Revisions to Clarify the ESEE Analysis for the

Balch Creek Watershed Protection Plan

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Bureau of Planning
Portland, Oregon
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Portland City Council
Vera Katz, Mayor
Earl Blumenauer, Commissioner of Public Works
Charlie Hales, Commissioner of Public Safety
Gretchen Kafoury, Commissioner of Public Utilities
Mike Lindberg, Commissioner of Public Affairs

Portland City Planning Commission
Richard Michaelson, President
Douglas Van Dyk, Vice President
Steve Abel
W. Richard Cooley
Sarah ffitch
Bruce Fong
Paul Schuback
Ruth Scott
Noell Webb

Portland Bureau of Planning
Charlie Hales, Commissioner-in-Charge
David C. Knowles, Planning Director
Robert E. Clay, Chief Planner, Long Range Planning and Urban Design

Project Staff
Al Burns, City Planner

Introduction

The following narrative text has been prepared to address deficiencies found by the Land Conservation and Development Commission in its first periodic review of Portland's compliance with Statewide Planning Goal 5, natural resources. This text revises the original analysis prepared for this natural resource plan. The revised text occurs in the second of three steps contained in the Goal 5 Administrative Rule: (1) identification and analysis of economic, social, environmental, and energy consequences of conflicting resources on the resource, and the resource on conflicting uses (ESEE analysis), and (2) decision on the appropriate level of protection, if any, for the resource. This step is called, *Identify Conflicting Uses or ESEE analysis*. The first step is the inventory of Goal 5 resources and the third step is to develop the program to achieve the goal or implementation measures.

The revisions to the analysis for this resource plan have not resulted in any changes to the environmental zone mapping of either environmental protection (ep), or environmental conservation (ec) zones.

Background

On January 20, 1995, the Land Conservation and Development Commission held a hearing on the City's first periodic review of the Comprehensive Plan. At the hearing, the Commission adopted the staff recommendations contained in the director's report, dated November 28, 1994 and the director's supplemental report dated January 13, 1995. The Commission's adopted motion instructed the DLCD director to issue an order implementing the Commission's action on May 30, 1995. The Commission's pending order permits the City to adopt and submit to DLCD revisions to the City's final periodic review order of December 1993. Such revisions allow the City to address deficiencies identified in the director's report for the City's Goal 5 natural resources program. The department found that a more specific narrative text was needed "to provide reasons to explain why decisions are made for specific sites." The revisions address Periodic Review Work Program item 1.1.

The director's report showed that a substantial portion of Portland's work complies with Statewide Planning Goal 5. Only the ESEE analyses for Smith and Bybee Lakes (Site #55, Columbia Corridor), Balch Creek, Northwest Hills, and Johnson Creek need to be supplemented with information in the "decision" statements. The report found that, "evidence in the record is likely to be adequate to prepare these statements, without collecting new information or conducting additional analysis."

The ESEE analysis must be received by the department by April 17, 1995 for action at the May 25-26, 1995 LCDC meeting.

REVISIONS TO ESEE ANALYSIS FOR THE BALCH CREEK WATERSHED PROTECTION PLAN

Resource Site 73
This is a 2.71 acre site in Lower Macleay Park. It includes the most downstream part of Balch Creek, park lawn, public lavatories, a parking lot, storm water control facilities, second growth forests, exotic dawn redwoods, and seven houses. Identified conflicting uses include residential landscaping, park facilities, and stormwater and flood control facilities. Additional housing is not a conflicting use because, even though base zones are R5, residential structures are prohibited by Open Space Comprehensive Plan designations. Even though the R5 lots are already developed with houses, this land was not identified as needed for urban uses by the Buildable Lands Analysis conducted in 1987 for Goal 10 and Goal 14 periodic review.

Conclusion
Resource protection of the creek, forests, and dawn redwoods would result in positive ESEE consequences. Limiting additional residential development to minor expansions of seven existing houses would limit conflicting uses, and provide slighter more beneficial social and economic consequences than a strict prohibition. Limiting the existing parking lot, and lavatories for Lower Macleay Park to their present configuration will have highly beneficial social consequences with minimum environmental harm. Prohibiting and limiting development within forests will have detrimental energy consequences by precluding a source of fire wood.

Decision
The general decision is to manage the Balch Creek Watershed as a whole in order to preserve the fish, wildlife, storm water detention, flood control, and water quality values of a native forest and trout stream. These values are preserved through the following strategy.

- Conserving forest edges and protecting forest centers, which in turn moves allowed development from the center of the watershed to the edges.
- Placing all land within 50 feet of the centerline of Balch Creek and its tributaries, including seasonal drainageways and topographic lows, in environmental protection zones.
- Placing the most significant native forests in environmental protection zones.
- Placing other significant forests are placed in conservation zones.
- Limiting development within environmental zones to a dry building season.
- Limiting how much forest can be removed on any building site.
- Restricting agriculture and forest uses to ten percent of site area.

This strategy manages the watershed as a whole, and recognizes that it impossible to preserve fish populations by just protecting those stream segments where fish are present year round. Riparian buffers fifty feet wide are established to stabilize

stream banks, trap eroding soil and pollutants, and to provide a canopy to keep the water cool enough for trout. These buffers, in and of themselves, would be insufficient to protect trout, but they are supplemented by upland environmental zones. The environmental zones that cover upland forest control the intensity and length of flooding and ensure that fish and food organisms are not swept out of the stream. These measures also protect spawning gravel and provide the proper quantity and quality of water, particularly in the dry summer months. The Balch Creek trout population has maintained itself in a stable population of about 2,000 fish since the 1930's. Balch Creek is physically separated from other water bodies, so it is imperative to maintain existing stocks and habitat through the management of the entire watershed. The creeks and forests described in the individual resource sites form an ecological whole.

This watershed management scheme also provides contiguous stretches of native forests for upland wildlife. Urban areas often have abundant forest "edges", and these edges do benefit some wildlife species. What is rare in urban forests are "centers" of enough area to provide native forest values. When a forest is 1200 feet in diameter and covers about 30 acres it begins to establish its own microclimate. The area in the "center" of the forest is darker, cooler, and wetter than the edges. This microclimate effects becomes more pronounced the larger and older a forest gets. Many of the resource sites are contiguous and form forest clumps much larger than 30 acres. These contiguous forests are very important because they can support species with large habitat requirements. Forest centers select for native plants, which in turn provide the proper food and cover for native wildlife. There is also a "sponge effect" through which forest centers store water in the winter and release it slowly into streams during the dry summer months. The Balch Creek watershed is one of the few places in the City with enough large forest centers to support native populations of deer and elk. The environmental zone boundaries are drawn to provide contiguous cover between forest centers. Without associated centers, forest edges are of little value to larger wildlife species.

Resource Site 73 contains a full year stream with riparian gallery, second growth forests, and a row of mature Dawn redwood trees. In resource site 73 this general scheme is applied as follows:

Allow Conflicting Uses Fully

No decisions were made to fully allow conflicting uses with resource site 73. It should be noted, however, that Balch Creek enters a storm sewer at the lower end of Macleay Park. This sewer passes under Portland's Northwest Industrial Area. Because fish entering this sewer cannot physically re-enter Balch Creek. The sewer and the overlying industrial area were excluded from the plan inventory as insignificant.

Limit Conflicting Uses

Two R5 lots off of NW 30th were placed in conservation zones portions of five other lots, all at forest edges along NW 31st, were placed in conservation zones. The

comprehensive plan designation for all of these lots was changed from open space to residential. This change "legalizes" what were nonconforming uses and will allow minor expansions of existing residences. Also placed in the conservation zone was the parking lot, lavatories, and storm water control features in designated open space. This was done to limit them to their present locations, although minor redesigns and reconfigurations could be allowed. The stormwater features include a vertical concrete wall within the stream bed of Balch Creek. Fish falling over this wall arrive in a large pool just above the sewer inlet and cannot re-enter the creek. This pool is placed in a conservation zone because of its educational value in the park.

Prohibit Conflicting Uses

Portions of five developed residential lots, and portions of three open space lots are placed in protection zones. Although the protected portion of Resource Site 73 is small, it adjoins resource Site 74 to form an important large forest center. These protection zones are on the natural portions of the creek, on native forests, and on a stand rare Dawn redwoods. A rare deciduous conifer thought to be extinct since the Pleistocene, but discovered in China in the early 20th Century. Because these trees are a "living fossil" and because they have educational value in the park, a decision was made to protect them.

The following chart is a summary of these decisions

Base Zoning	Estimated Acreage Affected by EC Zone	Estimated Acreage Affected by EP Zone
R5	0.50	0.21
OS	1	1

Since all residential lots are developed, there is no loss in housing potential.

Resource Site 74
This is a 196 Acre site in Lower Macleay Park. It includes the downstream section of Balch Creek that is not surrounded by park lawn or flood control structures. Almost all of this site is forested, and this forest contains a full-year trout stream and two hiking trails. Identified conflicting uses include agriculture, forestry, landscaping, off-trail recreation, trail maintenance, and public utilities. Other identified conflicts are such as camp sites, trash dumping, and speeding traffic are not "conflicting uses" within the meaning of the Statewide Goal 5 administrative rule because they are already contrary to City Law. Housing is not a conflicting use because, even though the base zones are residential farm and forest, residential structures are prohibited by Open Space Comprehensive Plan designations. This land was not identified as needed for urban uses by the Buildable Lands Analysis conducted for Goal 10 periodic review.

Conclusion
Resource protection of the creek and forests would result in positive ESEE consequences. There are five existing homes in this resource site. Resource conservation would allow minor expansion of these homes, but no new structures would be allowed. Limiting this conflicting use would have positive environmental consequences but negative economic and social consequences. Prohibiting development in forests would have negative energy consequences by precluding a source of firewood.

Decision
The general decision is to manage the Balch Creek Watershed as a whole in order to preserve the fish, wildlife, storm water detention, flood control, and water quality values of a native forest and trout stream. These values are preserved through the following strategy.

- Conserving forest edges and protecting forest centers, which in turn moves allowed development from the center of the watershed to the edges.
- Placing all land within 50 feet of the centerline of Balch Creek and its tributaries, including seasonal drainageways and topographic lows, in environmental protection zones.
- Placing the most significant native forests in environmental protection zones.
- Placing other significant forests are placed in conservation zones.
- Limiting development within environmental zones to a dry building season.
- Limiting how much forest can be removed on any building site.
- Restricting agriculture and forest uses to ten percent of site area.

