Healthy Streams Plan:
Public Values Assessment

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Prepared for:
Clean Water Services

Prepared by:

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Background

The Healthy Streams Plan is a multi-year effort designed to effectively serve local jurisdictions, businesses, industries and citizens throughout the Tualatin Basin in efforts to protect and improve water quality. The Plan will identify and prioritize specific projects, policies, and programmatic changes needed to improve water quality, manage flooding and floodplains, and provide for aquatic species protection in the Tualatin River and streams in the watershed. Key to the success of this complex undertaking is a solid understanding of the values and expectations the public has for the health of the Tualatin River and its streams.

Clean Water Services is committed to incorporating public values into the planning and implementation of the Healthy Streams Plan. The agency contracted with Davis, Hibbitts & McCaig, Inc. (DHM) to identify the values and beliefs underlying the expectations its customers and constituents have for the health of the Tualatin and its streams. Findings from this research will enable Clean Water Services to anticipate concerns of its customers and stakeholders and communicate effectively with them the benefits and costs of efforts to protect fish, promote water quality and advance locally driven solutions in the Tualatin Basin.

Methodology

In June 2002, DHM conducted a telephone survey of Washington County residents to identify public values underlying perceptions and priorities related to:

- The health of the Tualatin River and its streams.
- Strategies to improve stream health.

The research had both quantitative and qualitative components: a random sample telephone survey and facilitated group discussions with key stakeholder groups. The telephone survey interviewed 450 randomly selected residents of Washington County, as well as an additional 150 property owners living within 200 feet of a stream. The general population survey sample has an overall margin of error of +/-4.6%; margin of error for the streamside property owner sample is +/- 8%. Facilitated discussions were also held with Westside Economic Alliance, Tualatin Riverkeepers and Homebuilders Association of Metropolitan Portland in July and August 2002. Each discussion included administration of the survey, presentation of the telephone survey findings and facilitated discussion of highlights, points of agreement and disagreement, and relative concerns.

Summary Findings

Values

◊ The river and streams of the Tualatin Basin hold little personal attachment for residents. Streamside owners are neutral and the general public negative in rating their "personal connection" to the waterways.

◊ Significant support exists among the general public and streamside property owners (92% or more of each sample population) for values related to water quality, healthy streams, and habitat and open space. The general public and streamside property owners are in consensus on the top values:

- *Clean rivers and streams* (99% of each group).
- *Healthy streams that support fish* (98% each).
- *Clean drinking water* (95% and 92% respectively).
- *Adequate water in streams for fish and wildlife* (97% each).

◊ More than eight in ten of the public and streamside property owners say *clean rivers and streams* and *clean drinking water* are "very important" values to them.

◊ Values rated as most important to both the general public and streamside property owners are:

- *Clean drinking water.*
- *Clean rivers and streams.*
- *Open space for fish and wildlife habitat*.

◊ When forced to make a choice among priorities the top two priorities for the general public and streamside property owners are consistent: *clean rivers and streams* and *clean drinking water*. These choices validate the rating and ranking of values noted above.

◊ The general public and streamside property owners also agree on the values they find least important:

- *Property protected from flooding*.
- *Increased water supply*.
- *Healthy fish populations in local streams*.
- *Adequate water in streams for fish and wildlife*.

◊ In contrast to the consistency of survey respondents, discussion group participants rated fewer values as "very important." Values receiving the greatest level of support from discussion participants were *clean rivers and streams, property rights protection, healthy streams supporting fish,* and *adequate water for fish and wildlife. Clean drinking water* – the top priority for the general public and streamside property owners – fell in a middle tier of importance for these participants.

◊ Streamside owners identified *full protection of property rights* as their second most important value. *Property rights protection* was also the only value to garner a "very important" rating from more than one-half of participants in the Westside Economic Alliance and Homebuilders discussion groups.

PERCEIVED THREATS

◊ *Industrial pollution* is viewed the central threat to the health of the Tualatin River and its streams. It is viewed as the most serious threat by both sample populations and one-half of the general public and streamside property owners (52% and 49% respectively) say it is the biggest problem facing the waterways.

◊ *Development and/or buildings too close to streams* is ranked second in seriousness and is cited as the #2 biggest problem by the general public and streamside property owners (31% and 27% respectively).

◊ There is little awareness of the impact of personal behavior on the Tualatin and its streams. *Pollution from car repair*, *lawn and garden chemicals, cars being washed at home* and *pet waste* were viewed as the biggest problem by only a small number of respondents (between 1% and 13% of responses).

◊ Discussion group participants were far more likely than either the public or streamside owners to rate *run-off from farm chemicals, lawn and garden chemicals,* and *stormwater* as the most serious and biggest threats to the river and streams.

WILLINGNESS TO PAY FOR IMPROVEMENTS

◊ Washington County residents recognize stream improvements are important and need to be paid for. They are also willing to consider their role in paying for them, particularly within a context of the public values identified (clean drinking water, clean rivers and streams):

- 82-85% of the general population says they would be willing to pay $2-4 more on their bi-monthly water and sewer bills.
- 71-76% of streamside owners say they, too, are willing to pay more.

◊ When forced to prioritize ways to bridge a funding gap if need outstripped current resources, survey respondents reacted predictably: charge the cost to others or limit new direct cost to themselves.

◊ Alternatively, the financing strategies the general public and streamside property owners support the least are to:

- *Spend less on healthy rivers and streams*.
- *Stop trying to do so much*.
- *Reduce the level of government services.*
- *Spend less on public services*.

Conclusions

◊ Clean water is the central value for Washington County residents underlying their perceptions and priorities for the Tualatin River and its streams.

◊ There is consistency with the general public and streamside property owners on values, environmental threats and strategies to pay for stream improvements.

◊ Residents are not inclined to ignore improvements to stream health. Willingness exists to play a role in paying for improvements.

◊ A significant gap in understanding exists between what residents believe are threats facing Basin waters and actual threats, particularly around the negative impacts of human behavior.

◊ Property rights protection is an important value for streamside property owners and many discussion group participants. This value must be recognized and addressed legitimately as development and implementation move forward.

INTRODUCTION

Davis, Hibbitts & McCaig, Inc. (DHM) is pleased to present the results of survey and focus group research conducted for Clean Water Services from May through August 2002. The research was designed to inform development of the Healthy Streams Plan, a targeted program to restore and conserve the water resources that support the livability, economy, fish and wildlife of the Tualatin River Basin. This report presents findings from a survey of Washington County residents and property owners, facilitated discussions with three key stakeholder groups, and relevant findings from selected studies that add context and texture to specific findings in this study.

BACKGROUND

HEALTHY STREAMS PLAN

The Healthy Streams Plan is a multi-year effort to integrate local compliance with federal Clean Water and Endangered Species Acts in the Tualatin River Basin. The Plan is designed to effectively serve local jurisdictions, businesses, industries and citizens throughout the area in their efforts to protect and improve water quality. It is also intended to identify and prioritize specific projects, policies, and programmatic changes needed to improve water quality, manage flooding and floodplains, and provide for aquatic species protection in the Tualatin River and streams in the watershed. Key to the success of this complex undertaking is a solid understanding of the values and expectations the public has for the health of the Tualatin River and its streams.

IDENTIFYING PUBLIC VALUES

Clean Water Services has developed two approaches to identify public values related to the health of the Tualatin River and its streams. The first was through the public involvement process for *Watersheds 2000*, the natural resource assessment phase of the Healthy Streams Plan. The second is this study, a statistically valid telephone survey of citizens in Washington County complemented by facilitated discussions with key stakeholder groups.

A) *Watersheds 2000*

Watersheds 2000 is an ecological stream inventory and water resource modeling component of the Healthy Streams Plan. This inventory examined the urban and urban fringe areas draining into waters primarily managed by Clean Water Services. In addition to gathering field information and generating hydrology and hydraulic models, project committees of self-selected citizens, regulators, cities and other stakeholders were formed for three separate regions of the study area. Using scientific data and public values they identified each committee helped identify the desired conditions for specific stream reach types. In aggregate, the central stream functions underlying the improved conditions defined as high priority are:

- Maintaining water quality.
- Providing fish and wildlife habitat.
- Enhancing green spaces.
- Ensuring drainage and storage for flood management.
- Furnishing recreation and educational opportunities.

The *Watersheds 2000* analysis is being used to sort through the relative value of different stream functions to help identify the highest priorities for protection, enhancement or restoration of the waterways.

B) *DHM Opinion Research*

To complement the work of *Watersheds 2000*, Clean Water Services contracted with DHM in order to better understand the values the general public holds for the Tualatin River and waterways. In May 2002, DHM conducted a telephone survey of Washington County residents specifically designed to identify the public values underlying perceptions and priorities related to:

- The health of the Tualatin River and its streams.
- Strategies to improve stream health.

This research into public values had both quantitative and qualitative components: a random sample telephone survey and facilitated group discussions with key stakeholder groups. The first stage was a telephone survey of residents of Washington County conducted in May 2002. Facilitated discussions were then held with Westside Economic Alliance, Tualatin Riverkeepers and the Homebuilders Association of Metropolitan Portland in July and August 2002. Each discussion included administration of the survey, presentation of the telephone survey findings and facilitated discussion of highlights, points of agreement and disagreement, and relative concerns.

The telephone survey used a stratified sample of 600: a 450 sample drawn randomly from the general population age 18 and over in Washington County, and an additional 150 residential property owners living within 200 feet of a stream. The survey was developed in consultation with Clean Water Services and draft questionnaires were circulated for comment and input to key partners, including the Homebuilders Association, Westside Economic Alliance and Tualatin Riverkeepers. The survey included a combination of closed, open-ended, and scaled comparison questions. In gathering responses, DHM employed quality control measures, including questionnaire pre-testing, callbacks, and verification. A copy of the annotated questionnaire with the exact wording of questions is attached as Appendix A and B.

This report highlights key findings and notes significant subgroup variations for streamside and general population residents including gender, age, length of residence and other key factors. Findings from the discussion groups, as well as results from other relevant research studies conducted by DHM and others in recent years, are also incorporated into this report. For additional detailed information from the survey please see the accompanying set of tables in Appendix D.

Statement of Limitations. Any sampling of opinions or attitudes is subject to a margin of error, the variability that occurs because only a sample of the population is studied rather than the entire population. For example, if a survey with a margin of error of +/-3% shows that 55 percent of respondents buy widgets once a month, we can be certain that if the survey were repeated indefinitely, the results would show that between 52 and 58 percent of respondents buy widgets once a month in 95 percent of the follow-up surveys.

For this survey, the general population sample 450 has an overall margin of error of +/-4.6%. Findings from the streamside property owner sample (N=150) have a margin of error of +/- 8%.

The facilitated discussions with stakeholders were designed to qualitatively explore the range of opinions of a designated population and to gain insight into what underlies their attitudes. This qualitative information supplements and helps validate the survey and secondary research.

WHY PUBLIC VALUES?

The long-term success of complex efforts, like the Healthy Streams Plan, is not often assured with seamless agreement from all affected parties. Clean Water Services' past experience in this arena is perhaps instructive. In1999, McKeever/Morris, Inc. conducted a series of interviews for the agency (then known as Unified Sewerage Agency) to identify common values and themes held by its key stakeholders. This effort was designed deliberately to find common ground as the agency prepared to update its Stormwater Management Plan. The research identified "universal values" – those expressed across nearly all stakeholder groups – that were then integrated into the policy and program decisions related to the update of the Plan. Not only did agreement on these values smooth the way for updating the management plan, many of these values are relevant as Clean Water Services embarks upon perhaps its most complex basin-wide effort yet:

- Link land use with management.
- Respond to the impacts of growth.
- Increase public education.
- Leverage the value of natural systems.

The success of the planning and implementation of the Healthy Streams Plan rests in large part on matching up the science, policy demands and public expectations. Without a clear understanding of the values underlying the public's expectations, including their willingness to adapt to and pay for regulations, aligning only the science and public policy may be insufficient to advance and balance the inevitable competing demands.

To anticipate these dynamics, Clean Water Services contracted with DHM to identify the values and beliefs of its customers and constituents in order to both anticipate concerns and communicate effectively the benefits and costs of efforts to protect fish, promote water quality and advance locally driven solutions in the Tualatin Basin.

This public values survey was designed specifically to:

- Identify relevant baseline public values and expectations as the agency develops responses to the Clean Water and Endangered Species Acts;
- Clarify the public's understanding of impediments to healthy streams;
- Gauge the willingness to pay for further stream protection and improvements; and
- Determine public acceptance of modified policies and regulations.

RESEARCH FINDINGS

THE LANDSCAPE OF WASHINGTON COUNTY

Washington County is Oregon's second largest urban county. It is also the fastest growing with more than a 43% increase in population since 1990. With nearly 456,000 people, the County is home to the youngest, most affluent and most educated residents in Oregon. While it covers a broad swath of geography – from rolling farmland to the asphalt fields of large shopping malls – its image is wrapped up in high technology, rapid growth and traffic jams. The Latino population has become a potent force in many communities, but the dominant demographic is the white middle-class family.

The heart of the state's Silicon Forest, Washington County citizens have been inundated with story after story of the economic downturn, including layoffs at Intel (the state's largest private employer), Triquint, MedicaLogic and other high technology firms. The County has been battered by this year's economic downturn, shedding 14,000 jobs between March 2001 and 2002 (the most recent data available) and experiencing an unemployment rate comparable to the state as a whole – until recently the nation's highest. Related to the economic decline is the sinking confidence level Washington County residents have in the direction the state is heading – confidence levels that are among the lowest in ten years as measured by recent DHM polling.

