TERWILLIGER PARKWAY INVENTORY

RECOMMENDED TO:

BUREAU OF PLANNING · CITY OF PORTLAND

BY:

ERNEST R. MUNCH
JOHN WARNER ASSOCIATES
NANCY FOX

30 JUNE 1982
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>HISTORY OF TERWILLIGER BOULEVARD</td>
<td>4</td>
</tr>
<tr>
<td>LAND USE AND DEVELOPMENT</td>
<td>14</td>
</tr>
<tr>
<td>Existing Land Use</td>
<td>14</td>
</tr>
<tr>
<td>Zoning and Other Development Regulations</td>
<td>14</td>
</tr>
<tr>
<td>Natural Constraints: Geology, Soils and Slope</td>
<td>20</td>
</tr>
<tr>
<td>Developable Parcels</td>
<td>23</td>
</tr>
<tr>
<td>Expansion of Medical Facilities</td>
<td>36</td>
</tr>
<tr>
<td>VISUAL ASSESSMENT</td>
<td>37</td>
</tr>
<tr>
<td>Visual Character</td>
<td>37</td>
</tr>
<tr>
<td>Viewshed</td>
<td>37</td>
</tr>
<tr>
<td>Vegetation</td>
<td>45</td>
</tr>
<tr>
<td>TRAFFIC</td>
<td>46</td>
</tr>
<tr>
<td>Existing Facilities</td>
<td>46</td>
</tr>
<tr>
<td>Existing and Projected Traffic Volumes</td>
<td>46</td>
</tr>
<tr>
<td>Traffic Accidents</td>
<td>66</td>
</tr>
<tr>
<td>Street Classification</td>
<td>66</td>
</tr>
<tr>
<td>Proposed Improvements</td>
<td>69</td>
</tr>
<tr>
<td>RECREATIONAL USES</td>
<td>73</td>
</tr>
<tr>
<td>Existing Facilities and Uses</td>
<td>73</td>
</tr>
<tr>
<td>Proposed Improvements</td>
<td>73</td>
</tr>
<tr>
<td>Crime Data</td>
<td>74</td>
</tr>
<tr>
<td>IDENTIFICATION AND ANALYSIS OF ISSUES</td>
<td>75</td>
</tr>
<tr>
<td>Traffic and Access</td>
<td>75</td>
</tr>
<tr>
<td>Access</td>
<td>76</td>
</tr>
<tr>
<td>Impact of Future Development</td>
<td>77</td>
</tr>
<tr>
<td>Design Zone Boundary</td>
<td>78</td>
</tr>
<tr>
<td>Landscaping/Scenic Character</td>
<td>85</td>
</tr>
<tr>
<td>Viewpoints</td>
<td>85</td>
</tr>
<tr>
<td>Recreational Uses</td>
<td>87</td>
</tr>
<tr>
<td>APPENDICES</td>
<td></td>
</tr>
<tr>
<td>A. Summary of Public Meetings</td>
<td></td>
</tr>
<tr>
<td>B. Questionnaire Results</td>
<td></td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Study Area Boundary</td>
</tr>
<tr>
<td>2</td>
<td>Original Plan for Terwilliger Parkway</td>
</tr>
<tr>
<td>3</td>
<td>Land Donations</td>
</tr>
<tr>
<td>4</td>
<td>Land Use</td>
</tr>
<tr>
<td>5</td>
<td>Zoning</td>
</tr>
<tr>
<td>6</td>
<td>Soils</td>
</tr>
<tr>
<td>7-18</td>
<td>Developable Properties</td>
</tr>
<tr>
<td>19</td>
<td>Visual Character</td>
</tr>
<tr>
<td>20</td>
<td>Viewshed</td>
</tr>
<tr>
<td>21</td>
<td>Vegetation</td>
</tr>
<tr>
<td>22</td>
<td>Existing Physical Improvements</td>
</tr>
<tr>
<td>23</td>
<td>Average Daily Traffic</td>
</tr>
<tr>
<td>24</td>
<td>Changes in Traffic Volumes</td>
</tr>
<tr>
<td>25</td>
<td>Traffic Accidents</td>
</tr>
<tr>
<td>26</td>
<td>Proposed and Recommended Physical Improvements</td>
</tr>
<tr>
<td>27</td>
<td>Design Zone Alternatives Map</td>
</tr>
<tr>
<td>28-30</td>
<td>Design Zone Illustrations</td>
</tr>
<tr>
<td>31-35</td>
<td>Trail Alternatives</td>
</tr>
<tr>
<td>36</td>
<td>Alternative Trail Routes</td>
</tr>
</tbody>
</table>
INTRODUCTION

Terwilliger Parkway represents a unique scenic and recreational resource in the City of Portland. Originally established in the early 1900's as a leisurely, scenic drive, Terwilliger has now become a popular location for bicycling, jogging, walking and passive recreation. The corridor is also a highly attractive location for urban development. Today, increasing vehicular and recreational use of the corridor, together with mounting development pressures on private lands adjacent to the parkway, have caused growing concern about the need for management guidelines to protect the character and amenities of the corridor. To address this concern, the Portland Bureau of Planning, in conjunction with the Bureau of Parks, initiated the Terwilliger Parkway Corridor Study. The study area established by the City is shown in Figure 1.

The TERWILLIGER BOULEVARD INVENTORY is one of three reports prepared as part of the Terwilliger Parkway Corridor Study. It provides background information on characteristics and uses of the corridor and identifies key issues to be addressed in the planning process. The TERWILLIGER PARKWAY CORRIDOR PLAN establishes goals and policies for future use and development of the parkway, addressing both public actions within the parkway right-of-way and private development on lands adjacent to the parkway. A third document, the TERWILLIGER PARKWAY DESIGN REVIEW GUIDELINES, recommends an expanded design zone and design guidelines specifically relating to urban development adjacent to the parkway.

The Terwilliger Parkway Corridor Study was commissioned by the Portland Bureau of Planning in cooperation with the Bureau of Parks. The Portland City Planning Commission recommended that a study of the Terwilliger Parkway Corridor be undertaken in response to the problems and concerns encountered in 1980 during public hearings for a Planned Unit Development (PUD) proposed along the eastern flank of Terwilliger Boulevard. The Portland City Council, appreciating the concerns of the Planning Commission, approved funding for the study. The study area established by the City is shown in Figure 1. Concerns raised during both the Planning Commission's and City Council's review of the PUD included access across the parkway, preservation of the character of the parkway, buffering and protecting the Terwilliger Boulevard recreational path (located in the Parkway) and design of buildings in close proximity to the parkway. The Council resolved these issues in the PUD case using setback restrictions, requiring preservation of existing vegetation, and other measures tailored around the particular characteristics of this development proposal.
There are several other significant parcels of undeveloped land along the corridor. These have remained vacant in the past because of various geologic, topographic and access problems inherent in this hillside area. However, as easily developed parcels become increasingly rare, the likelihood of development of these difficult sites increases. The recreational and scenic potential of the Terwilliger Corridor, coupled with its close proximity to the downtown, help make vacant land along the parkway attractive for development. To avoid unnecessary repetition of the lengthy and difficult discussions required to resolve concerns surrounding development along the corridor, development of a Terwilliger Parkway Plan was proposed.

The study was completed in several phases between March and the end of June 1982, including: collection and analysis of background data, definition of issues and goals, evaluation of alternatives, and final preparation of the Terwilliger Plan. A series of community meetings and workshops were held to gather public input at critical points in the study, including a general meeting on April 6, in-depth workshops on April 17 and 28, 1982 and another general meeting to review preliminary plan recommendations on May 11, 1982.

Goals for the Terwilliger Plan were developed through a community involvement process. In addition to holding several public meetings (Appendix A) and workshops, and distributing a questionnaire (results in Appendix B), the consultant team interviewed representatives of neighborhood associations, user groups, property owners and the medical complex. The goals are designed to reflect all of the major interests identified. Where conflicting points of view exist, the goals strive to accommodate and strike a balance between the various points of view.
Figure 1  Study Area
HISTORY OF TERWILLIGER BOULEVARD

Historical records were reviewed to gain an understanding of the original intent of the parkway. This review was useful not only to establish the historical context of the parkway, but also to identify special resources and opportunities along the corridor and legal restrictions affecting use of the parkway.

The construction of Terwilliger Boulevard was first mentioned in Landscape Architect John Olmsted's 1903 report to the Portland Park Board. In that report, he envisioned a comprehensive system of parks and parkways for all of Portland including the West Hills.

"West of the Willamette River and south of Riverview cemetery there would be a large forest reservation (Tryon Creek Park) from which an informal picturesquely parkway would pass east of Riverview cemetery leaving the west bank of the river at Fulton. It would keep along the hillsides to a connection with the City Squares, would continue on the hillsides of City Park (Washington Park), would keep on the hillsides to Macleay Park and would proceed thence along the hillsides to another large forest reservation (Forest Park) on the hills northwest of Mountain View Park Addition. Attached to or in widenings of this parkway there would be areas which could be developed as neighborhood parks and play grounds. This hillside parkway and the two forest reservations would preserve some of the characteristic hill landscape west of the city, and afford fine views of the snowy peaks."

John Olmsted was a partner in the nationally recognized Olmsted Brothers of Brookline, Massachusetts, a landscape architecture firm founded by their father, Fredrick Law Olmsted, a leader of the 19th century American park movement. The Olmsted Brothers, like their father, believed that a carefully developed system of municipal parks ensured the health of urban residents and reflected on their "degree of civilization."

