
City of Tualatin

**Parks and Recreation
Master Plan**

December 1983

TUALATIN PARKS AND RECREATION MASTER PLAN

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Chapter 1
Background Information

The Parks and Recreation Master Plan was initiated by the city of Tualatin in the Fall of 1982. Through a competitive selection process, the team comprised of John Warner Associates and KM Associates was chosen to carry out the project with the assistance of the city and the Parks and Recreation Advisory Committee (T-PARK).

Preparation of the plan commenced in October 1982. Meetings were held during the next few months with T-PARK, city officials, and the public to discuss the plan, receive testimony on recreation from residents, and review the proposed plan. A major part of the process was a survey in November 1982 of recreational preferences and attitudes of the city's residents. Approximately 20 percent of the city's households returned their questionnaires. The results are summarized in Chapter Three and detailed in Appendix E.

Purpose and Role of the Master Plan

The city of Tualatin is projected to accommodate a population of between 22,000 and 28,000 residents by the year 2000, representing an increase of two to almost three times the existing population in 1982 (see Figure 1-1). To meet the recreational demands generated by these new residents, a full range of facilities, programs and parks will have to be provided.

The basic purpose of the Master Plan is to serve as a guide in: 1) developing these facilities, programs and parks; and 2) allocating the city's financial, human, and natural resources to provide a range of recreational opportunities. Another purpose of the plan is to provide a basis for discussions and decisions between citizens and city officials regarding park and recreation projects. Through the use of the plan, decisions can be made within the context of established planning policies and priorities.

When adopted, the Parks and Recreation Master Plan will also serve as a supplement to Tualatin's Development Code which defines the city's basic planning policies and goals. The Parks and Recreation Master Plan is also intended to complement the city's other detailed planning documents such as the Urban Renewal Plan and the Transportation Plan.

As a long range planning document, the Master Plan should be reviewed and revised periodically to reflect changing conditions and circumstances. Policies, projects and priorities should be updated and modified to insure that the master plan remains a useful and relevant planning guide. Also, revisions to the city's basic planning policies and land use plans, as defined by the Development Code, may require subsequent revisions in the Parks and Recreation Master Plan.

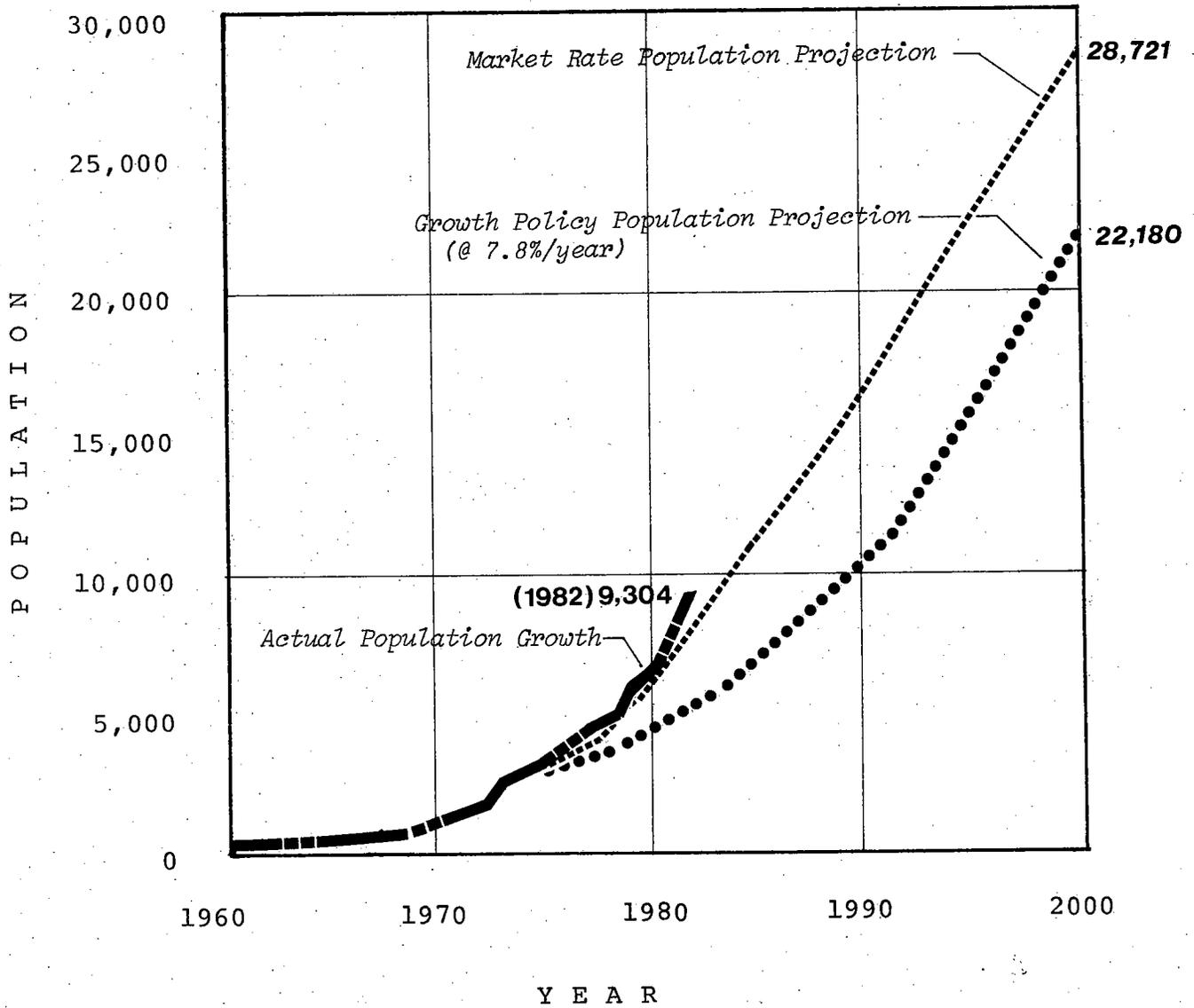


Figure 1-1 : Actual and Projected Population Growth, City of Tualatin, 1960-2000

Study Area

The study area for the Master Plan is defined by the Urban Growth Boundary for the city (see Figure 1-2). Major geographic features within this area include the Tualatin River, Tualatin Wetlands, the I-5 freeway and Highway 99W. Most of the city is within Washington County with a small portion east of the I-5 freeway under the jurisdiction of Clackamas County.

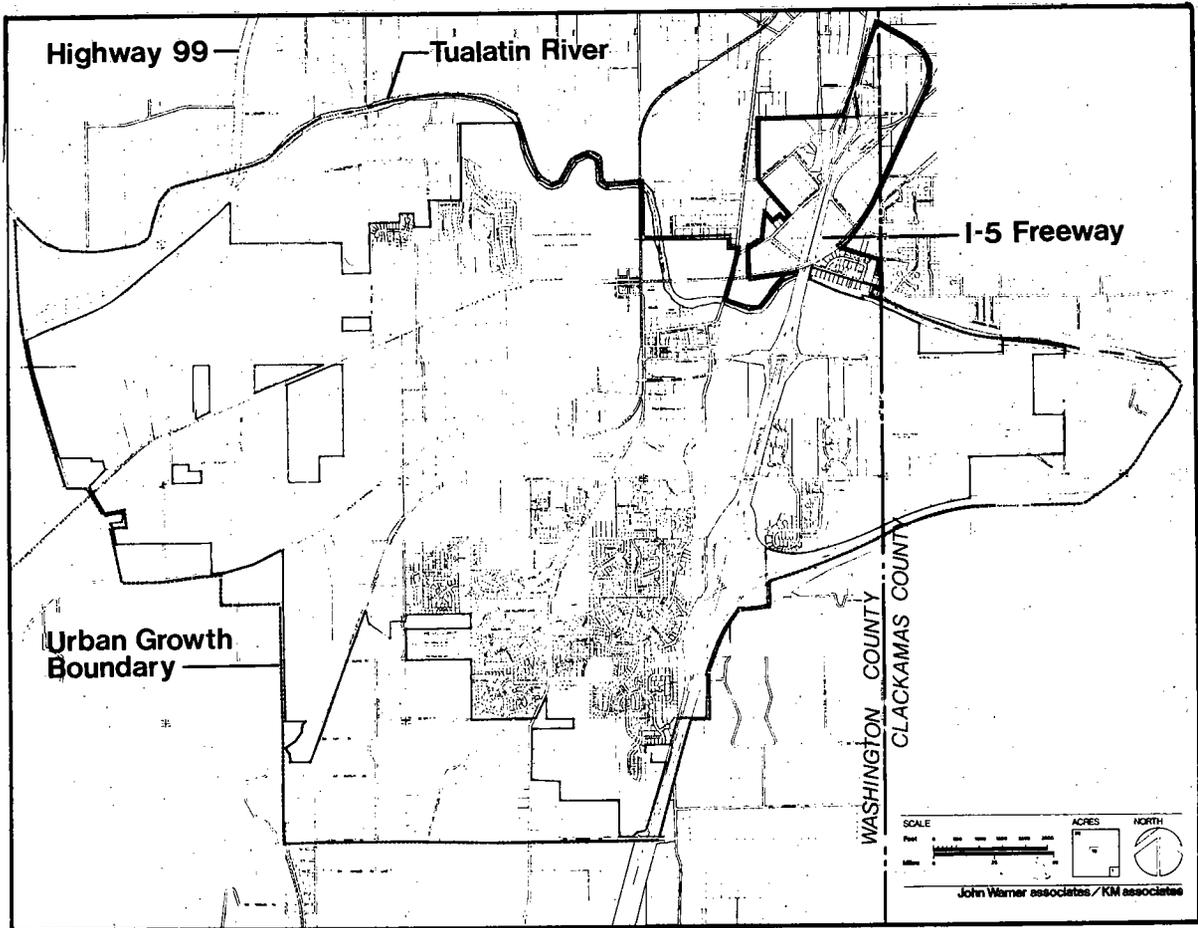


Figure 1-2: Study Area

Population and Growth Characteristics

Like other cities in the region, Tualatin began as a farming community and is now undergoing a transition into an urban center. Although the city has been settled for more than a century, most of its population growth has occurred in the past ten years. The first signs of growth began to appear in the mid-1960's as the number of residents more than doubled from 380 in 1965 to 952 in 1970. In the decade between 1970 and 1980, the city's population exhibited an overall increase of 672 percent with the addition of approximately 6,400 residents. For purposes of comparison, the growth rate for the State of Oregon in the same period was 26 percent; Washington County, 56 percent; and the city of Beaverton, 134 percent. As of April 1982, Tualatin's official population count was 9,304 residents.

Projections by the city of Tualatin point to a year 2000 population of between 22,180 to 28,721 residents. The higher figure is based on a "market growth" assumption in which accelerated development to the year 1985 is preceded by a reduced growth rate. The lower projection is based on a controlled growth policy in which population increases at a consistent rate of 7.8 percent to the year 2000.

Just as the character and appearance of Tualatin has changed, so has the city's population profile. The most dramatic shift, aside from growth in number of residents, has been the influx of generally younger families with children. As shown in Figure 1-3, the city's largest age groups as of 1982 are the 20-39 year old adults and 0-14 year old children. Comparisons with the 1970 and 1975 population profiles illustrate the change from 1970 when the numbers within each age group were more equally distributed through the population.

Other significant population characteristics are summarized below:

- The median age of the city's residents is 27, compared to 30.2 for the State of Oregon and 31.4 for the city of Portland.
- The number of housing units is almost equally divided between single-family and multi-family units.
- Approximately 60 percent of the city's residents live in single-family units.
- 45 percent of the city's housing units are owner occupied.

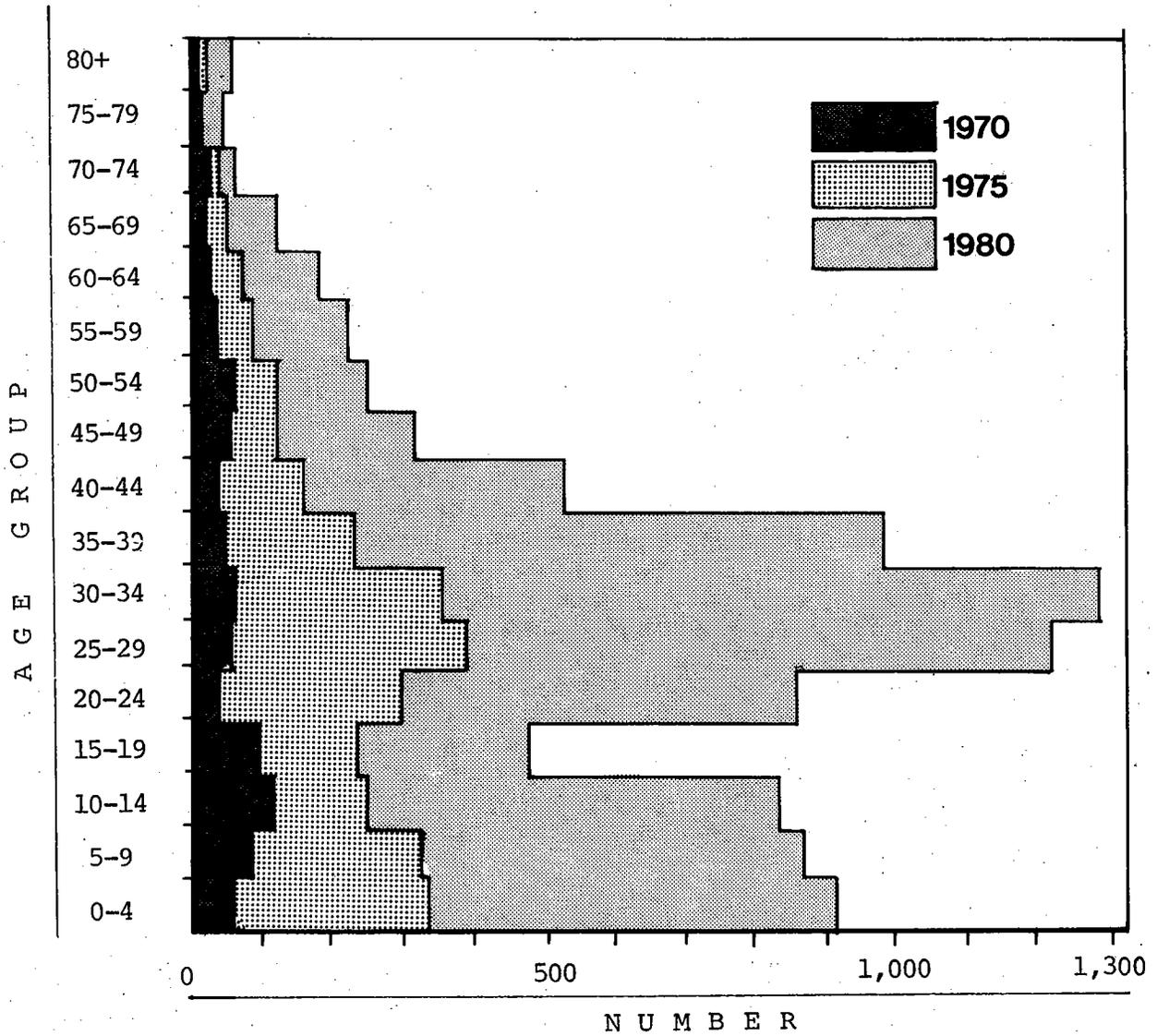


Figure 1-3 : Population Profile, City of Tualatin
1970-1980

INVENTORY OF EXISTING CONDITIONS

The parks and recreation system in Tualatin is comprised of four basic elements: parkland, greenways, facilities and programs. As of March 1983, the system included 35.75 acres of park land, 36.82 acres of greenway areas, one community center, one senior center, and over 30 individual adult and youth programs. Each of the four elements individually serve a specific purpose and collectively interact to provide a wide range of recreational opportunities for the city's residents.

Parks offer developed areas such as lawns, ball fields and walkways, in which people can participate in a variety of active and passive activities. The emphasis of parks is generally on development of a range of areas and facilities to accommodate human activities. The level of development and planned uses depend on the park type, its size, existing natural features, topography, population it serves and proximity to other parks.

Parks are usually organized into a hierarchy of park types to reflect their particular function within a community and their service area. The four park types appropriate for Tualatin--vestpocket, mini-parks, neighborhood and community--are described in the following section along with brief descriptions of existing parks within each category.

Community Parks are designed to provide a focus for the city's recreational needs and activities. Because of their relatively large acreages, community parks can accommodate facilities and activities that require large areas, attract a high number of participants or spectators, and require extensive buffering to reduce noise and visual impacts.

The Tualatin Community Park (28.60 acres) is the only park of this type within the city. It offers the most facilities of any park in the community and, based on the survey, receives the highest use among the city's recreational attractions. It includes natural and developed areas, ball fields, play equipment, walkways, bikepaths, hiking trails, tennis and basketball courts, picnic shelters, and an exercise course. In addition, the park also includes within its boundaries the Van Raden Community Center, the Tualatin/Durham Senior Center, and the city library.

The main body of the park (27 acres), in which all of the facilities mentioned above are located, lies south of the Tualatin River and north of Boones Ferry Road. A smaller parcel (1.60 acres) is located on the north bank of the river immediately across from the senior center and is

part of the city's greenway system. This site is heavily wooded, contains steep slopes, and does not include any recreational facilities. The two parcels are connected only by the Southern Pacific Railroad bridge across the river.

Neighborhood Parks are intended to provide a focus for residential social, recreational and residential areas. Within these parks are areas and facilities that allow a variety of informal recreational activities that are consonant with the character and needs of the area. The emphasis is on providing the day-to-day recreational opportunities such as pleasure walking, recreational bicycling, using play equipment, and informal ball games. Neighborhood parks vary in size, though the recommended size range of Tualatin is 5 to 20 acres.

Natural Area Parks are intended to provide passive recreation and educational opportunities. Little Woodrose Nature Park is Tualatin's only such park; the principal recreational facility is a trail which connects Boones Ferry Road with 90th Avenue. It is a densely wooded, 6.5-acre site that demonstrates unusual plant communities and species and provides habitat for various forms of wildlife.

Mini-Neighborhood Parks are intended to provide similar recreational opportunities as a neighborhood park but within an area that is less than the recommended minimum size of 5 acres. Mini-neighborhood parks should be provided only in areas where a neighborhood park is needed, but the acquisition of a 5-acre or larger parcel may not be possible. In multi-family areas where land costs are typically high, mini-neighborhood parks may be the only kind of park that can be provided. Lakfy Park (2 acres), located approximately .25 mile to the northwest of Little Woodrose Nature Park, is completely developed with a large open area, walkways, wood play structure, basketball court and picnic tables. The site also includes shrub borders and planting beds as well as deciduous trees along the walkways.

Vest Pocket Parks are designed to serve a specialized audience or purpose with a limited range of facilities. The size of vest pocket parks can vary, though it is generally at the lower end, from a residential lot or smaller up to 2 acres. As a result, facilities most likely focus on specific purpose depending on the site conditions and the recreational needs of the surrounding residents. As with mini-neighborhood parks, maintenance costs for these parks tend to be relatively higher than for other types. For this reason, and because costs per

acre may also be higher, vest pocket parks should be based on a thorough analysis of their potential costs and benefits.

Two vest pocket parks are located in the city of Tualatin: Stoneridge and Saarinen Wayside. Stoneridge (.20 acre) provides lawn areas, play equipment for children, walkways and a picnic table. It is the only developed park in the area east of the I-5 freeway.

Saarinen Wayside Park (.05 acre) is located within an existing single-family residential area and has been developed as a rhododendron garden. In addition to the extensive collection of rhododendrons, the park also includes a gravel walkway, bench and fence.

Greenways occur within the city as linear recreational corridors which are typically existing or former drainageways. They include both developed greenways with lawns and concrete paths, and undeveloped natural areas in which a minimal amount of improvements are provided. Developed greenways are generally located within residential areas and thus, are designed to accommodate active and passive recreational uses. Undeveloped greenways are intended to emphasize passive and low impact recreational activities such as hiking, picnicking and nature studies. Of the city's total recreational land, 33.68 acres or 47 percent are classified as greenway areas. Approximately eight acres of the greenway total is developed and occurs in the Dakota Hills Greenway (2.7 acres), Indian Meadows Greenway (3.4 acres) and Hi-West Greenway (1.60 acres). These greenways include asphalt walkways within lawn areas along with manicured planting beds and deciduous and evergreen trees. Dakota Hills and Indian Meadows also include undeveloped natural areas and drainageways.

The remaining 26 acres of greenways are divided among five sites that are comprised mainly of undeveloped natural areas. The largest of the five, Nyberg Creek Greenway (11.45 acres), is located immediately north of the Rolling Hills apartment complex. The site is generally flat with a rise along the apartments, consists mainly of pastureland, and is flooded frequently during the winter from Nyberg Creek which abuts the site.

Saum Creek Greenway (8.35 acres) is situated between the Sandhurst subdivision and the I-205 freeway and consists predominantly of an undeveloped natural area. The site includes a portion of Saum Creek Greenway and adjoining marsh areas, and also appears to function as a habitat area for wildlife. The site abuts a parcel with similar conditions that will be donated to the city when the adjoining property is developed for residential use.

out of date

PARKS	Acres	Type	Developed	Semi Developed	Undeveloped	FACILITIES										
						Lawn Area	Play Equipment	Ballfield	Walkway	Tennis Court	Basketbal Court	Restrooms	Picnic Tables	Shelter	Natural Area	
LAFKY	2.00	MN	●			●	●		●		●		●			
LITTLE WOODROSE NATURE	6.50	N		●					●							●
SAARINEN WAYSIDE	.05	VP	●						●							
STONERIDGE	.20	VP	●			●	●		●				●			
TUALATIN COMMUNITY*	28.60	C	●			●	●	●	●	●	●	●	●	●	●	●
Sub-Total	37.35															
GREENWAYS																
CHIEFTAIN	1.59		●		●											
COLUMBIA	1.83		●		●											●
DAKOTA HILLS	2.69		●		●	●			●							●
HI-WEST	1.60		●			●			●							
INDIAN MEADOWS	3.45					●			●							
NYBERG CREEK	11.45				●											●
SAUM CREEK	8.35				●											●
SHANIKO	2.72				●											●
Sub-Total	33.68															
TOTAL	71.03															

*Includes 1.60 acre parcel immediately north of the community park and across the Tualatin River.

Fig. 1-4, Summary of Existing Parks and Greenways in the City of Tualatin

Shaniko Greenway (2.72 acres) is located adjacent to Martinazzi Avenue and consists of densely wooded depression which is approximately 16 feet below the existing grade at the site borders.

Columbia Greenway (1.83 acres), located along Ibach Street and west of Boones Ferry Road, is a wooded drainage way that forms the southern end of Hedges Creek. On the north and east sides, the greenway abuts a partially developed single-family residential area and borders a large undeveloped parcel on the west.

Chieftain Greenway (1.60 acres) is located south of the eastern terminus of SW Blake Street. It includes both developed and undeveloped areas and contains a small drainage ravine. The site also abuts the Dakota Hills Greenway to the south.

Facilities include the range of man-made improvements from bikeways to buildings and are essential elements because they provide opportunities for a range of general and specific and specialized recreational activities. Facilities can either focus on a single use as in tennis courts for example, or emphasize multiple uses as in the community center. In most cases, the provision of specialized facilities, play equipment for example, can improve the range of potential uses and thereby expand its attractiveness to a wider range of residents.

In addition to Tualatin Community Park, the city's three elementary schools also provide some facilities including ball fields, gymnasiums and play equipment. Gyms and multi-purpose rooms at the city's three schools are used every week night from 6 to 9:30 p.m. for educational, athletic and cultural activities.

Most of the city's recreational facilities are now concentrated in Tualatin Community Park (see Figure 1-4). In addition to the community and senior centers, the park includes an exercise course, ball fields, shelters, walkways, bikepaths and courts for basketball and tennis. Play equipment is also found in Lafky and Stoneridge parks.

The Van Raden Community Center consists of approximately 2,500 square feet distributed among two floors in a former residence. The center's facilities include a multi-purpose room, meeting room, lounge, kitchen and arts and crafts room which can collectively hold up to 135 people. The kitchen and lounge can also serve as additional meeting rooms. Use of specific rooms or the entire facility is available to local youth groups and non-profit community groups.

The Tualatin/Durham Senior Center (5,300 square feet) is located next to the community center and was completed in the winter of 1982. The center can accommodate up to 175 people. In addition to a dining hall and kitchen, two meeting rooms are provided. The center is available to the public but priority is given to senior citizens.

Ball fields are provided at the Tualatin Community Park and the city's three elementary schools. Of the eight fields in the city, one softball field is lighted at the community park. Only one of the city's four soccer fields is used by the Tigard Soccer Association; the three fields at the elementary schools are not maintained for league play. Baseball fields are limited to Little League play because of existing field dimensions.

Basketball courts are provided at two parks and three elementary schools. Tualatin Community Park has two outside half-courts, Lafky Parks has one outside court while Byrom, Tualatin, and Bridgeport elementary schools also include one indoor full court in a gymnasium.

Tennis courts are found in Tualatin Community Park where two full courts and two practice half-courts with backboards are provided. Children's play equipment is provided at three city parks (Tualatin, Lafky and Stoneridge) and at all three elementary schools. A list of fields and courts is described below:

	<u>Softball</u>	<u>Soccer/ Football</u>	<u>Basketball</u>
Tualatin Community Park	3	1	2 half-courts 1 (outdoor)
Lafky Park			1 (outdoor-mini)
Bridgeport Elementary School-New Equipment	2	1*	1 (indoor)
Byrom Elementary School	2	1	1 (outdoor) 2 (indoor)
Tualatin Elementary School	<u>2</u>	<u>1</u>	<u>1 (indoor)</u>
Totals	8	4	3 outdoor 4 indoor

*One regulation soccer field is planned for 1983.

Figure 1-5: Sports Fields and Court Facilities, City of Tualatin

Lawn areas are provided in Tualatin Community Park, Stoneridge and Lafky parks and the Indian Meadows and Dakota Hills ribbon/greenway parks. Extensive lawn areas are also found at the three elementary schools in the city.

Restrooms and shelters are provided at Tualatin Community Park, and picnic tables and benches are provided at Tualatin, Lafky, Dakota Hills and Stoneridge parks.

Programs provide organized opportunities for residents to pursue special interests and participate in group activities. Because of their adaptable nature, programs can respond quickly to current needs and, through an innovative and aggressive approach, can lead the city's residents in exploring new activities and interests. Programs are also the most flexible of the four basic elements in addressing the recreational and cultural needs of special segments within the population such as children, low income families, elderly, working mothers, and the handicapped.

The city of Tualatin Recreation Department is the major provider of programs in the community. Since 1974, the city has sponsored a variety of educational, recreational and athletic classes and activities at the Tualatin Community Center and the elementary schools. In 1981, the city registered almost 400 adults and about 275 children. Figure 1-6 summarizes registration and class statistics for the years between 1977 and 1981. In the past five years, the number of different classes has generally been stable while the number of class sessions has increased for both adult and children's programs.

	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>
ADULT					
Different Classes	9	9	11	11	9
Sessions	32	34	31	26	23
Students Registered	391	349	286	231	236
YOUTH					
Different Activities	25	25	24	24	20
Sessions	1,033	894	858	862	663
Participants	17,437	16,971	15,101	14,407	11,999

Figure 1-6: Summary of Community Center Organized Activities and Registration, 1977-81.

Fees vary with type, size of class, and qualifications of instructor, and are intended to cover the costs of hiring the instructor and a small registration fee. Wherever possible, class fees are kept as low as possible to increase the opportunities for all the city's residents. Over the past five years, class attendance has ranged between 6 to 12 people. Youth classes taught by city staff have a minimum fee.

In addition to indoor activities and sports, the city also sponsors several youth excursions a year to outlying parks and points of interest. Recent trips have been to Multnomah Falls, Bonneville Dam and Mt. Hood National Forest.

Athletic programs are also provided by a variety of public and private organizations (see Figure 1-7). Organized leagues for soccer, basketball, softball, baseball and football are found in Tualatin. Opportunities for both boys' and girls' athletics within the city are provided. Adult opportunities are provided in basketball, softball, volleyball, and tennis.

<u>SPORT</u>	<u>CHILDREN</u>		<u>ADULTS</u>
	<u>Boys</u>	<u>Girls</u>	
Baseball	X		
Basketball	X	X	X
Flag Football	X		
Soccer	X	X	
Softball		X	X
Volleyball			X
Tennis	X	X	X

Figure 1-7: Organized Athletic Opportunities in Tualatin

TUALATIN COMMUNITY
PARK

2 Swing Sets
2 Jungle Gyms
2 Slides
2 See-Saws
1 Merry-Go-Round

STONERIDGE PARK

2 See-Saws
1 Merry-Go-Round
1 Slide

LAFKY PARK

1 Horizontal Ladder
1 Wooden Play Structure
2 Slides
2 Swings
1 Tire Swing

BYROM ELEMENTARY
SCHOOL

2 Swing Sets (9 Swings)
2 Wooden Play Structures
1 Horizontal Ladder
1 Geodesic Dome

TUALATIN ELEMENTARY
SCHOOL

1 Swing Set
1 Jungle Gym
1 Merry-Go-Round
1 Horizontal Bar
1 Balance Beam

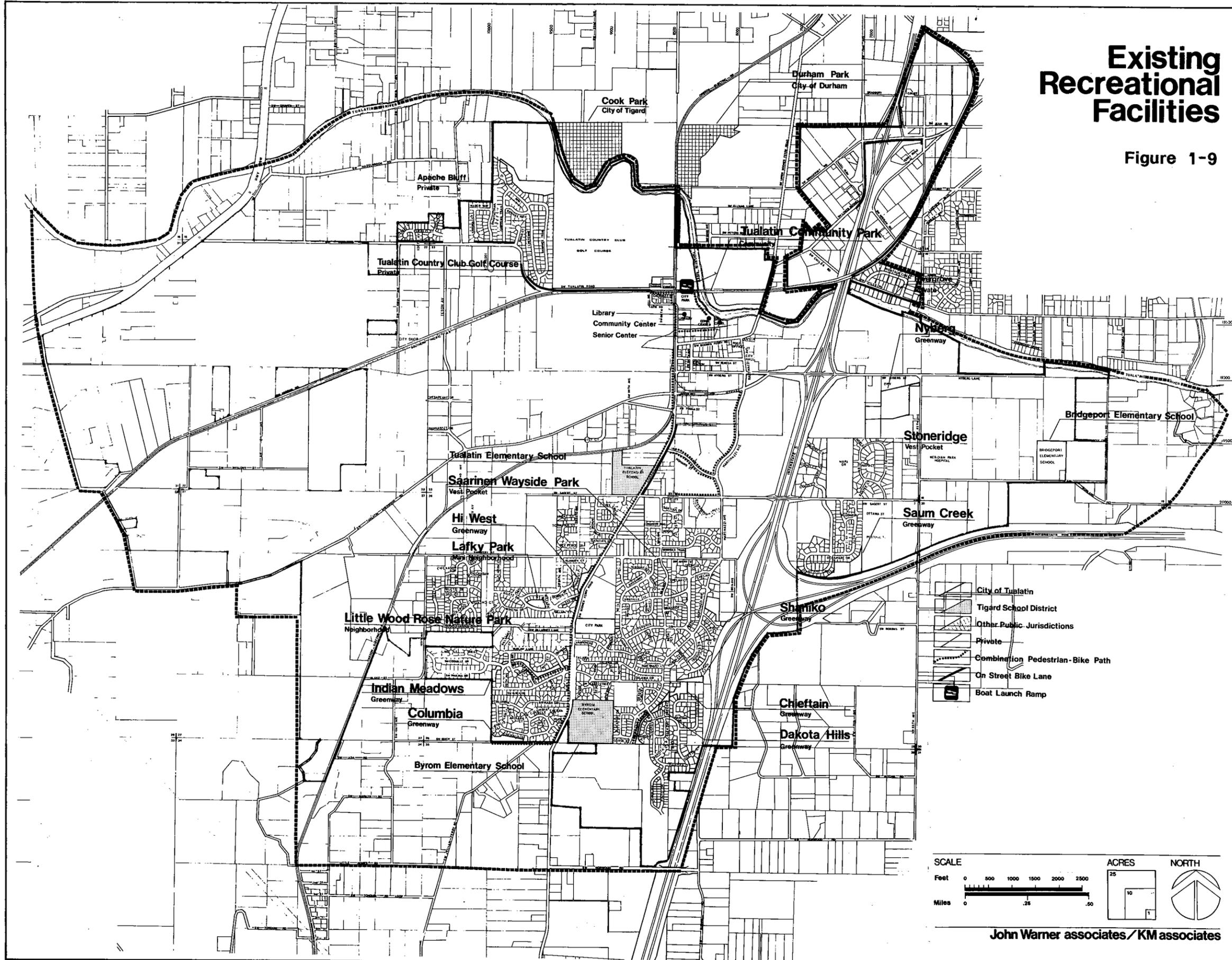
BRIDGEPORT ELEMENTARY
SCHOOL

1 Swing Set
1 Jungle Gym
1 Horizontal Ladder
3 Horizontal Bars

Figure 1-8: Children's Play Equipment

Existing Recreational Facilities

Figure 1-9



RECREATIONAL USE PATTERNS

The description of existing recreational patterns of Tualatin's residents is derived from the survey conducted in November 1982. The survey provided both an overview of recreation in Tualatin as well as a detailed examination of some activities. The following section summarizes residents' recreational patterns by activity type and places visited, and focuses on recreation by children.

Recreational Activities

Swimming appears as the single most popular recreational activity among Tualatin residents. Based on the survey, six of ten Tualatin households participated in swimming in the pre-previous year. Court sports were mentioned by 62 percent of respondents compared to 64 percent for swimming. A partial sample of respondents who participate in court sports revealed that tennis was the most popular by a significant percentage, followed by racquetball, basketball and volleyball.

