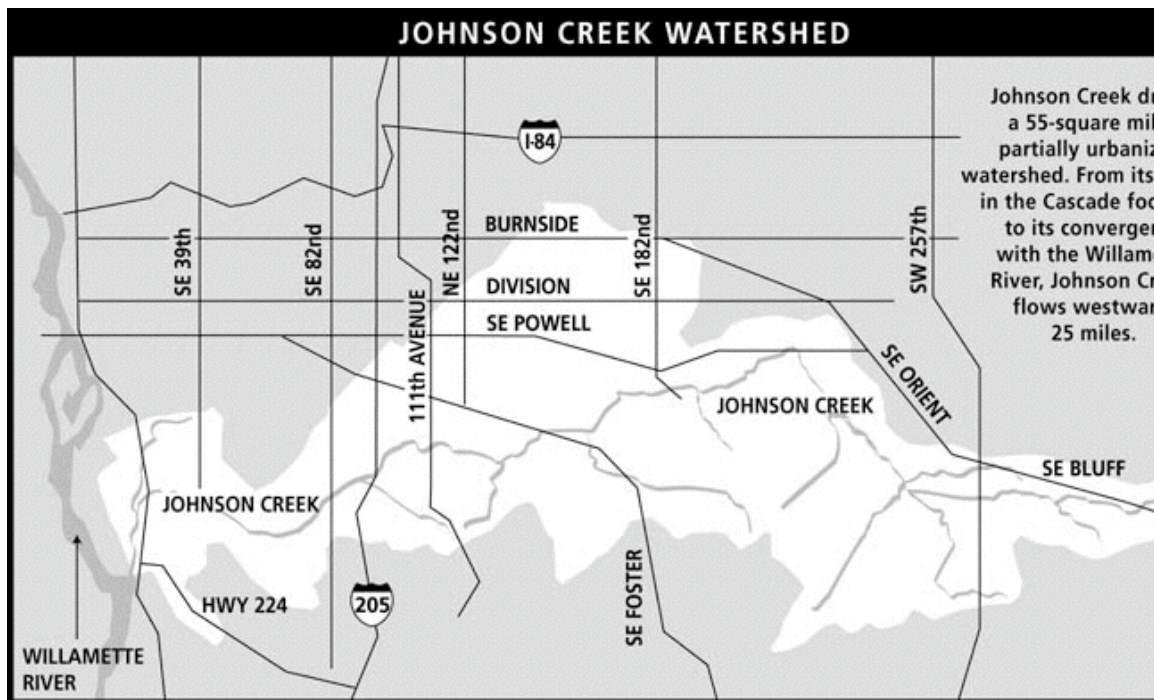


THE JOHNSON CREEK STORY

The story of a small urban stream in southeast Portland, beset with innumerable environmental problems that for decades defied technocratic solutions provides a rich illustration of how the transformation of civic infrastructure contributed in critical ways to determining solutions to intractable environmental problems. Johnson Creek was beset by many of the usual problems of urban streams such as poor water quality, degraded habitat, and the effects of attempts to control or alter natural flooding. These conditions made the creek a thorn in the public eye for decades. Several government agencies took on the task of solving the issues that plagued Johnson Creek producing 46 reports and/or plans over a 50-year period.



Citizens created a storm of protest at various times, contesting the science, the cost, and government itself. One agency, Metro, proposed a solution to the creek's problems, only to find itself under attack by a fledgling citizen group that tried to eliminate the agency. Today, the watershed is considered an asset by most watershed residents, most all K-12 schools in the watershed have a curriculum that involves understanding the creek and caring for it. Real estate ads, a good indicator of success, can boldly describe proximity to the creek and one of Portland's premier pedestrian and pedestrian trails, the Springwater Corridor trail that parallels the creek for a great distance. There have been over 180 restoration projects since the mid-1990s investment of millions of public work monies, and between the Johnson Creek Watershed Council, and government employees, between 6-8 FTE (full time employees) who work on monitoring the creek's health and restoring it. This success story provides a graphic illustration of how civic infrastructure must grow and change to accommodate civic and environmental problems.

Johnson Creek is a tiny watershed, a drop in the sum of the Columbia River basin, that flows through southeast Portland. As compared to large ecosystem management enterprises, it may seem insignificant. It is, after all, a 54-square mile watershed. But, this small creek flowing from the foothills of the Cascade Mountains to its confluence with the Willamette River just south of downtown Portland, Oregon, has an allure that seems out of proportion to its size. Novelist David Duncan dedicated his novel, *The River Why* (Duncan, 1988), to Johnson Creek. A feature in *Doubletake* magazine (Donahue, 2000) gave it the dubious distinction as the “'73 Chevy Impala of rivers.” The creek figures as a primary inanimate character in another, prize-winning nonfiction book, *Shot in the Heart*, written by Mikal Gilmore about his notorious brother, serial murderer Gary

Gilmore (Gilmore, 1994), whose story was also told by Norman Mailer in *An Executioners Song*. Gilmore grew up along the banks of the creek and first learned to shoot a gun near the location of a reconstructed wetlands.

The creek has been, and continues to be, both loved and loathed by the citizens of Portland. It is probably best known as the creek that floods, a degraded stream with nearly intractable pollution problems. The creek has resisted easy remedy for many years. The dozens of reports written over the past 50 years have offered detailed plans for solving the perpetual flooding problems or, more recently, for bringing back fish populations to address the recent endangered species listings in the lower Willamette River basin. Public agencies have repeatedly come to bat and struck out. In the case mentioned previously.

Within the watershed, home values in one six block area jump from under \$150,000 to over \$350,000 (1999). The creek stretches from rural areas still dominated by farms to decaying older suburbs to upper middle class inner city neighborhoods. Johnson Creek winds its way through backyards and parking lots and shopping malls. To organize these various constituents into one with a shared vision stretches the capacities of deliberative democracy.

