

CHAPTER 4: CONSERVATION ELEMENT

4-01 GOALS

4-01-01 To protect, improve, and sustain environmental quality through best management practices and the use of best available science.

4-01-02 To protect environmentally critical areas from damage caused by encroachment and development.

4-01-03 To prevent flooding, erosion, sedimentation, water quality, and habitat degradation, and to protect, restore, and enhance all surface waters.

4-01-04 To conserve and replenish fish and wildlife resources.

4-01-05 To protect, improve, and sustain ground water quality and quantity through best management practices, and sound and innovative environmental management.

4-01-06 To protect critical areas from noise impacts.

4-01-07 To protect all streams and wetlands that are in the public interest.

4-01-08 To protect species and their habitats that have been identified as endangered, threatened, or sensitive by the State and Federal governments.

4-02 BACKGROUND AND CONTEXT

4-02-01 The City of Des Moines has a natural resource base of land, air, water, vegetation, fish, wildlife, and energy.

4-02-02 Development and urbanization have resulted in serious environmental problems, including but not limited to, flooding; elimination of fish and wildlife habitat; pollution of land, water and air; inefficient energy use; noise; and soil and geologic instability.

4-02-03 Sound planning, best management practices, , best available science (BAS), wise purchases, and application of technology can assist in protecting the remaining natural resource base from further loss or degradation, and can restore or improve the previously lost or degraded natural resource base.

4-02-04 Both individually and interacting as a whole, natural resources provide the essential elements for human life. Moreover, they provide valuable functions to the City of Des Moines, including: control of flooding, surface water runoff, erosion, and sedimentation; groundwater and aquifer recharge; soil and geologic stability; air and water cleansing; and habitat for flora and fauna.

4-02-05 The uplands and lowlands of the City of Des Moines are linked through the hydrologic cycle. Many of the impacts of urbanization are related to changes in hydrologic

processes. Therefore, by focusing planning efforts on watersheds, impacts of development can be better estimated and understood, and solutions better implemented.

4-02-06 The natural resources of the City of Des Moines are affected by regional influences. Environmental processes and problems do not obey jurisdictional boundaries. Cooperative environmental management among neighboring jurisdictions, tribes, and state and federal agencies can prevent or overcome regionally influenced problems.

4-02-07 Pollution prevention and environmental improvements require an ongoing commitment from an informed, involved public.

4-02-08 The natural landscape of the City of Des Moines is made up of various streams, wetlands, shorelines, hillsides, forests and fields. Development has significantly disturbed the natural environment. However, the remaining environmentally critical areas, also referred to as sensitive areas, are important contributors to the City of Des Moines natural resource base and high quality of life.

4-02-09 The GMA requires that the City of Des Moines designate its critical areas and develop policies and development regulations to protect the functions and values of critical areas using “best available science” (BAS).

4-02-10 Critical areas within the City of Des Moines include wetlands, streams, areas with a critical recharging effect on aquifers, frequently flooded areas, geologically hazardous areas, and fish and wildlife habitat conservation areas. The locations of critical areas within the City of Des Moines are shown in figures 4-1 through 4-7.

4-02-11 Critical areas are unique resources, which if preserved and protected, can protect public and private resources from damage or loss due to flooding, erosion, landslides, seismic and volcanic events, soil subsidence, or steep slope failures. Environmentally critical areas also protect ground and surface water quality and quantity. Critical areas are also part of the aesthetic resources in the City and form distinctive features of natural lands and wooded hillsides.

4-02-12 Surface water management becomes more critical with urbanization as natural areas are covered with impervious surfaces such as buildings, streets, and parking lots. The City of Des Moines’ surface water management program includes prevention and mitigation of problems due to flooding, erosion, and sedimentation.

4-02-13 State Law (RCW 35. 27.370) grants the City of Des Moines specific authority to prevent and abate the pollution of surface water inside and outside the City and to enact ordinances that contain enforcement provisions.

4-02-14 The City of Des Moines’s adopted surface water management program contains policies, and programmatic recommendations that enhance the City of Des Moines’ ability to effectively manage surface waters. The surface water management plan and individual basin plans are developed with the cooperation of other affected jurisdictions. The City of Des Moines also operates a number of capital facilities that reduce flooding, erosion, and sedimentation; mitigate habitat loss; enhance ground water recharge; and prevent water quality degradation.