In May of 1903, the Olmsted Brothers were retained by the Board of Lewis and Clark Exposition to prepare a plan for the 1905 fair, which was to be sited in the Guild's Lake area of Northwest Portland. At the same time, John Olmsted was asked to prepare a comprehensive plan for Portland's parks. He spent "every day during three weeks in going about and examining various parts of the city and surrounding country." His report constituted the City's first overall plan and has served to influence the form and development of Portland to the present. In the report, he
described the advantages of the City's setting for recreational and scenic opportunities and translated his vision into a workable guide for park acquisition and development.

Olmsted envisioned Terwilliger Boulevard, or the "South Hillside Parkway", as he called it, replacing Macadam Avenue as the "principal drive leading out of the city." Macadam Avenue, he felt, would be utilized by increased commercial traffic. Terwilliger was to become "a feature of which the city would justly be proud, and it would almost certainly be paying investment through the increased taxable valuation which it would give to the highland along its course, much of which will become available for high-class suburban and country residences."

Olmsted recommended that the Park Board act quickly:

"A reasonable consideration of the urgent requirements of the future in the matter of a pleasure drive southward from the city, forces the conclusion that the southern pleasure drive should be laid out on gentle grades above the electric railway, and as soon as possible, lest its best course be interfered with by the erection of dwellings and by rising values of the land, especially near the city.

"The hillside parkway extending southeasterly from the south end of the row of city squares presents a more difficult problem, in the matter of land acquisition, than the parkway extending northwesterly from Macleay Park, yet, if it should prove possible to secure, with the cooperation of land owners, the needed right-of-way and sufficient land below it to ensure command of the views, this parkway would have great value both to the people using it and to the owners of residence properties which it would make agreeably accessible."

Olmsted's concern may have been based upon development which had already begun in the southwest hills. Marquam Hill had been platted in 200 x 200 foot blocks and, by the turn of the century, a number of small homes had been constructed. Along the southern portion of the corridor, the Fulton Land Company had been formed and was marketing home sites. Additionally, some low income housing had been built around the perimeter of Marquam Ravine. This gulch, then used as a garbage dump, was quickly being filled.

Nothing was really accomplished on further plans for Terwilliger until Portland lawyer Joseph Simon became Mayor in 1909. Before being elected Mayor, Simon had served on
Figure 2
Original Plan For Terwilliger Parkway ca. 1912
Courtesy:
Oregon Historical Society
the Portland City Council, been Republican State Chairman, State Senator and U.S. Senator. He was also corporate secretary for the Oregon Railway and Navigation Company and was Henry Pittock's partner in the Fulton Park Land Company. Simon was described as an "intense, ambitious 'wheeler-dealer' of great personal charm who dedicated his life to business, law and politics. He never attempted to separate his private and public affairs."

By the end of Simon's two-year term, the City had prepared a design for Terwilliger (Figure 2), received deeds of gift from the Fulton Park Land Company (Deed #385 - 3.7 acres), the heirs of James Terwilliger (Deed #386 - 19.24 acres), purchased another 2.84 acres and finished grading the portion of Terwilliger between Hamilton and Slavin Road. In 1912, the City received another large deed of gift from the Oregon Railway and Navigation Company (Deed #391). The three deeds of gift, shown in Figure 3, contain provisions which continue to restrict the ways in which the City can improve and use the property. The deeds state that the property is conveyed to the City "as and for a public boulevard and parkway for the benefit and use of the public." The key conditions follow:

1. The two hundred (200) foot strip of land above described shall be forever used as a Boulevard and Parkway by the City of Portland, and upon any abandonment or non-use of said strip of land, or any part thereof, for said purpose, the said strip of land or part so abandoned shall immediately revert to the grantor, its successors or assigns, and the failure to up-keep the same, or the closing thereof for an unreasonable length of time for any other than necessary purposes, shall be deemed abandonment and or non-use, and said abandonment and or non-use may be proved by any competent evidence.

2. That the grantor, its successors and assigns, as the owner of any adjacent land, shall have the right to use said Boulevard and Parkway as a highway for domestic purposes, for the transfer of building materials and graders outfits, and for grading and improvement purposes. That said grantor, its successors and assigns, shall have access to and the right to cross the same where necessary to reach its abutting lands on either side, by roadways on easy grades, which grades are to

---

be established by the City of Portland, within the marginal lines of said Boulevard and Parkway, and such roadways crossing said Boulevard and Parkway, shall be constructed and maintained by the City of Portland, or its Park Board, within the marginal lines of said Boulevard and Parkway without expense to the granter herein.

3. It is understood that the foregoing grant is conditioned upon the fact that the land conveyed is to form an integral part of the contemplated Park and Boulevard System of the City of Portland, as surveyed and located, beginning at the South end of the Park Block in the City of Portland and extending to a point in the Slavin Road, beside Fulton Park in said City.

The Fulton Park Land Company also promised not to build on land within 25 feet of the uphill property line of the slope.

By 1914, the Boulevard had been improved, though not paved, and opened to traffic from S. W. Sixth Avenue to Slavin Road. The right-of-way was generally 200 feet wide, so as to ensure that no buildings would be built to obstruct the views. The grade surface was generally 45 feet wide, which was to be improved as a 26-36 foot paved roadway and a 9 foot lighted cement walk. The alignment was designed with "ease and grace". The sharpest curve had an outside radius of 200 feet and the steepest grade was 6%. Because the hillside area through which the Boulevard had been constructed had recently been logged, both shrubs and clover were planted.

Two areas along the corridor, Elk Point and Eagle Point, were deemed special in the Olmsted Parkway Plan because of the spectacular views they offered. At these points the right-of-way was to have been widened to 400 feet and improved with lawns and benches. Elk Point was dedicated in 1912, during the Elks Convention held in Portland that year, and two temporary white plaster elks were installed to mark the occasion. Purchase of Eagle Point was omitted because of a lack of funds. Later S.W. Lowell Lane was dedicated to the City and graded as a street to provide a scenic loop and viewpoint at Eagle Point. Unfortunately, Elk Point is now the parking lot of the Hillvilla Restaurant, and a portion of the Eagle Point loop was vacated by the City in 1963. The Hillvilla parking lot remains within the public right-of-way at Elk Point.

After passage of a park levy in 1917, the City purchased Duniway Park and began its improvement. At about the same
time a controversy surfaced about the use of Terwilliger. Since its improvement, the Boulevard had become one of the best routes for travel between downtown and the southwest. In July of 1916, a committee headed by Julius Meier asked the City Council to open Terwilliger to commercial traffic. The City Attorney pointed out that this would not be allowed under the terms of the deeds of gift which provided that land "shall be forever used as a boulevard and parkway, for the benefit and use of the public," and that if the City failed in this or its improvement of the roadway, the land would immediately revert to those granting the gift.

By 1917, Terwilliger had not yet been paved, and the graded road bed had begun to deteriorate. Mayor Baker claimed that the City did not have sufficient funds to surface the road, and proposed that the Boulevard be turned over to the county for repairs and subsequent use by commercial traffic. The Oregon Railway and Navigation Company and the heirs of James Terwilliger responded quickly. Both threatened to reclaim the right-of-way if the road was not paved or opened to commercial traffic. Mayor Baker backed off quickly, and Terwilliger Boulevard was paved within the year.

Development of medical facilities on Marquam Hill began in 1914, when the Oregon Railway and Navigation Company donated 20 acres of land to the University of Oregon Medical School. The Medical Science Building was completed in 1919. In 1924, a county hospital was added. In 1926, Doernbecker Children's Hospital was opened and land was acquired for the Veteran's Hospital. The Campus Drive entrance to the Medical School was added in 1950 with the construction of the Dental School.

One structure within the study area has been listed on the National Register of Historic Places—the William S. Holt residence at 3625 S.W. Condor, built in 1888. Twelve other structures within the study area, five abutting the parkway, have been recognized by the City as historically significant. These include:

2815 S.W. Barbur Boulevard - YMCA
3225 S.W. Barbur Boulevard - Synagogue
16 S.W. Abernathy
4035 S.W. First
4323 S.W. Hamilton Terrace
4391 S.W. Terwilliger
3211 S.W. 10th Avenue
VA Hospital - U of O Medical School
2765 S.W. Sherwood
2780 S.W. Sherwood
4225 S.W. 7th Avenue
S.W. Sam Jackson Park Road
There are two other historical landmarks which deserve mention. The Carnival Restaurant began as the "Triple-X Root Beer Stand" in the 1920s. It was then converted into an antique store and then the Wagon Wheel Inn, becoming the Carnival Restaurant in 1952. The other landmark is Hillvilla Restaurant, which was started by Raleigh Simmons in 1921 as "Simmon's Hillvilla". Originally, he operated a curio shop and restaurant at that location. It was sold by his heirs in 1951 and remodeled in 1953.
LAND USE AND DEVELOPMENT

Existing Land Use

Land uses within the study area range from single and multi-family residential to commercial uses and medical facilities. Almost all of the existing development abutting Terwilliger Parkway is residential, except for two commercial businesses—Hillville Restaurant near the intersection of S.W. Westwood Drive and the Shell service station at the intersection of S.W. Sam Jackson Park Road—and the Burlingame shopping area at S.W. Barbur Boulevard. Existing land use within the study area is shown in Figure 4 and described below.

South of S.W. Capitol Highway, the Terwilliger right-of-way is of standard street width, narrower than the 200-foot wide right-of-way which exists north of Capitol Highway. Land uses abutting the Parkway include the Burlingame shopping area at S.W. Barbur Boulevard and single family residences. Approximately eighteen vacant lots are interspersed with the houses along this section of Terwilliger. The segment of Terwilliger Boulevard between S.W. Florida and S.W. Capitol Highway is bounded on the east by George Himes Park. The park enhances the parkway effect of Terwilliger and offers a trail linkage between Marquam Nature Park and Willamette Park as part of the 40-Mile Loop Trail.