With a total population of about 175,000 residents, the watershed ranges in population density from 5,000 to 6,000 people per square mile in the urban areas to sparsely populated, farming areas in the upper watershed. All but three percent of the residents live within the urban growth boundary, the growth management boundary set by the regional government to contain urban sprawl.

There are three distinct stages in the history of Johnson Creek watershed

management. The first stage might be referred to as the reclamation and degradation stage. Little is known about what the creek looked like before white settlement, although the earliest descriptions depict a stream lively with fish, deeply forested, and, even then, renowned for its flood events. It was first settled by a few pioneers who quickly logged large stretches of the watershed for use in supporting the booming growth of Portland. As land was cleared, farms were moved in. The farmers enjoyed the bounty of a flooding creek and encouraged limited flooding in order to add the top soil that drifted from the uplands portions of the watershed.

The first public works project in Johnson Creek was proposed in 1928, when farmers in the floodplain area requested approval for bend and channel corrections. A plan was drawn up, but no work done as the Great Depression hit America. However, the depression also brought the Works Progress Administration (WPA), the Roosevelt Administration's make-work program, and with it the first major construction projects along Johnson Creek. Hundreds of men were put to work and millions of dollars were spent on channelizing the creek between 1933 and 1936. Fifteen miles of creek were riprapped, and rock work was used to keep the creek in place. The WPA project did have limited success in reducing flooding for about ten years, but as further development took place, flooding began to occur more frequently.

As farmers moved out of some reaches of the creek, residences and businesses took their place. With more residential and commercial investment inside the floodplain, flooding became a greater concern. In 1949, residents within the floodplain filed incorporation papers to create a local service district, the first of several to correct the flooding issues. In 1950, the U.S. Congress authorized the U.S. Army Corps of Engineers

to investigate flooding in Johnson Creek, and the watershed entered its second stage of planning, one dominated by a single issue—flooding—and the proposal of large scale, hard engineering solutions.

Anecdotal reports on extensive fish populations indicate the stream was probably still relatively intact during this period (up to the 1960s), but widespread logging and the direct dumping of sewage and industrial pollutants into the creek resulted in significant degradation (Vetter and Sutphen, 1998, Seltzer, 1983). In 1958, the Corps of Engineers released its plan for the creek. The total proposed cost, including the local share, was \$1.1 million. The original boundaries of the Johnson Creek Water District were modified to correspond to the Corps' proposed work. In 1960, the first tax election was held for the district. The measure passed and taxes were collected until 1964. In that year, the residents of the district challenged the continuation of tax assessments and voted to dissolve the district. The Corps of Engineers shelved their plan, allowing five years for another local sponsor to come forward.

At that point, yet another agency came to the plate. In 1969, the Soil Conservation Service presented a plan to create three retention ponds in the upper part of the basin to mitigate up to a 100-year flood event. It was a more comprehensive plan than simple flood control and included revegetation. Once more, however, the citizens of the district voted down the plan.

In 1969, a new agency, the Metropolitan Service District (MSD), came forward to assume the role of local sponsor of the Johnson Creek project. MSD was a new kind of agency for the Portland region, a regional government designed to carry out services best administered across existing jurisdictional or operational boundaries. In 1972, section 208

of the Federal Water Pollution Control Act amendments established a procedure for establishing area-wide waste treatment plans in pursuit of goals to improve water quality. Responding to these new guidelines, MSD and the Corps of Engineers delivered a revision of its older study. The revised cost for remedying problems in Johnson Creek now stood at about \$3.4 million.

In 1976, hearings were conducted on the MSD/Corps plan. Once more, residents rallied to force MSD to abandon their plan and, once again, the Corps of Engineers shelved their plan and again allowed an additional five years for a local sponsor to emerge. At this point in the history of Johnson creek, solutions for solving creek problems were dictated by a top down, engineering approach with little civic involvement. When citizens were involved it was after the fact. Additionally, solutions were limited by lack of knowledge about how urban streams functioned. The streams were seen as something to control and overcome, not as an ecosystem that provided vital economic services. While living in a neighborhood was taking on new meaning during this period through grassroots neighborhood activism, living in a watershed was still a vague concept.

In 1977, soon after the failure of the Metropolitan Service District and Corps of Engineers' plan, J. Emery published a telling document, *Why Nothing has Happened: A Case Study of Johnson Creek*, through the Western Interstate Commission for Higher Education (Emery, 1977). In it he outlined several obstacles to designing a workable plan for Johnson Creek, including the tangled web of agency jurisdictions and the narrow definition of the “problem” as flooding. The flooding problem was perceived by many as of interest only to those few who were flooded, and therefore came with a simple answer:

“You built in harm's way, so put up with it, or move.”

In 1979, MSD merged with the Columbia Regional Association of Governments (CRAG), an agency created to develop an orderly planning process for the Portland metropolitan region. The new agency, Metro, became the first and only elected regional government in the United States. In 1979, soon after the formation of Metro, it passed resolution 79-35, designating the Johnson Creek basin as an area impacting the orderly development of the region. Metro submitted its plan to form a Local Improvement District (LID) to the Environmental Protection Agency (EPA) as part of an urban stormwater management plan for the region. In 1980, the Metro Council approved the recommendations of a Johnson Creek Task Force and passed two ordinances, one approving the interim development controls and the other establishing the Johnson Creek Local Improvement District. The estimated costs of the three-part plan were about \$10 million.

