

September 16, 1993
MMc

Introduced by: BARDEN

Proposed No.: 92-293

ORDINANCE NO. **11087** 7

1
2 AN ORDINANCE adopting the Hylebos Creek
3 and Lower Puget Sound Basin Plan as a
4 functional plan that implements surface
5 water management and environmental
6 policies of the King County Comprehensive
7 Plan and adding a new section to K.C.C.
8 20.12.

9 FINDINGS:

10 For the purpose of effective surface water management in
11 the Hylebos Creek and Lower Puget Sound Basins, the King
12 County council makes the following legislative findings:

- 13 1. The Hylebos Creek and Lower Puget Sound Basin covers
14 approximately 36 square miles and includes the East
15 Branch Hylebos and North Lower Puget Sound sub-basins
16 in southwest King County.
- 17 2. Interlocal Agreements between King County and the
18 cities of Tacoma and Federal Way to conduct the Hylebos
19 Creek and Lower Puget Sound Basin Plan are in effect.
- 20 3. The Hylebos Creek and Lower Puget Sound Basins have
21 several significant stream and wetland resources that
22 help reduce the extent of flooding and provide valuable
23 aquatic habitat.
- 24 4. Parts of the Hylebos Creek and Lower Puget Sound Basins
25 experience significant flooding of roads and
26 structures. These systems also exhibit erosion,
27 sediment deposition, water pollution, and fish habitat
28 loss.
- 29 5. The Hylebos Creek and Lower Puget Sound Basin Plan was
30 developed as authorized by K.C.C. 9.08.040 to reduce
31 surface water problems and to protect the basin's
32 valuable aquatic resources.

33 BE IT ORDAINED BY THE COUNCIL OF KING COUNTY:

34 SECTION 1. A new section is hereby added to K.C.C. 20.12 to
35 read as follows:

36 The Executive Proposed Hylebos Creek and Lower Puget Sound
37 Basin Plan, dated July 1991, Attachment A, as amended in
38 Attachment B, is adopted as a functional plan implementing
39 surface water management and environmental policies of the King
40 County Comprehensive Plan. As an amplification and
41 augmentation of the King County Comprehensive Plan, it
42 constitutes official county policy with regard to surface water


1 management in the Hylebos Creek and Lower Puget Sound Basins.

2 INTRODUCED AND READ for the first time this 27th day

3 of April, 1992.

4 PASSED this 25th day of October, 1993

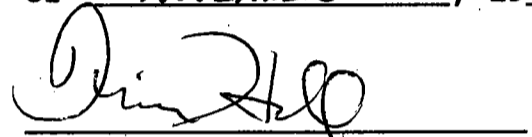
5 KING COUNTY COUNCIL
6 KING COUNTY, WASHINGTON

7 
8 Chair

9 ATTEST:

10 
11 Clerk of the Council

12 APPROVED this 8th day of NOVEMBER, 1993.

13 
14 King County Executive

15 Attachments:

16 Attachment A: Executive Proposed Hylebos Creek and Lower Puget
17 Sound Basin Plan, dated July 1991.

18 Attachment B: Amendments to Executive Proposed Hylebos Creek
19 and Lower Puget Sound Basin Plan, dated September
20 15, 1993.

Attachment B

HYLEBOS CREEK AND LOWER PUGET SOUND BASIN PLAN POLICY AMENDMENTS

BW-1: Low Density Zoning Controls for Protection of Stream Corridors and Ravines. Clustering of Development for Stream and Ravine Protection.

~~((All stream corridors and ravines within RSRAs and LSRAs should be zoned at rural densities of 1 unit per 5 acres or less.))~~
Development should be clustered or sited to prevent damage to stream corridors or ravines within LSRA's and RSRA's. Criteria for determining these significant resource areas are discussed in Chapter 2.4 and shown in Figure 2.1.1. ~~((These corridors include portions of lower Joes Creek (tributary 0388 RM 0.0 to 0.8); East Branch Hylebos Creek (tributary 0006, RM 6.0 to 6.75) West Branch Hylebos Creek (tributary 0014, RM 0.0 to 0.9), and in, and adjacent to the Spring Valley Wetland on tributary 0013 (RM 0.6 to 1.5))~~) (see also Sub-basin Recommendations WHL-10, EH-3, and SL-4).

~~((The recommendation does not apply to parcels that are already developed to higher densities. The low density area and ravine corridors should include all parcels that are either undeveloped, or developed to densities which do not exceed 1 unit per 5 acres.))~~ The zoning boundary for applying this recommendation should be set at the top of each ravine and extend downslope to the stream on stream corridors, ~~((except in the Spring Valley Wetland area. The recommended low density area in the vicinity of the Spring Valley bounded by S 359th Street on the north, I-5 on the east, S 373rd (extended) on the south, and 8th Avenue S and SR 99 on the west.))~~ It should include all Class III landslide hazard areas and erosion hazard areas as defined in the King County Sensitive Area Ordinance (SAO) or their equivalent in other applicable local codes ~~((see also BW-4.2))~~.

BW-2: Basinwide Onsite Detention Standard.

To control downstream or downslope impacts of new development, including public and private street and highways, onsite retention/detention (R/D) facilities in the Hylebos Creek and Lower Puget Sound basins ~~should~~ shall be designed to control the post-development 2- and 10-year flows to corresponding pre-development levels. The calculated storage volume ~~should~~ shall be increased by a safety factor of 30 percent as described in the 1990 King County Surface Water Design Manual. ~~to account for various uncertainties in the analysis~~ This basinwide standard shall be updated in accordance with the adoption of any

future revisions (including analytical and conceptual changes) to the Design Manual that affect the control of runoff through onsite detention.