This strategy manages the watershed as a whole, and recognizes that it impossible to preserve fish populations by just protecting those stream segments where fish are present year round. Riparian buffers fifty feet wide are established to stabilize stream banks, trap eroding soil and pollutants, and to provide a canopy to keep the water cool enough for trout. These buffers, in and of themselves, would be insufficient to protect trout, but they are supplemented by upland environmental

zones. The environmental zones that cover upland forest control the intensity and length of flooding and ensure that fish and food organisms are not swept out of the stream. These measures also protect spawning gravel and provide the proper quantity and quality of water, particularly in the dry summer months. The Balch Creek trout population has maintained itself in a stable population of about 2,000 fish since the 1930's. Balch Creek is physically separated from other water bodies, so it is imperative to maintain existing stocks and habitat through the management of the entire watershed. The creeks and forests described in the individual resource sites form an ecological whole.

This watershed management scheme also provides contiguous stretches of native forests for upland wildlife. Urban areas often have abundant forest "edges", and these edges do benefit some wildlife species. What is rare in urban forests are "centers" of enough area to provide native forest values. When a forest is 1200 feet in diameter and covers about 30 acres it begins to establish its own microclimate. The area in the "center" of the forest is darker, cooler, and wetter than the edges. This microclimate effects becomes more pronounced the larger and older a forest gets. Many of the resource sites are contiguous and form forest clumps much larger than 30 acres. These contiguous forests are very important because they can support species with large habitat requirements. Forest centers select for native plants, which in turn provide the proper food and cover for native wildlife. There is also a "sponge effect" through which forest centers store water in the winter and release it slowly into streams during the dry summer months. The Balch Creek watershed is one of the few places in the City with enough large forest centers to support native populations of deer and elk. The environmental zone boundaries are drawn to provide contiguous cover between forest centers. Without associated centers, forest edges are of little value to larger wildlife species.

In Resource Site 74 the general scheme is applied to forest and stream resources as follows.

Allow Conflicting Uses Fully
No decisions were made to fully allow conflicting uses.

Limit Conflicting Uses
The uphill, developed portions of five residential lots were placed in an environmental conservation zone. Agriculture and forestry are limited to 10% of total site area.

Prohibit Conflicting Uses
All of the forest and the creek were placed in an environmental protection zone. Special approval criteria have been included to govern the adverse affects of trail and utility maintenance.

The following is a chart of these decisions.

Base Zoning	Estimated Acreage Affected by EC Zone	Estimated Acreage Affected by EP Zone
OS	16	180

Since the entire site is designated open space, there is no loss of housing potential.

Resource Site 75
This is a 23 acre site that includes the Portland Audubon Society's Pittock Bird Sanctuary. The site is a second growth forest that contains some first growth trees. This forest contains a full-year stream with a hardwood riparian gallery. The Audubon property contains numerous trails and an artificial pond. The Audubon Society has three buildings and a parking lot in this site, there are no houses, and there is no remaining housing potential because of an existing Open Space Comprehensive Plan designation. This land was not identified as needed for urban uses by the Buildable Lands Analysis conducted in 1987 for Goal 10 periodic review.

Conclusion
Resource protection of the creek and forest would have positive ESEE consequences. Limiting future Audubon building to expansions of existing structures would degrade some environmental values, but would have positive economic and social consequences. Prohibiting and limiting development within forests would have negative energy consequences by precluding a source of fire wood.

Decision
The general decision is to manage the Balch Creek Watershed as a whole in order to preserve the fish, wildlife, storm water detention, flood control, and water quality values of a native forest and trout stream. These values are preserved through the following strategy.

- Conserving forest edges and protecting forest centers, which in turn moves allowed development from the center of the watershed to the edges.
- Placing all land within 50 feet of the centerline of Balch Creek and its tributaries, including seasonal drainageways and topographic lows, in environmental protection zones.
- Placing the most significant native forests in environmental protection zones.
- Placing other significant forests are placed in conservation zones.
- Limiting development within environmental zones to a dry building season.
- Limiting how much forest can be removed on any building site.
- Restricting agriculture and forest uses to ten percent of site area.

This strategy manages the watershed as a whole, and recognizes that it impossible to preserve fish populations by just protecting those stream segments where fish are present year round. Riparian buffers fifty feet wide are established to stabilize stream banks, trap eroding soil and pollutants, and to provide a canopy to keep the water cool enough for trout. These buffers, in and of themselves, would be insufficient to protect trout, but they are supplemented by upland environmental zones. The environmental zones that cover upland forest control the intensity and length of flooding and ensure that fish and food organisms are not swept out of the stream. These measures also protect spawning gravel and provide the proper quantity and quality of water, particularly in the dry summer months. The Balch Creek trout population has maintained itself in a stable population of about 2,000 fish since the 1930's. Balch Creek is physically separated from other water bodies, so

it is imperative to maintain existing stocks and habitat through the management of the entire watershed. The creeks and forests described in the individual resource sites form an ecological whole.

This watershed management scheme also provides contiguous stretches of native forests for upland wildlife. Urban areas often have abundant forest "edges", and these edges do benefit some wildlife species. What is rare in urban forests are "centers" of enough area to provide native forest values. When a forest is 1200 feet in diameter and covers about 30 acres it begins to establish its own microclimate. The area in the "center" of the forest is darker, cooler, and wetter than the edges. This microclimate effects becomes more pronounced the larger and older a forest gets. Many of the resource sites are contiguous and form forest clumps much larger than 30 acres. These contiguous forests are very important because they can support species with large habitat requirements. Forest centers select for native plants, which in turn provide the proper food and cover for native wildlife. There is also a "sponge effect" through which forest centers store water in the winter and release it slowly into streams during the dry summer months. The Balch Creek watershed is one of the few places in the City with enough large forest centers to support native populations of deer and elk. The environmental zone boundaries are drawn to provide contiguous cover between forest centers. Without associated centers, forest edges are of little value to larger wildlife species.

Conflicting uses arise in resource 75 from intensive use of the sanctuary. These uses degrade wildlife and fishery values. The use of two existing water rights to fill an artificial pond is a particular problem. The general scheme is applied as follows.

Allow Conflicting Uses Fully
No decisions were made to fully allow conflicting uses.

Limit Conflicting Uses
A small area in hairpin loop of NW 53rd Drive had lower habitat values than the rest of the site and was placed in an environmental conservation zone. A strip of land south of Cornell road was also placed in an environmental conservation zone. This strip contains the existing Audubon Society structures. The configuration of this zone will allow slight expansions of the existing buildings. While the City is powerless to terminate an existing water right, it is possible that these rights might be surrendered as mitigation for future building expansions. Agriculture and forestry are limited to ten percent of site area.

Prohibit Conflicting Uses
All of the forest and the creek were placed in an environmental protection zone. Special approval criteria have been included to govern the adverse affects of trail and utility maintenance.

The following is a chart of these decisions.

Base Zoning	Estimated Acreage Affected by EC Zone	Estimated Acreage Affected by EP Zone
OS	3	20
FF	0.18	0

There is no loss of housing potential because all but a tiny fraction of the site is designated open space. The only residential parcel is less than one-tenth the required lot size, and has no access to sewer or water. This parcel is an artifact of a road re-alignment project and is not suitable for residential development

Resource Site 76
This site contains portions of Upper Macleay Park and other properties between, south, and east of the two NW Cornell Road Tunnels. The total area of the site is 91 acres. Over eighty of these acres contain high quality forests. This forest is late second growth with two old growth patches. The forest is in late succession and has developed a shade tolerant under-story. This site is a crucial "bottle neck" in the annual elk migration between Forest Park and Washington Park. The site also contains an abandoned gravel quarry and two full year tributaries to Balch Creek. The site has a mixture of open space and R7 residential comprehensive plan designations. Conflicting uses include new residential structures, farm and forest uses, intensive recreation and street and utility maintenance practices. The abandoned quarry was not identified as a significant resource in the 1988 Mineral and Aggregate Resource Inventory conducted for periodic review. None of this site was identified as needed for housing in the Buildable lands Analysis conducted in 1987 for Goal 10 periodic review because the land was either designated open space, or had slopes exceeding 30%.

Conclusion
Protection of the creek tributaries and forests in open space would result in positive ESEE consequences. The protection of the forested slopes of residential lots would result in positive environmental consequences, but negative economic consequences and social. Limiting residential development to the upper edge of the watershed also has negative consequences. Land use regulations limit the area of building sites and restrict the choice of construction methods. Mitigation is often required. These regulations increases the cost of housing, and higher housing costs have adverse economic and social consequences.

Decision
The general decision is to manage the Balch Creek Watershed as a whole in order to preserve the fish, wildlife, storm water detention, flood control, and water quality values of a native forest and trout stream. These values are preserved through the following strategy.

- Conserving forest edges and protecting forest centers, which in turn moves allowed development from the center of the watershed to the edges.
- Placing all land within 50 feet of the centerline of Balch Creek and its tributaries, including seasonal drainageways and topographic lows, in environmental protection zones.
- Placing the most significant native forests in environmental protection zones.
- Placing other significant forests are placed in conservation zones.
- Limiting development within environmental zones to a dry building season.
- Limiting how much forest can be removed on any building site.
- Restricting agriculture and forest uses to ten percent of site area.

This strategy manages the watershed as a whole, and recognizes that it impossible to preserve fish populations by just protecting those stream segments where fish are

present year round. Riparian buffers fifty feet wide are established to stabilize stream banks, trap eroding soil and pollutants, and to provide a canopy to keep the water cool enough for trout. These buffers, in and of themselves, would be insufficient to protect trout, but they are supplemented by upland environmental zones. The environmental zones that cover upland forest control the intensity and length of flooding and ensure that fish and food organisms are not swept out of the stream. These measures also protect spawning gravel and provide the proper quantity and quality of water, particularly in the dry summer months. The Balch Creek trout population has maintained itself in a stable population of about 2,000 fish since the 1930's. Balch Creek is physically separated from other water bodies, so it is imperative to maintain existing stocks and habitat through the management of the entire watershed. The creeks and forests described in the individual resource sites form an ecological whole.