Because Metro was relying on federal Clean Water Act monies which came with requirements for citizen participation, the agency was more deliberate in its attempts to involve the general public. During 1980, 32 meetings were held in the Johnson Creek basin to educate the public about Metro's plan. An information center was established at Metro to answer questions about the plan. Portending the trouble to come, Metro received over 50,000 calls in a four week period, mostly negative. Then a public meeting was held at a high local school to accept public testimony. It was attended by an “unruly” crowd of over 700 people and was halted by the Fire Marshall at 11:15 p.m. when the crowd exceeded the capacity of the auditorium. A second large public hearing was moved to the Memorial Coliseum Exhibition Hall because of its larger capacity and the ease with

which to make security arrangements. In the week preceding the meeting, Metro councilors had received threats. Both plainclothes and uniformed police were on hand.

It was during this period that the first citizen groups formed to focus on Johnson Creek. The Up the Creek Committee (UTCC) was formed to oppose the LID and Metro plan. The temperament of the group was strident and anti-government. The UTCC's criticism included a dispute over the boundaries for the LID and the accuracy of the cost analysis, as well as a challenge to Metro's ability to levy taxes. Fundamentally, the UTCC' viewed this as an example of government jamming a solution down residents' throats.

Disregarding the rising opposition from citizens, Metro decided to go ahead with its plan. This plan was to cost in excess of \$10 million and would, as perceived by many citizens, benefit only a few: less than 1500 property owners out of 35,000 households. Metro's justification was based on the \$1.5 million annual costs paid out for reconstruction of public infrastructure following flooding.

The Up the Creek Committee next re-formed with a larger goal and another name, Enough is Enough in Oregon. Their goal was now to collect enough signatures to put a ballot measure before voters in the entire state to dissolve. While Enough is Enough failed to collect the required signatures, it did have an impact. A measure to provide Metro with a tax base for financing its operation went before voters and was soundly defeated. As with every agency preceding it, Metro abandoned its Johnson Creek plan.

However, Metro did fund one more Johnson Creek program. Ethan Seltzer, who had written his Ph.D. dissertation on Johnson Creek, was hired to initiate a more education-based Johnson Creek program. Initially, Seltzer wrote a summary, similar to

Emery's, analyzing why so little had been accomplished in the watershed. In this report, he determined that the environmental problems were perceived by residents to be political or institutional, not physical. Also, citizens did not agree on the basic definition of the basin's boundaries and, therefore, on who should be involved or, more importantly, pay for solutions to Johnson Creek problems. Perhaps most importantly,

Seltzer determined that citizens were as much outraged about the process as the content. They perceived Metro to be a government beget by government that was forcing a solution on them.

Seltzer also contended that the plans were not based on social ecological communities of the basin. There didn't exist a single community of interest, but rather multiple ones. While some residents were concerned about the flooding, it was a minority. Others were more concerned with maintaining their lifestyle, one that, although within reach of the expanding city, was decidedly rural in nature. To these residents, government intervention meant that life would change for the worse. While not environmentalists, this was a group more interested in maintaining the amenities, however damaged, of the stream and its surrounding area. It would still take a while for residents and planning agencies to understand the concept of ecosystem management, much less gain an appreciation for the differing cognitive maps of the watershed. Seltzer's assessment was accurate, but way ahead of its time.

In the last day's of Metro's foray into Johnson Creek, Seltzer published a brochure about the creek in positive terms, highlighting its physical and cultural assets. It might have been the first time any government agency or, for that matter, private citizen had published a glamorous portrait of the creek. Seltzer also published a "do nothing"

option assessment as a way of documenting the consequences of taking no action. He demonstrated that even the “do nothing” approach was costly to both individuals in the floodplain and other taxpayers.

It is also important to note that during this timeframe (1980 -1984), two other citizen groups formed. In 1980, a short-lived group, Responsible Action for Tomorrow (RAFT) formed to support the Metro plan, but it was not organized in time or with enough support to counter the vociferous Up the Creek and Enough is Enough crowd. A bit later, another small group was forged that included Seltzer in its membership, as well as others he met while conducting outreach in the Johnson Creek area. Initiated in 1984, it was named the Tideman Johnson Corridor Committee because it focused on one particular natural area of the creek, the Tideman Johnson Park canyon. Its purpose was to help raise people's interest in the creek as an amenity. The small citizen group, Friends of Johnson Creek, built momentum to carry the cause of Johnson Creek forward, providing tours, publishing articles, and soliciting continued government interest in the watershed. While flooding was still considered an important issue for the Friends, it was the creek as an asset that was of most interest. After all, Johnson Creek was one of the last free-flowing creeks in Portland, with some riparian open space and native fish populations, albeit fragile and diminishing. In the late 1980s and early 1990s the cause was still considered futile enough that with both humor and determination the Friends group sometimes referred to themselves as the Johnson Creek Marching band. It would take a law suit in another watershed, new knowledge about watersheds, the creation of a bike and pedestrian trail that paralleled the creek, a dedicated congressional leader, and even Mother nature with a 100 year flood to turn the tide.

One of the pivotal acts that changed the course of the Johnson Creek watershed happened in the early 1990s, in a nearby watershed, the Tualatin River basin, when citizens successfully sued their local water agency for not enforcing federal Clean Water Act requirements. The suit resulted in a perpetual fund to be administered by a local community foundation and distributed through a nonprofit watershed group, the Tualatin River Watershed Council, for the purposes of stream restoration. Given the history of citizen activism in Johnson Creek, the City of Portland decided to take the upper hand before citizens decided to literally follow suit in the Johnson Creek watershed. In 1990, the city brought together a group of citizens and multiple agencies to form the Johnson Creek Corridor Committee.

