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Hillsdale: Connecting People and Places

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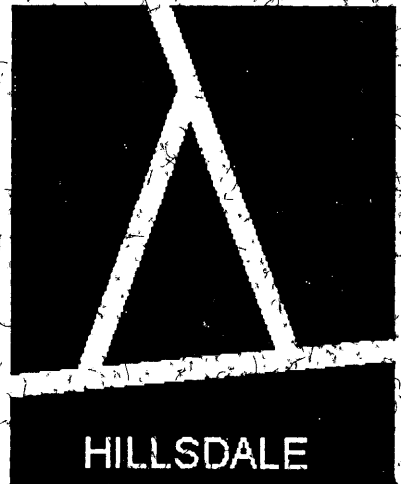
HILLSDALE CONNECTING PEOPLE AND PLACES

A REPORT BY THE GRADUATE WORKSHOP

DEPARTMENT OF URBAN AND REGIONAL PLANNING

PORTLAND STATE UNIVERSITY

MARCH 1994



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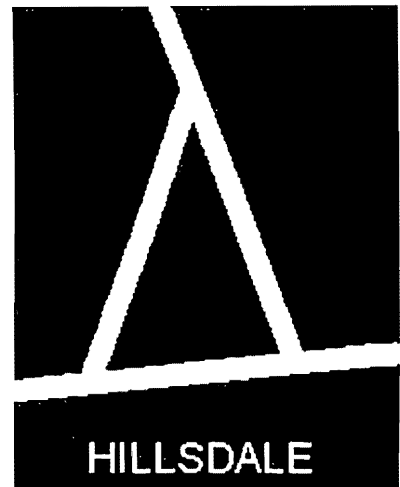
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HILLSDALE CONNECTING PEOPLE AND PLACES

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EXECUTIVE SUMMARY

This document contains information developed to enhance the efforts of the Hillsdale Vision Group in making Hillsdale a more accessible and pedestrian-friendly community. There are three primary focus areas in the document.

- **A Pedestrian and Bicycle Accessibility Improvement Study.** The purpose of this study is to identify potential pedestrian and bicycle routes to the Hillsdale commercial core. It also suggests methods to implement pedestrian and bicycle accessibility, connectivity, and continuity to the surrounding area.
- **A Street Reclassification Report.** This report describes the process for street re-classification in the City of Portland, and considers the issues which may arise in this process. Down-grading Capitol Highway to a may reduce traffic volumes on this busy artery, thereby fostering a pedestrian and bicycle atmosphere.
- **A Business District Access and Circulation Study.** This part of the document critically explores current conditions in the Hillsdale commercial area, suggests alternatives to improve some problems with traffic flow and bicycle/pedestrian access, and strategies to implement these alternatives.

Included as an appendix to the document is a Community Outreach Report. This report identifies some strategies to establish a strong base of community participation and input in the planning process. It is provided to strengthen the implementation of the recommendations and alternatives herein.

A BRIEF HISTORY OF HILLSDALE

Located in southwest Portland in the valley of the Tualatin Hills, the commercial district of Hillsdale is neither city nor neighborhood. Its present form owes much to its transportation history. Prior to the 1930's, Hillsdale was mainly a dairy community. As the demand for developable land close to downtown Portland grew, so did the need for roads. The first major transportation route through Hillsdale, the Southern Pacific Railroad, became Bertha Boulevard, and what was once a rural path to Salem, Capitol Highway, grew to a four lane road slicing through the middle of Hillsdale.

The construction of Beaverton-Hillsdale Highway, which improved access to and from the west, greatly influenced Hillsdale's development to that of an auto-dependent community. What was once valuable farmland turned to prime commercial property. Roadside feed stores and food markets became gas stations and shopping centers.

Unlike the streetcar neighborhoods of older Portland commercial zones, the classic zero-lot line storefronts never surfaced in this rural area. Instead development patterns fell slave to the automobile, and the essence of a pedestrian-friendly environment was neglected.

The residential neighborhoods of Hillsdale were not established until after World War II and, consequently, were built to be accessible only by automobile. Segregated land uses and low density housing turned Hillsdale and its surrounding neighborhoods into a classic postwar suburban auto-dependent community.

Hillsdale is now at a turning point. The past fifty years of automobile orientation has taken its toll on the people of the community. They wish to re-shape Hillsdale into a more pedestrian oriented environment - a place of destination, not pass-through. They realize these changes will not be easy, especially in an area that has historically been a major transportation link to the West Hills and beyond, but they are determined to do what they can to implement their visions.

HILLSDALE VISION GROUP

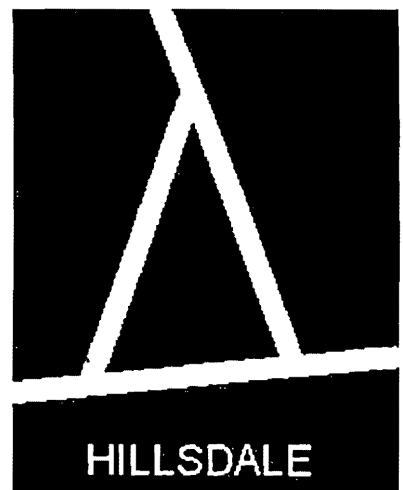
The Hillsdale Vision Group (HVG) consists of a group of motivated area citizens who are concerned about the auto-oriented way that Hillsdale has developed and want to see more balance and connectivity in the area. They represent property and business owners, residents, neighborhood associations, schools, and planning organizations. They are determining what constitutes "community" and how to improve neighborhood linkages to promote interaction between people. They understand what makes Hillsdale special - such as its schools, proximity to downtown, and neighborhood activism - and plan to use these elements to strengthen Hillsdale as "a safe and pleasant place to live."

PSU/HILLSDALE WORKSHOP GROUP

We are students from Portland State University's Master of Urban and Regional Planning program. As our 1993-1994 workshop project, we chose to work with the Hillsdale Vision Group. We see Hillsdale as a community that is a "suburban development" and feel a commitment to help find methods to make it more suitable to adaptation and change. This offered us an exciting opportunity to become involved with the community planning process, address close-in suburban issues, and delve further into the technical aspects of multi-modal transportation planning. We met with the Hillsdale Vision Group in December 1993 to learn more about the issues in Hillsdale, the needs of the community, and determine a scope of work. Together we agreed that our workshop group would provide three products: 1) a map outlining current pedestrian and bike linkages; 2) a document of street classification process; and 3) a commercial district circulation study.

During the next eleven weeks, we became immersed in Hillsdale. We explored the area, attended weekly Vision Group meetings, talked to area residents and planning agency representatives, and collected relevant data. Throughout the term, often at great length, we discussed our findings with each other and pooled our various skills and new found knowledge to develop the products requested by the HVG. Through this community planning process, we recognized that citizen involvement is an integral element in realizing community vision. We have, therefore, included an additional report, including in the appendices, outlining strategies to establish a citizen participation base.

1. PEDESTRIAN AND BICYCLE ACCESSIBILITY IMPROVEMENT STUDY



Pedestrian and Bicycle Accessibility Improvement Study

Purpose

The purpose of this study is to identify potential pedestrian and bicycle routes to the Hillsdale commercial core and to suggest methods to implement pedestrian and bicycle accessibility, connectivity and continuity to the surrounding community.

Need

The area around Hillsdale has developed with the automobile as the primary means of transportation. This has resulted in inadequate provisions for other modes such as bicycling or walking. For example, on most streets around Hillsdale the right-of-way is wide enough to accommodate sidewalks and bicycle paths, but the streets were only excavated and built for automobile traffic. It is easy to believe the street ends at the edge of the paving, but most often where people park their cars and plant hedges is public right-of-way. Most of us, at one time or another, have probably walked along a busy street with no pedestrian accommodations and felt uncomfortable or vulnerable to the automobiles passing by. The great tragedy in all this is that many people have abandoned or forgotten about the possibility of getting around by foot or bicycle and use their vehicles for even very short trips.

If people are to be able to walk or bicycle, there must be an opportunity to do so in our street network. Now there is little choice.

Structure

This report is divided into three sections:

Route Identification

- Process
- Study Area Boundary
- Catchment Areas
- Existing Networks and Conditions
- Proposed Pedestrian and Bicycle Routes

Street Design

- Sidewalk and Bicycle Path Checklist
- Possible designs

Implementation

- Route Priorities
- Community Support Strategies

Description

The first section of this study describes the process of identifying possible pedestrian and bicycle routes that lead into the commercial area. The routes identified take into account proximity to the commercial core, connectivity between commercial core and existing pedestrian and bike ways, and ease of continuity between places.

The second section looks at design planning. The area around Hillsdale offers challenges to designing street networks that accommodate several modes of transportation. Limited right-of-way, topography, parking, environmental zones, and costs mean that no standard application of sidewalks and bicycle lanes can be used for the entire area. The individual needs of each route has to be addressed in order to effectively balance this multi-modal concept.

The third section addresses the implementation strategies of pedestrian and bicycle routes. Some routes in the Hillsdale area are in need of immediate attention due to the absence of any pedestrian or bicycle provision, and others do not need to be considered until redevelopment projects begin. Because of the varying needs and time differences, the proposed pedestrian and bicycle routes are prioritized in three categories: high priority, medium priority, and low priority. The implementation section also discusses strategies to gain community support for the various pedestrian and bicycle projects.

Route Identification

Purpose

The purpose of this first section is to identify possible pedestrian and bicycle routes that provide access to the commercial core of Hillsdale. These routes are intended to become links to the surrounding community supporting a balanced transportation network for the area as a whole.

Process

The process for evaluating and determining potential connectivity and accessibility to the Hillsdale commercial core for pedestrians and bicycles involved a six step process.

1. Identification of Possible Routes

Routes that would provide reasonable pedestrian and bicycle access to the commercial core were identified. These included roadways and non-roadways, such as pathways that may or may not currently exist.

2. Evaluation of Existing Conditions

This involved evaluating the physical environment for factors that were believed to affect pedestrian and bicycle travel behavior. For example, an inventory of existing sidewalks was done because this may affect a pedestrian's travel decisions. Other factors that might affect travel decisions (such as a person's perception of crime) were not evaluated because they are beyond the scope of this analysis.

3. Identification of Constraints

This step involved assessing conditions that negatively affect the decision to walk or bicycle (e.g. very steep topography), or may prohibit modifications.

4. Identification of Opportunities

Elements within the environment that may enhance pedestrian and bicycling travel behavior (e.g. fairly level topography).

5. Evaluation of Existing Conditions Against Criteria

After compiling and analyzing existing conditions, opportunities and constraints, the potential routes were evaluated against the following criteria:

- Proximity to the commercial core, nodes of activity, "feeder" routes, residential areas, and transit.
- Ease of connectivity to other routes, nodes of activity, transit, residential areas and commercial core.
- Ability to support/contribute to a continuous network of pedestrian and bicycle facilities.

6. Potential Pedestrian and Bicycle Routes

The potential pedestrian and bicycle routes are the result of a thorough analysis of the preceding five steps. The potential routes are presented by catchment area. Each catchment area contains the opportunities and constraints of that particular area.