This watershed management scheme also provides contiguous stretches of native forests for upland wildlife. Urban areas often have abundant forest "edges", and these edges do benefit some wildlife species. What is rare in urban forests are "centers" of enough area to provide native forest values. When a forest is 1200 feet in diameter and covers about 30 acres it begins to establish its own microclimate. The area in the "center" of the forest is darker, cooler, and wetter than the edges. This microclimate effects becomes more pronounced the larger and older a forest gets. Many of the resource sites are contiguous and form forest clumps much larger than 30 acres. These contiguous forests are very important because they can support species with large habitat requirements. Forest centers select for native plants, which in turn provide the proper food and cover for native wildlife. There is also a "sponge effect" through which forest centers store water in the winter and release it slowly into streams during the dry summer months. The Balch Creek watershed is one of the few places in the City with enough large forest centers to support native populations of deer and elk. The environmental zone boundaries are drawn to provide contiguous cover between forest centers. Without associated centers, forest edges are of little value to larger wildlife species.

In Resource Site 76 this general scheme is applied to forests, critical wildlife migration areas, and tributary streams as follows.

Allow Conflicting Uses Fully
No decisions were made to fully allow conflicting uses.

Limit Conflicting Uses
The upper portions of residential lots and the abandoned gravel quarry were placed in environmental conservation zones.

Prohibit Conflicting Uses
The tops of the Cornell Road Tunnels, the forest, tributary creeks, and the lower, steeper portions of residential lots were placed in environmental protection zones. There are three residential lots west of NW Luray Terrace where the protection zone

covers almost all of the lots. This was done to protect the critical migration route "bottleneck" over the top of the tunnel. This "over the tunnel" route protects deer, elk, and other wildlife from traffic on Cornell Road. This road carries more traffic than it is classified for, and this traffic routinely violates posted speed limits.

The following chart is a summary of these decisions.

Base Zoning	Estimated Acreage Affected by EC Zone	Estimated Acreage Affected by EP Zone
OS	1	70
R7	10	10

Resource Site 77
Resource Site 77 is the area west of the Cornell Road Tunnels that contains Adams Park, portions of Upper Macleay Park, and other properties. The site area is 30 acres, and over half this area is forested. The forest on the east side of the resource site is of a higher quality than the west. The forest is second growth conifers with some first growth trees; these trees are among the largest in the City. An intermittent stream with a coniferous riparian gallery runs through this forest. Conflicting uses include intensive recreation, forestry, agriculture (the site has a community garden), residential development, and the maintenance of utilities and rights-of-way. Other identified problems such as speeding traffic and trash dumping are not "conflicting uses" with the meaning of the Goal 5 administrative rule because they are not allowed by City Law. The eastern portion of the site has an Open Space Comprehensive plan designation while the western portion is zoned Residential Farm and Forest. No portion of this site was identified as needed for urban uses by the Buildable Lands Analysis conducted in 1987 for Goal 10 periodic review.

Conclusion
Resource protection of the intermittent stream and forest on the east side of the site would result in positive ESEE consequences. Limiting conflicting uses in the western portion of the site would have positive environmental consequences, but negative social and economic consequences. Proposed use regulations would make housing more expensive by limiting construction options and requiring mitigation. Limiting use of the community garden would have adverse social consequences. Prohibiting and limiting development within forests will have detrimental energy consequences by precluding a source of fire wood.

Decision
The general decision is to manage the Balch Creek Watershed as a whole in order to preserve the fish, wildlife, storm water detention, flood control, and water quality values of a native forest and trout stream. These values are preserved through the following strategy.

- Conserving forest edges and protecting forest centers, which in turn moves allowed development from the center of the watershed to the edges.
- Placing all land within 50 feet of the centerline of Balch Creek and its tributaries, including seasonal drainageways and topographic lows, in environmental protection zones.
- Placing the most significant native forests in environmental protection zones.
- Placing other significant forests are placed in conservation zones.
- Limiting development within environmental zones to a dry building season.
- Limiting how much forest can be removed on any building site.
- Restricting agriculture and forest uses to ten percent of site area.

This strategy manages the watershed as a whole, and recognizes that it impossible to preserve fish populations by just protecting those stream segments where fish are present year round. Riparian buffers fifty feet wide are established to stabilize

stream banks, trap eroding soil and pollutants, and to provide a canopy to keep the water cool enough for trout. These buffers, in and of themselves, would be insufficient to protect trout, but they are supplemented by upland environmental zones. The environmental zones that cover upland forest control the intensity and length of flooding and ensure that fish and food organisms are not swept out of the stream. These measures also protect spawning gravel and provide the proper quantity and quality of water, particularly in the dry summer months. The Balch Creek trout population has maintained itself in a stable population of about 2,000 fish since the 1930's. Balch Creek is physically separated from other water bodies, so it is imperative to maintain existing stocks and habitat through the management of the entire watershed. The creeks and forests described in the individual resource sites form an ecological whole.

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In resource Site 77 this general decision was applied to the intermittent stream and forest as described below.

Allow Conflicting Uses Fully
No decisions were made to fully allow conflicting uses.

Limit Conflicting Uses
An environmental conservation zone was applied to the southwestern potion of the site. Proposed land use regulations will limit new farm and forest uses to ten percent of site area. There are three existing residences in this area. Construction management and mitigation requirements will apply to expansions of these houses. Special lot size regulations will preclude additional residential development in farm and forest areas.

Prohibit Conflicting Uses

The eastern and northern portions of this site were placed in an environmental conservation zone. This area includes the older, more significant forest and the intermittent stream.

The following chart is a summary of these decisions.

Base Zoning	Estimated Acreage Affected by EC Zone	Estimated Acreage Affected by EP Zone
OS	5	20
FF	3	2

Resource Site 78
Resource Site 78 is eight acres of forest with one residence and access drive. The forest is in the "conifer topping hardwood" stage of second growth. The residence is used by the Portland Audubon Society's caretaker. This site does not have full-year water, but is valued for its good quality forest cover in critical place between unincorporated rural lands and the Audubon Society's Pittock Bird Sanctuary. Conflicting uses include agriculture, forestry, residential development, and the maintenance of rights-of-way and utilities. This site was not identified as needed for urban uses by the Buildable Lands Analysis conducted in 1987 for Goal 10 periodic review.

Conclusion
Resource protection of the forest would result in positive environmental consequences, but would result in negative economic and social consequences by prohibiting two housing units allowed by present zoning. This protection is justified because of the importance of the resources and because the land is not needed for housing under Statewide Planning Goal 10. Limiting conflicting uses would have would have positive environmental consequences, but negative economic and social consequences. Prohibiting and limiting development within forests would have negative economic consequences by precluding a source of firewood.

Decision
The general decision is to manage the Balch Creek Watershed as a whole in order to preserve the fish, wildlife, storm water detention, flood control, and water quality values of a native forest and trout stream. These values are preserved through the following strategy.

- Conserving forest edges and protecting forest centers, which in turn moves allowed development from the center of the watershed to the edges.
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- Limiting how much forest can be removed on any building site.
- Restricting agriculture and forest uses to ten percent of site area.

This strategy manages the watershed as a whole, and recognizes that it impossible to preserve fish populations by just protecting those stream segments where fish are present year round. Riparian buffers fifty feet wide are established to stabilize stream banks, trap eroding soil and pollutants, and to provide a canopy to keep the water cool enough for trout. These buffers, in and of themselves, would be insufficient to protect trout, but they are supplemented by upland environmental zones. The environmental zones that cover upland forest control the intensity and

length of flooding and ensure that fish and food organisms are not swept out of the stream. These measures also protect spawning gravel and provide the proper quantity and quality of water, particularly in the dry summer months. The Balch Creek trout population has maintained itself in a stable population of about 2,000 fish since the 1930's. Balch Creek is physically separated from other water bodies, so it is imperative to maintain existing stocks and habitat through the management of the entire watershed. The creeks and forests described in the individual resource sites form an ecological whole.

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In resource site 78 this general scheme was applied in the following manner.

Allow Conflicting Uses Fully
No decisions were made to fully allow conflicting uses.

Limit Conflicting Uses
The southern part of the site containing younger, second growth forest was placed in an environmental conservation zone. This area contains one house. Special lot size regulations will preclude two additional housing units allowed by present zoning. This area is not within the Urban Growth Boundary, and has not been identified as needed for housing. Land use regulations will limit agriculture and forestry to ten percent of site area.

Prohibit Conflicting Uses
The older, higher quality forests, in the critical place across the bend in Cornell Road from the Pittock Bird Sanctuary and adjoining unincorporated rural land was placed in an environmental protection zone. This zone does not result in the loss of any housing density.

The following chart is a summary of these decisions.

Base Zoning	Estimated Acreage Affected by EC Zone	Estimated Acreage Affected by EP Zone
FF	6	2

Resource Site 79
Resource Site 79 is divided into two parts by unincorporated rural land. The two parts and the unincorporated area are all very similar in forest cover, topography, and development pattern, so the two parts function as one resource area. The total area of the site is nine acres. The upper, southern portion of the site has forest fragmented by six residences and ornamental plantings. The slopes become steeper downhill to the north, and the forests on these steep slopes are older, more contiguous, and of higher quality (more conifers and fewer hardwoods) than the uphill forests. These forests adjoin coniferous forests in City Parks and Audubon sanctuaries ant the northern boundary of the resource site. Most of the site is zoned residential farm and forest, but portions of the three lots are zoned R10. Identified conflicting uses include agriculture, forestry, residential development, and the maintenance of rights-of-way and utilities. None of the farm and forest portion of the site was identified as needed for urban uses by the Buildable lands Analysis conducted in 1987 for Goal 5 periodic review.

Conclusion
Resource protection of the down-slope forests would result in positive ESEE consequences. Limiting development in the up-slope forest edges would have positive environmental consequences, but negative social and economic consequences. The unforested upper edge of the watershed may be excluded from conservation or protection. The unregulated edge will have positive economic and social consequences with minimal harm to the environment. Conserving and protecting forests will have negative energy consequences by precluding a source of fire wood.

Decision
The general decision is to manage the Balch Creek Watershed as a whole in order to preserve the fish, wildlife, storm water detention, flood control, and water quality values of a native forest and trout stream. These values are preserved through the following strategy.

- Conserving forest edges and protecting forest centers, which in turn moves allowed development from the center of the watershed to the edges.
- Placing all land within 50 feet of the centerline of Balch Creek and its tributaries, including seasonal drainageways and topographic lows, in environmental protection zones.
- Placing the most significant native forests in environmental protection zones.
- Placing other significant forests are placed in conservation zones.
- Limiting development within environmental zones to a dry building season.
- Limiting how much forest can be removed on any building site.
- Restricting agriculture and forest uses to ten percent of site area.