The current economic pessimism is obviously not confined to Washington County and, in fact, may be tempered here by other factors important to residents. The 2002 *Westside Economic Study* conducted by Impresa, Inc., notes that the economic growth of Washington County and its neighbors on the Westside "has been driven in large part by…..quality of life." This strong relationship between economic growth and quality of life is a key aspect of Washington County's livability. And, a factor important to Clean Water Services' planning activities.

Like other Oregonians, Washington County residents rank natural beauty, recreational opportunities and environmental quality of their area as important ingredients of their quality of life (Impresa, 2002). A review of public opinion research conducted between 1997 and 2001 reveals that when attention is focused on current problems, Washington County residents identify the economy, school funding and traffic congestion as the top issues. However, when asked about the future environmental issues become important.

According to a May 2001 poll conducted by DHM on behalf of Metro, three in five Washington County residents said their quality of life was getting worse, primarily due to the effects of population growth. And while these residents were more likely to view growth favorably than other metro residents, their concerns with it returned to the importance of environmental factors and the costs of government – factors relevant to Clean Water Services:

- ◊ 87% of County residents were concerned with increased water and air pollution as a result of growth.
- ◊ 79% said they were concerned with growth's impact on fish and wildlife habitat.
- ◊ 74% were concerned with the added costs of building more water, sewer and transportation facilities.

These concerns are not likely to diminish as Washington County's economy emerges from the downturn and continues to grow.

As the public utility responsible for providing cost effective services and environmentally sensitive management of water resources of the Tualatin River watershed, Clean Water Services is positioned to strengthen the public's view of their quality of life on some specific dimensions, particularly water quality, habitat and the cost effectiveness of its activities.

However, this comes with three notes of caution: first, public cynicism about government and politics remains at high levels; second, the bad economy has heightened anti-tax sentiment; and third, Washington County residents (like other Americans) are likely to be more positive about the progress in dealing with environmental problems over the past 20 years than they are optimistic about what will happen in the future (April 2002 Gallup poll). This uncertainty makes efforts to understand underlying public values doubly important for securing the public's attention and confidence.

SURVEY FINDINGS

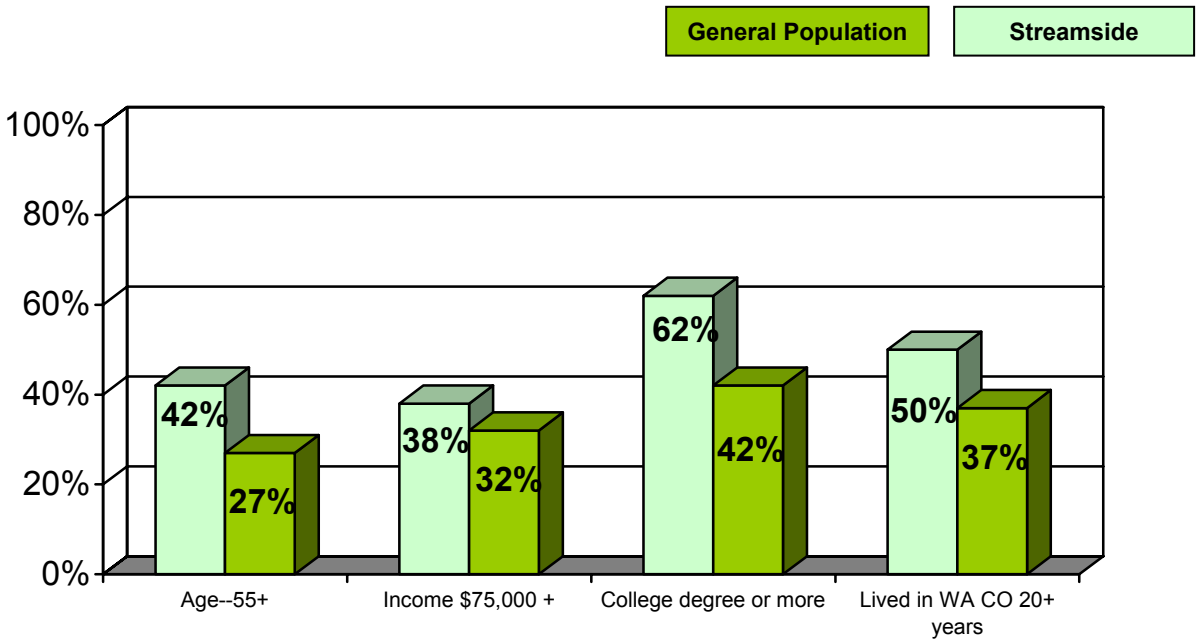
I. DEMOGRAPHICS OF SURVEY RESPONDENTS

As noted earlier, the telephone survey used a stratified sample of 600: a 450 sample drawn randomly from the general population age 18 and over in Washington County, and an additional 150 residential property owners living within 200 feet of a stream. Respondents in both samples were evenly split between men and women.

The majority of participants in the general population survey (N=450) were 35 years old or older (45% were 35-54 and 27% over 55), homeowners (69%), and had lived in Washington County for more then 10 years (57%). The distribution of household incomes was relatively even across categories, with a plurality earning $30,000 to $75,000 annually (44%). Nearly equal numbers said they earned less than $30,000 (15%) or more than $100,000 (16%). Reflecting the relatively high education levels of Washington County residents, 42% of these respondents had college degrees or higher; 23% were high school graduates.

Streamside property owners were generally older, better educated, more affluent, and had lived in Washington County longer than respondents to the general population survey. Half or more of these streamside owners had college or post-graduate degrees (62%), annual household incomes of $50,000 or more (61%), and had lived in Washington County for more than 20 years (50%).

STREAMSIDE PROPERTY OWNERS: OLDER, WEALTHIER, BETTER EDUCATED, AND LONGER TERM RESIDENTS



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II. SURVEY AND FOCUS GROUP RESULTS

The telephone survey was structured in four parts:

- ◊ Identification of values related to the Tualatin River and local streams.
- ◊ Assessment of potential threats to the waterways.
- ◊ Strategies to address and pay for improvements to stream health.
- ◊ Prioritization of values and ways to pay for improvements to stream health.

A. PUBLIC VALUES

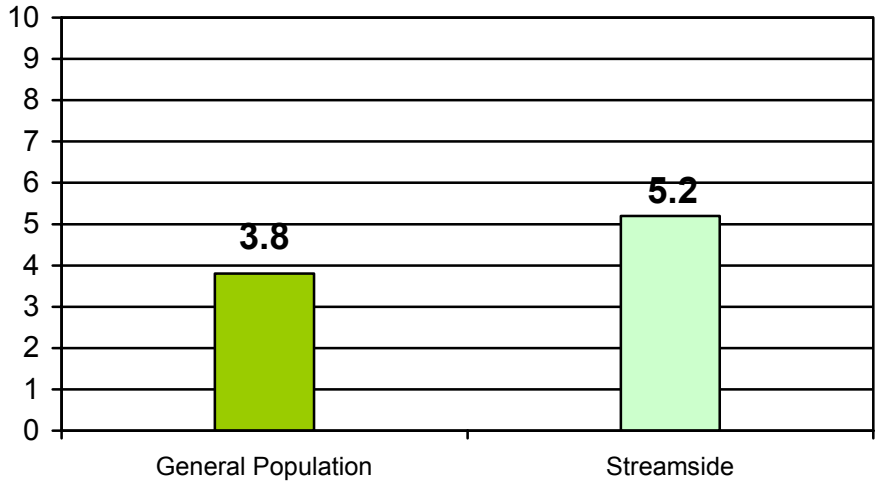
The survey began with a series of questions assessing values associated with the Tualatin River and its streams. Findings from both the general population and streamside property owners reflect a set of cohesive highly prized values that, while perhaps not driven by personal attachments with the Tualatin and its streams, are anchored by the consistent importance of clean water.

PERSONAL CONNECTION

The river and streams of the Tualatin Basin hold little personal attachment for residents. When asked how "personally connected" they felt to the Tualatin River and its streams (Q1), the public (on a 0 to 10 scale with 0 meaning no personal connection and 10 meaning a lot) was on the negative side of the scale (3.8) and streamside owners were neutral (5.2). Even among groups with slightly stronger personal connections – particularly men, people over 55, and those with more education – the attachment remained at best minimal. This middle ground is validated later in the survey as respondents again and again return to a concern with the quality of water generally rather than with the river and streams themselves.

PERSONAL CONNECTION TO THE TUALATIN RIVER AND ITS STREAMS (MEAN RATING)

Using a scale where 0 means not at all, and 10 means a lot, how personally connected do you feel toward the Tualatin River and its streams?



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THE DISCUSSION GROUPS

Participants in stakeholder discussion groups held with the Homebuilders Association of Metropolitan Portland, Westside Economic Alliance and Tualatin Riverkeepers expressed stronger personal connections to the Tualatin than did survey respondents (total mean score of 6.8). Not surprisingly, members of Riverkeepers – an organization with a mission directly tied to the health of the river and streams – expressed very high personal connections (8.6). Homebuilders' participants, too, scored their connection quite high (7.2). Westside Alliance participants' rating was between the general population and streamside property owners (4.5).

THE VALUES

Survey respondents were then asked to volunteer what they valued about the Tualatin and local streams (Q2). Responses from the general population were relatively evenly split, with about one in four noting *recreation* (24%) and *preservation of nature* (23%). About one in five responses mentioned the streams *beauty or scenery* (20%), *water quality* (18%), and *wildlife habitat* (18%). Additional responses included *water supply* (16%), *fish habitat* (9%), and *pollution* (5%).

There was greater consensus among streamside property owners on this initial assessment of values. Nearly two in five responses (37%) identified the value of *wildlife habitat*, followed by another 19% each noting *recreation* or *beauty and scenery*, 16% mentioning *fish habitat* and *water quality*, and 13% *preservation of nature*.

In order to provide some sharper focus respondents were read a wide-ranging list of twelve values related to the Tualatin basin. They were first asked to rate the personal importance of each value (Q3) and then to select the first and second most important value to them (Q4).

Top responses on both dimensions for both sample populations were identical. Nine of the twelve values tested were viewed as very or somewhat important by at least 92% of both samples. Both the public and property owners were in consensus on the top four values: *clean rivers and streams* (99%), *healthy streams that support fish* (98% each), *clean drinking water* (95% and 92% respectively), and *adequate water in streams for fish and wildlife* (97% each). Between 92% and 97% of each sample also said the following values were important to them:

- ◊ *Open space and natural areas for habitat.*
- ◊ *Healthy fish populations in local streams.*
- ◊ *Existing wetlands protected.*
- ◊ *Streamside areas protected from development.*
- ◊ *Open space and natural areas for recreation*.

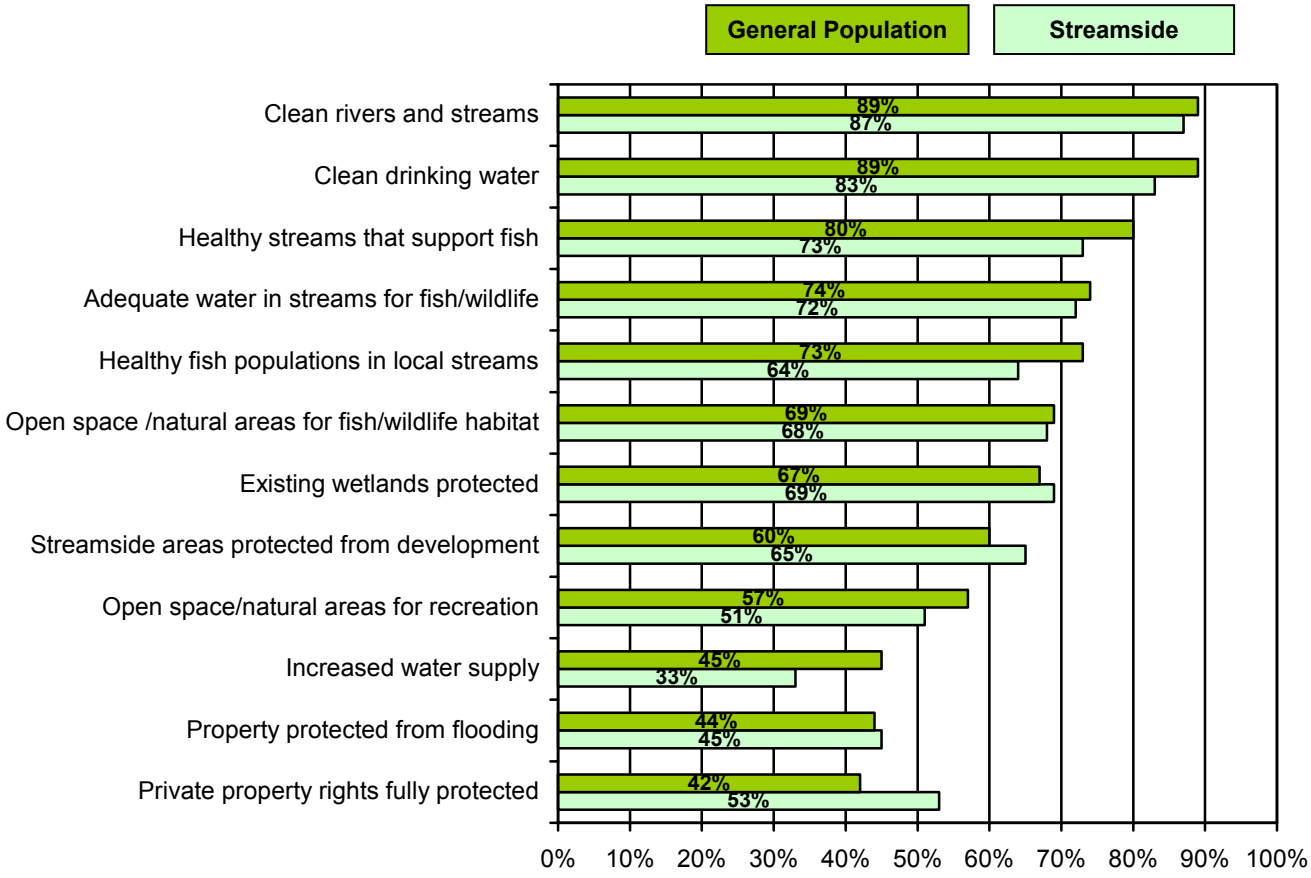
Both sample populations were also in consensus on the values least important to them, albeit still enjoying significant support. Between 79% and 86% of respondents identified *property rights protection*, *property protected from flooding*, and *increased water supply* as important values.