It should be noted that the pedestrian and bicycle routes selected in this study are not by any means a final decision; they are concepts of how streets around Hillsdale can be adjusted to accommodate modes of transportation other than the automobile. The identified routes are the result of a logical and rational approach to determine the most likely routes to increase pedestrian and bicycle access to the commercial core of Hillsdale.

Study Area Boundaries

Pedestrian Boundary

The pedestrian area boundary for the Hillsdale pedestrian accessibility study is a concentric ring. For this analysis, an imaginary 1/2 mile radius was drawn around Hillsdale using the intersection of Sunset Boulevard and Beaverton-Hillsdale Highway as the center. This point was chosen arbitrarily since Hillsdale does not currently have an "official" center. A 1/2 mile radius was chosen because this is a standard walking distance for the average person.

Bicycle Boundary

The bicycle analysis considered routes in a one mile radius around this commercial core. This was done to analyze possible connections to other existing and planned bicycle routes in the area and to Multnomah Village.

Catchment Areas

To aid in the identification of potential routes leading to the commercial core of Hillsdale, catchment areas were identified. These catchment areas attempt to capture "flow channels" of pedestrians or bicycle movement to the commercial core. Various physical factors such as topography, street pattern, distance, connectivity determine the extent to which people use these catchment areas. Map 1.1 shows the catchment areas with conceptual pedestrian and bicycle movement.

Existing Network

This section examines the existing physical network of pedestrian and bicycle facilities around the Hillsdale commercial core. Other existing conditions will be presented by catchment area

Pedestrian Network

To evaluate the pedestrian environment around Hillsdale, a physical inventory of the existing pedestrian walkways was completed using the classification method described in Appendix U. Southwest Portland has a variety of pedestrian walkways in addition to the typical sidewalk that serve as pedestrian walkways and need to be included if they accommodate pedestrians. Map 1.2 shows the results of this inventory. From this inventory some general observations can be made.

Observations

- Sidewalks are not very common throughout the area.
- Sidewalks that do exist are often discontinuous.
- Most notable is the lack of sidewalks leading from outlying areas into the commercial core.
- S.W. Sunset Boulevard and S.W. Beaverton-Hillsdale Highway have edgeline shoulder separation walkways that lead into the commercial core but function primarily as bicycle paths.
- Pedestrians southwest of Hillsdale do not have any reasonable means to walk to Hillsdale. S.W. Bertha Court and S.W. Capitol Highway do not have walkways.

Bicycle Network

A physical inventory was completed for existing bikeways (see Map 1. 3) using the classifications outlined in Appendix. Planned routes were also included. Some general observations are:

Observations

- Existing bike lanes, along Beaverton/Hillsdale Highway and Bertha Boulevard do not connect and striping paint has faded in places.
- A bike lane is planned along Terwilliger Boulevard where there is currently a multi-use trail. The City of Portland is making this improvement because the volume of pedestrian and skating traffic make this dangerous for bicycle activity. This project is scheduled to be completed by summer of 1994.
- Barbur Boulevard is currently designated as a planned bikeway between Hamilton Street and Bertha Boulevard. Implementation of this plan will be slow due to financial constraints. Sections will be completed as exactions by people wishing to develop along Barbur.
- Vermont Street, west of Bertha Boulevard, is classified by the City of Portland as a "shared roadway" due to its width and lower volume of traffic..
- Roadway shoulders vary in width and are often too narrow forcing bicyclists into the roadway. This is particularly evident along SW Capitol Highway, the most direct connector to Multnomah Village.
- There are many low traffic, scenic roads that are pleasant for biking, however, the abundant number of hills present a natural constraint for many potential bicyclists.

Proposed Routes By Catchment Area

Hillsdale's unique street pattern funnels numerous local service streets into only a few streets that enter into the commercial core. Those streets that do have been identified as possible pedestrian and bicycle routes. Map 1.4 shows the different routes in the Hillsdale area. Some of the proposed routes are in locations that do not have any access at the present time. These routes are conceptual and may be developed in the future. The following section describes these routes by catchment areas. The ideas presented here are by no means the only possibilities for improved pedestrian and bicycle accessibility. The community is encouraged to elaborate on these alternatives or explore new ones.

Pedestrian and Bicycle Routes

Catchment Area #1

- S.W. Sunset Boulevard
- S.W. Cheltenham Drive
- S.W. Capitol Highway (east of Hillsdale)
- New Access from S.W. Sunset

Catchment Area #2

- S.W. Kanan Street and S.W. 18th Drive
- New Access from S.W. 18th Drive

Catchment Area #3

- S.W. Bertha Court
- S.W. Bertha Boulevard
- S.W. Capitol Highway (west of Hillsdale)
- S.W. Beaverton-Hillsdale Highway

Catchment Area #4

- S.W. Bertha Court
- Mary Rieke Access Road
- S.W. Chestnut Street

Catchment Area #1

SW Sunset Boulevard

This segment of Sunset Boulevard has potential to accommodate more pedestrians and bicyclists. Several feeder routes funnel into this portion of S.W. Sunset Boulevard. Of the sixty foot right-of-way in the section between S.W. Dewitt and S.W. 18th Drive, 28-30 feet is paved. This is used for two lanes of traffic with shoulder striping on the west side for pedestrians and bicycles.

SW Cheltenham Drive



The segment of S.W. Cheltenham Drive between S.W. Capitol Highway and S.W. Westwood Drive is a potential pedestrian and bicycle route. It is also fed by several streets before it enters the commercial-core. Of the 50' right-of-way, 29 feet are paved.

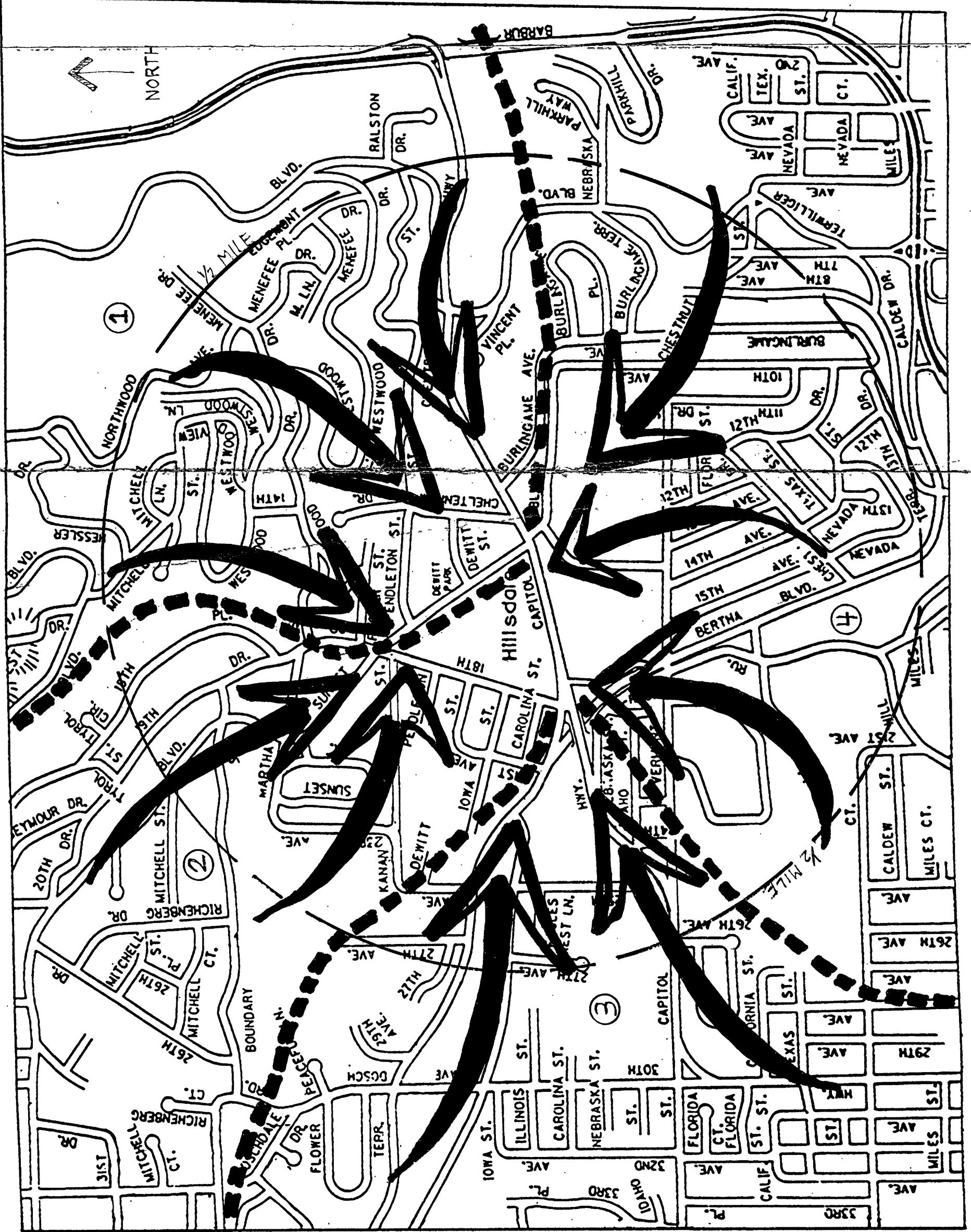
SW Capitol Highway






Another potential pedestrian route is along S.W. Capitol Highway between S.W. Cheltenham and S.W. Terwilliger. Currently, an edgeline shoulder separation exists for eastbound and westbound bicycle traffic. No sidewalks connect Hillsdale to the area to the east, which includes the Willamette Greenway and a multipurpose recreational trail..