~~The design methodologies recommended are either a modification of the King County Design Manual or the use of a calibrated continuous hydrologic model. Following further modeling of these basins, it was determined that the existing Design Manual methodology would not enable development in the planning area to achieve the postdevelopment run-off objectives of reducing peak 2- and 10-year flows to pre-developed levels. Therefore, one of the recommended methodologies includes modifications to the 1990 Design Manual methods. The modifications will produce a detention pond that reduces 2- and 10-year peak flows to pre-development rates. The modifications to the current manual include a 7-day design storm with a more representative distribution instead of a 24-hour storm and a more accurate method of determining the time of concentrations. For additional details regarding these modifications, contact King County SWM Basin Planning.~~

BW-3: Stream Protection Supplemental Onsite Detention Standard.

In subcatchments where higher future flows are expected to have significant adverse impacts on stream stability and habitat, onsite R/D facilities ~~detention ponds~~ for new development, including public and private streets and highways, should be designed such that to reduce post-developed flow peaks and durations are reduced to pre-developed levels for all flows greater than 50 percent of the 2-year event and less than the 50-year event. In addition, the 100-year post-development peak flow ~~should~~ shall be reduced to the 100-year predevelopment level. ~~The recommended method of designing these detention ponds is a calibrated continuous hydrologic model, preferably HSPF.~~

It is recommended that a calibrated continuous flow simulation model such as HSPF, be used for this analysis. An alternative to using a continuous hydrologic model is SCS methods with a design release rate. If a continuous flow model cannot be used, design new onsite R/D facilities such that the post-developed 100-year flow is released at 70 percent of the pre-development 2-year rate. A 24-hour design storm, as described in the 1990 King County Design Manual, is recommended. Additional design methods may become available in the future. Contact King County SWM Basin Planning for additional details. 2-year runoff is released at a maximum of 50 percent of the pre-developed 2-year rate, the post-developed 10-year rate at the pre-developed 2-year rate, and the post-developed 100-year rate at the pre-developed 10-year rate, all for a 24-hour design event. The calculated storage volume should be increased by a safety factor of 30

percent. This standard is to be applied in those subcatchments indicated under "Supplemental Onsite Detention Standard" retention/detention requirements in See Figures 4.1.3, 4.2.3, and 4.5.3 for areas where this standard applies.

This special standard for stream protection shall be updated in accordance with the adoption of any revisions (including analytical and conceptual changes) to the King County Surface Water Design Manual that affect the control of runoff through onsite detention.

BW-4: Stream Buffers.

Consistent with Section 94 of King County Sensitive Areas Ordinance 9614, ((1. A)) a minimum 100-foot buffer from the ordinary high water mark (OHWM) ~~is~~ should be required on Class 2 streams containing salmonids, such as in Joes, Lakota, and Hylebos Creeks. For other Class 2 streams and Class 3 streams, the buffers should be are 50 feet and 25 feet, respectively, from the OHWM on each side of the stream. ~~(no Class 1 stream exist in the planning area. Buffers should be measured horizontally from the OHWM. Where site conditions permit, the growth of large conifers should be encouraged in stream buffers. (See also BW-16, Basin Revegetation).~~

2. In RSRAs and LSRAs (see Figure 3.3.1 and designation criteria in Chapter 2.4), a minimum buffer of 150 feet from the OHWM on each side of all Class 2 streams ~~shall~~ should be required. This recommendation applies to the East Branch Hylebos ravine tributary 0006 (RM 6.0 to 6.75), lower Joes Creek tributary 0388 (RM 0.0 to 0.8), West Branch Hylebos tributary 0014 (RM 0.0 to 0.9), and West Branch Hylebos Creek tributary 0013 (RM 0.6 to 1.5). For Class 3 streams, the buffer should be a minimum 100 feet from the OHWM on each side of the stream. This recommendation applies to drainages tributary to the Spring Valley Wetland. Where site conditions permit, the growth of large conifers should be encouraged in stream buffers. (See also BW-16, Basin Revegetation.)

Stream classes are defined in the King County, Federal Way, Des Moines and Milton Sensitive Areas Ordinances (SAOs) Appendix A. Exceptions to the stream buffer standards are noted in these ordinances. King County Sensitive Areas Ordinance (SAO).

BW-5: Wetland Buffers.

Consistent with Sections 89 and 94 of King County Sensitive Areas Ordinance 9614, ((A~~t~~)) at a minimum, the bBuffers should be are 100 feet from the edge of Class 1 wetlands, except for the West Hylebos Wetland RSRA and Spring Valley LSRA, 50 feet from Class 2, and 25 feet from Class 3 wetlands. The West Hylebos and Spring Valley wetlands are the only wetlands that would do not receive additional protection from the Shoreline Management Program, therefore these two wetlands should have a 150-foot buffer.

Wetland classifications are defined in the King County, Des Moines, Federal Way and Milton sensitive area ordinances (SAOs) Appendix A.

BW-6: Livestock Access Control.

Access to streams and wetlands should be limited by fencing livestock from riparian buffers or other equivalent means. Provisions can be made for access to watering points. All provisions for livestock access control should be consistent with the most current King County codes and regulations.

BW-7 Limitations on Stream Crossings and Stream Modification or Relocation.

1. Non-essential Consistent with Section 95 of the King County Sensitive Areas Ordinance #9614, stream crossings should not be allowed unless an analysis determines that compared to other alternatives, the crossing has the least environmental impact to the stream system. Permitted crossings should be perpendicular to the stream and not interfere with the free passage of fish nor restrict the predicted future 100-year flows. Crossings over spawning waters should be prohibited, unless no other possible crossing site exists. All crossings should have adequate clearance to pass flows and large woody debris. One of the following design alternatives defined below should be used. In decreasing order of preference, and only where site conditions eliminate the feasibility of a higher ranked alternative, site alternatives are:
 - a. Roads
 - 1) Bridges with abutments placed outside the OHWM of the stream channel.

- 2) Bottomless pipe arches with footings placed outside the OHWM of the stream channel.
- 3) Arch culverts installed in accordance with the King County Surface Water Design Manual.

b. Pipelines:

- 1) Jacked and bored under active stream channel starting outside the OHWM.
 - 2) Suspension over the active channel.
 - 3) Restoration of functions and values of natural stream channel features where channel disturbance is unavoidable.
2. Major modification or relocation of Class 2 stream channels should not be allowed, except as authorized in the King County SAO. Modifications or relocations of Class 3 streams should not be permitted unless an analysis determined that, compared to other alternatives, such modifications or relocations have the least environmental impact to the stream system.