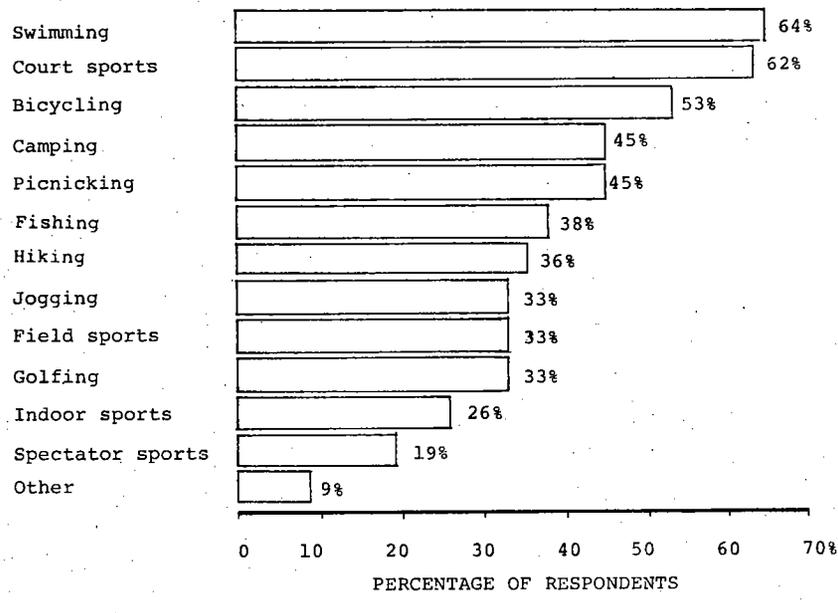
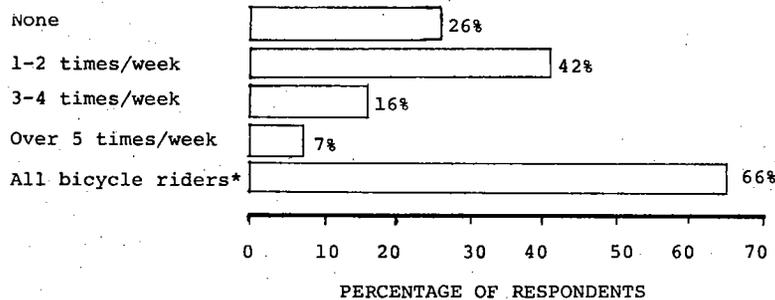


Figure 1-10: Participation in Recreation Activities by Respondents

Bicycling was noted by about half of the respondents behind swimming and court sports. Based on survey results, about 40 percent of respondents ride 1-2 times a week, 16 percent ride 3-4 times a week and 7 percent ride more than 5 times a week. Some of the expressed bicycle use may be attributed to school age children for whom bicycling is a major part of their varied recreational activities. As will be noted later, bicycling appeared also as the second most popular recreational activity, behind swimming, for children under 14; almost 40 percent of respondents indicated that their children rode bicycles most often.

The major purpose of riding appears to be for recreation (66 percent), followed by shopping (23 percent), school (14 percent), and work (13 percent). Survey comments underscored the recreational nature of most trips, "around the neighborhood" appeared to be a frequent destination for many bicyclists.

Other recreational activities that were noted by a significant percentage of respondents include camping and picnicking (45 percent), hiking and fishing (38 and 36 percent, respectively) and jogging, field sports and golfing (33 percent).



* Total of respondents who ride 1-2 times/week, 3-4 times/week, and over 5 times/week.

Figure 1-11: Frequency of Bicycle Use by Respondents

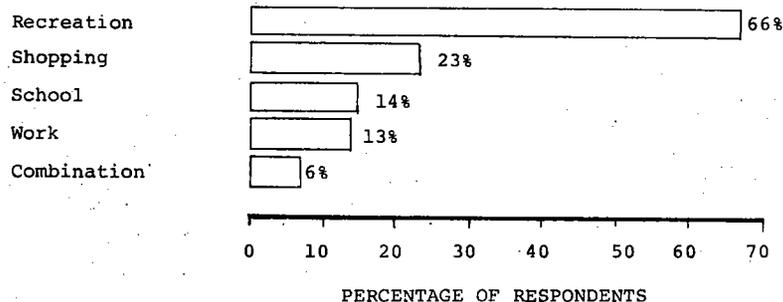


Figure 1-12: Purpose of Bicycle Trips by Respondents

Recreational Areas Visited

Based on survey results, visitation of public recreational areas by residents is concentrated among five sites: Tualatin Community Park, school facilities, Tigard Swim Center, greenways/bikeways, and the community center. The use of other public recreational sites, such as Little Woodrose Nature Park and Lafky Park, is less, suggesting a greater use by local neighborhood residents.

As indicated by the survey, Tualatin Community Park is the most visited public recreational area in the city. Almost 80 percent of survey respondents indicated a visit to the park during the previous year, almost twice the percentage for the second most visited site--school facilities (43 percent). The three public elementary schools in the city host an intensive schedule of evening recreational programs and activities during the weekdays which are heavily used by residents. Schools also provide play facilities and their fields are used by organized sports leagues.

The Tigard Swim Center was the third most popular recreational area among Tualatin residents with 43 percent of respondents indicating a visit during the previous year. Tigard Swim Center is located immediately north of the Tualatin River and immediately east of Tigard High School. According to Bill Dendurent, Tigard Swim Center Director, about 20-30 percent of pool users are from Tualatin.

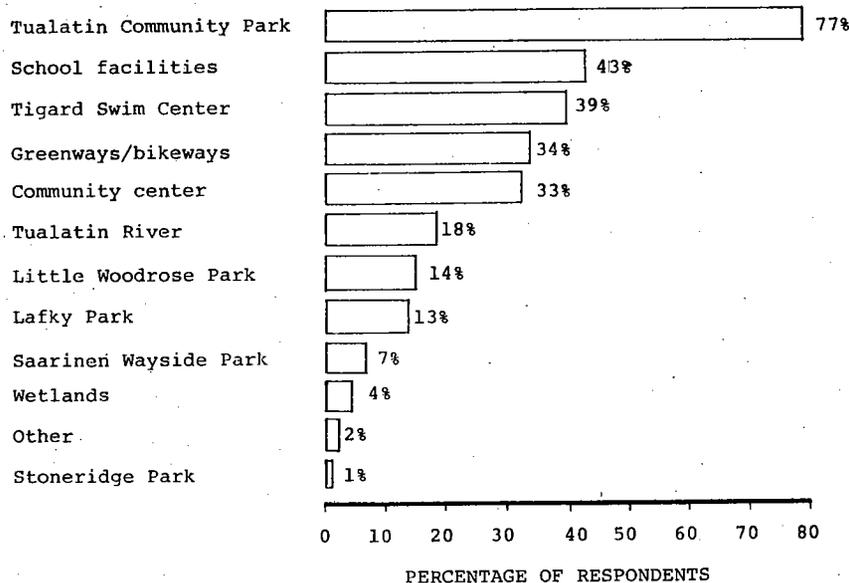


Figure 1-13: Recreational Areas Visited by Respondents During the Previous Year

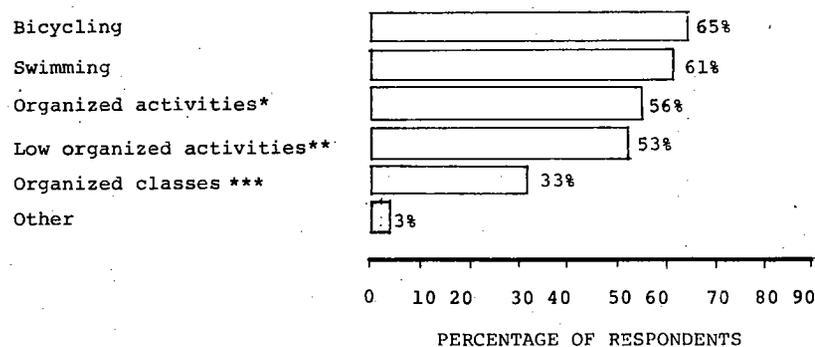
Other public recreational attractions that appear to be popular among Tualatin residents are greenways/bikeways and the community center. Thirty-four percent of survey respondents visited or used greenways or bikeways during the previous year. The popularity of these areas may be due to three factors: 1) their easy accessibility vis a vis residential areas; 2) their aesthetic qualities; and 3) their linear configuration which allows a variety of recreational opportunities such as jogging, bicycling and walking. The value of the greenways to neighborhoods was underscored by the positive comments written by respondents.

Recreational areas that exhibited lower visitation rates were the Tualatin River (18 percent), Little Woodrose Nature Park (14 percent), Lafky Park (13 percent), Saarinen Wayside Park (7 percent), Wetlands (4 percent) and Stoneridge Park (1 percent).

Recreation by Children

Three questions on the survey were directed at general recreation patterns among children under 14 years of age. The questions addressed existing recreational activities, desired recreational activities, and recreational areas visited.

Existing recreational activities are divided among several choices with only minor differences. Bicycling was the most popular activity (65 percent of respondents), followed by swimming (61 percent), organized activities (56 percent), and organized classes (53 percent). The relatively high and similar participation rates for the first four activities may reflect the spontaneous and intensive nature of childrens' play.



* team sports, etc.
 ** playground, games, etc.
 *** arts and crafts, etc.

Figure]-]4: Participation in Recreational Activities by Respondent's Children Under 14 Years Old

The location of existing recreational activities exhibited a distinct preference for playing in backyards. Of the respondents with children under 14, 83 percent noted recreational use of their own yards, and 63 percent indicated use of a friends' yard. Streets were used by almost 40 percent of respondents' children. Other recreational areas and their expressed use are parks (31 percent), school grounds (27 percent), and undeveloped open space (17 percent).

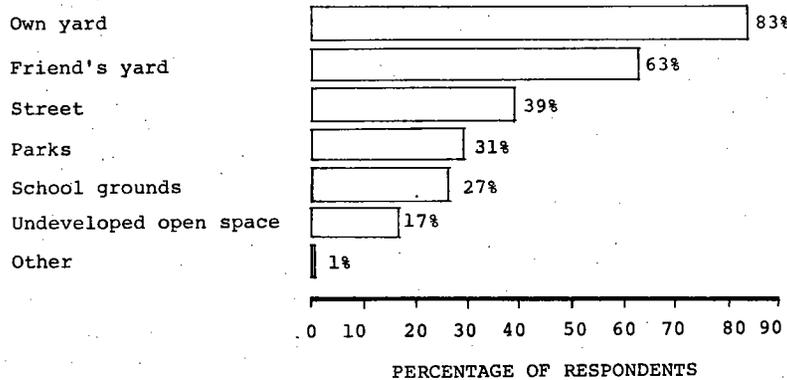


Figure 1-15: Areas Used for Recreation by Children Under 14 Years Old

Survey results indicate a relatively high use of recreational areas by Tualatin residents. Of the possible reasons for not using parks more often, most respondents (33 percent) cited "Don't know about facilities or programs." Other reasons included "Too crowded" (19 percent), "Too far from home" (16 percent), "Not open the right times" (13 percent), and "Not attractive" (7 percent). Other reasons were noted by 10 percent of respondents; written comments under this category seemed to favor "too busy" as the main reason for not visiting parks.

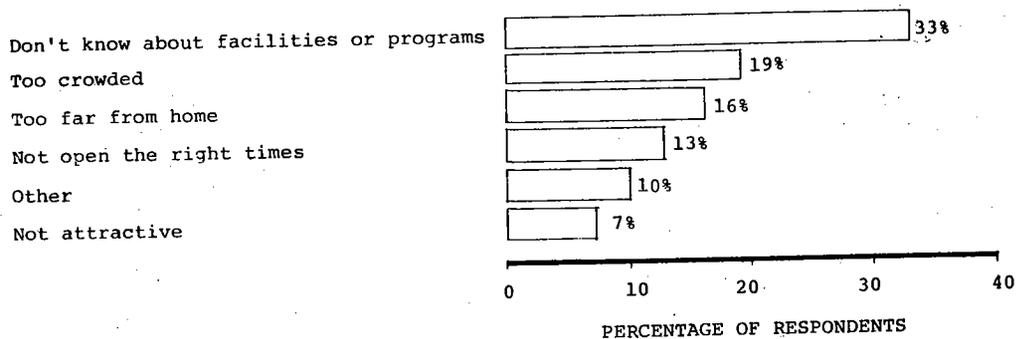


Figure 1-16: Reasons for Not Using Parks More Often

Chapter 2

Recreational Needs

PARK NEEDS

The determination of park acreage needed and the identification of potential park sites were based on several factors. Estimates of gross acreage needed are based on existing and projected population figures for major residential areas in the city and accepted acreage and distance standards. The location of potential park sites is based on more qualitative measures such as distribution and accessibility.

Existing and project population estimates are shown in Figure 2-1. Projected population figures are based on housing densities, residential areas and growth assumptions identified in the city's Community Plan. These population estimates were then applied to National Recreation and Park Association (NRPA) standards to yield gross acreage needs for neighborhood parks. The standards and the resulting acreage estimates are intended primarily as guides or reference points and should be used in conjunction with an understanding of local and neighborhood conditions and recreational needs.

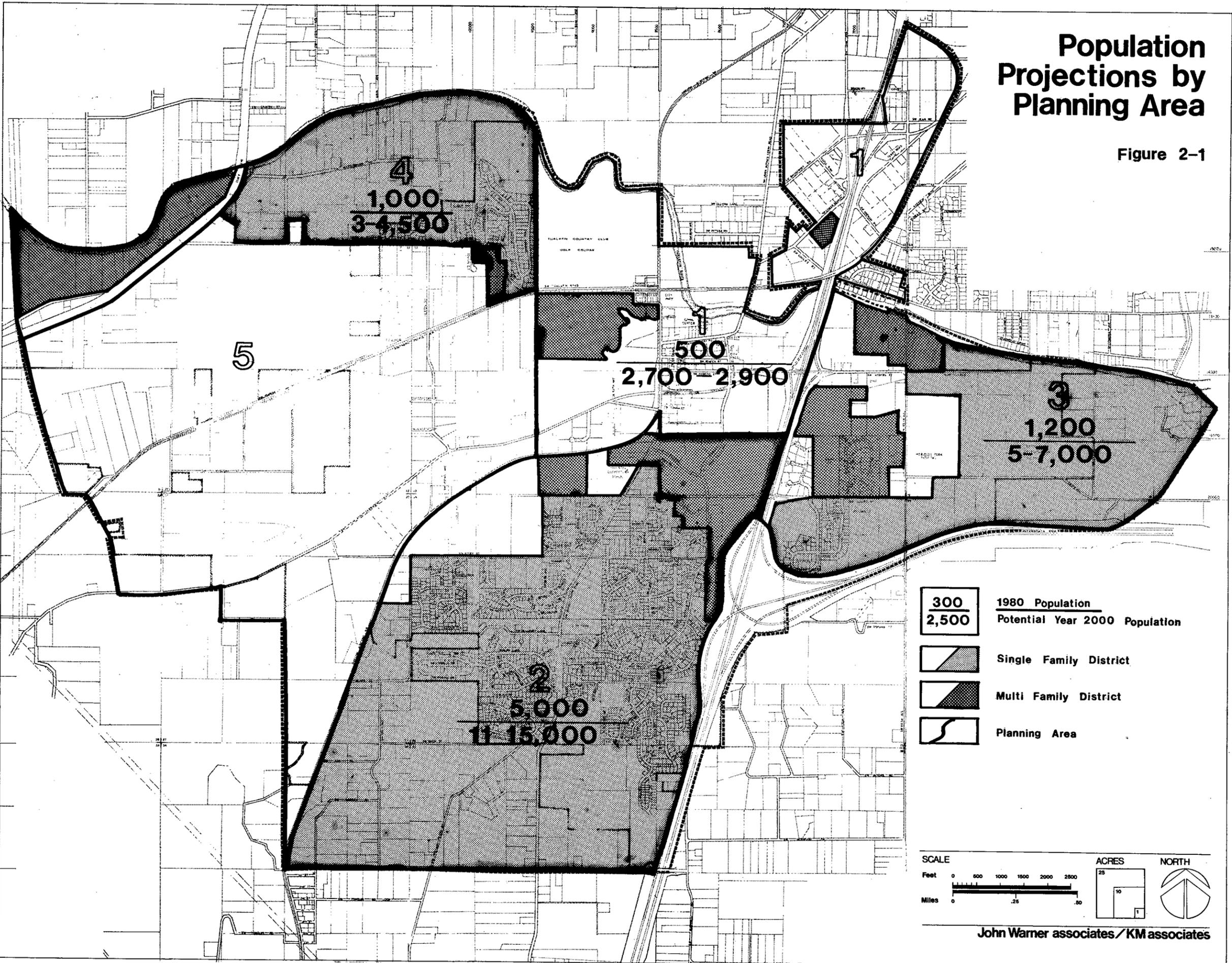
In locating potential park sites, access is a major consideration. Most studies have shown that the majority of neighborhood park users come from a quarter mile radius or less. The distance traveled does, however, increase as the variety and uniqueness of a park, its facilities and potential activities increase. This correlation between park use, distance and potential activities underscores the importance of: 1) neighborhood parks that are large enough to accommodate a range of facilities and uses; and 2) a distribution of parks that responds to residential densities and development patterns. Thus, while large neighborhood parks are preferred, consideration should also be given to smaller neighborhood parks (of at least 5 acres) that are well distributed. Similarly, linear parks such as greenways can be particularly useful in providing easily accessible recreational opportunities over a fairly large area.

Common barriers that preclude convenient and safe access to parks include high volume roads, impenetrable urban districts such as industrial areas and certain topographic or geographic conditions such as steep hills and rivers. For children, busy streets, even in residential areas, may act as a substantial obstacle to parks regardless of their proximity to a child's home. Thus, in addition to distance, the siting of parks should respond also to the physical barriers that may limit or prevent potential use.

Based on the process generally outlined above, and accounting for existing park land, the city has a net need of 51-67 acres of neighborhood park land and 25-45 acres of community park land. The lower figures are predicated on a projected popu-

Population Projections by Planning Area

Figure 2-1



John Warner associates / KM associates

lation in the year 2000 of approximately 22,000 residents; the higher figure is based on a population of about 29,000 residents. Thus, the city will need to acquire, over the next 17 years, at least 76 acres of developable park land. Of this total, about 25 acres should be for community parks and 51 acres for neighborhood parks.

The 51-67 acres of neighborhood parks can be distributed among 6 potential park sites (see Figure 2-2) that were identified for each of the city's major residential areas. The breakdown of net acreage and number of parks needed by each area is shown below.

<u>Area</u>	<u>1980 Population</u>	<u>Projected Year 2000 Population</u>	<u>Community and Neighborhood Parks</u>	
			<u>Net Park Acreage Needed</u> Low - High	
1	500	2,700-2,900	10	10
2	5,000	11-15,000	26	35
3	1,200	5-7,000	12	18
4	1,000	3-4,000	<u>10</u>	<u>11</u>
Sub-Total			58	74
Community and Neighborhood Parks			25	45
TOTAL	7,700	21-29,400	76	119

Figure 2-2: Park Acreage Needs

PARK TYPE	ACRES/ 1,000 PEOPLE	SIZE RANGE	POPULATION SERVED	SERVICE AREA
Mini-Neighborhood Park	*	2500 sf to 2 acres	500-2,500	Sub-neighbor- hood
Neighborhood Park	2.5	5-20 acres**	2,000-10,000	.25-.50 mile
Community Park	2.5	20-100 acres	10,000-50,000	.50-3.00 miles
Metropolitan Park ***	5.0	Variable	Variable	Within 30 min. driving time
Regional Park ***	20.0	250+ acres	Serves entire population in smaller cities.	Within 1 hour driving time
Special Areas and Faci- lities	*	Includes parkways, beaches, plazas, historical sites, flood plains, downtown malls, and small parks. No standard is applicable.		

* Not applicable

** Smaller sizes may be acceptable only when no other sites of at least 5 acres are available, and the chosen parcel can accommodate recreational activities and facilities that are needed in the area to be served.

*** Provided only for reference; not needed in the city of Tualatin.

Source: National Park Recreation and Open Space Standards, revised for the City of Tualatin.

Figure 2-3 : Recommended Park Standards by Population, City of Tualatin

FACILITY NEEDS

The identification of facility needs is based on: 1) demands expressed through surveys of Tualatin residents in January 1981, and November 1982; 2) an appraisal of existing facilities; 3) review of previous need estimates by the Recreation Department; 4) projections of future facility needs; and 5) accepted standards adopted by NRPA.

Through an examination of these factors, six kinds of facilities were identified as immediate needs within the city of Tualatin. These six facilities are identified and discussed below.

Swim Center

Through the survey taken for this plan and another survey taken in January 1981, the swim center appears as the recreational facility most desired by city residents. Over 70 percent of respondents in the November 1982 survey listed a swim center as the facility most needed in Tualatin, substantiating a similar finding in the 1981 survey. The need for a swim center is underscored by the recent survey finding that swimming is the most popular recreational activity among city residents (over 60 percent of respondents noted swimming as a recreational activity in their household). Also, Tigard Swim Center was identified as the third most used recreational area/facility, behind the community park and school facilities. According to Bill Dendurent, Director of the Tigard facility, approximately 25-30 percent of the users at Tigard Swim Center are from Tualatin and are children.

Court Facilities

The need for court facilities is indicated by comparing existing facilities with the level of demand expressed through the survey. Tennis courts, in particular, are needed as are basketball courts that are publicly accessible at all hours and throughout the year.

Tennis Courts: Two to four courts are needed to serve the existing population. The provision of a roof and lighting would increase the courts' potential use for the city's residents and thus, should be considered.

Development of future tennis courts may occur through one or a combination of the following alternatives: 1) provide an additional court(s) within the community park (as has been planned); 2) provide additional courts at existing or planned neighborhood parks; or 3) combine a multi-court tennis facility with a swim center.

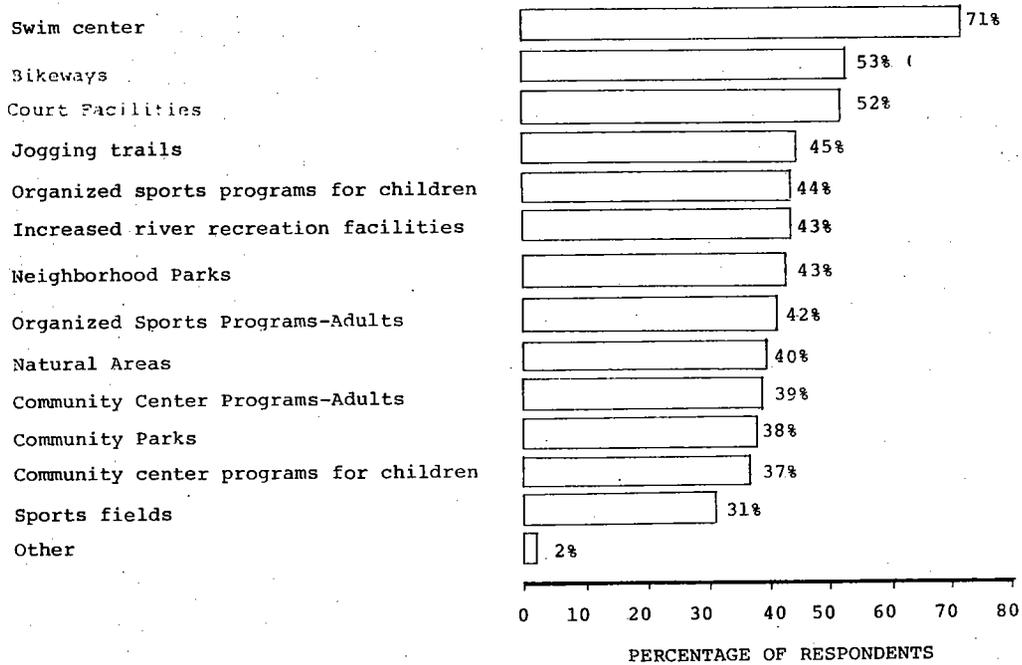


Figure 2-4 : Parks or Facilities Respondents Feel Are Needed in the City

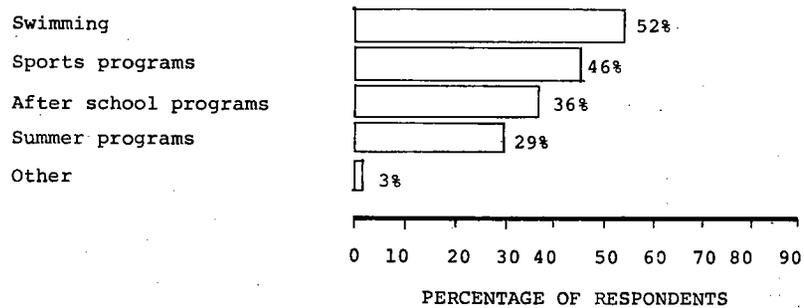


Figure 2-5: Programs Respondents Feel Are Needed for Children Under 14 in the City

Alternatives two and three hold the most potential to meet resident demand for tennis courts, which will probably continue to increase along with the city's population. Alternative two, locating courts in neighborhood parks, should be pursued as a last resort and only if the resulting parking, lighting and noise impacts can be confined to the park. Because existing neighborhood parks are developed to capacity, the provision of additional tennis courts appears to be contingent upon the acquisition of new park sites. Alternative three, combining tennis facilities with a swim center (as has been done at the Tualatin Hills Park and Recreation District headquarters), should be considered. Through this approach, two of the city's most popular recreational activities can be accommodated on a year round basis (assuming both pools and tennis courts are indoors). A full range of program opportunities such as tennis and swimming classes, can also be provided for different age groups, skill levels and at times that are convenient for residents. Strong support for bikeways was also noted in the previous survey.

Basketball Courts: Based on NPRA standards, 12 additional basketball courts are needed to serve the existing population. Although six courts are now found within the city, four are located in school gyms and can be used only during certain times on weekdays and during the school year. Outdoor basketball courts, in Lafky Park, at Bridgeport School, City Community Park, and Byrom School are available on a year-round basis.

Along with outdoor courts, there also appears to be a pressing need for indoor basketball courts. The three elementary schools now offer the city's only indoor basketball facilities which must be shared among youth leagues, company leagues, adult mens' leagues, girls' leagues and church groups. At Byrom School, for example, organized basketball took up about half of the total time slots in the gym that were available in the Fall of 1982. Summer and weekend use of the gyms is not currently possible because schools are closed during those times.

Because most of the existing parks are developed to capacity, the use of school grounds for outdoor courts may be required to meet existing needs until additional park sites that can accommodate basketball courts are acquired.

Potential long-term solutions include the development of covered basketball courts at new neighborhood parks and the integration of indoor courts within a swim center/recreation center complex. Both approaches may be

FACILITY (OUTDOOR)	STANDARD/ 1000 PEOPLE	COMMENT
Baseball Diamonds	1 per 6000	Regulation 90'
Softball Diamonds (and/or youth diamonds)	1 per 3000	
Tennis Courts	1 per 2000	Best in battery of 4
Basketball Courts	1 per 500	
Swimming Pools-25 yard	1 per 10,000	Based on 15 sf of water for 3% of population
Swimming Pools-50 meter	1 per 20,000	
Skating Rinks (artificial)	1 per 30,000	
Neighborhood Centers	1 per 10,000	
Community Centers	1 per 20,000	
Outdoor Theaters (non-commercial)	1 per 20,000	
Shooting Ranges	1 per 50,000	Complete complex incl. high power, small bore, trap and skeet, field archery, etc.
Golf Courses	1 per 25,000	
Hiking Trails*	25 miles per 50,000	
Bicycle Trails*	25 miles per 50,000	
Multi-Use Trails*	25 miles per 50,000	

*. Source: Bureau of Outdoor Recreation, Trails for America.
Source for other standards: National Recreation and Park Association

Figure 2.6 : Standards for Special Facilities

required since, according to NRPA Standards, approximately 50-60 courts may be needed to serve a population of 25-30,000 residents.

Bikeways

The popularity of bicycling and the need for additional bike-way facilities was clearly expressed through the survey. Greenways/bikeways were the fourth most used facilities noted by respondents and bicycling was identified as the second most popular activity, behind swimming. Similarly, bikeways were listed by respondents as the third most needed recreational facility in the city.

Based on survey results and an appraisal of existing conditions, there is a need especially for recreational routes and bikeways that connect residential areas to schools. Also, the downtown is in need of bike routes that accommodate through-bike traffic and that penetrate the commercial core. Bicycle passage now appears to be particularly difficult around the periphery of the commercial core. This may be due to a combination of: 1) an existing lack of bike lanes; 2) high traffic volumes; or 3) high number of intersections and traffic lights which disrupt bike trips.

The full range of recommended bike routes is identified in the Bikeway Plan in Chapter Four. Routes identified for construction during the initial phase are those that form the basic structure of the total system, serve the most immediate needs, and connect schools with existing residential areas.

Jogging Trails

Survey results showed that 45 percent of respondents listed jogging trails as a future need, behind a swim center, court facilities and bikeways. Jogging also was listed as an existing recreational activity by 36 percent of respondents - a participation rate that places it among hiking and fishing and below swimming, court sports, bicycling, camping and picnicking.

A jogging trail is now provided at the community park. Potential sites for additional trails include the existing community park (if expanded), greenways, schools, and neighborhood parks that have sufficient acreage to allow a short loop. Independent bikeways can also double as jogging trails if wide enough.

The development of additional jogging trails appears to depend in most areas upon the acquisition of additional park land or greenways. A route to serve immediate needs may be possible from the existing Dakota Hills Greenway north to Sagert Street.

and then downtown, using the western edge of the I-5 right-of-way. Other potential jogging trail routes are located along Saum Creek where it abuts the I-205 freeway and along Nyberg Creek between S.W. 65th Avenue and the Fred Meyer Store. All of the three routes are also potential bikeways.

River Recreational Facilities

The need for river recreation facilities is suggested through survey results and a review of existing conditions. Increased river recreation facilities was noted as a need by 43 percent of survey respondents (by comparison, court facilities and bikeways, the second and third ranked needs, respectively, were identified by 53 and 52 percent of respondents, respectively). Fishing was identified by 36 percent of respondents as an activity in which a member of their household had participated during the previous year. Also, the Tualatin River was indicated as a previous recreational destination by 18 percent of respondents.

Existing river recreation facilities are limited to a paved boat launch ramp within the community park. The ramp is one of the two now provided within Washington County, which has a projected need for 18 ramps by 1990. This acute shortage appears to be representative of the county-wide need for river recreation facilities and also underscores the importance of additional facilities within Tualatin. Along with additional boat ramps, a floating dock and boat/canoe rental center also appear to be potential facilities that can increase the river recreational opportunities for city residents. Because these facilities may have a regional attraction, they can also be useful as a means of generating revenues.

Baseball Diamonds

Approximately 200 boys from Tualatin are enrolled in the Babe Ruth baseball program in Tigard, and represent from 40-45 percent of all the league's players. All practice sessions and league games must be played in Tigard because there are no regulation baseball diamonds in Tualatin. The need for regulation fields will most likely continue to increase in the future, especially if a Tualatin Babe Ruth league is formed, which appears to be inevitable.

To meet this existing demand, as well as the potential demand from other baseball organizations, the city's Recreation Department estimates that three to four regulation diamonds are needed. Unless school grounds are used, the construction of those fields may have to await the acquisition of additional park land because existing parks are already developed to capacity.

PROGRAMS

Program needs are based primarily on results of the November 1982 survey and a review of existing programs. Population characteristics and projections were also examined to identify any factors that may affect program needs. The resulting description points out general program needs and, where possible, specific activities. Before program needs are identified, it may be helpful to discuss two major aspects of program demand.

First, the demand for certain programs is often latent instead of expressed and consequently, may not be uncovered until a program or activity is offered for the first time. After the initial offering, it may be several months before the program generates sufficient interest throughout the community. To identify and meet these latent demands, innovative and experimental programs should be offered along with more traditional and proven activities.

A second characteristic of programs is that they often have definite "life cycles". Participation in programs with distinct life cycles usually begins slowly, peaks, and then declines as demand is satisfied. The life cycle of each program or activity will vary and should be evident primarily through attendance statistics. Consistently low or declining attendance may be signs that the demand for an activity has peaked and it should be replaced by a program that may be more relevant.

Population characteristics are also useful indicators of program demand. The extensive participation in and popularity of youth sports programs in Tualatin, for example, is due to the large number of children between 6-14 years old. The predominance of adults in the 25-49 age group suggests a fairly active population with a need for a variety of athletic opportunities.

Survey results indicate a fairly strong demand for childrens' organized sports programs. More than 40 percent of survey respondents identified it as a need behind a swim center, court facilities, bikeways and jogging trails. Sports program opportunities may now be limited because of the shortage of certain facilities such as basketball courts, tennis courts and softball fields. The need for sports programs will likely continue if growth continues as it has in the past and if the new residents are comprised primarily of younger families. As a result, the expansion of sports programs should be coordinated with the development of additional facilities.

The demand for adult sports programs, as expressed in the survey, is similar to the demand for childrens' programs.

Adults have generally fewer opportunities to participate in organized sports than do children. Existing organized programs are limited to a company basketball league and two softball leagues. (A variety of drop-in and informal activities are provided at the city's three elementary schools). The situation is compounded by the shortage of facilities and available playing times, since childrens' sports programs are granted first priority. As with childrens' programs, demand is likely to grow as the population of Tualatin increases.

Demand for community center programs for both adults and children were relatively lower than for sports programs by less than six percent. Approximately 40 percent of respondents noted a need for adult community center programs and 37 percent indicated a need for childrens' community center programs. Based on the use of similar facilities, the Tualatin community center can and will most likely be an important source of future organized cultural and art programs. Thus, while demand for these programs may now be less than for other programs, future demand will probably be substantial.

Other project program needs are based on the development of new facilities. The construction of a swim center will generate a need for adult and childrens' swim programs. Similarly, if indoor tennis courts are provided, the demand for tennis programs will likely exhibit a corresponding increase. Bicycle safety programs should be an essential and continuing part of the community center's programs, as the bikeway system grows. The development of river recreational facilities may also generate a demand for such classes as canoeing, fishing, water safety, and boat construction. One-day tours and other river based trips can also be planned.

FINANCIAL AND CITIZEN SUPPORT

The continued growth of Tualatin's parks and recreation system will, to a large degree, depend on the development of a support program that includes a variety of funding methods and involves both citizens and the private sector. The need for such a broad support base is becoming increasingly important as the cost of providing municipal services increases along with the resistance of residents to assume higher taxes. In growing cities like Tualatin, the impact of new residents may be particularly acute because of the additional demands imposed on utility lines, roads and highways and recreational facilities.

Traditional funding sources, such as the federal government and the state of Oregon, may not be able to contribute as extensively as in the past. At both federal and state levels, the amount of available monies that can be allocated to cities has decreased recently, sometimes with corresponding changes in the designated purpose of funding programs. The State Grants-In-Aid program, for example, now focuses on the maintenance and rehabilitation of existing trails and parks rather than on acquisition. Monies for the program come from the State General Fund and are allocated to each county according to population. The individual counties distribute the monies to cities which can use it for specific projects. The total amount available fluctuates annually; for the current fiscal year, \$114,000 was appropriated to the Grant In-Aid Program for the entire state. In 1980, program funding was cut from \$500,000 to \$200,000. The average amount for specific projects now ranges from \$1-3,000.

Bonds, tax levies and surcharges have typically been used to finance specific programs such as acquisition or large construction projects. They are not used to finance everyday expenses of operations and maintenance which may consume up to 70 percent of park and recreation expenses. The use of bonds and levies is contingent upon economic growth and the willingness of the city's residents to accept a higher tax burden. As a result, the use of bonds, especially when needed for large acquisition projects, should be accompanied by a well organized public awareness campaign to describe the potential benefits for the public.

The primary goal of a comprehensive support program is to increase the self-sufficiency of parks and recreation operations without impairing the delivery of services and opportunities to the public. The following section describes four general ways in which a broad support program can be developed. The four methods are:

- o Identify ways to generate additional revenues.