The City of Portland's Bureau of Environmental Services (BES) was the designated agency in this round. It was one of BES's first large program initiatives under its newly expanded mission as a water resource protection agency. Prior to 1990, the City of Portland had separate sewerage, stormwater, and neighborhood nuisance bureaus. These were combined to provide the city with a more focused structure to manage sewage, stormwater, and what remained of the city's natural stream systems. BES has been accused many times since then of being a two-headed agency, one dominated by civil engineers used to thinking in terms of pipes and systems who are often at odds with a smaller group of more environmentally-oriented staff charged with planning for and managing urban streams and their related greenspaces.

The first meeting BES held to discuss plans for Johnson Creek nearly knocked another agency out for the count once again. Staff came prepared with a quality

presentation and professional facilitators to run the meeting, but the citizens, jaded from their previous experience, dominated the agenda. However, BES moved slowly forward, working with the JCCC and contracting with an environmental engineering firm, Woodward Clyde Consultants, for \$2 million to develop the technical information for the planning process.

One of the ongoing problems in Johnson Creek, as with most watersheds, is the regulatory morass of managing a system that crosses jurisdictional and regulatory boundaries. To ensure consistent and effective efforts in Johnson Creek, at least five state, two federal, and 18 local government agencies or departments must coordinate their efforts. At the time of 1998 Johnson Creek Summit, it was determined that 46 different plans existed to address housing, transportation, water quality, economic development and flood control in the Johnson Creek Watershed, and produced by a multiplicity of agencies.

The watershed is regulated through broad water quality legislation like the Clean Water Act and more specific regulations directed at agriculture, industry, construction, wetlands, water diversions, and stormwater discharge. State agencies are generally responsible for monitoring and enforcement of these areas. Local governments designate land use and establish zoning, enforce erosion regulations, and perform some monitoring and enforcement duties. Local governments can also directly affect watersheds through their management of stormwater, sewage treatment plants, transportation, and drinking water systems. It is within this regulatory context that the Johnson Creek Resource Management Plan was conceived and laboriously worked out over a four-year period. The plan was only the first step in the

development of other inter-agency plans, including the final restoration plan completed in 2000.

The JCCC was convened in 1990 and met monthly for almost five years. In addition to these monthly meetings, several special committees met regularly during this time: land use, outreach, restoration and enhancement committees, as well as nine separate stream reach groups,. The original committee had 36 members, including representatives from three counties, four cities, four other regional and state agencies, including the already tarnished Metro, now represented by a water resources specialist. The Bureau of Environmental Services assigned a full-time person to work with the JCCC, let out a \$2 million contract to develop technical information about the watershed, and contracted with a professional facilitator to shepherd the process along.

The first document produced by the committee consisted of a mission statement and a set of guiding principles which took several months to hammer out. While some of the document focused on resource management goals, the guiding principles document was about group process: working rules, a definition of the type of consensus decision-making that would be employed, and even one entire page on the manner in which letters and policy statements would be written or represented through the media. The shadows of past fumbblings lingered overhead, as everyone moved cautiously forward.

In September 1992, the JCCC published its first public document, *A Johnson Creek Vision: A look at the future of the Johnson Creek Watershed*. (Johnson Creek Corridor Committee, 1992) The document described the resource management plan process, and provided the first glimpse of data (with still relatively primitive

Geographic Information System (GIS) coverage of the watershed) and an outline of the problems. It then provided a very optimistic vision for the future. The JCCC imagined a time in the future when:

Visitors to Johnson Creek and its tributaries find a clean, usable creek where they can safely wade in sparkling waters, and where the fish and wildlife is restored and maintained. Salmon and steelhead continue to return each year. Recreation opportunities are viable in the corridor. The historic flooding problems are minimized.” (p. 2)

It is interesting to note that while flooding is still mentioned, it is the last item, and the solution to flooding is now presented as a problem that will be *minimized*, not solved.

There was another important difference between the JCCC plan and previous efforts to plan and resolve problems in Johnson Creek. The citizen and government committee insisted that while the planning and studying move forward, both the participating agencies and voluntary citizen groups should begin work immediately through what were then called early enhancement projects and public education programs. The public agencies and consultants were sometimes skeptical about the enhancement projects. It seemed to them like putting the cart before the horse. How could one implement specific restoration projects before even knowing the nature of the problem? However, the enhancement and education projects were critical in overcoming the force of inertia inherited from 40 years of “do nothing” in Johnson Creek, and the projects become an important way of identifying the wider constituency of communities that had a stake in the outcome.

When it came time to finalize and publish the Resources Management Plan, several crises emerged. First, there was no precedent for the City of Portland in publishing a Resources Management Plan. Exactly what weight would the report carry? Was the report to be approved by an official body of the city, as well as other jurisdictions? Were the recommendations just that, or were they recommendations with accompanying regulatory authority? At one point, this problem came to a head over a torturous debate about a recommendation regarding the scope of powers of the proposed watershed council. It was suggested that the watershed council have regulatory power through its monitoring of the effectiveness of regulations in the watershed that were already in place or might be developed to correct the stream's problems. Such a function of the council was perceived as usurping the responsibilities of government agencies. The jurisdictions and public agencies had their own regulatory responsibilities. Was the watershed council to be equipped with the capacity to monitor the regulatory agencies themselves? The word “monitoring” was once debated over the course of several meetings without reaching conclusion. The parallel authority that council members referenced was that of neighborhood associations in Portland. Since they have authority to review conditional land use cases in their respective neighborhoods, why shouldn't a watershed council have a similar review capacity for water issues? In the end, the Johnson Creek Watershed Council did not gain specific authority. However, eventually, a multi-jurisdictional technical advisory group that included lay citizens was formed and given more authority by respective agencies and jurisdictions.

