified. Eligible to appeal rates if runoff mitigated on site. State highway right-of-way by State law only subject to 30% of regular rate.
1987	<i>1988 Burnt Bridge Creek Utility Report</i> <i>BBC Septic Tank Elimination Discussion Paper</i> Meetings of BBC Advisory Board discontinued	<ul style="list-style-type: none"> Identified 18.3 million dollars of capital improvements for main channel BBC, nine sub-basins, and two major sink areas. Modified Utility goals and objectives, with significant emphasis on capital improvements for drainage, conveyance, and storage of stormwater. Recommended regional approach to storm water management. Established system development charges to compensate for future development Contains policy statements of City of Vancouver and Clark County that no new septic tank permits be issued in basin and support should be given to Septic Tank Elimination Program <p>Mutual decision of Director of Public Works and Board Chair that advisory board had served its purpose</p>

Reports, Laws, Policies, Continued

YEAR	REPORTS, LAWS, POLICIES ETC.	KEY POINTS
1989	<i>Five Year Capital Improvement Program Report 1989-1993</i>	<ul style="list-style-type: none"> • Updated priority list of projects from 1987 Utility Report • Outlined \$3,136,074 in capital improvements needed over next five years
1992	<p>Clark County Water Quality Division formed with responsibility for BBC Utility</p> <p><i>Septic Tank Inventory Completed</i></p> <p><i>Wetlands Protection Ordinance</i> adopted - January</p>	<p>Multi-disciplinary team approach to BBC initiated</p> <p>6,999 septic in basin, 1,596 with sewer available</p>
1993	<p>Collection of developer contributions stopped</p> <p><i>Erosion Control Ordinance</i> adopted - February</p>	Contributions inadequate compared to needs created
1994	<p><i>Stormwater Control Ordinance</i> adopted</p> <p><i>Vegetation Clearing Ordinance</i> adopted</p> <p>BBC planning initiated</p> <p>City of Vancouver forms city-wide utility</p>	
1995	<p>Watershed Protection Program developed by Clark County</p> <p>City of Vancouver takes over billing for BBC</p>	
1996	<p>Vancouver takes over lead responsibilities for BBC inside city limits</p> <p>Watershed Protection Program adopted by Board of County Commissioners</p>	
1997	City of Vancouver annexes 4,482 acres. New fees adopted based on 1996 Watershed Plan	

APPENDIX B: Significant BBC Projects from 1978

YEAR	LOCATION	ACTION
1978	Kavana Property NE 47 Street on BBC	Property acquisition of 4.22 acres
1980	Royal Oaks Facility North of Burton Road and east of BBC	Property acquisition of 2.2 acres
1982	BBC - Devine Road to Royal Oaks Drive BBC - I-205 to NE 137 Ave BBC - West of Alki Rd	Both sides of channel cleaned of brush and bank slopes re-established over 2.2 miles of creek channel Bank slopes cleaned and re-established over 1.8 miles of channel Three channel areas of high erosion stabilized with 310 tons of rock along with bank cleaning
1983	BBC - I-205 to NE 137 Ave BBC - North of Fourth Plain and west of Falk Rd Cold Creek - At Hazel Dell Ave BBC - general	Hauling and disposal of waste material from 1982 project Unsafe sediment structure modified to allow for drainage and improved sediment control Channel modification for flood prevention. Removal of undersized culvert, channel left open. 4.3 miles of channel mowed in pilot program to reduce routine maintenance
1984	BBC - Main channel and tributaries Long Acres - 6300 block of NE 140 Ave La Hacienda - NE 54 Street and NE 23 Ave	1.78 miles - removal of brush and vegetation impeding stream flow, reshaping of channel banks for more efficient flow capacity, and removal of silts Ineffective detention pond removed and reseeded Detention pond cleaned of brush and regraded for easier maintenance
1985	NW Alki Rd and NW 2nd Ave BBC - NE Fourth Plain BBC - E 18th Street BBC - E 18th Street to Andresen Rd BBC - NE 15 Ave and NE 41 Circle General	Undersized culverts causing flooding, replaced by bridges. Channel improvement completed by resloping banks, channel grading, and installation of 300 tons of rip-rap along 1000 lineal feet of bank 60" concrete culvert pushed under NE Fourth Plain to increase flow capacity and fish passage Two existing culverts replaced with larger aluminum box to reduce flooding potential Channel widened, banks resloped, trees planted along 16,200 lineal feet (3+ miles) Acquisition of 0.7 acres 5.47 miles of vegetation maintenance and debris removal in Cold Creek, Burton Channel, Bagley Downs Tributary and general mowing
1986	BBC - NE 47 St to NE 112 Ave BBC - NE 41 Circle near SR 500 BBC - NE 28 Street - NE 112 Ave to NE 119 Ave BBC - Near NE 97 Ave Burton Channel - East of NE 102 Ave North of BBC and east of Devine Road North of Vancouver Mall General	Channel and banks widened and reshaped to reduce upstream flooding and bank erosion along 1,872 feet of channel Re-alignment and construction along 475 feet of channel to prevent erosion of steep unstable slope Construction of 920 feet of storm line to relieve flooding in Burton Area Culvert installation to reduce flooding to two homes adjacent to creek Bank sloping and erosion correction Acquisition of 18.5 acres right of way for <i>Lower Andresen Facility</i> Acquisition of 6.9 acres for <i>Glenwood Facility</i> Channel mowing, care and planting of shade trees and detention facility maintenance
1987	<i>Glenwood Detention Facility</i> - North of Vancouver Mall BBC - East of St. Johns NE 77 Ave to Van Mall Drive BBC - North of Burton Rd, near Royal Oaks Golf Course	Phase I of construction, 7.1 acre Channel and inlet improvements Construction of Andresen storm line - 2,380 feet of 24" pipe Acquisition of 21 acres for <i>Royal Oaks Facility</i>
1988	BBC - NE 112 Ave to NE 121 Ave BBC NE 47 St to I-205 Cold Creek - east of Hwy 99 North of SR 500 east of Andresen	Channel improvements - partially funded by DOE Grant Channel improvements - partially funded by DOE Grant Channel and inlet improvements near Ross Complex <i>SR 500 Detention Facility</i> (Parkway Ponds, Phase I) construction - 15 acres