3. The following is recommended for consideration as an addition to the King County SAO, K.C.C. 21.54.

~~((If)) In the event that stream modification or relocation is permitted, ((the)) a mitigation plan must be ((implemented with a contingency plan. The mitigation plan should identify long term (-)) developed including 25 years((-)) goals and objectives for restoration of the stream channel and riparian areas ((. A three to)) and a five-year monitoring and contingency program((should be implemented to track success of the mitigation and make necessary adjustments)). Mitigation should be designed to resist the 25-year storm event. The mitigation plan and monitoring program should be secured by a cash deposit or letter of credit for 100 percent of the cost of modification or relocation and the mitigation. Development and implementation of project and mitigation designs, monitoring program, contingency plan, and long term management plan should be certified by a state licensed engineer and a qualified biologist.~~

~~Following each storm season (after March 31) in the three- to five-year mitigation program period, a state licensed engineer and qualified biologist should assess the conditions of the mitigation relative to the management plan goals and objectives and report their findings to the~~

~~appropriate jurisdiction. This report should also include recommended actions needed to correct problem conditions and an action plan to implement these modifications. Following approval by the jurisdiction and agencies involved, the action plan should be implemented prior to the next storm season (before September 15).~~

- ~~34. The Federal Way Sewer and Water District should evaluate their existing utility stream crossings should be evaluated to determine if they are adversely impacting hydrologic or biologic functions. Where these functions are impaired, crossings should be reconfigured according to the recommendations in BW-7.~~

BW-8: Clearing, Grading, and Filling Limitations.

1. Consistent with the King County Grading Code, ((F)) filling of more than three feet in vertical depth or excavation of more than five feet in vertical depth, or any grading that involves more than 100 cubic yards of material, should require a permit. In environmentally sensitive areas such as streams, wetlands, steep slopes or their buffers, a permit ~~should be~~ is required for grading of any quantity or dimension.
2. The following are recommended for consideration as amendments to the King County Grading Code, K.C.C. 16.82:
 - 2a. Erosion, sedimentation, and stormwater controls consistent with the 1990 King County Surface Water Design Manual or updates, as adopted by the entity, should be required to be in place and inspected for appropriate installation before clearing, grading, or filling begins. Regular inspection of these controls should be required at specific phases of site work to ensure these controls are functioning as designed.
 - 2b. Sites that have been cleared, graded, or filled in violation of current or prior standards should be fully restored before construction permits are issued. Particular attention should be paid to sites that may be filled with unauthorized solid wastes. Any large releases of sediment or spills that are documented as noncompliance of permit conditions or cause water quality or habitat degradation should be fully compensated and restored before construction permits are issued.

- 4c. Significant trees should be identified during the ((~~platting~~)) development process and retained on all sites. ((~~Significant trees are coniferous trees eight inches in diameter or greater, or any deciduous tree, other than red alder, 12 inches or more diameter, each measured 54 above grade.~~))
- 5d. Significant natural vegetation should be retained. Significant natural vegetation is a concentration of vegetation with significant biological importance such as dense, mature native vegetation that supports local wildlife.
- 6 3. Areas with retained vegetation should be clearly and permanently marked on the site prior to starting site work, identified on all plat maps and title instruments, and have legally binding restrictions placed on them.

~~**BW-9: Seasonal Clearing and Grading Limits.** Bare ground associated with clearing, grading, utility installation, building construction, and other development activity should be completely revegetated by October 1 and not disturbed until the following March 31. Earth moving or land clearing activity should not occur during this period, except for regular maintenance for public facilities and public agency response to emergencies that threaten the public health, safety, and welfare. Landscaping of single family residences, existing permitted commercial forest and mining activities in areas zoned for resource use, and loading development sites with approved and constructed drainage facilities that infiltrate 100 percent of surface runoff, should be exempt from these restrictions, although appropriate measures as identified in BW-8.2 above, should be taken to prevent off-site movement of sediment. When land clearing is permitted, disturbed soil areas that are to be left unworked for more than 12 hours should be covered with appropriate erosion control measures as required in the 1990 King County Surface Water Design Manual to prevent off-site erosion.~~

BW-9 Temporary Erosion and Sediment Control.

A combination of erosion and sediment controls as defined in the 1990 Design Manual, its updates, and the developing or adopted BMP manual will be installed, maintained and inspected at all construction sites in the Hylebos Creek and Lower Puget Sound basins. These controls will be used in combination with education and an enhanced inspection and enforcement program to be developed and implemented by DDES and SWM.

BW-10: Hillslope Development and Drainage Restrictions.

1. Consistent with Section 88 of the King County Sensitive Areas Ordinance #9614, ((A)) a minimum 50-foot buffer area should be required from the top and toe of the slope of landslide hazard areas or slopes that are 40 percent or greater. A minimum 15-foot building setback should be ~~required~~ allowed from the edge of the buffer, based upon a geotechnical study by a qualified geotechnical engineer, ~~the buffer may be reduced to a minimum of 10 feet when it can be that shown that the reduction this buffer will adequately protect the proposed development and the sensitive area.~~
2. ~~Where drainage from impervious surfaces flows towards such areas, after appropriate water quality treatment, it should be "tightlined" down these slopes, unless directed to stable receiving areas as determined by a down-stream analysis.~~

BW-11: Wetland and Stream No Net Loss Policy.

A basinwide policy of no overall net loss of wetland and stream functions and values, and a net gain over time, should be adopted by all jurisdictions in the basins. This policy would be consistent with directives from the federal and state governments.

BW-12: Order of Mitigation.