North of S.W. Capitol Highway there are four multi-family developments abutting the parkway in addition to single family residences. There are approximately 34 individual undeveloped properties which abut the parkway in this area. The west side of Terwilliger from S.W. Veterans Hospital Road to S.W. Sam Jackson Parkway is bounded by the Veteran's Administration Hospital/University of Oregon Medical School/Shriners Children's Hospital complex. Commercial development north of S.W. Capitol Highway is located at the foot of S.W. Sam Jackson Park Road, at the intersection of S.W. Tenth Avenue and S.W. Veteran's Hospital Road, at the corner of S.W. Condor Avenue and Lane Street, and on S.W. Hamilton between S.W. Condor and S.W. Viewpoint.

Zoning and Other Development Regulations

Future development of the vacant lands along Terwilliger Parkway will be subject to a number of development regulations imposed by the City of Portland. The key regulations affecting such development are zoning, the subdivision and planned unit development (PUD) codes, and the Terwilliger Design Zone.
As shown in Figure 5, zoning designations within the study area are predominantly residential. Except for a few small areas of commercial zoning, all private lands abutting the property are zoned residential (R-1, R-7, or R-10). Commercially zoned properties in the study area include the shopping area along Barbur Boulevard, an area including the Shell station at the intersection of Terwilliger and S.W. Sam Jackson Park Road, and a developed lot on the corner of S.W. Condor Avenue and Lane Street.

The subdivision code establishes procedures and criteria for dividing properties into smaller parcels for development, consistent with the underlying zoning classification. If the underlying zone is R-10, for example, each lot created within the subdivision must be at least 10,000 square feet in size and specific building setback requirements must be met. The code also establishes design standards for public improvements required as a condition of subdivision approval. In addition, land suitability is evaluated in the review process and the developer must demonstrate that any natural hazards or constraints on the site, such as landslide hazards, can be adequately mitigated. Natural constraints within the study area are discussed in the following section.

The PUD ordinance offers an alternative to traditional subdivisions, providing for variances from minimum lot size, setback and use regulations. In a PUD, dwelling units may be clustered on lots smaller than the minimum lot size in the underlying zone, provided that at least 40% of the property is retained in open space. In addition to single family residences, multi-family dwellings and limited commercial uses are permitted in all residential zones. However, the average density of development remains the same as that permitted in a regular subdivision. By giving greater flexibility for building placement, PUDs offer the opportunity to avoid development in severely constrained areas and preserve valuable natural features in open space without reducing the total number of units on the property. Because its use has frequently been controversial, the PUD ordinance is currently being re-evaluated by the Portland Bureau of Planning and proposed revisions are being developed.

Additional design guidelines may be applied to properties within the Terwilliger Design (D) zone, which includes lands located within 200 feet of the Parkway right-of-way, from Sheridan to Capitol Highway. The D-zone was implemented in 1959 and requires special design review to meet the following objective:

"Primary consideration shall be given to safeguarding unobstructed views and to preserving the heavily wooded character. Improvements shall make
a minimal amount of interruption to the natural topography."

In the past, design review has resulted in special design conditions such as landscaping requirements, restrictions on tree removal, building setbacks and the like.

Natural Constraints: Geology, Soils and Slope

In addition to zoning and other legal restrictions described above, there are significant natural constraints affecting development potential along the corridor. A combination of geology, soils and slope characteristics create potentially hazardous conditions for development. Evidence of past landslides and other forms of slope failure can be seen along Terwilliger, warning of the need for careful engineering and design in planning for future development.

Subsurface geology is one factor contributing to slope instability. The Terwilliger Corridor is underlain by bedrock known as the Columbia River Basalt. When weakened by erosion, faulting or excavation, the bedrock can be subject to block glide failures. Active faults are known to exist in the area, such as a fault line which crosses the slope above Duniway Park. The bedrock can also contribute to landslides by acting as an impermeable layer upon which groundwater is perched. Water infiltrating through more permeable surface layers is stopped by the impermeable basalt or clay-like weathered basalt soils, serving to lubricate the plane between these layers and causing surface layers to slide under the force of gravity.

Soils in the corridor are illustrated in Figure 6. There are a wide range of soil types in the study area. The soil classifications shown are those identified by the Soil Conservation Service (SCS) and representing a combination of soil type and slope factors. The following soil classifications are shown:

- 0-8 percent slope  -  Cascade Urban Land Complex
- 3-15 percent slope  -  Goble Silt Loam
- 3-15 percent slope  -  Goble Urban Land Complex
- 8-15 percent slope  -  Cascade Urban Land Complex
- 8-15 percent slope  -  Quafend Urban Land Complex
- 15-30 percent slope  -  Cascade Urban Land Complex
- 15-30 percent slope  -  Goble Urban Land Complex
20-50 percent slope - Haploxerolls-Steep
30-60 percent slope - Cascade Silt Loam
30-60 percent slope - Goble Silt Loam
30-60 percent slope - Haplumbrepts-Very Steep

For each soil classification, the SCS evaluates suitability for building site development, with individual ratings for shallow excavation, dwellings with and without basements, small commercial buildings and roads. While the composition and characteristics of the individual soil types vary, all of the soil classifications in the corridor are rated moderately to severely constrained under each of the building suitability criteria. Two of the soil series, Cascade and Haploxerolls, are also noted for potential site drainage problems. Because of mapping and scale limitations, the SCS data is not intended to be site specific, but rather to indicate potential hazards and to highlight the need for on-site sampling and testing prior to building design or construction.

Slopes within the study area were also mapped. This information is available at the Bureau of Planning.

Developable Parcels

Vacant, potentially developable parcels in the study area were identified and studied as part of the inventory (Figures 7 through 18). The larger parcels are individually mapped and described below, including a summary of any current development plans on the property. In addition to these larger parcels, there are approximately 25 individual vacant lots abutting the parkway.
FIGURE 7  MARQUAM NATURE PARK

Owners: City of Portland
Size:
Zoning: R-10; R-1
Property Description:

Wooded sloping ground contained within Marquam Ravine bounded by residential property on the north and west, and by the Medical School on the south.

Planned Use:

Preservation as a park. Construction of a footpath, tied to the 40-Mile Loop Trail. A collection of improvements at the entrance to the park off Sam Jackson Park Road are scheduled for completion by the Fall of 1982, including an interpretive shelter, screened parking, a trail and improved trail connections. This project also includes trail improvements and safer connection to Terwilliger Parkway at Duniway Park.
FIGURE 8 SINGLETON PROPERTY/SUNRISE

Owners: Richard Lakeman; David Orkney
Size: 53 acres
Zoning: 1/3 R-7; 2/3 R-10
Number of Units: 250
Property Description:

Steep, wooded site, bordered by Fairmount Blvd. on the west, Medical School land on the south and east, School District land and smaller parcels on the north.

Planned Use:

The owners of this property wish to obtain PUD approval and start construction on a mixed single family residence and townhouse development within two years. Principal access to the property is planned across Medical School property to Terwilliger Boulevard. This may be difficult because of the cost and restrictions on deeds for the Medical School property. Secondary access points are planned at Marquam Hill Road and S.W. 12th and Gaines.

A portion of the Marquam Hill Natural Trail is also planned through this property to connect Marquam Hill Road to Terwilliger.
FIGURE 9 SOUTHERN MEDICAL SCHOOL PROPERTY

Owners: State of Oregon
Size: 29.75+ acres
Zoning: 28.15 acres zoned R-10; 1.6 acres zoned R-1.
Property Description:

'L' shaped property donated in three parcels to the State of Oregon for use of the Medical School. Wooded, sloping, unstable soils.

Planned Use:

None at this time. The Medical School plans to expand within the established campus area.
FIGURE 10  NORRIS PROPERTY

Owners:  Charles and Thelma Norris
Size:  1.9 acres
Zoning:  R-10D
Number of Units:  7
Property Description:

Wooded site with 600 feet of frontage on Terwilliger. Western portion contains 1 home and year round stream. Eastern portion is wooded and grassy.

Planned Use:

None. Property to remain vacant while in present ownership.
FIGURE 11 KELLER PROPERTY

Owners: Mrs. Keller
Size: 52 acres
Zoning: 50.5 acres zoned R-10; 1.5 acres zoned R-7
Number of Units: 184

Property Description:

Very steep, wooded site, portions of which have unstable soil conditions. A portion of the property was purchased to preserve the views of homes on Northwood Avenue.

Planned Use:

None at this time. 120 units on 34.3 acres could be developed with direct access to Terwilliger Boulevard.
FIGURE 12 WALLACE/WILLIAMS PROPERTY

Owners: George Wallace, David Williams
Size: 2.3+ acres
Zoning: 2.06 acres zoned R-10; .24 acres zoned R-7
Number of Units: 8

Description of Property:

Very steep, wooded site facing northeast. Access is possible via Menefee Drive or from Terwilliger over property to southeast.

Planned Use:

Develop as PUD. No schedule.
FIGURE 13 URBAN RESOURCES PROPERTY

Owners: Urban Resources
Size: 4.6 acres
Zoning: 2.9 acres zoned R-7; 1.7 acres zoned R-10
Number of Units: 25
Property Description:

Steep sloping, wooded site on the uphill side of Terwilliger Boulevard.