THE IMPORTANCE OF THE VALUES

Sharper distinctions – and further consensus – emerge when we look at the intensity of importance (Q3) and priority ranking (Q4) for these values. Again, there is general agreement among the public and streamside property owners on the values of greatest importance underlying their perceptions, as well as the two most important values at the core of their beliefs: *clean drinking water* and *clean rivers and streams*.

The intensity with which respondents view the values (the percentage identifying a value as "very important") fall into three tiers, with general agreement among the general population and streamside property owners on the top and bottom tiers.

VALUES RANKED AS "VERY IMPORTANT"



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As can be seen from this chart, *clean rivers and streams* (89% for the pubic and property owners) and *clean drinking water* (89% and 83% respectively) are substantially important to people. The public also rates *healthy streams that support fish* in a similar vein (80%). The support for these three values is consistent across all demographic sub-groups.

While the general importance for the other nine variables tested (the combined "very" and "somewhat" important ratings) is high, the degree of importance for these nine values drops

significantly and constitutes a second tier of values comprising responses with 60-73% "very important." These ratings include *adequate water for fish/wildlife*, *healthy fish populations, open space for habitat, wetlands protected,* and *streamsides protected from development*.

The public and property owners also agree on the values they hold with the least intense importance:

VALUE	PERCENT SAYING VALUE WAS "VERY IMPORTANT"
◊ *Increased water supply*	Public: 45% - Streamside owners: 33%.
◊ *Property protected from flooding*	Public: 44% - Streamside owners: 45%.
◊ *Private property rights fully protected*	Public: 42% - Streamside owners: 53%.

This ranking pattern echoes findings from other research. A 1999 public awareness study conducted by Riley Research reported that Washington County residents' top three priorities for Clean Water Services were: *protecting public health, cleaning wastewater,* and *protecting river and stream water quality*. The least important job was thought to be *flood management*.

The current findings are validated by respondents' choices of the most important values to them (Q4). The public and streamside property owners agree on three of their top four values: *clean drinking water, clean rivers and stream,* and *open space for fish and wildlife habitat*. Streamside owners identified *full protection of property rights* as their second most important value, similar in degree to *clean rivers and streams* and *open space for habitat*.

COMBINED FIRST AND SECOND MOST IMPORTANT VALUE

	GENERAL POPULATION	STREAMSIDE PROPERTY OWNERS
Clean drinking water	**45%**	**41%**
Clean rivers and streams	**30%**	**25%**
Open space and natural areas for fish and wildlife habitat	**25%**	**25%**
Streamside areas protected from development	**15%**	**15%**
Existing wetlands protected	**15%**	**18%**
Open space and natural areas for recreation	**14%**	**9%**
Healthy streams that support fish	**14%**	**9%**
Private property rights fully protected	**13%**	**27%**
Adequate water in streams for fish and wildlife	**10%**	**11%**
Healthy fish populations in local streams	**8%**	**9%**
Increased water supply	**6%**	**3%**
Property protected from flooding	**5%**	**7%**

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A key difference in priorities between the public and property owners is the importance attached to property rights. More streamside owners feel *full protection of property rights* is a "very important" value to them (53% vs. 42% of the public). When asked to choose, one quarter note it as their first or second most important value, comparable in importance to *clean rivers and streams* and *open space for fish and wildlife habitat*. Generally, for both the public and property owners, women, older residents (over 55), people with college experience or less, and those living in Washington County ten years or less are more likely to identify property rights protection as a "very important" value to them.

THE DISCUSSION GROUPS

Discussion group participants parted company with both the public and property owners in their rating of the importance of particular values. Participants rated fewer values as "very important," particularly in the Westside Economic Alliance and Homebuilders groups. Among the twelve values tested, only *property rights protection* garnered a "very important" rating from more than one-half of participants in either of these groups. Responses from participants in the Riverkeepers' discussions were nearly opposite, with almost all rating 8 of the 12 values as fully "very important" (not including *property rights*).

Overall, values receiving the greatest level of support from discussion participants were *clean rivers and streams, open space for recreation, healthy streams supporting fish, adequate water for fish and wildlife, wetlands protection* and *open space for habitat*. *Clean drinking water* – the top priority for the public and property owners – fell in a middle tier of importance for these participants.

When choosing the most important value, only Homebuilders participants selected *clean drinking water* (as well as *open space for habitat*) as their top choice. A near majority in the Westside Alliance group selected *property rights*, and one-half of Riverkeepers' chose *healthy streams supporting fish*.

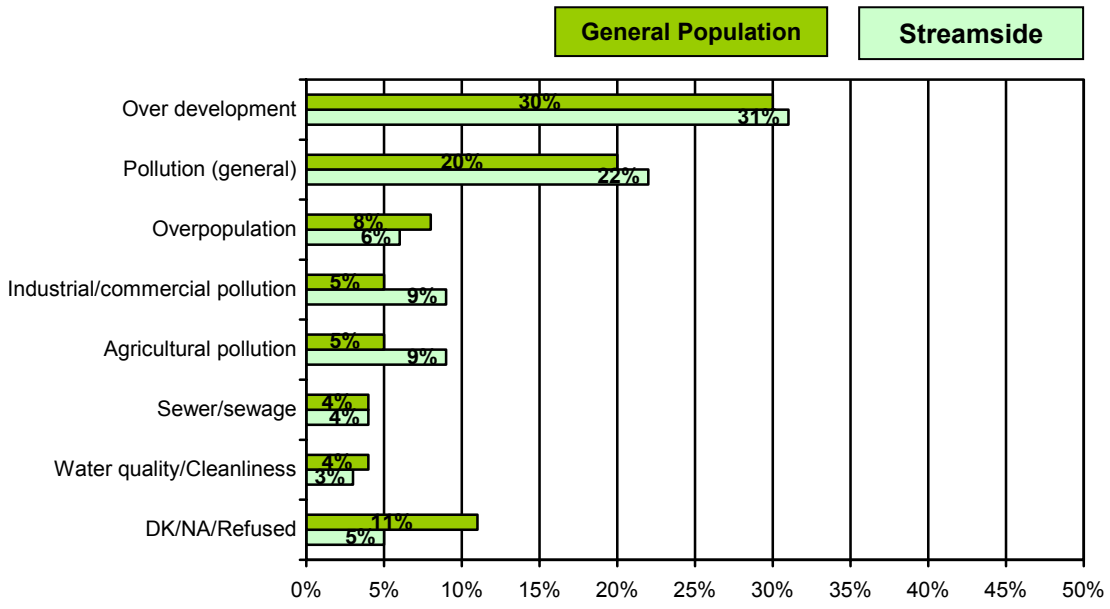
B. Potential Threats

The health of the Tualatin and local streams is inextricably tied to the potential threats the water resource faces from different sources. Understanding the public's view of the resource's status is an ongoing concern of Clean Water Services. Research conducted in July 2002 by Riley Research showed that two in five residents (43% of the public and 38% of streamside residents) felt their local streams were polluted. A similar survey five years earlier rated the quality of local streams neutral at best – a measure that had not improved since 1994.

This DHM research dealt with specific perceptions of potential problems facing the Tualatin basin. While streamside owners are perhaps more discerning in their identification of specific threats, there was broadly held agreement among all respondents on the major threats facing the river and streams.

When asked to volunteer the biggest problem facing the waterways (Q5), both the public and property owners identified *over development* (30% and 31% respectively) and *pollution* (20% and 22%) as the top issues. These were followed by a cluster of items receiving 5-9% of responses: *overpopulation, industrial pollution* and *agricultural pollution*.

WHAT DO YOU SEE AS THE BIGGEST POTENTIAL PROBLEM FACING THE RIVER AND ITS STREAMS?



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It should be noted that if all mentions of pollution are combined it becomes a top issue for the public and property owners: 40% of streamside owners and 30% of the public. This concern with pollution is sharpest among women and those living in Washington County ten years or less.

Also notable is the absence of perceived threats to the river and streams related to personal behavior, including lawn fertilizers, run-off from garden chemicals and residue from car repair. These

respondents look outside their own household and neighborhood to assess responsibility for negative pressures on the Tualatin. This disconnect between perception and the reality of the impact of personal behavior on the waterways emerges again later in the survey.

SERIOUSNESS OF THREATS

Using a scale of 0 to 10 (with 10 meaning "very serious"), respondents were also asked to rate factors that "could create problems" for the river and streams (Q6). Both sample populations held to the same pattern in their judgments of the seriousness of individual threats, although the public rated the majority of them as more serious threats than did property owners. Among the public, women were more likely to see all the threats as more serious than did men; among property owners the pattern was reversed, with men more likely to rate threats more seriously than women.

Seriousness of Potential Threats to the Tualatin River and its Streams.

On a scale of 0 to 10, with 0 being not at all serious and 10 being very serious, please tell me how serious a threat you believe each one is to the Tualatin River and its streams.

	GENERAL POPULATION	STREAMSIDE
Industrial pollution	**8.1**	**7.5**
Development/buildings too close to rivers and streams	**7.6**	**7.2**
Run-off from farm chemicals	**7.4**	**7.0**
Poor or inadequate sewer and septic systems	**7.4**	**6.8**
Loss of wetlands	**7.3**	**7.1**
Pollution from oil, antifreeze, etc. from car repair/maintenance	**7.2**	**6.6**
Run-off from lawn and garden chemicals	**6.9**	**6.4**
Not enough water in streams for fish/wildlife	**6.9**	**6.2**
Not enough trees shading streams to keep water cool for fish and plants	**6.6**	**6.3**
Storm water run-off from roads and parking lots	**6.3**	**6.3**
Run-off from cars being washed at home	**5.3**	**4.7**
Run-off from pet waste	**4.8**	**4.6**

Davis, Hibbitts & McCaig, Inc.

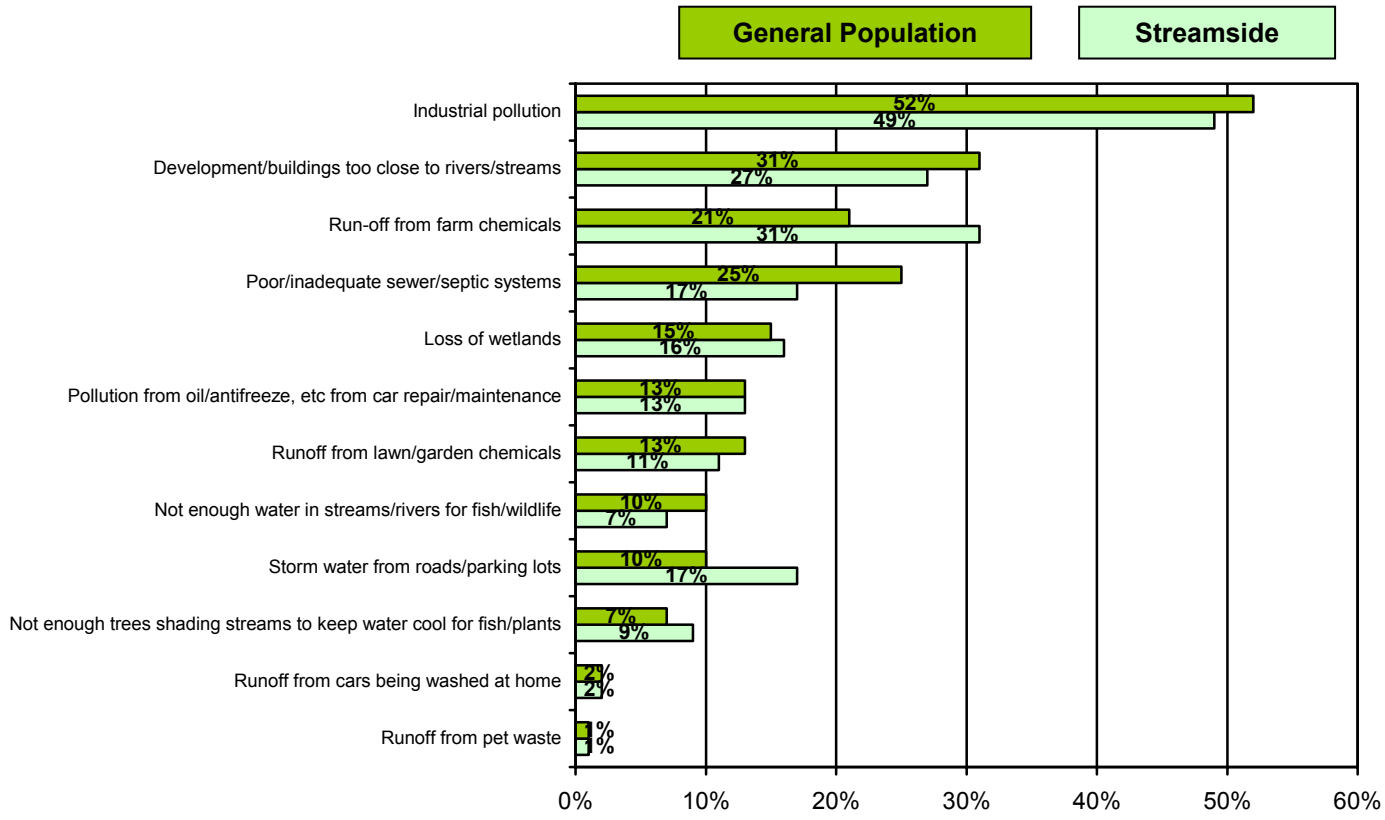
Pollution, specifically *industrial pollution*, is cited as the most serious threat by all survey respondents (mean score of 8.1). Among the general population, women and newer residents (5 years or less) rated this threat highest (8.5 each) and households with annual incomes over $75,000 lowest (mean scores of 7.4 – 7.6). Among property owners, men (7.7) and households with incomes on either end of the spectrum (less than $50,000 and more than $100,000 – 7.9 and 7.7 respectively) rated *industrial pollution* highest.