Consistent with Section 15 of the King County Sensitive Areas Ordinance #9614, ((E)) impacts to streams, wetlands, or lakes should be mitigated using the following descending order of preference:

1. Avoid the impact all together by not taking a certain action or parts of an action;
2. Minimize impact by limiting the degree or magnitude of the action and its implementation by using appropriate technology, or by taking affirmative steps to avoid or reduce impact;
3. Rectify the impact by repairing, rehabilitating or restoring the affected sensitive areas;
4. Reduce or eliminate the impact over time by prevention and maintenance operations during the life of the actions;
5. Compensate for the impact by replacing, enhancing, or providing substitute sensitive areas and environments;
6. Monitor the impact and take appropriate corrective measures.

BW-13: Resource Replacement and Enhancement Standards.

Consistent with Sections 92 and 96 of the King County Sensitive Areas Ordinance #9614,

1. If a wetland must be altered or enhanced, the formulae for best wetland mitigation should be as follows with equal or greater biologic values:

Class 1 and 2 wetlands on a 2:1 type and acreage basis
Class 3 wetlands on a 1:1 type and acreage basis

Projects whose primary objective is to restore the functions and values of a previously damaged wetland to approximate its pre-developed functions and values should be exempt from this mitigation requirement. This exemption should only apply, however, if the restoration is not mitigation for offsite or adjacent development impacts.

2. For all stream classes, mitigation plans should be developed to replace and enhance functional stream elements such as pools, riffles, LOD, and spawning gravel, ~~on a relative 2:1 basis in function and area.~~ This mitigation may be accomplished at the project site or on another stream reach through mitigation banking.

BW-14: Sensitive Area Mitigation Fund.

Consistent with Section 17 of the King County Sensitive Areas Ordinance #9614, ((A)) a fund should be established solely for use in enforcing and implementing sensitive areas codes. All moneys obtained from civil penalties and sensitive area violations should be deposited in this fund.

BW-15: Sensitive Area Mapping

1. The Cities of Des Moines, Federal Way, Milton, and Tacoma, and King County should update wetland inventory maps for areas within the basins. A high priority for Federal Way should be an inventory and delineation of the Spring Valley Wetland.
2. Streams, wetlands, buffers, and other designated sensitive areas in the County and in the Cities of Des Moines, Federal Way, Milton, and Tacoma should be shown on King County Assessor's property line maps. Entities in the basins should formally request that the assessor maps show designated sensitive areas in their jurisdiction upon their adoption of the Basin Plan.

3. Updated Maps should be made conveniently available to realtors, agency officials, and the public in city halls and King County ~~BALD~~ DDES.

BW-16: Basin Revegetation.

1. An aggressive program to plant trees and revegetate areas identified in Figure 3.4.1 should be implemented. These priority sites include high infiltration areas that are not fully developed, fragile marine shore- lines (not shown on the Figure), and the key stream and wetland riparian corridors. Vegetation in these areas should be managed on a long time scale and the desired vegetation should reflect climax states in sizes and species distribution. The program should be coordinated through the Basin Stream Steward (BW-38).
2. The planting of large numbers and diversities of native species, and protection of large conifer trees and other native vegetation should be incorporated and managed in the landscaping of public facilities such as parks, open space areas, and road corridors.
3. Establish a basin nursery where at minimal cost the public can obtain native trees, shrubs, and wetland vegetation, including locally adapted trees, to plant in priority areas during an annual arbor week event.
- ~~4. Undeveloped but legally cleared, filled, or graded sites, especially in sensitive areas should be encouraged to be restored and take advantage of tax incentives to preserve these areas (see Section 3.10).~~
54. Removal of fill from illegally filled wetlands, stream riparian areas, and floodplains, followed by site restoration with appropriate native plant species, should be an enforcement priority.

BW-17: BMP Programs for Control of Nonpoint Source Pollutants.

1. Best Management Practices (BMP) programs for control of nonpoint source pollutants originating from residential land-use practices should be developed. BMPs should include methods to prevent fertilizers, other nutrients, and toxic compounds from entering surface water especially in a manner consistent with the King County Best Management Practices Manual authorized by K.C.C. 8.12. Particular attention should be given to the sub-drainages or sites in the sub-basins identified below:

- a) West Branch Hylebos Creek
 - All tributaries and areas draining to Panther Lake (including tributary 0014B and subcatchment WH15)
 - All tributary areas above S 356th Street
 - b) East Branch Hylebos Creek
 - Tributary 0016 above the intersection of SR 161 and 363rd Place
 - Drainage area northeast of SR 161 (Kitts Corner Road)
 - c) North Lower Puget Sound
 - Middle McSorley Creek
 - d) Central Lower Puget Sound
 - Redondo Creek (tributary 0384)
 - Middle Cold Creek
2. BMP programs for the control of sediments from upland source areas should be developed. BMPs such as should include covering of exposed soil, installation of silt fences, and planting of riparian vegetation where appropriate. should be implemented in a manner consistent with the King County Best Management Practices Manual authorized by Ordinance K.C.C. 8.12. Particular attention should be given to the following sites and streams (see also BW-16):
- a) West Branch Hylebos Creek
 - The Evergreen Truck Wash at 348th and SR 99
 - The Costco Development
 - West Campus Development (October 1 through April 1)
 - b) East Branch Hylebos Creek
 - Regency Woods Detention Ponds
 - c) Central Lower Puget Sound
 - Redondo Creek
 - d) South Lower Puget Sound
 - Lower Joes Creek
 - Lower Lakota Creek
3. BMP programs for the control of pollutants from the commercial and industrial areas should be developed. Commercial and industrial uses should implement BMPs specific to the nature of the activity involved. in a manner consistent with the King County Best Management Practices Manual, authorized by Ordinance K.C.C. 812. ~~For example, gas stations should implement BMPs for fueling stations, storage of liquids, emergency spill plans, and other appropriate practices. Absorbent pillows should be~~

~~placed in large detention manholes at the entrance (inflow) to wetponds and vaults. These pillows need to be inspected, maintained, and properly disposed of (e.g., at hazardous waste handling facility). The individual owners of these stormwater facilities should be responsible for these BMPs.~~