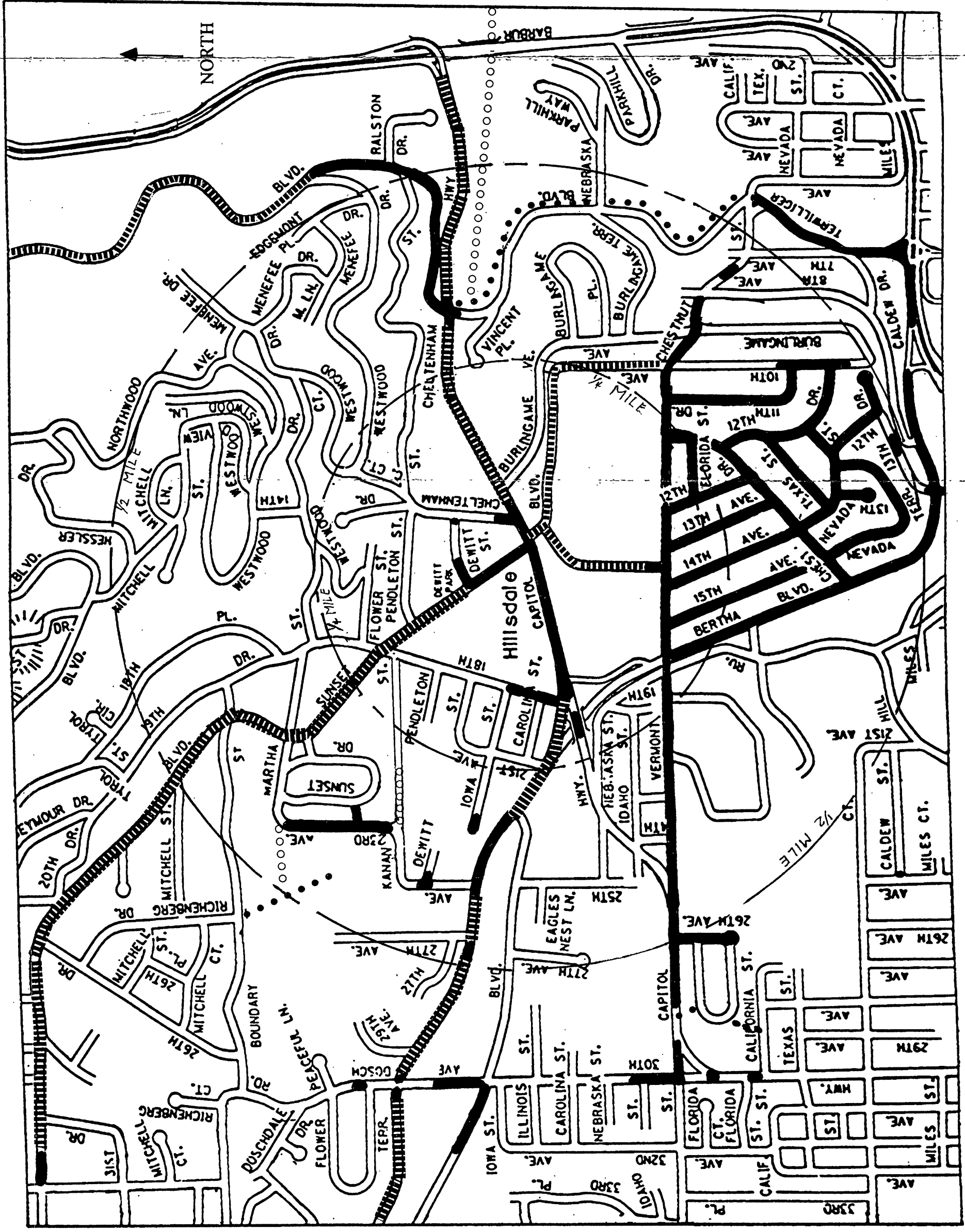
New Access

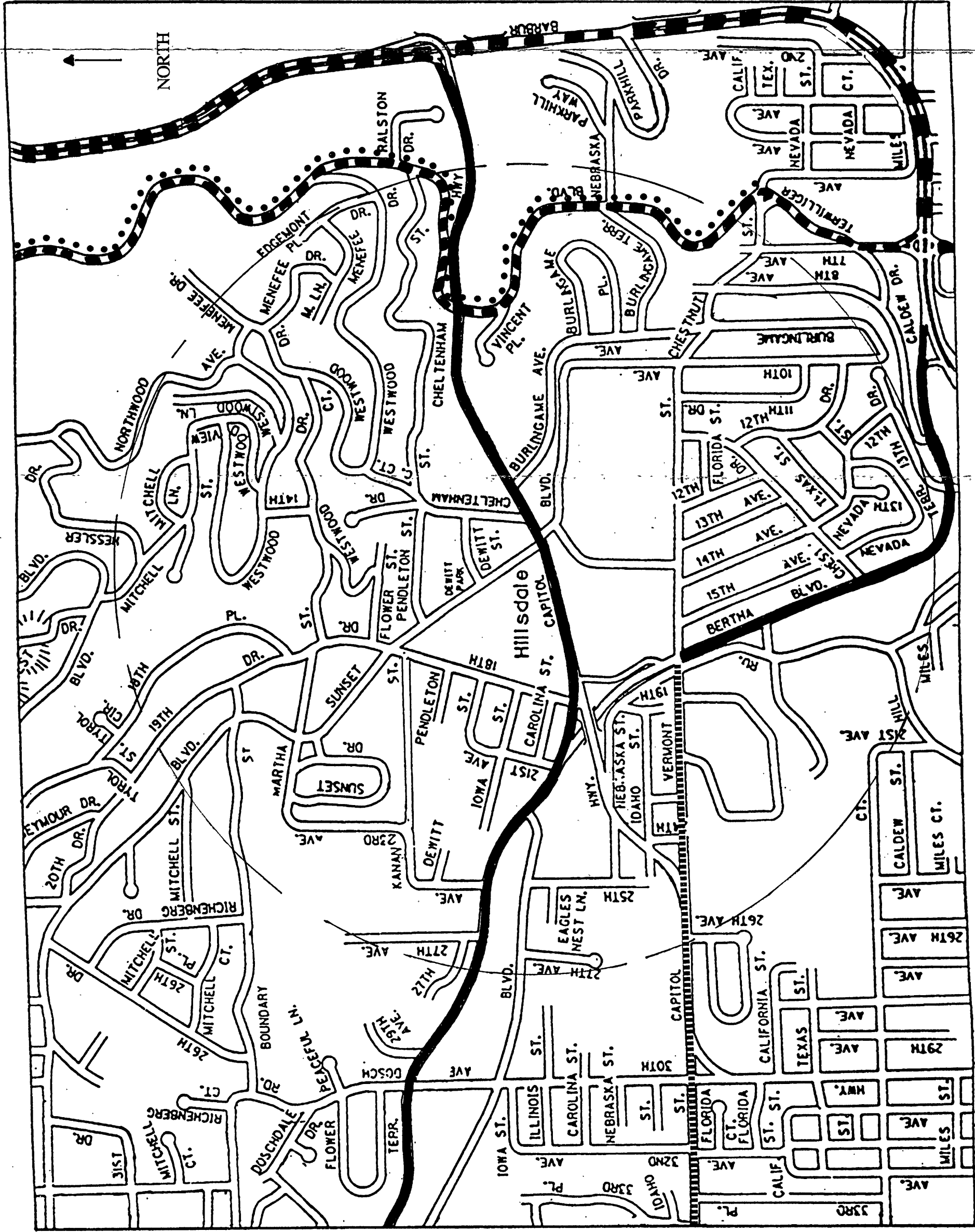
If the area north of the commercial core redevelops in the future, access from S.W. Sunset Boulevard may be desired to facilitate pedestrian and bicycle movement. Potential access points could be at the intersection of S.W. Sunset Boulevard and S.W. Pendleton Street and at the parking lot entrance across from the library (nearest intersection S.W. Sunset Boulevard and S.W. Dewitt).





Conceptual Pedestrian and Bicycle Flows	Catchment areas
	
	General direction of movement to Hillside



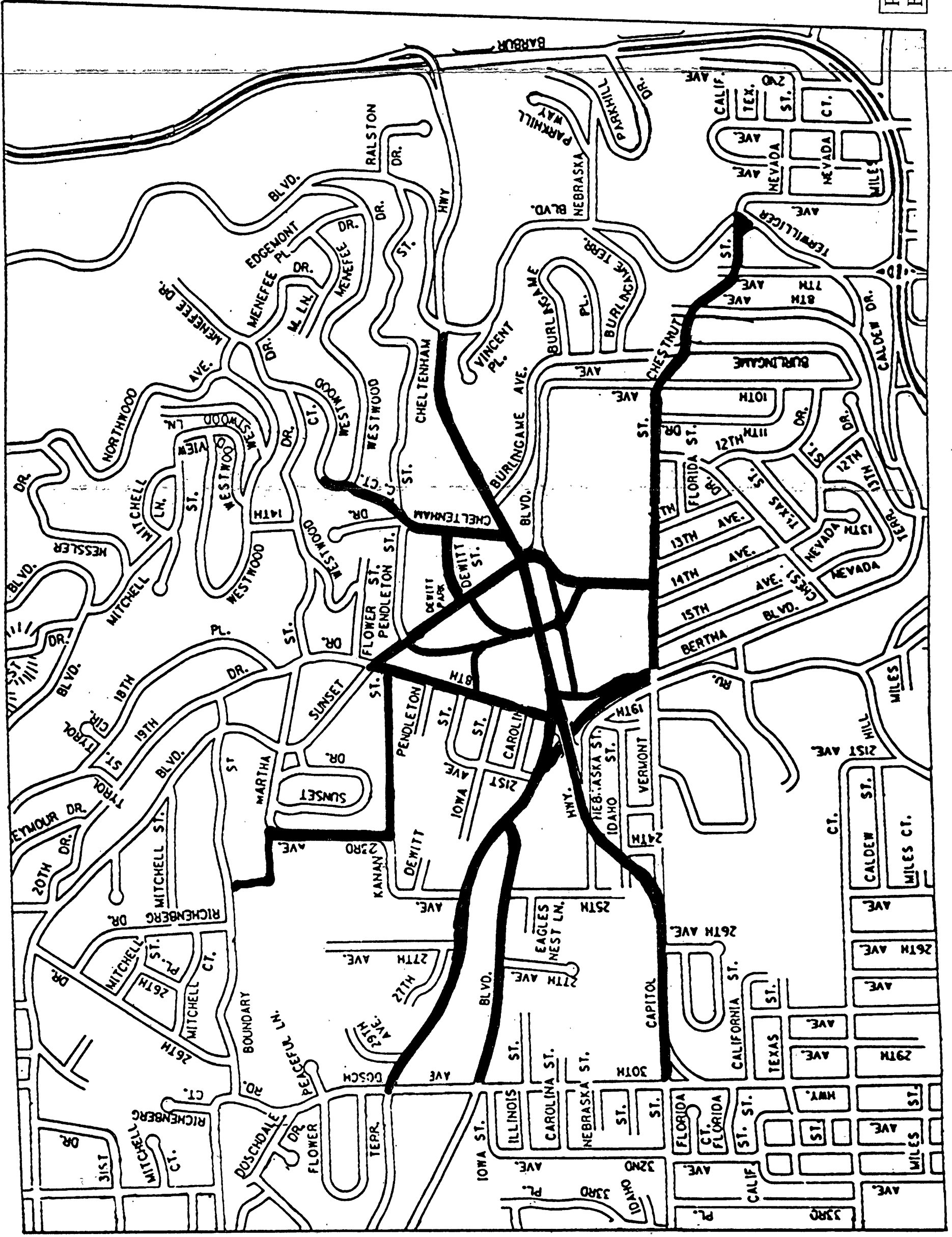
PEDESTRIAN WALKWAYS	
	SIDEWALK
	RAISED CURB SEPARATION
	EDGE-LINE SHOULDER SEPARATION
	NATURAL FOOTPATH
	CONSTRUCTED FOOTPATH