- o Increase the involvement of the public in acquisition and program efforts.
- o Expand the opportunity for the development and maintenance of recreational facilities by the private sector.
- o Cooperation and joint use between the city and the Tigard School District.

Generating Revenues

Revenues can be generated through concessions, leases, enterprise funds and user fees. While user fees are generally used over a range of activities, concessions, leases and enterprise funds require special conditions to be successful. Concessions and leases allow private operators to use public property to sell goods and services with the government receiving annual rental income plus, in some cases, a percentage of gross receipts. In most cases, the improvements and investment that have been provided by the lessor are returned to the public after a defined period. Potential concerns include an insensitive pricing system that discourages public use and decreases in the quality of services provided.

Enterprise funds are management tools by which operations can be monitored; costs are related directly to revenues and incentives are provided to maximize the financial efficiency in which a service is delivered. The fund is operated much like a private business and should, consequently, be self-supporting. Enterprise funds appear to be feasible for activities or facilities that require a large investment and attract a limited but supportive part of the population. Jackson County, Oregon, uses enterprise funds to provide three campgrounds and parks for drag racing and motor sports.

User fees are also useful in generating revenues and are now utilized in Tualatin for programs, ball field rental and use of the pavilion, for example. As shown by other cities, user fees can be a significant source of revenues without incurring a decrease in service levels. A National Science Foundation survey of 188 parks and recreation departments in 1979 revealed that the average contribution to operation and maintenance costs covered by user fees was 15 percent. Approximately 18 percent of the surveyed agencies also had cost recovery goals of more than 50 percent. The effect of fees on public use of facilities depends on several factors. Programs, for example, are discretionary consumer purchases that may be subject to replacement by easily available substitutes such as television or other programs. Results from the NSF survey indicated that increases in attendance resulted after initiating or increasing fees among a significant percentage of respondents. This

was reportedly due to conditions in which fees allowed departments to provide better or expanded facilities, programs or security.

Public Involvement

Involvement of the public can range from once-a-year clean up events to more organized efforts that deal with long-range acquisition and planning. Two frequently mentioned forms of organized involvement are resource councils and foundations. Resource councils, made up of volunteers, can assist in fund raising, coordinate public-private sector projects, and oversee the volunteer program. The council should collectively represent the entire community with individual members having access to a range of resources. In addition to citywide resource councils, neighborhood councils can also be organized to marshal volunteers at a local level. In Philadelphia, Pennsylvania, almost 20,000 volunteers were recruited by 3,000 council members to assist in the recreation departments projects and programs.

A foundation is a public corporation that can be organized to solicit and channel private donations of land, money, equipment or facilities. Operation of the foundation is supported by donations, grants, land gifts, loans, fund raising and membership fees. As a charitable organization, a foundation may also claim a tax exempt status, which can be beneficial to donors. Foundations can also apply for grants for donations from charitable organizations, other foundations and government sources. Gifts, channeled through foundations may be used to receive federal funds (Land and Water Conservation Fund) that match their market value.

A volunteer bureau or volunteer coordinator can also be helpful in maintaining and fostering public involvement. A coordinator, as the liaison between volunteers and city staff, would initiate and oversee projects and handle organizational tasks, including recruitment, screening, placement, orientation, training and evaluation of volunteers. The community center now uses volunteers for many of its programs and sports activities. The Loaves and Fishes Senior Program, for example, now runs the senior center. Civic groups have also donated time, labor and materials for park improvement projects.

An example of another successful program which has received national attention is at Celeste Campbell Senior Community Center in Eugene. With four paid staff and a 200 volunteer force, the center serves more than 5,000 elderly residents a month, five days a week through arts and recreation classes, field trips, social activities and outreach programs. Volunteers are recruited through the Voluntary Action Center and

Retired Senior Volunteer program and after their orientation, are assigned to another experienced volunteer for training.

Private Sector Involvement

The private sector can also be utilized to help provide recreational facilities and opportunities through the "adoption" of parks, the development of joint employee-public facilities and the provision of land in money as part of the permit process. The "adoption" of parks is exemplified by Kaiser Aluminum in Oakland, California, which focused its civic efforts on a regional park in the Oakland Hills. The company contributed funds for improvements to the park's swimming pool and the operation of a shuttle bus to the park from a nearby transit station. Employees and their families also worked to build seating around the park's ball field. An "adoptive" approach is also being used by the city of Portland for selected projects that are needed but are too expensive for the city to undertake.

The private sector can also be encouraged to provide recreational facilities that can be used by both employees and the public. Corporate-sponsored recreation appears to be an emerging trend that may be appropriate in Tualatin where industrial growth may precipitate an influx of new residents. Examples of this trend include Inverness in Denver, Colorado, where an employee recreation area and 18-hole golf course were built within a 600 acre site, and Texins in Dallas, Texas, which operates a public golf course and uses the green fees to fund employee recreation facilities.

The provision of land or money as part of the development permit process (mandatory dedication) provides another opportunity for private sector involvement. Through this process, the city receives a park site or funds, usually based on the projects unit count or potential population, that are used to purchase and develop a park in proximity to the project. Mandatory dedication protects both the community and future residents of the project from poorly planned developments frequently found in non-regulated areas. Furthermore, the fiscal capabilities of most cities to purchase land has been limited, resulting in lost opportunities to acquire valuable park sites.

Potential benefits of a mandatory dedication approach to the city are:

- o Insures that recreational needs are met in the planning stages and that the city will not have to pay inflated prices for land reserved or set aside by the developer.

- o Promotes the joint location of park and school sites, in some cases.
- o Allows the selection of an appropriate and useful park site.
- o Creates future value for the residents and the community.

Potential disadvantages of the approach to the city are:

- o Adds to development costs which new residents must absorb.
- o May cause the city to undertake development of a site before the tax base potential of the project is realized.
- o May encourage the city to relax their use of other acquisition techniques.

Cooperation - Joint Use

Cooperation between the city and the Tigard School District offers another way of providing recreational facilities and activities in a manner while promoting the efficient use of public facilities. A verbal agreement between the city and the school district now allows residents to use the three elementary schools on weekday nights for a variety of indoor recreational activities. Demand for the use of these facilities (the gymnasium, in particular) from residents appears to be high, most likely due to the shortage of similar indoor facilities in the city. The decision to use the schools for public recreation, including who is allowed to use facilities and then relative priority, is determined by the individual principals.

A continuation of this policy should be encouraged because of its benefits to the community and because it fosters a spirit of cooperation between the two jurisdictions. Future opportunities for other joint projects include the expanded use of school fields for city sponsored or endorsed recreational leagues and the development of neighborhood parks adjacent to schools. Regulation softball, baseball and soccer fields are especially needed and would serve both students and the public. Development of these fields may involve league members since they are frequently willing to donate time, equipment, and labor in return for future use of the fields.

The location of neighborhood parks adjacent to schools provides an opportunity to centralize some recreational facilities on less land and at less expense. Of the three Tigard

School District schools in the city, Bridgeport and Tualatin Elementary abut vacant land that appears to be suitable for neighborhood parks. To insure an efficient and practical use of the two sites (assuming the sites were acquired and developed), expansion of the school's facilities and the development of the park should be coordinated through such actions as the extension of walkways and bikeways, shared parking lots and consistent use of construction and plant materials.

Implicit in the continuation of the joint use policy is the need for communication between the school district and the city. Effective coordination and actions can occur only when policy-makers, administrations and staff meet on a regular basis. In this way, the objectives, services and programs of each, which affect their cooperative efforts, can be brought to the attention of both jurisdictions. As a result, common and cooperative solutions can be developed to address common problems.

The possibility of a written and more formal agreement may be considered in the future as the use of school facilities increases. It may also be important in situations where a third party, a recreational league for example, becomes involved in the development or use of school fields. Furthermore, by clarifying the responsibilities and liabilities of each party, a written agreement may remove whatever impediments exist to increased joint use and thereby help to increase the availability of school facilities for public use. It may help to increase the public use of school facilities if the responsibilities, liabilities and other relevant contractual matters are defined explicitly.

Chapter 3
**Recreational Resources
and Opportunities**

RECREATIONAL RESOURCES AND OPPORTUNITIES

The city of Tualatin has within its boundaries a variety of natural and developed recreational opportunities that provide a foundation to support the future growth of the parks system. The purpose of this section is to describe those resources and opportunities and assess their potential role in an expanded recreational system. Based on a citywide appraisal, the major resources of Tualatin appear to be the existing parks, the Tualatin River, forested areas, creek, river and other Greenways and the Wetlands Protection District. These were identified as major resources because they:

- o Occur as prominent landscape features, either individually or collectively.
- o Represent a wide variety of natural features or developed facilities.
- o Reflect the city's geomorphic location within a major river valley and its rural heritage.
- o Have the potential to offer a wide range of recreational opportunities while providing the basic elements of the city's recreational system.

In addition, other resources were identified that increase the variety of potential opportunities or provide specialized features or facilities in a more limited manner than the major resources.

TUALATIN RIVER

The Tualatin River provides approximately five miles of river frontage within the city's Urban Growth Boundary. Because of this length, as well as its proximity to the urban core, and its potential to be integrated and connected with existing and future parks, the Tualatin River will probably continue to be a major source of recreational opportunities for the city's residents. The low flow of the river and its densely wooded banks make it suitable for a variety of water related recreational activities such as fishing, canoeing, and rafting. The absence or infrequent occurrence of rapids or other hazards enables users to enter the river in Tualatin and boat either upstream or downstream for several miles and return. In addition to water activities, the river is also a visual amenity and resource. For many river recreational activities, such as picnicking or hiking, views of the Tualatin River are an integral part of their enjoyment.

Existing Conditions

Public access to the river within the city is provided at Tualatin Community Park, which has approximately .6 miles of river frontage. Because of steep banks and/or dense vegetation along the river, direct contact with the river edge is limited to the northern half of the park in three general areas: at the existing boat ramp; along the exercise course; and at the extreme north end of the park. The ramp is adjacent to the Southern Pacific trestle and provides one paved lane for boats and canoes. Along the exercise course and trail north of the boat ramp, informal trails have been cut by the public through the undergrowth from the trail to the river's edge. Additional contact with the river is provided at the extreme north end of the park where approximately 25 to 30 feet of frontage occurs in a cleared area adjacent to the Burlington Northern rail line.

Views of the Tualatin River are provided mainly from riverbanks and the bridges which span the river. Public viewing places along the riverbanks are limited to the three areas previously mentioned within the community park and to the grounds around the Tualatin/Durham Senior Center. In addition to these areas, other viewpoints are found along the Boones Ferry Road bridge and I-5 as they cross the Tualatin River. Views of the river from the community park appear to be particularly picturesque because of the heavily wooded banks, still waters, absence of any perceptible man-made intrusions, and the close contact between the viewer and the river. The sense of seclusion and bucolic atmosphere created in this area belies its proximity to the city's urban core and may provide a welcome change from more urban activities.

Vegetation along the Tualatin River consists mainly of dense growths of deciduous trees and understory material along both north and south banks. Except for sporadic occurrences of cleared or thinned areas, the river appears to be bordered by this dense growth throughout its length from Highway 99 to the eastern boundary of the city at the outlet of Saum Creek.

The densely wooded areas along the river provide habitats for a variety of birds, mammals, reptiles and amphibians. Common wildlife along the river include wood ducks, mallards, long-tailed weasels, western painted turtle, garter snakes and a variety of frogs. A variety of anadromous and resident fish are also found throughout the Tualatin River, including salmon, trout, bass, catfish and crappie. Anadromous fish use the river as a migration route during August and September and as a spawning area. Of the anadromous fish species, Coho salmon and winter steelhead trout are the most common around the city. The increase in the Coho run is partly the result of stocking by the Oregon Department of Fish and Wildlife which has been releasing Coho fry and fingerling into the river system since 1953. Juvenile and adult steelhead have also been released recently and there are also plans to establish fall Chinook salmon into the system.

Resident game fish include rainbow and cutthroat trout, crappie, bass, blue gill, perch, bullhead and catfish. Increases in catches of some of these species, most notably bass, trout and crappie, have been seen by local fishermen since the late 1970's. Maintenance of the resident game fish population depends on the provision and occurrence of reproduction areas such as undercut banks, brush covered riverbanks and the log jams.

Crayfish are also common in the Tualatin River and appear to be increasing in population after a period of decline during the late 1950's and early 1960's. As the water quality of the river improves, the occurrence of crayfish is expected to increase to their previous levels.

Recreational Opportunities

Future recreational opportunities along the Tualatin River will likely be similar to those that now occur. Fishing, canoeing and rafting, which are now the most popular uses, have relatively low facility requirements and depend primarily on having a variety of access points and ramps. Paved ramps and trailer storage areas, which are the principal facilities required, can be designed as part of a park's overall circulation and parking plan. Integrating river-related facilities with other park facilities also allows park users to combine several recreational activities into one outing. Canoeists, for example, might also be able to hike and picnic if trails

and picnic tables were provided along with launch areas. Aside from its recreational advantages, a multi-use park might contribute to a more efficient maintenance program by reducing travel time and the number of individual sites that would otherwise have to be developed to provide the same level of recreational opportunities.

Expanding river recreational opportunities will likely require the acquisition of riverfront park land which, in addition to open areas, can also accommodate boat/canoe launch ramps and floating docks. There are presently two paved boat ramps in Washington County, one of which is in the Tualatin Community Park. Because of this shortage,¹ the ramp in the Community Park may be absorbing much of the county's demand for launch areas. Additional demands for boat ramps may also be generated by Tualatin's own population which is projected to double and possibly triple in the next twenty years.

A potential boat ramp site is found at the extreme eastern end of Nyberg Lane. It can accommodate one boat ramp with additional room available for parking and small picnic areas. The site was identified in 1968 by the Oregon State Game Commission as one of 13 potential access points within the Tualatin River system.

Other recreational facilities such as floating docks may be considered as part of a boat/canoe rental facility which would provide opportunities for people without boats or canoes. The dock would also enable the city's community center to sponsor classes in boating, canoeing, fishing and other river-related activities. A boat/canoe rental facility could serve residents from both the city and the county since there are no comparable facilities close by. Also, the Tualatin River is one of the few in the region that is navigable for several miles upstream and downstream. Because of this potential regional attraction, revenues generated by a rental center might help to recover operational, development and maintenance costs for all parks and recreational facilities.

¹A net need of 17 boat launch lanes in 1980 and 20 in 1990 was identified in the Washington County Comprehensive Plan (Volume I, Resource Document, P. VII.D.4).

FOREST AREAS

Forested areas are found throughout the city and are particularly distinctive along the Tualatin River, in the southern half of the city, and along the eastern portion of Saum Creek (see Figure 3-4). Depending on individual site conditions, many of these areas can accommodate a variety of recreational uses and can act as either park sites in themselves or as a focus for larger parks. Both approaches, for example, are now used in the three city parks or greenways that contain substantial forest areas and provide some level of recreational development. As habitats for both plants and wildlife, forest areas can also provide a range of educational and cultural opportunities such as nature trails, interpretive exhibits, native plant studies and wildlife research.

Existing Conditions

Forest areas within the city can be divided into three general types: coniferous; mixed coniferous-deciduous forest; and riparian. Conifer and mixed coniferous-deciduous forests typically occur in upland areas while riparian forests are commonly found along riverbanks and in drainage areas. All of these forest types serve as habitats for species of birds, fur-bearing mammals, reptiles and amphibians.

Coniferous forests typically include an overstory of Douglasfir and an understory composed of oak, maple, hazel, Vine Maple, Snowberry and rose along with a variety of herbaceous ground covers. Forests located in dryer areas may include Pacific madrone with Douglasfir while Western Redcedar may be more common in wetter areas. Coniferous forests in Tualatin are generally found on the fringes of developed areas, occurring more commonly and in larger masses in rural and less intensively developed urban areas.

Mixed coniferous-deciduous forests exhibit a successional transition with an overstory of both Douglasfir and deciduous trees. Common overstory species are Bigleaf Maple and Oregon White Oak and the understory typically comprises small Douglasfir, hazel, snowberry and Poisonoak. Coniferous-deciduous forest areas occur in all sections of the City but are found mainly along portions of Hedges Creek, in the wetlands area and along Saum Creek.

Riparian forests, made up mostly of deciduous trees, occur mostly along the banks of the Tualatin River. Flood tolerant species appear to occur more frequently on the lower banks while less tolerant trees are found on the higher banks. Common species in riparian forests include willow, ash and cottonwood. Understory species vary according to the amount of light transmitted through the canopy.

Recreational uses within forest areas now appear to occur mainly in the three public areas that contain substantial amounts of undeveloped areas: Tualatin Community Park; Little Woodrose Nature Park; and Saum Creek Greenway. Within the riparian forest in the community park, an exercise trail and boat ramp have been constructed along with childrens' play areas. At Little Woodrose Nature Park, a trail through the site has been cut through the conifer forest to connect Boones Ferry Road to 90th Avenue. At Saum Creek Greenway an informal trail along the edge of the natural area and mixed conifer-deciduous forest has been established.

Recreational Opportunities

Along with their aesthetic benefits, forest areas provide habitats for a variety of plant and wildlife species, help to control runoff and erosion, and can be valuable noise and visual buffers. In addition, forest areas can provide and enhance recreational opportunities by: 1) functioning as individual park sites (as at Little Woodrose Nature Park); 2) providing a visual focus or acting as a special landscape feature within a larger park; and 3) connecting parks with each other and with residential areas, where they occur as linear forms.

Parks comprised mainly of forested areas provide the city's residents with opportunities to recreate in more natural settings than is commonly found in most parks. The level and intensity of recreational use can frequently be planned for by the amount and type of facilities provided. For this reason, and because forest areas are usually sensitive to modification by man-made improvements, the choice and location of facilities should be carefully considered.

Among the issues to be addressed in planning facilities in forest areas are its: 1) proximity to other parks, especially those that can absorb high use levels; 2) site conditions; 3) potential environmental impacts; 4) proximity to other similar parks; and 5) adjacent land uses. Where high levels of use are expected, extensive development may be required to accommodate the expected users. Conversely, minimal facilities may be more appropriate where a low level of use is expected and/or where a more natural and pristine environment is desired. Even in these situations, some tree thinning and brush removal may be necessary to provide room for trails, picnic tables, or other low impact facilities. Signs, fences or other devices may also be required to restrict recreational activities and users to specified areas and to reduce the degradation of habitats. Likewise, informational signs and displays can be helpful in identifying plants and wildlife that may be observed.

The acquisition of forest areas for park should be balanced with the provision of more open sites that can accommodate more intensive use. In residential areas, especially those with few other parks or apartment zones, forested parks may not be able to absorb the neighborhood recreational demands without suffering environmental damage. Furthermore, many parents are hesitant to allow young children to use natural areas for safety and security reasons. Liability is also a concern when forested parks are located where they may receive considerable use from unsupervised children. In these instances, a high level of development may be required to remove potential safety hazards, or security measures (fences, patrols) may have to be installed.

In some parks, forest areas may be preserved as natural areas while also providing a visual focus and identity to the site. The image and character of Stoneridge Park, as an example, is tied closely to the mature stand of maple trees that occupy the site. The same principle applies on a larger scale at the Tualatin Community Park where the band of conifer and deciduous trees along the river forms a distinctive backdrop and landscape feature that serves both functional and aesthetic purposes.

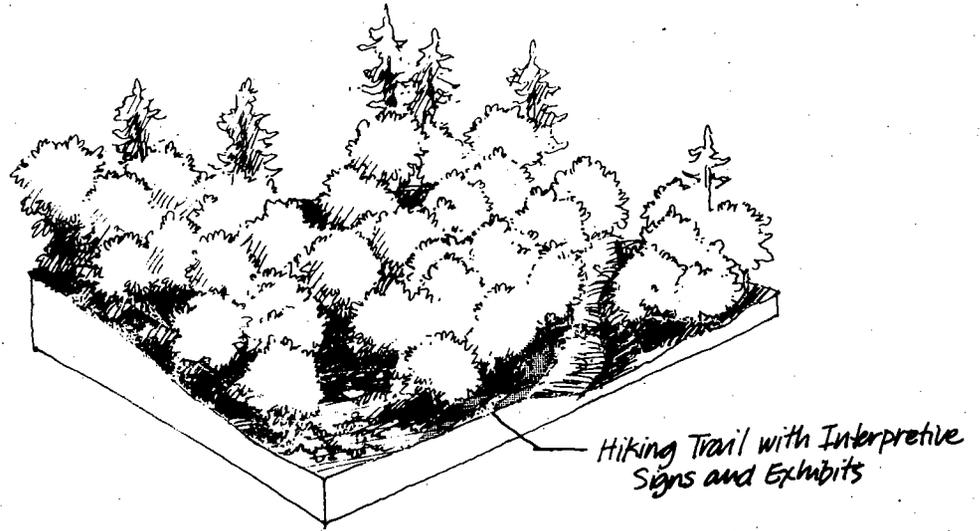
Where possible, parks should be located to include forested areas within their boundaries. This could be especially useful in newly developing areas where a mature stand of trees may help to provide a sense of identity for a park or neighborhood as well as contributing a possible focus for social and recreational activities. On a citywide scale, forest areas are important because they can serve as landmarks that provide points of orientation while also expressing the city's rural beginnings and its underlying topography. Many of the city's existing reference points and most visible landscape elements now include mature forests situated on crests (Little Woodrose Nature Park) or along rivers and drainageways (Saum Creek greenway). Integrating existing forest areas and planning new groves as part of the city's parks will help to insure that the city's existing form and identity will be maintained and strengthened.

An ample supply of forest areas within parks and greenways can also help to broaden the city's recreational programs. Tualatin's greenways, for example, exhibit a rich collection of plant and animal life that could be the subject of nature study classes, field trips and service projects for civic groups. Potential users include families, local schools, community center classes and private organizations such as the Audubon Society and Sierra Club. Also, because forest areas are close to residential areas, they have the potential to meet both the day-to-day recreational needs for open space as

LOW INTENSITY

Recreational facilities limited to trails

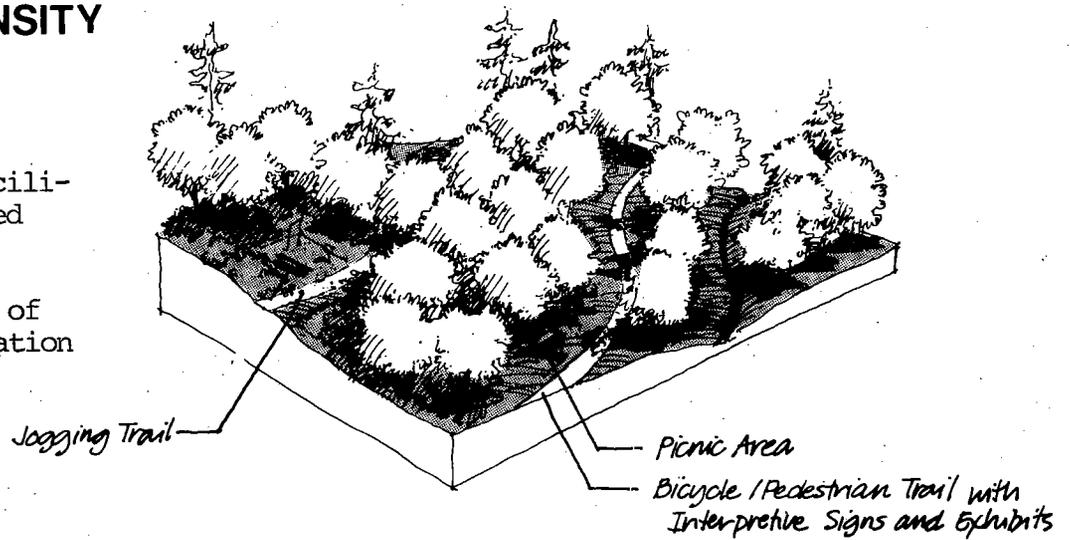
Minimal alteration of existing vegetation



MEDIUM INTENSITY

Recreational facilities in selected areas

Some alteration of existing vegetation



HIGH INTENSITY

Recreational facilities throughout area

Extensive alteration of existing vegetation

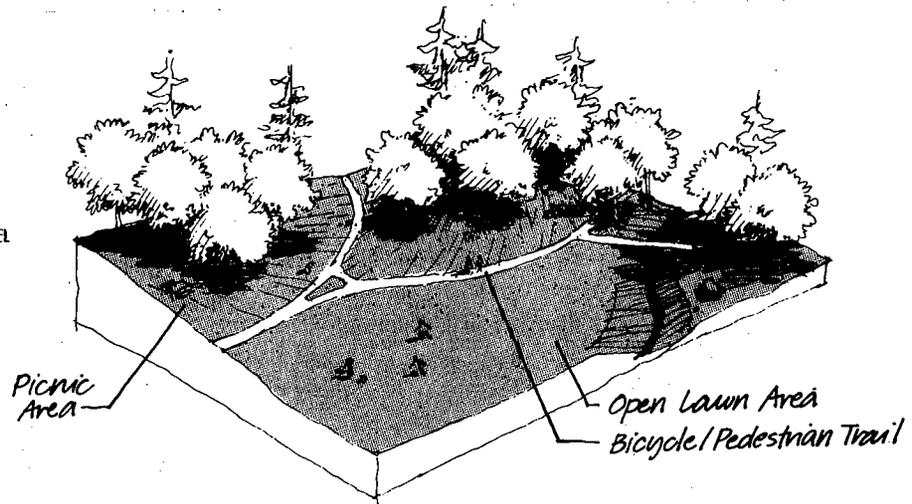


Figure 3-1: POTENTIAL DEVELOPMENT SCENARIOS OF NATURAL AREAS FOR RECREATIONAL PURPOSES

well as demands for varied recreational experiences. One day family outings may be encouraged through easily accessible trails, gentle grades, security measures, exhibits and picnic facilities. Similar efforts have been adopted in Hamilton County, Ohio, where public education and awareness have resulted from an explicit policy of promoting the preservation of natural areas within parks. Periodic newspaper articles, habitat maps and interpretive exhibits foster public awareness of the sites and their importance. Other improvements planned for the program include a habitat management trail, demonstration hedge rows and wildlife blinds for observation and photography.

As noted earlier, forest areas within city parks or greenways occur mainly in two sites: Tualatin Community Park, and Saum Creek Greenway. Additional facilities may be required in the wooded area within the community park to increase its potential use and as part of an overall effort at increasing the park's recreational potential. Saum Creek Greenway has the potential to meet more of the demand which is generated by surrounding residential areas. At Little Woodrose Nature Park, additional trails and the provision of picnic tables, open areas and interpretive exhibits may encourage more residents to use it. Similar facilities may also be appropriate at Saum Creek Greenway with the additional opportunity of linking it directly to the Saum Creek Greenway and Sagert Street with a pedestrian/jogging path.

Other city-owned sites that contain substantial forest areas are Shaniko (3.39 acres) and ~~Columbia~~ (1.83 acres) Greenways. Both include considerable areas of steep slopes (approximately 25 percent).

Hedge Creek

WETLANDS PROTECTION DISTRICT

The Wetlands Protection District (WPD) is located immediately west of the downtown and includes natural marshes and wetlands which, as stated in Chapter 48 of the Tualatin Development Code, "constitute a wildlife habitat and natural resource of important physical, biological, recreational, aesthetic, educational and economic value to the existing and future residents of Tualatin." The purpose of the WPD is to protect the natural marshes and wetlands occurring within the district while permitting development in designated areas, subject to setback and fill requirements.

Existing Conditions

The wetlands within the WPD are considered a significant resource because of three factors: their size; diversity of wetland types that occur; and the extent of their adjacent upland transition areas. Comprised of about 80 acres of contiguous wetlands, the area is the largest wetland in Washington County. Large wetland areas typically exhibit higher populations and variety of wildlife. The Tualatin wetlands are important also because of the six wetland types that are found. This variety increases the potential range of wildlife species as well as the visual attractiveness of the wetlands. The upland transitional area adjacent to the wetlands is also significant because of its size, which has helped preserve the ecological integrity of the wetlands and is essential for the long-term maintenance of the area.

Recreational Opportunities

The recreational potential of the wetlands is based on its principal characteristic as a biologically rich but highly sensitive area. Reflecting this attribute, the Tualatin Wetlands Analysis, prepared in 1978, stated that the wetlands have "high potential for non-consumptive recreational-educational purposes." These purposes may include hiking, birdwatching and nature study projects. Consumptive recreational activities such as berry picking and mushroom collecting were identified in the study as having varying secondary impacts on wetland stability. On this basis, it appears that recreational use of the wetlands should be limited to those that are educational, non-consumptive and result in very low impacts to the area's ecological integrity.

The educational potential of the WPD may be realized through programs and facilities that are consonant with the area's sensitive quality. Nature study classes and birdwatching, for example, can be accommodated with a minimum level of improvements. As the major provider of recreation programs in the city, the community center can coordinate the development of

these activities with other groups such as the Wetlands Conservancy. Wildlife observation blinds, trails and interpretive signs may also be provided to educate and limit human activities to a few appropriate areas. On a larger scale, continuing wildlife enhancement programs may be established to maintain and improve, if necessary, the diversity and number of plant and animal species. Similar programs in other cities have been developed and well publicized to increase public awareness and respect for natural areas and wildlife.

The Wetlands Conservancy, a private non-profit organization, is heavily involved in the planning and implementation of a management program for the area (Management Plan for the Hedges Creek Marsh, Tualatin, Oregon, May 1983). The purpose of the plan is to protect the environmental integrity of the area's natural resources while abutting industrial districts. The City of Tualatin acknowledges the plan's resource protection and improvement objectives and its proposed educational and interpretive programs.

The management practices outlined in the plan include pond construction to attract a greater variety of wildlife species, shrub and tree plantings, water control structures, vegetation manipulation to improve both plant and animal diversity, a low-impact education access trail, placement of nest boxes, development of an education center and parking, and a systematic monitoring program to evaluate the management plan.

Responsibilities for carrying out the plan would be divided among several agencies and groups. Long-term management will be the responsibility of the Wetlands Conservancy in cooperation with the Oregon Department of Fish and Wildlife, Audubon Society, and other volunteer groups and individuals.

GREENWAYS

Greenways within the city are defined by the Greenway Protection Overlay (GPO) District and Natural Areas, Chapter 72 of the Tualatin Development Code. It is the purpose of this chapter as stated in the Code to:

- Protect fish and wildlife resources,
- Preserve the scenic value of the Tualatin River,
- Preserve the riparian areas of the river and certain creeks and drainage swales within the City as greenways,
- Provide sufficient area for stormwater runoff to reduce flood hazards and enhance water quality,
- Preserve these greenways as much as possible in their natural state.

Chapter 72 also provides specific design standards for development adjacent to and within greenways and natural areas. These standards are intended to preserve the greenways and natural areas and provide mechanisms for the granting of easements or dedications for greenways, pedestrian and bike access through the greenways and natural areas, while at the same time allowing reasonable economic development of property adjacent to the greenways and natural areas. The development restrictions are outlined in the next section.

Chapter 72 of the Tualatin Development Code defines three types of greenways through the GPO District.

Riverbank Greenway. The Tualatin River greenway extends along the south side of the river from the western boundary of the Urban Growth Boundary (UGB) to the eastern boundary of the UGB and includes land 40 feet inland from the top of the bank. A narrow section of land along the north bank directly across from Tualatin Community Park is also included.

Creek Greenways. Greenways along designated creeks have either a total width of 50 feet or extend 25 feet in each direction from the centerline of the three creeks listed below:

Hedges Creek: from Ibach Street to the Tualatin River, but not including the Wetlands Protection District.

Nyberg Creek: from Boones Ferry Road to the Tualatin River. The width of the greenway between Boones Ferry Road and Tonka Street is narrower, having a total width of 30 feet, or 15 feet in each direction from the center line of the creek.

Saum Creek: from east of I-5, just south of Sagert Street, to the Tualatin River, but not including portions outside of City's UGB.

While the total width of the creek greenways is 50 feet, the measurement on each side can be varied. Chapter 72 of the TDC

allows property owners on opposite sides of a creek to enter into a written agreement to allow the creek corridor to be off-center, but in no case less than 15 feet on one side of the creek. Property owner agreements to adjust the location of the greenway must be approved by the City Council.

Other Greenways. These includes greenway areas which are not within a riverbank or creek greenway. Six different areas were identified in the 1983 Parks and Recreation Master Plan as "Other Greenways", although no names were provided for these areas. These areas were primarily drainage corridors for neighboring residential areas, and represent different levels of development. Names have been assigned to each of these other greenways:

Chieftain/Dakota: a developed greenway serving the residential neighborhood between Martinazzi Avenue and Blake Street.

Indian Meadows: a developed drainage corridor serving the area west of Boones Ferry Road to Hedges Creek Greenway, east of Ibach Park.

Hi-West Estates: a developed greenway adjacent to Boones Ferry Road, south of Avery Street.

Shaniko: includes right-of-way and an easement along 80th Avenue, recently developed as a bike path, a wooded parcel between 80th Avenue and Martinazzi Avenue, and a water quality tract south of 80th Avenue.

Nyberg Creek: north of Sagert Office Park, just east of I-5 and south of Nyberg Creek.
(South)

Development Restrictions in Riverbank, Creek and Other Greenways.

- (1) Except as provided by Subsection (2), no building, structure or other development shall occur within the GPO District
- (2) The following uses and types of development are permitted within the GPO District:
 - (a) Public bicycle or pedestrian ways.
 - (b) Public streets, including bridges, when part of an approved City Transportation Plan, and public utilities, when part of a City-approved plan and provided appropriate restoration is completed.
 - (c) Private driveways and pedestrian ways when necessary to afford access between portions of private property that may be bisected by a greenway.
 - (d) Outdoor seating for a restaurant within the Central Urban Renewal District but outside of any sensitive area and it's undisturbed corridor.
 - (e) Public parks and recreational facilities, including, but not limited to, boat ramps, benches, interpretive stations, trash receptacles and directional signage when part of a City-approved greenway enhancement plan.

- (f) Landscaping, when part of a landscape plan approved by the Parks and Recreation Director through the Architectural Review process. City initiated projects are exempt from the Architectural Review process. Landscaping in greenway areas shall comply with the approved Plant List incorporated in the Parks and Recreation Master Plan. When appropriate, technical advice shall be obtained from the Oregon Department of Fish and Wildlife, U.S. Soil Conservation Service, or similar agency, to ensure that the proposed landscaping will enhance the preservation of any existing fish or wildlife habitats in the vicinity.
 - (g) Wildlife protection and enhancement.
 - (h) Public boating facilities.
- (3) In order to achieve the purposes of the GPO District, the City may, through the subdivision, conditional use, architectural review, or other development approval process, attach appropriate conditions to approval of any development permit. Such conditions may include, but are not limited to the following:
- (a) Incorporation of greenway areas for storm drainage purposes, where appropriate;
 - (b) Location of approved landscaping, pedestrian and bicycle access areas, and other non-building uses and activities in greenways;
 - (c) Setback of proposed buildings, parking lots, and loading areas away from the greenway boundary.
- (4) Greenways in which an access easement is owned by the City, but retained in private ownership, shall be maintained by the property owner in their natural state and may only be modified if a landscape and maintenance plan complies with the approved Plant List incorporated in the Parks and Recreation Master Plan, and has been approved by the Parks and Recreation Director.