~~It is recommended that all commercial properties and high density residential areas i.e., apartment complexes) place absorbent pillows in strategically located manholes (e.g., furthest downstream storm drain on property). In addition, any designated car washing areas located on these properties should have connecting storm drains plumbed to the sanitary sewer system. (See also sub-basin recommendation WHL-3.)~~

The following commercial and industrial areas should be targeted:

- a) West Branch Hylebos Creek
 - The Evergreen Truck Wash and the surrounding S 348th Street Commercial Area
 - Vicinity of SeaTac Mall at S 320th Street
 - S 336th Street northwest of SR 99
 - b) East Branch Hylebos Creek
 - Drainage from the Enchanted Village Bird Farm
 - c) North Lower Puget Sound
 - Headwaters of McSorley Creek at SR 99
 - d) Central Lower Puget Sound
 - Redondo Creek at SR 99
 - e) Sound Lower Puget Sound
 - Lakota Creek tributary 0086 along SR 509 and at S 320th Street
 - f) All Basins
 - All commercial areas located in tributary headwaters.
 - The SR 99 Corridor
4. The Seattle/King County Health Department (SKCHD) should identify areas in the basins where there is a high risk, moderate, and low risk areas of onsite sewage disposal system failure, and implement appropriate measures to ensure these systems do not further degrade surface or ground water beginning with high risk areas where onsite systems are more than 15 years old. Based on areas with previous failures and stormwater sampling results, suspected high-risk areas which should be investigated further include:

- a) West Branch Hylebos Creek
 - All areas west of SR 99 and south of S 348th Street
- b) East Branch Hylebos Creek
 - Lake Killarney sub-drainage
- c) North Lower Puget Sound
 - McSorley Creek
 - Areas upstream of the confluence of tributaries 0381 and 0382.
- d) Central Lower Puget Sound
 - All areas that drain to Redondo and Lakota Creeks and directly to Puget Sound

The following enhanced inspection/reporting program is recommended in these areas:

- 1) Owners of onsite sewage disposal systems in low- and moderate-risk categories should be regularly notified of the need to inspect and maintain their systems.
 - 2) Failed or failing onsite sewage disposal systems in all risk areas should be repaired or replaced pursuant to State Department of Health (DOH) requirements in 248-96 WAC and Title 13 of the King County Board of Health.
 - 3) In high risk areas, an onsite sewage disposal system maintenance program should be implemented through an onsite sewage disposal system maintenance district or other appropriate means. Owners should be required to have their systems routinely inspected and maintained every three to five years as needed. Such a mechanism might involve the owner sending a receipt showing "proof of inspection/maintenance activities completed."
 - 4) An educational program targeting problem areas that focuses on increased awareness, and upkeep and maintenance practices should be developed for local residents (see BW-37).
5. BMP programs for control of agricultural sources of nonpoint source pollution should be developed. Farms plans should be prepared and implemented through the King County Conservation District to identify appropriate methods to conserve soil; better manage wastes; and control the use of pesticides, herbicides, and fertilizers for the following areas:
- a) Lower West Branch Hylebos subcatchments

b) East Branch Hylebos Sub-basin

BW-18: Road and Highway Runoff Controls.

1. The WSDOT should develop a program for the management of highway runoff from I-5 and SR 99 in the planning area. Initial focus of efforts should be in the areas where these roads cross or drain directly to water courses. DOE directives should be followed as they become available.
2. Regular communication should be established between local entities and WSDOT to discuss planning issues (e.g., road widening or improvements projects) and goals and objectives (e.g., comparing high priority areas, BMPs, or retrofits) of the Highway Runoff Program.
3. All WSDOT facilities not performing to King County and other local standards should be retrofit accordingly.
4. New facilities should be designed and constructed to meet current local codes and standards.

BW-19: Collection and Disposal of Residuals.

1. ~~Residual wastes should be removed from all private and public drainage facilities located in areas with~~ To insure proper water quality control, catchbasins, onsite R/D facilities, and other drainage facilities in areas with active construction or high vehicle vehicular usage should be inspected and the necessary maintenance performed by the SWM Division at least twice a year, once before fall and once during late winter/early spring. Regional R/D facilities, including constructed wetland facilities, should be maintained according to a SWM Division approved operations and maintenance plan. A plan for emergency inspection and maintenance of facilities during the winter season should be developed by the SWM Division.

King County implements this recommendation through the SWM Division Maintenance Program and with the Department of Ecology guidance for residuals disposal when this guidance becomes available.

- ~~2. In coordination with DOE, a program should be developed by SKCHD for collecting and disposing residuals wastes from the cleaning of stormwater detention and conveyance systems. The program should include a full inventory of all public and private drainage systems facilities including all natural and constructed components.~~

~~A centrally located area for disposal of residuals should be established. Possible locations for this facility include:~~

- ~~- Federal Way Public Works Department Maintenance Building~~
- ~~- King County Star Lake Maintenance Facility~~
- ~~- Lakota Treatment Plant~~
- ~~- Kent decant station at Kent-Des Moines Road~~
- ~~- Auburn decant station~~

BW-20: Maintenance of Roadside Ditches.

- ~~1. Roadside ditches should be cleaned during the dry season (June 15, through September 15) of each year, preferably with the use of a Ditch Master™ or other comparable horizontal auger. Where availability of staff and equipment limit the achievement of this recommendation basin-wide, priority for auger cleaning should be given in the following in descending order of preference:

 - a) Ditches within 1/4 mile of Class 2 and 3 streams in RSRAs and LSRAs;
 - b) Ditches within 1/4 mile of any other Class 2 and 3 streams; and
 - c) All other ditches in the basins.~~
- ~~2. All vegetation that is cut in the maintenance process should be removed and recycled through composting. This material should be tested before re-use. BMPs should be developed for waste disposal if it contains high pollutant concentrations. Reseeding of all ditches and backslopes should be performed immediately after cleaning in order for a dense growth of vegetation to be established before the first fall storm.~~
- ~~3. Herbicide spraying should be avoided on road shoulders. Alternative vegetation controls should be used wherever feasible. Alternative vegetation control recommendations should be coordinated with results from the King County Roads and Engineering Division Integrated Pest management for Roadside Ditch Maintenance Project.~~
- ~~4. The current King County program allowing residents to adopt a ditch and maintain neighborhood roadside ditches should be expanded by notifying all basin residents of this option through regular billing notices.~~

The goal in road and utility right of way maintenance is to reduce the impact of pollutant laden run-off on the natural and constructed drainage system in order to promote the restoration, preservation and enhancement of natural resources and habitat.