A second tier of factors rated as serious threats by both populations (scores of 7 and above) included *development too close to rivers and streams, farm chemical run-off* and *loss of wetlands.* The general public also included *poor sewer and septic systems* and *pollution from car repair* in this tier. Both sample populations were more neutral on the seriousness posed by *run-off from lawn and garden chemicals, insufficient water for fish and wildlife, not enough trees to cool the water* and *storm water run-off* (scores from 6.3 to 6.9). Threats everyone were least concerned with were *run-off from cars washed at home* (public – 5.3; streamside – 4.7) and *run-off from pet waste* (4.8 and 4.6).

RANKING OF PROBLEMS

When asked to choose from the list of potential threats the top two problems facing the Tualatin River and streams (Q7), the same patterns emerge as we saw in both the potential problems volunteered (Q5) and the rating of potential threats (Q6): the perceived significance of *industrial pollution* and *development* and limited attention to the impacts of personal human behavior.

WHAT IS THE BIGGEST PROBLEM FACING THE TUALATIN RIVER AND ITS STREAMS?
(COMBINED FIRST AND SECOND CHOICE)



Davis, Hibbitts & McCaig, Inc.

Not only do the public and property owners view *industrial pollution* as the most serious threat, there is strong agreement that it is the biggest problem confronting the river and streams. This concern is tied closely to the central value of clean water for these residents. As we've seen elsewhere in these findings, among the public, women (59%) and newer residents (60%) were more likely to identify pollution as the biggest problem and wealthier households ($100,000 +) were least likely (41%). For property owners, men (51%) and households on either end of the income spectrum (under $30,000, 83% and over $100,000, 55%) were most likely to select this issue.

There is also consensus among the public and streamside property owners on the next cluster of threats: *development too close to rivers and streams, run-off from farm chemicals* and *poor sewer and septic systems*.

It should be noted that, again, factors related to individual human impact are not viewed as potential problems or threats to the river and streams. *Pollution from car repair*, *lawn and garden chemicals, cars being washed at home* and *pet waste* were viewed as the biggest problem by only a small number of respondents (between 1% and 13% of responses).[1]

THE DISCUSSION GROUPS

Discussion group participants took a slightly different tack on perceived threats. They were far more likely than either the public or streamside owners to rate *run-off from farm chemicals, lawn and garden chemicals,* and *stormwater* as the most serious and biggest threats to the river and streams. *Industrial pollution*, the most serious threat identified by survey respondents, was far less of a concern for these participants.

Discussion of these issues in all three groups centered on frustration with, as one participant put it, a "big disconnect between what people do, what they will pay for, and what they say their environmental values are." Similar frustration was expressed with the limited knowledge citizens have of the "scientific reality" of threats to the waterways and the implications of this for their positions on land use, development and population growth issues.

[1] *A recent internal staff analysis conducted by Clean Water Services ranked industrial pollution as the least serious threat to water quality in the Tualatin Watershed. Personal behavior, including run-off from car washing and repair, lawn and garden chemicals and pet waste, fell in low and middle tiers of seriousness. Existing development too close to streams, agricultural run-of, not enough trees along creaks, and not enough water in streams/river were cited as the most serius threats.*

C. ADDRESSING AND PAYING FOR IMPROVEMENTS

FAVORED APPROACHES

Clean Water Services is working with EcoNorthwest, an economic consulting firm, to assess the technical and economic dimensions of different project-based approaches to implementation of the Healthy Streams Plan. In consultation with DHM, simple descriptions of the main proposed approaches were developed to test in the telephone survey. Respondents were asked to rate on a 1 to 4 scale (with 1 meaning not at all and 4 meaning a lot) how much they favored each approach (Q8):

FAVORED APPROACHES

For each one, please tell me how much you favor the approach: a lot (4), somewhat (3), only a little (2), or not at all (1).

	GENERAL POPULATION	STREAMSIDE
Improve water quality in rivers and streams by planting more trees alongside streams to filter and keep water cool	**3.6**	**3.6**
Improve and increase fish and wildlife habitat near streams and rivers	**3.5**	**3.4**
Improve the flow of water in streams to make sure there is an adequate water supply	**3.4**	**3.4**
Increase natural areas and open spaces near streams and wetlands for recreation	**3.1**	**3.1**
Make streams and rivers more fish friendly by repairing and removing bridges, culverts, and pipes	**2.8**	**2.8**
Improve flood management by relocating homes and businesses outside of flood zones	**2.8**	**2.6**

Davis, Hibbitts & McCaig, Inc.

The judgments of the public and streamside owners were nearly identical and (again) focused on the strategy most clearly tied to water quality. This approach to implementation validates the value preferences expressed throughout the survey.

The top three project approaches are highly favored and tightly clustered (mean scores of 3.4 to 3.6) – followed closely by a fourth at 3.1 – reflecting a preference for approaches focused on "natural" interventions: *planting trees*, *improving water flow* and *expanding habitat and natural areas*. The relatively lower scores for the remaining two items likely reflect a number of factors:

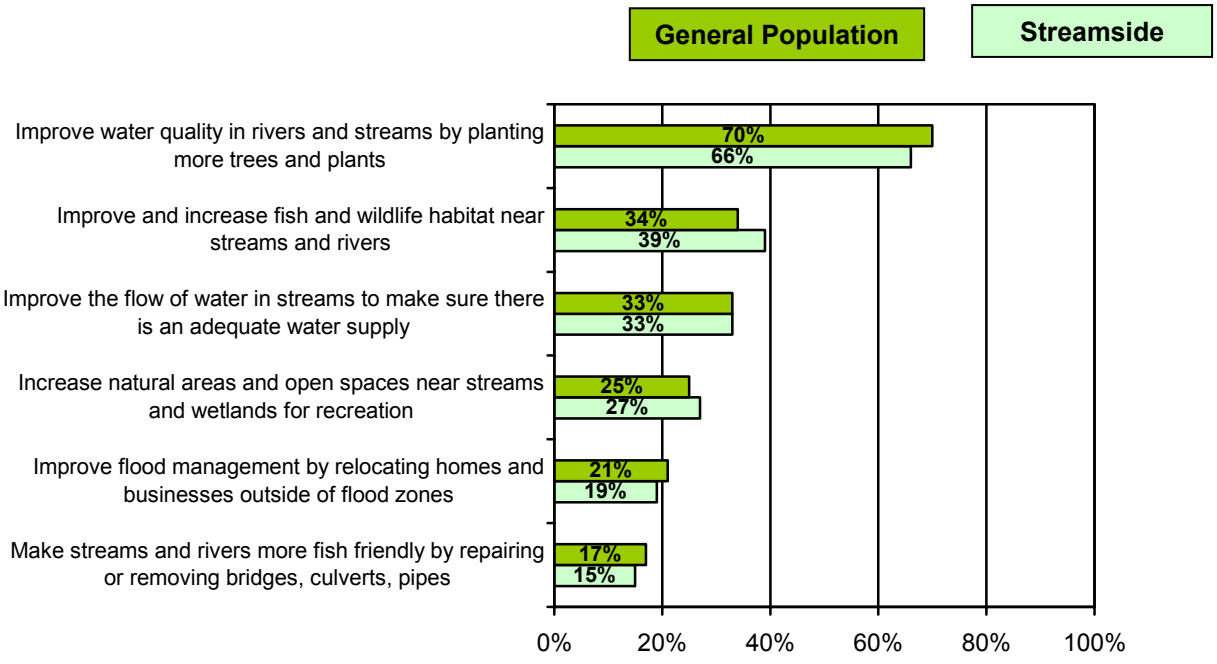
- Respondents may be reacting negatively to a perceived emphasis on physical structures – *bridges, culverts, and pipes*.
- As revealed earlier in the survey, respondents are more favorable to the quality of water in the streams than the aquatic life in the water. The focus on *more fish friendly* rivers and streams may reflect that lower level of support.
- The physical relocation of homes and businesses may be a negative lightning rod, particularly among streamside owners.

- Flood control directly affects a small portion of Washington County residents and may not rise to a significant level of concern for most people.

While women were marginally more supportive of all the approaches, the public's favorability was even across all demographic sub-groups. Distinctions were sharper among property owners, with long-term residents (over 20 years), lower income households (less than $30,000) and people 55 and over slightly less supportive of the approaches.

Similar preferences were expressed when respondents were asked to choose their top choices among the six options presented (Q9):

FIRST AND SECOND MOST FAVORED APPROACH (COMBINED RATING)



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The preferred priorities reflect the same pattern as the favorability rankings. There is substantial agreement on the top choice as well as similar support for the other approaches. Two-thirds or more of all survey respondents (general population and streamside owners) selected as their first or second most favored approach, the option most directly tied to water quality and, arguably, the most tangible natural approach: *improve water quality by planting more trees to filter and cool water*. Among the public, men, people over 55 and those making $30-50,000 annually were less likely than their counterparts to choose this as their first choice. Alternatively, among property owners, people over 55 and those making less than $30,000 or between $50-75,000 annually were less supportive.

The second and third most favored options (*enhancing habitat* and *improving water flow*) received about one-third support from both survey samples, followed by one quarter of respondents supporting

increasing natural areas for recreation. Approaches with the least support were *flood management* and *more fish friendly* projects.

Overall, these findings once again affirm residents' primary focus on water quality and their preference for natural approaches to improving water quality and stream health.

THE DISCUSSION GROUPS

Most discussion group participants agreed with the judgments of the public and property owners on the approaches. Most favored *improving water quality by planting tress to filter and cool the water* and *improving water flow*. Yet, while the pattern was generally the same, almost all were slightly less favorable on all of the approaches. The Riverkeepers' group was the exception, rating every approach highly – at least a 3 and two-thirds of them a 3.6 or higher.

There was consensus in each group on their most favored approach, but no consensus among all the groups as a whole. *Planting trees to filter and cool the water* was the most favored approach for Westside Alliance participants; *improving water flow* tops for the Homebuilders group; and *improving habitat* the priority for Riverkeepers participants. Each of these choices was favored by at least two-thirds of their selected groups. In general terms, it appears the *planting trees* approach is a soft favorite overall, followed by *improving water flow*.

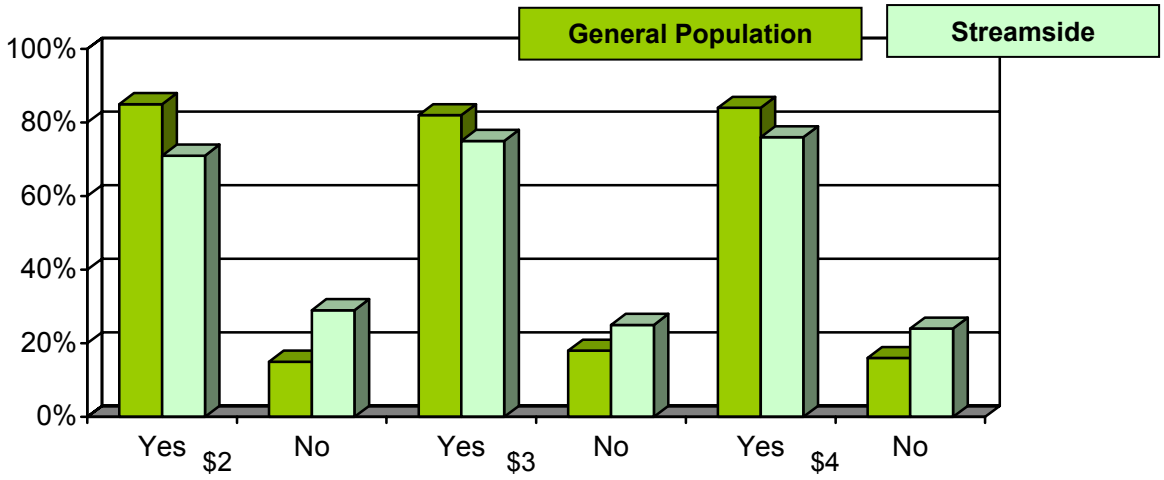
Many of these discussion group participants were more informed about the intricacies of government regulations, development, storm water management, and related issues than the general public. This more sophisticated understanding of the complexities was a perhaps a factor in their frustration with what they viewed as the "lack of specifics" with project approaches. As one said, "They are just too broad to be useful."

WILLINGNESS TO PAY

It is one thing to say you believe an issue is important or an activity a priority for you. It is another matter whether you are willing to bear a cost associated with your support. To assess preliminary support for paying for additional protection and improvements to rivers and streams, respondents were asked if they were willing to spend more of their own money to facilitate such activities. This question (Q10) was split sampled; with one-third of respondents (N=200) asked if they were willing to pay one of three amounts on a bimonthly basis. Eight in ten public respondents and three-fourths of streamside property owners said they were willing to pay an additional amount (as was the majority of discussion group participants).