Greenway Descriptions

The greenways in Tualatin travel through a range of landscapes including wetlands, forested riparian zones, farmland, commercial and industrial areas, and City parks. Many of the City's greenways are undeveloped creek corridors or drainage swales, and are suitable for passive and low impact recreational activities such as hiking, picnicking, and nature study. The more developed greenways are generally located within residential areas and are designed to accommodate active and passive recreational uses.

Maps indicating Greenway locations and pedestrian and bike path locations within greenways are found in Chapter 72 of the TDC, Map 72-1 and Map 72-2, respectively. More detailed aerial photographs showing locations of pedestrian and bike paths within each greenway are found in Exhibit A in Chapter 11, TDC.

Tualatin River Greenway

The Tualatin River is a very slow moving river with moderate to

steep banks and dense riparian vegetation. This area serves as a habitat to a host of mammals, birds, reptiles and fish, and provides a valuable natural area for Tualatin residents. While the UGB (Urban Growth Boundary) contains approximately 5 miles of river frontage, large sections west of Tualatin Community Park fall outside of the City limits. Land ownership in this corridor is thus primarily in private hands, with the City controlling approximately 35 acres of greenway along the Tualatin River. However, the City owned Tualatin Community Park and Brown's Ferry Park contribute key riverfront parcels offering varied recreational opportunities. The Tualatin River Greenway follows the south side of the river except for a small section along the north bank across from Tualatin Community Park. Path construction will be limited to the south side of the river.

As the bike path travels along the river, the width will be 12' on average, but can be decreased to 10' to protect existing vegetation and other natural features. Elevated boardwalks will be constructed where wetland areas are present and creek channels will be bridged where necessary. Due to the presence of steep banks and dense riparian vegetation along much of the river, the path alignment generally follows the top of the bank, where grades are relatively gentle and accessibility to all can be provided. At the east end of the Tualatin River Greenway, path alignment extends to the eastern UGB and connects to the residential area surrounding Natchez Court.

Hedges Creek Greenway

Hedges Creek is the most diverse of the City's greenways. While the creek originates south of Ibach Street, the greenway designation begins in a residential development north of Ibach Street. The creek flows through a steep wooded ravine in Ibach Park then snakes through open and generally flat industrial and agricultural areas before flowing into the Hedges Creek Wetlands Protection District, which is one of the County's largest wetland ecosystems. The wetlands in this district are protected from development. Hedges Creek also forms the southern boundary of Tualatin Community Park. Within the park a pedestrian path follows the creek. East of the park, the creek flows through private property before it enters the Tualatin River.

Between Hedges Drive and 105th Avenue, through Ibach Park, path alignment follows the creek on the south side. From north of Industrial Way to Tualatin-Sherwood Road, path alignment shifts based on topographic and vegetative conditions. Path width varies from 4-6' and meanders through wooded areas to protect significant vegetation. An existing asphalt trail picks up again at Tualatin Road and follows along the north side of Hedges Creek through Tualatin Community Park which will eventually connect with the Tualatin River bike path.

Nyberg Creek Greenway

Nyberg Creek flows from springs located just west of Boones Ferry Road to Brown's Ferry Park before emptying into the Tualatin River, north of Nyberg Lane. In the downtown area, the creek has been

channelized with development occurring on either side. East of Martinazzi, the creek flows through a large jurisdictional wetland that had been previously used as pasture land. This area experiences annual flood inundation and provides significant wildlife habitat in close proximity to the downtown core.

An existing concrete pedestrian path cuts through Martinazzi Square shopping center along Nyberg Creek west of Martinazzi Avenue, with a 8' pedestrian path proposed to connect to Tonka Street. The Nyberg Creek Greenway between Martinazzi Avenue and 65th Avenue lies within a large wetland, making trail construction difficult. It is therefore proposed that pathways be located within the wetland's 25' undisturbed corridor, or along utility easements. In order to cross under I-5, topographic conditions dictate that the path be routed through wetlands east of the interstate. In this section, a 10' wide elevated boardwalk is proposed to minimize impacts on the wetland. East of the Sagert Street bike path connection to 65th Avenue, the path follows utility easements and is planned as a 12' wide bike path.

Saum Creek Greenway

Saum Creek begins near the intersection of I-5 and I-205 and flows into the Tualatin River. For much of its course the creek is surrounded by dense forests of deciduous and coniferous trees which help to mitigate the noise from the interstate to residential areas to the north. The creek flows through a large wetland area south of Atfalati Park, providing a unique wildlife habitat and natural resource for the residential subdivision to the north. East of Atfalati Park, sections of the forest have been cleared for pasture land and the riparian zone is in need of restoration. Between Borland Road and the Tualatin River, portions of the creek are outside of the City's UGB. These portions are not subject to the GDP.

The path between the I-205 bike path and Atfalati Park is proposed to follow the creek on its north side. Because the City already owns this portion of the greenway, the path will be able to be constructed outside of the wetlands. At Atfalati Park the path will deviate from the creekside to join the pathway system in the park. This recommendation is made primarily because of the significant wetland area and wildlife habitat directly south of Atfalati Park. This alignment also avoids a pedestrian crossing at the bottom of the grade of 65th Avenue at the I-205 overpass. The path route crosses 65th Avenue at Sagert Street and proceeds south to the creek. Here the trail will proceed easterly along the north side of the creek to Prosperity Park Road and then north to Borland Road. Topography along much of the creek is relatively gentle until the stream travels north of Borland Road through a steep heavily wooded ravine. Here, path construction will involve selective clearing and grading as the path weaves through the forest. The path alignment north of Borland Road remains within City-owned property west of the creek and the path ends with a connection to Joshua Street. Before paths can be constructed in the area between 65th Avenue and Prosperity Park Road, wetland delineations should be conducted. Paths should be placed above the

wetlands within the wetland's 25 foot undisturbed corridor. Boardwalks should be used when the path crosses over wetlands.

Chieftain/Dakota Greenway

This 5.8 acre greenway located between Martinazzi Avenue and Tract G, just north of Blake Street, transitions from a filled drainageway developed as a linear park to a densely wooded undeveloped drainageway. Concrete, asphalt or gravel paths are provided through much of the greenway. An asphalt path through the wooded end of the greenway provides a connection to Tygh Loop.

Hi-West Estates Greenway

This is a small greenway along Boones Ferry Road that is landscaped with trees, shrubs and lawn. A 5 foot wide asphalt path is provided through the corridor. Recent modifications to the path and landscaping have occurred in conjunction with the addition of a signal at Avery and Boones Ferry Road.

Indian Meadows Greenway

This is a 3.8 acre greenway corridor located between Boones Ferry Road and the Hedges Creek Greenway on the east side of Ibach Park. Most of the greenway is located in the Indian Meadows subdivision. A majority of the greenway doubles as a drainage channel. A paved pathway is provided between Boones Ferry Road and 99th Avenue. Between 99th Avenue and Hedges Creek Greenway there are no improvements. It is recommended that the pedestrian path be extended between 99th Avenue to the Hedges Creek Greenway which will ultimately provide a connection to Ibach Park.

Nyberg Creek Greenway (South)

This greenway is located north of Sagert Street at the intersection of 72nd Avenue and Washo Court. It is primarily a drainage way providing water quality protection and wildlife habitat. At its south end the greenway is a densely wooded ravine with steep slopes. As the greenway enters the Nyberg Creek wetlands area, the drainage way widens and flows into the wetlands area. No pathways are proposed.

Shaniko Greenway

Shaniko Greenway is a 3.42 acre parcel which includes a wooded tract, a water quality tract, a 50' strip of land running from the east end of Avery Street to the south end of the 80th Avenue right-of-way, and a 15' easement across the Martinazzi Village property connecting the two areas. The wooded portion of the greenway consists of a densely wooded ravine with mature deciduous trees, thickets and pasture grasses. The slopes are particularly steep adjacent to Martinazzi Avenue. The 80th Avenue right-of-way has been improved with a 12' bike path which will connect with the I-5 bike path at some future date. Due to the steep conditions and the presence of numerous mature trees, it is recommended that a pedestrian path be constructed from Martinazzi Avenue through the wooded tract to the bike path.

(Pages 50-55 changed as per GDP, 1995)

Existing Conditions

Existing recreational use of the greenways appears to be concentrated in the Tualatin riverbank corridor within the Community Park where an exercise trail, boat ramp and picnic facilities are located. Use of the creek greenways may be limited because public access is provided in few locations aside from street crossings and where they empty into the Tualatin River. Hedges Creek is accessible to the public from its southern terminus in the Columbia Greenway, from the Community Park and from the Wetlands Protection District. In the latter case, public access to the creek may not be desirable because of the district's sensitive environmental conditions. Nyberg Creek can be reached through the city-owned park site immediately north of the Rolling Hills apartment site, while Saum Creek has public access at the western end of the creek and at SW 65th Avenue just south of SW Sagert Street. Within this area, an informal trail has been established along the north bank of the creek and continues through a privately owned parcel to SW 65th Avenue. Dedication of this parcel to the city is anticipated when the site is developed.

Recreational Opportunities: Tualatin River Greenway

The Tualatin River Greenway is a potential major recreational corridor that, if fully developed, could function both as an attraction in itself and as an extension of the opportunities along the Tualatin River, especially in the area of the Community Park. Within this corridor, bikeways, pedestrian and jogging trails, interpretive exhibits and fishing areas can be provided. Linkages with the creek greenways can also be made since all three empty into the Tualatin River. Realization of the potential is, however, contingent upon the acquisition of easements or additional land along the river to accommodate facilities and provide public access. Except for the Community Park, all of the land within the designated riverbank corridor is in private ownership, which inhibits development of public recreational facilities.

As a result, development of a Tualatin River recreational corridor appears to be a major project that will require substantial amounts of time and money. While funding will be a basic element in the program other factors are also critical in predicting the success of the project. These factors include a determination to succeed, the development of a support team and coordination with other jurisdictions.

Because of the financial and political obstacles that are inevitably encountered, a determination to succeed is one of the most critical elements in the project, especially in the beginning. Without this determination, the project may be aborted prematurely before its full potential can be exhibited. To counter this possibility, a broad based and influential team should be assembled to provide direction and support. In addition to a willingness to work through administrative and jurisdictional obstacles, team members should have the ability to generate and sustain public support for the project. Because private sources frequently provide the catalyst for financial contributions, the involvement of business people and civic leaders is almost a necessity. This kind of approach has been particularly useful in Eugene where business people have spearheaded and contributed to fund raising efforts for park acquisition, among which was a six-acre riverfront parcel. Other sources for team members include private foundations (i.e., The Nature Conservancy) who may also be able to contribute to fund raising.

Planning is essential to make the best use of the city's financial, physical and social resources in developing the greenway. A final plan, which outlines the required acquisition and development actions, can provide a basis for public involvement and can help to identify priorities. Planning can also insure that the project can be integrated with capital improvement projects and the city's development plan.

Coordination with other jurisdictions is important, since the Tualatin River abuts land within the cities of Tigard, Rivergrove, Durham and Lake Oswego, and Clackamas and Washington counties. Because it is a regional recreational resource, cooperative acquisition and development projects should be explored, especially in facilities such as boat ramps that could serve residents throughout the county. Coordination with developers may also be helpful to protect natural areas within the greenway and in the provision of recreational facilities and public access.

On a short-term basis, a riverfront project may be helpful in fostering public support for the development of a Tualatin River recreational corridor. The project should be a facility that attracts a range of recreational users, exemplifies potential opportunities, and is highly visible.

Recreational Opportunities: Creek Greenways

The greenways appear to have the potential to act as major recreation corridors within the city. Because all three creek greenways eventually reach the Tualatin River, they can connect residential areas with the riverfront and other parks. Extensions to these greenway corridors can broaden this network of connections to include schools, retail centers and other towns and recreational destinations outside the city. The bikeway system, in particular, can be integrated with the greenway corridors to increase the potential opportunities and experiences within the network. Although they collectively function as a whole, bikeways and creek greenways should be designed as independent elements of the network; neither is a substitute for the other. Because the creek greenways generally include varying slopes, dense forests, and support wildlife, passive and low-intensity uses such as nature studies, walking, jogging or picnicking may be more appropriate in these areas. Conversely, portions of creek corridors may be able to support a bikeway or additional facilities with acceptable impacts.

Saum Creek Greenway appears to be suitable as a passive, low-intensity recreational corridor because it includes a densely wooded area that provides wildlife habitats. Hedges Creek offers the same potential in some areas in addition to its unique location within the Wetlands Protected Area. Where the

creek flows through industrial areas, bikeways and more developed facilities may be appropriate as part of the bikeway system. The Nyberg Creek Greenway occurs in open areas with minor slopes for most of its length and, consequently, appears to be suitable as a potential major bikeway connection to link the east half of the city with the downtown.

The development of trails or bikeways, where appropriate within the creek greenways, should be coordinated with the design and installation of utilities. Many of the city's existing and planned sewer and water lines, for example, occur along or close to the creek greenways since they represent the lowest points within a drainage area and hence, are optimal routes for lines requiring gravity flows. The 10-12 foot wide easements and right-of-ways that are needed for maintenance purposes can also double as pedestrian paths or bikeways.

Tualatin Community Park and the Downtown

As noted previously, the Tualatin River and Greenway is a major resource that can accommodate a range of recreational activities and facilities. A focus for this recreational corridor is provided by the community park because of its size, location next to the river, and the inclusion of a boat ramp within the site. It provides the widest range of recreational facilities in the city and is used extensively for large group picnics from late Spring to early Fall (about 70 large group picnics are booked from May through October with attendance ranging from 35 to 300). The park is also the site of the annual Crawfish Festival held in August which attracts 8-10,000 people from throughout the region. As a result, the community park is the most heavily used park in the city and attracts people from outside Tualatin.

The amount of useable land for informal recreation, however, is limited by existing site conditions and property boundaries. Additional facilities or lawn areas may be provided only at the expense of natural areas or existing parking lots. To improve this situation, acquisition of additional land to the east and south of the park should be considered. An extension of the park would provide approximately 2-3 acres of new public land, of which most would be useable for active and passive recreational activities, including group and family picnics and other facilities such as tennis courts and bikeways. The remaining area would consist of forested banks along the river and Hedges Creek. The need for additional river front park land will continue to increase along with the City's population since waterfront parks are typically among the more popular and more heavily used recreational sites. Also, unless other cities along the Tualatin River embark on ambitious acquisition programs, the community park will most

likely continue to be a major attraction for residents throughout the county.

Along with increasing recreational opportunities, the expansion of the community park would also forge a strong visual and functional bond between the river, the park and the downtown. A well developed linkage system of pedestrian paths and bikeways could connect downtown shopping and employment activities with recreational activities both during the work week and on weekends. Walkways and plazas in the downtown can be extended into the park and similar construction and plant materials may be used to increase the visual and functional connections between the two areas.

Expansion of the community park should be considered also because of the park's potential role as the recreational "center" of the Tualatin River Greenway. As the greenway's focal point, the park would serve as the base for river related recreational activities within the city. Expansion and development of the community park as the Greenway network "center" appears to be preferable to the use of other sites because it is adjacent to the city's commercial core and centrally located within the city.

To improve the recreational potential of the park, consideration should be given to transferring the use of the two softball fields and soccer field to a more suitable site. The three fields, which collectively occupy approximately 2.5 acres, have limited flexibility to accommodate other recreational activities because of the special conditions they require (flat, treeless areas, foul ball zones, bleachers). Transferring the use of these fields to other sites would free their present location for individual and group picnicking or other facilities. Transfer of their use would be contingent on the acquisition and development of another site(s) since the existing parks are neither large enough nor located in suitable areas.

Historic Sites

Historic sites are considered to be recreational resources because of their potential to expand the cultural opportunities for the city's residents. These sites can serve as individual attractions in themselves or they can serve as a special facility within a park or district, such as the downtown.

The list of historical sites, shown in Figure 3-3, includes eight structures which were identified in 1977 for the city's Urban Renewal Plan (the list does not represent a complete inventory, however, since the Urban Renewal Plan addressed the downtown and not the entire city). Seven of the sites are

located in the downtown area while one, the Byrom House, is located along Boones Ferry Road and south of Arikara Street. All are privately owned, and with the exception of the building that houses Rich's Kitchen, are not accessible on a regular basis to the public.

<u>No. on Map</u>	<u>Use</u>	<u>Built</u>	<u>Comments</u>
1	Residence	pre-1900	Major rehabilitation required
2	Commercial (Rich's Kitchen)	1900+	Good condition
3	Residence	1907	Good condition
4	Church	1935+	Good condition, possible historic value
5	Public (Old City Hall)	1918	Good condition
6	Residence* (Sweek Home)	1858	Good condition
7	Residence (Nyberg House)	1872	Good condition
8	Residence (Byrom House)		

*On National Register of Historic Places

Figure 3-3: Partial List of Identified Historic Sites, City of Tualatin

Source: Exhibit 12, Phase I, Technical Memoranda, City of Tualatin Comprehensive Plan, 1978. Some of the information has been revised slightly from the original source material.

Because of their historical importance to Tualatin, the city should support the preservation and rehabilitation of these structures. This can occur by encouraging owners to maintain and restore their buildings and by acquiring the sites or just the structure. In the latter case, buildings could be moved to publicly-owned sites such as parks and refurbished as a special park attraction. The transfer of historical buildings may be a necessity in the future since some of the structures

are located in commercial districts and may not be able to support a high level of development without compromising their architectural character.

Structures that offer particular potential as historic/recreational attractions are the Sweek House and the Nyberg House. The Sweek House, built in 1858, is the former residence of John Sweek, who was the city's first settler. Sweek also built the first road from Portland to Tualatin, Boones Ferry Road, with the help of John Taylor in 1893. The present owners of the house have rehabilitated it to reflect the original design.

The Nyberg House, constructed in 1872, is located immediately east of K-Mart and adjacent to the city's I-5 interchange. In addition to its architectural significance, the house was also the residence of John Nyberg, a Swedish immigrant who settled in Tualatin before the turn of the century and served as the city's mayor between 1915 and 1944. As noted in a 1978 city report, the structure is in good condition. The site is located within a Central Commercial Office District, and consequently, may be converted to such a use in the future.

On a larger scale, preservation and use of these structures should: 1) be coordinated with other city plans; and 2) be a part of a broad effort at maintaining the city's historical sites. Redevelopment of the downtown, as proposed by the Urban Renewal Plan, should consider potential contributions of buildings, such as the Old City Hall and the Sweek House, to the city's character and overall urban design.

A broad based program of preservation should also be initiated to encourage a citywide approach to the maintenance of these sites and structures. The first step in the development of a city preservation program is a comprehensive survey of its historical resources to provide a permanent reference base and to prevent the inadvertent destruction of these sites. The designation of a staff person to coordinate historical research, compile findings and assist the city in preserving historic sites, should also be considered.

Tonquin Scablands Geologic Area

The Tonquin Scablands Geologic Area has been identified by Washington County as a significant natural area (Volume I, Resource Document, Washington County Comprehensive Plan, 1982). The area, consisting of roughly five square miles, includes several sites of particular geologic and biological importance (see Figure 3-4). It is considered by Dr. John Allen, Professor Emeritus at Portland State University, to be the finest example of scablands to be seen in Oregon.

The scablands were formed during the late Pleistocene Ice Age when dozens of catastrophic glacial floods inundated the Willamette Valley. The major conduits for the floodwaters, other than the Willamette Valley Gorge south of Oregon City, were the Lake Oswego gap and the Tonquin lowland in the extreme southeastern part of Washington County. The high velocity floods scoured the low-lying hills between Sherwood, Tualatin and Wilsonville, and carved in a series of channels, depressions and deeply marked bedrock knolls and channel walls. Evidence of this scouring to bedrock can be seen up to the 300-foot elevation along with "glacial erratics" (rocks from the Canadian Rockies which were carried by glaciers) that are scattered throughout the Willamette Valley.

Of the eight major geologic features that have been identified within the scablands, one is located within the Tualatin Urban Growth Boundary and several are adjacent to the UGB. The site consists of a half-mile long depression north of the community of Tonquin following the route of the Burlington Northern Railroad. The southern half is now a swamp and the northern half is a shallow lake. Part of the adjacent west facing cliffs are vegetated with relatively drought-tolerant plants because of the shallow soil; the dominance of Pacific madrone (Arbutus menziesii) is especially striking for a locale in the northern Willamette Valley. This may be the premier site in the Scablands most deserving of preservation.

Rock quarrying west of this site has already destroyed a sizeable portion of the scablands. Purchase of the wetland, channel slopes, and representative adjacent areas by a public or quasi-public agency would be the preferred solution to preservation of the area. The Oregon Parks and Recreation Division has responsibilities of this type.

Use of the area for recreation now appears to be limited because no public access is available and because most of the area is privately owned. The Audubon Society does, however, conduct occasional hikes with small groups into the ponds area mentioned previously via the Burlington Northern Railroad line.

Future public recreational opportunities will likely continue in the same manner unless: 1) arrangements are made with land-owners to allow access; or 2) scabland sites are acquired in fee, or easements are secured. Assistance in acquisition could possibly involve groups such as the Nature Conservancy or private foundations. (See Chapter Two for a discussion of foundations and other funding sources).

Because of the area's significance as a geologic site and habitat for wildlife, the emphasis of potential "facilities" and activities should be on those that are low-intensity,

passive, and non-consumptive. As suggested for the wetland trails, interpretive exhibits and observation blinds may represent the most appropriate kinds of facilities for the scablands.

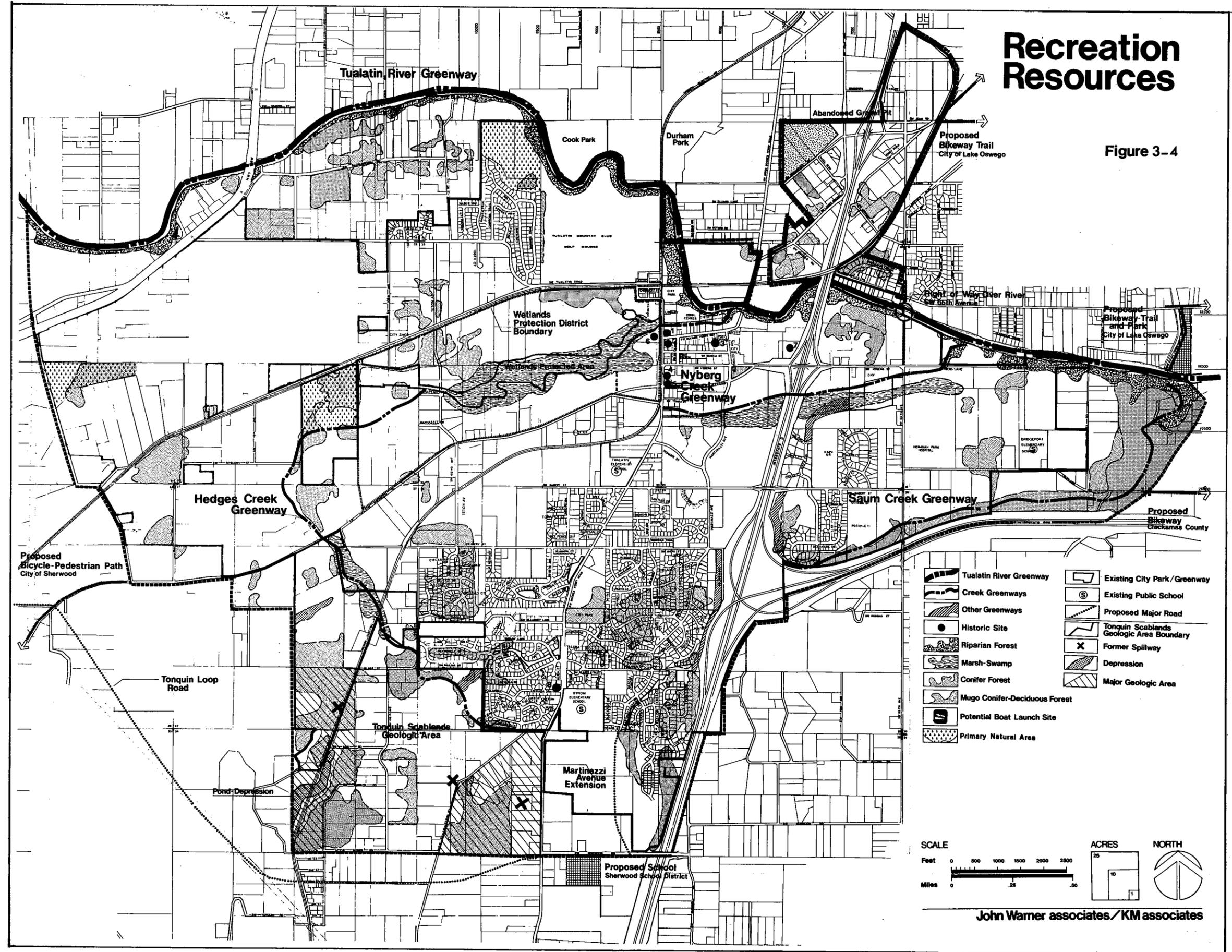
Utility Line Easements

The maintenance of some stormwater, sewer and water lines requires easements of 10' width or larger to allow the passage of trucks and other equipment (see Figure 3-5). In general, easements are required of trunk lines only. Access to and within these easements must be provided permanently, precluding any use of the easement that would limit maintenance of the lines. While the underlying land may be privately owned, the city usually has a perpetual easement that remains despite changes in title.

Easements are potential routes for bikeways and pedestrian or jogging trails partly because of these requirements. They are wide enough for bikeways and trails, may be paved, and can be inspected frequently by maintenance crews. In Tualatin, easements that have the potential for joint use occur throughout the city. In general, joint use opportunities on the east side of the I-5 freeway appear to be oriented towards recreational trails because of their occurrence along existing creeks. In the western portion of the city, potential joint use trails occur mostly in industrial districts and thus, may be useful as commuter bikeways or jogging paths for industrial employees.

Recreation Resources

Figure 3-4



- | | | | |
|--|-------------------------------|--|--|
| | Tualatin River Greenway | | Existing City Park/Greenway |
| | Creek Greenways | | Existing Public School |
| | Other Greenways | | Proposed Major Road |
| | Historic Site | | Tonquin Scablands Geologic Area Boundary |
| | Riparian Forest | | Former Spillway |
| | Marsh-Swamp | | Depression |
| | Conifer Forest | | Major Geologic Area |
| | Mugo Conifer-Deciduous Forest | | |
| | Potential Boat Launch Site | | |
| | Primary Natural Area | | |

SCALE

Feet 0 500 1000 1500 2000 2500

Miles 0 .25 .50

ACRES

20

10

1

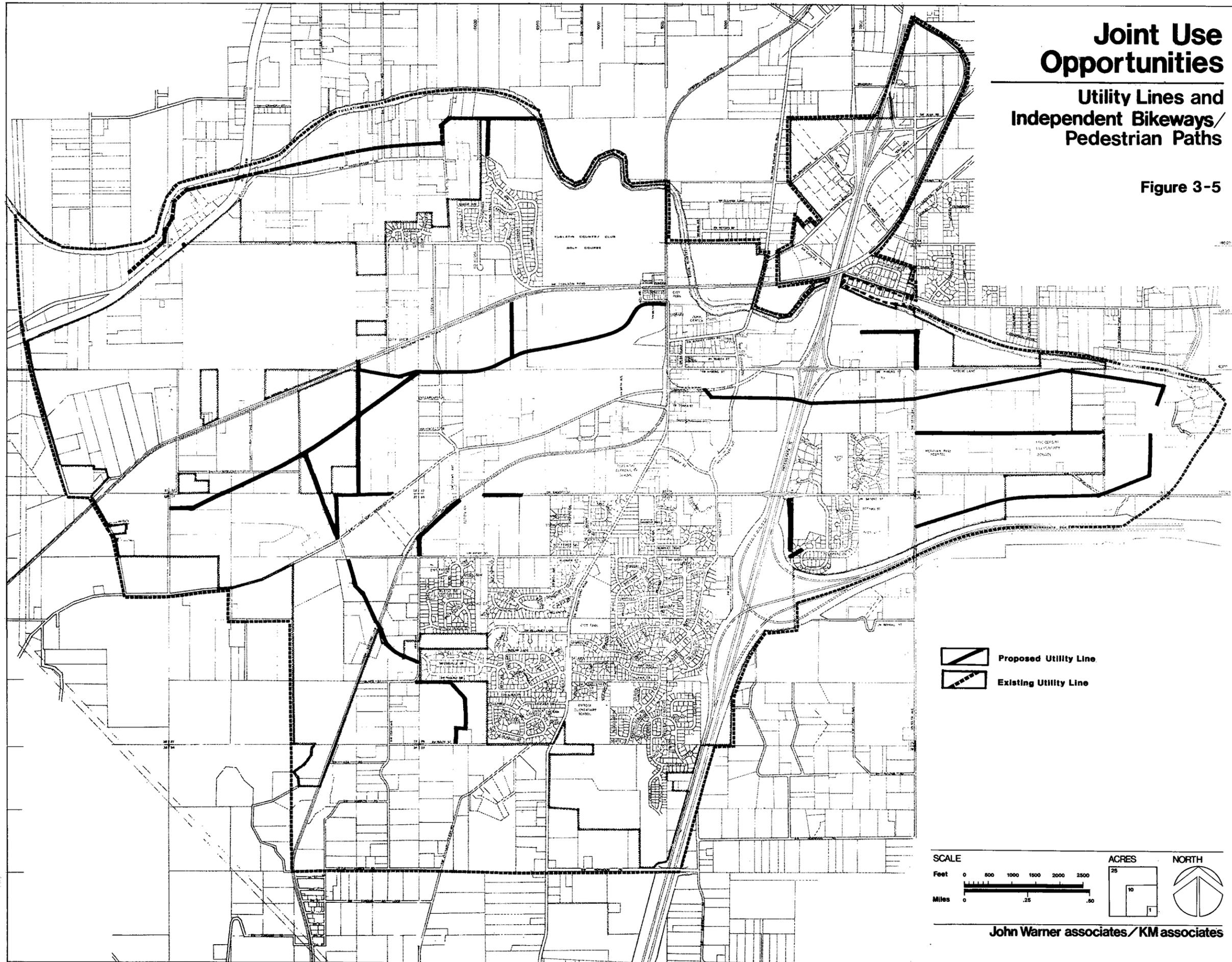
NORTH

John Warner associates / KM associates

Joint Use Opportunities

Utility Lines and Independent Bikeways/ Pedestrian Paths

Figure 3-5



- Proposed Utility Line
- Existing Utility Line

SCALE

Feet 0 500 1000 1500 2000 2500

Miles 0 .25 .50

ACRES

25

10

1

NORTH

John Warner associates / KM associates

Chapter 4
Recommended Plan

The recommendations and projects which make up the Parks and Recreation Master Plan were developed according to four major factors: 1) the objectives on recreation as outlined in Chapter 15 of Tualatin's Development Code; 2) findings generated through the survey conducted in November 1982; 3) the assessment of opportunities and resources which is described in the previous chapter; and 4) consultation with the city's Parks and Recreation Advisory Committee. The objectives in the Development Code provided a comprehensive and clear definition of the city's policies towards the parks system and consequently served as a basis in the preparation of the Master Plan. The survey findings defined the public's recreational needs and the resource assessment identified potential sites and methods in which their needs could be met. The Advisory Committee helped to review and refine the concepts embodied in the Master Plan.

Through this process four major issues appeared as priorities in the future growth and development of the parks system in Tualatin. These issues are as follows:

- Land Acquisition is of critical importance because many of the city's parks and greenways appear to be at capacity, both in number of users and facilities. Because land is a basic ingredient of a park and recreation system, the plan emphasizes land acquisition as a major goal and, in particular, land for neighborhood parks and riverfront parks.

Neighborhood Parks. The city's major residential areas are all scheduled to accommodate significant increases in population over the next 20 years. To meet the potential demand for recreational services created by these new residents, the plan proposes the acquisition of designated acreages within each area to serve existing and new residential neighborhoods. (See Figure 2-2).

The size of the recommended acreages range from 10 to approximately 35 acres, depending on the conditions and recreational potential of each site. Smaller sites were not recommended because of the high maintenance costs typically associated with them and because of the city's policy against the acquisition of mini-parks. This does not totally preclude the purchase of small sites, since large sites may not always be available. Also, special resources, such as historic sites and natural areas, may not occur as large sites but should nonetheless, be integrated into the parks and recreation system if they are determined to be of value.

Riverfront Parks. The Tualatin River Greenway can be a major part of the park system and has the potential to become a regional attraction and resource. Additional

riverfront park land will strengthen the Greenway as a recreational corridor by providing the land for facilities (bikeways, boat ramps) and improving public access to the river and serving as a focus for river related activities. In the community park, the acquisition of adjacent riverfront land will increase its capacity and promote a close visual and functional linkage with the downtown.

- o Preservation of Natural Areas. Aside from the Wetlands Protection District, which is of regional significance, the city also has within its limits other natural areas that reflect the city's heritage, provide valuable habitat areas, and offer educational opportunities for the city's residents. The plan proposes that many of these natural areas be preserved, through acquisition in fee or of development rights, and in some cases, be partially improved with limited recreational facilities. In addition, the plan recommends the preparation of a Natural Areas Management Plan to guide the use of these areas for recreational purposes and to define development standards for adjacent urban development.
- o Development of Connections Between Parks, Residential Areas and the Downtown. Because access is a major determinant of park use, the plan proposes a network of bikeways and pedestrian trails that are integrated into the existing and planned development patterns of the city. The trails also utilize the greenway corridors to create a system of linkages that are both transportation routes and recreational destinations in themselves.
- o Development of a Broad Based Program to Support Parks and Recreation Operations. The traditional funding structure for park and recreation operations and projects has changed recently, necessitating a more self-sufficient approach with an emphasis on generating revenues. To maintain or expand service levels, a comprehensive program should be established to investigate, coordinate, and utilize the human and financial resources that do exist. This is especially critical if the recreational needs of the projected population (between 22-29,000 residents) are to be met.

In addition to these four issues, two projects appeared to be of citywide significance, principally due to their potential role in providing recreational opportunities for all residents, and contributing to the identity and quality of the downtown. The two projects are as follows:

- o Development of a Swim Center, Possibly in Conjunction with Court Sport/Sports Field Facilities. The need for a public swim center has been documented through surveys of the city's residents (approximately 71 percent of respondents in the last survey indicated a desire for a swim center) and appears to be the single improvement most residents want in Tualatin.