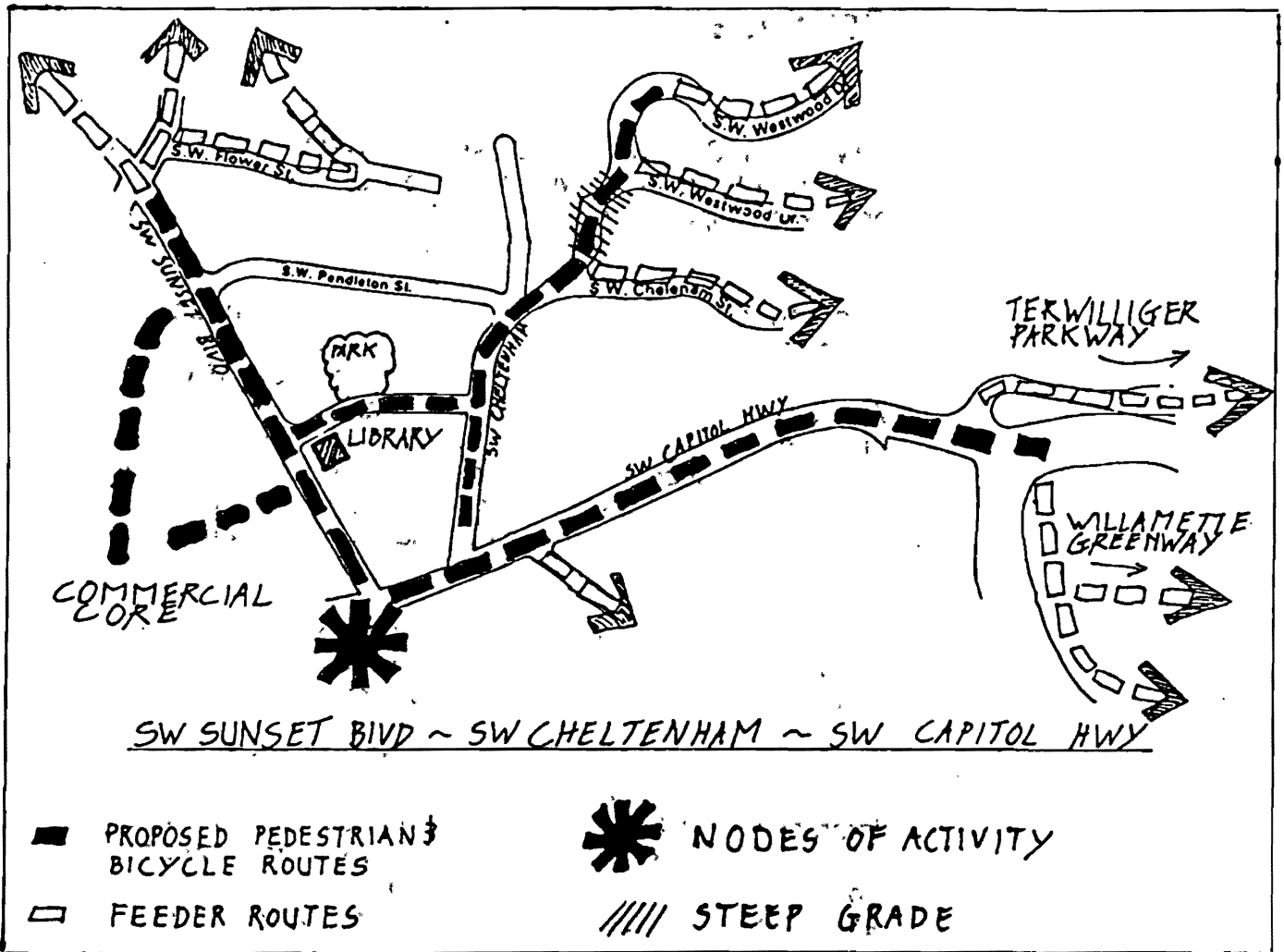




BIKEWAYS	
	BIKE LANE
	MULTI-USE TRAIL
	BIKE ROUTE (SHARED ROADWAY)
	PLANNED BIKE LANE

Proposed Pedestrian and Bicycle Routes





Opportunities

- Right-of-way potential (S.W. Cheltenham and S.W. Sunset)
- Proximity to the commercial core
- Feeder streets (to S.W. Sunset and S.W. Cheltenham)
- Relatively low traffic levels (S.W. Cheltenham)
- Connections to Fairmount Blvd., Terwilliger Blvd. & Willamette Greenway

Constraints

- High traffic levels (S.W. Capitol Highway)
- Potential grade problems for sidewalk (S.W. Capitol Highway)

Catchment Area #2

SW Kanan St

S.W. Kanan Street is a narrow street (20'-30' ROW) between S.W. 18th Drive and S.W. 25th Avenue. This street could provide an important connection between the school and the commercial core.

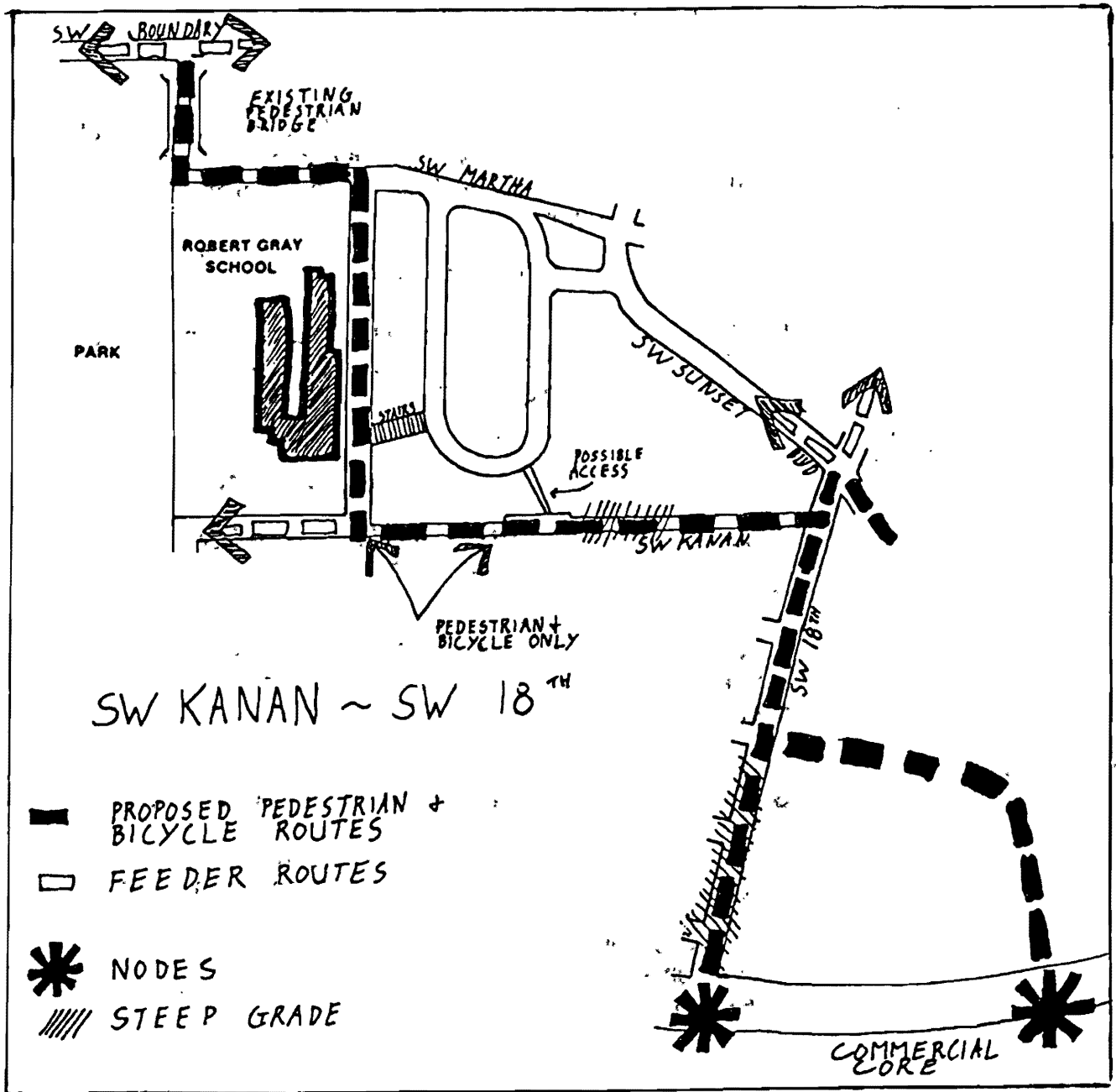
Pedestrian and bicycle access could connect the neighborhood to the north. A pathway could exist on the unimproved right-of-way of S.W. Martha between S.W. 23rd Avenue and S.W. 25th Avenue, where an existing pedestrian bridge crosses the creek (see Figure). Currently this area north of the school has trees and brush growing in the right-of-way. A pedestrian and bicycle only pathway would complete this connection and provide an important link for the pedestrian bridge.

SW 18th Dr

The right-of-way on S.W. 18th Drive is 50 feet and could accommodate pedestrians and bicyclists. S.W. 18th may lead to new points of access into the commercial area.

New Access

Currently, there is no public right-of-way to the commercial core along S.W. 18th Drive other than proceeding to the intersection of S.W. 18th Drive and Beaverton-Hillsdale Highway. As mentioned above, if the area to the north of the commercial core redevelops, it might be feasible to create access for pedestrians and bicycles from S.W. 18th Drive.



Opportunities

- Relatively low traffic levels
- Right-of-way potential
- Existing bridge to nearby neighborhood from school
- Proximity to the commercial core
- Improved safety for school students

Constraints

- Steep topography
- Distance between activity centers
- Fanno Creek Overlay
- Right-of-way needed to create northern access into commercial core.

Catchment Area #3

SW Capitol Highway (West)

S.W. Capitol Highway, west of Hillsdale, is a potential route to accommodate pedestrians and bicyclists. The City of Portland plans to study S.W. Capitol from Portland Community College to Hillsdale in the near future. Pedestrian and bicycle accommodations along S.W. Capitol will be addressed in this study.

In addition to the 5' wide sidewalk for pedestrians, the 30' wide road surface on the viaduct should accommodate both motor vehicles and bicycles.

SW Bertha Boulevard

Between SW 30th and SW Beaverton-Hillsdale Highway

Access to S.W. Bertha Boulevard is possible from the uphill side or the downhill side. A route such as Bertha Boulevard is easiest to travel because people in the area need only walk up or down to this level grade and then proceed into Hillsdale. Bertha ends at S. W. Beaverton-Hillsdale Highway where the pedestrian and bicycle pathways from this street could join.