Publishing a draft of the report before becoming a public document also raised

a thorny issue of representation. When the draft was shared by one committee member with her manager back in county government, the manager took one look at the sections most pertinent to his jurisdiction and refused to sign on. It became clear that one of the responsibilities outlined in the guiding principles had not always been followed. The representatives were to be assigned the power to represent their agency or citizen group and to be in constant communication with their group in order to assure that decisions of the committee were in fact supported by the agency or group. Political pressure had to be applied in this instance in order to obtain the necessary sign on.

The Resources Management Plan (Woodward Clyde Consultants, 1995) presented the most complete portrait of the watershed to date. A voluminous technical document of over 600 pages accompanied the plan itself, along with the most detailed computerized GIS maps of the watershed. The plan itself was multi-faceted. Gone were the days of single focus solutions. The plan called for bank protection options, enforcement of environmental protection zones, in-stream controls, flood proofing, sediment control regulations, public acquisitions of flood prone properties, enactment of best management practices, regional and onsite filtration facilities, bridge and culvert modifications to increase fish passage, public education and stewardship, and the creation of the Johnson Creek Watershed Council. Closely paralleling the development of the Resources Management Plan, the City of Portland's Planning Bureau had also developed the Johnson Creek District Plan, a plan that, unlike the Resources Management Plan, did have regulatory teeth. The District Plan, based on detailed resource inventory data analysis, created new overlay zones of protection (the

P zone) that restricted development near streams and conservation zones (the C zone) that provided a buffer to protect the P zones.

Interestingly, during the course of developing the Resources Management Plan, the Corps of Engineers once more decided to get involved, and proposed their own plan to correct problems in the watershed. While focused on hard engineering solutions to flooding, the plan did include soft engineering components. Nonetheless, the JCCC voted to refuse acceptance of \$1 million in federal funding offered by the Corps of Engineers because it did not incorporate ecosystem management principles.

One of the critical outcomes of the Resources Management Planning Process was the recommendation that a permanent group be formed to provide citizen-based leadership in creating a stewardship ethic in the watershed. The Johnson Creek Watershed Council (JCWC) grew out of the JCCC. The JCWC received an initial grant from the State of Oregon Governor's Watershed Enhancement Board, as well as contributions from the different jurisdictions in the watershed. Today, the council has about 100 dues-paying members and an annual operating budget of approximately \$75,000. Its mission is to “inspire and facilitate community investment in the Johnson Creek Watershed for the protection and enhancement of its natural resources.” To achieve this mission, the council participates in public policy process, local natural resources technical advisory committees, watershed education and restoration projects, and raises funds for special projects.

There were three coincidental events in the story of Johnson Creek that dramatically influenced its unfolding. A rail line that had facilitated settlement in the watershed's early history was underused for years. It was first constructed to facilitate

the building of electrical generating dams on the Clackamas River. Later, it was used as a transit line known as the Springwater Line. In the early 1990s, a group of citizens, some of whom were also working on watershed issues, created the Friends of Springwater Corridor to advocate for transforming the line into a pedestrian/bike trail. The Friends collaborated with the 40 Mile Loop Land Trust, a trails advocacy group, and the City of Portland's Parks Bureau. Together, they succeeded in securing federal transportation financing with local matching funds to purchase the railway line. Today, the 25-mile trail is one of the region's most widely used pedestrian and bike trails, estimated at more than a million users annually. Because the trail parallels the creek and provides access to some of the creek's more intact natural areas, it has served both to educate citizens throughout the region about the watershed and create a broad constituency who support stewardship and restoration efforts along the creek.

The second event was the emergence in 1997 of an urban renewal district in the heart of Lents, the neighborhood most affected by flooding. The Lents Town Center Urban Renewal District had its roots in an earlier initiative begun in 1995 and sponsored by the City's Bureau of Housing and Community Development that designated it as a target area for reinvestment to address the social and economic decline. Though the creek was a primary impediment to redevelopment in Lents because of periodic flooding, planners more versed in inner city and downtown development projects were reluctant to enter into the watershed planning process during the early stages of planning for its redevelopment. However, members of the watershed council, along with a growing number of staff at BES whose work focused on the Johnson Creek Watershed, brought the issue forward. They forced the Urban

Renewal Committee and the Portland Development Commission (PDC), the City of Portland's bureau for economic development, to consider ecosystem management among its goals. It also became apparent to PDC and businesses in the area that the Bureau of Environmental Services had become a major property owner in Lents. BES had been using its willing seller program to purchase flood-prone properties, financed with federal and local funds. BES had purchased over 40 acres near the heart of the proposed urban renewal district.

While relations have remained tense between watershed advocates, redevelopers, and business interests, consideration of watershed issues has been incorporated into the planning process. One primary reason for this somewhat forced “marriage” between redevelopment and watershed interests, comprising the third pivotal event, was the impact of the Endangered Species Act (ESA). In successive years—1998 and 1999—the National Marine Fisheries Service (NMFS) listed winter Steelhead trout and Chinook salmon, respectively, as “threatened” species that travel through the lower Columbia River. This listing included Johnson Creek’s populations of winter Steelhead and fall Chinook. The ESA listings have elevated the restoration plans for Johnson Creek to a new tier. Regardless of the seemingly insurmountable odds of assuring species survival in a stream as beleaguered as Johnson Creek, the public agencies in the region are required to come up with a balanced plan to allow orderly growth in the region while not forcing the federal government to take more drastic measures in regards to ESA. The listings forced planning efforts in Johnson Creek to focus on stream conditions that enhance fish survival. While flooding is the issue that drove the process for so long, more and more it is now the Endangered

Species Act.