Consideration should be given to the inclusion of other facilities, such as tennis courts and sports fields, which are needed but require substantial amounts of land and which may be more cost-efficient in construction and maintenance if centralized. Because a multi-use complex would most likely be located in a non-residential area, it should accommodate activities and facilities that would otherwise be provided in neighborhood parks but which generate negative impacts on the adjacent area. Sports fields in particular are needed, but when used for league play, produce noise, lighting and traffic levels that are incompatible with most residential districts.

If the swim center is developed independently, consideration should then be given to the acquisition and development of a site that can accommodate a variety of regulation sports fields with lighting and adequate parking.

- o Expansion and Improvement of the Tualatin Community Park. The community park now appears to be the most popular park in the city due to its size, central location and the wide range of recreational facilities and opportunities it provides. The park is heavily used during the summer for organized sports, group picnics and family outings. To increase its capacity, the park should be expanded east of the Tualatin/Durham Senior Center. The expansion would have two major benefits. It would increase the park's acreage by approximately 2-3 acres, most of which would be useable for both active and passive recreation. The expansion would also strengthen the role of the community park as a major focus for the city and the Tualatin River Greenway. Additional picnic areas could be provided and a stronger connection to the downtown may be developed.

OBJECTIVES

The following are the existing objectives of the Park and Recreation Plan as defined in the city's Development Code. The objectives were used to establish the general direction of the Master Plan. These objectives are to:

- PLANNING:
- o Create a park and recreation system that provides diverse recreation opportunity.
 - o Provide a high quality park and recreation system to offset the environmental impact of large areas of commercial and industrial development.
 - o Coordinate this Park and Recreation Plan with the plans of regional, state and federal agencies to achieve consistency among the various plans.

ACQUISITION/ DEVELOPMENT:

- o Develop a system of neighborhood parks that are geographically well distributed to serve the city's population.
- o Develop a comprehensive city recreation program with an emphasis on youth activities, cultural activities and the city's natural environment.
- o Develop joint use agreements with the Tigard School District for the joint use of school land for neighborhood park facilities.
- o Develop an advance land acquisition program that will assure the future availability of land for park and recreation use at the most reasonable cost.
- o Discourage acquisition of small mini-parks because of relatively high maintenance expenses, except where a specific recreation need has been identified as a priority.
- o Encourage private donations of land or money, consistent with the Park and Recreation Plan, to augment city park development funds.
- o Develop a Capital Improvements Program to define recreation improvement priorities,

financial requirements and financing methods.

- Whenever possible, locate neighborhood parks adjacent to school sites.
- Preserve designated historic structures or sites through public purchase or encouragement of compatible private reuse.
- Preserve and enhance native vegetation in riparian and other natural areas for the purpose of providing favorable habitat for fish and wildlife. Encourage developers to preserve areas of natural vegetation, wherever possible, to provide habitat for wildlife.
- Encourage developers to utilize residential density shifts, landscaping credits, system development charge credits, reduction of minimum setback requirements and other incentives for greenway, bikeway and pedestrian path purposes.
- Preserve the scenic value of the Tualatin River by creating a greenway along the entire bank of the river within the city.
- Preserve greenways, as much as possible, in their natural state.
- Link the park and recreation system together with a system of greenways and bicycle/ pedestrian facilities.
- Preserve as greenways specific city creeks and drainage swales to provide sufficient area for stormwater runoff, enhance water quality, preserve fish and wildlife habitat and provide, where appropriate, public pedestrian and bicycle access.
- Develop design standards for development adjacent to greenways and natural areas.
- Preserve the Hedges Creek wetlands as a natural area and develop a Wetlands Protection Plan for the area between the Tualatin River and Boones Ferry Road.
- Discourage filling of the Hedges Creek wetlands located westerly of those wetlands that may be identified by the city's Wetlands Protection District Ordinance until a general plan has been prepared for the remaining wetland area or until a consensus has been achieved among industrial and environmental interest groups and state and federal agencies on any individual request for a wetland fill permit.

WETLANDS:

that may be identified by the city's Wetlands Protection District Ordinance until a general plan has been prepared for the remaining wetland area or until a consensus has been achieved among industrial and environmental interest groups and state and federal agencies on any individual request for a wetland fill permit.

RECOMMENDED ACTIONS

Acquisition: (See Map on page 75)

1. Natural Areas - Preserve natural areas, through acquisition in fee or of development rights. Other than those areas currently protected by ordinance, the city would consider acquiring certain portions of important natural areas that reflect the city's heritage, provide valuable habitat areas, and offer educational opportunities for the city's residents.
2. Neighborhood Parks - Provide neighborhood parks that are easily accessible by children, can accommodate a variety of recreational facilities and activities and are located adjacent to schools, where possible, to maximize joint use potential.

Area 1: 10 Acres
Area 2: 26-35 Acres
Area 3: 12-18 Acres
Area 4: 10-11 Acres

3. Community Parks - Determine the feasibility, building program requirements and development costs for a swim center. Investigate also the potential to provide sports fields, covered tennis courts and other facilities that may have a citywide attraction.

15-25 Acres

4. Riverfront Parks - Expand the city's frontage and public recreational opportunities along the Tualatin River through acquisition in fee or of development rights. This acquisition would be in the form of 1-2 acre sites at intervals along the proposed greenway bike route (see map on page 88) which would run parallel to the river and would provide rest stops and picnicking facilities.

The Plan establishes a policy and strategy to acquire designated amounts of acreage for park and recreational facilities in the Natural Areas, Neighborhood Parks, Riverfront and Community Facilities components of the Plan. The Policy and Strategy to acquire real property is purposefully not site specific, and it is not the intent of the Plan to establish or declare the need to acquire any specific tract or parcels of real property. The established Policy and Strategy for acquisition of real property for the indicated purposes shall not impose or create any limitation upon the use, development or occupancy of any real property.

EXISTING PARKS, GREENWAYS AND FACILITIES

- A. Expand the level of recreational opportunities through the following actions:

Tualatin Community Park:

1. Acquire and develop 2-3 acres east of the senior center for active recreation and picnic areas.
2. Develop a major pedestrian linkage between the downtown and the park.
3. Transfer the use of the two softball fields and a soccer field to other site(s) that can accommodate these facilities.
4. Develop a floating dock and rental center.

Little Woodrose Nature Park:

1. Develop a series of interpretive exhibits where determined to be appropriate.
2. Improve the visibility and public awareness of the park through identification signs at both entrances.

Greenways:

See the 1995 Greenway Development Plan and Chapter 11 of the TDC for pedestrian and bike path recommendations and implementation steps (GDP 1995).

- B. Develop the Tualatin River Greenway as a major recreational corridor within the city. The following represent the initial tasks of the Greenway project:
1. Develop a work program, funding proposals, implementation plan, and hold informational meetings with the public.
 2. Identify a staff person to initiate and direct the acquisition of riverfront parcels, according to the work program defined by the committee.
 3. Coordinate the work program and acquisition with other jurisdictions that have frontage along the Tualatin River or which may be interested in joint acquisition/development efforts.
 4. Establish a program to inform and involve the public in the development of the Greenway Plan through public hearings, newsletters and meetings.

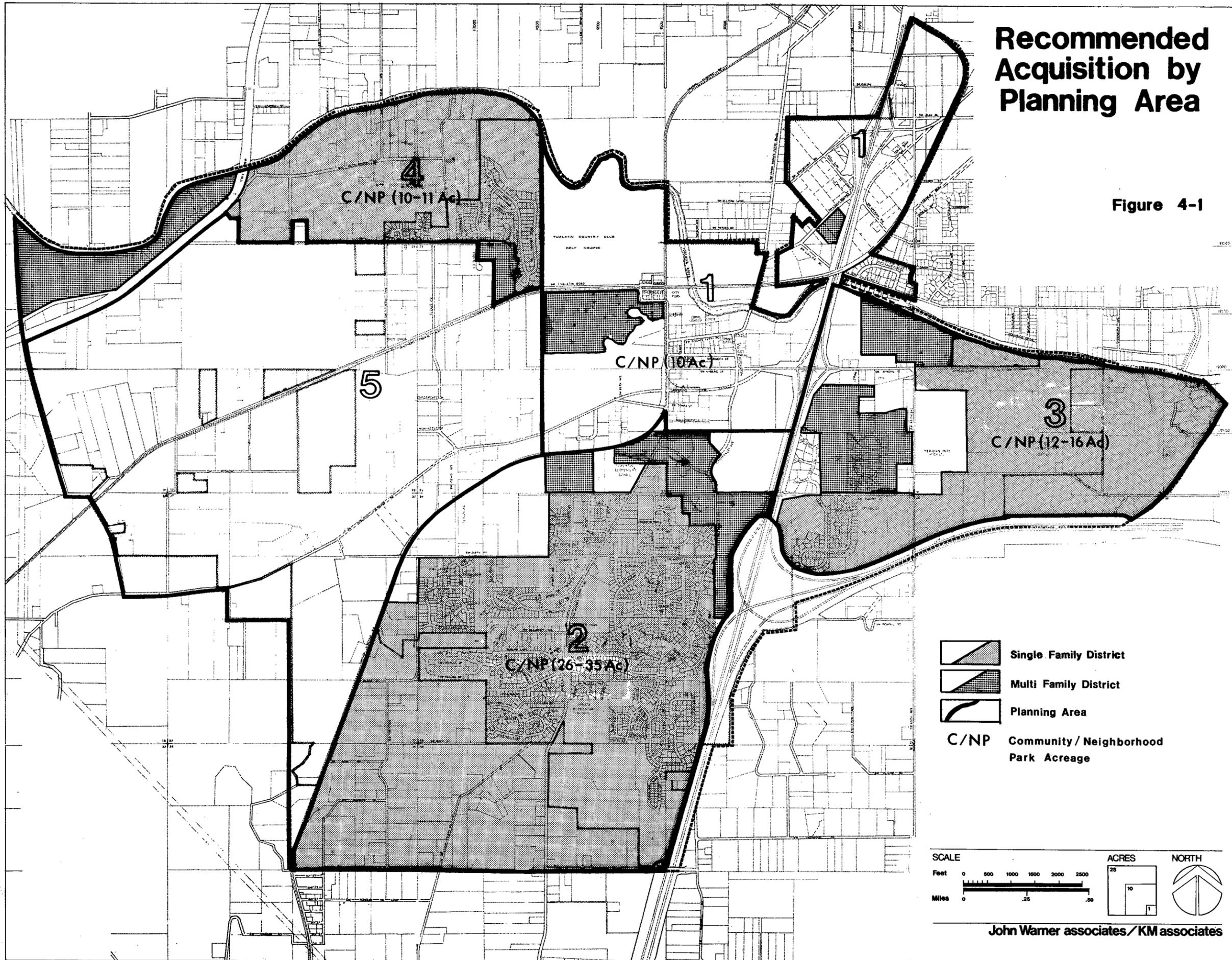
Planning

- A. Develop and strengthen existing funding programs that support the parks and recreation system.
 1. Identify cost recovery goals for programs that generate revenues.
 2. Explore the use of the mandatory dedication concept and a Systems Development Charge to help in the acquisition and development of recreational sites and facilities.
 3. Investigate the establishment of a parks foundation to promote the development of the parks system.
 4. Prepare a gifts catalog to identify specific items, projects and services that citizens or groups can donate.
 5. Investigate the establishment or increased use of fees, concessions and leases for certain recreational programs and facilities.
 6. Appoint a staff person to serve as the city's volunteer coordinator to oversee the volunteer programs.
- B. Increase the visibility and public awareness of the recreational opportunities within the city through:
 1. The preparation of a map depicting existing parks, facilities, and bicycle routes.
 2. Special events to highlight specific services, completion of projects, and seasonal happenings (e.g., the blossoming of rhododendrons at Saarinen Wayside Park and the migration of ducks and other birds through the Wetlands).
- C. Prepare a Natural Areas Management Plan that would:
 1. Establish policies to guide and coordinate the use of natural areas for recreational and educational purposes.
 2. Develop wildlife enhancement and preservation programs.
 3. Identify design standards and guidelines for urban development adjacent to natural areas. The management plan would include the Tualatin River Greenway, all three Creek Corridor Greenways, and other areas identified as significant natural areas.

D. Establish a program to review and update the objectives and individual projects of the Master Plan.

Recommended Acquisition by Planning Area

Figure 4-1



The bikeway plan, pages 76-92, was deleted from the Parks and Recreation Master Plan, revised and incorporated by reference as the Bikeway Plan into Chapter 15 of the Tualatin Development Code with implementation policies incorporated into Chapter 11 (Transportation) as per Ordinance No. 895-93, on May 24, 1993.

LANDSCAPE MAINTENANCE STANDARDS

LANDSCAPE MAINTENANCE STANDARDS

The City of Tualatin Parks and Recreation Master Plan provides landscape maintenance standards for the wide range of environments contained within its land base. These include large tracts of undeveloped natural areas, miles of linear greenways acquired for preservation purposes and as recreation trails, and smaller neighborhood parks designed to serve the recreational needs of local residents. The management of such diverse properties requires an extensive grounds maintenance program.

The standards outlined in the Master Plan set out an approach to maintenance that is appropriate for a landscape type, yet allows the visual character and uniqueness of a site to remain intact. The landscape standards promote a balance of preservation of sensitive environments with recreational opportunities in natural areas. In more developed areas, they help to reduce grounds maintenance to the procedures necessary to sustain a high quality park site and meet the physical demands of public recreational use. The landscape standards provide for varied levels of maintenance within the park system that reflect standards of care and a stewardship plan. They lend a constancy to routine operations, so that known quantities of labor and materials may be projected for budgeting purposes. The landscape maintenance standards were changed as per the 1995 Greenway Development Plan.

NATURAL AREAS

Greenways

Greenways are the narrow corridor linkages connecting park areas and other public open spaces. The greenway passes through many landscape types and assumes the different characters of the adjacent environments from natural and riparian landscapes to developed industrial or commercial areas. With the linear quality of greenways, access for maintenance vehicles and space for large scale operations is limited. Thus, the greenways should require as little intensive maintenance as possible.

The greenways adjacent to natural areas should be preserved with a low level of maintenance, as described in Wooded Areas, and Waterways and Wetlands. Corridors through areas such as residential, industrial or commercial should be developed and maintained at a moderately low level by the use of simple indigenous plantings, ground covers and meadow grasses.

Maintenance Criteria:

1. Avoid plant disturbance and soil compaction of established pathways.
2. Repair eroded areas and stabilize soil with biodegradable netting and native plants and grasses. Construct barricades with brush to protect new plantings.

3. Prune or clear to maintain path safety and visibility; remove large branches, debris, and fallen leaves.
4. Patch holes, fill cracks and repaint worn pavement markings as needed.
5. Prune to preserve views of special topographic, natural or interesting man-made features.
6. Remove and control invasive plants such as Himalayan Blackberry or Poison Oak by grubbing and spraying with herbicide. Replant with groundcovers or grasses.
7. Inspect and remove hazardous trees. Where appropriate and safe, leave snags for wildlife habitat.
8. Preserve natural drainage patterns; regrade only as necessary to accommodate pathways.
9. Periodically clean out ditches, culverts and other drainage structures to eliminate ponding and erosional damage.
10. Plant indigenous meadow grasses where applicable and appropriate. Mow grasses only twice per season.
11. Limit lawns to those areas desired for a specific use such as an overlook. Plant lawn only in areas contiguous to other lawns, on slopes of 3:1 or flatter, and in areas larger than eight feet wide for ease of mowing. Minimize tree plantings in lawns; keep lawn areas open.
12. Plant drought-resistant, native trees to provide shade for resting areas or overlooks, to frame views or delineate edges or boundaries.
13. Plant drought-resistant, pest-resistant shrubs to contain edges of the greenway, or screen undesirable views.
14. Plant certain species of native trees and shrubs such as red and/or blue elderberry, red currant or western crabapple to create bird habitat and food sources.
15. Use temporary irrigation and fertilizers only to establish new plantings.
16. Minimize foliage spraying, edging and trimming, weeding, fertilizing and other routine operations.
17. Permit owners of adjacent properties to maintain the greenway at a higher level, if desired, with an agreement that would be renewed annually.

Wooded Areas

The wooded areas consist primarily of conifer or mixed conifer-deciduous forests, as described in Forest Areas, "Existing Conditions," in Chapter 3 of the Parks and Recreation Master Plan. Valued as a natural resource for plants and wildlife, and water and air quality, wooded areas are a landscape type of low intensity recreational use. While preservation and protection of the existing ecosystem is critical to this fragile environment, the wooded areas require minimal routine maintenance.

Maintenance Criteria:

1. Avoid plant disturbance and soil compaction. Create and maintain suitable trails to satisfy recreational needs and concentrate human impact in specific areas. Discourage dispersed recreational use.
2. Repair eroded areas and short cuts through trail switchbacks. Stabilize soil with biodegradable netting and planting of native plants and grasses. Allow forest to regenerate natural growth over those areas. Construct barricades of brush and forest debris to protect new plantings and to encourage foot traffic to use other routes. Conceal abandoned trail cuts with brush.
3. Prune or clear only to maintain trail safety or to preserve views of special topographic or natural features. Allow fallen leaves and branches to decay on forest floor.
4. Remove invasive plants such as Himalayan Blackberry or Poison Oak by hand method and spot treatment with herbicide as minimally required. Remove rampant English Ivy by hand from forest floor and tree trunks.
5. Preserve natural drainage patterns. Regrade minimally or modify only as necessary to prevent puddles or erosion on trails.
6. Use hand irrigation or spot fertilizer only as required to establish new plantings.

Waterways and Wetlands

Waterways include moving water channels, drainage swales, both continuous and intermittent springs, creeks, streams and rivers. The banks of the waterways support red alder, western red cedar, willow, black cottonwood, redosier dogwood, rushes and sedges.

Wetlands are defined as areas having hydrophytic plants, hydric soils and hydrology during part of the growing season. They include areas such as bogs, marshes, wet meadows, and wooded swamps. Wetlands are often found in floodplains, but are not limited to these areas. Vegetation associated with these areas

include those riparian plants listed above as well as mosses, skunk cabbage, and herbaceous species.

Preservation and protection are important for these sensitive landscape types since the waterways and wetlands provide valuable fish, bird and wildlife habitat. They also provide other valuable functions including flood control and water quality protection. If left in a natural state, they require little maintenance.

Maintenance Criteria:

1. Avoid plant disturbance, soil compaction, or filling of wetland areas. Discourage dispersed recreational use, or disruption of bird nesting areas.
2. Maintain trails/boardwalks in a manner appropriate to their respective design functions. Limit off-trail intrusions.
3. Repair eroded areas and stabilize soil with biodegradable netting and planting of riparian plants. Stabilize disturbed banks with gabions if necessary, cover with soil mix and plant native riparian species.
4. If river or stream bank is heavily eroded and desired for more intensive recreational use, upgrade and develop to a more durable landscape type.
5. Prune or clear only for safety or to allow views of special topographic or natural features. Allow fallen leaves, branches, snags and grasses to decay.
6. Preserve natural drainage patterns. Accommodate seasonal water level fluctuations.
7. Use hand irrigation only to establish new plantings.
8. Limit use of herbicides or fertilizers on the banks of the waterways or near wetlands.

Runoff Areas and Water Quality Facilities

Runoff areas consists of large open grassy fields within flood plains that can accommodate the seasonal inundation of creek or river overflow. Water quality facilities can be bioswales, filtration ponds or other water retaining or detaining areas. Retention areas are typically graded to form a basin in which runoff from adjacent development is held, allowed to percolate through the soil, and then released into an existing waterway at a slower rate. Some runoff areas or water quality facilities may have recreational use or be used as flexible open space. These areas should be planted in meadow grasses and require low maintenance levels.

Maintenance Criteria:

1. Water quality facilities should be maintained according to the particular maintenance plan of that facility.
2. Sediment should be removed when it builds up to six-inches in depth at any location. Swales should be cleaned with equipment which operates similar to a ditch master, rather than backhoe dragging, to minimize damage to the bioswale vegetation.
3. Plant drought-tolerant meadow grasses.
4. Irrigate only to establish grasses.
5. Mow at least twice per year to maintain height of 6-12 inches. Cuttings should be promptly removed and properly disposed of to prevent pollutants from entering the receiving waters.
6. Do not use herbicides or fertilizers.

Thicket Areas

This landscape type generally describes land areas at a forest edge, or areas recently disturbed by logging, clearing, fire, construction or agriculture. Thickets support largely deciduous, medium-sized trees 25-30 feet high, such as hawthorne and chokecherry. A dense, tangled understory is comprised of blackberry, elderberry, thimbleberry, vine maple, oceanspray, wild rose, bracken fern, tansy ragwort, snags, wildflowers and grasses. Existing thickets may be visually unattractive, but the vigorous vegetation, over time, will change to a more stable conifer forest, with the emergence of young Douglas fir seedlings.

While recreational use is difficult to maintain, thickets are valuable as wildlife habitat, providing dense cover and a variety of foods. The areas allow opportunities for bird and animal observation; and interpretive exhibits can explain the changes taking place in this durable, yet transitional ecosystem.

Maintenance Criteria:

1. If intended for eventual forested area, allow recovery of thicket areas; or, upgrade to other landscape type, if desired for a particular recreational use.
2. Prune only to clear trails and maintain safety.
3. Eradicate Himalayan blackberry by grubbing and spraying. Allow other indigenous plants to recover the area.
4. Eradicate tansy ragwort by use of Cinnabar moth.

DEVELOPED RECREATIONAL SITES

Canopied Turf Areas

Canopied turf areas are simple, mowed lawns with some free-standing native and ornamental trees in natural arrangements. These flexible open spaces allow a variety of passive recreational uses such as picnic areas and small lawn games. The canopied turf areas are often adjacent to more intensive use areas such as children's play equipment, camping and community facilities.

Maintenance Criteria:

1. Prune trees for health, safety, habit and filtered light to ensure turf growth.
2. Plant trees with a minimum spacing of 25 feet to allow easy mowing operations.
3. Plant large trees with a minimum of two inch caliper to reduce damage or vandalism.
4. Plant lawn only on slopes 5:1 or flatter.
5. Irrigate turf areas with an automatically controlled system.
6. Conduct periodic maintenance operations necessary for turf such as fertilizer and weed control applications, reseeding, edging, trimming, aerating and dethatching.

Open Turf Areas

Open turf areas are large, open expanses of lawn with no tree plantings. These flexible open spaces allow a variety of active play such as kite flying, badminton, frisbee, model airplane flying, archery, etc., and are often associated with more intensive use areas.

Maintenance Criteria:

1. Irrigate large turf areas with automatically controlled system.
2. Conduct periodic maintenance operations necessary for turf such as fertilizer and weed control applications, reseeding, edging, trimming and aerating.

General Landscape Plantings

General landscape plantings include ornamental trees, shrubs and groundcovers which are confined to edge planting beds, often adjacent to canopied or open turf areas. Ornamental plantings are used for park aesthetics and to give form to open park spaces. They are used for screening, barriers, windbreaks, spatial

delineation and building foundation plantings. Wildlife habitat is also provided by these plantings.

Maintenance Criteria:

1. Prune to improve health, safety and habit of the plants.
2. Irrigate turf areas with an automatically controlled system.
3. Mulch to conserve soil moisture and to dress beds.
4. Plant vigorous, drought and pest-resistant plants that are quick to establish. Plant large sized plants to minimize vandalism.
5. Clean all debris from planting beds.
6. Conduct periodic maintenance operations as necessary such as fertilizer and weed control applications, edging and foliage spraying.

Playfields

Playfields are open turf areas designed and laid out for specific sports, such as softball, baseball, football or soccer.

Maintenance Criteria:

1. Irrigate turf areas with an automatically controlled system.
2. Conduct periodic maintenance operations necessary for turf such as fertilizer and weed control applications, reseeding, edging, trimming and aerating in accordance with intensity of use.
3. Ensure proper drainage.
4. Improve or maintain proper soil mix for dust control on ball diamonds.

Specialty Landscape Plantings

Specialty ornamental trees, shrubs and groundcovers are usually confined to planting beds or containers. These plantings include distinctive gardens such as roses, rhododendrons, bulbs and annuals; and are used for horticultural and display purposes and park aesthetics.

Maintenance Criteria:

1. Prune to improve health and form of the plants.
2. Irrigate with an automatic or intensive drip system tailored to the particular horticultural need.

3. Mulch to conserve soil moisture and to dress beds.
4. Clean all debris from planting beds.
5. Conduct special and routine maintenance operations as necessary such as fertilizer and weed control applications, edging and foliage spraying.

Memorial Plantings

Memorial plantings range from single trees or groves of trees to larger special plantings located in a particular location of a public park. The park division can offer a program to the public to contribute to park aesthetics through the donation of labor and materials for plantings. The plantings may be in memory or in honor of a person or event, and they are given a special status or recognition apart from other general park plantings. The plants may or may not be accompanied by a placard for commemoration.

Maintenance Criteria:

1. Prune to improve health and habit of the plants.
2. Irrigate turf areas with an automatically controlled system.
3. Mulch to conserve soil moisture and to dress beds.
4. Clean all debris from planting beds.
5. Conduct special and routine maintenance operations as necessary such as fertilizer and weed control applications, edging and foliage spraying.

Appendices

See Inventory ^{Not about}
" GDP for ^{map} greenway info

APPENDIX A
INVENTORY OF EXISTING PARKS

PARKLafky Park

TypeMini-Neighborhood

Size2.00 Acres

Parcel No.3200 Map 2S 1 26BD

General DescriptionDeveloped park in newer single-family area.

TopographyGenerally flat with gently sloping mounds and landscaped areas. Basketball court surrounded by grassy slopes.

VegetationExtensive lawn area
Shrubs
Deciduous and evergreen trees along walkway and in landscaped areas.

Unique Features

Facilities4 Picnic Tables
1 Mini Basketball Court (2 hoops)
Wood Play Structure
Open Lawn Areas
Concrete Walkways (5' wide)
1 Bicycle Rack

Comments

PARK	Little Wood Rose Nature Park
Type	Natural Area
Size	6.50 Acres
Parcel No.	100 Map 2S 1 26DB 1200 Map 2S 1 26DA
General Description	An undeveloped "nature" park bordered by S.W. Boones Ferry Road, a vacant lot, and single-family residences.
Topography	Site slopes down from north and south borders to wet area in center of park. Slopes vary from moderate to steep.
Vegetation	Heavily wooded with deciduous and evergreen plant materials.
Unique Features	Habitat for a variety of wildlife, and unusual plant species.
Facilities	Trail approximately 4' wide winds through site from 90th Avenue to Boones Ferry Road.
Comments	Partially maintained and improved by civic groups.

PARK	Saarinen Wayside Park
Type	Vest Pocket
Size	.05 Acre
Parcel No.	Tract A Map 2S 1 26AD
General Description	Small park designed as a Rhododendron Garden. Located within a new single family area.
Topography	Flat.
Vegetation	Rhododendrons plated throughout park as well as shrubs and trees.
Unique Features	19 varieties of rhododendron bloom from February to June.
Facilities	Gravel walkway through park. Bench.
Comments	

PARK	Stoneridge Park
Type	Vest Pocket
Size	.20 Acres
Parcel No.	2800 Map 2S 1 24DD
General Description	Developed park in extensive multi-family housing area.
Topography	Flat with slight slope to north.
Vegetation	Maple grove. Open lawn area. Shrubs in landscaped area.
Unique Features	
Facilities	Gravel trail to play area from street. Children's play area 1 merry-go-round 2 see-saws 2 picnic tables 1 bicycle rack 1 slide
Comments	Only developed city park for residents living east of I-5.

PARK	Tualatin Community Park
Type	Community
Size	28.60 Acres
Parcel No.	800 Map 2S 1 13C 24, 1200, and 1006 Map 2S 1 24B

General Description Developed and landscaped park with a variety of recreational facilities and opportunities. This is the only developed community park in the City.

Topography Flat, except along the Tualatin River where moderate-steep slopes are found.

Vegetation Densely wooded in area adjacent to Tualatin River. Wooded area varies from 30 feet wide in vicinity of community center to 200 feet adjacent to soccer field.

Unique Features View of Tualatin River from parcourse and river banks.
Hedges Creek flows along southern boundary and provides habitat for wildlife.

Facilities	2 group picnic shelters	volleyball area
	2 tennis courts	children's play area
	2 tennis backboards	2 swing sets
	4 softball fields	2 jungle gyms
	2 basketball half courts	2 slides
Barbeques	1 soccer field	1 merry-go-round
Horseshoes	exercise course (1/3 mile)	2 see-saws
Nature Trail	lawn areas	1 wood play
Climbing Pole	boat ramp	structure

Comments 1.60 acres located north and across river, not connected except by S.P. Railroad bridge.

PARK Chieftain

Type Greenway

Size 1.59 Acres

Parcel No. 2400 2S 1 25CC

General Description Wooded drainage ravine and flat areas.

Topography Moderately steep slopes along drainage ravine.
Flat and level areas in southern portion of site.

Vegetation Mature deciduous trees within ravine.

Unique Features

Facilities

Comments

PARK

Medyn Creek
~~Columbia II~~

Type Greenway

Size 1.83 Acres

Parcel No. 13200 Map 2S 1 26CD

General Description

Heavily wooded drainage creek surrounded by steep slopes, bordered by Ibach Street and future single-family lots.

Topography

Steep slopes throughout channel except along Ibach Street and at western end.

Vegetation

Mature deciduous trees and understory.

Unique Features

Facilities

Comments

Chieftain Dakota

PARK

Dakota Hills Tracts "A" and "B"

Type

Greenway

Size

2.69 Acres

Parcel No.

Tracts "A" and "B" Map 2S 1 26DD

General Description

Approximately 1/4 mile long landscaped corridor that runs through a new, single-family housing area. Terminated at both ends by wooded drainage areas.

Topography

Flat except for landscaped berm in southern half.

Vegetation

Young, deciduous trees along walkways. Shrubs in landscaped areas. Extensive lawn area.

Unique Features

Concrete walkway (5' wide) throughout corridor.

Facilities

Comments

Dakota Hills Tract "A" is under construction (April, 1983).

Abuts Chieftain Greenway on northeast border.

PARK	Hi-West I Tracts "A" and "B"
Type	Greenway
Size	1.60 Acres
Parcel No.	Tracts "A" and "B" 2S 1 26 AC
General Description	Small greenway along S.W. Boones Ferry Road. Extensively landscaped with trees, shrubs, and large lawn areas.
Topography	Flat
Vegetation	Deciduous and evergreen trees and shrubs in landscaped areas and along walkway.
Unique Features	
Facilities	Combination asphalt walkway-bike path (5' wide) connected with existing sidewalks along road. Lawn areas.
Comments	

PARK	Indian Meadows Tracts A - D
Type	Greenway
Size	3.45 Acres
Parcel No.	Tracts "A" through "D" Map 2S 1 26CA
General Description	Linear landscaped corridor that doubles as drainage channel and pathway through from S.W. Boones Ferry Road through the Indian Meadows sub-division.
Topography	Flat along the channel floor with banks on either side.
Vegetation	Lawn areas throughout greenway corridor. Deciduous and evergreen trees and shrubs in landscaped areas, mainly along S.W. Boones Ferry Road. Groves of oak and maple found at western terminus of corridor.
Unique Features	
Facilities	Paved walkway throughout corridor from Boones Ferry Road to S.W. 98th Avenue.
Comments	Western terminus is a drainage ravine that eventually empties into Hedges Creek.

PARK	Nyberg Creek
Type	Greenway
Size	11.45 Acres
Parcel No.	106 and 204 Map 2S 1 24D
General Description	Undeveloped, open area adjacent to Nyberg Slough between S.W. Nyberg Street and the Rolling Hills apartment complex.
Topography	Flat.
Vegetation	Pasture land.
Unique Features	Winter flooding provides habitat for wildlife.
Facilities	
Comments	The site is flooded frequently during the winter. Access to the site may be difficult from S.W. 65th Avenue because of grade differences between the site and the road.

PARK	Saum Creek
Type	Greenway
Size	8.35 Acres
Parcel No.	100 and 3000 Map 2S 1 25AC
General Description	Wooded drainage creek and wetlands between Interstate 205 and single-family residences.
Topography	Moderate to steep slopes along banks of creek. Flat areas along creek bottom and in wetlands.
Vegetation	Mature deciduous trees along creek banks. Riparian vegetation in wetlands area.
Unique Features	Wetlands provide habitat for wildlife.
Facilities	Informal trail runs along north side of creek from S.W. 65th Avenue.
Comments	Public access from S.W. 65th Avenue Pump Station and from S. W. 69th Avenue.

PARK	Shaniko 2 Tracts "F", "G" and "H"
Type	Greenway
Size	2.72 Acres
Parcel No.	Tract F 9800 Map 2S 1 25CB Tract H 10300 Map 2S Tract G 6400 Map 2S 1 25CB 1 25BC
General Description	Wooded drainage ravine and adjacent detention pond. (Tracts F and H) Wooded drainage ravine. (Tract G)
Topography	Steep slopes within ravine (Tracts G and H). Flat in area adjacent to Martinazzi Avenue and in detention pond area (Tracts F and H).
Vegetation	Mature deciduous trees within ravine. (Tracts G and H)
Unique Features	
Facilities	
Comments	This greenway consists of three separate parcels. Tracts F and H are adjacent to or close to S.W. Martinazzi Avenue. Tract G is immediately north of Chieftain Greenway.

APPENDIX B
DESIGN AND LOCATION STANDARDS BY PARK TYPE

The following Design Criteria were used to develop the recommendations for specific parks and recreational facilities. The criteria define guidelines and standards for locating and furnishing neighborhood, community, and other park types. They can also be used as a basis on which decisions regarding park projects can be made. It should be emphasized that these represent guidelines only and should be considered along with other relevant factors.

MINI-NEIGHBORHOOD PARKS

Purpose

- . To replace or augment the private outdoor space in areas where such space is lacking or is inadequate.
- . To provide areas in which residents can socialize and recreate informally.

Locational Criteria

- . Within the sub-neighborhood* area to be served. Located as central to the area as possible and requiring no crossing of unsignalized arterial streets.
- . Neighborhoods where the absence of vacant land, land costs or other factors preclude acquisition of larger parcels of land.
- . Neighborhoods where development densities severely limit private recreational space.
- . Within small cultural or natural areas with recreational potential.
- . Adjacent to school.

Size

- . 2,500 square feet to 2.0 acres.

Service Area and Population

- . Sub-neighborhood area*
- . 1/8-1/4 mile radius.
- . 500 to 2,500 persons

Facilities and Features

- . Play areas for young children (e.g., tot lots, playgrounds).
- . Picnic, seating and gathering facilities for small groups or individuals. Small shelters or covered areas for a portion of this space are preferred.

* "Neighborhood or "sub-neighborhood" refers to an informally defined residential area made up of residents who share common social characteristics and recreational needs.

- . Hard surface, multi-purpose playing courts for half-court basketball or tennis practice (preferably covered).
- . Open lawn area for lounging and informal play.
- . Pathways, lighting and landscaping for public safety and buffering of neighboring properties.
- . Restroom facilities - smaller sites may not have room for these facilities or they may be too expensive to install and maintain.