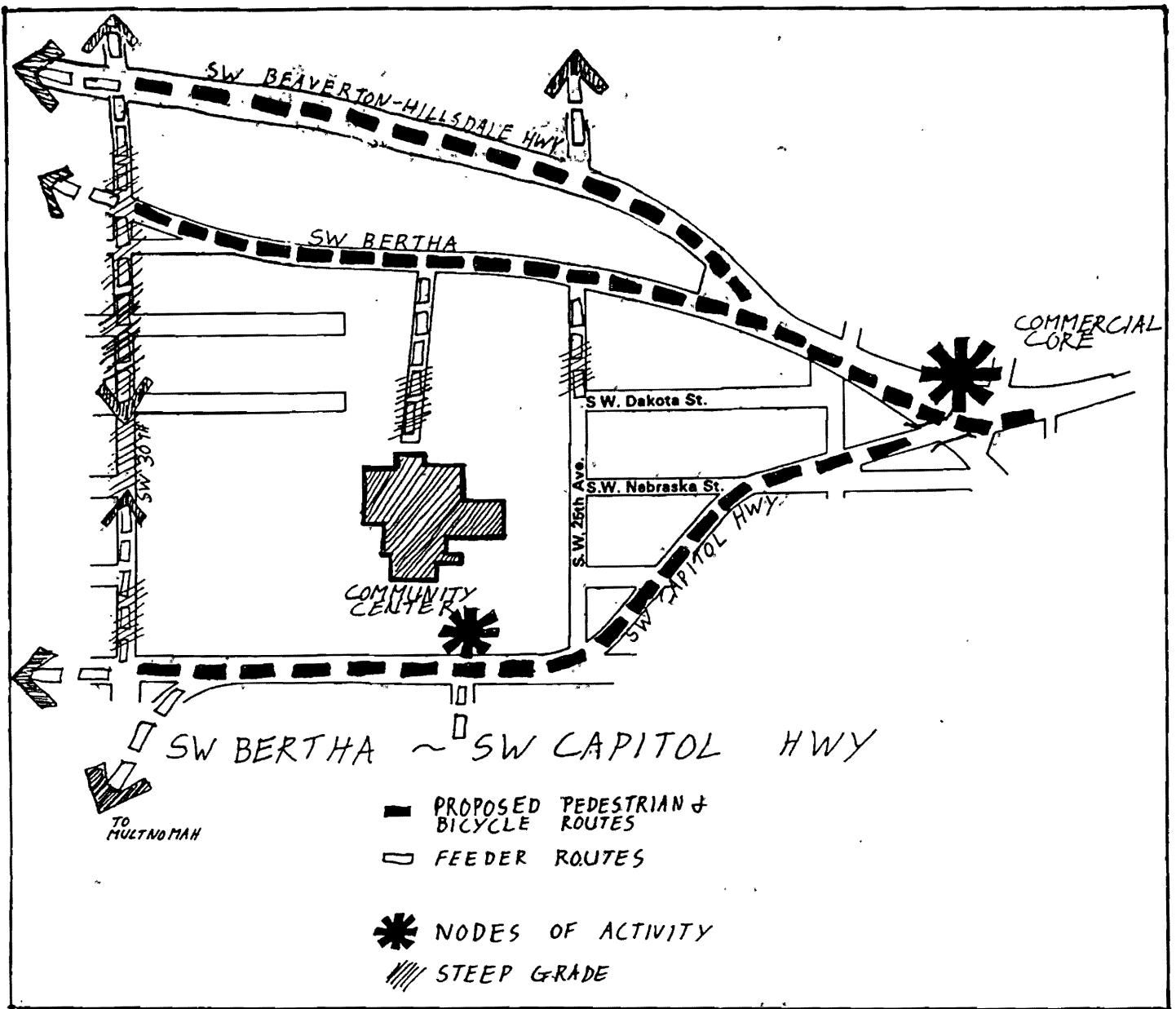
SW Bertha Boulevard

Between SW Vermont and SW Beaverton-Hillsdale Hwy

This section of Bertha currently has no bike lanes or walkways. It is a difficult connection because of its limited shoulder, heavy traffic movement, and no crossing facility at the intersection with Beaverton-Hillsdale Highway. This short segment is the direct link between two important bike lanes and should be improved.

SW Beaverton-Hillsdale Hwy

Currently, a bicycle pathway provides access along S.W. Beaverton-Hillsdale Highway into the commercial core. Sidewalks are discontinuous and absent at the entrance to the commercial core where several streets convene and create difficult pedestrian conditions. If this section is selected for improvement, sidewalk access into the commercial core should be carefully evaluated.



Opportunities

- Connection to activity centers
- Connection to Multnomah Village
- Low traffic volume on Bertha Blvd. (between 30th and B-H.Hwy)
- Level grade on Bertha Blvd

Constraints

- Difficult connections from local streets
- Grade problems for sidewalks
- Topography

Catchment Area #4

SW Bertha Ct

This very narrow street poses significant safety problems for pedestrians and bicyclists. The right-of-way is 30 feet and the roadway is 20 feet. Pedestrian and bicycle access is important on this street since it is a major connector to the southwest of Hillsdale. Three alternatives exist:

- 1) Widen the street for bicycles and pedestrians by acquiring more right-of-way.
- 2) Close the street to vehicles and allow pedestrians and bicycles only.
- 3) Divert pedestrians and bicycles to another route and leave the street for vehicles only.

Mary Rieke Access Road

The large amount of open space used by the school is a barrier to pedestrian movement between the commercial core and neighborhoods to the south. Although there are walkways across the school grounds, they were designed with access to the school in mind, not access to the commercial area.

The connection to S.W. Capitol Highway presents some problems that need to be addressed. The existing road joins with the Wilson High School parking lot entrance. Three alternatives are suggested.

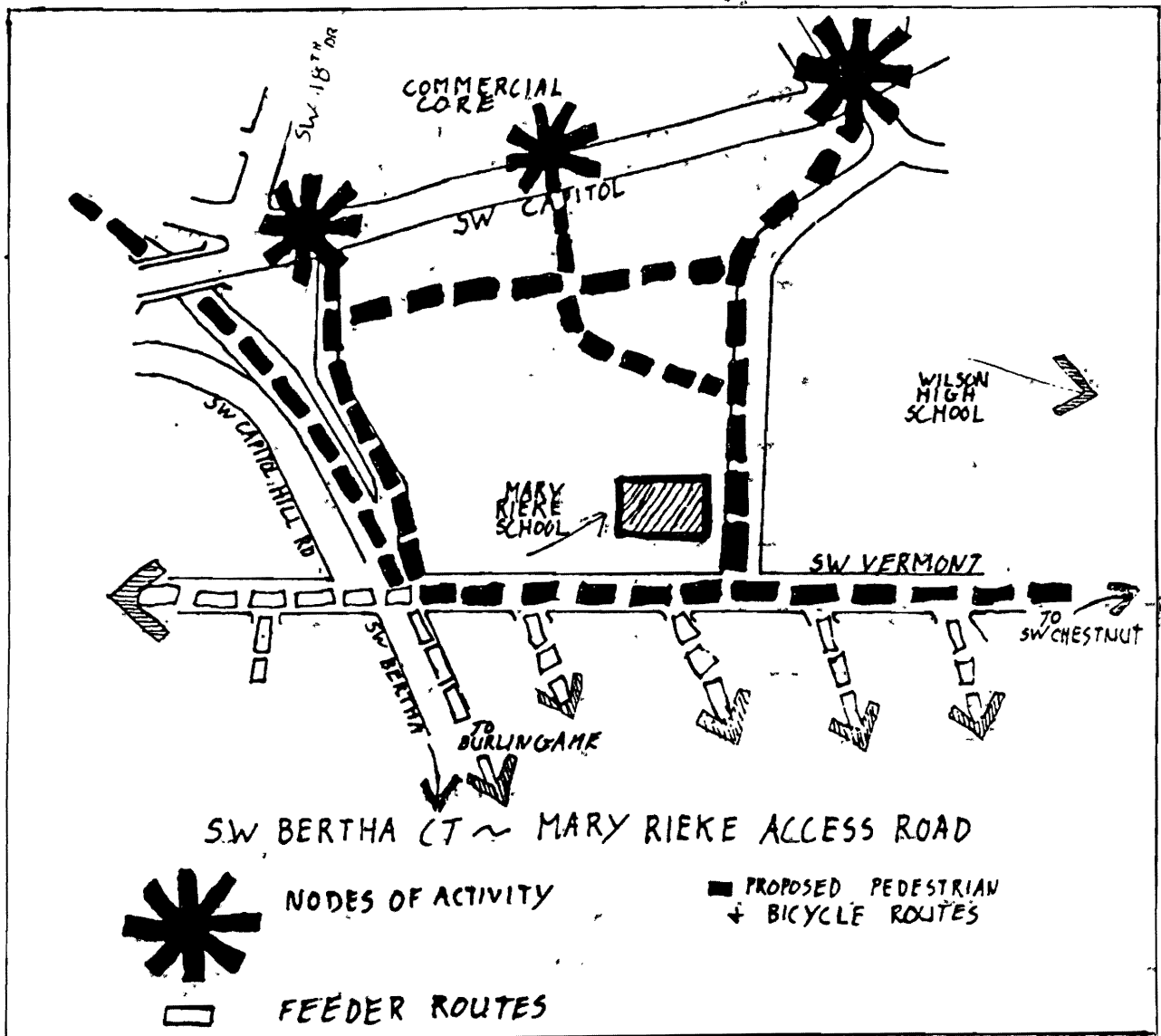
- 1) Leave the connection as it is.
- 2) Leave the roadway, but create a new pedestrian/ bikeway through the parking lot of the adjacent medical office building.
- 3) Move the roadway to create a new aligned intersection with S.W. sunset Boulevard.

New Access

If the commercial area south of S.W. Capitol redevelops, a new route from the Mary Rieke Access road may be desired to facilitate pedestrian and bicycle movement.

SW Chestnut

S.W. Chestnut extends to the southeast, past Wilson High School, into a residential neighborhood. The road is narrow and serpentine with discontinuous sidewalks. S.W. Chestnut connects with S.W. Terwilliger Boulevard near Barbur Blvd, and could complete an important link to and from these roadways. Except for a few sections, the sidewalks are almost complete. Where S.W. Chestnut turns into S.W. Vermont, sidewalks resume and provide access towards the Mary Rieke Access Road.



Opportunities

- Connection to area south of Hillsdale
- Right-of-way potential
- Low traffic levels
- Connections for Students
- Panoramic views

Constraints

- Safety concerns in school
- Difficult connection into commercial core area
- Connections to Terwilliger dangerous
- Steep grade on S.W. Chestnut

Street Design Planning

The area around Hillsdale will offer challenges when designing street networks that accommodate several modes of transportation. Limited right-of-way, topography, parking, environmental zones, and costs will mean that no standard application of sidewalks and bicycle lanes can be used for the entire area. The individual needs of each route will have to be addressed in order to effectively balance this multi-modal concept. The following chart is a checklist that can assist in planning individual routes.

Sidewalk and Bicycle Pathway Checklist

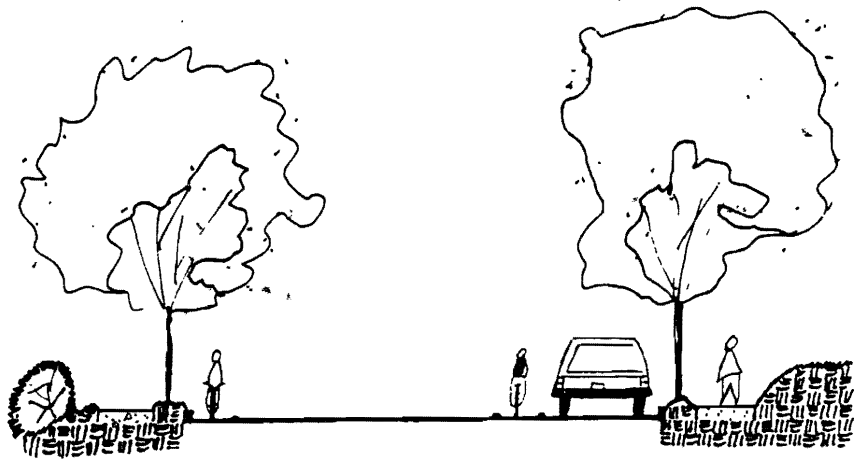
Element:	Consider:
Unimproved right-of-ways	Creating a pedestrian and bicycle only pathway to create links
Existing right-of-way	Maximizing to accommodate all the modes
Vehicle travel lane width	Decreasing to accommodate the addition of more modes
On-street parking	Necessary on both sides of the street?
Nature strips	Can help buffer pedestrian from traffic
Sidewalks	Necessary on both sides of street?
Sidewalks	Can other materials be used besides concrete?
Sidewalks	Can sidewalk be separated from street by storm drain?
Storm drains	Keep open to reduce cost of covering
Bicycle paths	Necessary on both sides of street?
Bicycle paths	Is lane space available on the uphill side?
Pedestrian/Bicycle paths	In what situation can bikes and pedestrians share the same path?