Planned Use:

Owners wish to gain PUD approval by 1983 and start construction by 1984.
FIGURE 14 MALETIS PROPERTY/MARQUAMWOOD

Owners: James Maletis/Marina Finnegan
Size: 18.8 acres
Zoning: R-10
Number of Units: 63
Property Description:

Sloping, wooded site with a central area of unstable soil. Bounded by Terwilliger on the west, Barbur Blvd. on the east, park and private homes on the north, and parkland on the south.

Planned Use:

PUD approval with 17 conditions given on January 2, 1981. Units will be constructed.
FIGURE 15 MILLER PROPERTY

Owner: Dorothy Barr Miller
Size: 2.94 acres
Zoning: R-10 (under appeal to State Supreme Court)
Number of Units: 10-12
Property Description:

Steeply sloping, wooded site, with unstable soil conditions. Bounded by Barbur Blvd. on the east, City park on the north, Battaglia property to the south and west.

Planned Use:

No active plans at this time. The owner has been attempting to change the Comprehensive Plan designation to R-2. Possible access via S.W. Ralston Drive.
FIGURE 16 HILLVILLA PROPERTY

Owners: Battaglia, Palaske, Graziano
Size: 4.5 acres
Zoning: R-10
Number of Units: 16
Property Description:

Three steep, wooded parcels bounded by Ralston Drive, Terwilliger Boulevard and the Miller property. Access is possible from Ralston Drive.

Planned Use:

None at this time. The property was originally purchased to preserve the view of the Hillvilla Restaurant.
FIGURE 17 ALLEN PROPERTY

Owners: Samuel Allen
Size: 4.9 acres
Zoning: R-10
Number of Units: 21
Property Description:

Steep, wooded site, bounded by Barbur Blvd. on the east, Ralston Drive on the north and west.

Planned Use:

Plan to build a single family residence.
FIGURE 18 JOHNSTONE PROPERTY

Owners: Dorothy Johnstone
Size: 2+ acres
Zoning: R-10
Number of Units: 7
Property Description:

Two parcels - one occupied by a rental house with access via Ralston Drive; sloping wooded site.

Planned Use:

Owner has no current plans to develop this property.
Expansion of Medical Facilities

There are plans for construction of several new and expanded facilities within the site of the existing medical complex.

1. Veteran's Administration Hospital - Over the next five years the V.A. Hospital will expand its average bed capacity by almost 25%. The number of on-site parking spaces will increase from 570 to 990 by the year 1987, and annual outpatient visits are projected to increase nearly 40%.

2. Health Sciences University - the Oregon Health Sciences University plans to add to a number of facilities between now and 1995. The following projects are being considered, although most do not now have a specific time schedule:

   A. The addition of floors to the basic science building.
   B. Student Activities Center
   C. Library expansion
   D. Instructional Center
   E. School of Nursing
   F. Physical Plant improvements
   G. Biomedical Research Center
   H. C-Wing expansion
   I. New D-Wing
   J. Three-level addition to the lower parking garage (450 cars)

The campus plan which is now being developed will recommend that these new facilities be located on sites within the existing campus rather than expanding to vacant land south of the Crippled Childrens' Hospital.
VISUAL ASSESSMENT

Visual Character

There are special visual qualities and impressions of the Terwilliger Parkway corridor as one moves through it. These qualities represent a vast range of visual experiences such as views, vistas, focal points, sequences of space, view-limiting edges, as well as the detail of landforms, plants, pavements and building materials.

The speed of the viewer's travel largely determines how much of the corridor may be perceived. The pedestrian has the greatest opportunity for full and detailed impressions, while the bicyclist's or jogger's experience is less detailed and the driver perceives the least. In order to capture the experience in the largest sense, a visual character inventory was gathered by walking along the corridor.

The spatial sequences and views along the corridor are different in the northbound and southbound routes. The parkway's visual character has been documented in each direction and combined to create a composite of the experiences. A photograph log also records the visual sequences; photograph locations have been mapped separately for each direction.

Since the Terwilliger corridor is difficult to perceive as a whole while one moves through it, and each part of the corridor has unique qualities, the parkway was broken into discrete segments for the visual analysis. These sections were then combined into a single map summarizing the visual character of Terwilliger Boulevard, both southbound and northbound (see Figure 19).

Viewshed

Through on-site investigation, the extensive field of view from Terwilliger Parkway was identified and mapped (see Figure 20). The total viewshed is composed of all land areas and structures that are visible from the parkway. It is a useful tool to document how far the corridor is influenced visually and what areas are highly sensitive. The investigation also points out areas that cannot be seen and therefore have little or no visual effect on the corridor.

The limiting edges of the viewshed were mapped from both northbound and southbound directions, and the viewshed map represents a composite of these corridor edges. In addition, physical features which delineate the limits of
the viewshed have been recorded. These features include the
topography or landforms, vegetation and built structures.

The viewshed was divided into foreground, middleground and
background based on distance from and relationship to the
viewer. These categories represent a measure of an area's
visual impact on the corridor. In forested areas, the
visual relationships were sometimes difficult to determine
due to the density, depth and continuity of the tree stand.
In most cases, however, view-limiting elements appear as an
irregular series of overlapping edges such as distinct
ridgelines or rows of buildings. The size of foreground,
middleground and background varies along the corridor. In
some areas, the middleground drops away quickly, and the
foreground overlooks to a background of infinity; elsewhere
views are limited close to the roadway so that no
middleground or background exists. These variable
conditions are part of what makes traveling on Terwilliger
Boulevard visually stimulating.
Vegetation

A vegetation map, Figure 21, shows several general categories of plant cover existing within the viewshed of Terwilliger Parkway. Native vegetation consists largely of Douglas fir, often mixed with deciduous red alder. These forests do not represent a climax stage of vegetational succession, but are very stabilized native growth. Much clear-cutting of the land in the study area was done in the late 1800s. Since then, this forest and its related indigenous understory plants have become important components of the Terwilliger Parkway, both in terms of the ecology of the area and its visual character.

One non-native plant, English ivy, has become heavily established in the Douglas fir and red alder forests. This woody evergreen vine has climbed many of the trees as well as having knitted itself into a thick, matted groundcover. The ivy smothers out any other seedlings or native understory plants which would otherwise become another phase in the natural plant succession.

The parkway includes areas of maintained turf and ornamental plants. These areas are planted in a way that reinforces the pastoral quality of a park setting: simple turf, trees and some limited but large-scale shrub plantings. Sharply contrasting with the native landscape, the parkway areas are settings for recreational activities.

Ornamental plants can also be seen in residential areas adjacent to the parkway. These include a wide variety of flowering trees, shrubs and groundcovers of a small and detailed scale. While these plantings may be appropriate for residential areas, they are not consistent with either the native landscape or the parkway character of the corridor. Their showy, ornamental character tends to break the continuity of the parkway. They tend to visually interrupt and distract from the native landscape character and parkway qualities of Terwilliger.

In some areas there are mixed plantings of ornamental and native species. In cases where the more showy, ornamental plants dominate, these plantings do not appear consistent with the native or parkway landscape. However, in other mixed plantings the native plant materials dominate, or the ornamental plantings replicate the character of the natural landscape. An example is the area where unclipped Portuguese laurel is the understory for a thickly canopied Douglas fir forest. The character of this planting does not detract from the native plants.
TRAFFIC

Existing Facilities

Existing roadway facilities are shown in Figure 22, Sections 1-8. In addition to the roadway itself, the map indicates paved and gravel parking areas, street lights, guardrails, slope retaining improvements and recreational facilities. The roadway width of Terwilliger varies from 30 to 36 feet along the corridor. The surface is asphalt concrete.

In some roadway sections south of Capitol Highway this surface overlays a concrete base. About 40% of the roadway has been curved. Much of this was installed in the early 1970s when the bicycle and pedestrian trail was constructed. Sections of curb south of Capitol Highway were installed earlier and in some cases disappeared because of landslides, erosion or a build up of both soil and pavement.

Much of the roadway is improved with storm drainage. However, much of the drainage system is clogged by silt because of a lack of curbing and maintenance.

Traffic signals exist at intersections with Sheridan Street, Sam Jackson Road, Capitol Highway and Barbur Boulevard. Other intersecting streets are controlled by stop signs. The roadway is marked as two lanes except at Barbur Boulevard, Sam Jackson Road and Sheridan Street where turn lanes have been installed.

Existing and Projected Traffic Volumes

Figure 23, Average Daily Traffic, is a compilation of traffic counts taken between 1979 and 1982. Heaviest volumes (13,800 vehicles per day) were recorded between S.W. Sheridan and S.W. Sam Jackson Park Road. However, 60% of that traffic follows S.W. Sam Jackson Park Road to the Medical School. Volumes on Terwilliger south of the V.A. Hospital were recorded at 7,600 vehicles per day in 1980. This is due to traffic accessing the V.A. Hospital and Medical School from Barbur Boulevard via S.W. Hamilton and Bancroft Streets. Volumes on Terwilliger are lowest adjacent to George Himes Park, where they drop to about 4,000 vehicles per day.

The major traffic capacity constraint on Terwilliger is its intersection with S.W. Sheridan Street. Traffic during the p.m. peak often backs up through the intersection with Sam Jackson Park Road. If the right turn lane was lengthened south of Sheridan, existing traffic could be accommodated and traffic volumes on this segment of Terwilliger could reach 15,000 vehicles per day. The intersectional area
between I-405 and Sheridan Street also limits the amount of traffic which can either reach or leave Terwilliger. Traffic in the p.m. peak also backs up on Terwilliger north of the intersection with Capitol Highway.