The Roads and Surface Water Management Divisions of the King County Department of Public Works recommend developing programs to lessen adverse impacts of run-off from roads. Such programs will emphasize education and involvement of the general public and of persons responsible for road and right-of-way maintenance, the establishment of standards for maintenance in roads rights-of-way, prioritization of types and timing of maintenance practices used in environmentally sensitive areas, and the implementation of source-control BMPs and retrofitting of outfalls as needed for water quality and quantity control.

BW-21: Stormwater Infiltration Limitations.

Consistent with the most current King County Surface Water Design Manual and the current requirements of the Seattle-King County Health Department

1. Stormwater infiltration facilities should be used in rural and low- to moderate-density (densities of seven units/acre or less) land-use areas wherever soil conditions are conducive to replenish groundwater and augment summer flows. New development should be required to determine the feasibility of infiltration and to provide such facilities to the extent possible.
2. Onsite infiltration facilities should not be used in high density areas with multifamily (more than seven units/acre), commercial, or industrial land uses except where commercial best management practices are in place.

BW-22: Lake Water Quality Management Programs

1. Lakeside residents should organize and solicit support from their communities to engage in DOE Centennial Clean Water (Lake Restoration) Grants with sponsorship by their municipality or the SWM Division, as appropriate.
2. Household BMP programs should be developed for all lake watershed residents for the control of nutrients in stormwater runoff and onsite septic facility drainage in a manner consistent with the King County Best Management Practices Manual, authorized by K.C.C. 8.12.

BW-23: Database Management and Update.

A basin-specific database that includes land-use characteristics, natural landscape features, and other mapable basin features, should be developed. The database used should be coordinated

with the King County SWM Division Long-Term Monitoring Program and updated annually or after the Plan is amended. ~~It is preferable that~~ The database must be computerized, geographically based, and readily available to King and Pierce Counties; the Cities of Des Moines, Federal Way, Fife, Kent, Milton, and Tacoma; the Puyallup and Muckleshoot Indian Tribes; and appropriate state and federal agencies. Monitoring data generated in these entities for the basins should be included in the database. Development of this database should be coordinated by the Basin Stream Steward with recommendations BW-16 to BW-22 and BW-24 to BW-31.

BW-24: Flow and Development Monitoring.

1. All capital improvement projects in the basins should have a thorough physical and biological survey of the reach influenced by the project. Where needed, flow data should be collected for a minimum of one year prior to construction. To ensure proper performance, flows entering and exiting major detention facilities should be monitored for at least two years after construction. The performance of these facilities should be evaluated using these flow data. Operations should be adjusted as needed.
2. To help identify major hydrologic changes in the basins, the SWM Division's finance and billing records should be used to track annual increases in impervious surface area by subcatchment for use in the yearly memorandum (see BW-32).
23. Flow gages at the outlets of the West and East Branches of Hylebos Creek should be maintained to evaluate basin performance and changes time.
34. A continuous stage recording gage should be established in the Midway Landfill sub-regional detention pond. The performance of this facility should be assessed and operations adjusted as needed (see Project 3321, North Lower Puget Sound sub-basin).
45. Continuous recording flow gages should be installed on the major inflow tributaries to Panther Lake. In addition, a staff gage should be installed to record lake levels. This information should then be used to assess the current detention performance of the lake, and to design any additional flow control projects (see Project 2430, West Hylebos Sub-basin).
56. Field investigation of the Hylebos Creek and Lower Puget Sound basins should be conducted at least annually to

identify flow-related changes in the surface water system and major conveyance system additions.

BW-25: Sediment Transport Monitoring.

To track channel incision, channel cross-sections should be located on tributaries at knickpoints on 0014B below Panther Lake in the West Hylebos ravine and on tributary 0006 in the 1,000-foot reach below S 368th Street in Regency Woods. These sections should be resurveyed every two years, with baseline surveys made in the first year of monitoring to identify the success or potential adjustments to basin management policies affecting channel stability. In addition, recommended channel stabilization projects and sediment deposition areas should be monitored annually, with particular attention to those on the West Branch Hylebos Creek below the West Hylebos Wetland (Project 2433) and at S 373rd Street, and on lower Joes Creek (Project 3329). Results should be incorporated into the annual report (see BW-32).

Water Quality Monitoring

BW-26: Regional Monitoring.

A program of long-term monitoring for water quality practices should be developed following implementation of major basinwide and sub-basin recommendations. This program should be coordinated with the DOE National Pollutant Discharge Elimination System (NPDES) requirements and the King County Surface Water Management (SWM) Division monitoring program. The objective of the program should be to determine relative improvements in channel stability, erosion, sediment flux, and water quality. Program goals, data sharing opportunities, standard procedures, and the location of sampling sites should be determined by all implementing jurisdictions in coordination with the Basin Stream Steward (BW-38). When water quality problems are identified, appropriate follow-up actions should be taken. These actions should be included in the annual reports (BW-32).

BW-27: Sampling Methods.

Sampling methods used in the program should be consistent with standard protocols identified in the following references:
 "Recommended Protocols for Measuring Conventional Water Quality Variables in Fresh Water of the Puget Sound Region" (EPA, 1990);
 "Guidance for Conducting Water Quality Assessments" (DOE, 1989);
 and "Standard Methods for Examination of Water and Wastewater"

(APHA, 1985): or other protocols required in the NPDES or King County SWM Division Long-Term Monitoring programs.