Possible Designs

The variety of factors that will influence each route means different street designs will likely result. Pages * through* show, in cross-section form, how the street can be configured in a variety of ways to accommodate pedestrians, bicycles, and automobiles. These cross-sections demonstrate that carefully planned and designed streetscapes can not only accommodate more modes but can enhance the streets overall appearance.

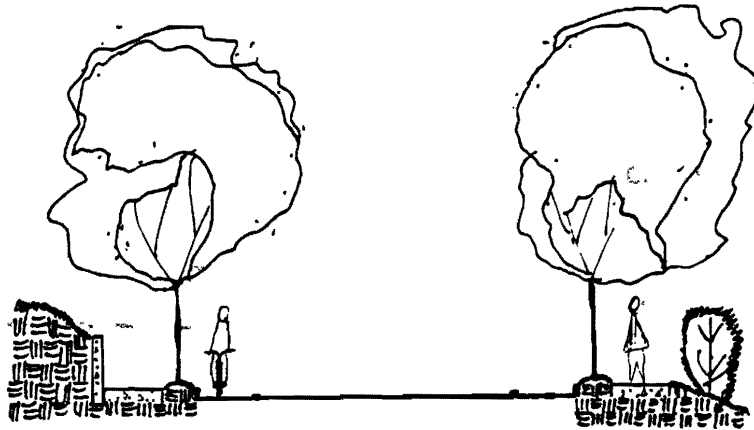
Example 1

- 2 sidewalks
- 2 Bike lanes
- 2 vehicle lanes
- Parking one side
- Possible use of S.W. Sunset Blvd.



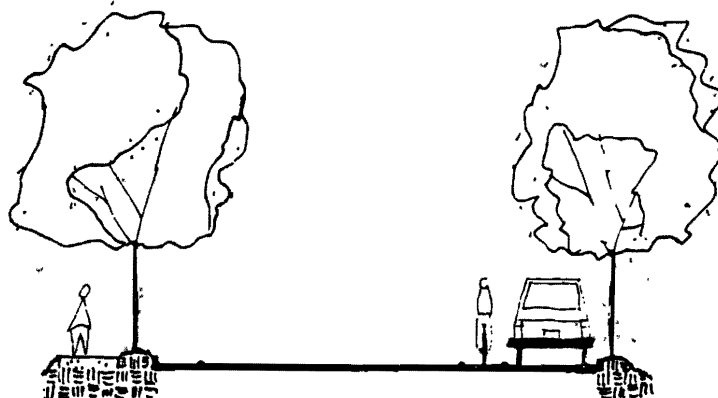
Example 2

- 2 Sidewalks
- 2 bike lanes
- 2 Vehicle lanes
- No parking
- Possible use of S.W. Capitol Hwy. (west of Hillsdale)



Example 3

- 1 Sidewalk
- 2 Bike lanes
- 2 Vehicle lanes
- Parking one side
- Possible use of S.W. Bertha Blvd. (west of Capitol)



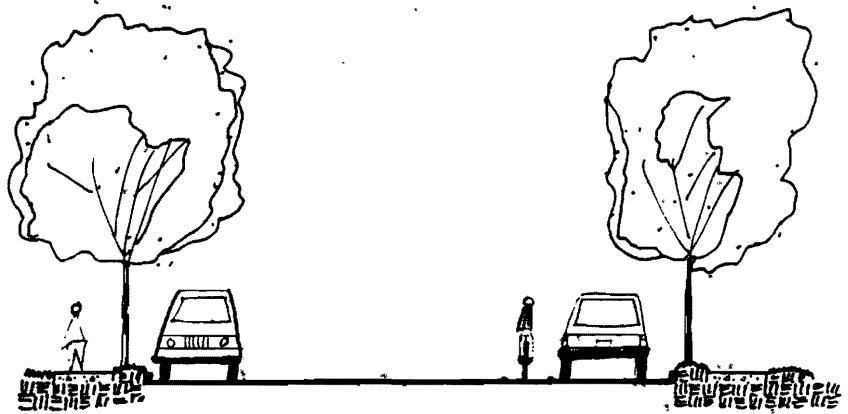
Example 4

- Pedestrian and bicycle only pathway
- Possible use of S.W. Kanan



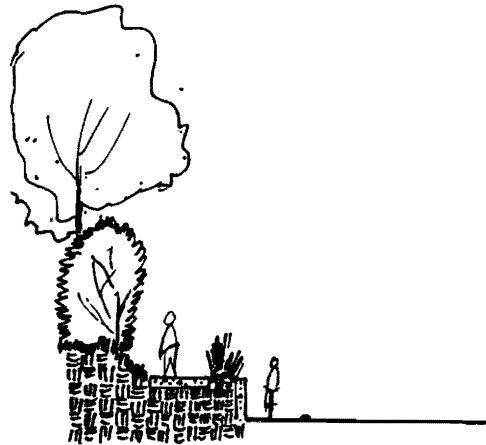
Example 5

- 2 Sidewalks
- 1 Bike lane
- 2 Vehicle lanes
- Parking both sides
- Possible use of S.W. Cheltenham



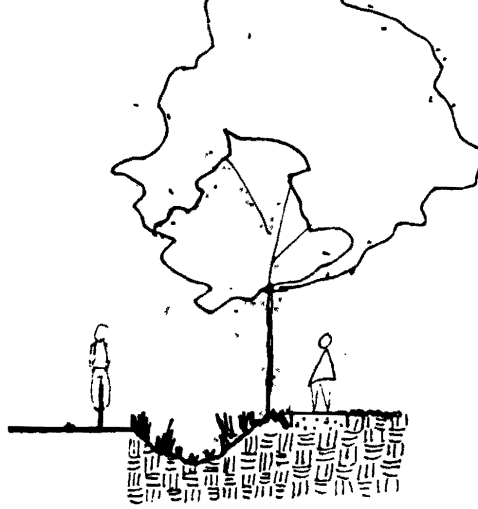
Example 6

- Sidewalk above street grade
- Bicycle lane at street grade
- Possible use of S.W. Capitol Hwy. (east of Hillsdale)



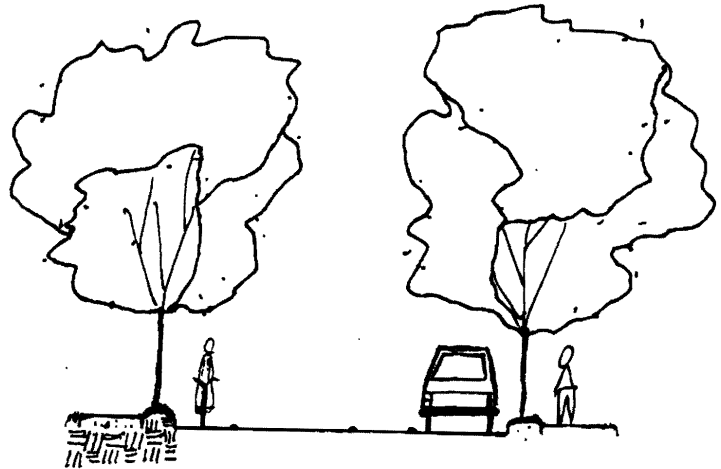
Example 7

- Exposed storm drain
- Alternative walkway



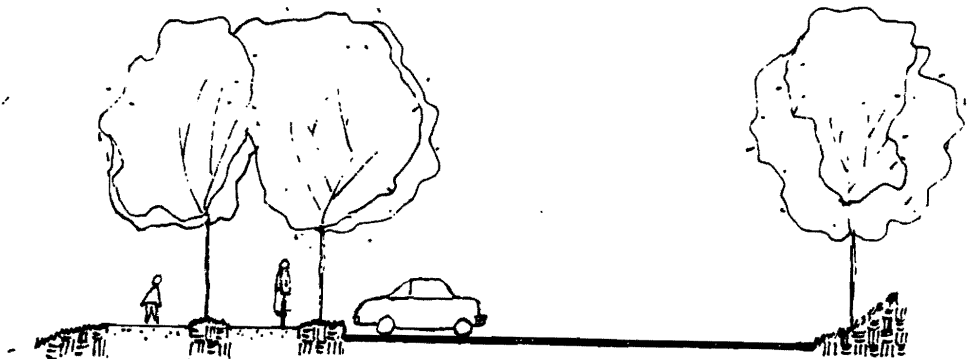
Example 8

- 2 Sidewalks
- 2 Bicycle lanes
- 1 Vehicle lane (one-way)
- Parking one side
- Example of future access into area north of the commercial core.



Example 9

- Pedestrian walkway
- Bicycle lane
- Parking lot
- Possible use of Mary Rieke Access Road



Alternative Streets

The City of Portland has standard street designs. These include street width, grade, drainage, curb height and width, bicycle path width and many others. Suggested concepts in this study may not yet meet current guidelines. This is not to say that they cannot be implemented; new inventive types of walkways have never been tested thoroughly enough to warrant adoption as an acceptable standard. New programs such as the City of Portland's "Skinny Streets" or the interest in alternative walkways and bike boulevards are examples of creative methods that balance the streetscape for cars, bicycles, and pedestrians. It may be possible to apply these new concepts in the Hillsdale area. Ultimately, some of these suggested pedestrian and bicycle routes may become "test projects" for the area as a whole. If they can be built as a demonstration project and analyzed for their performance, they may be used on a greater scale.

Implementation

Route Priorities

The third section in this study addresses the implementation of the pedestrian and bicycle routes. Some of the routes in the Hillsdale area are in need of immediate attention due to the absence of any pedestrian or bicycle provision, and some of the routes are long-term proposals that would not need to be considered until other development redevelopment projects begin. Because of the varying needs and time differences, the proposed pedestrian and bicycle routes are prioritized under three categories: high, medium, and low priority.

High Priority

High priority routes have no or very limited pedestrian and/or bicycle facilities and have safety problems associated with them. These routes are perceived to have the greatest potential to provide safe and convenient access to the commercial core. They should be promoted and developed whenever planned roadway projects are implemented or the appropriate funding is available.

Medium Priority

Medium priority routes are important to enhance pedestrian and bicycle access to Hillsdale but do not have the same degree of safety problems associated with the roadway and traffic levels as high priority routes.

Low Priority

Low priority routes can help increase pedestrian and bicycle access to Hillsdale but depend on redevelopment of the commercial core to warrant their implementation.