This strategy manages the watershed as a whole, and recognizes that it impossible to preserve fish populations by just protecting those stream segments where fish are present year round. Riparian buffers fifty feet wide are established to stabilize

stream banks, trap eroding soil and pollutants, and to provide a canopy to keep the water cool enough for trout. These buffers, in and of themselves, would be insufficient to protect trout, but they are supplemented by upland environmental zones. The environmental zones that cover upland forest control the intensity and length of flooding and ensure that fish and food organisms are not swept out of the stream. These measures also protect spawning gravel and provide the proper quantity and quality of water, particularly in the dry summer months. The Balch Creek trout population has maintained itself in a stable population of about 2,000 fish since the 1930's. Balch Creek is physically separated from other water bodies, so it is imperative to maintain existing stocks and habitat through the management of the entire watershed. The creeks and forests described in the individual resource sites form an ecological whole.

This watershed management scheme also provides contiguous stretches of native forests for upland wildlife. Urban areas often have abundant forest "edges", and these edges do benefit some wildlife species. What is rare in urban forests are "centers" of enough area to provide native forest values. When a forest is 1200 feet in diameter and covers about 30 acres it begins to establish its own microclimate. The area in the "center" of the forest is darker, cooler, and wetter than the edges. This microclimate effects becomes more pronounced the larger and older a forest gets. Many of the resource sites are contiguous and form forest clumps much larger than 30 acres. These contiguous forests are very important because they can support species with large habitat requirements. Forest centers select for native plants, which in turn provide the proper food and cover for native wildlife. There is also a "sponge effect" through which forest centers store water in the winter and release it slowly into streams during the dry summer months. The Balch Creek watershed is one of the few places in the City with enough large forest centers to support native populations of deer and elk. The environmental zone boundaries are drawn to provide contiguous cover between forest centers. Without associated centers, forest edges are of little value to larger wildlife species.

In Resource Site 79 this general scheme is applied as follows.

Allow Conflicting Uses Fully
Developed residential land at the east end of NW Hilltop Drive was not included in environmental zones.

Limit Conflicting Uses
Edge forest on the north and west end of NW Hilltop Drive was placed in an environmental conservation zone. Special lot size limitations were applied to farm and forest land, and land use regulations will limit total agriculture and forestry to ten percent of site area. Because no new divisions of farm and forest land will be allowed there is a theoretical loss of two housing units. Each lot in this site already has a house, or will be allowed to have a house.

Prohibit Conflicting Uses

The down-slope forest was placed in an environmental protection zone. These slopes contain the older more important forests, and form an important forest center by adjoining other protected forests in Resource Sites 77 and 78.

Base Zoning	Estimated Acreage Affected by EC Zone	Estimated Acreage Affected by EP Zone
FF	7	13
R10	4	0

Resource Site 80
Resource Site 80 contains 29 acres of second growth forest at the southern edge of the Balch Creek Watershed. This forest is at the conifer topping hardwood stage of succession. Resource 80 is crossed by three deep ravines which contain intermittent tributaries of Balch Creek. All of the resource site is zoned R20 residential. Conflicting uses in Resource Site 80 include agriculture and forestry, residential development, and the maintenance of utilities and rights-of-way. Even though most of the site was zoned residential, steep slopes prevented it from being identified as needed for urban uses by Buildable Lands Analysis conducted in 1987 for Goal 10 periodic review.

Conclusion
Protecting the forested ravines in Resource Site 80 would have positive ESEE consequences. Limiting development in the forest edge along W. Burnside would have positive environmental consequences, but negative economic and social consequences. Conserving and protecting forest land has negative energy consequences by precluding a source of firewood.

Decision
The general decision is to manage the Balch Creek Watershed as a whole in order to preserve the fish, wildlife, storm water detention, flood control, and water quality values of a native forest and trout stream. These values are preserved through the following strategy.

- Conserving forest edges and protecting forest centers, which in turn moves allowed development from the center of the watershed to the edges.
- Placing all land within 50 feet of the centerline of Balch Creek and its tributaries, including seasonal drainageways and topographic lows, in environmental protection zones.
- Placing the most significant native forests in environmental protection zones.
- Placing other significant forests are placed in conservation zones.
- Limiting development within environmental zones to a dry building season.
- Limiting how much forest can be removed on any building site.
- Restricting agriculture and forest uses to ten percent of site area.

This strategy manages the watershed as a whole, and recognizes that it impossible to preserve fish populations by just protecting those stream segments where fish are present year round. Riparian buffers fifty feet wide are established to stabilize stream banks, trap eroding soil and pollutants, and to provide a canopy to keep the water cool enough for trout. These buffers, in and of themselves, would be insufficient to protect trout, but they are supplemented by upland environmental zones. The environmental zones that cover upland forest control the intensity and length of flooding and ensure that fish and food organisms are not swept out of the stream. These measures also protect spawning gravel and provide the proper quantity and quality of water, particularly in the dry summer months. The Balch Creek trout population has maintained itself in a stable population of about 2,000

fish since the 1930's. Balch Creek is physically separated from other water bodies, so it is imperative to maintain existing stocks and habitat through the management of the entire watershed. The creeks and forests described in the individual resource sites form an ecological whole.

This watershed management scheme also provides contiguous stretches of native forests for upland wildlife. Urban areas often have abundant forest "edges", and these edges do benefit some wildlife species. What is rare in urban forests are "centers" of enough area to provide native forest values. When a forest is 1200 feet in diameter and covers about 30 acres it begins to establish its own microclimate. The area in the "center" of the forest is darker, cooler, and wetter than the edges. This microclimate effects becomes more pronounced the larger and older a forest gets. Many of the resource sites are contiguous and form forest clumps much larger than 30 acres. These contiguous forests are very important because they can support species with large habitat requirements. Forest centers select for native plants, which in turn provide the proper food and cover for native wildlife. There is also a "sponge effect" through which forest centers store water in the winter and release it slowly into streams during the dry summer months. The Balch Creek watershed is one of the few places in the City with enough large forest centers to support native populations of deer and elk. The environmental zone boundaries are drawn to provide contiguous cover between forest centers. Without associated centers, forest edges are of little value to larger wildlife species.

In Resource Site 80 this general scheme is applied as follows.

Allow Conflicting Uses Fully
No decisions were made to allow conflicting uses.

Limit Conflicting Uses
The edge forest on the north side of W. Burnside was placed in an environmental conservation zone. Two existing houses were placed in the conservation zone, as were 57 other possible building sites. Construction management and mitigation regulations will add to the cost of this housing, but there is no loss of future housing potential.

Prohibit Conflicting Uses
The ravines were placed in environmental protection zones. The protection of forest these ravines will stabilize slope hazards and protect downstream fisheries values. This protection does not reduce housing opportunities because each lot in Resource Site 80 has most of its area within a conservation zone.

The following chart is a summary of these decisions.

Base Zoning	Estimated Acreage Affected by EC Zone	Estimated Acreage Affected by EP Zone
R20	20	9

Resource Site 81
Resource Site 81 contains 65 acres of land, mostly at the southern edge of the Balch Creek Watershed. This land contains a cemetery and a second growth forest. The forest is of high quality and forms an important forest center by adjoining forests on unincorporated rural lands. Past development in the cemetery caused a landslide into the center of the Watershed. This slide took down large fir trees on Audubon property and deposited silt in a tributary of Balch Creek. Conflicting uses in this site include The entire site is designated open space, and was therefore not identified as needed for urban uses by the Buildable Lands Analysis conducted in 1987 for Goal 10 periodic review.

Conclusion
Protection of the forested slopes north of the developed portion of the cemetery would result in positive ESEE consequences. Limiting development in the portion of the cemetery adjoining the forested slope would have positive environmental consequences, but negative social and economic consequences. Allowing conflicting uses on the portion of the cemetery adjoining W. Burnside would have positive ESEE consequences. The protection of the forested slope within the northern portion of Resource Site 81 would have negative energy consequences by precluding a source of firewood.

Decision
The general decision is to manage the Balch Creek Watershed as a whole in order to preserve the fish, wildlife, storm water detention, flood control, and water quality values of a native forest and trout stream. These values are preserved through the following strategy.

- Conserving forest edges and protecting forest centers, which in turn moves allowed development from the center of the watershed to the edges.
- Placing all land within 50 feet of the centerline of Balch Creek and its tributaries, including seasonal drainageways and topographic lows, in environmental protection zones.
- Placing the most significant native forests in environmental protection zones.
- Placing other significant forests are placed in conservation zones.
- Limiting development within environmental zones to a dry building season.
- Limiting how much forest can be removed on any building site.
- Restricting agriculture and forest uses to ten percent of site area.

This strategy manages the watershed as a whole, and recognizes that it impossible to preserve fish populations by just protecting those stream segments where fish are present year round. Riparian buffers fifty feet wide are established to stabilize stream banks, trap eroding soil and pollutants, and to provide a canopy to keep the water cool enough for trout. These buffers, in and of themselves, would be insufficient to protect trout, but they are supplemented by upland environmental zones. The environmental zones that cover upland forest control the intensity and length of flooding and ensure that fish and food organisms are not swept out of the

stream. These measures also protect spawning gravel and provide the proper quantity and quality of water, particularly in the dry summer months. The Balch Creek trout population has maintained itself in a stable population of about 2,000 fish since the 1930's. Balch Creek is physically separated from other water bodies, so it is imperative to maintain existing stocks and habitat through the management of the entire watershed. The creeks and forests described in the individual resource sites form an ecological whole.

This watershed management scheme also provides contiguous stretches of native forests for upland wildlife. Urban areas often have abundant forest "edges", and these edges do benefit some wildlife species. What is rare in urban forests are "centers" of enough area to provide native forest values. When a forest is 1200 feet in diameter and covers about 30 acres it begins to establish its own microclimate. The area in the "center" of the forest is darker, cooler, and wetter than the edges. This microclimate effects becomes more pronounced the larger and older a forest gets. Many of the resource sites are contiguous and form forest clumps much larger than 30 acres. These contiguous forests are very important because they can support species with large habitat requirements. Forest centers select for native plants, which in turn provide the proper food and cover for native wildlife. There is also a "sponge effect" through which forest centers store water in the winter and release it slowly into streams during the dry summer months. The Balch Creek watershed is one of the few places in the City with enough large forest centers to support native populations of deer and elk. The environmental zone boundaries are drawn to provide contiguous cover between forest centers. Without associated centers, forest edges are of little value to larger wildlife species.