4-02-15 The Growth Management Act requires that cities give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries. The City must also include the best available science when developing protection policies.

4-02-16 Open spaces, critical areas and public watersheds provide benefits to wildlife. Preserving these resources also serves to protect wildlife.

4-02-17 The goal of conserving fish and wildlife habitat can be achieved through the implementation of several strategies, including: a) identification and protection, or purchase, of critical fish and wildlife habitat conservation areas; b) linking those critical habitat areas with other protected lands, and c) integrating fish and wildlife habitat and conservation goals into new and existing developments.

4-02-18 Since fish and wildlife and their habitats do not respect political boundaries, linkages of critical habitat areas should be made across boundaries.

4-02-19 Buffer requirements for streams and wetlands intended to protect wildlife resources in those critical areas were established using “best available science.” Development regulations have also been established to protect areas with critical fish and wildlife habitat.

4-02-20 The most effective way to protect and enhance native fish populations is through protection of river, stream, and creek channels, riparian corridors, lakes, wetlands, and watersheds that provide or impact spawning and rearing habitat, food resources, and fish passage. Intermittent streams can also be critical to native fish populations. Presently, fish enhancement facilities and programs are critical to the maintenance of salmon stocks and the fisheries industry.

4-02-21 Protection of isolated blocks of habitat may not adequately protect wildlife in the City of Des Moines -- critical fish and wildlife habitats and refuges may need to be connected across the landscape through a system of habitat corridors. Some areas may be important because they serve as vital linkages among habitat areas.

4-02-22 A key element in a comprehensive wildlife protection program is to encourage integration of wildlife habitat into new developments when possible. Protection of wildlife does not need to be at odds with land development.

4-02-23 Consideration of fish and wildlife during site design and construction can help to protect and preserve habitat areas.

4-02-24 Benefits to wildlife are enhanced when on-site landscaping includes native vegetation. Retention of natural vegetation can often provide similar aesthetic benefits as areas landscaped with non-indigenous plant materials.

4-02-25 Policies in other elements that recognize the value of natural amenities and wildlife habitat also serve to meet the goal of integrating wildlife habitat and new development.

4-02-26 Integrating wildlife goals with public land uses, such as parks, landscaping along roadways, stormwater control facilities, and landscaping around government buildings can help provide important habitat areas.

4-02-27 Ground water is an important source of water used in the City. In the future, ground water may provide a greater percentage of our water supply needs.

4-02-28 Rainfall that enters the ground replenishes ground water and provides base flow for streams, wetlands and rivers during periods of limited rainfall. This base flow sustains fish, wildlife, their habitats, and recreational values.

4-02-29 The natural hydrologic cycle can be altered by development practices and overuse of the aquifer. The result may be depletion of aquifers.

4-02-30 Groundwater is subject to contamination from human activity. The cost of protection is considerably less than the cost of remediation and replacement.

4-02-31 The Growth Management Act requires the designation of “areas with a critical recharging effect on aquifers used for potable water.” The procedural criteria to classify critical areas (chapter 365-190 WAC) further defines these areas as areas where an aquifer is a source of drinking water and is vulnerable to contamination that would affect the potability of the water. It is difficult to define and map ground water recharge areas because ground water systems are hydrologically and geologically complex.

4-02-32 Wellhead protection studies are required by the 1986 amendments to the Federal Safe Drinking Water Act. The three water districts that provide the City’s water; King County Water District 54, Highline Water District, and Lakehaven Utility District, have completed such studies. The studies provide additional information about contamination susceptibility of aquifers and also increase understanding of where aquifer recharge areas are located.

4-02-33 The functions and values of environmentally critical areas can be severely damaged by improper clearing, grading, filling, refuse dumping, and construction. Such actions need to be reviewed for significant adverse environmental impacts before approval.

4-02-34 Scientific research has determined that wetlands are best protected by undisturbed buffer areas. Undisturbed buffers are vegetated areas in which no development occurs. The wetland buffer provides food, cover, travel routes, and roosting and nesting sites for many wildlife species. Wetland buffers are also critical to wetland ecology. Construction near or within a wetland or its buffer area can reduce or eliminate these habitat functions. Construction can lead to erosion and increased surface runoff that can cause silt and contaminants to enter the wetland. When upland buffers are present between the development and the wetland, the buffer receives the majority of the impact, thereby protecting the wetland.