BW-28: Short-Term Runoff Event Monitoring for Water Quality Constituents.

In coordination with the NPDES and King County SWM Division Long-Term Monitoring programs, short-term runoff event monitoring should be conducted at the potential sampling sites for this program are show in Figure 3.6.1. In addition, the 1989-1990 SWM Supplemental Storm Event Monitoring Program (see Figure 5.5.1) should be used to help identify additional storm event monitoring sites. Sites should be located above and below problem areas through this program. The inventory of all storm drains and businesses (BW-19) should also be used. The following general variables should be considered for analysis: nutrients, solids, metals, oil/grease, and bacteria.

BW-29: Short-Term Highway Runoff Monitoring.

~~WSDOT is developing a program to control the runoff from freeways and highways in the Puget Sound Basin (see BW-18).~~ Pursuant to Chapter 173-270 WAC, the Puget Sound Highway Runoff Program, the WSDOT, in coordination with the NPDES and King County SWM Division Long-Term Monitoring programs a sampling program should be developed develop a sampling program that includes storm event monitoring of roads and highways before and after BMP implementation. Variables to be monitored should include metals, solids, phosphorus, oil/grease, and hydrocarbons. (See also BW-18.)

BW-30: Short-Term Monitoring of Fecal Bacteria Source Areas.

- In coordination with the NPDES and King County SWM Division Long-Term Monitoring programs, an inspection and monitoring program for sanitary sewer lines should be implemented by the Federal Way Water and Sewer District in specific areas for the purpose of identifying sewer line leaks. This program should involve video inspection of older sewer mains and trunks (e.g., greater than 15 years old) in "high-suspect" areas. These include areas in which sewage collection systems were installed adjacent to, or within, stream channels or wetlands. Additionally, these "high-suspect" areas should include those locations that were identified as having high fecal coliform bacteria densities measured during storm events in the 1989-1990 SWM Supplemental Storm Event Monitoring Program. Sewer line leaks identified should be repaired as soon as possible.

2. Monitoring to determine areas with a high risk of onsite sewage disposal system failure (BW-17.4), should also include sites identified during the SWM Supplemental Storm Event Monitoring Program (Figure 5.5.1).

BW-31: Long-Term Monitoring for Water Quality Trends.

Water quality monitoring should assess long-term trends associated with increased urbanization of both basins. In coordination with the NPDES and King County SWM Division Long-Term Monitoring programs, targeted monitoring areas should be established at the mouths of LSRAs and RSRAs identified in Chapter 2.1. The following general list of variables are recommended to be sampled: pH, conductivity, temperature, dissolved oxygen, turbidity, flow, solids, nutrients, metals, oil/grease, bacteria, and sediment. Sediment monitoring should be conducted in depositional areas near the mouths of important main stem or tributary creeks (Figure 3.6.1). An analysis of the sediment samples should include the following compound groups: acid extractables, base-neutral extractables, pesticides, herbicides, PCBs, and metals. Grain size, total organic compounds, and percent solids should also be measured to aid in data interpretation. Sediment samples should be obtained once every three to five years. If sediment results indicate there may be high concentrations of these compounds, further sampling is recommended to identify sources and pursue source controls.

BW-32: Yearly Memorandum Annual Report and Plan Amendment.

~~1. A citizens' committee should be established to assist the Basin Stream Steward (BW-38) in an annual review of progress toward implementing the Plan and in recommending needed changes. An annual report, that includes recommendations from the citizens' committee, A yearly memorandum should be prepared by the Basin Stream Steward (BW-38) near the end of each winter season and submitted to the Basin Executive Committee (BW-38). The report is to be used for input to the SWM Division budget process of King County; and for the Cities of Des Moines, Federal Way, Kent, Milton, and Tacoma; and the Puyallup and Muckleshoot Indian Tribes for the upcoming year. This report memorandum should:~~

- a. Describe the status of, and schedule for, Plan implementation;
- b. ~~Interpret~~ Identify monitoring results and significant unpredicted changes in the condition of the basins;
- c. Recommend adjustments to management of the basins based on identified significant changes; and

- d. Identify appropriate processes, such as basin plan amendment or capital project list changes, costs, and staffing requirements for basin management changes.

~~**BW-33: Enforcement/Inspection Staff.** Additional Enforcement and inspection staff should be hired maintained to reduce development-related code violations, particularly in significant resource areas such as the lower West Branch and lower East Branch Hylebos Creek and lower Joes Creek. Staffing should be adequate to ensure that, in combination with other measures such as seasonal clearing restrictions (BW-9), Added staff should be assigned based largely on permit activity. Areas of high resource value should also receive a larger share of inspectors' attention. If possible, individual inspectors should be wholly assigned to projects within these basins. Added enforcement staff should include personnel for construction-related inspections and sufficient staff to respond to surface water management complaints in developed areas.~~

Enforcement and inspection staff should be maintained to reduce development-related code violations. Staffing should be adequate to ensure that, in combination with other measures such as clearing restrictions (BW-8), development does not contribute sediment to downstream water courses and does not eliminate protected natural drainage features.

~~The effectiveness of increased efforts should be evaluated and expanded as needed to reflect future assessments of needed staffing levels plus any future changes in permit activity. In addition, any new regulations, such as changes to the Sensitive Areas Ordinance or clearing limitations (King County, 1990), the Federal way Zoning Code (Federal Way, 1990), the Environmentally Sensitive Areas Ordinance (Des Moines, 1990), or Design Manual, may require additional code enforcement staffing.~~

BW-34: Citations.

A system for issuing citations with civil penalties, analogous to traffic tickets but with greater penalties, should be established for violations of drainage and environmentally sensitive areas ordinances.

BW-35: Penalties.