Significant BBC Projects Continued

YEAR	LOCATION	ACTION
1988 cont'	NE 72 Ave and NE 57 St <i>Thomas Lake Detention Facility</i> <i>Royal Oaks Facility - NE 48 Ave and NE 52 Street</i> NE 77 Ave to NE 57 Street	Construction of trunk storm line Purchase of flood rights and easements for 7.5 acres Acquisition of additional 8.1 acres Construction of trunk storm line
1989	Burton Channel - NE 19 Circle to I-205 BBC - North of Fourth Plain BBC - NE 17 Ave NE 145 Ave and NE 28 St	Regrading of stream bed and channel banks due to silt and numerous blockages along 4,200 feet of channel (project saved \$800,000) in piping costs. Rip-rap of erosion areas and construction of overflow channel to prevent flooding along 900 feet of channel. Improved fish passage at Fourth Plain culvert. Storm line construction <i>Burton Facility -15.9 acre purchase</i>
1990	South of NE 28 Street near Burton Elementary School and NE 148 Ave	Purchase of additional 14.3 acres for <i>Burton Facility</i> Portion later sold as excess property - revenue reflected in 1992 Budget
1991	Cold Creek - NE Minnehaha to Railroad track NE 76 Street near Ward Road BBC - South of NE Burton Rd	Channel stabilization and restoration of erosion problem. Partially funded by Department of Ecology Grant Storm line Construction Construction of <i>Meadowbrook Marsh Facility</i> - partially funded by Department of Ecology Grant
1992	<i>Meadowbrook Marsh Facility</i> Cold Creek - At Railroad track <i>Burton Fields Facility</i> SR 500 Between Thurston Way and Andresen	Wetland planting Undersized culvert replaced. Additional property acquired to expand <i>Crystal Creek Project</i> Preliminary design and construction <i>Parkway Ponds</i> - settling basin added to remove silt from stormwater
1993	SR 500 between Thurston Way and Andresen BBC - At NE 41 Circle, east of I-5	<i>Parkway Ponds</i> - expansion creating more open water <i>Oxbow Pond Facility</i> - construction of detention pond for filtering stormwater
1994	Parkway - SR 500 west of Thurston Way <i>Glenwood III Stormwater Facility</i> <i>La Hacienda Stormwater Facility</i> BBC at Andresen	Deepening and lengthening of channel to improve stormwater treatment Construction Expansion Acquisition of 13.6 acres for stormwater facility
1995	<i>Crystal Creek Stormwater Facility</i>	Property acquisition 7.0 acres
1996	Cold Creek Canyon	Slide stabilization
1997	NE 60th Street west of Andresen Road	Drainage system construction to relieve flooding in the area

APPENDIX C: Budget Summary, continued
 SUMMARY OF BURNT BRIDGE CREEK ANNUAL BUDGETS 1981 - 1997