4-02-35 Scientific research has determined that watercourses are best protected by undisturbed buffer areas. In addition to protecting the watercourse, the buffer protects adjacent upland areas from flooding while also providing wildlife habitat. The critical functions of the

buffer include shading, input of organic debris, nutrient uptake, bank stabilization, and the interception of sediment.

4-02-36 Scientific research has determined that unstable slopes are best protected by undisturbed buffer areas. Certain hillsides in the City of Des Moines are either unstable or susceptible to instability when disturbed. These hillsides are underlain by permeable soils, and are subject to seepage. They also include areas that have experienced landslides in the past and have slopes that are being undermined by stream or beach erosion. Construction in these areas is expensive and difficult. Landslides on such slopes can result in enormous public and private costs, and severe threats to public safety and natural resources.

4-03 POLICIES

4-03-01 Plan and encourage sound management of natural resources--land, air, water, vegetation, fish, wildlife, and energy--considering entire watersheds and regional influences.

4-03-02 Review and revise the City's Critical Areas Ordinance, at least every five years, to ensure protection of the ecological functions and values of critical areas from cumulative adverse environmental impacts; and to ensure compliance with the requirements of the Growth Management Act.

4-03-03 Include "best available science" when reviewing, revising, or developing policies and development regulations to protect the functions and values of critical areas, giving special consideration to the protection of anadromous fisheries.

4-03-04 Provide protections for critical areas within shorelines, as designated by the City's Shoreline Management Program. Review and revise the City's Shoreline Management Program, at least every five years to ensure protection of the ecological functions and values of shorelines from cumulative adverse environmental impacts, and to ensure compliance with the requirements of the Growth Management Act.

4-03-05 Explore approaches to regulations and procedures that streamline the permit review process for development in or near shorelines and critical areas.

4-03-06 Balance social, economic, and environmental goals to land use planning activities.

4-03-07 Work with citizens, land owners, businesses, neighboring cities, King County, special purpose districts, and private and public agencies to protect and improve environmental quality, seeking shared responsibility and uniform environmental management.

4-03-08 Promote the preservation of native vegetation and mature trees; revegetation; and appropriate landscaping to improve air and water quality and fish and wildlife habitat.

4-03-09 Regulate significant land clearing, grading, and filling to minimize the area, time, and slope length of exposed soils, and to reduce on-site erosion and off-site sediment transport.

Prohibit any significant clearing, grading, or filling operations prior to drainage and erosion/sedimentation plan approval and implementation.

4-03-10 Regulate public and private development proposals in ways to insure that the valuable functions of natural resources are preserved, restored, or improved.

4-03-11 Analyze the chain of environmental impacts from public and private development proposals in context of the whole watershed. Approve, condition, restrict, or deny development proposals based upon accurate and well-documented environmental information.

4-03-12 Manage solid and hazardous wastes in a manner that results in waste reduction, prevents land, air, and water pollution, and conserves natural resources.

4-03-13 Take measures to control noise pollution and reduce noise impacts.

4-03-14 Regulate land uses to conserve all forms of energy.

4-03-15 Encourage and support education and public involvement programs aimed at protecting environmental quality. These programs should: (1) inform, educate, and involve individuals, groups, businesses, industry, and government; (2) increase understanding; and (3) encourage commitment.

4-03-16 Require review and permit approval before construction activity is allowed to occur within, adjacent to, or likely would affect an environmentally critical area.

4-03-17 Undertake all necessary actions to protect the quality of surface water bodies located in the city.

4-03-18 Reduce flooding, erosion, and sedimentation; prevent and mitigate habitat loss; enhance ground water recharge; and prevent water quality degradation. The surface waters of the City of Des Moines should be managed through plans, programs and regulations developed by the City of Des Moines in cooperation with affected jurisdictions.

4-03-19 Manage surface water using a watershed approach, with responsibility shared among the City of Des Moines and affected jurisdictions. Emphasize educational programs and implementation of Best Management Practices to reduce pollution entering surface waters.