Figure 24 indicates the growth of traffic during the past four to five years. The data indicates a steady increase in traffic accessing uses on Marquam Hill. As traffic volumes reached the capacity of the Terwilliger/Sheridan intersection, drivers shifted their routes to S.W. Condor, Hamilton and Hamilton Terrace--streets which connect Barbur Boulevard to Terwilliger and pass through the Homestead Neighborhood. South of Capitol Highway a 40% increase in traffic has occurred over four years.

Fluctuations in traffic volumes of 10% to 12% cars can usually be attributed to error or seasonal variations and only changes of more than 20% over a relatively short period of time are considered noticeable or significant. In the case of Terwilliger, however, increases in traffic are of concern for two major reasons. First, because the key intersections along Terwilliger at Sheridan and at Capitol Highway are reaching or have exceeded their traffic capacities. Second, many people feel that traffic volumes along Terwilliger now detract from the aesthetic and recreational value of the boulevard.

Traffic Accidents

The location of traffic accidents occurring along Terwilliger is shown in Figure 25. The majority of the accidents between 1977 and the first half of 1981 occurred at intersections with other major and minor arterials. The highest accident locations include S.W. Barbur Boulevard (68), Capitol Highway (24), Sam Jackson Park Road (16) and Sheridan Street (12). The intersections with Terwilliger and the V.A. Hospital access, Campus Drive and Westwood Drive had about half a dozen accidents during the same period. One high accident location which is not an intersection is the hairpin turn at the head of Marquam Ravine.

Approximately 30% of the accidents were caused in part by speeding, 23% were caused by cars straying into the opposing lane of traffic, and 13% by a failure to yield right-of-way.

Street Classification

The City's Arterial Streets Classification Policy classifies Terwilliger as a Neighborhood Traffic Collector and a Minor Transit Street. These classifications indicate that the street should be designed for traffic and transit functions.
which serve land uses located along the corridor itself. That is, it should not serve through traffic or transit trips. Further, it is designated as a bicycle and pedestrian path. Policies associated with these designations require that safe and pleasant environments be created for movement by these modes.

Finally, Terwilliger carries a Boulevard Designation. This classification requires that street tree plantings represent "a continuous and comprehensive landscape treatment of the street". The policy also states that the impact of overhead utilities should be minimized.

Proposed Improvements

Currently proposed traffic improvements (Figure 26) include:

1. Burlingame/Terwilliger Bridge - The Oregon Department of Transportation is currently studying the intersection of Terwilliger Boulevard, Barbur Boulevard and I-5 South. This study will examine the feasibility of replacing the Terwilliger Bridge, redesigning the ramps leading to and from the freeway, constructing a transit transfer station, and redesigning the Barbur/Terwilliger traffic circle. The state expects to complete this study in mid-1983.

2. Reconstruction of the V.A. Hospital Access - The final phase of the proposed V.A. improvements will include the reconstruction of the V.A. Hospital access. Two 18-foot lanes with a 10-foot planted median are recommended. At the intersection with Terwilliger, the median would be dropped in favor of a left turn lane. A traffic signal may be required on Terwilliger at the V.A. Hospital entrance.

3. Realignment of Campus Drive - The Health Sciences Center may wish to realign Campus Drive further south in order to make a right-angle intersection with Terwilliger. This would also more effectively screen the lower Medical School parking lot from Terwilliger.

4. Extension of Right-Turn Lane at Sheridan - In order to accommodate existing traffic volumes on Terwilliger, the Oregon Health Sciences University Master Plan recommends the extension of the right-turn lane on Terwilliger to a total of 500 feet south of Sheridan. This proposal may impact some of the existing landscaping within Duniway Park.
Proposed access improvements to serve new developments include:

1. Marquamwood - The owners of the Marquamwood property wish to construct an access road to 63 new condominium units. The road would enter Terwilliger on the east side, about 300 feet south of S.W. Seymour Street. This improvement has been approved by City Council.

2. Sunrise - New owners of the "Singleton" property wish to construct three access roads into their site. The principal entrance would cross land owned by the Health Sciences Center and enter Terwilliger approximately 1100 feet southwest of the S.W. Hamilton intersection. This entrance would serve 250 units, but may be difficult to build because of grades, construction costs and because of deed restrictions on land given to the Medical School. Secondary entrances would intersect with Marquam Hill Road and with 12th Avenue near S.W. Gaines.

3. Urban Resources - Access to a development of twenty-five condominium units is proposed at a turn-out loop on the west side of Terwilliger about 600 feet north of the Hillvilla Restaurant.
RECREATIONAL USES

Existing Facilities and Uses

The trail alongside Terwilliger is a popular location for pedestrians, joggers and bicyclists. It is used year round and 24 hours a day. Originally constructed as a bicycle trail, the trail is now used less by bicyclists than by pedestrians and joggers. Bicycle use has been limited because of competition with large numbers of walkers and joggers, and because of a poor alignment (too many curves) for an efficient bicycle route.

Existing recreational facilities along the corridor are shown in Figure 22, Sections 1 through 8. In addition to the bike/pedestrian trail, the map indicates connecting trails, benches, trash receptacles, picnic tables and exercise facilities. The Park Bureau has found that the lineal exercise course is not heavily used; exercise facilities which are concentrated at a single location seem to be more popular.

Proposed Improvements

Several pedestrian improvements in the corridor are currently planned or under construction.

1. Marquam Nature Trail – The Portland Bureau of Parks and the Friends of Marquam Nature Park wish to extend the trail through the Sunrise property from Marquam Hill Road to the principal entrance at Terwilliger Boulevard.

2. Marquam Nature Trailhead – The Friends of Marquam Nature Park have provided local funding, matched by a federal grant, for the City to construct a trailhead facility near the intersection of Sam Jackson Park Road and S.W. Marquam Street. The facility includes auto and bus parking and a sheltered assembly area scheduled for completion by the Fall of 1982. The project also includes trail improvements and improved connection to Terwilliger Parkway at Duniway Park.

3. Medical School Steps – The Health Sciences University is considering reconstruction of a flight of steps as an extension of Woods Street between Terwilliger and Sam Jackson Park Road.
Crime Data

Crime statistics for the study area have been compiled by the City of Portland. For the year 1981, the following crimes were reported: 2 rapes, 31 assaults, 53 cases or larceny from motor vehicles, 8 auto thefts, 9 sex offenses and 120 burglaries. It should be noted that the reporting area for this data excludes a portion of the study area between S.W. Capitol Highway and approximately S.W. Westwood Street, and includes Woodrow Wilson High School and an adjacent neighborhood west of the study area, south of S.W. Capitol Highway. The inclusion of the high school neighborhood in the reporting area may skew the data to overstate the amount of crime on the Boulevard. Nevertheless, the incidence of crime is an issue of significant concern to recreational users of Terwilliger, in terms of both property security and personal safety.
IDENTIFICATION AND ANALYSIS OF ISSUES

Key issues affecting Terwilliger Boulevard were identified during the inventory process. In addition to analyzing available background information and conducting extensive field investigation, the consultant team interviewed representatives of neighborhood associations, user groups, property owners and the medical complex. A series of public meetings and workshops, including distribution of a questionnaire, also provided valuable input to the identification of critical issues and development of goals for the Plan. Summaries of the public meetings and the questionnaire results are provided in Appendices A and B to this report.

Many of the identified issues revolve around the trade-off between private interests in developing land along the parkway and the public interest in preserving it as a scenic and recreational resource. Other trade-offs exist between various uses of the parkway, such as bicyclists, joggers, walkers and vehicular traffic. Opportunities for improving and enhancing the resources of the corridor are identified in a number of significant areas.

Following is a description and analysis of each major issue, including recommended approaches to resolve these issues in the Terwilliger Plan. In cases where a range of options or opinions was identified, alternatives were developed and evaluated. Where applicable, these alternatives are discussed below.

Traffic

There is widespread concern about the impact of increasing traffic on Terwilliger. Existing traffic volumes already strain the capacity of the highway in places at peak hours, resulting in traffic back-ups at the intersections of Sheridan Street and Capitol Highway. Projected traffic volumes associated with future development along the Parkway will exacerbate these problems. Additional traffic may create pressure for traffic improvements to expand the road's capacity and improve traffic safety, such as traffic signals and turning lanes. Such improvements are viewed as incompatible with the expressed goal of maintaining the character of Terwilliger as a leisurely, scenic drive.

Although new development along Terwilliger has been the focus of community concern, the traffic problem is actually much broader based. Much of the traffic on Terwilliger is through traffic, not generated within the Corridor. Enforcement of speed limits and increasing congestion on Terwilliger may discourage heavy through traffic to some extent; however, any significant modifications in through

-75-
traffic use of the Corridor will require an area-wide examination of transportation systems, including the surrounding communities. Measures to reduce vehicle use, such as carpooling, transit and bicycling, should be considered in the study.

Parking within the Corridor is a related issue. Partly an enforcement problem, all-day parking along the road interferes with traffic and parking for recreational uses. Employee parking is not considered to be compatible with the scenic, recreational character of the Boulevard.

Access

New access to serve future development along the Boulevard is another significant issue. The location and design of such access could significantly affect the character of the roadway. One specific concern of Parkway users is the potential requirement for a traffic signal and other roadway modifications to safely accommodate traffic resulting from the Veteran's Hospital expansion. Traffic safety is a concern related to new access all along the Boulevard, due to steep slopes and sight distance limitations.