Allow Conflicting Uses Fully
No environmental zones were placed on the portion of cemetery along W. Burnside and a portion of NW Skyline.

Limit Conflicting Uses
Developed portions of the cemetery retaining large native trees in the landscaping were placed in an environmental conservation zone. Land use regulations will restrict the sizes of mausoleums and other cemetery buildings, but grave sites will not be affected. These regulations will, however, protect open space and scenic values.

Prohibit Conflicting Uses
The native forest on the slope downhill from the developed cemetery and a drainage at the west end of the site were placed in an environmental protection zone. Land use regulations will prohibit cemetery expansion within this area.

The following chart describes these decisions.

Base Zoning	Estimated Acreage Affected by EC Zone	Estimated Acreage Affected by EP Zone
OS	20	30

Resource Site 82
Resource Site 82 is an 43 acre area that includes the Royal Highlands and Barnes Park Subdivisions. The site has both farm and forest and R20 residential zoning. The Royal Highlands Subdivision had a failing sewage treatment plant that was recently replaced by City sewage pumping station. The western portion of the Royal Highlands is developed at R20 density the eastern portion is a native second growth forest center (the center is formed with open space forest in Resource Site 81 and adjoining Audubon Sanctuary forest on rural lands) that contains several steep ravines. The Barnes Heights Subdivision contains houses on large lots on a forested slope. This is an edge forest that is separated from forest centers by the developed portion of the Royal Highland Subdivision. Identified conflicting uses include agriculture and forestry, residential development, and the maintenance of rights-of-way and utilities. Because of steep slopes, this land was not identified as needed for urban uses by the Buildable Lands Analysis conducted in 1987 for Goal 10 periodic review.

Conclusion
Protection of forests and ravines will result in mostly positive ESEE consequences, but will have some negative economic and social consequences by prohibiting houses on three platted lots within the Royal Highlands Subdivision. This prohibition also has positive economic and social consequences by preventing the documented nuisances of development in a severe landslide hazard and in an area sited by the Oregon Department of Environmental Quality for Clean Water Act violations. Limiting development in the remainder of the Royal Highlands Subdivision and the portion of the Barnes Heights Subdivision without access to a sanitary sewer will have positive environmental consequences, but negative economic and social consequences. Construction management and mitigation regulations will add to the cost of housing. Farm and forest uses will also be restricted to ten percent of site area. Fully allowing development within the portions of the Barnes Heights subdivision with access to the sewage pumping station will have positive economic and social consequences. Energy consequences in Barnes Heights will also be positive because of the efficiencies in serving clustered compact development. The negative environmental consequences of allowed development in Barnes Heights will be limited to the degradation of a scenic corridor along NW Skyline Boulevard. Prohibiting and limiting development within forest will have negative energy consequences by precluding a source of firewood.

Decision
The general decision is to manage the Balch Creek Watershed as a whole in order to preserve the fish, wildlife, storm water detention, flood control, and water quality values of a native forest and trout stream. These values are preserved through the following strategy.

- Conserving forest edges and protecting forest centers, which in turn moves allowed development from the center of the watershed to the edges.

- Placing all land within 50 feet of the centerline of Balch Creek and its tributaries, including seasonal drainageways and topographic lows, in environmental protection zones.
- Placing the most significant native forests in environmental protection zones.
- Placing other significant forests are placed in conservation zones.
- Limiting development within environmental zones to a dry building season.
- Limiting how much forest can be removed on any building site.
- Restricting agriculture and forest uses to ten percent of site area.

This strategy manages the watershed as a whole, and recognizes that it impossible to preserve fish populations by just protecting those stream segments where fish are present year round. Riparian buffers fifty feet wide are established to stabilize stream banks, trap eroding soil and pollutants, and to provide a canopy to keep the water cool enough for trout. These buffers, in and of themselves, would be insufficient to protect trout, but they are supplemented by upland environmental zones. The environmental zones that cover upland forest control the intensity and length of flooding and ensure that fish and food organisms are not swept out of the stream. These measures also protect spawning gravel and provide the proper quantity and quality of water, particularly in the dry summer months. The Balch Creek trout population has maintained itself in a stable population of about 2,000 fish since the 1930's. Balch Creek is physically separated from other water bodies, so it is imperative to maintain existing stocks and habitat through the management of the entire watershed. The creeks and forests described in the individual resource sites form an ecological whole.

This watershed management scheme also provides contiguous stretches of native forests for upland wildlife. Urban areas often have abundant forest "edges", and these edges do benefit some wildlife species. What is rare in urban forests are "centers" of enough area to provide native forest values. When a forest is 1200 feet in diameter and covers about 30 acres it begins to establish its own microclimate. The area in the "center" of the forest is darker, cooler, and wetter than the edges. This microclimate effects becomes more pronounced the larger and older a forest gets. Many of the resource sites are contiguous and form forest clumps much larger than 30 acres. These contiguous forests are very important because they can support species with large habitat requirements. Forest centers select for native plants, which in turn provide the proper food and cover for native wildlife. There is also a "sponge effect" through which forest centers store water in the winter and release it slowly into streams during the dry summer months. The Balch Creek watershed is one of the few places in the City with enough large forest centers to support native populations of deer and elk. The environmental zone boundaries are drawn to provide contiguous cover between forest centers. Without associated centers, forest edges are of little value to larger wildlife species.

In Resource Site 82 this general scheme is carried out as follows.

Allow Conflicting Uses Fully

The portion of the Barnes Heights Subdivision that can drain to the new city sewage pumping station was not included in environmental zones. Because urban services are now available to this portion the Comprehensive plan designation has been changed from Farm and Forest to R10 Residential. This increases allowed housing 38 units along the edge of the Balch Creek Watershed. This gain more than compensates for housing lost in the center of the watershed due to special lot size restrictions and environmental protection zones.

Limit Conflicting Uses

All but three lots in the Royal Highlands Subdivision and the portion of the Barnes Heights Subdivision separated from the new sewage pumping station by a topographic ridge were placed in environmental conservation zones. The Royal Highlands Subdivision and the "over the ridge" portion of Barnes Heights have high resource values because they either contain, or immediately adjoin, important forest centers on rural lands managed by the Portland Audubon Society and the Oregon Parks Foundation.

Prohibit Conflicting Uses

Three entire lots and portions of other lots adjoining the urban growth boundary were placed in environmental protection zones. These lots are in deep ravines that contain tributaries of Balch Creek. This decision was made because the high resource values outweighed the potential housing loss.

The following chart describes these decisions.

Base Zoning	Estimated Acreage Affected by EC Zone	Estimated Acreage Affected by EP Zone
R10	0	0
R20	7	4
FF	5	0

Resource Site 83

Resource Site 83 has an area of 70 acres. The site is divided northern and southern portions by NW Cornell Road. The southern portion contains the main stem and headwaters of Balch Creek. Most of the northern portions drains into the Thompson Brach of Balch Creek. This northern portion contains significant drainages on the north and northwest boundaries of the site. Both portions of the site contain high quality second growth forest, but the southern portion also contains an excellent riparian gallery along a class one stream and remnant first growth trees. The site contains farm and forest zoning, but one lot has commercial zoning. Conflicting uses include agriculture and forestry, residential development, commercial development, and the maintenance of rights-of-way and utilities. Because of steep slopes and flood problems, this land was not identified as needed for urban uses by the Buildable Lands Analysis conducted in 1978 for Goal 10 Periodic Review.

Conclusion

Protection of the creek, drainages, spring fed headwaters, riparian galleries, and forest centers would have mostly positive ESEE consequences, but would result in the possible loss of 16 housing units. This loss is possible because an area of second growth forest placed in an environmental conservation zone is surrounded on the north and west sides by the main stem of Balch Creek, on the east side by the urban growth boundary, and on the south side by urban unincorporated land for which the rights-of-way have been vacated. The creek is in a protection zone and the land use regulations prohibit the crossing of the creek. Even if a crossing were allowed, the crossing would be on curved, north-facing 22° slope near the 1,000 foot elevation that would be iced over for weeks every winter. This would make emergency vehicle access impossible. Housing without fire suppression is a nuisance. It is questionable whether an access road could be built on rural lands to support development within the urban growth boundary. The most plausible option would be to restore the vacated rights-of-way at the southeastern boundary of the resource site, but this matter is not within the City's jurisdiction.

Limiting development in forest edges would have positive environmental consequences but negative social and economic consequences. Additional housing costs would be incurred by construction management and mitigation regulations. A special regulation limiting the commercial zone to commercial development has a possible social and economic costs. This regulation creates a theoretical housing loss of 32 units, because the commercial zone allows apartments at R1 density. This is a theoretical loss only, because existing urban services, particularly sanitary sewers, will not support this level of development, and the provision of such services is not cost effective. The establishment of a neighborhood commercial area will have positive economic and environmental consequences because there are no commercial areas within the Balch Creek Watersheds. Existing residents must drive downtown or to Washington County for commercial needs.

Comprehensive plan map changes from farm and forest to residential R10 for the extreme western edge of Resource Site 83 are proposed because this edge can be served by the Unified Sewage Agency through the Forest Heights and Blue Pointe developments in the adjoining Tualatin Watershed. The change to R10 partially replaces 15 of the 16 units possibly lost to protection zoning. The R10 and commercial areas were not included in environmental zones. This decision has positive economic, social, and energy consequences. Adverse environmental consequences are limited to the degradation of scenic corridors along NW Cornell and NW Skyline.

Decision

The general decision is to manage the Balch Creek Watershed as a whole in order to preserve the fish, wildlife, storm water detention, flood control, and water quality values of a native forest and trout stream. These values are preserved through the following strategy.

- Conserving forest edges and protecting forest centers, which in turn moves allowed development from the center of the watershed to the edges.
- Placing all land within 50 feet of the centerline of Balch Creek and its tributaries, including seasonal drainageways and topographic lows, in environmental protection zones.
- Placing the most significant native forests in environmental protection zones.
- Placing other significant forests are placed in conservation zones.
- Limiting development within environmental zones to a dry building season.
- Limiting how much forest can be removed on any building site.
- Restricting agriculture and forest uses to ten percent of site area.