Comments

The high maintenance cost per square foot and the limited recreation potentials of these sites require that they be provided where other park types are not feasible.

NEIGHBORHOOD PARKS

Purpose

- . To provide a focus for neighborhood social, recreational and fitness activities.
- . To provide areas for informal and organized recreational activities.

Locational Criteria

- . Within the neighborhood area to be served.
- . Proximity to residential areas and within easy and safe access to neighborhoods.
- . Adjacent to an elementary school or natural feature.

Size

- . 5 to 15 acres

The configurations of the smaller sites must allow them to provide a wide range of recreational opportunities for a neighborhood.

The upper limit is flexible, but indicates the approximate size at which a neighborhood might lose its identity with the park.

Service Area and Population

- . Neighborhood areas as delineated by natural or cultural boundaries.
- . 1/4 to 1/2 mile radius.
- . 2,000 to 10,000 persons.

Facilities and Features

- . Playgrounds
- . Restrooms and storage areas.
- . Wading pool.
- . Hard surface court areas - in small site multi-purpose courts should be used. The larger sites afford opportunities for more specific facilities to be developed.
- . Open lawn areas for informal play and lounging.

- . Picnic, seating, gathering areas and covered shelter for use by neighborhood groups and individuals.
- . Lighting, landscaping, water features (e.g., ponds or natural streams), and walkways for public safety, site enhancement and buffering of neighboring properties.
- . Small performance areas.
- . Natural areas.
- . Parking areas - this would be limited to the larger sites and provided only when on-street parking is too limited.

Comments

Site selection should emphasize safe and convenient access for neighborhood residents. The major methods of travel to these sites will be by pedestrian and bicyclists.

Site location will generally be in the interior of residential areas. The specific location, site boundaries, types of facilities and program offered at such sites should minimize conflicts with surrounding residents.

A community or metropolitan park with safe and convenient access from residential areas may provide an adequate substitute for a neighborhood park.

COMMUNITY PARKS

Purpose

- . To serve as a focus for the community's recreational and social needs and activities.
- . To provide a large area for facilities and activities that require lots of land, attract a high number of participants and need extensive buffering.

Locational Criteria

- . Central to the neighborhood being served.
- . Safe pedestrian access without crossing major arterial streets or other barriers.
- . Inclusion of natural features within the larger sites (ponds, woodland areas) to provide a unique character to the site.
- . Near or adjacent to junior/high school is preferred. However, the community park facilities should have a separate identity from the school's and have a full range of recreational facilities.

Size

- . 20 to 100 acres

The smaller size will not allow for the provision of a complete range of community park facilities or a community center. This size may also preclude the development of a lighted sports field area due to insufficient space for buffering.

Service Area and Population

- . A community area as delineated by natural or cultural boundaries.
- . One half to two mile radius. Radius may be extended to three miles if safe and convenient bicycle access is provided, auto access is convenient and/or bus service is convenient.
- . 10,000 to 50,000 persons

A population of 25,000 persons and up generally justifies the development of a community park with the full range of facilities and features. It should be recognized that activities and programs offered at these parks often draw people throughout the metropolitan areas.

Facilities and Features

- . Sports fields - (e.g., softball, baseball, soccer and rugby) with lighting, spectator areas, off-street parking and other support facilities. Provide only where sufficient space is available.
- . Community centers with areas for:
 - Gymnasium (full size or double with spectator space).
 - Fitness, dance class and practice areas.
 - Arts classrooms and support facilities.
 - Multi-purpose rooms for classes, public meetings or drop-in activities.
 - Social gathering areas for large or small groups.
 - Lending library and information area (these areas are often suitable for after-class gatherings).
 - Kitchen area for classes and group gatherings.
 - Child care area for parents using the facilities.
 - Outdoor class, gathering area and sports area.
 - Parking.
 - Administration and support facilities (e.g., offices, storage rooms and restrooms).
- . Swimming Pool.
- . Hard surface courts for basketball (50 percent covered).
- . Tennis complex.
- . Playground areas - traditional and adventure playground facilities.
- . Group picnic facilities - covered shelter with cooking facilities.
- . Summer day camp area - associated with community center programs.
- . Jogging trails, bicycle paths and pedestrian walkways.
- . Landscaping and lighting of intensively used areas.
- . Neighborhood senior centers - these centers should be located apart from the community center complex.

Comments

Site selection and siting of the more intensively used facilities, such as a community center and pool complex, should stress visibility and ease of access.

APPENDIX C
EVALUATION OF SWIM CENTER SITES

Appendix C: Evaluation of Swim Center Sites

As noted in Chapter Two, a swim center was identified by 71 percent of the survey respondents as a needed facility. A site evaluation was conducted to identify potential locations for a swim center only and a swim center that might also accommodate ball fields, tennis courts and other suitable recreational activities (as in the sports complex for the Tualatin Hills Park and Recreation District in Aloha, Oregon).

The evaluation process involved two basic steps: 1) identifying potential sites according to a set of locational criteria; and 2) evaluating these sites against the same criteria.

Site Location Criteria

Essential site conditions that were considered to be necessary for all potential sites were: 1) minimum of 25 acres for a swim center site and 50 acres for a swim center sports field site; and 2) minimum number or no existing business or residences on the site. Sites that could not meet these conditions were dropped from the site location process.

Nine preferable site conditions were then identified to represent the evaluation criteria. These criteria include a variety of on-site and locational considerations that were considered to be relevant in the development of a swim center. The criteria are:

- Proximity to residential areas.
- Easily accessible from major roads.
- Flat topography.
- Potential for high visibility once developed.
- Proximity to downtown.
- Proximity to park, school or other recreational area/
- Low acquisition costs.
- Minimal number of tax lots to be consolidated or purchased.
- Compatible with adjacent land uses.

Site Evaluation

Using the nine criteria, nine sites were identified as potential swim center locations. These sites were then evaluated according to how they met each criterion. Evaluation "scores" were used with "3" being the highest and "1" the lowest. The evaluation system compares each site against the other sites and consequently provides a relative measure of each site's suitability. The degree to which a site meets or does not meet a criterion is also indicated and additional comments on significant site conditions were also added.

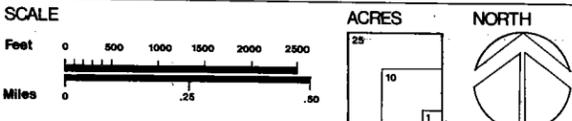
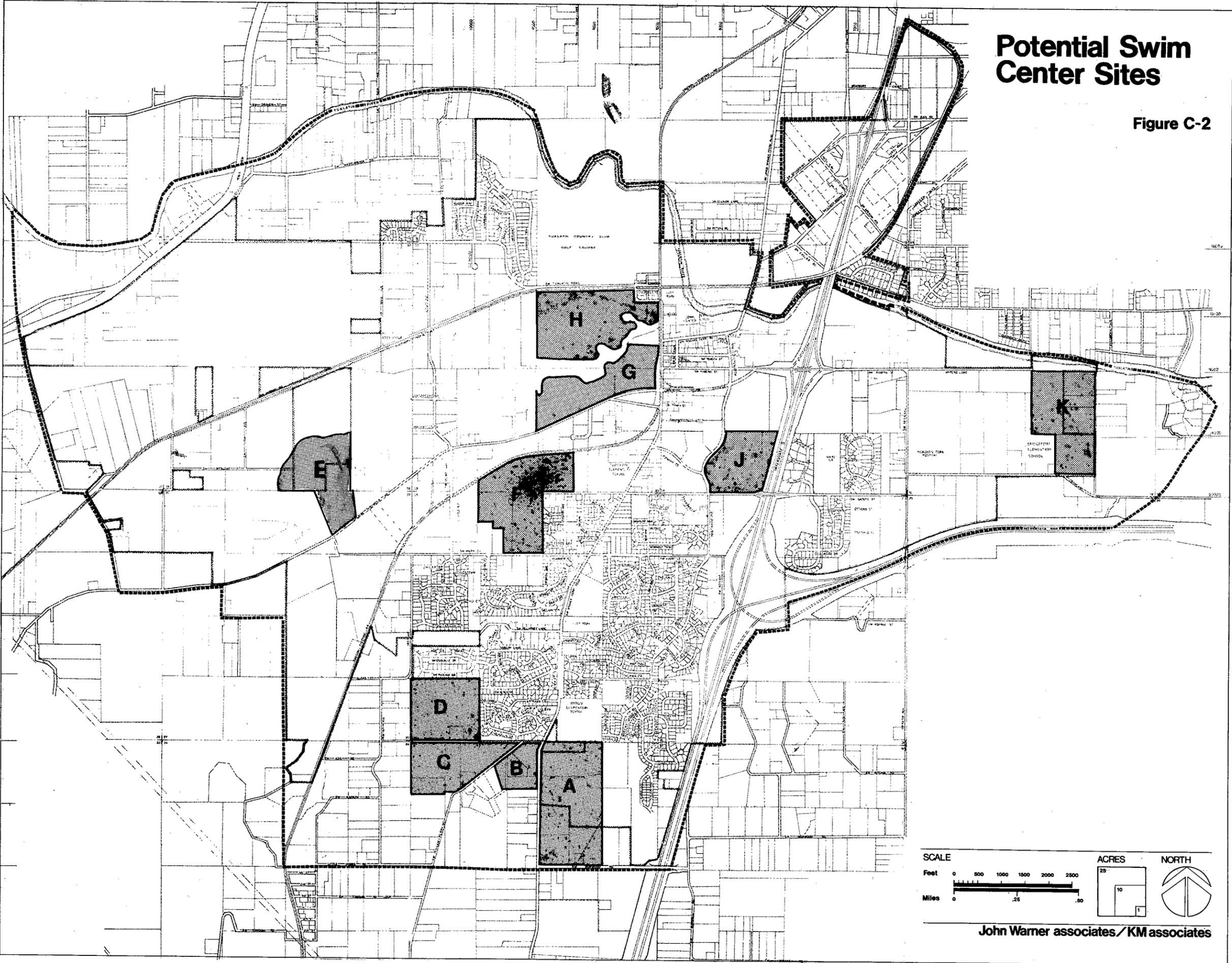
SITES	CRITERION										COMMENTS
	Total	Minimal Number of Lots to be Consolidated	Potential for High Visibility	Flat Topography	Low Acquisition Costs	Compatible with Adjacent Land Uses	Proximity to Parks, Schools, or Other Recreational Areas	Proximity to Downtown	Accessible From Major Roads	Proximity to Major Residential Areas	
A	18	2	2	2	2	1	3	1	3	2	
B	18	2	2	2	2	1	3	1	3	2	
C	15	2	1	2	2	1	2	1	2	2	
D	16	3	1	3	2	1	2	1	2	1	
E	20	2	2	3	3	3	2	1	3	1	North edge abuts Hedges Creek and proposed bikeway
F	18	2	1	3	2	2	3	2	1	2	
G	24	3	3	3	2	2	2	3	3	3	Abuts the Wetlands
H	23	3	2	3	2	2	3	3	2	3	Abuts the Wetlands and the Community Park
J	21	3	3	1	1	3	1	3	3	3	Cost may be prohibitive because of its potential commercial use
K	17	2	1	2	2	3	3	1	1	2	Abuts Bridgeport Elementary School

- 3: Meets the criterion in full
 2: Meets the criterion partially
 1: Does not meet criterion

Figure C-1, General Evaluation of Potential Swim Center Sites

Potential Swim Center Sites

Figure C-2



John Warner associates / KM associates

APPENDIX D
PROJECT PRIORITY CRITERIA

Appendix D: PROJECT PRIORITY CRITERIA

The assignment of priorities to specific projects was based on all criteria as shown below. Because the projects varied in purpose and type, not all of the criteria were applied to each project. Trade-offs were inevitable, but use of the criteria insured that decisions could be evaluated against specific factors. The criteria may also be useful in evaluating future projects and in reviewing and updating the master plan.

- | | |
|--|--|
| Existing Demand: | Does the project meet or aid in meeting existing recreational demands? |
| Projected Demand: | Will the project meet or aid in meeting projected recreational demands? |
| Development/Acquisition Costs: | How do these costs compare to projected benefits? Who will pay for the project and who will benefit? |
| Recreational Opportunities: | Will the project expand existing opportunities and/or provide a greater variety of opportunities? Are these opportunities needed by the city's residents? |
| Accessibility: | How accessible will a recreational site or facility be, especially for children? Will they have to cross busy streets and intersections? |
| Potential of Loss: | Will future public use of the site be precluded if it is developed? How immediate is the potential for loss? In the case of natural areas, what effects will development have on the site and should its title or development rights be purchased? |
| Opportunity for Joint Acquisition, Development, Use or Operation With Other Jurisdictions: | Is it possible to coordinate acquisition, development or use of a site or facility with other jurisdictions to benefit all involved parties and the public? |

Preservation of
Natural Resources:

Will a project preserve or protect a valuable natural resource? Will it extend or make a natural area more complete or varied?

Compatibility with
Surrounding Uses:

Will the development of a recreational site be consistent with surrounding uses? Will the projected activities impose unacceptable visual or noise impacts on surrounding uses?

Program Opportunities:

Will the project provide opportunities for educational, cultural or athletic programs? Can these programs be provided at reasonable costs and/or be used to increase revenues?

Reduction of Costs or
Generation of Revenues:

Will the project result in a cost savings to the city over the long run? Will the project result in opportunities to generate revenues through user fees, concessions, or leases, for example?

APPENDIX E

SURVEY FORM AND DETAILED TABULATION OF SURVEY RESULTS

U R G E N T !

WE NEED YOUR RESPONSE

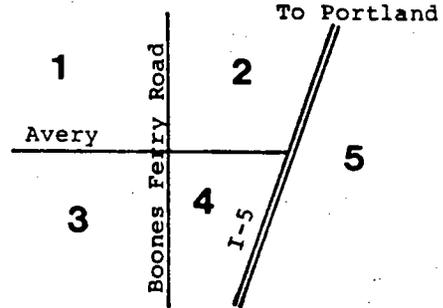
The City of Tualatin is now preparing a Parks and Recreation Master Plan. Your participation in this survey is very important and will help to develop a parks and recreation system that meets your needs.

Please take a few minutes to fill out the questionnaire and mail it back to the City by November 24, 1982

Thank you for your cooperation.

In which area of the City do you live?

- 1
- 2
- 3
- 4
- 5

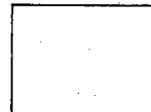


1. WHAT IS YOUR APPROXIMATE AGE? _____ SEX? _____
 Male Female
2. WHAT ARE THE APPROXIMATE AGES OF OTHER FAMILY MEMBERS? _____
3. DO YOU OWN OR RENT YOUR HOME? _____
 Own Rent
4. WHAT ARE THE FIVE RECREATIONAL ACTIVITIES YOU OR MEMBERS OF YOUR HOUSEHOLD MOST OFTEN TAKE PART IN?
 _____ Court Sports (please identify) _____
 _____ Field Sports (please identify) _____
 _____ Indoor Sports (please identify) _____
 _____ Spectator Sports (please identify) _____
 _____ Swimming _____ Fishing _____ Bicycling _____ Jogging _____ Camping
 _____ Hiking _____ Golfing _____ Picnicking _____ Other (please identify) _____
5. PLEASE INDICATE WHICH OF THE FOLLOWING PLACES YOU HAVE VISITED OR USED IN THE PAST YEAR FOR RECREATION:
 _____ Tualatin Community Park (downtown park) _____ Stoneridge Park _____ Community Center
 Tualatin Road (Stoneridge Sub-division)
 _____ Lafky Park _____ Wetlands _____ Greenways/Bikeways
 High West Estates/S.W. Siletz
 _____ Little Wood Rose Park (nature park) _____ Tualatin River (How do you use?) _____
 _____ Searinen Wayside Park _____ School Facilities
 (Rhododendron Gardens) S.W. 86th/Avery
 _____ Other Facilities (please identify) _____
 _____ Tigard Regional Swim Center
6. PLEASE RANK THE FOLLOWING EXISTING OR FUTURE RECREATIONAL FACILITIES OR PROGRAMS THAT YOU THINK ARE NEEDED MOST IN TUALATIN, REGARDLESS OF WHETHER OR NOT YOU WOULD USE THEM.
 _____ Court Facilities (please identify) _____
 _____ Jogging Trails _____
 _____ Swim Center _____
 _____ Bicycle Trails _____
 _____ Sports Field (please identify) _____
 _____ Organized Sports Programs for Adults _____
 _____ Organized Sports Programs for Children _____
 _____ Community Center Programs for Adults _____
 _____ Community Center Programs for Children _____
 _____ Neighborhood Parks (approximate size of Lafky Park) _____
 _____ Community Parks (approximate size of Downtown Park) _____
 _____ Natural Areas (such as the Wetlands or wooded parks) _____
 _____ Increased River Recreation Facilities _____
 _____ Other (please identify) _____

7. WHAT PREVENTS YOU OR MEMBERS OF YOUR HOUSEHOLD FROM USING PARKS, PROGRAMS, OR OTHER RECREATIONAL FACILITIES MORE OFTEN?
 Don't know about facilities or programs Not open the right times Too far from home
 Not attractive Too crowded Other (please identify) _____
-
8. HOW OFTEN DO YOU AND THE MEMBERS OF YOUR HOUSEHOLD RIDE BICYCLES?
 None 1 to 2 times/week 3 to 4 times/week More than 5 times/week
 WOULD YOU RIDE MORE OFTEN IF MORE BICYCLE PATHS WERE PROVIDED? Yes No
9. WHAT ARE THE USUAL PURPOSES OF THE BICYCLE TRIP? Rank in order of their frequency with (1) being the most frequent trip purpose:
 Shopping (please identify destination) _____
 Recreation (please identify destination) _____
 School (please identify destination) _____
 Work (please identify destination) _____
 Combination (please identify which trips are usually combined) _____
 WHERE WOULD YOU LIKE TO SEE OTHER BICYCLE DESTINATION POINTS? _____
10. DO YOU OR ANY OTHER FAMILY MEMBERS HAVE ANY HANDICAP OR PHYSICAL DISABILITY? Yes No Age
 WHAT RECREATIONAL FACILITIES OR PROGRAMS WOULD THIS PERSON USE OF LIKE TO SEE AVAILABLE: _____

ANSWER THE FOLLOWING QUESTIONS ONLY IF THERE ARE CHILDREN UNDER THE AGE OF 14 IN YOUR HOUSEHOLD

11. WHAT RECREATIONAL ACTIVITIES DO YOUR CHILDREN MOST OFTEN PARTICIPATE IN? (please rank)
 Organized activities (team sports, etc.)
 Low organized activities (playground, games, etc.)
 Swimming
 Bicycling
 Organized classes (arts and crafts, etc.)
 Other _____
12. WHAT FACILITIES OR PROGRAMS DO YOUR CHILDREN USE OR PARTICIPATE IN:
 After School Programs Sports Program Summer Programs Swimming
 Other _____
 WHAT PROGRAMS WOULD YOUR CHILDREN ATTEND IF THEY WERE CLOSER TO HOME? _____
13. WHERE DO YOUR CHILDREN MOST OFTEN PLAY WHEN THEY ARE NOT IN SCHOOL? (please rank)
 Own Yard Friend's Homes School Grounds Street Parks
 Undeveloped Open Space Other _____
14. PLEASE USE THE SPACE BELOW TO ADD YOUR COMMENTS ON PARKS AND RECREATION IN TUALATIN:



BUSINESS REPLY MAIL
 FIRST CLASS TUALATIN, OR

City of Tualatin
 P.O. Box
 Tualatin, OR 97062



DETAILED TABULATION OF SURVEY RESULTS

Total Number of Surveys Received: 1,000 +

Numbers of Surveys Tabulated: 661 (representing approximately 20% of all city households)

	<u>NO.</u>	<u>PERCENTAGE</u>
RESIDENCE OF RESPONDENTS		
Area 1	117	18%
Area 2	70	11%
Area 3	197	30%
Area 4	222	33%
Area 5	55	8%
AGE GROUP OF RESPONDENTS		
Under 35	319	48%
35-49	242	37%
Over 50	96	16%
No Response	4	Less than 1%
3. HOME OWNERSHIP AMONG RESPONDENTS		
Own	489	74%
Rent	156	24%
No Response	16	2%
4. WHAT ARE THE FIVE RECREATIONAL ACTIVITIES YOU OR MEMBERS OF YOUR HOUSEHOLD MOST OFTEN TAKE PART IN?		
Swimming	421	64%
Court Sports	410	62%
Bicycling	351	53%
Picnicking	295	45%
Camping	295	45%
Hiking	249	38%
Fishing	239	36%
Field Sports	217	33%
Jogging	217	33%
Indoor Sports	175	26%
Spectator Sports	127	19%
5. PLEASE INDICATE WHICH OF THE FOLLOWING PLACES YOU HAVE VISITED OR USED IN THE PAST YEAR FOR RECREATION:		
Tualatin Community Park	513	77%
School Facilities	284	43%
Tigard Swim Center	258	39%
Greenways/bikeways	222	34%
Community Center	219	33%
Tualatin River	121	18%
Little Woodrose Park	93	14%
Lafky Park	89	13%
Saarinen Wayside Park	49	7%
Wetlands	29	4%
Other	10	2%
Stoneridge Park	9	1%

NO.

PERCENTAGES

6. PLEASE RANK THE FOLLOWING EXISTING OR FUTURE RECREATIONAL FACILITIES OR PROGRAMS THAT YOU THINK ARE NEEDED MOST IN TUALATIN, REGARDLESS OF WHETHER OR NOT YOU WOULD USE THEM.

Swim Center	473	71%
Bicycle Trails	354	53%
Jogging Trails	342	52%
Court Facilities	297	45%
Org.Sprt Prgrm-Children	294	44%
Increased River Rec.	288	43%
Neighborhood Parks	282	43%
Org.Sprt Prgrm-Adults	277	42%
Natural Areas	268	40%
Comm.Ctr.Prgrm-Adults	261	39%
-Children	248	37%
Sports Fields	208	31%

7. WHAT PREVENTS YOU OR MEMBERS OF YOUR HOUSEHOLD FROM USING PARKS, PROGRAMS, OR OTHER RECREATIONAL FACILITIES MORE OFTEN?

Don't know		
Too Crowded	123	19%
Too Far	108	16%
Not Open	87	13%
Other	65	10%
Not Attractive	45	7%

8. HOW OFTEN DO YOU AND THE MEMBERS OF YOUR HOUSEHOLD RIDE BICYCLES? WOULD YOU RIDE MORE OFTEN IF MORE BICYCLE PATHS WERE PROVIDED?

1-2X/Wk.	275	42%
3-4X/Wk.	108	16%
Over 5	46	7%
None	170	26%
Yes	392	59%
No	138	21%

9. WHAT ARE THE USUAL PURPOSES OF THE BICYCLE TRIP?

Recreation	435	66%
Shopping	155	23%
School	95	14%
Work	83	13%
Combination	37	6%

10. DO YOU OR ANY OTHER FAMILY MEMBERS HAVE ANY HANDICAP OR PHYSICAL DISABILITY?

No

Yes

WHAT RECREATIONAL FACILITIES OR PROGRAMS WOULD THIS PERSON USE OR LIKE TO SEE AVAILABLE?

Insufficient response

Questions 11 through 13 were directed to respondents with children under 14. Of the 661 surveys tabulated, 350 were from households with children under 14 and were used to generate the following results.

	<u>NO.</u>	<u>PERCENTAGES</u>
11. WHAT RECREATIONAL ACTIVITIES DO YOUR CHILDREN MOST OFTEN PARTICIPATE IN? (Please rank)		
Bicycling	227	65%
Swimming	213	61%
Organized Activities	197	56%
Low-Organized Activities	186	53%
Organized Classes	117	33%
Other	10	3%
12. WHAT FACILITIES OR PROGRAMS DO YOUR CHILDREN USE OR PARTICIPATE IN?		
Swimming	181	52%
Sports Programs	162	46%
After School Programs	125	36%
Summer Programs	100	29%
Other	4	1%
WHAT PROGRAMS WOULD YOUR CHILDREN ATTEND IF THEY WERE CLOSER TO HOME?		
Insufficient response		
13. WHERE DO YOUR CHILDREN MOST OFTEN PLAY WHEN THEY ARE NOT IN SCHOOL? (Please rank)		
Own Yard	292	83%
Friend's Yard	222	63%
Street	137	39%
Parks	108	31%
School Grounds	93	27%
Undeveloped Open Space	59	17%
Other	5	1%

APPENDIX F
RECOMMENDED PLANT LIST

RECOMMENDED PLANT LIST

The Parks and Recreation Master Plan for the City of Tualatin provides recommended plant lists, organized by landscape type, as a reference for park development and maintenance. The plant lists for natural areas as well as all park projects throughout the city are replaced with the following native plant list (as per the GDP, 1995) prepared by the City of Portland for the Willamette River Greenway Zone. This list was prepared in conjunction with local ecologists, biologists, and naturalists, and names plants suitable for wetland, riparian zones, and upland forest or grasslands, as well as lists nuisance and prohibited species. Since the ecological characteristics of Tualatin are very similar to Portland, the same species of plants are recommended for improvement projects throughout the City of Tualatin. Once established, native plantings offer the benefits of improved wildlife habitat, enhanced pollutant filtration possibilities, and lower maintenance expenditures.

However, native plants are not suitable for all park situations throughout the city. For highly used turf areas, urban situations or special plantings within parks, domesticated species may be more desirable. To assist in selecting the right tree for the right situation, a Tree Selection Matrix has been included. The matrix lists trees and the site conditions and design criteria that best suit them. A list of shrubs and groundcovers follows this section. A design process similar to that outlined for selecting trees should be completed for the selection of shrubs and groundcovers.

Native Plants

The attached Native Plant list divides plants into three groups: Trees and Arborescent Shrubs, Shrubs, and Groundcovers. For each group, the list includes the scientific name, common name, indicator status and the habitat types where the plant is most likely to be found.

The indicator status refers to the frequency with which a plant occurs in a wetland; the categories are derived from the National List of Plant Species That Occur In Wetlands: 1988 National Summary (USFWS, Biological Report 88(24), 1988). The indicator categories are as follows:

Obligate Wetland (OBL): Occur almost always (estimated probability >99%) under natural conditions in wetlands.

Facultative Wetland (FACW): Usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.

Facultative (FAC): Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).

Facultative Upland (FACU): Usually occur in non-wetlands

(estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%).

Obligate Upland (UPL): Occur in wetlands in another region, but occur almost always (estimated probability >99%) under natural conditions in non-wetlands in the Northwest region.

A positive (+) sign used with an indicator category means that the plant occurs more frequently at the higher end of the range (more frequently found in wetlands). For example, FACW+ indicates that the plant is typically found in Northwest wetlands with an estimated probability of 83%-99%. A negative (-) sign indicates a frequency toward the lower end of the range (less frequently found in wetlands). An NI (no indicator) is used for those species for which insufficient information was available to determine an indicator status. If no category or symbol is indicated for a plant then either the plant does not occur in wetlands, or the species was not reviewed by the 1988 interagency panel that developed the list.

The habitat types are: wetland, riparian, forest, forested slopes, thicket, grass and rocky. "Wetland" includes all forms of wetlands found in the greater Portland area. "Riparian" includes the riparian areas along rivers, streams, and creeks. "Forest" refers to upland forested areas with little or no slope. "Forested slopes" refers to steeply sloping upland forests. "Thicket" refers to edges of forests and meadows and includes hedgerows and clumps of vegetation that may be found in meadows. "Grass" refers to open areas or meadows. It may also include clearings in forested areas. "Rocky" refers to rocky upland areas, and may include cliffs.

Native Plant List for Wooded Areas, Waterways and Marshes, Greenways and Retention Areas

Scientific Name	Common Name	Indicator Status	Habitat Type					
			Wetland	Riparian	Forest	F.Slope	Thicket	Grass
Trees & Arborescent Shrubs								
<i>Abies amabilis</i>	Silver Fir	FACU			X	X		
<i>Abies grandis</i>	Grand Fir		X	X	X	X		
<i>Acer circinatum</i> AS	Vine Maple	FACU+			X	X		X
<i>Acer macrophyllum</i>	Big-leaf Maple	FACU			X	X		
<i>Alnus rubra</i>	Red Alder	FAC		X	X	X		
<i>Arbutus menziesii</i>	Madrone				X			
<i>Cornus nuttallii</i>	Western Flowering Dogwood				X	X		
<i>Crataegus douglasii</i> var. <i>douglasii</i>	Black Hawthorn (wetland form)	FAC	X	X				
<i>Crataegus douglasii</i> var. <i>suksdorfii</i>	Black Hawthorn (upland form)	FAC	X	X	X	X	X	
<i>Fraxinus latifolia</i>	Oregon Ash	FACW	X	X				
<i>Pinus ponderosa</i>	Ponderosa Pine	FACU-			X	X		
<i>Populus trichocarpa</i>	Black Cottonwood	FAC		X	X			
<i>Prunus emarginata</i>	Bitter Chokecherry			X		X	X	
<i>Prunus virginiana</i> AS	Common Chokecherry	FACU			X		X	X
<i>Pseudotsuga menziesii</i>	Douglas Fir				X	X		
<i>Pyrus fusca</i> AS	Western Crabapple	FAC+		X	X	X		X
<i>Quercus garryana</i>	Garry Oak				X	X		
<i>Thamnus purshiana</i>	Cascara	NI		X	X	X		
<i>Salix fluviatilis</i> AS	Columbia River Willow	OBL	X	X				
<i>Salix lasiandra</i>	Pacific Willow	FACW+	X	X				
<i>Salix piperi</i>	Piper's Willow	FACW	X	X				
<i>Salix rigida macrogemma</i>	Rigid Willow	OBL	X	X				
<i>Salix scouleriana</i>	Scouler Willow	FAC	X	X	X			
<i>Salix sessilifolia</i> AS	Soft-leaved Willow	FACW	X	X				
<i>Salix sitchensis</i> AS	Sitka Willow	FACW	X	X				
<i>Taxus brevifolia</i>	Pacific Yew	FACU-		X	X	X		
<i>Thuja plicata</i>	Western Red Cedar	FAC	X	X	X	X		
<i>Tsuga heterophylla</i>	Western Hemlock	FACU-		X	X	X		
Shrubs								
<i>Amalanchier alnifolia</i>	Western Serviceberry	FACU			X	X	X	
<i>Arctostaphylos columbiana</i>	Hairy Manzanita							X
<i>Arctostaphylos uva-ursi</i>	Kinnikinnick	FACU-						X
<i>Barberis aquifolium</i> (Mahonia a)	Tall Oregongrape				X	X		
<i>Barberis nervosa</i> (Mahonia n)	Dull Oregongrape				X	X		
<i>Ceanothus sanguineus</i>	Oregon Tea-tree	NI			X	X	X	X
<i>Ceanothus velutinus</i> var. <i>laevigatus</i>	Mountain Balm				X		X	X
<i>Cornus stolonifera</i> var. <i>occidentalis</i>	Red-osier Dogwood	FACW	X	X			X	
<i>Corylus cornuta</i>	Hazelnut	NI			X	X	X	
<i>Euonymus occidentalis</i>	Western Wahoo			X	X	X	X	
<i>Holodiscus discolor</i>	Ocean-spray				X	X	X	
<i>Lonicera hispidula</i>	Hairy Honeysuckle				X		X	
<i>Lonicera involucrata</i>	Black Twinberry	FAC	X	X				X
<i>Mahonia aquifolium</i> (see <i>Berberis</i>)	Tall Oregongrape				X	X		
<i>Mahonia nervosa</i> (see <i>Berberis</i>)	Dull Oregongrape				X	X		
<i>Menziesia ferruginea</i>	Fool's Huckleberry	FACU+			X			

Scientific Name	Common Name	Indicator Status	Habitat Type						
			Wetland	Riparian	Forest	F.Slope	Thicket	Grass	Rocky
Oemleria cerasiformis	Indian Plum (Osmaronia)			X	X	X	X		
Philadelphus lewisii	Mockorange				X	X	X		
Physocarpus capitatus	Pacific Ninebark	FAC+		X	X			X	
Rhododendron macrophyllum	Western Rhododendron								
Rhus diversiloba*	Poison Oak				X	X			X
Ribes bracteosum	Blue Currant	FAC		X	X				
Ribes divaricatum	Straggly Gooseberry	NI			X	X			
Ribes laxiflorum	Western Black Currant			X	X			X	X
Ribes lobbiai	Pioneer Gooseberry				X	X		X	X
Ribes sanguineum	Red Currant			X	X				
Ribes viscosissimum	Sticky Currant	NI			X		X		
Rosa gymnocarpa	Baldhip Rose	NI				X	X		
Rosa nutkana var. nutkana	Nootka Rose	NI				X	X		
Rosa pisocarpa	Swamp Rose	FACU		X		X	X		
Rubus leucodermis	Blackcap			X	X	X			
Rubus parviflorus	Thimbleberry	FACU+		X	X				
Rubus spectabilis	Salmonberry	FAC		X					
Sambucus cerulea	Blue Elderberry	FAC-		X	X				
Sambucus racemosa	Red Elderberry	FACU		X	X	X			
Spiraea betulifolia var. lucida	Shiny-leaf Spiraea	NI		X				X	X
Spiraea douglasii	Douglas's Spiraea	FACW	X	X				X	
Symphoricarpos albus	Common Snowberry	FACU			X	X		X	
Symphoricarpos mollis	Creeping Snowberry				X				
Vaccinium alaskaense	Alaska Blueberry	NI		X	X				
Vaccinium ovatum	Evergreen Huckleberry				X	X	X		
Vaccinium parvifolium	Red Huckleberry				X			X	
Viburnum ellipiticum	Oval-leaved Viburnum				X				