The original land grants establishing the Parkway are subject to deed restrictions which include special requirements. The deeds for each of the three major land donations require that these lands must be afforded access to Terwilliger. Because of this condition, lands adjacent to the donated lands cannot be denied access to Terwilliger even if alternative access exists.

One option for addressing the access issue is to include a plan map defining and limiting appropriate locations for new access, rather than relying solely on written criteria. However, many people attending public meetings on the plan felt that such a map would be too restrictive. The recommended approach is, therefore, a middle position between the two alternatives, including a map to illustrate the written criteria and to highlight preferable points of access. It is recommended that the criteria give priority first to alternative access off of Terwilliger, then to existing points of access on Terwilliger, then to natural future access points, and finally to other access points of easy grade. In addition, a special set of criteria is needed for the areas subject to the deeds of gift to ensure these properties access without first considering alternative access of Terwilliger. The recommended approach is designed to balance the need for access controls with property owner desires for flexibility and legal rights of access.
Impact of Future Development

A third major area of concern is that urban development along Terwilliger threatens the visual character and beauty of the Parkway. One recent development proposal, "Marquamwood", aroused considerable community opposition and highlighted the need for design standards to be applied to new development. The most frequently voiced concerns relating to new development included:

- Increased traffic
- Unsafe access
- View blockage
- Inappropriate scale/design of new buildings
- Hazardous, unstable slopes

Some residents expressed a desire to prohibit or severely restrict any new development along the Corridor. At the same time, developers indicated plans to build on their lands along Terwilliger consistent with the City's existing Comprehensive Plan, zoning and other development regulations and their rights of access to the Boulevard. Since development is likely to occur, there is clearly a need for a uniform set of design standards to protect the Parkway's resources.

Design guidelines were drafted and reviewed in detail at public meetings during the planning process. The guidelines were prepared as concise statements in response to concerns expressed at the public workshops. An early draft of the goals which included narrative descriptions of recommended implementation measures was viewed as being too open to subjective interpretation. Preparation of the guidelines in a concise form allowed for extensive public review of the proposed guidelines and facilitated reaching a consensus.

The recommended guidelines focus upon the ability of a development to achieve the Plan's goals. This approach represents a shift away from more traditional development controls which apply consistent and sometimes arbitrary height limits, required setbacks, etc., irrespective of site conditions, special considerations or a site's relationship to the Parkway. The more traditional approach was examined in an early draft of the Design Guidelines, but was rejected in the workshops by those who questioned its fairness and effectiveness.

The effect of the recommended approach can best be expressed by example. The initial draft of the design guidelines established consistent height limits and minimum setbacks as a means of preserving views and screening new development from view. In some cases, traditional height and setback requirements would not be adequate to meet the goals of the Plan, while in other cases they might be considered
excessive. The proposed guidelines, in contrast, prohibit new development from blocking identified views and require landscape screening. The recommended guidelines offer more flexibility to respond to varying terrain along the corridor and they are also considered to be more effective because they are directly linked to the Plan's objectives.

A difficult issue to address in the design review process is appropriate building style and color. While it is recognized that certain colors and styles are more compatible than others with the character of the Parkway, this evaluation requires a subjective judgment. Specific colors and architectural styles are suggested but are not prescribed in the recommended guidelines.

It was recognized that the recommended guidelines require subjective evaluation by the Design Review Committee and are not as simple to administer as more traditional controls. However, the recommended approach was viewed as offering greater flexibility to property owners and promises to be more effective in achieving the Plan's goals.

Design Zone Boundary

The Terwilliger Design Zone is the area within which design review is required of new development along Terwilliger. The existing design zone boundary was reviewed and re-evaluated as part of this study. The existing design zone boundary generally includes all land within 200 feet of the public right-of-way and is considered to be arbitrary because it is not based on what is actually visible from the Parkway. In some cases too much land is included, and in other cases, visible lands are excluded. One stretch of the Parkway south of Capitol Highway is totally unprotected by the D-zone. Another problem is that the existing Design Zone actually varies from 200 to 400 feet from the roadway, since the roadway meanders within the public right-of-way.

Three alternatives for defining the design zone were considered: 1) the existing design zone boundary; 2) the viewshed boundary; and 3) an intermediate boundary representing a midpoint between the first two alternatives. Figures 27 through 30 illustrate these alternative boundaries.

(1) The existing design zone boundary generally includes all lands within 200 feet of the public right-of-way from Sheridan to Capitol Highway. As indicated above, this boundary is considered to be arbitrary. The effect of retaining these existing boundaries would be:

  o Certain areas which are in full view and are critical to the visual character of the Parkway would not be
subject to design review. Aesthetic impacts could include: loss of native vegetation/wooded character, incompatible scale or style of buildings, and/or incompatible landscape treatment.

- Some areas which cannot be seen from Terwilliger would nevertheless be subject to the design review process.

- The lack of any design review requirement along Terwilliger south of Capitol Highway, coupled with a narrow right-of-way in this area, could result in a significant change in the visual character of this area through development of buildings close to the roadway.

(2) The second alternative is to define the design zone based on the extent of the viewshed from the corridor. This boundary would not be arbitrary as it would incorporate areas with a direct visual impact on Terwilliger. No lands which are out of view would be included except for the convenience of locating the design zone boundary along a property line. However, this alternative would be difficult to delineate and administer. As vegetation changes, the viewshed could be modified and the design zone boundary would require re-evaluation. On the downhill side, an arbitrary boundary would be needed to exclude the expansive views of downtown Portland visible from Terwilliger.

(3) A third alternative considered was to delineate a boundary between the first two alternatives. This boundary represents a judgment about which portions of the viewshed are most prominent or most important, and also incorporates property boundaries to the extent possible. Because the boundary is based on a judgment, it might be difficult to defend. This alternative suffers from the same problems as the existing design zone boundary -- the boundary is arbitrary and would not be fully effective in protecting the visual character of the Parkway. The only argument in its favor is that it represents a compromise which would not include as much land as the full viewshed alternative, but would also not be as effective in meeting the Plan's objectives.

The recommended boundary is the viewshed alternative, modified to reflect property boundaries and to exclude the vast views on the downhill side of the Boulevard. The viewshed boundary has been delineated through extensive field investigation. Special provisions should be incorporated in the Plan to require periodic re-evaluation of this boundary and adjustment to reflect changes in the view. Individuals should be allowed to request an exemption from the design zone if it is demonstrated that their properties are not within view. This alternative is
FIGURE 28  S.W. BANCROFT STREET LOOKING EAST

The land slopes down and away from the viewer and, at this point, the existing and "modified" design zone boundaries are the same. The viewshed extends to the Cascade Mountains. The existing design zone boundary, coupled with the current zoning (R5) and Comprehensive Plan designation of land beyond the design zone were considered sufficient protection. It is recommended that if the Comprehensive Plan design changed, the design boundary should be reviewed.
FIGURE 29 S.W. BURLINGAME TERRACE LOOKING WEST

At this point, the land slopes up in front of the viewer and there is no existing design zone. The viewshed ends at the top of the slope, about 150 feet from the Boulevard. The "modified" boundary is shown at the lot line between the two homes, about 100 feet from the Boulevard. The viewshed boundary was recommended and the proposed design zone boundary is drawn along the far property line of the upper home, about 200 feet from the roadway. Additionally, it is recommended that if the Planning Director determined that a proposed project could not be seen from the Boulevard, then the project would not be subject to design review.
FIGURE 30 KELLER PROPERTY LOOKING SOUTHWEST FROM A POINT SOUTH OF BANCROFT

At this point, the view is of a forested hillside, the dominant features as the viewer rounds a curve traveling south. The existing design zone boundary is located 200-250 feet from the roadway as it travels along the hillside in view, about 100 feet from where the picture was taken. This viewshed ends at the top of the ridge between 2000 and 3000 feet from the Boulevard. The "modified" boundary shown is about 800 feet from the Boulevard or between 1800 and 2400 feet from the viewer. The viewshed boundary is recommended because of the dominance of the hillside view. It is also recommended that design review in areas like this be mainly concerned with preserving the forested effect while allowing small scale development to be visible.
recommended as the most effective, fair and least arbitrary method of defining the design zone boundary to meet Plan objectives.

Landscaping/Scenic Character

Preserving the natural landscape character of the Parkway was identified as a major concern. There was a consensus on the need for a comprehensive landscape plan to address the following issues:

- Some existing ornamental landscaping is in conflict with the natural landscape character of the Boulevard.
- There are opportunities for enhancing views through landscaping and landscape maintenance; in some cases views should be opened up by pruning or removing existing vegetation, while in other cases views should be framed through additional plantings.
- Screening is needed to reduce several unsightly views along Terwilliger, such as the Shell station at Sam Jackson, Hillvilla, and the Medical School parking lot.
- While not directly related to landscaping, signage along Terwilliger is another factor which detracts from the aesthetic experience. Too many signs and lack of design continuity were identified as problems to be corrected.

The U. of O. Medical School parking lot is a special problem area because of inadequate landscape screening and the prominence of this view from Terwilliger. Additional plantings are clearly needed to block views of the parking lot from the Parkway. An opportunity for improvement may exist as a result of the Medical School's proposed expansion of a parking garage on the hill and the realignment of Campus Drive. Since the Medical School parking lot is located partially in the public right-of-way, one option would be to retrieve this area for park and landscape purposes by relocating the displaced parking spaces to the expanded parking facilities on the hill.

Viewpoints

In the original Olmsted plan for Terwilliger, two special viewpoints were called out - Eagle Point and Blk Point. Because of the spectacular views they afforded, special improvements were proposed to enhance public access at these points. Unfortunately, in both cases public access is now
limited by private uses of the public right-of-way, but there may be ways to re-establish public use at these locations.