WILLINGNESS TO PAY

The average water and sewer bill for most Washington County residents is about $90 every two months. About $8 of that bill is for local activities to protect rivers and streams. If new things need to be done to protect rivers and streams it will cost more money. Would you be willing to pay an additional $2 every two months to support such activities? $3? $4? (3-way split sample n=200)



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The bimonthly amounts tested (identified by Clean Water Services) were modest. Nonetheless, the substantial degree of support reflects a willingness to connect their pocketbook to stream improvements – especially if grounded in the values discussed throughout the survey. Support was strong among all sub-groups of the public. The more supportive property owners were above 35 years old, with college degrees or more, and middle and upper income households ($30,000 and above).

D. PRIORITIES OF VALUES AND FINANCING

THE SCALED COMPARISON

A key part of the telephone survey was a scaled comparison exercise, a technique that allows respondents to rank the relative importance of different, sometimes competing, items. In this survey we asked two scaled comparison questions, one assessing values for the Tualatin River and its streams (Q16A) and another assessing strategies to pay for services (Q16B).

Each of these questions consisted of a list of randomly paired items on either side of a five-point scale. For each pairing, the respondent was then asked to compare the items and rate their relative value – in this case which value is "more important" (Q16A) and which financing approach is "better" (Q16B).

Initial data analysis is completed of all the comparisons to provide a rough arrangement or approximate ranking. Each respondent's individual results are then tested to see if they are consistent or inconsistent with that first arrangement. Statistical revisions are then made to the initial arrangement until one is found that the most decisions are consistent with. That's why we say it is a method that searches for agreement or consensus.

Put simply, the scaled comparison questions force choices among items. This means every value or strategy cannot be important, every item cannot be a top priority. In a world of limited resources, it provides a clearer picture of preferences. In addition, it presents a broader consensus agreement for the relative importance of items.

RELATIVE PRIORITY OF VALUES

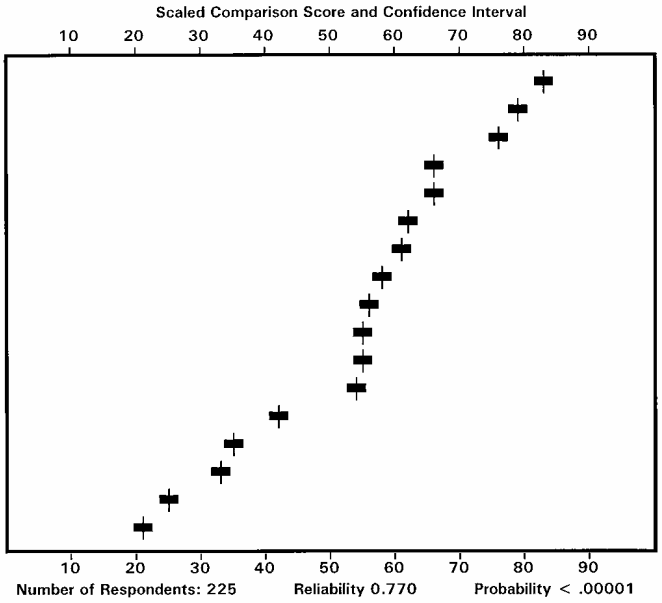
Survey respondents were presented a series of 17 randomly paired values and asked to choose which one was more important to them (Q16A). The graphs below represent the consensus agreement on the relative priority of sometimes competing values – for the public (Graph A) and streamside property owners (Graph B). Please see an explanation of how to read these graphs in greater detail in Appendix C.

Scaled Comparison—Values

Healthy Streams Values - Confidence Interval Report

Results for Group: General Population QUESTION: Considering the Tualatin River and its streams, which value in each pair is MORE IMPORTANT to you?

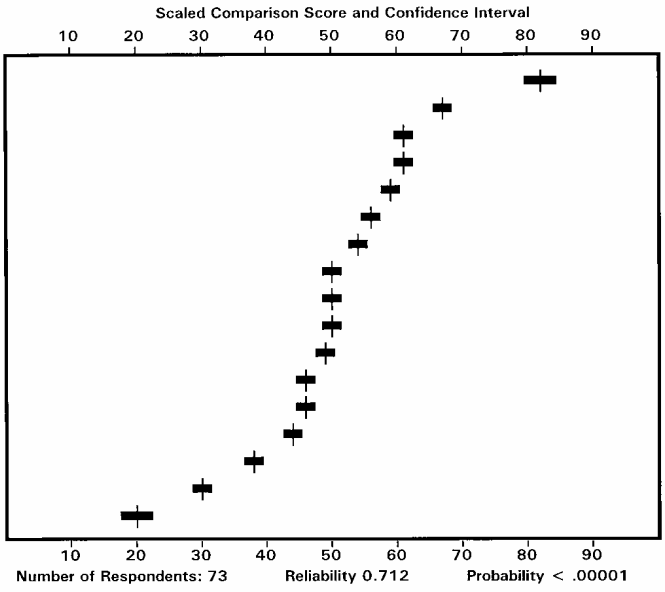
1.	Clean rivers and streams	83
2.	Clean drinking water	79
3.	Cmply wfed&stlaws lmtng plutn n rvrs&strms	76
4.	Opn spc & nat areas 4 fish & wldlfe habit	66
5.	Prsrve hi qualty natl habitat in rural areas	66
6.	Healthy fish populations in local streams	62
7.	Adequat water in streams 4 fish & wldlife	61
8.	Protected wetlands	58
9.	Imprv natrl hbtat in mor urb ars tht is damgd	56
10.	Cmply wfed&stlaws prtctng fsh & wldlfe	55
11.	Healthy streams that support fish	55
12.	Streamside areas protectd frm development	54
13.	Growth should pay its own way	42
14.	Increase water supply	35
15.	Fully protect private property rights	33
16.	Open spc & natural areas for recreation	25
17.	Property protected from flooding	21



Healthy Streams Values - Confidence Interval Report

Results for Group: Streamside QUESTION: Considering the Tualatin River and its streams, which value in each pair is MORE IMPORTANT to you?

1.	Clean drinking water	82
2.	Clean rivers and streams	67
3.	Adequat water in streams 4 fish & wldlife	61
4.	Cmply wfed&stlaws lmtng plutn n rvrs&strms	61
5.	Streamside areas protectd frm development	59
6.	Prsrve hi qualty natl habitat in rural areas	56
7.	Healthy streams that support fish	54
8.	Opn spc & nat areas 4 fish & wldlfe habit	50
9.	Imprv natrl hbtat in mor urb ars tht is damgd	50
10.	Fully protect private property rights	50
11.	Cmply wfed&stlaws prtctng fsh & wldlfe	49
12.	Healthy fish populations in local streams	46
13.	Protected wetlands	46
14.	Growth should pay its own way	44
15.	Increase water supply	38
16.	Property protected from flooding	30
17.	Open spc & natural areas for recreation	20



These results validate findings from the rating and ranking of values completed earlier in the survey. The top two priorities for both populations are consistent: *clean rivers and streams* and *clean drinking water*. For the general public, an additional value related to water quality (*compliance with laws to limit pollution*) finishes out the first tier of relative priorities.

The public and streamside owners remained in general agreement on the array of values of more middling importance to them. For the public, these priorities were water quality (as noted earlier), followed by habitat (*open space for fish and wildlife habitat* and *preserving habitat in rural areas*), and finally a focus on fish and wildlife (*healthy fish populations in streams* and *adequate water for fish and wildlife*). Property owners were slightly less consistent but shared the top six priorities. The key difference was the relatively high priority given to *streamsides protected from development* which placed fifth among the values tested.

It is also useful to look at the values of lowest priority to respondents. Again, the public and streamside owners are in general agreement: *property protected from flooding* and *open space for recreation* scored lowest of the 17 values. *Increase water supply* and *growth should pay its own way* also scored in the bottom tier for both populations. While the latter was not seen as an important value, it re-emerged with greater priority as a financing strategy.

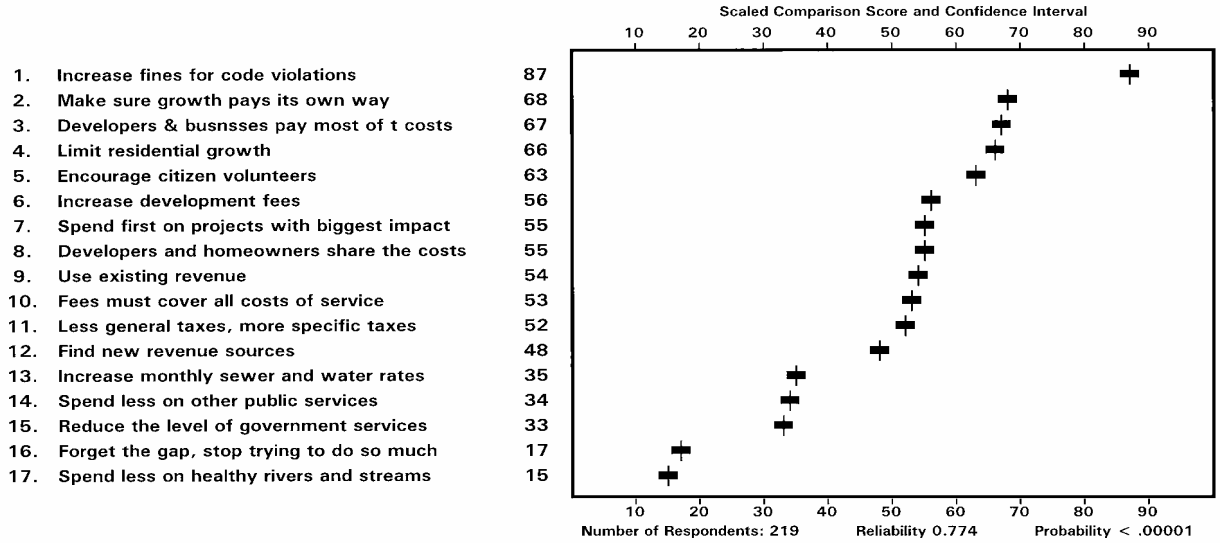
Not surprisingly, streamside owners place higher priority on *fully protecting property rights* than did others. For the public, property rights placed 15th of 17 values; property owners placed it almost squarely in the middle of their relative priorities, and significantly higher than the public.

RELATIVE PRIORITY OF WAYS TO PAY FOR IMPROVEMENTS

A second scaled comparison exercise was administered to identify the level of public support for ways to finance possible stream improvements (Q16B – the options tested were not limited to Clean Water Services' prescribed authority). Respondents were given 17 randomly paired options and asked which would be a "better" approach to bridge the funding gap if the need outstripped current resources. The public and property owners share similar feelings about finding options:

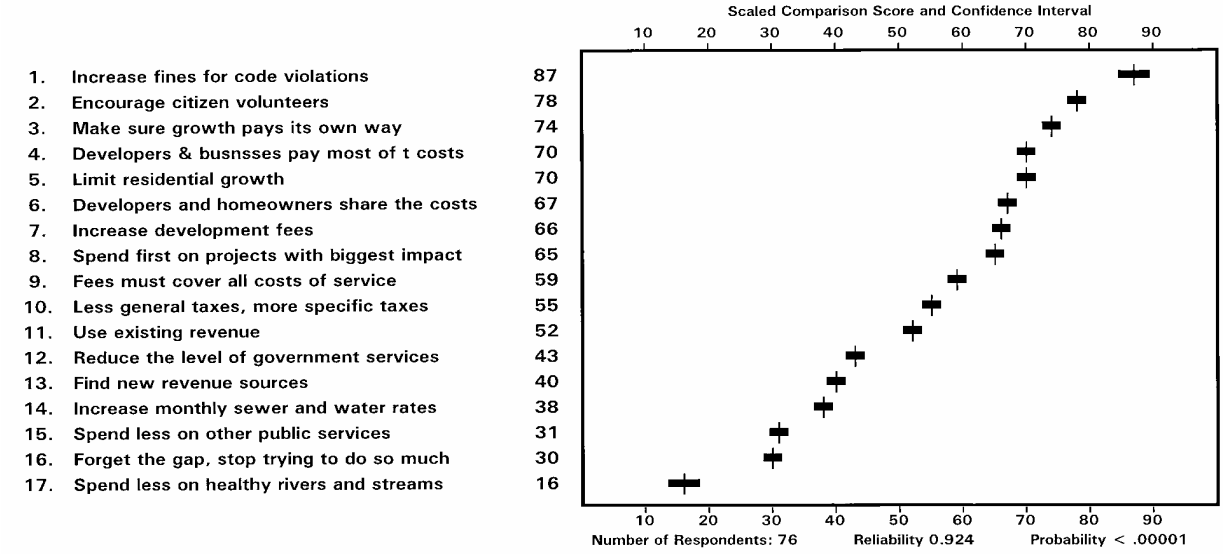
Healthy Streams Revenue - Confidence Interval Report

Results for Group: General Population QUESTION: Which of the following in each pair would be a BETTER approach to bridging the funding gap?



Healthy Streams Revenue - Confidence Interval Report

Results for Group: Streamside QUESTION: Which of the following in each pair would be a BETTER approach to bridging the funding gap?



When asked how to pay for something, it is not uncommon for people to first charge the cost to others or limit (if not reduce altogether) any new cost – which is exactly what these respondents did. The consensus top priority for both groups to finance stream improvements is *increasing fines for code violations*. This is followed by *growth paying its own way* (i.e. newcomers), *developers and business paying* and *limiting growth*. Property owners also placed high priority (second of 17 options) on *encouraging citizen volunteers*, a low cost option. Both populations also selected items to deflect direct cost to them in their ranking of low financing priorities: *find new revenue sources* and *increase monthly sewer and water rates*.