This strategy manages the watershed as a whole, and recognizes that it impossible to preserve fish populations by just protecting those stream segments where fish are present year round. Riparian buffers fifty feet wide are established to stabilize stream banks, trap eroding soil and pollutants, and to provide a canopy to keep the water cool enough for trout. These buffers, in and of themselves, would be insufficient to protect trout, but they are supplemented by upland environmental zones. The environmental zones that cover upland forest control the intensity and length of flooding and ensure that fish and food organisms are not swept out of the stream. These measures also protect spawning gravel and provide the proper quantity and quality of water, particularly in the dry summer months. The Balch Creek trout population has maintained itself in a stable population of about 2,000 fish since the 1930's. Balch Creek is physically separated from other water bodies, so it is imperative to maintain existing stocks and habitat through the management of the entire watershed. The creeks and forests described in the individual resource sites form an ecological whole.

This watershed management scheme also provides contiguous stretches of native forests for upland wildlife. Urban areas often have abundant forest "edges", and these edges do benefit some wildlife species. What is rare in urban forests are

"centers" of enough area to provide native forest values. When a forest is 1200 feet in diameter and covers about 30 acres it begins to establish its own microclimate. The area in the "center" of the forest is darker, cooler, and wetter than the edges. This microclimate effects becomes more pronounced the larger and older a forest gets. Many of the resource sites are contiguous and form forest clumps much larger than 30 acres. These contiguous forests are very important because they can support species with large habitat requirements. Forest centers select for native plants, which in turn provide the proper food and cover for native wildlife. There is also a "sponge effect" through which forest centers store water in the winter and release it slowly into streams during the dry summer months. The Balch Creek watershed is one of the few places in the City with enough large forest centers to support native populations of deer and elk. The environmental zone boundaries are drawn to provide contiguous cover between forest centers. Without associated centers, forest edges are of little value to larger wildlife species.

In Resource Site 83 this general scheme is applied as follows.

Allow Conflicting Uses Fully
The commercial zone and the redesignated R10 land were not included in environmental zones. These lands are at the extreme western edge of the watershed. This decision provides an increase of 15 housing units.

Limit Conflicting Uses
Edge forests not associated with creeks, springs, or ravines were placed in environmental conservation zones. A commercial sanctuary was established which will prohibit high density residential development in the commercial zone. Agriculture and forestry will be limited to ten percent of site area.

Prohibit Conflicting Uses
In the area south of Cornell Road the main stem of Balch Creek, its spring fed headwater tributaries, the riparian galleries, and the second growth center forests were placed in environmental protection zones. In the area north of Cornell Road second growth forests along ravines and drainageways were placed in environmental protection zones. This decision may result in the loss of 15 housing units if an access problem cannot be solved.

Base Zoning	Estimated Acreage Affected by EC Zone	Estimated Acreage Affected by EP Zone
CN	0	0
R10	0	0
FF	40	20

Resource Site 84
Resource Site 84 contains 52 acres, with about 45 acres of second growth forest. This forest contains several deep ravines and a full-year stream with a hardwood riparian gallery. This stream is the main headwaters of the Thompson Branch of Balch Creek. The Thompson Branch is an important fish bearing stream with spawning gravel. The entire site is zoned for farm and forestry. Conflicting uses include agriculture and forestry, residential development, and the maintenance of rights-of-way and utilities. No portion of this site was identified as needed for urban uses by the Buildable Lands Analysis conducted in 1987 for Goal 10 Periodic Review.

Conclusion
Protection of the creek, ravines, and center forests along the east and southern boundaries of Resource Site (also the City Limits and the Urban Growth Boundary) would have positive ESEE consequences. Limiting conflicting uses in second growth edge forests would have positive environmental consequences but negative social and economic consequences. Land use regulations would increase housing costs by limiting construction methods and requiring mitigation. Leaving the unforested area along the east side of NW Skyline Boulevard out of environmental zones would have positive ESEE consequences.

Decision
The general decision is to manage the Balch Creek Watershed as a whole in order to preserve the fish, wildlife, storm water detention, flood control, and water quality values of a native forest and trout stream. These values are preserved through the following strategy.

- Conserving forest edges and protecting forest centers, which in turn moves allowed development from the center of the watershed to the edges.
- Placing all land within 50 feet of the centerline of Balch Creek and its tributaries, including seasonal drainageways and topographic lows, in environmental protection zones.
- Placing the most significant native forests in environmental protection zones.
- Placing other significant forests are placed in conservation zones.
- Limiting development within environmental zones to a dry building season.
- Limiting how much forest can be removed on any building site.
- Restricting agriculture and forest uses to ten percent of site area.

This strategy manages the watershed as a whole, and recognizes that it impossible to preserve fish populations by just protecting those stream segments where fish are present year round. Riparian buffers fifty feet wide are established to stabilize stream banks, trap eroding soil and pollutants, and to provide a canopy to keep the water cool enough for trout. These buffers, in and of themselves, would be insufficient to protect trout, but they are supplemented by upland environmental zones. The environmental zones that cover upland forest control the intensity and length of flooding and ensure that fish and food organisms are not swept out of the stream. These measures also protect spawning gravel and provide the proper

quantity and quality of water, particularly in the dry summer months. The Balch Creek trout population has maintained itself in a stable population of about 2,000 fish since the 1930's. Balch Creek is physically separated from other water bodies, so it is imperative to maintain existing stocks and habitat through the management of the entire watershed. The creeks and forests described in the individual resource sites form an ecological whole.

This watershed management scheme also provides contiguous stretches of native forests for upland wildlife. Urban areas often have abundant forest "edges", and these edges do benefit some wildlife species. What is rare in urban forests are "centers" of enough area to provide native forest values. When a forest is 1200 feet in diameter and covers about 30 acres it begins to establish its own microclimate. The area in the "center" of the forest is darker, cooler, and wetter than the edges. This microclimate effects becomes more pronounced the larger and older a forest gets. Many of the resource sites are contiguous and form forest clumps much larger than 30 acres. These contiguous forests are very important because they can support species with large habitat requirements. Forest centers select for native plants, which in turn provide the proper food and cover for native wildlife. There is also a "sponge effect" through which forest centers store water in the winter and release it slowly into streams during the dry summer months. The Balch Creek watershed is one of the few places in the City with enough large forest centers to support native populations of deer and elk. The environmental zone boundaries are drawn to provide contiguous cover between forest centers. Without associated centers, forest edges are of little value to larger wildlife species.

In Resource Site 84 this general scheme is applied as follows.

Allow Conflicting Uses Fully
The unforested western edge of the resource site was not included in environmental zones.

Limit Conflicting Uses
Second growth edge forests were included in environmental conservation zones. Land use regulations will restrict agriculture and forestry to ten percent of site area.

Prohibit Conflicting Uses
The Thompson Branch of Balch Creek and the forests surrounding ravines and drainageways were placed in environmental protection zones. These zones form important forest centers with the adjoining forests on unincorporated rural land.

Base Zoning	Estimated Acreage Affected by EC Zone	Estimated Acreage Affected by EP Zone
FF	25	20

Resource Site 85
This is a 78 acre site that includes parts of forest park and in-holdings. The entire site is designated open space. The site has one existing housing unit with no remaining housing potential. Identified significant resources include a very high quality coniferous forest of mixed age that includes some old growth trees, and three full-year tributary streams of Balch Creek. The forest also provides scenic values along NW Thompson and Cornell Roads, and 53rd Avenue. There is only one clearing in the site, and this clearing contains the existing house on NW 53rd Avenue. Conflicting uses in this Resource Site 85 include expansion of the existing house, agriculture and forestry, intensive recreation, and the maintenance of rights-of-way and utilities. Additional housing is not a conflicting use because houses are not allowed in open space zones. Because of the open space designations, this land was not identified as needed for urban uses by the Buildable Lands Analysis conducted in 1987 for Goal 10 periodic review.

Conclusion
Protection of the forest and tributaries would provide positive ESEE consequences. Conservation of the clearing around the existing house would provide positive environmental consequences by limiting impervious surfaces and limiting agriculture and forestry to ten percent of site area. These regulations would have adverse social and economic by making home expansions more expensive. These expansions would have to meet construction management and mitigation standards, and these standards will increase costs. Prohibiting and limiting development in forests will have detrimental energy consequences by precluding a source of firewood.

Decision
The general decision is to manage the Balch Creek Watershed as a whole in order to preserve the fish, wildlife, storm water detention, flood control, and water quality values of a native forest and trout stream. These values are preserved through the following strategy.

- Conserving forest edges and protecting forest centers, which in turn moves allowed development from the center of the watershed to the edges.
- Placing all land within 50 feet of the centerline of Balch Creek and its tributaries, including seasonal drainageways and topographic lows, in environmental protection zones.
- Placing the most significant native forests in environmental protection zones.
- Placing other significant forests are placed in conservation zones.
- Limiting development within environmental zones to a dry building season.
- Limiting how much forest can be removed on any building site.
- Restricting agriculture and forest uses to ten percent of site area.

This strategy manages the watershed as a whole, and recognizes that it impossible to preserve fish populations by just protecting those stream segments where fish are present year round. Riparian buffers fifty feet wide are established to stabilize

stream banks, trap eroding soil and pollutants, and to provide a canopy to keep the water cool enough for trout. These buffers, in and of themselves, would be insufficient to protect trout, but they are supplemented by upland environmental zones. The environmental zones that cover upland forest control the intensity and length of flooding and ensure that fish and food organisms are not swept out of the stream. These measures also protect spawning gravel and provide the proper quantity and quality of water, particularly in the dry summer months. The Balch Creek trout population has maintained itself in a stable population of about 2,000 fish since the 1930's. Balch Creek is physically separated from other water bodies, so it is imperative to maintain existing stocks and habitat through the management of the entire watershed. The creeks and forests described in the individual resource sites form an ecological whole.

This watershed management scheme also provides contiguous stretches of native forests for upland wildlife. Urban areas often have abundant forest "edges", and these edges do benefit some wildlife species. What is rare in urban forests are "centers" of enough area to provide native forest values. When a forest is 1200 feet in diameter and covers about 30 acres it begins to establish its own microclimate. The area in the "center" of the forest is darker, cooler, and wetter than the edges. This microclimate effects becomes more pronounced the larger and older a forest gets. Many of the resource sites are contiguous and form forest clumps much larger than 30 acres. These contiguous forests are very important because they can support species with large habitat requirements. Forest centers select for native plants, which in turn provide the proper food and cover for native wildlife. There is also a "sponge effect" through which forest centers store water in the winter and release it slowly into streams during the dry summer months. The Balch Creek watershed is one of the few places in the City with enough large forest centers to support native populations of deer and elk. The environmental zone boundaries are drawn to provide contiguous cover between forest centers. Without associated centers, forest edges are of little value to larger wildlife species.