Eagle Point is located on S.W. Lowell Drive. Once entirely public, a portion of the looped drive was vacated in 1963 for private use. Reclaiming or possibly acquiring this portion of the right-of-way would be necessary to re-establish and enhance public access to this viewpoint.

Elk Point is currently the site of the Hillvilla parking lot, located within the public right-of-way and the view is now blocked by the Hillvilla Restaurant.

The Hillvilla Restaurant represents a dilemma because it is a non-conforming commercial use in a residential zone. The absence of vegetation to screen the parking lot from the Boulevard compounds the restaurant's visual impact. Yet in spite of these problems, there is widespread support for the restaurant and its continued operation. It is generally agreed that the Plan for Terwilliger should recognize and support the restaurant in its present location. For the future, alternative policies relating to Hillvilla were identified and assessed.

The first alternative is to retain the existing zoning on the property and, therefore, the restaurant would continue to operate as a non-conforming use. Its non-conforming status would continue to act as an impediment to any expansion of or major improvements to the restaurant. If at some point the restaurant were to be destroyed by fire or other natural disaster, the property would revert to residential zoning and a restaurant could not be re-established on the site. Under these circumstances, the City could reclaim the parking lot and establish the viewpoint originally envisioned for this spot.

The second alternative is to accept the Hillvilla Restaurant as a permanent use at Elk Point and to encourage its improvement while developing a public viewpoint immediately north of the building. Under this alternative, the Plan would call for:

- Designating the half-acre restaurant site as Local Commercial under the Comprehensive Plan and re-zoning the land to C-3 with the condition that a restaurant would be the only allowed use.
- Developing of a public viewpoint to the north of the existing structure.
- Trading an equal amount of park land in front of the restaurant in return for the viewpoint. This would
allow the restaurant owner to improve the main entrance to the building.

- Landscaping of the parking area to screen it from the Boulevard.
- Improved lighting of the parking area and viewpoint.

The second alternative, calling for public/private cooperation, is recommended.

Recreational Uses

A number of issues were raised relating to recreational uses of Terwilliger. The Parkway is a popular location for walking, jogging and bicycling, but users report that the trail is not wide enough to accommodate all three comfortably. A number of alternatives were considered to address this issue. The alternatives ranged from developing a wider path to separating the bikers or joggers from the existing trail. Specific options considered are shown in Figures 31 through 35 and include the following:

- No action/existing conditions; (Figure 31)
- Add an 18" soft running surface alongside the existing trail; (Figure 32)
- Add bike lanes to the roadway and rubberize a portion of the existing trail for jogging; (Figure 33)
- Construct a new running trail separated from, but alongside the existing trail; (Figure 34)
- Construct a new running trail above the roadway on the uphill side. (Figure 35)

The option of marking a bike lane on either side of the Boulevard is recommended (Figure 33). Trail users attending the public workshops favored this alternative as the most efficient and the least costly solution to the overcrowding problem. Bicyclists using Terwilliger as a commuting route prefer riding in the roadway because it is better banked and aligned for bicycling than the trail.

Another trail-related issue for which alternatives were considered is the alignment of the proposed trail linking Marquam Nature Park and Terwilliger Boulevard as part of the 40-Mile Loop Trail. The trail route shown in the Comprehensive Plan crosses south from the park through the Singleton and Keller properties. The specific trail route through the Singleton property is being designed as part of
Figure 33

Figure 34
ADD SEPARATED ALTERNATIVE RUNNING TRAIL

Figure 35
the development plans for the property. However, development of the trail to the south is not expected in the near future as there are no current plans for development of this property.

The Comprehensive Plan route and an alternative route are shown in Figure 36. The alternative route takes advantage of public property owned by the University of Oregon Medical School to provide the trail linkage between the Singleton property and Terwilliger. This alternative is recommended because it would allow a trail linkage between Marquam Nature Park and Terwilliger to be completed prior to development of the Keller property. If conditions change in the future, reconsideration could be given to re-routing the trail or to maintaining two trail linkages between the park and Terwilliger.

Another significant issue affecting recreational use of Terwilliger is the incidence of crime and the need to insure the safety of recreational users. Unlighted areas which are not visible from the roadway are of particular concern, such as the portion of the trail which dips down below the Parkway, south of Capitol Highway. Potential conflicts between vehicular traffic and recreational users were identified as additional safety problems.

Recreational users expressed an interest in a range of additional facilities and improvements along the Parkway, such as public restrooms and drinking fountains. Another frequently expressed interest was in additional trail connections to improve pedestrian access to Terwilliger. Since limited funds are available for improvements or facilities maintenance, priorities for such improvements must be carefully considered.
Figure 36  Trail Alternatives

-92-
APPENDIX A

SUMMARY OF PUBLIC MEETINGS FOR THE TERWILLIGER PARKWAY CORRIDOR STUDY

A. April 6, 1982, Wilson High School, 7:00 p.m.

City staff opened the meeting with an overview of the Study. Staff explained the purpose and duration of the study.

The consultant team of Warner, Munch and Fox proceeded with a slide show depicting the historical aspects of the Terwilliger Parkway and the existing conditions. Copies of draft study issues, goals and objectives were available as handouts. A questionnaire was attached asking specific questions regarding the use of and long range goals for the Parkway. The presentation was followed by questions and discussion from the audience. The following is a summary of major comments made:

1. Hospital (both University Medical School and Veterans Administration) traffic and expansion is a major concern. Many persons questioned how much clout the City has in requiring the hospitals to provide for transit service, carpooling and flexible working hours.

2. Pedestrian access to and across Barbur Blvd. is difficult from the "hospital hill" or Terwilliger Boulevard.

3. The impact of additional traffic from suburban areas and new residential developments was of importance. Many questioned if the character of the Parkway could be maintained given these inevitable traffic increases. Perhaps an environmental capacity could be determined.

4. Is the intense use of the Parkway appropriate with its use as a scenic drive? Are there conflicting recreational uses?

5. Implementation of any programs/projects suggested by this study would require some funding source. Some people questioned if there may be money available in the future.
6. The comment made most often was that the existing character of Terwilliger should be maintained above all else. The Parkway and Boulevard should be maintained as a pleasure and scenic drive.

7. Several questions arose regarding the prudence of expansion of the bicycle and pedestrian system running alongside the Boulevard.

8. Several intersections with the Boulevard were identified as dangerous including S.W. Hamilton and Lowell Lane.

B. April 17, 1982, Limited Workshop, Indochinese Center, 10:00 a.m. - 2:00 p.m.

From the questionnaires returned from the April 6 public meeting, a list of persons interested in participating in a concentrated session to determine specific issues, design and access guidelines and policies required to satisfy the objectives of the study was developed. Special interest groups such as joggers and bicyclists were also contacted.

The thirty persons attending the workshop were split into three groups, each covering a specific aspect of the plan. Two staff members directed the discussion of each of the teams. Draft development regulations and goals and guidelines were available to stimulate the discussion groups - one devoted to development and access issues; recreational user issues and aesthetic and viewed considerations.

Each of the three sub-groups recommended modifications to the draft development regulations and policies and design review boundary.

Since the discussion in all three sub-groups raised new questions requiring additional research and redrafting of the regulations and policies, a second limited workshop was suggested for April 28.

C. April 28, 1981, Limited Workshop, University of Oregon Medical School, 7:00 p.m.

Fourteen persons plus City and consultant staff attended this follow-up workshop. The consultants presented a second draft of development regulations (design guidelines) and management plan and policies for the Parkway (public area adjacent to the Boulevard).
The broad areas of consideration included recreation, transportation, access, signing, design zone boundary, height and setback of buildings from the Parkway, color and design of structures, slope and vegetation.

Agreement was reached on the following points:

1. Recreation - The Boulevard should be curbed and drained to help reduce drainage overflow into path of joggers and bikers. A 4' bikeway should be provided within the street right-of-way in addition to the existing pedestrian and bike path. This would allow bicycle commuters to use the street. Park Bureau staff mentioned that any project improvements should be prioritized in the Park Bureau's capital improvement program.

2. Transportation - The consultant reviewed the preliminary traffic projections for the study area based on work already done for the hospitals and Department of Transportation. It was found that traffic is controlled by the Hamilton/Barbur intersection. Many were still concerned that the point at which the traffic volume becomes intolerable had not been determined. Mass transit certainly could be the alternative to providing more traffic improvements. An incentive package for the hospital complexes should be required as a part of new development. Most everyone was adamant that no new traffic improvements be added to Terwilliger, unless specifically required for safety.

3. Access - There was considerable concern about private property access to the Parkway. Most persons preferred mapping specific access points from private property onto the Parkway, rather than simply a verbal description.

4. Signing - Public signing on a private street might be problematic at some locations on the Parkway.

5. Viewshed - The viewshed boundary was presented as three alternatives; a modified viewshed boundary which included the foreground views and a larger viewshed area including fore and middle ground views on the uphill side of Terwilliger Boulevard. Most people thought that the line of sight boundary (the views) which included the fore and middle ground was the most appropriate to preserve the vistas for future generations.
6. Color and Design of Structures - Some people felt that the color of structures should not be controlled so much as to make Terwilliger Blvd. appear entirely homogenous. If color is to be part of the design guidelines, a broad range of colors and style should be included.

7. Slope and Vegetation - Trees over a caliper of six inches or more should be identified in a site plan when new development is in process.

The character of Terwilliger, as mentioned in this section (or the maintenance thereof), should be better defined.