The predilection to shift costs to other parties shows up in other research as well. A 2001 Metro study found that most Washington County residents felt growth related costs should be paid for by development fees. Three of four also said such costs are best borne by developers and new residents – in other words, other people pay first.

In this exercise, results providing more insight are found at the bottom of the rankings. Here again, there is consensus among the public and property owners. The two things both want the least are to *spend less on healthy rivers and streams* and *stop trying to do so much*. There is additional unwillingness to take from Peter to pay Paul in order to bridge a funding gap: *reduce the level of government services* and *spend less on public services* shared the bottom tier of choices for both groups. The consistency of these least desired choices validate the importance attached to the quality of the drinking water, the river and the streams expressed throughout the research.

OBSERVATIONS AND CONCLUSIONS

◊ Water is at the forefront of environmental concerns for the public. A 2002 Gallup poll found that pollution of drinking water was Americans' top environmental worry. The health of rivers, streams, and lakes and maintenance of fresh water round out the top environmental concerns. This focus on water quality shows up consistently in DHM's own polling in Oregon, and lies at the heart of the values Washington County residents hold for the Tualatin River and its streams:

- ⇨ When paired against other values, clean drinking water is consistently the most important value for these residents.
- ⇨ 89% of the public and 83% of streamside owners say clean drinking water is very important to them; 45% of the public and 41% say clean drinking water is the first or second most important value to them.
- ⇨ Another 30% of the public and 25% of streamside owners say clean rivers and streams are the first or second most important value to them; 89% of the public and 87% of streamside owners say this value is very important to them.
- ⇨ Women, young and middle-aged residents (under 55 years old), and relative newcomers (living in Washington County five or fewer years) place greater importance on water quality than other demographic sub-groups.

◊ Clean water is also linked closely to other values residents view as important: *open space for fish and wildlife habitat, wetlands protection* and *streamside areas protected from development*, the third, fourth and fifth choices for the most important values. Two-thirds or more of respondents also identify these as very important personal values for them in relation to the Tualatin River and its streams.

◊ The core values people hold for the Tualatin watershed are related to the expectations they have for the work of Clean Water Services. In recent customer awareness research conducted by Campbell DeLong (June 2002), the two most important characteristics of a water and wastewater utility were protection of public health and the environment. An earlier 1999 customer service survey by Riley Research affirms this: customers' top priority for Clean Water Services was protecting public health, followed by cleaning wastewater and protecting the quality of river and streams. The consistency of expectations draws a clear relationship for its constituents between the characteristics of a successful utility and their core values of clean drinking water and clean rivers and streams.

◊ There is great consistency among the public and property owners on major underlying values, perceived environmental threats to the Tualatin, and the value of and strategies for paying for improvements. We found no significant differences among demographic sub-groups on the key issues.

In general terms, we do see that women feel more personally connected to the river and streams, have somewhat stronger feelings about the values, and are more supportive of the proposed approaches. Campbell DeLong Resources, in recent polling for Clean Water Services (2002), found a similar – but larger – gender gap on the importance of values associated with a water utility. Women gave higher importance ratings than men for all the specific characteristics tested, from protecting public health to using new technology.

◊ There is consistency embedded in the seemingly mixed messages about financing stream improvements. Like Oregonians elsewhere, Washington County residents are not inclined to embrace an added direct cost to them. But they are even less inclined to spend nothing to improve stream health. In addition, when asked directly about their willingness to pay (albeit with the modest amounts tested in this survey) they are strongly supportive of doing so. Given the strong connection to a core set of public values (clean drinking water, clean rivers and streams), these findings reflect a recognition that stream improvements are important and need to be paid for, as well as a willingness to consider a role in paying for them.

◊ The gap in understanding between what the public (and property owners) believe about threats facing Tualatin basin waters and the actual threats is a significant public education and outreach issue, especially since it can limit effective action. The challenge is twofold: addressing misunderstanding about actual problems facing the waters; and countering perception that personal behavior has little impact on river and stream quality. The latter, especially, has been a consistent theme in customer surveys conducted for Clean Water Services over the years.

Like Americans everywhere, Washington County residents consistently and incorrectly identify industrial pollution – particularly as opposed to the actions of individuals – as the major threat to rivers and streams. Findings from other surveys show similar limited understanding; in a recent Campbell DeLong survey only 16% of people correctly identified the Tualatin River as the final stop for their treated wastewater – and this was a drop from 1999 findings. In the Tualatin basin, like elsewhere in the region, non-point pollution, particularly from streets, parking lots, yards and farms (the latter, at least in part of the agency's service area) is the primary source of pollution. Residents appear to be unaware of this, ranking such activities (lawn and garden chemical, stormwater runoff, etc.) consistently low in their estimations of the severity or primacy of pollution threats.

Much of this lack of awareness is related to how little people know about the importance of watershed health and how their behavior directly contributes to river and stream pollution. It is further complicated by the difficulty and expense of changing people's behavior. A recent Riley Research poll (2002) identifies financial incentives and monetary penalties as the most effective ways to change behavior. Few people believed that arguments about water quality or environmental health alone would have much impact on changing public behavior.

◊ There is an array of organized constituencies Clean Water Services must reach as the planning and rollout of the Healthy Streams Plan moves forward. This reports outlines some divergence of preferences between these groups and what we found in the survey. An additional dynamic is the wariness with which these groups view Clean Water Services'

intentions for using public opinion research in its policy and program decisions. As mentioned earlier, a significant part of this lies with the frustration many in these groups feel with the public's lack of understanding of the dynamics affecting the river and streams. Part of it, too, is likely the predictable suspicion many have of the value of survey research to accurately assess behavior.

◊ As we have seen elsewhere, from the passage of Measure 7 to the controversy over Portland's own Healthy Portland Streams Program, private property rights protection can be a highly volatile issue. The implications for this Healthy Streams Plan are no different. *Full protection of private property rights* is the second most important value to streamside property owners. Men and longer-term residents (11 years and more) place more emphasis on this value and are generally less concerned about problems facing the river and streams, thus posing a double challenge with these key groups. Property rights protection was also a significant value for participants in the Westside Economic Alliance and Homebuilders' discussion groups. Three-fourths or more of these groups rated it "very important" and nearly one-half of Alliance participants said property rights was the value most important to them.

APPENDIX A: ANNOTATED QUESTIONNAIRE

Davis, Hibbitts & McCaig, Inc.
N=600, Stratified sample: n=150 streamside property owners; n=450 general population
Conventional and Scaled Comparisons Survey
Clean Water Services Survey
May 2002

S1A. (GENERAL POPULATION SAMPLE) May I speak to someone 18 years of age or older? (IF NO, ASK TO SPEAK TO ADULT IN HOUSEHOLD--IF NONE AVAILABLE, TERMINATE.)

S1B (STREAMSIDE SAMPLE) May I speak to _____ (or _____)? May I speak to someone 18 years of age or older? (IF NONE AVAILABLE, TERMINATE)

S2. Do you live within the Washington County? (IF NO TERMINATE.)

S3. RECORD GENDER

	General Pop	*Streamside*
Male	*50%*	*50%*
Female	*50%*	*50%*

S4. What is your zipcode? _____
(IF ZIP CODE NOT ON LIST → THANK & TERMINATE)

Q1 I would like to start by asking you about the Tualatin River and its streams. Using a scale where 0 means not at all and 10 means a lot, how personally connected do you feel to the Tualatin River and its streams?

	General Pop	*Streamside*
MEAN	***3.8***	***5.2***

Q2 What do you value about the Tualatin River and your local streams? (PROBE & CLARIFY ALL RESPONSES)

GENERAL POPULATION

Provides recreation (fishing, boating, swimming, etc.)	*24%*
Preservation of nature/the ecosystem	*23%*
Beautiful/ scenic	*20%*
Water quality/cleanliness	*18%*
Habitat for Wildlife	*18%*
Supplies water (drinking, farming, etc.)	*16%*
Habitat for fish	*9%*
River is polluted/unclean	*5%*
All other responses	*less than 4%*
Nothing	*8%*
DK/NA/Refused	*11%*

STREAMSIDE RESIDENTS

Habitat for wildlife	*37%*
Provides recreation (fishing, boating, swimming, etc)	*19%*
Beautiful/scenic	*19%*
Habitat for fish	*16%*
Water quality/cleanliness	*16%*
Preservation of Nature/The ecosystem	*13%*
Supplies water (drinking, farming, etc.)	*7%*
River is polluted/unclean	*6%*

All other responses	*less than 3%*
Nothing	*2%*
DK/NA/Refused	*9%*

Q3 I'd like to read you a list of values for the Tualatin River and its streams. Please tell me how important each value is to you <u>personally</u> for the Tualatin River and its streams: very important, somewhat important, not very important, or not at all important. (ROTATE)

	Very Imp	***Smwt Imp***	***Not Very***	***Not At All***	***DK***
<u>General Population</u>					
Clean rivers and streams	*89%*	*10%*	*1%*	*0%*	*0%*
Clean drinking water	*89%*	*6%*	*2%*	*2%*	*1%*
Healthy streams that support fish	*80%*	*18%*	*2%*	*0%*	*0%*
Adequate water in streams for fish and wildlife	*74%*	*23%*	*2%*	*1%*	*0%*
Healthy fish populations in local streams	*73%*	*23%*	*2%*	*2%*	*0%*
Open space and natural areas for fish and wildlife habitat	*69%*	*26%*	*4%*	*1%*	*0%*
Existing wetlands protected	*67%*	*27%*	*4%*	*1%*	*0%*
Streamside areas protected from development	*60%*	*34%*	*5%*	*2%*	*0%*
Open space and natural areas for recreation	*57%*	*35%*	*6%*	*2%*	*0%*
Increased water supply	*45%*	*39%*	*9%*	*3%*	*5%*
Property protected from flooding	*44%*	*39%*	*11%*	*5%*	*1%*
Private property rights fully protected	*42%*	*38%*	*12%*	*5%*	*4%*
<u>Streamside</u>					
Clean rivers and streams	*87%*	*12%*	*1%*	*0%*	*0%*
Clean drinking water	*83%*	*9%*	*4%*	*3%*	*0%*
Healthy streams that support fish	*73%*	*25%*	*3%*	*0%*	*0%*
Adequate water in streams for fish and wildlife	*72%*	*25%*	*3%*	*0%*	*0%*
Existing wetlands protected	*69%*	*27%*	*3%*	*1%*	*0%*
Open space and natural areas for fish and wildlife habitat	*68%*	*29%*	*3%*	*0%*	*0%*
Streamside areas protected from development	*65%*	*27%*	*5%*	*3%*	*1%*
Healthy fish populations in local streams	*64%*	*30%*	*4%*	*1%*	*1%*
Private property rights fully protected	*53%*	*33%*	*11%*	*2%*	*2%*
Open space and natural areas for recreation	*51%*	*45%*	*3%*	*1%*	*0%*
Property protected from flooding	*45%*	*35%*	*15%*	*4%*	*0%*
Increased water supply	*33%*	*46%*	*12%*	*3%*	*7%*

Q4 I'll read the list again and please tell me which value is most important?
Second most important?

General Population

	Combined	Most Important	2nd Most Important
Clean drinking water	45%	33%	14%
Clean rivers and streams	30%	18%	13%
Open space and natural areas for fish and wildlife habitat	25%	11%	12%
Streamside areas protected from development	15%	6%	9%
Existing wetlands protected	15%	6%	9%
Open space and natural areas for recreation	14%	6%	9%
Healthy streams that support fish	14%	6%	8%
Private property rights fully protected	13%	5%	8%
Adequate water in streams for fish and wildlife	10%	3%	6%
Healthy fish populations in local streams	8%	2%	5%
Increased water supply	6%	2%	4%
Property protected from flooding	5%	1%	3%

Streamside

	Combined	Most Important	2nd Most Important
Clean drinking water	41%	25%	16%
Private property rights fully protected	27%	14%	14%
Clean rivers and streams	25%	13%	13%
Open space and natural areas for fish and wildlife habitat	25%	13%	11%
Existing wetlands protected	18%	8%	10%
Streamside areas protected from development	15%	7%	8%
Adequate water in streams for fish and wildlife	11%	6%	7%
Open space and natural areas for recreation	9%	5%	6%
Healthy streams that support fish	9%	3%	5%
Healthy fish populations in local streams	9%	3%	5%
Property protected from flooding	7%	3%	4%
Increased water supply	3%	1%	1%

Q5 What do you see as the biggest potential problem facing the Tualatin River and its streams? (CLARIFY ONE RESPONSE)

General Population

OVER DEVELOPMENT	30%
Pollution (general)	*20%*
OVERPOPULATION	8%
Industrial/commercial pollution	*5%*
Agricultural pollution	*5%*
Sewer runoff	*4%*
Water quality/Cleanliness	*4%*
All other responses	*less than 3%*
DK/NA/Refused	*11%*

Streamside

Over development	*31%*
Pollution (general)	*22%*
Agricultural pollution	*9%*
Industrial/commercial pollution	*9%*
Over population	*6%*
Sewage runoff	*4%*
All other responses	*less than 3%*
DK/NA/Refused	*5%*

Q 6 Now, I'd like to read you a list of things that some people say could create problems for the Tualatin River and its streams. On a scale of 0 to 10 with 0 being not at all serious and 10 being very serious, please tell me how serious a threat you believe each one is to the Tualatin River and its streams. (ROTATE)

General Population	**Mean**
Industrial pollution	*8.1*
Development and buildings too close to rivers and streams	*7.6*
Run-off from farm chemicals	*7.4*
Poor or inadequate sewer and septic systems	*7.4*
Loss of wetlands	*7.3*
Pollution from oil, antifreeze, etc from car repair/maintenance	*7.2*
Run-off from lawn and garden chemicals	*6.9*
Not enough water in streams for fish and wildlife	*6.9*
Not enough trees shading streams to keep the water cool for fish and plants	*6.6*
Storm water run-off from roads and parking lots	*6.3*
Runoff from cars being washed at home	*5.3*
Runoff from pet waste	*4.8*

Streamside	**Mean**
Industrial pollution	*7.5*
Development and buildings too close to rivers and streams	*7.2*
Loss of wetlands	*7.1*
Run-off from farm chemicals	*7.0*
Poor or inadequate sewer and septic systems	*6.8*
Pollution from oil, antifreeze, etc from car repair/maintenance	*6.6*
Run-off from lawn and garden chemicals	*6.4*
Not enough trees shading streams to keep the water cool for fish and plants	*6.3*
Storm water run-off from roads and parking lots	*6.3*
Not enough water in streams for fish and wildlife	*6.2*
Runoff from cars being washed at home	*4.7*
Runoff from pet waste	*4.6*

Q 7 Which one of these is the biggest problem?