The last chapter of the Johnson Creek story to date involves the intervention by one of Oregon's U.S. Congressional Representatives, Earl Blumenauer, in response to a flood that brought Johnson Creek to the foreground along with other streams in the region. 1996 brought with it one of the worst flood events the region had ever experienced. Almost all the streams in the Willamette River basin experienced their highest flood stages since 1964. Until 1996, that was the flood that was used to gauge a 100-year flood event. Once again, Johnson Creek was in the headlines as residents drove their cars through flooded streets and experienced extensive damage to homes and businesses. Because of the extensive flood damage, the Federal Emergency Management Agency (FEMA) was involved. FEMA provided immediate relief assistance. It also facilitated local public efforts aimed at finding ways to avoid flood damage in the future. FEMA, in discussions with Congressman Blumenauer, suggested additional funds might be available to acquire properties in the Johnson Creek floodplain or for education programs to help residents and businesses avoid future flood repercussions.

FEMA wanted assurances of local support for this type of effort. In order to showcase the Johnson Creek Watershed as a potential model for this type of intervention, Blumenauer set out to organize a convocation of public agencies, nonprofits and citizen activists, calling the event the Johnson Creek Watershed Summit. The summits, first hosted in 1998, have become a vehicle, not only for local agencies to demonstrate a unified front to FEMA, but also for facilitating the completion of the restoration plan for Johnson Creek. Comparing the festive and

engaged atmosphere of the summits to those cantankerous meetings of the 1960s and 1970s speaks volumes about the change of heart and mind in the community. Over three years, more than 700 people attended the summits, representing 40 government agencies, 33 nonprofit organizations, and 12 schools. Cantankerous citizens are now a rare breed and no security force is on hand.

The vision statement crafted by participants at the second summit reflects the ecosystem management approach that has evolved over time :

The Johnson Creek basin will become a healthy, safe, and vibrant watershed by effectively planning for and managing growth, promoting sustainable economic development, and respecting and enhancing the natural functions and benefits of the creek. This will be achieved by a well-organized, well-equipped, motivated watershed-community (including a multi-jurisdictional coalition) ready and willing to work cooperatively and take specific actions which will improve watershed health and livability in the region (Johnson Creek Watershed Council, 1999)

One result of the summits, with the Bureau of Environmental Services serving as lead agency, has been the completion of the Johnson Creek Restoration Plan (Bureau of Environmental Services, 2001). The plan divides the creek into 58 sections, or reaches, and lists the opportunities for restoration within each area depending on the values, functions, and opportunities available. The plan uses eight consolidated “target functions” to characterize intended goals within selected stream reaches. These targets establish a way to quantify expected benefits and measure improvement over time. The eight functions include: in-stream complexity, priority outfalls, pipe crossings, impervious surfaces, fish barriers, inundated properties, floodplains, and corridors and

habitat patches. The restoration plan has been developed with the full cooperation of all jurisdictions and agencies involved. The structure includes an Inter-jurisdiction Committee made up of representatives of agency technical staff and a Political Leaders Committee that allows elected officials from the watershed to discuss political and funding issues. In short, the multi-functional approach is a far cry from the single focus days of the 1960s and 1970s, as is the price tag, estimated at \$75 - \$100 million.

Between 1990--2000 there were at least 75 site specific restoration projects in the Johnson Creek Watershed. These projects range from the \$1.2 million Brookside Project, a constructed wetlands designed to remove some flood waters from the troubled Lents area, to small riparian repair projects along short stretches of the creek. Almost all the projects have involved voluntary citizen participation in the planning, design, and implementation and, very importantly, in the long-term management and care of the sites.

At this point in time, a small moment in the life of the watershed, how do we measure progress? It is a key issue because progress, in the short term, may be evasive. First of all, how much has planning and restoration cost? Some direct costs are known. The City of Portland spent \$1.8 million on consultants to develop the Resources Management Plan. The Bureau of Planning spent about \$700,000 to develop the Johnson Creek District Plan. Since 1990, the Bureau of Environmental Services has had a varied number of staff working on Johnson Creek issues, with a minimum staff commitment between 1990 and 2000 of \$2 million (Maggie Scandarian, personal communication, December, 2003). The Johnson Creek Watershed Council has had an annual budget of about \$75,000 for six years, constituting an additional \$500,000. In the most recent

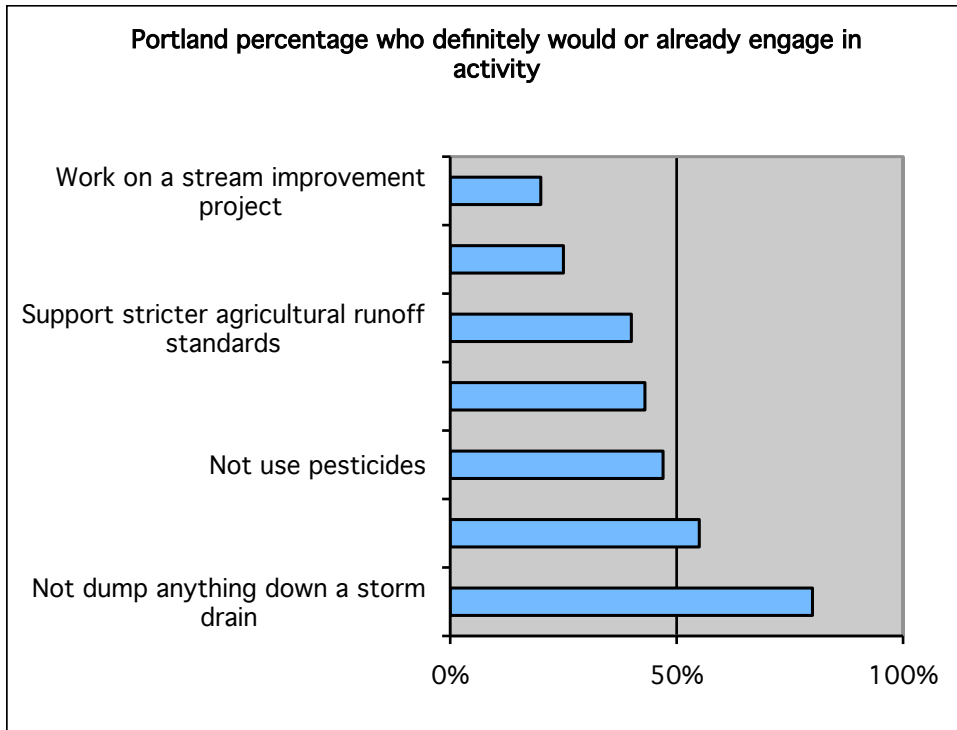
iteration of the restoration plan for Johnson Creek, the City of Portland spent an additional \$2.7 million. To date, the Cities of Portland and Gresham, plus Metro, have spent about \$21.8 million to acquire 450 acres of land in the floodplain or uplands in the watershed. Other agencies have also contributed to the cause through grants and contracts. For example, Metro manages funds from the U.S. Fish and Wildlife Service which are distributed throughout the region for watershed education and restoration projects. There have been 21 projects funded in Johnson Creek with a price tag of \$700,000, including both the Metro and local sponsor share. All told, the minimum cost for restoring Johnson Creek was \$30 million between 1990 and 2000.