C. May 11, 1981, Wilson High School, 7:00 p.m.

The last in a series of public meetings for the Terwilliger Parkway Corridor Study was attended by 24 persons - plus City staff and the consultant team.

The meeting was opened with a slide show recapping the findings of the consultant team and the results of the limited workshops. A new draft of the goals and guidelines, development regulations and maps showing the design review boundary, access and landscape plan were distributed to the meeting attendees.

Some people suggested that the new vegetation needed to be low growing and indigenous to Terwilliger Parkway so that views and the natural landscape are not spoiled.

The draft goals suggest the Hillvillla should be reconsidered for a viewpoint if the restaurant use was destroyed (it is currently a non-conforming use). Most everyone disagreed with that notion, and wished to preserve the restaurant use as a pleasant and "historical" place to entertain visitors to the City.

There was some question of the "life" of the Terwilliger Parkway Corridor Study goals and guidelines given the amount of new residential and hospital related development that will occur in the next ten to twenty years. The discussion centered on the applicability of the transportation goals to maintain Terwilliger Boulevard as a scenic parkway and drive in the face of an ever-growing traffic problem. Consultant staff recommended that a separate full-blown transportation study be recommended by this planning process.
Some private property owners were interested in the access requirements for properties adjacent to the Parkway. Their concern was that property owners do have a right of access to Terwilliger Boulevard at a workable location.

Mention was made of possibly including a pedestrian signal for joggers, walkers and bicyclists to cross Terwilliger. The jogging enthusiasts felt that signals would provide a false sense of security and would be ignored. The real problem seems to be use of the trails by motorcycles.

There was some objection by representatives of the Keller property of a pedestrian (extension of Marquam Trail) trail designation on that site. They suggested that the trail be shown on or over the Oregon Health Sciences University property directing to the north as it would provide easier crossing of Terwilliger. The trail should be considerate of how private properties are developed in the future.

Questions arose about funding available for maintenance of the Parkway and expansion of the street right-of-way for the four foot bike path. It was explained that maintenance would be programmed by the Park Bureau within their budgetary constraints. The bikeway as well as all other improvements would be packaged and prioritized in the Park Bureau's five year capital improvement program.
APPENDIX B

TERWILLIGER QUESTIONNAIRE RESULTS

ISSUES

<table>
<thead>
<tr>
<th># Responses</th>
<th>Traffic</th>
<th>Impact of Future Development</th>
<th>Restrict/Prohibit Development</th>
<th>Need to Protect Scenic, Natural Character</th>
<th>Park Maintenance</th>
<th>User Conflicts/Need for Balance</th>
<th>Crime/Safety</th>
<th>Signs Detract from Experience</th>
<th>Unstable Soils/Slope -- Landslides</th>
<th>Protect Continuous Corridor for Pedestrians</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>TRAFFIC</td>
<td>(7) Traffic/access disruptions</td>
<td>(3) No multi-family</td>
<td>NEED TO PROTECT SCENIC, NATURAL CHARACTER</td>
<td>PARK MAINTENANCE</td>
<td>USER CONFLICTS/NEED FOR BALANCE</td>
<td>CRIME/SAFETY</td>
<td>SIGNS DETRACT FROM EXPERIENCE</td>
<td>UNSTABLE SOILS/SLOPE -- LANDSLIDES</td>
<td>PROTECT CONTINUOUS CORRIDOR FOR PEDESTRIANS</td>
</tr>
<tr>
<td></td>
<td>(5) Volume/through traffic</td>
<td>(4) Traffic/access disruptions</td>
<td>(3) Speed</td>
<td>(Natural beauty, 'park' atmosphere, views)</td>
<td>(2) Better landscape management</td>
<td>(1) Budget</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(4) Heavy trucks</td>
<td></td>
<td>(1) Commercial use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3) Speed</td>
<td></td>
<td>(3) Parking (limits not enforced)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1) Too many pedestrians</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*29 Questionnaires Returned

B-1
GOALS

# Responses

17 PRESERVE & ENHANCE SCENIC BEAUTY, NATURAL CHARACTER
   (2) Forested character
   (2) Natural landscape/vegetation
   (4) 'Park' atmosphere/greenbelt

4 MAINTAIN & ENHANCE VIEWS

5 MAINTAIN & ENHANCE OPPORTUNITIES FOR RECREATION
   (1) Balance uses of Parkway

12 CONTROL THE SCALE, LOCATION & DESIGN OF NEW DEVELOPMENT
   TO MINIMIZE ITS IMPACT ON:
   (3) Scenic qualities/views   (1) Access
   (2) Traffic                (2) No tall buildings
   (2) Unstable slopes

16 CONTROL/MINIMIZE TRAFFIC
   (3) Through traffic        (2) Bus
   (3) Commercial traffic     (3) Speed of traffic
   (3) Heavy trucks during con-
      struction

1 MINIMIZE MAINTENANCE COSTS

3 IMPROVE SAFETY/MINIMIZE CRIME

5 NO TRAFFIC IMPROVEMENTS/PRESERVE CHARACTER

2 SPEED UP TRAFFIC FOR COMMUTERS/RUSH HOUR

6 RESTRICT/PROHIBIT NEW DEVELOPMENT
   (1) Hospital/VA
   (4) Multi-family

4 RESOLVE/MINIMIZE USER CONFLICTS
SUGGESTED IMPROVEMENTS & MANAGEMENT ACTIONS

# Responses

7
Additional landscaping and improved maintenance of existing vegetation (pruning, etc.). Specific needs for landscaping were mentioned in the abitare area and Barbur & Terwilliger Circle. One suggestion was to limit flowering plants to Duniway Park and Capitol Highway.

7
Open the views.

7
Additional traffic controls including improved signage.

3
Consolidate signage.

7
Widen pathway or establish separate bike path. Two suggested getting bikes off the pathway.

1
Protect/develop West Hills Trail between Sellwood Bridge and Council Crest.

1
Provide a soft surface jogging path next to existing pathway.

4
Additional restrooms.

4
Additional drinking fountains.

4
Pave gravel parking areas.

3
Eliminate parking areas which are not used.

5
Construct better pedestrian access to Boulevard, including trails such as the Marquam Nature Trail.

1
Increase road width to provide two traffic lanes northbound from the Shell Station.

1
Enforce speed limits.

1
Provide a convex mirror at the intersection of Terwilliger & Cheltenham.

1
Construct a boulevard strip/center island.

1
Garbage pick-up.

1
Clean up slides south of Capitol Highway.

1
Replace steel guardrails with stone or other more attractive materials.
SUGGESTED LIMITATIONS ON NEW/EXISTING IMPROVEMENTS

<table>
<thead>
<tr>
<th># Responses</th>
<th>Suggested Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>No improvements.</td>
</tr>
<tr>
<td>1</td>
<td>No traffic lights.</td>
</tr>
<tr>
<td>1</td>
<td>No widening of street.</td>
</tr>
<tr>
<td>3</td>
<td>No enlargement of pathway, or new path.</td>
</tr>
<tr>
<td>1</td>
<td>Eliminate public restrooms.</td>
</tr>
<tr>
<td>1</td>
<td>Remove advertising bench on island at Terwilliger &amp; Chestnut.</td>
</tr>
<tr>
<td>HOW</td>
<td>HOW OFTEN</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Walk/Drive</td>
</tr>
<tr>
<td>3.</td>
<td>Drive/Jog</td>
</tr>
<tr>
<td>4.</td>
<td>Drive/Walk</td>
</tr>
<tr>
<td>5.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Jog/Drive</td>
</tr>
<tr>
<td>9.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Walk/Drive</td>
</tr>
<tr>
<td>11.</td>
<td>Walk</td>
</tr>
<tr>
<td>12.</td>
<td>Jog/Walk</td>
</tr>
<tr>
<td>13.</td>
<td>Walk/Drive</td>
</tr>
<tr>
<td>14.</td>
<td>Drive</td>
</tr>
<tr>
<td>15.</td>
<td>Drive/Jog/Walk</td>
</tr>
<tr>
<td>16.</td>
<td>Drive</td>
</tr>
<tr>
<td>17.</td>
<td>Drive/Jog/Bike</td>
</tr>
<tr>
<td>18.</td>
<td>Drive/Walk</td>
</tr>
<tr>
<td>19.</td>
<td>Drive/Walk or Bike</td>
</tr>
<tr>
<td>20.</td>
<td>Drive</td>
</tr>
<tr>
<td>22.</td>
<td>Drive/Bike</td>
</tr>
<tr>
<td>23.</td>
<td>Walk/Drive</td>
</tr>
<tr>
<td>24.</td>
<td>Walking</td>
</tr>
<tr>
<td>25.</td>
<td>Drive</td>
</tr>
<tr>
<td>26.</td>
<td>Walk/Bike</td>
</tr>
<tr>
<td>27.</td>
<td></td>
</tr>
</tbody>
</table>
## Totals

<table>
<thead>
<tr>
<th>Activity</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk</td>
<td>11</td>
</tr>
<tr>
<td>Jog</td>
<td>6</td>
</tr>
<tr>
<td>Bike</td>
<td>3</td>
</tr>
<tr>
<td>Drive</td>
<td>14</td>
</tr>
<tr>
<td>No Answer</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>12</td>
</tr>
<tr>
<td>4-5 Times/Week</td>
<td>3</td>
</tr>
<tr>
<td>1-3 Times/Week</td>
<td>5</td>
</tr>
<tr>
<td>Occasionally</td>
<td>2</td>
</tr>
<tr>
<td>No Answer</td>
<td>3</td>
</tr>
</tbody>
</table>