Route Priority Chart

Route	High Priority	Medium Priority	Low Priority
S.W. Sunset Boulevard		•	
S.W. Cheltenham		•	
S.W. Capitol (east of core)		•	
New Access to commercial core from S.W. Sunset			•
S.W. Kanan Street			•
S.W. 18th Drive		•	
New Access to commercial core from S.W. 18th Drive			•
S.W. Capitol Highway from S.W. 30th to S.W. Cheltenham Drive	•		
S.W. Bertha Boulevard between SW Dosch and intersection with Beaverton Hillsdale Hwy.			•
SW Bertha Boulevard from SW Vermont to intersection with Beaverton-Hillsdale Hwy	•		
S.W. Beaverton-Hillsdale Highway between S.W. Bertha Boulevard and S.W. 18th Drive	•		
S.W. Bertha Court	•		
Mary Rieke Access Road		•	
New Access to commercial core from Mary Rieke Access Road			•
S.W. Chestnut		•	

Community Support Strategies

Assess Needs

The first step when planning and designing streets to accommodate several modes of transportation is to assess the needs of the community. For example, a recent forum held by the Bicycle Program in the neighborhood revealed a greater interest in bike lanes over other types of bikeways for travel in the area (due perhaps to topography). Without consulting the people that will use the system or asking their opinion on the placement of pedestrian and bicycle lanes, later conflict will impede implementation. In short, Involve Everyone!

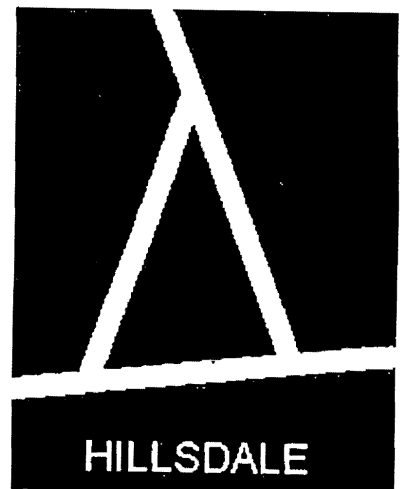
Outreach and Education

Effective ways to establish a strong base of citizen participation are discussed in Appendix A. Outreach can be used as an education tool to alert community members about their transportation options and available resources. For instance, business owners may not know that a new sidewalk may encourage more local foot traffic or that the Bicycle Program will install free bike racks upon request.

Community Improvement District

Accessibility to Hillsdale should be the interest of the entire community. Programs such as a Local Improvement District (LID) require the property owners who have work done along their property to pay for the work completed. People who do not have property in these areas may benefit from sidewalks and not have to pay for them. In Hillsdale, where the areas in greatest need of sidewalks will fall on the financial burden of a few property owners, it seems that in some way the community should be responsible for the improvements. Because the community benefits from being able to walk and bike more safely, is it not logical that it should also pay for the improvements? If this is so, there has to be a method of assigning costs to each member of the community. This could be a difficult task, and is beyond the scope of this study. If the community is interested, then this concept may be explored in greater detail.

2. ROAD CLASSIFICATION PROCESS



Road Classification Process

OVERVIEW

This section is about the process for the City of Portland to classify its streets. We begin with a little history of transportation in Hillsdale area; explain the process for classifying and changing classifications of streets; and conclude with a review of possible changes to Capitol Highway and the impact of those changes.

HILLSDALE: A LOOK BACK

The Hillsdale area lies in the foothills of the Tualatin mountains where routes to and from the west pass through. The first major transportation route through Hillsdale was the Southern Pacific Railroad, now abandoned, with the right of way occupied by Bertha Boulevard. Capital Highway, the major thoroughfare dissecting Hillsdale, evolved as a rural road that meandered south towards Salem.

Prior to the 1930's, Hillsdale was primarily a dairy farm community. And, like many other roadside communities, Hillsdale was forever changed with the construction of state designated Beaverton-Hillsdale Highway. The intent was to provide better access to and from the west. From that time forward, Hillsdale would establish itself as an auto-dependent community. What was once precious farmland soon became prime investment property, as Hillsdale farmers traded in cows for filling stations. Development along the highway strip began with feed stores and fruit stands, and evolved into gas stations and donut shops.

In its early form the commercial district in Hillsdale consisted of commercial structures set back from the roadway to allow for the entrance of vehicles. The area was developed with automobile transportation in mind not pedestrians. Stores were set away from the highways and streets to allow sufficient parking in front. The pedestrians were left to fend for themselves.

UPA LIBRARY

The residential neighborhoods of Hillsdale were not established until after World War II and, consequently, were built with the intention that they would be accessible primarily by automobile. Eventually, with the combination of segregated land uses and low densities, Hillsdale and its surrounding neighborhoods evolved as a classic postwar suburban auto-dependent community.

Hillsdale is now at a crossroads (no pun intended).. The last several decades of automobile dependency are wearing on the people of the community who wish to establish Hillsdale as a pedestrian oriented environment and more "livable Community".

STREET CLASSIFICATION PROCESS

Street classifications serve as a guide to transportation project planning and management, and to land use decisions. Street classifications are reviewed periodically to keep them current and up to date. The formal process for review and amendment is detailed in the 1992 Transportation Element of the City Comprehensive Plan.

There are several situations that could trigger this process. The City currently has no formal process for a citizen or group of citizens to have a street reclassified between reviews. The Transportation Element states that the review and approval process for amending the Transportation Element should consist of review by the City Planning Commission and approval by the City Council. To aid in the review, the Commission may ask for report and comment from City staff, citizens, neighborhood groups, and representatives of surrounding government agencies.

The City of Portland Comprehensive Plan has a section for Review and Updating of the Plan which explains: "Portland's Comprehensive Plan will undergo a major review every five years to assure that it remains an up-to-date and workable framework for development. These reviews will include technical evaluations, a report on the Plan's progress and citizen involvement to evaluate the effectiveness. Formal hearings will be held before the Planning Commission and, if significant changes appear to be desirable, recommendations for amendments will be heard by the City Council who may them formally modify the Plan."

According to Portland Department of Transportation, Bureau of Planning, Planning Commission's office, and the Commissioner's office, there is no written process for getting heard by the Planning Commission or the City Council. One potential method may be as follows: 1) write a letter to the Commissioner in charge of area in concern; 2) the commissioner will then assign it to an agency for study and recommendation; 3) the commissioner will decide if to bring concern in front of a commission or the City Council, in which case it will be placed on an official agenda; 4) the parties with interest in the item on the agenda will then be given time to explain the item.

In essence, the process involves talking to the agency, in this case the Portland Department of Transportation, stressing concern for the reclassification of the street and get feedback as to their concerns. If the proposal warrants analysis then PDOT should bring it up for budgeting at an appropriate time and place. If the PDOT response is not adequate or timely, then the parties interested can go directly to a Commissioner who will probably, in turn, require further studies be done by the appropriate City staff. The commissioner is responsible to report to the City Council on the parties' right to address the Council, which in turn, can decide whether to hear them.

CRITERIA FOR CLASSIFICATION

Streets are classified in the Arterial Street Classification and Policies as determined by the Portland Department of Transportation. These classifications are published in the Transportation Element of the City Comprehensive Plan and are approved by the Planning Commission and ultimately by the City Council.

Street classifications are based on their optimal traffic and transit functions, and grouped according to those basic modal uses. "The classifications dictate what types of automobile, truck, transit, bicycle, and pedestrian use should be emphasized on each street (see Appendix 2.1), and how future street improvements and public and private development relate to those uses." The primary purpose of street classifications are to correspond with land use classifications. "Changes in land use shall not be approved unless consistent with the street classifications."

Existing and future land use are two criteria in classifying streets. The Transportation Element states "in the interest of neighborhood stability, streets are generally classified in keeping with existing land uses and the Comprehensive Plan. For instance, Major City Traffic Streets are designated to serve areas which are expected to generate large volumes of automobile traffic in the future"(ref Appendix 2.1). Other criteria, stated by the members of the staff, include historical usage, current use, and future usage of the street, especially on a regional horizon.

Oregon State Transportation Goal 12 is a factor in classifying streets. The major emphasis of Goal 12 is to reduce vehicle miles traveled (VMT) and reduce parking. The City of Portland will be establishing a Transportation System Plan to address the concerns of State Goal 12. Street Classifications and land use relationships will be important considerations.

RECLASSIFICATION OF CAPITOL HIGHWAY

Capitol Highway is currently classified as a Major City Traffic Street (ref Appendix 2.3), a Minor transit Street (ref Appendix 2.4), a Bicycle Path and a Pedestrian Path with crossings. It is also a Major Truck Street. On the north side of the area from Bertha Boulevard and Sunset Drive intersections with Capitol Highway is the Pedestrian District Dewitt.



The Transportation Element says that traffic with no trip ends within a Transportation District should be encouraged to use Regional Trafficways and discouraged from using Major City Traffic Streets. Over the years the various transportation agencies of Portland, the Region and the State have collected traffic movement data (see Appendix 2.2). In our review of some of that data, it is evident that most of the traffic is passing through and thus few trips end inside the Southwest District.

In accordance with the Transportation Element, S.W. Capitol Highway within the study area is also designated a Minor Transit Street, while adjacent Bertha Boulevard is classified a Major City Transit Street. Through the survey of transit lines in the study area, however, the classification on both streets are somewhat ambiguous. Six bus lines including one express bus are running on Capitol Highway, yet only one line runs on Bertha (ref Appendix 2.5).

Capitol Highway is also classified as a Major Truck Route. But our informal sample traffic counts indicate very few trucks (with more than two axles) use the roadway section between Beaverton-Hillsdale Highway and Bertha intersection and Capitol Highway and Barber Boulevard intersection. This classification needs further data collection and analysis as to the reasons for its current classification.

The street classifications of the Transportation Element should be periodically reviewed by City staff every 5 years. The next formal street reclassification review is slated for 1997. For the review, City staff should work with citizens and staff of other agencies to develop sub-area transportation studies to address special problems associated with commercial interests and opportunities.

The HVG may have a chance to bring forth ambiguous City street policies in and around Hillsdale in the next periodic review. Although the Transportation Element does not influence Tri-Met's service decisions (ref Appendix 2.8 for TriMet Route Development Process), the classification could dictate future street improvements and public and private development related to each traffic mode.

TRAFFIC CALMING

Pedestrian safety is one of the major concerns within the Hillsdale community. Among various factors, the high speed of traffic is the biggest threat to the common pedestrian. Research has shown that pedestrians are often not injured when hit by a car moving at speeds less than 20 mph. If impact speeds are between 20 and 35 mph, injuries are usually serious, while above 35 mph they usually result in fatalities.

In the United States, speed limit signs have very little impact on driver speed through major streets. Instead, drivers often rely more on their own judgment of safe and reasonable speed than those on posted limits.

In our observations the posted speed limit along Capitol Highway (30 mph) is often overlooked by drivers. This surly contributes to the uneasiness pedestrians must feel walking along Capitol Highway. One solution to such a problem may come by way of traffic control devices. Some types of traffic control devices change flow to a more "platooned" or grouped traffic pattern rather than the simultaneous thoroughfare that currently exists.