But, Measuring the success of the human and physical capital investments in tiny urban watersheds such as Johnson Creek only by the physical outcomes misses key evaluative elements. Indeed the tangible benefits from these sizable investments might be considered laughable if the wrong benchmark is using for evaluating progress. After all, at this time, returning fish are still being counted one by one. The creek still floods. Sediment still rolls down the stream, burying gravels essential for returning salmon to lay their eggs. Yet a major shift in orientation toward stewardship of the watershed has occurred. This way of measuring success would include the value of watershed resident knowledge of the watershed, the “eyes on the stream,” and the subtler community-building aspects of stewardship. It will take decades to see marked improvement in the actual health of the stream. But, the efforts of public and nonprofit organizations have accomplished as much or more. Changing the cognitive map of the residents, building a constituency of stream stewards, and changing the political climate and infrastructure are no small feats. The role of government in solving problems has changed from a

technocratic and engineering role to one where process facilitation and community education is at least equally important. The investment of government agencies is soft, measured as much by shifts in attitudes, gained through new knowledge and skills, as it is in the physical public works outcomes. This shift requires putting faith in a stewardship ethic as much as it does trust in scientifically valid data that inform residents of progress achieved.

Although not a clear measure of progress, we can observe cognitive changes of residents in the watershed. A survey (see Figure *) conducted by the Bureau of Environmental Services illustrates how the investment in nurturing a stewardship ethic has had positive returns. Especially notable are the percentage of people (80 percent) who would not dump anything down a storm drain and the percentage (55 percent) who would plant native plants.

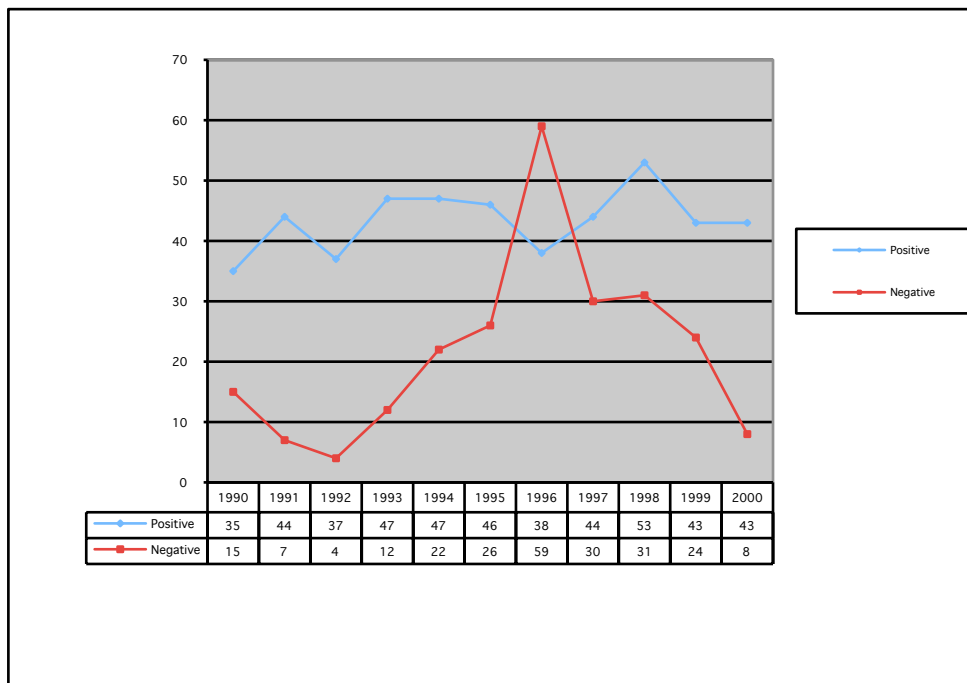
Figure *. Portland percentage who definitely would or already engage in stewardship activity



Many citizens in the Johnson Creek Watershed have in effect graduated from a multiyear ecosystem management certificate program. Through helping to write resource management and restoration plans, by learning how to work in groups to build consensus, through involvement in a wide variety of trainings and workshops, and through participation in hands-on restoration projects, citizens in the Johnson Creek Watershed know their place in the watershed, as well as their role in its management. Over time, active citizens have learned hydrology, mapping of floodplains, native plant landscaping, agricultural practices, erosion control, zoning, and group facilitation. They can talk about riparian zones, anadromous fish, bio-engineering, and the importance of woody debris in streams.