4-03-20 Consistent with land use density objectives, strive to maintain the existing diversity of species and habitat in the City and maintain a quality environment that includes fish and wildlife habitats that support the greatest diversity of native species.

4-03-21 Protect and preserve habitat for species that have been identified as endangered, threatened, or sensitive by the state or federal government, or as priority species or priority habitats by the County.

4-03-22 Designate and protect fish and wildlife habitat conservation areas including:

- (1) Priority species of local importance and their habitat as listed by the most current King County Comprehensive Plan and/or the Washington Department of Fish and Wildlife;
- (2) Commercial and recreational shellfish areas;
- (3) Kelp and eel grass beds;
- (4) Herring and smelt spawning areas, and
- (5) Wildlife habitat networks designated by the City of Des Moines.

4-03-23 Ensure that stream and wetland buffers be of adequate size to protect critical wildlife species and habitat.

4-03-24 Protect salmonid habitat by ensuring that land use and facility plans (transportation, water, sewer, power, gas) include riparian habitat conservation measures. Ensure that development within basins that contain fish enhancement facilities consider impacts to those facilities.

4-03-25 Work with adjacent jurisdictions and state federal and tribal governments during land use plan development review to identify and protect habitat networks at jurisdictional boundaries.

4-03-26 Be a good steward of public lands and integrate fish and wildlife habitat into capital improvement projects when practicable.

4-04 STRATEGIES

4-04-01 Conservation Planning

- (1) Prepare studies of Des Moines area watersheds, identifying environmental problems and short-term and long-term means for solving the problems.
- (2) Identify and rank capital improvement and land acquisition projects that can prevent flooding, protect surface and ground water quality, stabilize hillsides, and protect, restore, and enhance fish and wildlife habitat.
- (3) Require that development proposals provide measures for restoring or enhancing any lost or degraded functions provided by the environment.
- (4) Grading and construction activities shall implement erosion control Best Management Practices and other development controls as necessary to reduce sediment and pollution discharge from construction sites to minimal levels.
- (5) Regulate and plan land use and condition development proposals in ways that protect mature trees, native vegetation, stream flow, fish and wildlife habitat,

groundwater recharge, and air quality, as well as natural topographic, geologic, and hydrologic features.

- (6) Promote public involvement in restoring, protecting, and enhancing natural resources through such programs as Adopt-A-Stream and the Backyard Wildlife Sanctuary Program, by working with local educational institutions, and by integrally involving citizens in developing, implementing, and monitoring environmental programs.
- (7) Maintain and monitor the Shoreline Master Program to control and regulate development in the shoreline area.
- (8) Maintain development regulations and a permitting system to prevent the destruction of critical areas including wetlands, areas with a critical recharging affect on aquifers used for potable water, fish and wildlife habitat conservation areas, frequently flooded areas, and geologically hazardous areas.
- (9) Designate, map, and protect habitat networks throughout the City of Des Moines from significant adverse environmental impacts.
- (10) In compliance with RCW 36.70A.172, the City should include a record of evidence that it has given “special consideration” to conservation or protection measures necessary to preserve or enhance anadromous fisheries. The record should be developed using the criteria set out in WAC 365-195-900 through 365-195-925 to insure that conservation or protection measures necessary to preserve or enhance anadromous fisheries are grounded in BAS.
- (11) Conservation or protection measures necessary to preserve or enhance anadromous fisheries include measures that protect habitat important for all life stages of anadromous fish, including, but not limited to, spawning and incubation, juvenile rearing and adult residence, juvenile migration downstream to the sea, and adult migration upstream to spawning areas. Special consideration should be given to habitat protection measures based on the best available science relevant to stream flows, water quality and temperature, spawning substrates, instream structural diversity, migratory access, estuary and nearshore marine habitat quality, and the maintenance of salmon prey species. Conservation or protection measures can include the adoption of interim actions and long-term strategies to protect and enhance fisheries resources.
- (12) Encourage the integration of native plant communities and wildlife habitats with other land uses where possible. Encourage or require that development protect wildlife habitat through site design and landscaping. Encourage or require that new development within or adjacent to wildlife habitat networks incorporate design techniques that protect and enhance wildlife habitat values.
- (13) Provide technical assistance, education, and information to citizens and groups wishing to install wildlife enhancement projects. Encourage public demonstration

projects that show the range of possibilities for integration of wildlife into a variety of land uses. Consider demonstration projects done jointly by the City and a private landowner or organization.