The second biggest problem?

General Population

	Combined	Biggest	2nd Biggest
Industrial pollution	52%	31%	21%
Development/buildings too close to rivers and streams	31%	17%	14%
Poor or inadequate sewer and septic systems	25%	12%	14%
Runoff from farm chemicals	21%	11%	10%
Loss of wetlands	15%	8%	9%
Runoff from lawn and garden chemicals	13%	5%	8%
Not enough water in streams/rivers for fish and wildlife	12%	5%	4%
All other responses	Less than 12%		

Streamside

	Combined	Biggest	2nd Biggest
Industrial pollution	49%	35%	15%
Runoff from farm chemicals	31%	15%	16%
Development/buildings too close to rivers and streams	27%	12%	15%
Storm water runoff from roads/parking lots	17%	4%	13%
Poor/inadequate sewer /septic systems	17%	9%	7%
Loss of wetlands	16%	8%	8%
Pollution from oil/antifreeze, other effects of car repair/maintenance	13%	4%	9%
Runoff from lawn and garden chemicals	11%	5%	6%
All other responses	Less than 11%		

Q8 Organizations and local governments in Washington County are working together to protect the quality of our water, reduce flood damage, and protect endangered fish. I am going to read you a list of items. For each one, please tell me how much you favor the approach: a lot, somewhat, only a little, or not at all. (ROTATE)
4= a lot 3= somewhat 2= only a little 1= not at all 7=D/NR

	GEN POP	*% a lot*	*STREAM SIDE*	*% a lot*
Improve water quality in rivers and streams by planting more trees alongside streams to filter and keep water cool.	*3.6*	*72%*	*3.6*	*70%*
Improve and increase fish and wildlife habitat near streams and rivers.	*3.5*	*62%*	*3.4*	*57%*
Improve the flow of water in streams to make sure there is an adequate water supply.	*3.4*	*54%*	*3.4*	*54%*
Increase natural areas and open spaces near streams and wetlands for recreation.	*3.1*	*38%*	*3.1*	*39%*
Make streams and rivers more fish friendly by repairing and Removing bridges, culverts, and pipes.	*2.8*	*25%*	*2.8*	*25%*
Improve flood management by re-locating homes and businesses outside of flood zones	*2.8*	*30%*	*2.6*	*26%*

Q9 General Population

	Combined	Favor Most	Favor 2nd Most
Improve water quality in rivers and streams by planting more trees and plants	70%	44%	26%
Improve and increase fish and wildlife habitat near streams and rivers	34%	16%	18%
Improve the flow of water in streams to make sure there is an adequate water supply	33%	17%	16%
Increase natural areas and open spaces near streams and wetlands for recreation	25%	10%	16%
Improve flood management by relocating homes and businesses outside of flood zones	21%	8%	13%
Make streams and rivers more fish friendly by repairing or removing bridges, culverts, and pipes	17%	5%	12%

Streamside

	Combined	Favor Most	Favor 2nd Most
Improve water quality in rivers and streams by planting more trees and plants	66%	40%	26%
Improve and increase fish and wildlife habitat near streams and rivers	39%	18%	21%
Improve the flow of water in streams to make sure there is an adequate water supply	33%	19%	15%
Increase natural areas and open spaces near streams and wetlands for recreation	27%	13%	14%
Improve flood management by relocation homes and businesses outside of flood zones	19%	7%	13%
Make streams and rivers more fish friendly by repairing or removing bridges, culverts, and pipes	15%	4%	11%

Q10 (Split Sample 3 ways, n=200) The average water and sewer bill for most Washington County residents is about $90 every two months. About $8 of that bill is for local activities to protect rivers and streams. If new things need to be done to protect rivers and streams it will cost more money. Would you be willing to pay an additional $2 every two months to support such activities? $3 per month? $4 per month?

	General Population			*Streamside*		
	Yes	*No*	*DK*	*Yes*	*No*	*DK*
$2 more every 2 months	*85%*	*15%*	*0%*	*71%*	*29%*	*0%*
$3 more every 2 months	*82%*	*18%*	*0%*	*75%*	*25%*	*0%*
$4 more every 2 months	*84%*	*16%*	*0%*	*76%*	*24%*	*0%*

DEMOGRAPHICS

D1 And now just a few questions for classification purposes only. What is your age, please?

	General Population	*Streamside*
18-34	*27%*	*10%*
35-54	*45%*	*48%*
55+	*27%*	*42%*
NR	*1%*	*0%*

D2 What is the highest grade in school you had the opportunity to complete?

	General Population	*Streamside*
Less than HS graduate (0-11)	*2%*	*1%*
HS graduate (12)	*23%*	*14%*
Some college/post high school	*32%*	*23%*
4-year college graduate	*26%*	*39%*
Post graduate	*16%*	*23%*
NR	*1%*	*1%*

D3 Do you rent or own your home?

	General Population	*Streamside*
Rent	*29%*	*0%*
Own/lease	*69%*	*99%*
NR	*2%*	*1%*

D4 Which of the following categories best describes your total household income before taxes? (READ)

	General Population	*Streamside*
Less than $30,000	*15%*	*8%*
$30K up to $50K	*22%*	*15%*
$50K up to $75K	*22%*	*23%*
$75K up to $100K	*16%*	*17%*
$100,000 and over	*16%*	*21%*
(DON'T READ) NR	*10%*	*16%*

D5 How long have you lived in Washington County?

	General Population	*Streamside*
5 years or less	*27%*	*14%*
6-10	*16%*	*12%*
11-20	*20%*	*23%*
more than 20 years	*37%*	*50%*
NR	*0%*	*1%*

D6 Do you live within 200 feet of a river or stream? (for n=450 sample only)

	General Population	*Streamside*
Yes	*24%*	
No	*73%*	
Not sure	*3%*	

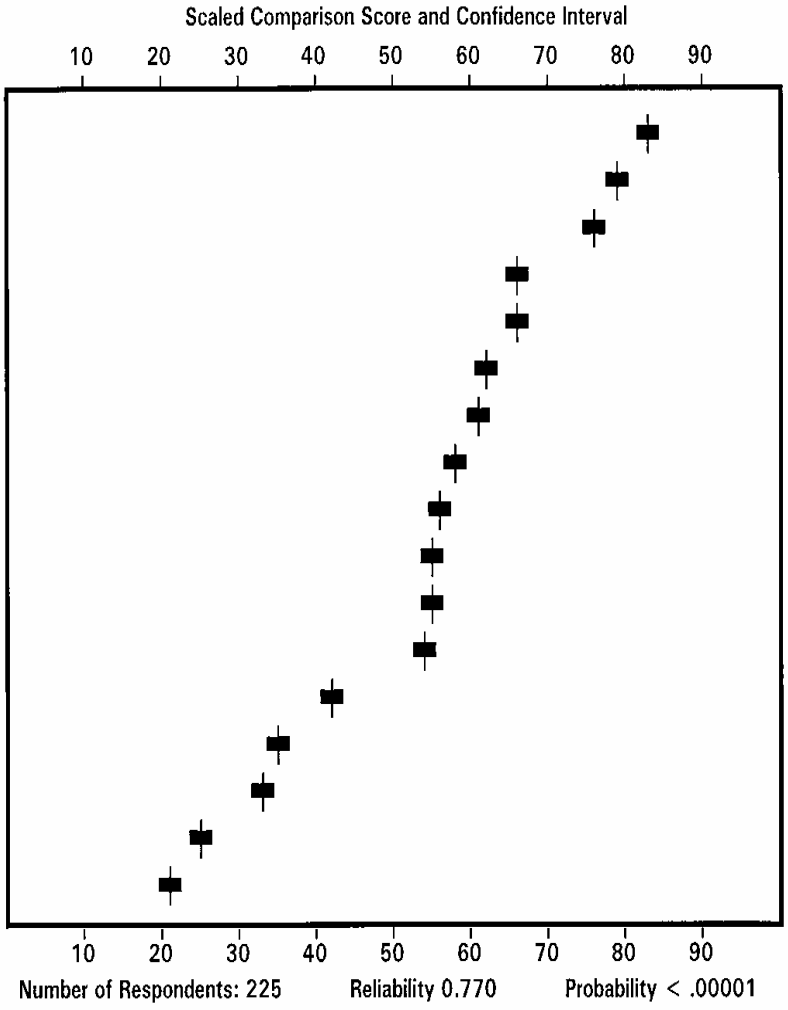
Thank you for your time and opinions.

APPENDIX B:
SCALED COMPARISONS: VALUES GENERAL POPULATION

Healthy Streams Values - Confidence Interval Report

Results for Group: General Population QUESTION: Considering the Tualatin River and its streams, which value in each pair is MORE IMPORTANT to you?

1.	Clean rivers and streams	83
2.	Clean drinking water	79
3.	Cmply wfed&stlaws lmtng plutn n rvrs&strms	76
4.	Opn spc & nat areas 4 fish & wldlfe habit	66
5.	Prsrve hi qualty natl habitat in rural areas	66
6.	Healthy fish populations in local streams	62
7.	Adequat water in streams 4 fish & wldlife	61
8.	Protected wetlands	58
9.	Imprv natrl hbtat in mor urb ars tht is damgd	56
10.	Cmply wfed&stlaws prtctng fsh & wldlfe	55
11.	Healthy streams that support fish	55
12.	Streamside areas protectd frm development	54
13.	Growth should pay its own way	42
14.	Increase water supply	35
15.	Fully protect private property rights	33
16.	Open spc & natural areas for recreation	25
17.	Property protected from flooding	21

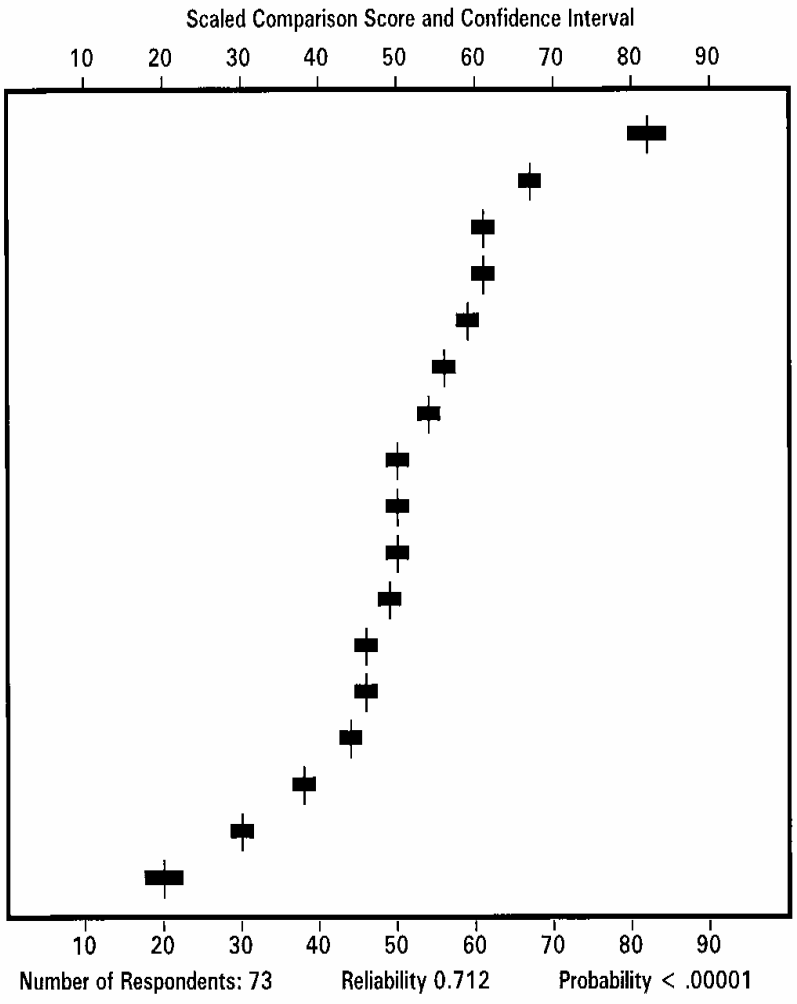


APPENDIX B:
SCALED COMPARISONS: VALUES STREAMSIDE

Healthy Streams Values - Confidence Interval Report

Results for Group: Streamside QUESTION: Considering the Tualatin River and its streams, which value in each pair is MORE IMPORTANT to you?