The shifting attitudes relative to the creek can be seen through the media's coverage of it. An analysis of coverage of Johnson Creek issues by *The Oregonian* between 1990 and 2000 shows a trend toward more positive stories about Johnson Creek than negative ones. Figure * shows that, with the exception of 1996 when flooding was the big story, there has been growth in positive stories about Johnson Creek. Instead of seeing the creek as a nuisance, the creek is increasingly regarded as an asset.

Figure : **Johnson Creek: Oregonian News Coverage: Positive and Negative**



So, in the end, while the price tag has been steep and the physical improvements in the creek minimal, the payback in the form of civic infrastructure has been immense. Between 1990 and 2000 there were over 1,000 watershed events, including public meetings, regular JCCC and JCWC meetings, restoration projects, tours, workshops, and

cleanups. A total between 6,000 and 8,000 citizens were engaged in the restoration of the stream. These citizens invested at least 100,000 hours, which exceeds the 75,000 hours of public agency staff time and represents, at a conservative rate of \$10 per hour, an in-kind contribution of \$10 million.

In the Johnson Creek Watershed the complexity of social, political, and economic issues has led to new forms of civic responses and new types of civic collaboration. Problems like watershed restoration cannot be solved by regulatory procedures only, but require collaborations across sectors and between citizens and government. We cannot assume that pre-existing stocks of social capital can serve as an adequate foundation for building capacities in new and more complex problem arenas. It is difficult to imagine the traditional civic infrastructure that existed in Portland in the 1950s facilitating either the planning or the implementation processes applied to the restoration of the Johnson Creek Watershed. On the governmental side, agencies were separated by specialties and bureaucratic boundaries that compounded the problems. New civic infrastructure and public processes, such as the technical and political advisory groups and the Johnson Creek Watershed Council, had to be developed in order to address the complex set of issues that would result in a workable restoration plan. It was not pure science that drove the process, but rather scientific and technical knowledge embedded in a social process. The Johnson Creek Watershed planning process fits neatly within Judith Innes' (1998) communicative planning theory, in which information becomes gradually embedded in the understandings of actors in the community through processes in which participants collectively create meanings. In the conventional model of planning, plans are developed by presumably neutral experts who work outside and apart from the political and

bureaucratic process through which policy gets made, and their work does not become embedded in the institutions' or the players' understandings. Policy becomes "intellectual capital" or shared knowledge only if there is thorough and repeated discussion about the meaning of the information, its accuracy, and its implications (Gruber, 1994; Innes et al., 1994). Information does not influence policy unless it corresponds to a socially constructed and shared understanding within the community of policy actors. If, however, the meaning does emerge through such a social process, the information changes the actors and their actions.

The watershed restoration effort brought together a cross-section of the population as rich as any effort of traditional civic associations. During the multi-year effort to restore Johnson Creek, there were many times that citizens were planting trees together one day and deliberating public policy the next. Public works projects like the Johnson Creek Watershed restoration effort are today's version of Skocpol's (1999) classic civic life. Work in the watershed combines social activities with community service and mutual aid. It is where a broader group of citizens, including those working through issue interest groups, learn the essential civic skills of basic democratic process that are transferable to other civic ventures.

The story or narrative of the watershed has been changed. How to live with and benefit from the stream is imbedded in the community and public and private stories of agencies and residents. A couple of stories illustrates this point.

Along one particular stretch of the creek, several neighbors had vociferously complained about deteriorating WPA rock work that resulted in several houses losing their yards, a loss that threatened the homes themselves. Rather than engineer a hard

solution, i.e. another wall, at a large expense, the city invested in the process of relationship-building through a series of informal barbecues and hired environmental engineers to work with the neighbors on designing softer bio-engineering techniques for rebuilding the wall. The neighbors learned about the techniques, and helped in the design and construction of the bio-engineered “wall”, which consisted mostly of streamside planting of willow and other vegetation. A group of planners from a local conference of the national American Planning Association just happened to tour the site soon after a moderately large flood event in which the wall had performed well by holding the bank in place. One of the neighbors, an individual who had been adamantly anti-government as well as skeptical of this new bio-engineering technique, greeted the planners and took them on a tour of what she called “our” wall (meaning the neighbors’). The change in perceived ownership represented by the use of “our” was a profound one, indeed, in the relationship between citizens and government here.

One additional anecdote illustrates the changed watershed consciousness. In the fall of 2000, an engineer, working to shore up a sewer trunk line that passes through the creek in a natural area of the stream, decided on his own to move heavy equipment downstream to remove a beaver dam. When the nearby residents found out about the incident, they reported it the Bureau of Environmental Services. The resident beaver family and its dam were a source of pride in the neighborhood, and a site used for environmental education programs. The story spread quickly and was covered by two major newspapers, television, and radio. A gathering was convened at the site the following week, attended by no less than 25 people and representing eight agencies. The city commissioner in charge of BES publicly apologized for the incident and the

“rogue” engineer was eventually let go. In 2007 the City completed a \$1.5 million project in the same stretch of the creek, remedying the damaged sewer line while expanding the natural floodplain and adding riffles and pools to increase fish habitat.

If the Johnson creek narrative was still embedded in the past, when the stream was considered to be a liability, something to overcome, and not as an asset; if there were no "eyes on the stream," and an embedded stewardship ethic in the watershed, as well as in the bureaucratic culture of local government, the beaver incident, or as one resident referred to it, "beavergate," would have passed without much notice; the beavers would have been displaced or relocated like a slum dweller. Instead the beavers now co-exist within a restored and relatively natural reach of the stream.