Scientific Name	Common Name	Indicator Status	Habitat Type						
			Wetland	Riparian	Forest	F.Slope	Thicket	Grass	Rocky
Groundcovers									
<i>Achillea millefolium</i>	Yarrow	FACU						X	
<i>Achlys triphylla</i>	Vanillaleaf				X	X			
<i>Actaea rubra</i>	Baneberry				X	X			
<i>Adenocaulon bicolor</i>	Pathfinder				X	X			
<i>Adiantum pedatum</i>	Northern Maidenhair Fern	FAC		X	X	X			X
<i>Agoseris grandiflora</i>	Large-flowered Agoseris							X	
<i>Alisma plantago-aquatica</i> var. <i>americanum</i>	American Water-Plantain	OBL	X					X	
<i>Allium acuminatum</i>	Hooker's Onion							X	X
<i>Allium amplexans</i>	Slim-leaved Onion							X	
<i>Allium cernuum</i>	Nodding Onion								X
<i>Alopecurus geniculatus</i>	Water Foxtail	FACW+	X						
<i>Amsinckia intermedia</i>	Fireweed Fiddleneck							X	
<i>Anaphalis margaritacea</i>	Pearly-everlasting							X	
<i>Anemone deltoidea</i>	Western White Anemone				X	X			
<i>Anemone lyallii</i>	Small Wind-flower				X	X			
<i>Anemone oregana**</i>	Oregon Anemone	FACU			X	X			
<i>Angelica arguta</i>	Sharptooth Angelica	FACW	X	X					X
<i>Angelica genuflexa</i>	Kneeling Angelica	FACW	X						
<i>Apocynum</i> <i>androsaemifolium</i>	Spreading Dogbane					X		X	
<i>Aquilegia formosa</i>	Red Columbine	FAC		X	X		X	X	X
<i>Arenaria macrophylla</i>	Bigleaf Sandwort				X	X			
<i>Arnica amplexicaulis</i> var. <i>piperi</i>	Clasping Arnica	FACW	X	X	X				
<i>Artemisia douglasiana</i>	Douglas's Sagewort	FACW	X	X					
<i>Artemisia lindleyana</i>	Columbia River Mugwort	OBL	X	X					
<i>Aruncus sylvestris</i>	Goatsbeard	FACU+		X	X	X			
<i>Asarum caudatum</i>	Wild Ginger				X	X			
<i>Asplenium trichomanes</i>	Maidenhair Spleenwort	FACU			X				X
<i>Aster chilensis</i> ssp. <i>hallii</i>	Common California Aster	FAC						X	
<i>Aster curtus**</i>	White-topped Aster							X	
<i>Aster modestus</i>	Few-flowered Aster	FAC+			X	X			
<i>Aster oregonensis</i>	Oregon White-topped Aster				X				
<i>Aster subspicatus</i>	Douglas's Aster	FACW	X	X	X		X	X	
<i>Athyrium filix-femina</i>	Lady Fern	FAC		X	X				
<i>Azolla filiculoides</i>	Duckweed	OBL	X						
<i>Beckmania syzigachne</i>	Slough Grass	OBL	X						
<i>Bergia texana**</i>	Texas Bergia	OBL	X	X					
<i>Bidens cernua</i>	Nodding Beggars-tick	FACW+	X						
<i>Bidens frondosa</i>	Leafy Beggars-tick	FACW+	X						
<i>Bidens vulgata</i>	Western Beggars-tick	FACW+	X						
<i>Blechnum spicant</i>	Deer Fern	FAC+	X	X	X				
<i>Bolandra oregana**</i>	Bolandra	FACW	X	X					
<i>Botrychium multifidum</i>	Leathery Grape-fern	FAC			X	X		X	
<i>Boykinia elata</i>	Slender Boykinia	FACW	X	X	X				
<i>Boykinia major</i>	Greater Boykinia	FACW	X	X				X	
<i>Brasenia schreberi</i>	Water-shield	OBL	X						
<i>Brodiaea congesta</i>	Northern Saitas							X	
<i>Brodiaea coronaria</i>	Harvest Brodiaea							X	
<i>Brodiaea howellii</i>	Howell's Brodiaea							X	X
<i>Brodiaea hyacintha</i>	Hyacinth Brodiaea	FACU						X	X
<i>Bromus carinatus</i>	California Brome-grass			X	X			X	
<i>Bromus sitchensis</i>	Alaska Brome			X	X			X	
<i>Bromus vulgaris</i>	Columbia Brome	FACU-						X	
<i>Callitriche heterophylla</i>	Different-leaf Water-starwort	OBL	X						
<i>Calypso bulbosa</i>	Fairy Slipper	FAC+			X	X			
<i>Camassia leichtlinii</i>	Leichtlin's Camas	FACW-	X						
<i>Camassia quamash</i>	Common Camas	FACW-	X					X	
<i>Campanula rotundifolia</i>	Round-leaf Bluebell	FACU+							X

Scientific Name	Common Name	Indicator Status	Habitat Type							
			Wetland	Riparian	Forest	F.Slope	Thicket	Grass	Rocky	
Campanula scouleri	Scouler's Bellflower				X	X	X	X		X
Cardamine angulata	Angled Bittercress	FACW	X	X	X				X	
Cardamine occidentalis	Western Bittercress	FACW+	X						X	
Cardamina oligosperma	Little Western Bittercress	FACW	X	X	X				X	
Cardamine penduliflora	Willamette Valley Bittercress	OBL	X	X						
Cardamine pennsylvanica	Pennsylvania Bittercress	FACW	X		X		X			
Cardamine pulcherrima var. tenella	Slender Toothwort				X					
Carex amplifolia	Big-leaf Sedge	FACW+	X							
Carex aperta	Columbia Sedge	FACW	X	X					X	
Carex arcta	Clustered Sedge	FACW+	X	X						
Carex atherodes	Awned Sedge	OBL	X	X					X	
Carex athrostachya	Slenderbeaked Sedge	FACW	X						X	
Carex canescens	Gray Sedge	FACW+	X							
Carex cusickii	Cusick's Sedge	OBL	X							
Carex deweyana	Dewey's Sedge	FAC+	X	X	X					
Carex hendersonii	Henderson's Wood Sedge	NI	X		X					
Carex interior**	Inland Sedge	FACW	X							
Carex leporina	Hare Sedge	FAC			X		X			
Carex livida**	Pale Sedge	OBL	X		X					
Carex lyngbyei var. robusta	Lyngby's Sedge	OBL	X						X	
Carex obnupta	Slough Sedge	OBL	X	X						
Carex praticola	Meadow Sedge	FACW	X							
Carex rostrata	Beaked Sedge	OBL	X							
Carex sitchensis	Sitka Sedge	OBL	X							
Carex stipata	Sawbeak Sedge	OBL	X							
Carex vesicaria	Inflated Sedge	OBL	X							
Castilleja levisecta**	Golden Indian-paintbrush								X	X
Centaurium muhlenbergii	Muhlenberg's Centaury	FACW	X						X	X
Cerastium arvense	Field Chickweed	FACU								
Ceratophyllum demersum	Coontail	OBL	X							
Chrysosplenium glechomaefolium	Pacific Water-carpet	OBL		X	X					
Cimicifuga elata**	Tall Bugbane				X			X	X	
Cinna latifolia	Woodreed	FACW	X	X	X					
Circaea alpina	Enchanter's Nightshade	FACW	X		X		X			
Clematic ligusticifolia*	Western Clematis	FACU			X		X	X		
Collinsia grandiflora	Large-flowered Blue-eyed Mary								X	X
Collinsia parviflora	Small-flowered Blue-eyed Mary								X	X
Collomia grandiflora	Large-flowered Collomia					X		X	X	X
Collomia heterophylla	Varied-leaf Collomia					X		X	X	X
Comandra umbellata var. californica	Bastard Toad-flax								X	
Conyza canadensis var. glabrata	Horseweed	FACU								
Coptis laciniata	Cutleaf Goldthread	FAC			X					
Corallorhiza maculata	Pacific Coral-root	FAC-			X		X			
Corallorhiza mertensiana	Coral-root				X		X			
Corallorhiza striata	Striped Coral-root	FACU			X					
Cornus canadensis	Bunchberry	FAC-			X					
Corydalis scouleri	Western Corydalis	FAC+		X	X					
Cryptantha intermedia var. grandiflora	Common Forget-me-not									
Cynoglossum grande	Pacific Hound's-tongue				X		X	X		
Cypripedium montanum	Mountain Lady-slipper	FACU			X					X
Cystopteris fragilis	Brittle Bladder Fern	FACU			X		X	X		X
Delphinium leucophaeum**	Pale Larkspur	FACU							X	X
Delphinium menziesii var. pyramidale	Menzies' Larkspur									

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Delphinium nuttallii**	Nuttall's Larkspur								X	
Deschampsia cespitosa	Tufted Hairgrass	FACW	X							
Dicentra formosa**	Pacific Bleedingheart			X	X	X	X			
Disporum hookeri	Hooker Fairy-bell				X	X				
Disporum smithii	Large-flowered Fairy-bell				X	X				
Dodocatheon dentatum	White Shooting Star	FAC-		X				X		X
Dodocatheon pulchellum	Few-flowered Shooting Star	FACW	X						X	X
Draba verna	Spring Whitlow-grass								X	X
Dryopteris arguta	Wood Fern				X					
Dryopteris austriaca	Spreading Wood Fern				X	X				
Dryopteris filix-mas**	Male Fern			X						
Eburophyton austiniae	Snow-orchid, Phantom orchid				X	X				
Echinochloa crusgalli	Large Barnyard-grass	FACW	X	X						
Elatine triandra	Three-stamen Waterwort	OBL	X	X						
Eleocharis acicularis	Needle Spike-rush	OBL	X							
Eleocharis palustris	Creeping Spike-rush	OBL	X							
Elodea densa*	South American Waterweed	OBL	X							
Elymus glaucus	Blue Wildrye	FACU			X	X	X	X	X	X
Epilobium angustifolium	Fireweed	FACU+	X	X	X		X	X	X	
Epilobium glandulosum	Common Willow-weed	FACW	X	X	X			X	X	
Epilobium paniculatum var. paniculatum	Tall Annual Willow Herb	UPL			X			X		
Epilobium watsonii	Watson's Willow-weed	FACW-	X	X	X			X		
Equisetum arvense*	Common Horsetail	FAC	X	X						
Equisetum hyemale	Common Scouring-rush	FACW	X	X						
Equisetum telemateia*	Giant Horsetail	FACW	X	X					X	
Erigeron annuus	Annual Fleabane	FACU+							X	
Erigeron decumbens var. decumbens**	Willamette Daisy								X	
Erigeron philadelphicus	Philadelphia Fleabane	FACU							X	
Eriogonum cf. nudum	Barestem Buckwheat									X
Eriophyllum lantum	Woolly Sunflower									X
Erysimum asperum	Prairie Rocket							X		X
Erythronium oregonum	Giant Fawn-lily				X	X				
Eschscholzia californica	Gold Poppy								X	
Festuca occidentalis	Western Fescue-grass			X	X					
Festuca rubra var. rubra	Red Fescue-grass	FAC				X	X	X	X	X
Festuca subulata	Bearded Fescue-grass	FAC		X	X				X	
Festuca subuliflora	Coast Range Fescue-grass			X	X				X	
Fragaria vesca var. bracteata	Wood Strawberry			X	X				X	
Fragaria vesca var. crinita	Wood Strawberry			X	X				X	
Fragaria virginiana var. platypetala	Broadpetal Strawberry	UPL			X				X	
Fritillaria lanceolata	Mission Bells								X	X
Galium aparine	Cleavers	FACU			X	X	X	X	X	
Galium trifidum	Small Bedstraw	FACW+	X							
Galium triflorum	Sweetscented Bedstraw	FACU			X	X				
Gaultheria shallon	Salal				X	X				
Gentiana amarella	Northern Gentian	FACW-		X	X					
Gentiana sceptrum	Staff Gentian	OBL	X	X						
Geranium bicknellii	Bicknell's Geranium				X					
Geum macrophyllum	Oregon Avens	FACW+	X	X	X				X	
Gilia capitata	Bluefield Gilia								X	X
Glyceria elata	Fowl Mannagrass	FACW+	X	X						
Glyceria occidentalis	N.W. Mannagrass	OBL	X							
Gnaphalium palustre	Marsh Cudweed	FAC+	X							
Goodyera oblongifolia	Giant Rattlesnake-plantain	FACU-			X					
Gymnocarpium dryopteris	Oak Fern	FAC			X					
Gratiola ebracteata	Bractless Hedge-Hyssop	OBL	X	X						
Habenaria dilatata	White Bog-orchid	FACW+	X							
Habenaria elegans	Elegant Rein-orchid			X				X	X	

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Habenaria saccata	Slender Bog-orchid		X		X	X			
Habenaria unalascensis	Alaska Rein-orchid				X			X	
Heracleum lanatum	Cow-parsnip	FAC	X	X	X			X	
Heterocodon rariflorum	Heterocodon	FAC							X
Heuchera glabra	Smooth Alumroot			X	X				X
Heuchera micrantha	Smallflowered Alumroot			X	X			X	
Hieracium albiflorum	White-flowered Hawkweed				X				
Howellia aquatilis**	Howellia	OBL	X		X	X			
Hydrophyllum tenuipes	Pacific Waterleaf			X				X	
Hypericum anagalloides	Bog St. John's Wort	OBL	X	X				X	
Hypericum formosum var. scouleri	Western St. John's Wort	FAC	X					X	
Impatiens capensis	Orange Balsam	FACW	X	X					
Impatiens ecalcarata	Spurless Balsam	FACW	X	X					
Iris tenax	Orange Iris				X			X	
Juncus balticus	Baltic Rush	OBL	X						
Juncus bolanderi	Bolander's Rush	OBL	X	X					
Juncus brachyphyllus	Short-leaved Rush	OBL	X						
Juncus bufonius	Toad Rush	FACW+	X						
Juncus effusus	Common Rush	FACW+	X					X	
Juncus ensifolius	Dagger-leaf Rush	FACW	X						
Juncus tenuis	Slender Rush	FAC	X					X	
Lathyrus polyphyllus	Leafy-pea				X				
Lemna minor*	Water Lentil*	OBL	X		X	X	X	X	
Ligusticum apiifolium	Parsley-leaved Lovage						X	X	
Ligusticum grayii	Gray's Lovage				X	X	X	X	
Lilium columbianum	Columbia Lily	FAC			X				
Limosella aquatica	Mudwort	OBL	X	X				X	
Linanthus bicolor	Bicolored Linanthus							X	
Linaria canadensis var. texana	Wild Toadflax		X						
Lindernia anagallidea	Slender False-pimpernel	OBL	X	X					
Lindernia dubia	Common False-pimpernel	OBL	X	X					
Linnaea borealis	Twinflower	FACU-			X	X			
Listera caurina	Western Twayblade	FACW	X		X	X			
Listera cordata	Heart-leaved Listera	FACW	X		X	X			X
Lomatium utriculatum	Common Lomatium				X				
Lonicera ciliosa	Trumpet Vine							X	
Lotus denticulatus	Meadow Lotus							X	
Lotus formosissimus	Seaside Lotus	FACW+						X	
Lotus micranthus	Small-flowered Deervetch				X				X
Lotus purshiana	Spanish Clover								
Ludwigia palustris var. pacifica	False Loosestrife	OBL	X	X					
Lupinus bicolor	Two-color Lupine							X	
Lupinus latifolius	Broadleaf Lupine							X	
Lupinus laxiflorus	Spurred Lupine							X	
Lupinus lepidus	Prairie Lupine							X	
Lupinus micranthus	Field Lupine							X	
Lupinus microcarpus	Chick Lupine							X	
Lupinus polyphyllus	Large-leaved Lupine	FAC+							
Lupinus rivularis	Stream Lupine	FAC		X	X			X	
Lupinus sulphureus	Sulfur Lupine				X			X	
Luzula campestris var. congesta	Field Woodrush	NI			X	X	X		
Luzula parviflora	Small-flowered Woodrush	FAC-							
Lycopus americanus	Cut-leaved Bugleweed	OBL	X	X					
Lycopus uniflorus	Northern Bugleweed	OBL	X	X					
Lysichiton americanum	Skunk Cabbage	OBL	X	X					X
Lysimachia ciliata	Fringed Loosestrife	FACW+	X						
Lysimachia thyrsoflora	Tufted Loosestrife	OBL	X						X
Madia glomerata	Cluster tarweed	FACU-							X
Media sativa	Chile tarweed								

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<i>Maianthemum dilatatum</i>	Deerberry	FACU-			X	X		X	
<i>Marah oreganus</i>	Marroot							X	
<i>Matricaria matricarioides</i>	Pineapple Weed	FACU							X
<i>Melica bulbosa</i>	Oniongrass	FACU							X
<i>Melica geyeri</i>	Geyer's Oniongrass				X	X			
<i>Melica subulata</i>	Alaska Oniongrass				X			X	
<i>Mentha arvensis</i> var. <i>glabrata</i>	Field Mint	FAC		X					
<i>Menyanthes trifoliata</i>	Buckbean	OBL	X						X
<i>Mertensia platyphylla</i>	Western Bluebells			X	X				
<i>Microsteris gracilis</i>	Microsteris	FACU						X	X
<i>Mimulus alsinoides</i>	Chickweed Monkey-flower	OBL	X	X					
<i>Mimulus guttatus</i>	Yellow Monkey-flower	OBL	X	X				X	X
<i>Mimulus moschatus</i>	Musk-flower	FACW+	X						
<i>Mitella caulescens</i>	Leafy Mitrewort				X	X		X	
<i>Mitella pentandra</i>	Five-stamened Mitrewort			X	X	X		X	
<i>Monotropa uniflora</i>	Indian-pipe	FACU			X				
<i>Montia dichotoma</i>	Dwarf Montia	FAC	X					X	X
<i>Montia diffusa**</i>	Branching Montia**				X				
<i>Montia fontana</i>	Water Chickweed	OBL	X	X				X	X
<i>Montia linearis</i>	Narrow-leaved Montia				X			X	X
<i>Montia parvifolia</i>	Streambank Springbeauty	FACW-	X		X				X
<i>Montia perfoliata</i>	Miner's Lettuce	FAC		X	X	X		X	
<i>Montia sibirica</i>	Candy Flower	FACW		X	X	X		X	
<i>Myosotis laxa</i>	Small-flowered Forget-me-not	OBL	X	X					
<i>Navarretia squarrosa</i>	Skunkweed							X	
<i>Nemophila menziesii</i>	Baby Blue-eyes				X	X			
<i>Nemophila parviflora</i>	Small-flowered Nemophila				X				X
<i>Nothochelone nemorosa</i>	Turtle Head				X				
<i>Nuphar polysepalum</i>	Yellow Water-lily	OBL	X						
<i>Oenanthe sarmentosa</i>	Pacific Water-parsley	OBL	X	X					
<i>Oenothera biennis</i>	Evening Primrose	FACU						X	
<i>Oplopanax horridus</i>	Devil's Club	FAC		X	X	X	X		
<i>Orobanche uniflora</i>	Naked Broomrape	FACU							X
<i>Orthocarpus hispidus</i>	Hairy Owl-Clover	FACU-						X	
<i>Osmorhiza chilensis</i>	Mountain sweet-root				X	X			
<i>Oxalis oregana</i>	Oregon Oxalis				X	X			
<i>Oxalis suksdorfii</i>	Western Yellow Oxalis				X				
<i>Oxalis trillifolia</i>	Trillium-leaved Wood-sorrel	FAC		X	X	X		X	
<i>Panicum capillare</i>	Old-witch Grass	FAC	X	X					
<i>Penstemon ovatus</i>	Broad-leaved Penstemon			X					
<i>Penstemon richardsonii</i>	Cut-leaved Penstemon								X
<i>Penstemon serrulatus</i>	Cascade Penstemon	FACW	X					X	X
<i>Petasites frigidus</i>	Sweet Coltsfoot	FACW	X	X	X			X	
<i>Phacelia nemoralis</i>	Shade Phacelia				X		X		
<i>Pityrogramma triangularis</i>	Gold-back Fern								X
<i>Plagiobothrys figuratus</i>	Fragrant Plagiobothrys	FACW						X	
<i>Plectritis congesta</i>	Rosy Plectritis	FACU						X	X
<i>Poa annua*</i>	Annual Bluegrass*	FAC-						X	
<i>Poa compressa</i>	Canada Bluegrass	FACU			X			X	
<i>Poa grayana</i>	Gray's Bluegrass	FACU		X				X	
<i>Poa howellii</i>	Howell's Bluegrass							X	
<i>Polygonum amphibium</i>	Water Smartweed	OBL	X						
<i>Polygonum aviculare</i>	Doorweed	FACW-	X	X					
<i>Polygonum coccineum*</i>	Water Smartweed	OBL	X						
<i>Polygonum douglasii</i>	Douglas' Knotweed	FACU		X				X	
<i>Polygonum hydropiperoides</i>	Common Waterpepper	OBL	X						
<i>Polygonum kelloggii</i>	Kellogg's Knotweed	FAC	X	X				X	
<i>Polygonum nuttallii</i>	Nuttall's Knotweed							X	
<i>Polygonum persicaria</i>	Lady's Thumb	FACW	X						
<i>Polygonum punctatum**</i>	Dotted Smartweed**	OBL	X						
<i>Polygonum spargulariaeforme</i>	Knotweed			X					
<i>Polypodium glycyrrhiza</i>	Licorice Fern			X	X	X	X		X

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Polypodium hesperium	Polypody				X	X			X
Polystichum munitum	Sword Fern				X	X	X		
Potamogeton crispus	Curled Pondweed	OBL	X						
Potamogeton natans	Broad-leaved Pondweed	OBL	X					X	
Potentilla glandulosa	Sticky Cinquefoil	FAC-			X				
Potentilla palustris	Marsh Cinquefoil	OBL	X						
Prunella vulgaris var. lanceolata	Heal-all	FACU+		X					
Psoralea physodes	California Tea						X		
Pteridium aquilinum	Bracken	FACU						X	X
Pyrola asarifolia	Wintergreen	FACU		X	X				
Ranunculus alismaefolius	Water-plaintain Buttercup	FACW	X	X				X	
Ranunculus aquatilis var. hispidulus	White Water-buttercup	OBL	X						
Ranunculus cymbalaria	Shore Buttercup	OBL	X	X					
Ranunculus flammula	Creeping Buttercup	FACW	X	X				X	
Ranunculus macounii var. oreganus	Macoun's Buttercup	OBL	X						
Ranunculus occidentalis	Western Buttercup	FACW	X					X	
Ranunculus orthorhyncus	Straightbeak Buttercup	FACW-	X					X	
Ranunculus pennsylvanicus	Pennsylvania Buttercup	FACW							
Ranunculus scleratus var. multifidus	Celery-leaved Buttercup	OBL	X	X					
Ranunculus uncinatus	Little Buttercup	FAC		X					
Rorippa columbiae**	Columbia Cress**	OBL	X	X				X	
Rubus ursinus	Pacific Blackberry	NI		X	X	X	X	X	X
Rumex obtusifolius	Bitter Dock	FAC						X	
Rumex occidentalis	Western Dock	FACW+	X					X	
Sagina occidentalis	Western Pearlwort	FACU+						X	
Sagittaria latifolia	Wapato	OBL	X					X	
Sanguisorba occidentalis	Annual Burnet				X	X			
Sanicula crassicaulis	Pacific Sanicle				X				
Satureja douglasii	Yerba Buena			X					X
Saxifraga ferruginea	Rusty Saxifrage	FAC						X	X
Saxifraga integrifolia	Swamp Saxifrage	FACW	X						X
Saxifraga mertensiana	Merten's Saxifrage	FACW	X		X	X			X
Saxifraga nuttallii	Nuttall's Saxifrage	OBL	X		X	X			X
Saxifraga occidentalis var. rufidula	Western Saxifrage	FAC						X	
Scirpus acutus	Hardstem Bulrush	OBL	X						
Scirpus americanus	American Bulrush	OBL	X						
Scirpus heterochaetus	Pale Great Bulrush	OBL	X					X	
Scirpus microcarpus	Small-fruited Bulrush	OBL	X		X				
Scirpus olneyi	Olney's Bulrush	OBL	X						
Scirpus validus	Softstem Bulrush	OBL	X						
Scoliopus hallii	Oregon Fetid Adder's-tongue				X				
Scrophularia californica	California Figwort	FACW-	X						X
Sedum oreganum	Oregon Stonecrop								X
Selaginella densa	Compact Selaginella				X	X			X
Selaginella douglasii	Douglas' Selaginella				X	X			X
Selaginella oregana	Oregon selaginella				X	X			
Senecio bolanderi var. harfordii	Bolander's Groundsel								X
Sidalcea campestris**	Meadow Sidalcea	NI						X	X
Sidalcea nelsoniana**	Nelson's Checker-mallow	NI						X	
Sisyrinchium augustifolium	Blue-eyed Grass	FACW-	X						
Smilacina racemosa	Western False Solomon's Seal	FAC-	X		X	X	X		
Smilacina stellata	Starry False-Solomon's Seal	FAC-			X	X	X	X	
Solanum nigrum*	Garden Nightshade*	FACU							X
Solidago canadensis	Canada Goldenrod	FACU							X

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Sparganium emersum var. emersum	Simplestem Bur-reed	OBL	X							
Spiranthes romanzoffiana	Ladies-tresses	OBL	X							X
Spirodela polyrhiza	Great Duckweed	OBL	X							
Stachys cooleyae	Cooley's Hedge-nettle	FACW	X	X						
Stachys mexicana	Great Betony	FACW	X	X						X
Stachys palustris var. pilosa	Swamp Hedge-nettle	FACW+	X							X
Stellaria crispa	Crisped Starwort	FAC+	X							X
Streptopus amplexifolius	Clasping-leaved Twisted-stalk	FAC-		X	X	X				
Sullivantia oregana**	Sullivantia			X						X
Synthyris reniformis	Snow Queen				X	X		X		
Tellima grandiflora	Fringecup				X	X				
Teucrium canadense var. occidentale	Wood Sage	FAC+	X	X						
Thaliastrum occidentale	Western Meadowrue	FACU		X	X					X
Thelypteris nevadensis	Wood Fern	FACU+		X	X	X				
Tiarella trifoliata	Laceflower	FAC-		X	X	X				
Tolmiea menziesii	Pig-a-back	FAC		X	X	X				
Tonella tenella	Small-flowered Tonella									X
Trientalis latifolia	Western starflower	FAC-			X	X				
Trillium chloropetalum	Giant Trillium				X	X				
Trillium ovatum	Western Trillium	NI		X	X	X				
Triodanis perfoliata	Venus'-looking-glass	UPL								X
Trisetum cernuum	Nodding Trisetum	FACU	X	X	X					
Typha latifolia	Common Cattail	OBL	X							
Urtica dioica	Stinging Nettle	FAC+	X	X	X	X				
Utricularia vulgaris*	Common Bladderwort*	OBL	X							X
Vancouveria hexandra	White Inside-out Flower			X	X	X				X
Veratrum californicum	False Hellebore	FACW+	X	X						X
Berberna hastata**	Wild Hyssop	FAC+	X							X
Veronica americana	American Brooklime	OBL	X	X						X
Vicia americana	American Vetch	NI			X					
Vicia gigantea	Giant Vetch				X					
Viola adunca	Early Blue Violet	FAC								X
Viola glabella	Stream Violet	FACW+	X	X	X	X				X
Viola hallii	Hall's Violet	FAC			X	X				X
Viola howellii	Howell's Violet				X					X
Viola palustris	Marsh Violet	OBL	X							X
Viola sempervirens	Evergreen Violet				X	X				
Whipplea modesta	Yerba de Selva				X					
Xanthium spinosum*	Spiny Cocklebur	FACU								X
Xanthium strumarium	Common Cocklebur	FAC								X

* These plants have been placed on the Nuisance Plant List, as they have been determined to be either dominating or harmful. They may also be on the Oregon noxious weed list. As such, their introduction or continuation may be inappropriate.

** These plants are identified as rare, threatened or endangered on the federal, state or Oregon Natural Heritage Program Lists. See Rare, Threatened and Endangered Plants and Animals of Oregon, Oregon Natural Heritage Program, Portland, OR (August 1993).

AS For the purpose of this list, these plants are considered arborescent (tree-like) shrubs.

Nuisance Plants

Plants on this list can be removed without environmental or greenway review. Other local, state or federal laws may still regulate removal of certain plants on this list. These plants may be non-native, naturalized or exotic. They are divided into two groups - plants which are considered a nuisance because of their tendency to dominate plant communities, and plants which are considered harmful to humans.

Scientific Name	Common Name
Nuisance Plants	
Acer platanoides	Norway Maple
Ailanthus altissima	Tree-of-heaven
Alliaria officinalis	Garlic Mustard
Chelidonium majus	Lesser Celandine
Cirsium arvense	Canada Thistle
Cirsium vulgare	Common Thistle
Clematis ligusticifolia	Western Clematis
Clematis vitalba	Traveler's Joy
Convolvulus arvensis	Field Morning-glory
Convolvulus sepium	Lady's-nightcap
Cortaderia selloana	Pampas Grass
Crataegus sp. except C. douglasii	Hawthorn, except native species
Cytisus scoparius	Scot's Broom
Daucus carota	Queen Anne's Lace
Elodea densa	South American Waterweed
Equisetum arvense	Common Horsetail
Equisetum telmateia	Giant Horsetail
Erodium cicutarium	Crane's Bill
Geranium robertianum	Robert Geranium
Hypericum perforatum	St. John's Wort
Ilex aquifolium	English Holly
Lemna minor	Duckweed, Water Lentil
Leontodon autumnalis	Fall Dandelion
Lythrum salicaria	Purple Loosestrife
Myriophyllum spicatum	Eurasian Watermilfoil
Phalaris arundinacea	Reed Canarygrass
Poa annua	Annual Bluegrass
Polygonum ciccubeyn	Water Smartweed
Polygonum convolvulus	Climbing Bindweed
Polygonum sachalinense	Giant Knotweed
Prunus laurocerasus	English, Portugese Laurel
Rubus laciniatus	Evergreen Blackberry
Rubus ursinus	Pacific Blackberry
Senecio jacobaea	Tansy Ragwort
Solanum dulcamara	Blue Bindweed
Solanum sarrachoides	Hairy Nightshade
Taraxacum officinale	Common Dandelion
Utricularia vulgaris	Common Bladderwort
Vinca major	Periwinkle (large leaf)
Vinca minor	Periwinkle (small leaf)
Xanthium spinosum	Spiny Cocklebur
Various genera	Bamboo sp.
Harmful Plants	
Conium maculatum	Poison-hemlock
Laburnum watereri	Golden Chain Tree
Rhus diversiloba	Poison Oak
Solanum nigrum	Garden Nightshade

Prohibited Plants

The Prohibited Plants section is a listing of plants which the City of Tualatin prohibits being used in all reviewed landscaping situations within the city limits. This provision applies to the below named species only, and includes any sub-species, varieties or cultivars of these species. Existing in-ground plantings as of June 1, 1995 are exempt from this provision. Additional plant species are prohibited by adopted land use plans in specific areas or situations.

Scientific Name**Common Name**

Hedera helix
Rubus discolor

English Ivy
Himalayan Blackberry

TREE SELECTION

A tree selection matrix has been developed by the Forest Service to aid in selecting trees for a project site (Urban and Community Forestry Guide, USDA Forest Service, Intermountain Region, Ogden, UT, 1990). This matrix is a screening device which allows the user to eliminate from consideration all those trees which do not have the required characteristics best suited for a particular site.

The selection process begins with the preparation of a tree list for each tree-type category. Tree-type categories are a combination of mature height (large, medium, small) and character (formal, semi-formal, informal) of the trees desired. Formal trees have a symmetrical or regular form. Informal trees are irregular or asymmetrical in form. Semi-formal trees have forms that may vary between formal and informal depending on age and cultural conditions that influence plan growth. Semi-formal trees may be integrated in either formal or informal designs, or may provide a transition between the two.

Refinement of the list for each site will be based on a project site inventory, analysis and evaluation. The objective is to find trees with characteristics that meet the criteria specified in these detailed studies. Specifically, the trees must be:

1. Suitable for the biological conditions and physical limitations of the site (e.g., climate, soil, lighting).
2. Compatible with the specified secondary visual characteristics (e.g., color, form and texture).
3. Suitable for solving the functional needs associated with the project site (screening, climate control, noise, traffic, erosion, wildlife habitat).
4. Suitable for the extent of maintenance which can be provided (e.g., insect and disease resistance, pruning needs, litter production).

These criteria can be divided into two categories: primary and secondary. Primary criteria are those criteria which the selected tree species must satisfy if they are to survive and function successfully (biological and physical criteria, essential functional criteria, and maintenance characteristics). Secondary criteria are those things that are desirable in the tree but not essential to a successful planting and include preferred color, texture and other non-essential but desirable functional criteria.

The Tree Selection Matrix that follows has been adapted from the Forest Service matrix and contains 19 tree characteristic categories for common ornamental and shade trees of the Portland area. The matrix is for hardiness zone 8. The purpose of the matrix is to provide information useful in selecting trees best suited to given site conditions and design criteria. The selection of tree species for the matrix is based upon Forestry Guide edited

for western Oregon conditions.

Trees are first grouped according to mature height. The trees within each height grouping are further subdivided into three tree character groups and listed alphabetically by botanical name. Nineteen tree characteristics are listed along the horizontal axis of the matrix. A brief description of each characteristic follows:

Physical Characteristics:

Form. Mature shape and growth pattern of the tree in an open location.

Height. Estimated average mature height in feet.

Spread. Estimated average mature spread in feet.

Height to canopy bottom. Estimated average height from the ground to the bottom of the canopy for unpruned trees. Low = 2-8'; Avg. = 8-12'; High > 12'. Many evergreens look best and are found naturally with foliage to the ground.

Canopy density. Estimated percentage of available solar radiation transmitted through the canopy of the typical mature tree in full leaf based upon measurements and personal observation. Dense = less than 12% transmitted; Avg. = 12-20% transmitted; Open = greater than 20% transmitted.

Trunk size. Estimated average mature trunk diameter. Small = 2-12"; Mod. = 12-30"; Large > 30"

Root habit. Root habit relates to transplanting difficulty in that trees with shallow fibrous roots are generally easier to transplant than those with taproots.

Rate of Growth. Estimated growth in diameter per season after establishment given suitable conditions. Slow < 1"; Mod. = 1-2"; Rapid > 2".

Longevity. Lifespan in years given a suitable environment. Short < 50 yrs; Mod. = 50-100 years; Long > 100 years.

Habitat Requirements:

Soil type. Desirable soil type. References to soil pH, moisture, and drainage requirements are included if pertinent.

Irrigation need. Average amount of irrigation required for normal growth in inches per week. Low < 1/2"; Mod. = 1/2-1"; High > 1".

Shade tolerance. Trees' ability to develop adequately in low direct light environments.

Maintenance Characteristics:

Insect and disease problems. Common insect or disease problems that are life threatening, disfiguring, or those that consistently require maintenance.

Litter. Foliage, flower, fruit and twig litter that may increase maintenance needs are noted.

Flowers. Flower color, season, and fragrance are noted if important.

Fruit. Fruit color and type are noted if conspicuous.

Bark. Ornamental bark features are described.

Foliage. Unusual foliage characteristics and fall color (f.c.) are noted.

Undesirable Features. Self-explanatory.