The list of potential penalties for code violations should be expanded to include:

1. Rectifying the impacts,

2. Compensation for impacts not fully rectified,
3. Required participation in surface water-related public education programs,
4. Required participation in stream and wetland restoration as community service work, and
5. Tougher penalties for repeat violations.

Significant civil fines should be levied against developers, contractors, property owners, and federal, state, or local agencies for violation of surface water and sensitive area regulations in all six jurisdictions in the two basins. A significant fine means a fine of a set percentage of the project value (10 to 50 percent) applied each day that a violation remains uncorrected.

BW-36: Violation Reporting.

Reporting of code violations should be simplified by:

1. Development of a standard violation reporting form for County and City field employees, and
2. Publication of a central telephone number in the blue pages of the telephone book for information on how to report surface water-related violations of the City and County codes.

BW-37: Education and Public Involvement.

A surface water education program for basin residents, developers, and staff of the Cities of Des Moines, Federal Way, Kent, Milton, Tacoma, the Puyallup and Muckleshoot Indian Tribes, and King County should be established to improve public knowledge of, and participation in, solutions to surface water-related problems. This program should be coordinated with the numerous public and private efforts already in place including those of the King County SWM Division, the County Extension Service, the State Conservation District, Trout Unlimited, Puget Sound Steelheaders, Federal Way Community Council, and many others. At least the following topics and activities should be included:

- a. Riparian and stream ecology and citizen roles in protecting aquatic ecosystems, including programs to remove and reduce litter on both public and private properties.

- b. Nonpoint pollution prevention (BW-17). Special emphasis should be placed in the drainage area tributary to Panther Lake (WH-6);
- c. Lake management district formation (BW-22);
- d. Onsite sewage maintenance district formation (BW-17.4);
- e. Jurisdictional code requirements and enforcement procedures;
- f. Best management practices for construction; residential areas; and commercial, industrial, and agricultural activities;
- g. Action-oriented projects involving the citizens in Plan implementation such as streamside revegetation (BW-16), fish egg planting, and water quality and biomonitoring (WH-7, EH-4, CS-2);
- h. Streamside residents best management practices brochure;
- i. Community signs that interpret the value of resources and acknowledge good streamside management;
- j. Monitoring activities (i.e., lake gages, rain gauges, fish counts);
- k. Storm drain stenciling;
- l. Educational displays such as the Washington State Parks proposed West Hylebos Wetland Interpretative Center, demonstration areas, and traveling exhibits;
- m. Television and radio media events; and
- n. Informational articles in local newspapers.

BW-38: Basin Stream Steward. A Basin Stream Steward should lead the implementation of the basin management program. The Steward will be a full-time professional staff person who covers all six jurisdictions of the Hylebos Creek and Lower Puget Sound basins included in southwest King County and the portion of Pierce County in the basin planning area. Responsibilities of the Basin Steward should include:

- o Develop and staff a Basin Executive Committee (BEC) composed of representatives from the implementing entities to meet as needed to guide plan imple-

mentation. and The BEC should be authorized to recommends needed changes in the Plan or in management of the basins- to the appropriate implementing entities.

- o Facilitate the negotiation and completion of basin stream capital improvement projects (Chapter 4, Sub-basin Recommendations), including regional detention facilities, stream stabilization projects, conveyance upgrades, and basin revegetation (BW-16);
- o Facilitate adoption and implementation of basinwide recommendations to protect sensitive areas (BW-1 through BW-15) and for code compliance (BW-33 through BW-36).
- o Educate the basins' residents and the business and development communities about the affect of their actions on water quality and surface water resources and how current practices can be corrected (BW-37);
- o Communicate citizen reports of violations to appropriate enforcement officials;
- o Encourage civic groups and businesses to donate time and funds for programs such as adopt-a-stream-or-a-wetland to improve these resources;
- o Assist citizen-based stream, wetland, and lake protection efforts;
- o Assist in coordinating the development of monitoring programs (BW-24 to BW-31) including the collection of field data in the basins; and
- o ~~Prepare an annual report~~ the yearly memorandum for action by the BEC (BW-32), ~~which describes the watershed management accomplishments achieved in the basins.~~

BW-39: Current-Use Taxation.

Current use taxation programs should be expanded to include properties that contain stream and wetland buffers within RSRAs and LSRAs as identified in this Basin Plan. ~~A rating system~~ Public benefit rating systems should be adopted by all jurisdictions in the basins to evaluate the public benefit of accepting these areas into the open space system in exchange for private tax concessions.

BW-40: State Assessment Procedures.

The statutes governing appeals of property-tax assessments should be amended to allow simplified appeals where downzones or sensitive areas designations have affected potential development opportunities. The appeal results should apply without need for further property-owner action until the next regular valuation becomes effective.

BW-41: Conservation Easements and Land Trusts.

Encourage private donations of conservation easements for streams, wetlands, and their buffers in RSRAs, LSRAs, and wildlife corridors to public and private caretaker agencies. Public caretaker agencies include the King County Parks Division and private conservation groups include the Trust for Public Lands. Similar programs can also be established in Des Moines, Federal Way, Kent, Milton, and Tacoma.

BW-42: Annexations and Incorporations.

If annexations or incorporations remove areas of the basins from King County's jurisdiction, ~~interlocal agreements should be drafted to ensure that city surface water management plans regulations, programs, and standards for the newly incorporated areas should be~~ are consistent with, or more protective than, those in this Basin Plan. ~~King County and other cooperators on this Basin Plan should oppose these proposed annexations that do not establish such Surface Water Management Plans.~~

All jurisdictions in the Hylebos Creek and Lower Puget Sound Basins should continue to coordinate development and implementation of Surface Water Management Programs in these basins.

BW-43: King County SWM Division CIP Funding Policy.

~~Implementation of the Basin Plan in King County will follow the recommended policy identified in the SWM Strategic Plan. All capital improvements projects in King County will be funded at a level to at least begin initial design work during the calendar year following Basin Plan adoption.~~ The needs for timely implementation of this basin plan, including the design and construction of capital improvement projects in King County will be considered in the annual King County Council budget process.