YEAR	1989	1988	1987	1986	1985	1984	1983	1982	1981
Number of Customers	20,999	20,222	19,965	19,829	19,718	19,526	19,510	19,074	19,875
Single Family	18,533	18,267	18,106	18,005	17,916	17,740	17,711	17,215	18,081
Multi Family	1,194	1,192	1,183	1,168	1,163	1,159	1,157	1,069	0,851
Commercial/Industrial	772	763	676	656	639	627	642	790	943
Revenue	\$1,008,479	\$1,028,761	\$708,342	\$514,723	\$629,481	\$457,382	\$428,939	\$430,598	\$418,174
Service Fees	\$705,225	\$772,611	\$449,898	\$425,111	\$430,378	\$424,582	\$413,371	\$426,757	\$402,048
System Dev. Charges	\$222,396	\$212,012	\$230,021	\$34,754	\$10,981				
Grants	\$48,806	\$32,914	\$2,260	\$54,619	\$162,995				
Interest	\$32,052	\$11,224	\$26,163	\$0,239	\$25,127	\$32,800	\$15,568	\$3,841	\$16,126
Other Sources									
Expenditures	\$933,009	\$1,096,879	\$536,634	\$441,415	\$1,230,329	\$237,397	\$309,756	\$270,856	\$277,043
Administration	\$41,113	\$69,887	\$52,067	\$52,451	\$49,704	\$54,635	\$61,907	\$50,027	\$52,189
Fee Collection	\$53,557	\$65,701	\$23,906	\$39,850	\$34,910	\$21,288	\$46,090	\$55,048	\$47,311
Operations	\$168,512	\$159,163	\$148,237	\$123,490	\$201,974	\$136,053	\$181,097	\$150,875	\$116,900
Maintenance	\$84,222	\$66,745	\$32,617	\$47,707	\$56,773	\$54,283	\$37,988	\$58,126	\$44,380
Water Quality	\$58,630	\$49,707	\$51,873	\$51,666	\$44,514	\$53,506	\$44,027	\$48,222	\$46,840
Planning	\$4,640	\$20,515	\$25,028	\$0,155	\$38,551	\$5,319	\$63,392	\$27,351	\$3,277
Other Programs	\$21,020	\$22,196	\$38,719	\$23,962	\$62,136	\$22,945	\$35,690	\$17,176	\$22,403
Capital Improvements	\$669,827	\$802,128	\$312,424	\$225,624	\$943,741	\$25,421	\$20,642	\$14,906	\$60,643
Property Acquisition	\$401,519	\$147,830	\$110,432	\$52,253	\$300,675	\$0,923	\$0,091	\$3,927	\$60,643
Projects	\$288,308	\$654,298	\$201,992	\$173,371	\$643,066	\$24,498	\$20,551	\$10,979	
Equipment									

**APPENDIX C: Budget Summary
SUMMARY OF BURNT BRIDGE CREEK ANNUAL BUDGETS 1981 - 1997**

YEAR	TOTAL	1997	1996	1995	1994	1993	1992	1991	1990
Number of Customers		8,626	16,701	24,440	23,318	22,506	22,157	21,486	21,096
Single Family		8,151	15,610	22,229	21,123	20,338	20,030	19,472	19,116
Multi Family		134	629	1,307	1,305	1,300	1,269	1,212	1,202
Commercial/Industrial		341	462	904	890	868	858	802	778
Revenue	\$12,785,498	\$306,245	\$551,347	\$933,621	\$975,653	\$1,126,440	\$1,197,818	\$991,845	\$877,850
Service Fees	\$10,127,066	\$452,328	\$505,065	\$840,128	\$844,121	\$799,798	\$778,083	\$727,523	\$730,039
System Dev. Charges	\$1,412,541			\$50,000	\$82,708	\$271,777	\$160,529	\$84,829	\$102,534
Grants	\$456,127						\$11,755	\$77,939	\$14,839
Interest	\$498,710	\$49,102	\$42,782	\$43,493	\$48,824	\$50,223	\$26,154	\$44,554	\$30,438
Other Sources	\$291,054	\$4,815	\$3,500			\$4,642	\$221,097	\$57,000	
Expenditures	\$11,646,103	\$363,895	\$415,369	\$1,151,405	\$995,297	\$635,192	\$637,913	\$1,021,058	\$1,092,656
Administration	\$1,313,513	\$56,587	\$79,608	\$124,874	\$159,173	\$124,997	\$107,244	\$100,439	\$76,611
Fee Collection	\$831,170	\$45,262	\$48,448	\$50,550	\$39,123	\$62,731	\$60,504	\$71,059	\$65,832
Operations	\$3,879,471	\$153,834	\$268,959	\$667,065	\$523,011	\$268,900	\$166,045	\$234,196	\$221,160
Maintenance	\$1,561,597	\$104,129	\$139,472	\$192,047	\$181,955	\$108,520	\$107,084	\$135,155	\$110,394
Water Quality	\$800,835	\$2,247	\$24,602	\$62,070	\$59,171	\$60,780	\$21,568	\$60,646	\$60,766
Planning	\$969,432	\$26,192	\$74,749	\$384,128	\$231,499	\$44,560	\$19,964	\$38,395	\$0,112
Other Programs	\$547,607	\$21,266	\$30,136	\$28,820	\$50,386	\$45,040	\$17,429	\$38,395	\$49,888
Capital Improvements	\$5,621,949	\$108,212	\$18,374	\$308,916	\$273,990	\$188,564	\$304,120	\$615,364	\$729,053
Property Acquisition	\$1,980,575	\$18,374	\$18,374	\$215,021	\$134,889	\$22,535	\$60,856	\$236,653	\$195,580
Projects	\$3,604,128	\$89,838		\$56,649	\$139,101	\$166,029	\$243,264	\$378,711	\$533,473
Equipment	\$37,246			\$37,246					

NOTE:
1992 "Other Sources" reflects revenue from sale of excess property