1.	Clean drinking water	82
2.	Clean rivers and streams	67
3.	Adequat water in streams 4 fish & wldlife	61
4.	Cmply wfed&stlaws lmtng plutn n rvrs&strms	61
5.	Streamside areas protectd frm development	59
6.	Prsrve hi qualty natl habitat in rural areas	56
7.	Healthy streams that support fish	54
8.	Opn spc & nat areas 4 fish & wldlfe habit	50
9.	Imprv natrl hbtat in mor urb ars tht is damgd	50
10.	Fully protect private property rights	50
11.	Cmply wfed&stlaws prtctng fsh & wldlfe	49
12.	Healthy fish populations in local streams	46
13.	Protected wetlands	46
14.	Growth should pay its own way	44
15.	Increase water supply	38
16.	Property protected from flooding	30
17.	Open spc & natural areas for recreation	20

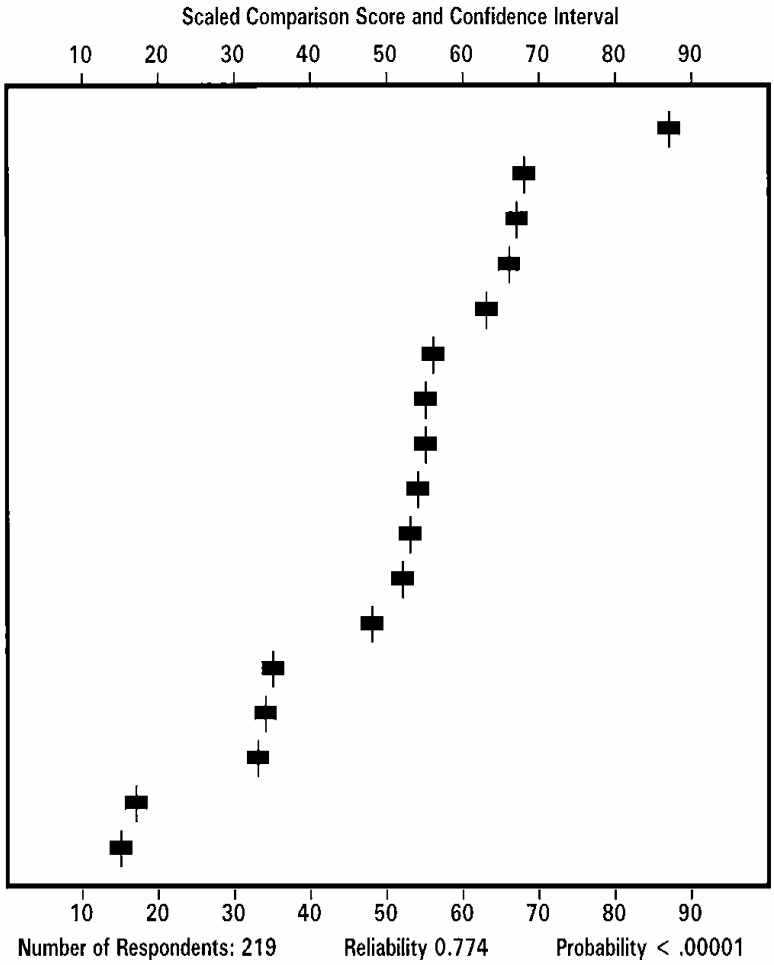


APPENDIX B:
SCALED COMPARISONS: REVENUE GENERAL POPULATION

Healthy Streams Revenue - Confidence Interval Report

Results for Group: General Population QUESTION: Which of the following in each pair would be a BETTER approach to bridging the funding gap?

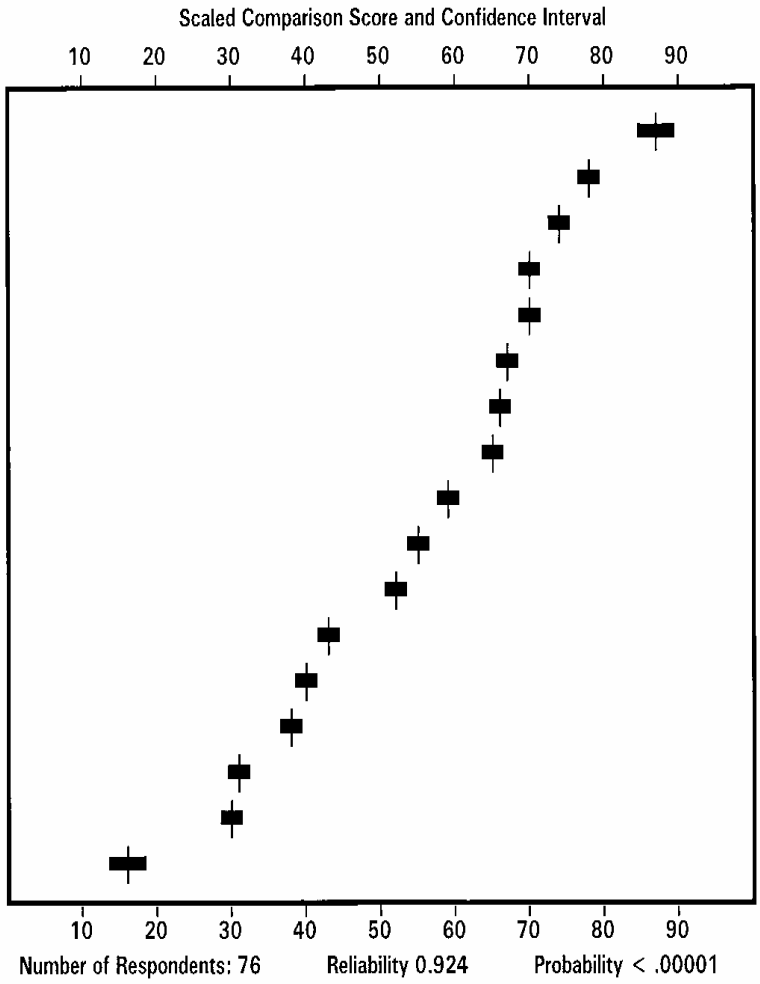
1.	Increase fines for code violations	87
2.	Make sure growth pays its own way	68
3.	Developers & busnsses pay most of t costs	67
4.	Limit residential growth	66
5.	Encourage citizen volunteers	63
6.	Increase development fees	56
7.	Spend first on projects with biggest impact	55
8.	Developers and homeowners share the costs	55
9.	Use existing revenue	54
10.	Fees must cover all costs of service	53
11.	Less general taxes, more specific taxes	52
12.	Find new revenue sources	48
13.	Increase monthly sewer and water rates	35
14.	Spend less on other public services	34
15.	Reduce the level of government services	33
16.	Forget the gap, stop trying to do so much	17
17.	Spend less on healthy rivers and streams	15



APPENDIX B:
SCALED COMPARISONS: REVENUE STREAMSIDE

Healthy Streams Revenue - Confidence Interval Report

Results for Group: Streamside QUESTION: Which of the following in each pair would be a BETTER approach to bridging the funding gap?



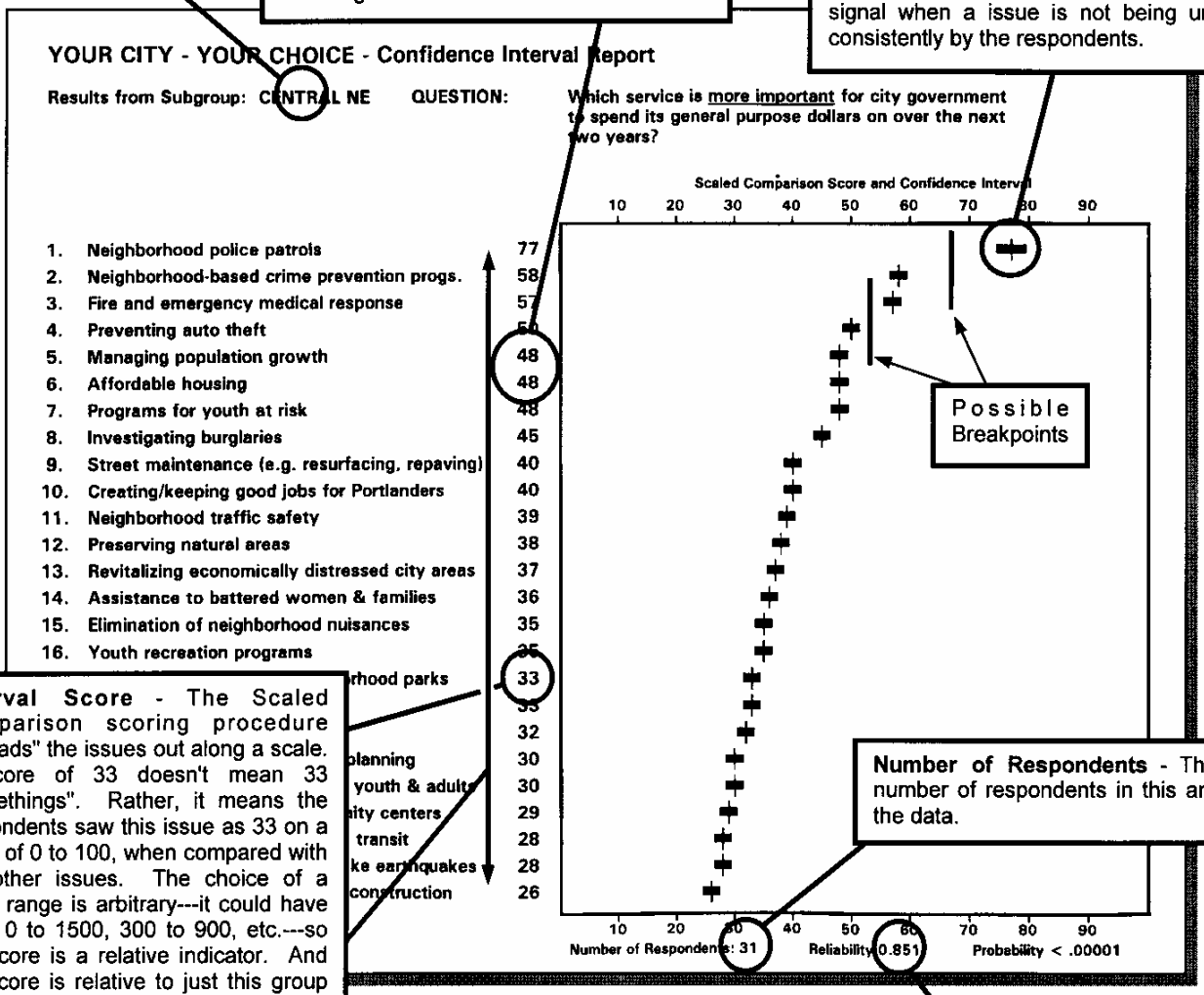
1.	Increase fines for code violations	87
2.	Encourage citizen volunteers	78
3.	Make sure growth pays its own way	74
4.	Developers & busnsses pay most of t costs	70
5.	Limit residential growth	70
6.	Developers and homeowners share the costs	67
7.	Increase development fees	66
8.	Spend first on projects with biggest impact	65
9.	Fees must cover all costs of service	59
10.	Less general taxes, more specific taxes	55
11.	Use existing revenue	52
12.	Reduce the level of government services	43
13.	Find new revenue sources	40
14.	Increase monthly sewer and water rates	38
15.	Spend less on other public services	31
16.	Forget the gap, stop trying to do so much	30
17.	Spend less on healthy rivers and streams	16

Understanding the Confidence Interval Report

Group Name - The name of the group or subgroup will be printed here.

Tied Scores - These appear to be tied scores, but the scores were rounded before printing. The scores could have been printed with additional precision, but the differences would probably not be meaningful.

Bar Length - The length of the heavy line defines a **Confidence Interval** around the score for this issue. A small interval indicates high agreement among the respondents, hence more "confidence" in the score. A larger interval results when there are differences in opinion among the respondents, but can also signal when a issue is not being understood consistently by the respondents.



Interval Score - The Scaled Comparison scoring procedure "spreads" the issues out along a scale. A score of 33 doesn't mean 33 "somethings". Rather, it means the respondents saw this issue as 33 on a scale of 0 to 100, when compared with the other issues. The choice of a scale range is arbitrary---it could have been 0 to 1500, 300 to 900, etc.---so the score is a relative indicator. And the score is relative to just this group of issues on this question. Compared with other issues or issues, or in response to a different question, a score of 33 would have a different interpretation.

Number of Respondents - This is the number of respondents in this analysis of the data.

Score Range - Although the scores could theoretically range form 0 to 100, in most cases the range is somewhat less. The more the respondents are in agreement about the issues, the closer the range will approach 0 to 100. The more disagreement, the more compressed will be the range.

Use of the confidence intervals - The interval score shows the size of the intervals separating each issue. But the scores themselves give no indication of the significance of the difference between two issues in the list. The confidence interval provides this additional information. The value of this is that it helps you to see natural breakpoints in the ranking. It is not uncommon for decision makers to begin with a ranking of important issues, and then break them into groups of differing priority for action or budgeting. Using the confidence interval information, breakpoints may be placed where there is the smallest chance of error.

Reliability - This statistic reports the degree to which these results are repeatable if the survey were run again. A coefficient of 1.00 would be perfect, .00 means no reliability at all. The Probability indication is a way of determining the significance of the reliability statistic. Generally, a probability of .01 or less is highly significant, and means the data in this report are very reliable.

Statistical Interpretation - The meaning of the confidence interval is analogous to the confidence interval of a mean. The probability is less than one in twenty (.05 level, two-tailed) than the issue's true score lies outside the interval.