Tree	Physical Characteristics									Habitat	Requirements		Maintenance Characteristics		Ornamental Characteristics				
	Form	Height (feet)	Spread (feet)	Height to Canopy Bottom	Canopy Density	Trunk Size	Root Habit	Rate of Growth	Longevity		Soil Type	Irrigation Need	Shade Tolerance	Insect and Disease Problems	Litter	Flowers	Fruit	Bark	Foliage
LARGE 40'																			
Formal																			
<i>Abies concolor</i> White Fir	pyramidal	70	25	low	dense	med.	shallow, spreading	mod.	long	well drained, light loam, chlorotic in alkaline soils	m	m	mistletoe, heart rot					silvery green	difficult to establish
<i>Acer platanoides</i> Norway Maple	broad, round	60	45	average	dense	med.	shallow, girdling	mod.	mod.	rich, well drained	m	l	aphids, verticillium, summer leaf scorch	fruit, foliage	yellow-green pendent	Samara-heavy crop	smooth dark grey	f.c.-yellow	grass does not grow
<i>Acer rubrum</i> Red Maple	elliptic to round head	60	40	average	dense	large	shallow	rapid	short	prefers moist, slightly acid soil-not clay	m	m	aphids	fruit, foliage	red in spring			f.c.-scarlet	
<i>Fagus sylvatica</i> European Beech	broad cone horizontal branches	50	30	low	dense	med.	fibrous, some shallow	slow	mod.	light garden soil-not alkaline	m	l		fruit, foliage				f.c.-scarlet	
<i>Liquidambar styraciflua</i> Sweet Gum	broadly pyramidal	60	25	average	average	med.	fibrous	mod.	mod.	chlorotic in strongly alkaline soils	m	l	scale, iron chlorosis	fruit, foliage		brown spiny balls		f.c.-scarlet	
<i>Liriodendron tulipifera</i> Tulip Tree	erect, oblong	60	30	average	average	med.	fibrous tender	mod.	long	deep, well drained loam-acid soil	m	l	aphids, verticillium	flowers, foliage	yellow in summer			f.c.-yellow	
<i>Picea abies</i> Norway Spruce	conical	80	25	low	dense	med.	fibrous shallow	rapid	mod.	tolerant to most if moist	m	m	Spruce Gall Aphid, borers, Tussock moth, scale	fruit				evergreen	
<i>Picea pungens</i> Colorado Spruce	broad, dense, regular pyramid	80	30	low	dense	med.	taproot	mod.	long	rich moist, sensitive to changes in irrigation	m	m	Spruce Gall Aphid, Tussock moth, scale	fruit				evergreen	
<i>Picea pungens glauca</i> Colorado Blue Spruce	broad, dense, regular pyramid	80	30	low	dense	med.	taproot	mod.	long	rich moist, sensitive to changes in irrigation	m	m	Spruce Gall Aphid, Tussock moth	fruit				blue	
<i>Pinus nigra</i> Austrian Pine	broad, spreading, flat top	50	25	low	dense	med.	taproot	mod.	long	very tolerant if well drained	l	l	wood rots, scale	fruit			plated	evergreen	
<i>Platanus acerifolia</i> London Plane Tree	broad, spreading crown	60	40	low	average	large	fibrous, spreading deep	rapid	long	prefers deep rich soil	m	m	moderate Anthracnose resistance, Plant bugs	fruit, foliage, bark		ball-like	peeling, cream color	f.c.-brown	
<i>Pseudotsuga menziesii</i> Douglas Fir	open, broad, spiry pyramid	80	20	low	dense	large	taproot	mod.	long	moist, well drained, slightly acid	m	l	Spruce Gall Aphid	fruit	purple in spring				
<i>Tilia cordata</i> Littleleaf Linden	erect and pyramidal	50	35	low	dense	med.	fibrous, spreading	mod.	mod.	tolerant to most	m	m	aphid, Leopard moth larvae, summer leaf scorch	fruit, foliage, twigs	yellow, fragrant in summer			f.c.-yellow	flowers attract honeybees
<i>Thuja occidentalis</i> American Arborvitae	dense, broad cone	50	20	low	dense	small	taproot	mod.	long	deep, moist, porous loam	m-h	m	Red spider mite, bagworm, heart rot					evergreen	foliage may yellow in cold winter

Tree	Physical Characteristics									Habitat	Requirements		Maintenance Characteristics		Ornamental Characteristics				
	Form	Height (feet)	Spread (feet)	Height to Canopy Bottom	Canopy Density	Trunk Size	Root Habit	Rate of Growth	Longevity		Soil Type	Irrigation Need	Shade Tolerance	Insect and Disease Problems	Litter	Flowers	Fruit	Bark	Foliage
<i>Zelkova serrata</i> Japanese Zelkova	vase shaped	50	40	low	average	med.	deep, spreading	mod.	mod.	prefers moist deep soil, pH tolerant	m	m	Elm leaf beetle	foliage		blue berry	mottled	f.c.-reddish	young trees susceptible to frost
Semi-Formal																			
<i>Celtis occidentalis</i> Common Hackberry	oblong	50	40	average	average	med.	fibrous	mod.	mod.	very tolerant	l	m	Witchesbroom, Hackberry Nipple Gall Insect	foliage		purple drupe	warty	f.c.-yellow	
<i>Fraxinum americana</i> White Ash	round	60	40	average	average	med.	deep	rapid/mod.	mod.	very tolerant	m	m	scale borers (Illac)	fruit, flowers				f.c.-purple	
<i>Fraxinums pennsylvanica</i> Green Ash	irregular, open head	50	30	average	average	med.	fibrous	rapid	mod.	moist loam-takes some alkalinity	m	m	scale borers (Illac)	fruit, foliage				f.c.-yellow	fruitfall
<i>Ginkgo biloba</i> Ginkgo	open and ascending	70	40	average	average	med.	fibrous	slow	long	very tolerant	m	l	pest free	fruit				f.c.-yellow	plant male only, fruit on female smells bad
<i>Gleditsia triacanthos/inermis</i> Thornless Honey Locust	round and spreading	65	50	average	open	med.	fibrous, directed down	rapid	mod.	tolerant to most soils	m	l	Pod Gall Midge, Thyronectria canker	fruit				f.c.-yellow	
<i>Gymnocladus dioicus</i> Kentucky Coffee Tree	oval	50	25	low	average	med.	deep descending	slow	mod.	prefers rich, deep soil, but tolerant to poor soil	m	l		fruit, foliage				f.c.-yellow	
<i>Juglans nigra</i> Black Walnut	large round head	80	50	high	average	large	descending taproot	mod.	long	prefers moist rich soil	m	l	aphids	fruit, foliage		large green walnuts		f.c.-brown	
<i>Pinus sylvestris</i> Scotch Pine	wide, spreading flat top	60	25	low	dense	med.	taproot	rapid	long	prefers deep, well drained loam	m	l	aphids, rust, borers, wood rot, scale	fruit			scaly, red-brown	evergreen	
<i>Quercus alba</i> White Oak	broad, spreading crown	60	40	low	average	large	deep taproot	slow	long	well drained, rich soil	l	l	scale, gall anthracnose	fruit, foliage		acorns		f.c.-brown	late leaf fall
<i>Quercus macrocarpa</i> Bur Oak	broad, round crown	50	30	low	average	med.	deep taproot	slow	long	well drained rich soil, prefers acid soil	m	m	borers, galls, leaf spot	fruit, foliage		acorns		f.c.-brown	leaves fall into winter
<i>Quercus robur</i> English Oak	wide, open head	90	40	low	average	large	deep taproot	mod.	long	tolerant to most, prefers acid soil	m	m	powdery mildew, galls	fruit, foliage		acorns		f.c.-brown	leaves fall into winter
<i>Quercus Rubra</i> Northern Red Oak	pyramidal, becoming rounded	90	60	low	average	large	deep	mod.	long	well drained, rich soil	l	l	borers, anthracnose, leaf wilt, galls	fruit, foliage		acorns		f.c.-red	late leaf fall

Tree	Physical Characteristics									Habitat	Requirements		Maintenance Characteristics		Ornamental Characteristics				
	Form	Height (feet)	Spread (feet)	Height to Canopy Bottom	Canopy Density	Trunk Size	Root Habit	Rate of Growth	Longevity		Soil Type	Irrigation Need	Shade Tolerance	Insect and Disease Problems	Litter	Flowers	Fruit	Bark	Foliage
<i>Tilia americana</i> American Linden	tall, stately, round topped	80	50	high	average	med.	deep	mod.	mod.	deep, well drained, rich soil	m	m	aphids, summer leaf scorch	fruit, foliage, twigs	yellow, fragrant in summer			f.c.-yellow	honeydew flux, attracts honeybees
MEDIUM 25'-40'																			
Formal																			
<i>Acer campestre</i> Hedge Maple	broad, elliptic crown	30	20	low	dense	med.	fibrous	slow	mod.	tolerates poor soil or sand	m	m	aphids, verticillium	fruit, foliage				f.c.-yellow	stem suckering
<i>Aesculus camea</i> Red Horsechestnut	oblong crown	40	30	low	dense	med.	fibrous	mod.	mod.	loam preferred, but tolerant to most	m	l	summer leaf scorch	fruit, flowers, foliage	spike-like red clusters	nuts			mildly poisonous
<i>Aesculus hippocastanum</i> Horsechestnut	erect branching, oblong crown	40	40	low	dense	med.	fibrous, descending	mod.	mod.	loam preferred, but tolerant to most	m	l	summer leaf scorch	fruit, flowers, foliage	spike-like white clusters	large nuts			mildly poisonous
<i>Crataegus lavelleii</i> Carriere Hawthorn	oblong	25	10	low	dense	small	deep	mod.	mod.	well drained pH 6.5-7.5	m	m	fireblight, aphids	fruit, foliage	white in Spring	red pome		f.c.-red	thorns
<i>Sorbus aucuparia</i> European Mountain Ash	erect, ovate crown	30	20	low	average	med.	fibrous, spreading	mod.	short	tolerant, except to very alkaline soils	m	l	fireblight, scale, borers, cytospora canker	fruit, foliage	white in early summer	clusters of red berries	orange hue	f.c.-yellow-orange	sunscauld, fruit drop
Semi-Formal																			
<i>Betula pendula</i> Jacarante White Birch	pyramidal/oblong pendulous branches	40	20	low	open	med.	deep spreading	rapid	short	deep moist loam	m	l	Bronze Birch Borer, cytospora canker	twigs		catkins	white, peeling	f.c.-yellow	
<i>Crataegus laevigata</i> English Hawthorn	round, with arching branches	20	15	low	average	small	deep	rapid	mod.	well drained pH 6.5-7.5	m	l	fireblight, aphids	fruit, foliage	white in spring	red pome			thorns
<i>Crataegus phaenopyrum</i> Washington Hawthorn	round spreading	25	20	low	open	small	deep	rapid	mod.	tolerant to most soils	m	l	fireblight, aphids	fruit, foliage	white in spring	red pome		f.c.-red	thorns
<i>Salix babylonica</i> Weeping Willow	round head, pendulous branches	40	30	low	dense	large	spreading, invasive	rapid	short	tolerant, except for rock or dry soils	m-h	l	cytospora, canker, scale, aphids, carpenter worm	twigs	yellow in early spring				high maintenance, invasive roots
<i>Sophora japonica</i> Japanese Pagoda Tree	broad, oval crown	40	40	low	average	med.	fibrous shallow	mod.	mod.	tolerant except heavy clay prefers slightly acid soil	m	l	leafhoppers	fruit, foliage	yellow in late summer	segmented pods	green twigs	f.c.-yellow	

Tree	Physical Characteristics									Habitat	Requirements		Maintenance Characteristics		Ornamental Characteristics				
	Form	Height (feet)	Spread (feet)	Height to Canopy Bottom	Canopy Density	Trunk Size	Root Habit	Rate of Growth	Longevity		Soil Type	Irrigation Need	Shade Tolerance	Insect and Disease Problems	Litter	Flowers	Fruit	Bark	Foliage
<i>Syringa verticillata</i> Japanese Tree Lilac	broad round crown, multi-trunked	30	20	low	dense	small	fibrous	mod.	mod.	prefers moist garden loam	m	l	powdery mildew, lilac borer	flowers, foliage	white in late spring		cherry-like		
<i>Ulmus Parvifolia</i> Chinese Elm	vase-shaped	40	25	average	average	med.	shallow, fibrous	mod.	mod.	tolerant	m	l	resistant to Dutch Elm Disease, Elm Leaf Beetle	foliage, twigs			mottled	f.c.-red-orange	brittle wood
SMALL - 25'																			
Formal																			
<i>Acer platanoides</i> 'Globosum' Globe Norway Maple	dense, round crown	20	20	low	dense	small	shallow fibrous	mod.	mod.	rich, well drained	m	l	aphids, verticillium, summer leaf scorch	fruit, foliage				f.c.-yellow	difficult to grow grass under
<i>Pinus thunbergii</i> Japanese Black Pine	conical to irregular	20	15	low	dense	small	taproot	mod.	long	prefers deep, well drained loam	m	l		fruit				evergreen	
<i>Prunus cerasifera</i> Newport Flowering Plum	oblong, with ascending branches	25	20	low	dense	small	fibrous	rapid	mod.	garden loam	m	l	Leaf spot, Black knot	foliage	pink in spring	seldom fruits	dark red	purple-red	
<i>Pyrus calleryana</i> 'Artistic' Pear	broadly pyramidal	25	15	low	dense	small	deep spreading	rapid	mod.	tolerant prefer slightly acid to neutral	m	l	occasional fireblight		white in spring	seldom fruits		f.c.-bronze	
Semi-Formal																			
<i>Acer ginnala</i> Amur Maple	oval, multi-trunked	20	15	low	dense	small	fibrous	mod.	mod.	tolerant	l-m	l	aphids, verticillium	fruit, foliage		red samaras in summer		f.c.-red	
<i>Cercis canadensis</i> Eastern Redbud	broad, round head	25	20	low	dense	small	fibrous	slow	mod.	light, rich, moist loam	m	h	cold sensitive	foliage	pink	pod		f.c.-yellow	
<i>Koelreuteria paniculata</i> Golden Rain Tree	dense, round head	25	25	low	average	small	fibrous	mod.	short		m	m	verticillium	fruit, flowers, foliage	yellow in summer	brown capsules			litter
<i>Laburnum watereri</i> Golden Chain Tree	upright to round head	15	10	low	open	small	fibrous	mod.	mod.	moist, well drained, takes alkaline soils	m	m	aphids, twig blight	flowers, foliage	yellow in spring		olive twigs		seeds are poisonous
<i>Lagerstroemia indica</i> Crape Myrtle	vase shaped often multi-stemmed	20	15	low	average	small	fibrous	mod.	mod.	deep soil with good drainage	m	m	powdery mildew	flowers, foliage	wide color selection		mottled	f.c.-orange	leaf burns in hotwinds

Tree	Physical Characteristics									Habitat	Requirements		Maintenance Characteristics		Ornamental Characteristics				
	Form	Height (feet)	Spread (feet)	Height to Canopy Bottom	Canopy Density	Trunk Size	Root Habit	Rate of Growth	Longevity		Soil Type	Irrigation Need	Shade Tolerance	Insect and Disease Problems	Litter	Flowers	Fruit	Bark	Foliage
<i>Malus 'Doigo'</i> Doigo Crabapple	rounded, open	30	30	low	average	small	fibrous	mod.	short	prefers good garden loam	m	l	aphids	fruit, foliage	white (alt)	red			blooms in alternate years
<i>Malus 'Dorothea'</i> Dorothea Crabapple	rounded, dense branching	20	15	low	average	small	fibrous	mod.	short	prefers good garden loam	m	l	aphids, susceptible to fireblight	fruit, foliage	rose pink	yellow			
<i>Malus floribunda</i> Japanese Flowering Crabapple	low, broad, round crown	25	30	low	average	small	fibrous spreading	mod.	short	prefers good garden loam	m	l	aphids, slightly susceptible to fireblight and powdery mildew	fruit, foliage	pink to white	yellow or red			
<i>Malus 'Hopa'</i> Hopa Crabapple	low, broad, round crown	25	20	low	average	small	fibrous spreading	mod.	short	prefers good garden loam	m	l	highly susceptible to fireblight, powdery mildew, aphids	fruit, foliage	red-pink	orange-red			
<i>Malus ioensis 'Plena'</i> Betchel Crabapple	round headed, open	25	20	low	average	small	fibrous spreading	mod.	short	prefers good garden loam	m	l	aphids, fireblight	foliage	pink	few fruit			
<i>Malus 'Radiant'</i> Radiant Crabapple	compact, upright	25	20	low	average	small	fibrous spreading	mod.	short	prefers good garden loam	m	l	aphids, resistant to fireblight	fruit, foliage	pink	red		reddish cast	
<i>Malus zumi calocarpa</i> Redbud Crabapple	pyramidal, dense branching	20	10	low	average	small	fibrous spreading	mod.	short	prefers good garden loam	m	l	aphids, fireblight	fruit, foliage	white (alt)	red			blooms in alternate years
Informal																			
<i>Acer glabrum</i> Rocky Mountain Maple	round, multi-trunked	25	15		dense	small	shallow	mod.	mod.	well drained	m	m	aphids, verticillium	fruit, foliage				f.c.-orange	stem suckering
<i>Quercus garyana</i> Oregon White Oak	shubby, with irregular crown	25	15		average	small	deep	slow	long	coarse, well drained slightly alkaline	l	l	root rot if over-watered, gall	fruit, foliage		acorns			late leaf fall, creeping root system

SHRUB AND GROUND COVER SELECTION

No formal shrub or ground cover matrix has been developed at this time. However, the same process as used for trees should be used to determine the suitability of each plant for a particular site. First, determine the type of shrubs and ground cover desired. Next, do a thorough site analysis. Finally, select plants with characteristics which meet the criteria specified in the site analysis. Again, the criteria can be divided into primary (essential) and secondary (nonessential but desirable) categories. Following is a list of recommended shrubs and ground covers which are suitable for the Tualatin area.

Scientific Name

Common Name

Deciduous Shrubs

Azalea mollis (hybrids)	Chinese Azalea
Berberis thunbergi atropurpurea	Redleaf Japanese Barberry
Cornus stolonifera	Redosier Dogwood
Cotoneaster horizontalis	Rock Cotoneaster
Deutzia gracilis	Slender Deutzia
Forsythia suspensa	Weeping Forsythia
Potentilla fruticosa	Bush Cinquefoil
Rosa rugosa	Rugosa Rose
Spiraea spp.	Spiraea

Coniferous Evergreen Shrubs

Chamaecyparis lawsoniana nana	Dwarf Lawson Falsecypress
Taxus baccata "repandens"	Spreading English Yew

Broadleaved Evergreen Shrubs

Abelia grandiflora	Glossy Abelia
Arbutus unedo	Strawberry Madrone
Berberis julianae	Wintergreen barberry
Buxus sempervirens	Common Boxwood
Choisya ternata	Ternate Mexicanorange
Cotoneaster parneyi	Parney Cotoneaster
Escallonia rubra	Red Escallonia
Euonymus japonicus	Evergreen Euonymus
Ilex cornuta	Chinese Holly
Kalmia latifolia	Mountainlaurel Kalmia
Mahonia aquifolium	Oregongrape
Osmanthus ilicifolius	Holly Osmanthus
Photinia fraseri	Fraser Photinia
Photinia glabra	Japanese Photinia
Photinia serrulata	Chinese Photinia
Prunus laurocerasus var.	Common Laurelcherry
Prunus lusitanica	Portuguese Laurelcherry
Pyracantha coccinea lalandi	Red Elf Laland Firethorn
'Red Elf'	

Stranvaesia davidiana
Viburnum rhytidophyllum

Chinese Stranvaesia
Leatherleaf Viburnum

Groundcover

Arctostaphylos uva-ursi
Ceanothus gloriosus
Cistus corbariensis
Hypericum calycinum
Vinca minor or Vinca major

Bearberry (Kinnikinnick)
Point Reyes Ceanothus
White Rockrose
Creeping St. Johnswort
Periwinkle

APPENDIX G

CITY OF TUALATIN PARKS & RECREATION MASTER PLAN
CONDITIONS OF THE "HAZELBROOK" URBAN GROWTH BOUNDARY

APPENDIX G

CITY OF TUALATIN PARKS & RECREATION MASTER PLAN

CONDITIONS OF THE "HAZELBROOK" URBAN GROWTH BOUNDARY

CONDITIONS:

- Condition 1 That all references to and requirements for a Greenway Riverbank Protection District (GRP) as shown in Tualatin Development Code (Chapter 72) do not now pertain to the Hazelbrook area and will not be implemented unless in accordance with Condition #3.
- Condition 2 That the Tualatin River Greenway requirements as shown in City of Tualatin Community Plan, Parks and Recreation Master Plan, are not indicative of zoning requirements but instead indicate goal objectives of the city for its future growth, should the Hazelbrook area be annexed to the city.
- Condition 3 For the said Hazelbrook Urban Growth area properties that any of the City of Tualatin's Riverfront Greenway or bikepath goals, including those indicated in the Park and Recreation Master Plan will only become effective and applicable to said properties when all three of the following conditions have been met:
- A. When an individual property owner(s) requests annexation and is incorporated into the City of Tualatin.
 - B. When an individual property owner(s) develops the property for urban use.
 - C. When the City of Tualatin has provided a financial reimbursement or other compensation, for an example, density transfer, for Greenway property that is equitable to the property owner(s)/developer.
- Condition 4 As Hazelbrook properties are incorporated through annexation into the City, but are not subject to the Park and Recreation Master Plan per Condition #3, the City of Tualatin has no requirement for and will not bring any pressure to bear on these properties, for

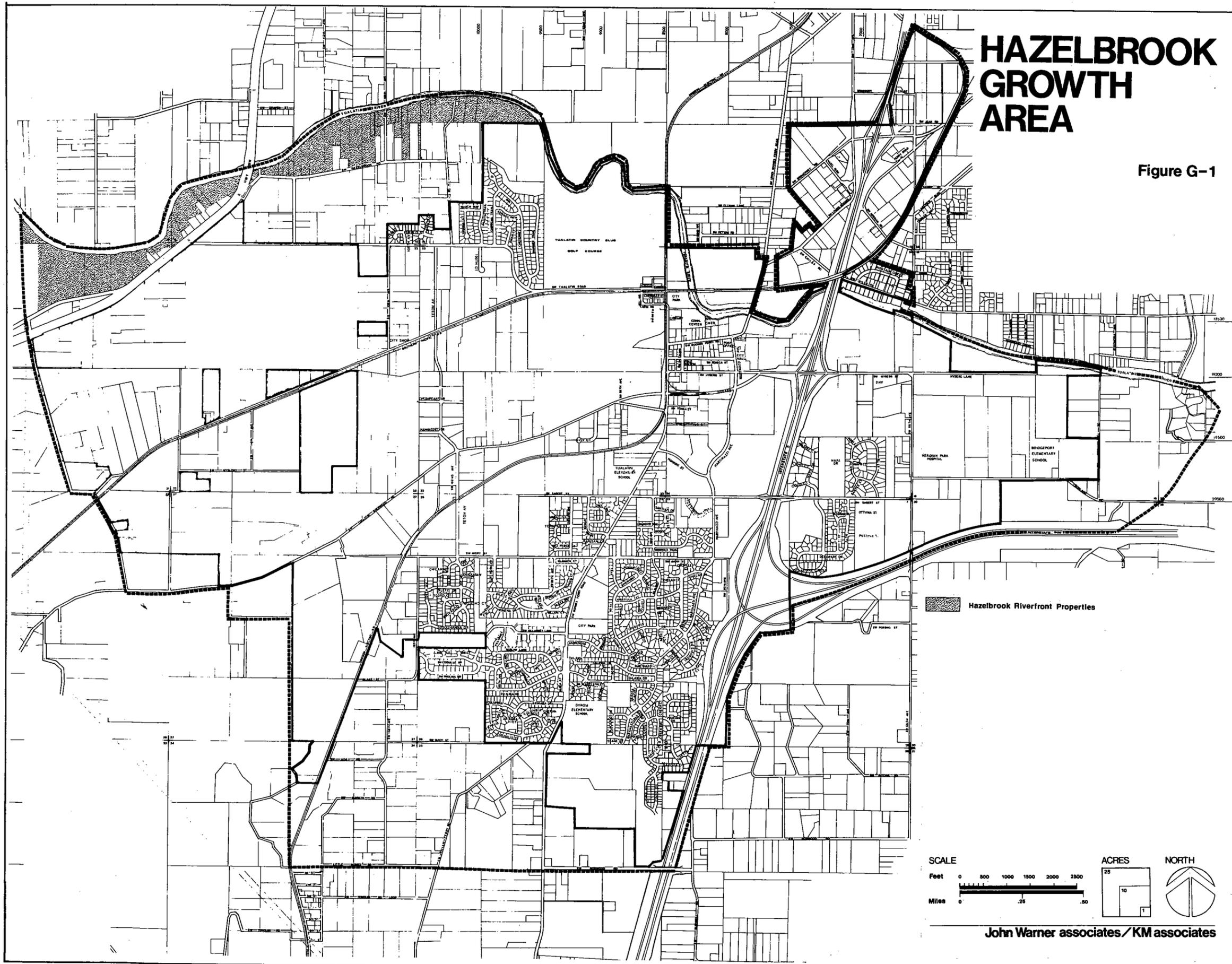
Riverfront Greenway access even though contiguous properties on either side of said property may be developed with Riverfront Greenway areas.

Condition 5 That absolutely no public access will be required on any of the Hazelbrook area properties until all conditioned requirements herein have been met.

Condition 6 That all conditions herein will apply for the present Hazelbrook property owner(s) as well as for any and all future owner(s) and assigns of the said Hazelbrook area properties.

HAZELBROOK GROWTH AREA

Figure G-1



APPENDIX G

CITY OF TUALATIN PARKS & RECREATION MASTER PLAN
CONDITIONS OF THE "HAZELBROOK" URBAN GROWTH AREA

CONDITIONS:

- Condition 1. -That all references to and requirements for a Greenway Riverbank Protection District (GRP) as shown in Tualatin Development Code (Chapter 49) do not now pertain to the Hazelbrook area and will not be implemented unless in accordance with condition #3.
- Condition 2. -That the Tualatin River Greenway requirements as shown in City of Tualatin Community Plan, Parks and Recreation Master Plan, are not indicative of zoning requirements but instead indicate goal objectives of the City for its future growth, should the Hazelbrook area be annexed to the City.
- Condition 3. -For the said Hazelbrook Urban Growth area properties that any of the City of Tualatin's Riverfront Greenway or bikepath goals, including those indicated in the Park and Recreation Master Plan will only become effective and applicable to said properties when all three of the following conditions have been met:
- A. When an individual property owner(s) requests annexation and is incorporated into the City of Tualatin.
 - B. When an individual property owner(s) develops the property for urban use.
 - C. When the City of Tualatin has provided a financial reimbursement or other compensation, for an example, density transfer, for Greenway property that is equitable to the property owner(s)/developer.
- Condition 4 -As Hazelbrook properties are incorporated through annexation into the City, but are not subject to the Park and Recreation Master Plan per Condition #3, the City of Tualatin has no requirement for and will not bring any pressure to bear on these properties, for Riverfront Greenway access even though contiguous properties on either side of said property may be developed with Riverfront Greenway areas.

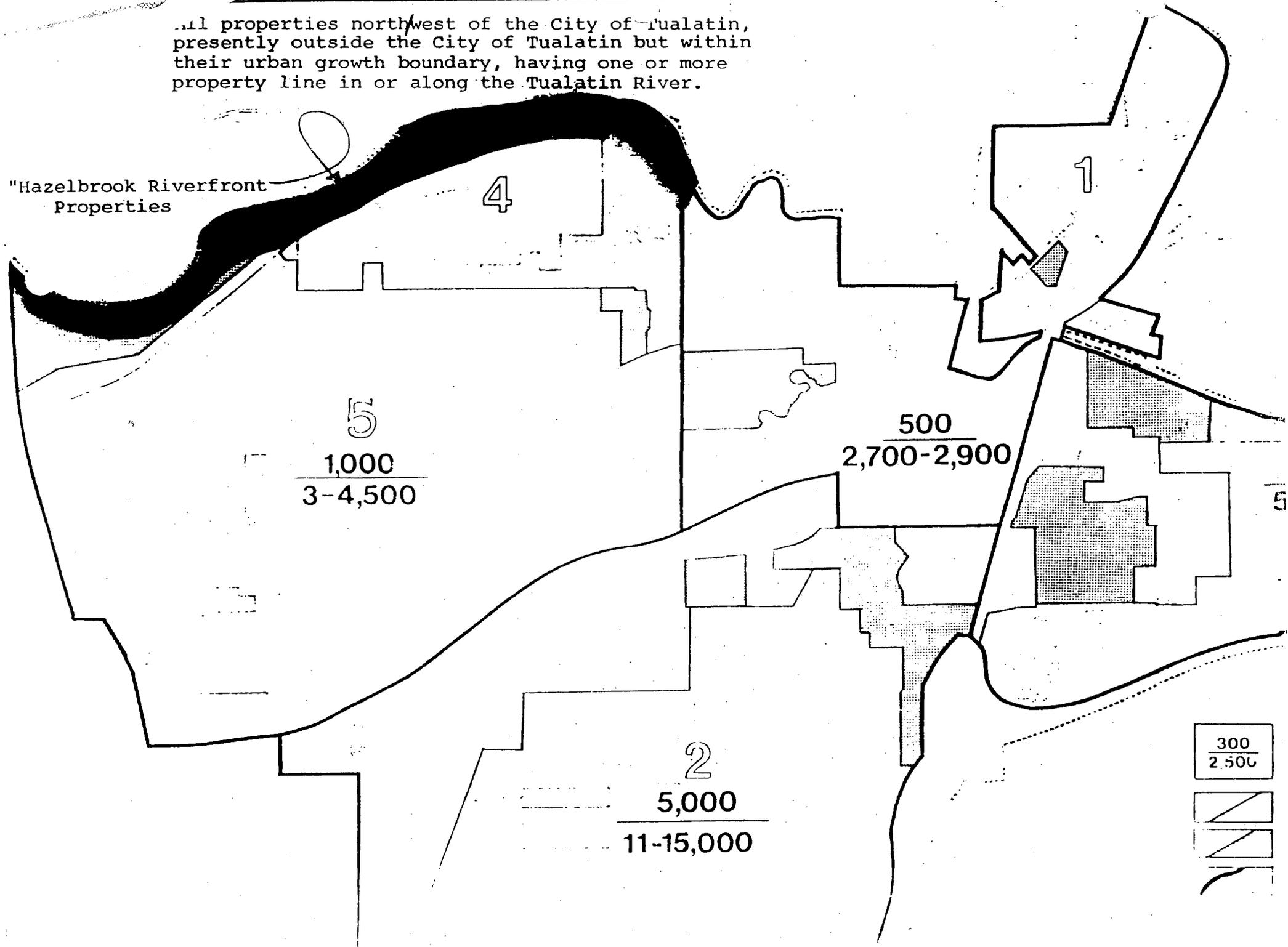
CITY OF TUALATIN PARKS & RECREATION MASTER PLAN
CONDITIONS OF THE "HAZELBROOK" URBAN GROWTH AREA
Page -2-

- Condition 5 -That absolutely no public access will be required on any of the Hazelbrook area properties until all conditioned requirements herein have been met.
- Condition 6 -That all conditions herein will apply for the present Hazelbrook property owner(s) as well as for any and all future owner(s) and assigns of the said Hazelbrook area properties.

The Hazelbrook area shall be defined as those properties adjacent to the south bank of the Tualatin River from the northwest corner of Tax Lot 200, Washington County Tax Map 2S114D, to the BPA right-of-way and as shown on the attached map.

All properties northwest of the City of Tualatin, presently outside the City of Tualatin but within their urban growth boundary, having one or more property line in or along the Tualatin River.

"Hazelbrook Riverfront Properties"



APPENDIX H

CITY OF TUALATIN PARKS & RECREATION MASTER PLAN

DESCRIPTIONS OF OTHER GREENWAYS

1. WEST OF S.W. 80TH AVENUE

A tract of land in the S.W. 1/4 of the N.W. 1/4 and the N.W. 1/4 of the S.W. 1/4 of Section 25, Township 2 South, Range 1 West, of the Willamette Meridian, Washington County, Oregon, more particularly described as follows:

Beginning at the intersection of the north right-of-way line of S.W. Avery Street and the east right-of-way line of S.W. 80th Avenue, thence south along the east right-of-way S.W. 80th Avenue 1142 feet more or less to a point on said east right-of-way, thence in a southwesterly direction 275 feet more or less to the north line of Shaniko No. 2 Subdivision as recorded in Book 45, page 1 & 2, Washington County Records, thence west along said north line of Shaniko No. 2 Subdivision 130 feet more or less to a point, thence in a northeasterly direction 322 feet more or less to a point 100 feet west when measured at right angles to the east right-of-way of S.W. 80th Avenue, thence north 100 feet from and parallel to said east right-of-way of S.W. 80th Avenue 1105 feet more or less to a point on the north right-of-way of S.W. Avery Street, thence east along said north right-of-way of S.W. Avery Street 100 feet more or less to the point of beginning.

2. NORTH/EAST OF SAGERT OFFICE PARK

A tract of land 100 feet in width, 50 feet left and 50 feet right of the following described centerline located in the S.W. 1/4 of the S.E. 1/4 of Section 24 Township 2 South Range 1 West of the Willamette Meridian, Washington County, Oregon, said centerline being more particularly described as follows:

Beginning at the southeast corner of Lot #16 of Sagert Office Park as recorded in Book 47, page 15 & 16, Washington County Records, thence N 08°15'09"E along the line between Lots #16 & #17 of Sagert Office Park 352.27 feet to the north line of Sagert Office Park, thence N 21°30'E 145 feet more or less to a point, thence N 57°15'E 445 feet more or less to a point, thence N 74°30'E 135 feet more or less to a point, thence N 86°15'E 370 feet more or less to a point said point being the terminus of said centerline.

APPENDIX H (continued)
CITY OF TUALATIN PARKS & RECREATION MASTER PLAN
DESCRIPTIONS OF OTHER GREENWAYS

3. EAST OF I-5

A tract of land in the N.W. 1/4 of the N.E. 1/4 of Section 25, Township 2 South, Range 1 West of the Willamette Meridian, Washington County, Oregon more particularly described as follows:

Beginning at the northwest corner of the Sandhurst No. 2 Subdivision as recorded in Book 47, page 32 & 33, Washington County Records, said northwest corner also being on the east right-of-way of Interstate 5, thence north along said east right-of-way 895 feet more or less to a point on the south right-of-way of S.W. Sagert Street, thence N84°24'16"E along the south right-of-way of S.W. Sagert Street 100 feet more or less to a point, thence south along a line that is perpendicular to and 100 feet east of the east right-of-way of Interstate 5 905 feet more or less to a point on the north line of Sandhurst No. 2 Subdivision, thence west 100 feet more or less along said north line of Sandhurst No. 2 Subdivision to the point of beginning.

4. SOUTH/WEST OF INDIAN WOODS

A tract of land 100 feet in width, 50 feet left and 50 feet right, of the following described centerline located in the N.W. 1/4 of the S.W. 1/4 of Section 26, Township 2 South, Range 1 West of the Willamette Meridian, Washington County, Oregon, said centerline being more particularly described as follows:

Beginning at the southeast corner of the Indian Woods Subdivision as recorded in Book 34, page 48 and 48A, Washington County Records, said point also being on the west line of the Indian Meadows Subdivision as recorded in Book 34, page 10 and 10A, Washington County Records, thence S40°30'W 275 feet more or less to a point, thence S73°W 270 feet more or less to a point, thence S62°W 125 feet more or less to a point in Hedges Creek, said point being the terminus of said centerline.