In Resource Site 85 this general strategy is applied as follows.

Allow Conflicting Uses Fully
No decisions were made to allow conflicting uses.

Limit Conflicting Uses
The existing home and clearing was placed in an environmental conservation zone. Home expansions will have to meet construction management and mitigation regulations. Agriculture and forestry will be limited to ten percent of site area. The base zone for the lot containing the existing house was changed from open space to residential farm and forest. This was done to make the home a conforming use.

Prohibit Conflicting Uses

All of the forest and the three tributaries was placed in an environmental protection zone. Special land use regulations will control the placement and amount of recreational trails that can be placed in this area.

The following chart is a summary of these decisions.

Base Zoning	Estimated Acreage Affected by EC Zone	Estimated Acreage Affected by EP Zone
OS	0	75
FF	2	1

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
73	R-91340-2460	R5	none	OS	00.11	1	0	R5	ec	R5	0
73	R-91340-2470	R5	none	OS	01.10	0	0	FF	ec en	OS	0
73	R-91340-2560	R5	none	OS	00.14	1	0	R5	ec en	R5	0
73	R-91340-2570	R5	none	OS	00.15	1	0	R5	ec en	R5	0
73	R-91340-2580	R5	none	OS	00.15	1	0	R5	ec en	R5	0
73	R-91340-2590	R5	none	OS	00.11	0	0	FF	ec en	OS	0
73	R-91340-2600	R5	none	OS	00.11	1	0	R5	ec en	R5	0
73	R-91340-2610	R5	none	OS	00.64	0	0	FF	ec en	OS	0
73	R-91340-2660	R5	none	OS	00.09	1	0	R5	ec en	R5	0
73	R-91340-2670	R5	none	OS	00.11	1	0	R5	ec	R5	0
				Totals	2.71	7	0				0

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
74	R-59030-0010	FF	none	OS	05.34	0	0	FF	en nr	OS	0
74	R-59030-0170	FF	none	OS	04.00	0	0	FF	en nr	OS	0
74	R-59030-0260	FF	none	OS	03.28	0	0	FF	en nr	OS	0
74	R-59030-0010	FF	none	OS	03.16	0	0	FF	en nr	OS	0
74	R-59030-0370	FF	none	OS	05.65	0	0	FF	en nr	OS	0
74	R-91340-3390	FF	none	OS	02.87	0	0	FF	en nr	OS	0
74	R-91340-3740	FF	none	OS	02.13	0	0	FF	en nr	OS	0
74	R-94129-0190	FF	none	OS	16.90	0	0	FF	en nr	OS	0
74	R-94129-0200	FF	none	OS	52.43	0	0	FF	en nr	OS	0
74	R-94131-0010-	FF	none	OS	49.00	0	0	FF	ec en nr	OS	0
74	R-94132-0320	FF	none	OS	00.32	1	0	FF	ec nr	FF	0
74	R-94132-0340	FF	none	OS	30.16	0	0	FF	en nr	OS	0
74	R-94132-0430	FF	none	OS	19.25	0	0	FF	ec en nr	OS	0
74	R-94132-0840	FF	none	OS	00.23	0	0	FF	ec en nr	FF	0
74	R-94132-0890	FF	none	OS	00.23	1	0	FF	ec nr	FF	0
74	R-94132-1010	FF	none	OS	00.23	1	0	FF	ec en nr	FF	0
74	R-94132-1050	FF	none	OS	00.35	1	0	FF	ec en nr	FF	0
74	R-94132-1100	FF	none	OS	00.36	1	0	FF	ec en nr	FF	0
				Totals	195.89	5	0				0

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
75	R-94131-0170	FF	none	OS	22.20	0	0	FF	ec en nr	OS	0
75	R-94131-0570	FF	none	OS	00.36	0	0	FF	ec en nr	OS	0
75	R-94131-0690	FF	none	OS	00.18	0	0	FF	ec nr	FF	0
				Totals	22.74	0	0				0

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
76	R-45200-4230	R7	none	OS	01.26	0	0	FF	ec	OS	0
76	R-45200-4450	R7	none	OS	01.11	0	0	FF	ec	OS	0
76	R-55150-0010	R7	none	R7	00.23	0	1	R7	ec en	R7	0
76	R-55150-0020	R7	none	R7	00.19	0	1	R7	ec en	R7	0
76	R-55150-0030	R7	none	R7	00.23	0	1	R7	ec en	R7	0
76	R-55150-0050	R7	none	R7	00.99	1	5	R7	ec en	R7	0
76	R-82460-0320	R7	none	R7	01.78	1	3	R7	ec en	R7	0
76	R-94132-0350	FF	none	OS	13.33	0	0	FF	ec nr	OS	0
76	R-94132-0360	FF	none	OS	17.16	0	0	FF	ec nr	OS	0
76	R-94132-0570	FF	none	OS	13.80	1	0	FF	ec nr	OS	0
76	R-94132-0640	FF	none	OS	01.80	0	0	FF	ec en nr	OS	0
76	R-94132-0910	R7	none	R7	01.29	0	0	FF	en	OS	0
76	R-94132-0930	R7	none	R7	00.34	1	1	R7	ec en	R7	0
76	R-94132-0940	R7	none	R7	00.39	1	1	R7	ec en	R7	0
76	R-94132-0960	R7	none	R7	00.40	1	1	R7	ec en	R7	0
76	R-94132-1030	R7	none	R7	00.29	1	0	R7	ec en	R7	0
76	R-94132-1040	R7	none	R7	00.70	1	3	R7	ec en	R7	0
76	R-94132-1090	R7	none	R7	00.44	1	1	R7	ec en	R7	0
76	R-94132-1260	R7	none	R7	00.42	0	2	R7	ec en	R7	0
76	R-94131-0010-	FF	none	OS	35.00	0	0	FF	ec en nr	OS	0
				Totals	91.15	9	20				0

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
77	R-94131-0140	FF	none	FF	00.74	0	0	FF	en nr	FF	0
77	R-94131-0190	FF	none	OS	06.91	0	0	FF	ec en nr	OS	0
77	R-94131-0390	FF	none	OS	02.87	0	0	FF	ec en nr	OS	0
77	R-94131-0550	FF	none	FF	01.90	1	0	FF	nr	FF	0
77	R-94131-0640	FF	none	FF	08.09	1	0	FF	ec en nr	FF	0
77	R-94131-0140	FF	none	FF	00.27	0	0	FF	en nr	FF	0
77	R-94131-0660	FF	none	OS	00.09	1	0	FF	ec nr	OS	0
77	R-94131-0010-	FF	none	OS	20.00	0	0	FF	ec en nr	OS	0
				Totals	34.87	3	0				0

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
78	R-94131-0240	FF	none	FF	07.76	1	2	FF	ec en nr	FF	-2
78	R-94131-0620	FF	none	FF	00.38	0	0	FF	ec en nr	FF	0
				Totals	8.14	1	0				-2

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
79	R-39000-0010	FF	none	FF	07.70	1	2	FF	en nr	FF	-2
79	R-39000-0100	FF	none	FF	04.70	1	1	FF	ec en nr	FF	0
79	R-94131-0270	FF	sr	FF	00.89	0	0	FF	ec en	FF	0
79	R-94131-0340	FF R10	none	FF	04.51	0	2	FF R10	ec en nr	FF	0
79	R-94131-0360	FF	none	FF	00.99	1	0	FF	ec en	FF	0
79	R-94131-0420	FF	none	FF	00.99	1	0	FF	ec en	FF	0
79	R-94131-0490	FF R10	none	FF	02.50	1	0	FF R10	ec nr	FF	0
79	R-94131-0630	FF	none	FF	00.96	0	0	FF	ec en	FF	0
79	R-94131-0760	FF	none	FF	01.40	0	0	FF	ec en	FF	0
79	R-94131-0770	R10	none	FF	00.82	0	0	R10	ec	FF	0
79	R-99106-2710	FF	sr	FF	00.97	1	0	FF	ec en	FF	0
79	R-94131-0760	FF	none	FF	01.40	0	0	FF	ec en	FF	0
				Totals	27.83	6	3				-2

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
80	R-94131-0250	R20	sr	R20	00.23	0	0	R20	ec	R20	0
80	R-94131-0260	R20	sr	R20	05.14	1	10	R20	ec en	R20	0
80	R-94131-0580	R20	sr	R20	07.17	0	15	R20	ec en	R20	0
80	R-94131-0610	R20	sr	R20	00.23	0	0	R20	ec	R20	0
80	R-94131-0790	R20	sr	R20	15.69	0	26	R20	ec en	R20	0
80	R-99106-3070	R20	sr	R20	00.72	0	6	R20	ec en	R20	0
80	R-99106-3080	R20	sr	R20	03.04	1	0	R20	ec	R20	0
				Totals	28.81	2	57				0

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
81	R-94131-0100	R20	sr	OS	10.25	0	0	FF	ec en	OS	0
81	R-94131-0110	R20	sr	OS	09.85	0	0	FF	ec en	OS	0
81	R-94131-0070	R20	sr	OS	44.70	0	0	FF	ec en	OS	0
				Totals	64.8	0	0				0