- (14) To the extent permitted by state and federal law, in order to minimize adverse impacts related to noise, protect fish and wildlife habitat conservation areas from environmental noise levels that exceed 55 Ldn (dBA), or the Ldn in existence on the effective date of this element, whichever is higher. To the extent permitted by state and federal law, a reduction in the exterior noise level shall become the new maximum exterior noise level.

4-04-02 Environmentally Critical Areas

- (1) Identify environmentally critical areas and promulgate performance standards and development regulations for any proposed developments within or adjacent to them.
- (2) Develop and update regulations on development in wetlands and streams, and require an undevelopable buffer of preferably native vegetation adjacent to them that is adequate in size to preserve the natural and beneficial values served by wetlands and streams.
- (3) The City of Des Moines shall evaluate programs and regulations to determine their effectiveness in contributing to ESA listed species conservation and recovery, and shall update and enhance programs and plans where appropriate including evaluation of the Zoning Code, the Critical Areas Ordinance, the Shoreline Master Program, the clearing and grading regulations, the landscaping regulations, best management practices for vegetation management and use of insecticides, herbicides and fungicides. The City of Des Moines shall amend these regulations, plans and best management practices to enhance their effectiveness in protecting and restoring salmonid habitat, taking into consideration the model program developed by the Tri-County Salmon Conservation Coalition and the recommendations of shared strategy.
- (4) Require that development proposals contain measures to stabilize soils, hillsides, bluffs and ravine sidewalls and promote wildlife habitat by retaining critical areas of existing native vegetation.
- (5) Regulate development on bluffs and ravine sidewalls, and require a buffer of undisturbed native vegetation adjacent to them that is adequate in size to insure human safety, health and welfare and to restore and preserve other functions served by bluffs and ravines.
- (6) Restrict development proposals on potentially unstable land, such as areas with erosion, landslide, and seismic hazards, to insure safety and conformity with existing natural constraints.

- (7) Seek public acquisition of environmentally critical areas that have outstanding valuable natural functions and aesthetic assets.
- (8) Administer and enforce adopted land use regulations that protect environmentally critical areas from the impacts of adjacent land uses.
- (9) Require the issuance of a permit and review by the City prior to any construction activity that would occur in, be adjacent to, or would likely affect a critical area. A permit would be required because the functions and values of unique critical areas can be severely damaged by improper refuse dumping, clearing, grading, filling, and construction.
- (10) Using “best available science” (BAS), review and update development regulations pertaining to development in and protection of critical areas (the Critical Areas Ordinance), particularly those which directly or indirectly effect the health of the regions’ anadromous fisheries, in the City of Des Moines, between five and ten years of the adopted ordinance date.
- (11) In designating and protecting critical areas the City shall include BAS, consistent with criteria set out in WAC 365-195-900 through 365-195-925.
- (12) BAS is information that (1) state or federal natural resource agencies have determined represents the best available science, (2) was derived from consultation with qualified scientific expert(s), as defined in WAC 365-195-905, or (3) was produced through a valid scientific process. A valid scientific process should have the following characteristics, as defined in WAC 365-195-905: peer review, methods, logical conclusions and reasonable inferences, quantitative analysis, context, and references.
- (13) Where valid or complete scientific information is not available, the City shall take a precautionary or no risk approach, in which development and land use activities are strictly limited until the uncertainty is sufficiently resolved (as stated in WAC 365-195-920). As an interim approach the City should take an effective adaptive management approach, where the results of land use decisions are scientifically evaluated as to their impacts on critical areas.
- (14) Strive to balance the City’s goals of protecting environmentally critical areas with the other social, cultural, and economic goals of the City of Des Moines Comprehensive Plan.
- (15) Document, on the record, the use of BAS and instances when non-scientific information was used in-lieu-of BAS during the process of developing policies and regulations to protect critical areas and anadromous fisheries. Documentation should include the relevant sources of BAS. Documentation should also include information that departs from BAS and was used as a basis for critical areas policies and regulations.