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
82	R-05530-0980	R20	sr	R20	01.90	1	3	R20	ec	R20	0
82	R-05530-1020	FF	sr	R20	01.53	0	3	FF	none	R10	3
82	R-05530-1060	FF	sr	R20	00.45	1	0	FF	none	R10	1
82	R-05530-1080	FF	sr	R20	03.25	0	7	FF	none	R10	7
82	R-05530-1100	FF	sr	R20	00.59	1	0	FF	none	R10	1
82	R-05530-1120	FF	sr	R20	00.30	0	0	FF	none	R10	1
82	R-05530-2070	FF	sr	R20	01.61	1	2	FF	none	R10	2
82	R-05530-2120	FF	sr	R20	04.36	1	8	FF	ec	R10	8
82	R-05530-2180	FF	sr	R20	01.38	1	2	FF	ec	R10	2
82	R-05530-2220	FF	sr	R20	00.67	1	0	FF	ec	R10	1
82	R-05530-2240	FF	sr	R20	00.47	1	0	FF	ec	R10	1
82	R-05530-2260	FF	sr	R20	00.79	0	1	FF	ec	R10	2
82	R-05530-2310	FF	sr	R20	00.69	0	1	FF	ec	R10	1
82	R-05530-2340	FF	sr	R20	00.48	1	0	FF	ec	R10	1
82	R-05530-2360	FF	sr	R20	00.40	0	0	FF	ec	R10	1
82	R-73100-0010	R20	sr	R20	00.12	1	0	R20	ec	R20	0
82	R-73100-0030	R20	sr	R20	00.29	1	0	R20	ec	R20	0
82	R-73100-0050	R20	sr	R20	00.83	1	0	R20	ec	R20	0
82	R-73100-0150	R20	sr	R20	00.60	1	0	R20	ec	R20	0
82	R-73100-0200	R20	sr	R20	01.17	1	2	R20	ec	R20	0
82	R-73100-0300	R20	sr	R20	00.36	1	0	R20	ec	R20	0
82	R-73100-0340	R20	sr	R20	00.41	0	0	R20	ec	R20	0
82	R-73100-0380	R20	sr	R20	00.65	0	1	R20	ec	R20	0
82	R-73100-0420	R20	sr	R20	00.60	0	1	R20	ec	R20	0
82	R-73100-0460	R20	sr	R20	00.56	0	1	R20	ec	R20	0
82	R-73100-0500	R20	sr	R20	00.37	0	0	R20	ec	R20	0
82	R-73100-0530	R20	sr	R20	00.28	0	0	R20	ec	R20	0
82	R-73100-0560	R20	sr	R20	00.34	0	0	R20	ec	R20	0
82	R-73100-0600	R20	sr	R20	00.33	1	0	R20	ec	R20	0
82	R-73100-0640	R20	sr	R20	00.30	1	0	R20	ec	R20	0

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
82	R-73100-0680	R20	sr	R20	00.44	0	0	R20	ec	R20	0
82	R-73100-0720	R20	sr	R20	00.47	0	1	R20	ec	R20	0
82	R-73100-0760	R20	sr	R20	00.46	1	0	R20	ec	R20	0
82	R-73100-0800	R20	sr	R20	00.44	0	0	R20	ec	R20	0
82	R-73100-0840	R20	sr	R20	00.34	0	0	R20	ec	R20	0
82	R-73100-0880	R20	sr	R20	00.40	0	0	R20	ec	R20	0
82	R-73100-0920	R20	sr	R20	00.34	0	0	R20	ec	R20	0
82	R-73100-1000	R20	sr	R20	00.36	1	0	R20	ec en	R20	0
82	R-73100-1040	R20	sr	R20	00.71	1	0	R20	ec en	R20	0
82	R-73100-1090	R20	sr	R20	00.35	1	0	R20	ec en	R20	0
82	R-73100-1130	R20	sr	R20	00.52	1	0	R20	ec en	R20	0
82	R-73100-1170	R20	sr	R20	00.68	0	1	R20	ec en	R20	0
82	R-73100-1210	R20	sr	R20	02.29	0	4	R20	ec en	R20	0
82	R-73100-1310	R20	sr	R20	00.75	0	1	R20	en	R20	-1
82	R-73100-1350	R20	sr	R20	00.52	0	1	R20	en	R20	-1
82	R-73100-1390	R20	sr	R20	00.50	0	1	R20	en	R20	-1
82	R-73100-1430	R20	sr	R20	00.55	1	0	R20	ec en	R20	0
82	R-73100-1470	R20	sr	R20	00.50	0	1	R20	ec en	R20	0
82	R-73100-1510	R20	sr	R20	00.50	0	1	R20	ec en	R20	0
82	R-73100-1550	R20	sr	R20	00.38	0	0	R20	ec	R20	0
82	R-73100-1590	R20	sr	R20	00.64	0	1	R20	ec	R20	0
82	R-73100-1630	R20	sr	R20	00.67	0	1	R20	ec en	R20	0
82	R-73100-1670	R20	sr	R20	00.56	0	1	R20	ec en	R20	0
82	R-73100-1710	R20	sr	R20	00.63	0	1	R20	ec en	R20	0
82	R-96136-1790	FF	sr	R20	01.49	1	2	FF	ec	R10	2
82	R-96136-1800	FF	sr	R20	00.69	1	0	FF	ec	R10	2
82	R-96136-1810	FF	sr	R20	00.87	1	0	FF	ec	R10	2
				Totals	43.13	26	84				+ 35

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
83	Unassigned A	FF	none	FF	00.98	0	1	FF	ec	FF	0
83	Unassigned B	FF	none	FF	00.99	0	1	FF	ec	FF	0
83	Unassigned C	FF	none	FF	01.64	0	1	FF	ec en	FF	0
83	Unassigned D	FF	none	FF	02.13	0	1	FF	ec en	FF	0
83	Unassigned E	FF	none	FF	05.56	0	1	FF	ec en	FF	0
83	Unassigned F	FF	none	FF	02.12	0	1	FF	ec	FF	0
83	Unassigned G	FF	none	FF	02.15	0	1	FF	ec	FF	0
83	R-17870-0250	FF	none	R10	04.12	1	7	FF	ec	R10	9
83	R-17870-0290	C2	none	C2	00.74	0	32	C4	ec	C4	-32
83	R-17870-0330	FF	none	R20	00.60	1	0	FF	ec	R10	1
83	R-17870-0380	FF	none	R20 C2	02.92	0	6	FF	ec	R10	6
83	R-59040-0300	FF	none	FF	00.34	0	1	FF	ec	FF	0
83	R-96125-0130	FF	none	FF	16.34	0	8	FF	ec en	FF	0
83	R-96125-0140	FF	none	FF	01.70	0	0	FF	ec	FF	0
83	R-96136-0010	FF	none	FF R20 C2	15.20	0	23	FF	ec en	FF	-16
83	R-96136-1760	FF	none	R20 C2	01.37	0	2	FF	ec en	R20	0
83	R-96136-1770	FF	none	FF	02.09	0	1	FF	ec	FF	0
83	R-96136-1830	FF	none	FF	04.99	0	2	FF	ec	FF	0
83	R-96136-1850	FF	none	FF	02.01	1	0	FF	ec	FF	0
83	R-96136-1860	FF	none	FF	02.02	0	1	FF	ec	FF	0
				Totals	70.01	3	58				~~-32~~ -48

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
85	R-59030-1860	FF	none	OS	15.00	0	0	FF	en nr	OS	0
85	R-59030-2100	FF	none	OS	14.27	0	0	FF	en nr	OS	0
85	R-59030-2340	FF	none	OS	06.19	0	0	FF	en nr	OS	0
85	R-59030-2660	FF	none	OS	12.37	0	0	FF	en nr	OS	0
85	R-59030-2910	FF	none	OS	02.60	0	0	FF	en nr	OS	0
85	R-59030-3310	FF	none	OS	07.03	0	0	FF	en nr	OS	0
85	R-59030-3510	FF	none	FF	03.00	1	0	FF	ec en nr	FF	0
85	R-59030-3560	FF	none	OS	02.70	0	0	FF	ec en nr	OS	0
85	R-59030-3610	FF	none	OS	03.00	0	0	FF	en nr	OS	0
85	R-59030-4010	FF	none	OS	06.00	0	0	FF	en nr	OS	0
85	R-59030-4014	FF	none	OS	06.00	0	0	FF	en nr	OS	0
				Totals	78.16	1	0				0

SITE	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
84	Unassigned H	FF	none	FF	00.61	0	1	FF	ec	FF	0
84	Unassigned I	FF	none	FF	00.36	0	1	FF	ec	FF	0
84	Unassigned J	FF	none	FF	00.50	0	1	FF	ec	FF	0
84	Unassigned K	FF	none	FF	00.77	0	1	FF	ec	FF	0
84	Unassigned L	FF	none	FF	01.50	0	1	FF	ec en	FF	0
84	Unassigned M	FF	none	FF	01.43	0	1	FF	ec en	FF	0
84	Unassigned N	FF	none	FF	06.15	0	1	FF	ec en	FF	0
84	Unassigned O	FF	none	FF	02.14	0	1	FF	ec en	FF	0
84	Unassigned P	FF	none	FF	00.93	0	1	FF	ec en	FF	0
84	Unassigned Q	FF	none	FF	12.76	0	4	FF	ec en	FF	0
84	R-77380-0410	R10	none	R10	00.35	1	0	R10	ec	R10	0
84	R-96125-0070	FF	none	FF	00.30	1	0	FF	ec	FF	0
84	R-96125-0080	FF	none	FF	01.96	0	0	FF	ec	FF	0
84	R-96125-0670	FF	none	FF	00.78	0	0	FF	ec	FF	0
84	R-96125-0790	FF	none	FF	06.00	0	3	FF	ec en	FF	0
84	R-96125-0910	FF	none	FF	00.53	0	0	FF	ec	FF	0
84	R-96125-0970	FF	none	FF	15.00	0	7	FF	ec en	FF	0
				Totals	52.07	2	23				0

	TAX ACCOUNT NUMBER	EXISTING BASE ZONE	EXISTING OVERLAY ZONE	EXISTING COMP PLAN DESIGNATION	AREA IN ACRES	HOUSING	REMAINING HOUSING	PROPOSED BASE ZONE	PROPOSED OVERLAY ZONE	PROPOSED COMP PLAN DESIGNATION	PROPOSED HOUSING POTENTIAL CHANGE
5	R-59030-1860	FF	none	OS	15.00	0	0	FF	en nr	OS	0
5	R-59030-2100	FF	none	OS	14.27	0	0	FF	en nr	OS	0
5	R-59030-2340	FF	none	OS	06.19	0	0	FF	en nr	OS	0
5	R-59030-2660	FF	none	OS	12.37	0	0	FF	en nr	OS	0
5	R-59030-2910	FF	none	OS	02.60	0	0	FF	en nr	OS	0
5	R-59030-3310	FF	none	OS	07.03	0	0	FF	en nr	OS	0
5	R-59030-3510	FF	none	FF	03.00	1	0	FF	ec en nr	FF	0
5	R-59030-3560	FF	none	OS	02.70	0	0	FF	ec en nr	OS	0
5	R-59030-3610	FF	none	OS	03.00	0	0	FF	en nr	OS	0
5	R-59030-4010	FF	none	OS	06.00	0	0	FF	en nr	OS	0
5	R-59030-4014	FF	none	OS	06.00	0	0	FF	en nr	OS	0
				Totals	78.16	1	0				0