- (16) The City should identify and document any non-scientific information (including legal, social, cultural, economic, and political), used as a basis for critical areas ordinance policies and regulations, that departs from recommendations derived from BAS. In these cases the City should provide a rationale for use of such information. The City should also identify potential risks to the functions and values of the critical areas at issue and any additional measures chosen to limit such risk.

4-04-03 Solid and Hazardous Waste Management

- (1) Prepare, implement, and monitor a waste reduction and recycling plan consistent with State of Washington law and the King County Comprehensive Solid Waste Management Plan.
- (2) Prepare, implement, and monitor a hazardous waste management plan consistent with State of Washington law and the Local Hazardous Waste Management Plan for Seattle-King County.

4-04-04 Water Management

- (1) Develop a surface water management program that will:
 - (a) Enhance water quality and control flooding;
 - (b) Effectively use and maintain existing drainage facilities that provide fish and wildlife habitat;
 - (c) Satisfy all regulatory requirements and compliance schedules; and
 - (d) Identify and fund capital improvements.
- (2) Require that development proposals maintain surface water runoff rate, volume, and quality at pre-development levels. Where watershed studies show that the impacts of urbanization are significant, additional measures should be implemented to attenuate drainage problems posed by these impacts.
- (3) Protect and improve surface and ground water quality by requiring development proposals to implement best management practices and other available technology for controlling point and non-point sources of pollution.
- (4) Promote ground water infiltration and minimize surface water runoff by requiring development proposals to limit impervious surfaces.
- (5) Require that development proposals contain measures to control on-site soil erosion and off-site sediment transport during and after construction through the use of best management practices and other available erosion and sedimentation control technology.

- (6) Take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.
- (7) Work with the Washington State Department of Ecology to implement the programs of the Puget Sound Water Quality Management Plan.
- (8) As authorized by the laws of State of Washington (such as RCW 35.24.280), act to prevent and fine any person or private or public entity causing pollution of surface waters flowing through or into the City of Des Moines from up to five miles from its corporate limits.
- (9) Establish and/or maintain enforcement mechanisms that may be used to prevent or stop contamination to surface water quality.
- (10) If surface water contamination is found in the City of Des Moines, consider requesting state or federal investigations or enforcement actions. Consider pursuing all appropriate civil actions under state and federal law to abate the pollution problem, including a citizen suit under the federal Clean Water Act.
- (11) The City of Des Moines shall maintain a map of Critical Areas.
- (12) Protect the quality and quantity of groundwater by:
 - (a) Assisting during implementation of the South King County Groundwater Management Plan.
 - (b) Implement, as appropriate, Wellhead Protection Programs in conjunction with adjacent jurisdictions and ground water purveyors.
 - (c) Encourage or require use of Best Management Practices for new development recommended by the South King County Groundwater Management Plan.
 - (d) Refine land use and critical areas regulations, as appropriate, to protect critical aquifer recharge areas.

- (13) In order to ensure the quality of surface water and protect the health and welfare of its citizens, the City of Des Moines will:
 - (a) Establish a program to monitor surface water quality within its boundaries and encourage neighboring jurisdictions to implement similar monitoring programs.
 - (b) Develop plans, programs and regulations, in cooperation with other jurisdictions, to manage the surface waters of the City.
 - (c) Work with other jurisdictions to develop a watershed approach to surface water management that includes implementation of Best Management Practices and public education initiatives.

4-04-05 Air

- (1) Require that air pollution generated from all land uses be restricted to federal and state ambient air pollution standards. Restrict air pollution generated from solid fuel burning devices and open burning to state emission standards, curtailment rules, and fuel restrictions.
- (2) When other trees are not available or do not provide the needed screening, require that planting and maintenance of trees be an integral part of City street development standards. Require all developments to include landscaping improvements using trees, shrubs, and ground covers. Undertake measures to ensure the survival and good health of trees and plants.

4-04-06 Energy

- (1) Establish construction and site planning standards that result in energy conservation or utilize alternative energy sources.
- (2) Seek to stimulate a land use pattern that encourages an efficient transportation system.
- (3) Implement measures to improve bicycle and pedestrian circulation systems.

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