Keeping this in mind, a speed zone policy with some geometric (physical and visual) features to successfully reduce the traffic speed in desired areas may be a viable option. However, the impacts of these geometric features should be evaluated in terms of feasibility and effectiveness. The feasibility of the design alternatives and the extent to which they are likely to be successful in reducing the problem are of primary concern.

A feasibility analysis may include the following issues: whether the costs of the proposal make its full implementation questionable; whether implementation would be possible only if new ordinances were possible; or whether a major new funding source would have to be established. Traffic volume, traffic speed, and traffic safety would be researched in the effectiveness analysis.

Chokers and Pavement Undulations

Chokers can be used to widen a sidewalk at the point of crossing. These devices will reduce traffic volumes only when they reduce the number of lanes of travel, but have relatively insignificant effects on speed.

Deviations with additional landscaping (ref fig.2.1) are another method for impacting traffic speeds and increasing pedestrian safety at crossings.

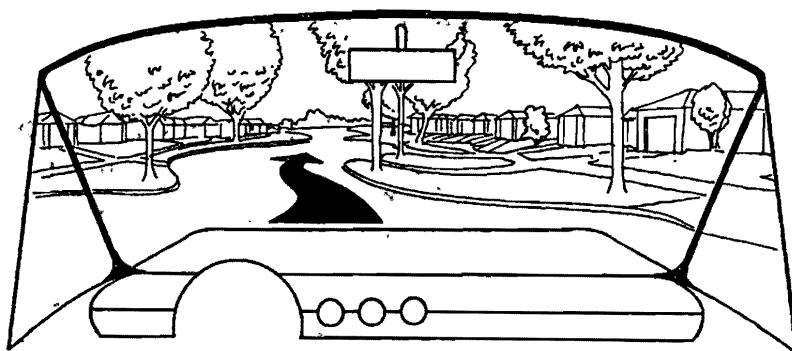


FIG. 2.1

Deviation with Areas for
Additional Landscaping

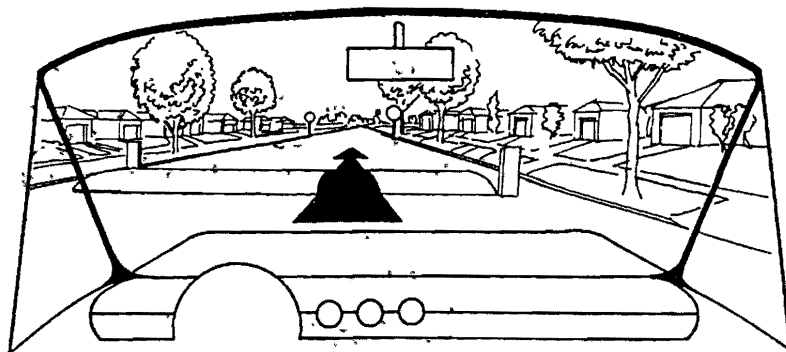


FIG. 2.2

Undulation

Pavement undulations (ref fig. 2.2) can be used for the purposes of reducing speeds. This device has shown to reduce the 85th percentile speed on the average between 14 and 20 mph. It also produces substantial reductions in speeds on the road segment between undulations at spacing under 800 feet. Accordingly, its effect on traffic safety is outstanding. A 1983 study of pavement undulations by a subcommittee of the California Traffic Control Devices Committee found that between 150 to 200 million vehicle crossings of the 150 to 160 undulation on public streets in the state had taken place without incident. Therefore, installing pavement undulations on Capitol Highway at either end of the commercial core would work to create a speed zone with some chance of success. However this may pose as a serious problem to emergency vehicles.

Traffic Signals

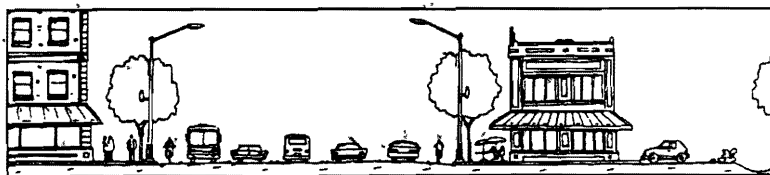
Because of their high cost, traffic signals are used only where certain criteria of heavy traffic volumes and/or accident experience suggest this to be necessary. Signals almost always are used where a major street intersects another major street, or an important collector street.

Timing the signals so that only platoons of cars may progress from one light to the next may significantly reduce that number of through trips in Hillsdale. However, to accommodate heavy peak period demands (rush hour), signalization should be synchronized so as to reduce likely queuing (backup) that may result.

Median Barriers

The median barrier is one of the few control techniques that may still accommodate major traffic flow while enhancing neighborhood integrity. A heavily landscaped median allows traffic to maintain a steady flow, yet it restricts the movements of uncontrolled left turns and entry onto a street. A median barrier is most effective if dedicated to the entire roadway stretch, rather than only at intersections and crossings. Details of effective designs for median barriers are prevalent throughout many design manuals. Warrants and design details are also found in NCHRP Report 93, "Guidelines for Median and Marginal Access Control on Major Roadways," and NCHRP Report 118, "Location, Selection, and Maintenance of Highway Traffic Barriers." These publications are concerned primarily with the effects barriers have on major streets. Desirable design features documented include:

- Location of a median barrier should include consideration of prevention of through traffic and shortcutting; however, access to major traffic generators and emergency facilities must be maintained.
- Visibility is rarely a problem since major streets with medians are usually well lit. Use of reflectorized buttons and "Right Turn Only" signs can improve visibility of the median from the local street.
- The end point of a median island should be designated to minimize damage to a vehicle that strikes the end of the barrier. If pedestrians are permitted to cross the major street, protection can be accomplished by use of sufficiently wide medians with well maintained landscaping so as to give the pedestrians "captured" on the island a feeling of safety.
- Depending on the width of the median, it may provide opportunities for urban gardens or other special neighborhood-oriented landscape treatments, or even for recreational uses.



Other Alternatives for Pedestrian Mobility Across Capitol Highway

In Appendix 2.7 there are six bubble diagrams: The first is intended to reflect the current situation (AS IS) with pedestrians trying to cross Capitol Highway between the north and south Commercial core. The off street parking and the highway are the main impediments. In Alternative 1 the speeds along the highway near the commercial core would be controlled with devices and parking would be moved behind the shops to reduce the impediments for pedestrians. In Alternative 2 the parking is placed at the ends of the shops instead of behind. In Alternative 3 a Skybridge is built across the highway to allow traffic to flow at desired speeds but the costs could be a real problem. Alternative 4 is a Reclassification of Capitol Highway. Transit preference is increased, a large park and ride structure is located nearby and the main traffic flow is diverted to Bertha. Alternative 5 is simply combining the two commercial areas into one to the north side of the highway.

All alternatives have positive and negative elements but at least they present some ideas to be discussed and analyzed.

STUDIES

Pedestrian Crossings

We conducted a non-scientific, informal sampling to see how the pedestrian traffic crossed Capitol Highway between Sunset Road and Bertha Court. Over a three day period at various times of the day and with the weather cooperating and not raining, we observed pedestrians crossing per Table 2.1.

TYPE OF CROSSWALK		16FEB94	15FEB94	14FEB94
LOCATION		07-0900	1020-1220	16-1700
Adult	In	30	47	40
	Out	5 14%	20 30%	11 21/5%
Youth	In	24	111	30
	Out	1 4%	22 16.5%	7 19%
All	In	54	158	70
	Out	6 10%	42 21%	18 20.5%
Total	Both	60	200	88

(Table 2.1)

In Table 2.1, the "In" and "Out" are for those pedestrians that crossed the highway within or outside of the crosswalks. The information in this table is not intended for use but rather this survey is an example of the type of studies that need to be done.

Our conclusions are that more data needs to be collected on pedestrian activity in this area and other areas such as the area west of Sunset from Capitol Highway for two to four blocks, along Bertha Court and along Beaverton-Hillsdale Highway from Bertha Court to Dosch. This type of data can be used by PDOT to influence justification, choices, and placement of traffic control devices.

Future Studies

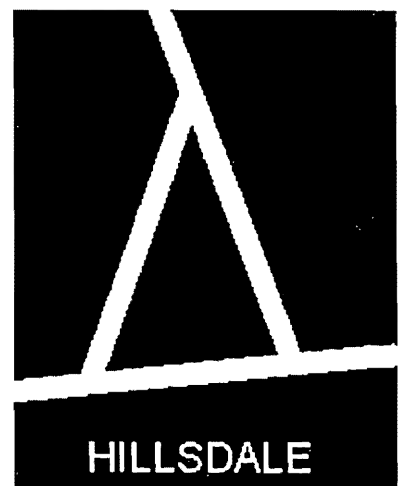
There are not any studies in existence that show pedestrian-traffic relationships in the Hillsdale area. We recommend that studies of traffic flow and speeds be conducted along Capitol Highway, Beaverton-Hillsdale, Bertha and Barber Boulevard to allow for modeling of possible scenarios for changes to traffic flow patterns in the commercial core district and impacts on surrounding streets and areas.

It appears there is a conflict between current transit street classification and usage. HVG should refer to Appendix 2.8 on how TriMet determines its route structure and when. Then HVG could consider street classification changes for PDOT to study based upon changes in bus routes and ridership patterns.

Studies should be conducted to find out potential transit usage as a percent of residents within one quarter to one half mile of the commercial core. Then information could be used in scenario studies to enhance pedestrian accessibility by adjusting traffic patterns.

PDOT has budgeted funds (July 1994) for studying transportation issues in Hillsdale. Concerned citizens of Hillsdale need to inform PDOT officials about what they want studied based upon outcomes they and their community hope to achieve.

3. IMPROVING ACCESS AND CIRCULATION IN THE BUSINESS DISTRICT



Improving Access and Circulation in the Business District

Introduction

The Hillsdale business district is located in Southwest Portland, Oregon only three miles from the downtown. It is centered along Capitol Highway, which carries a large volume of auto and bus traffic over the West Hills. The main focus area is bordered by SW Cheltenham Road and the entrance to Wilson High School on the East and the intersection of Beaverton-Hillsdale Highway and Bertha Boulevard/ SW 18th Drive on the West. Capitol Highway is classified by the City of Portland as a major city traffic street. The study area has been identified in the Transportation Element of the City of Portland Comprehensive Plan as a pedestrian district.

Recently, a considerable amount of attention has been focused on enhancing pedestrian accessibility both into and within this area. The Hillsdale Vision Group (HVG), a collection of area residents and other concerned parties, was formed in 1992 to respond to a proposed "bus only" lane on Capitol Highway. Since the group's inception, their scope of interests has broadened and now includes efforts to enhance the pedestrian district, among other issues. Metro, the Portland metropolitan area regional government responsible for regional land use and transportation planning, has selected Hillsdale as study site for potential future urban design alternatives as part of its "2040" long range planning process. This work is being conducted by Calthorpe and Associates, an architecture and urban design firm located in San Francisco, CA. Calthorpe's efforts are directed toward offering design alternatives to show how Portland can accommodate population increases while maintaining "livability." Part of the notion of maintaining livability within the city rests on decreasing the dependence on automobiles and enhancing the opportunities for pedestrians and bicyclists.

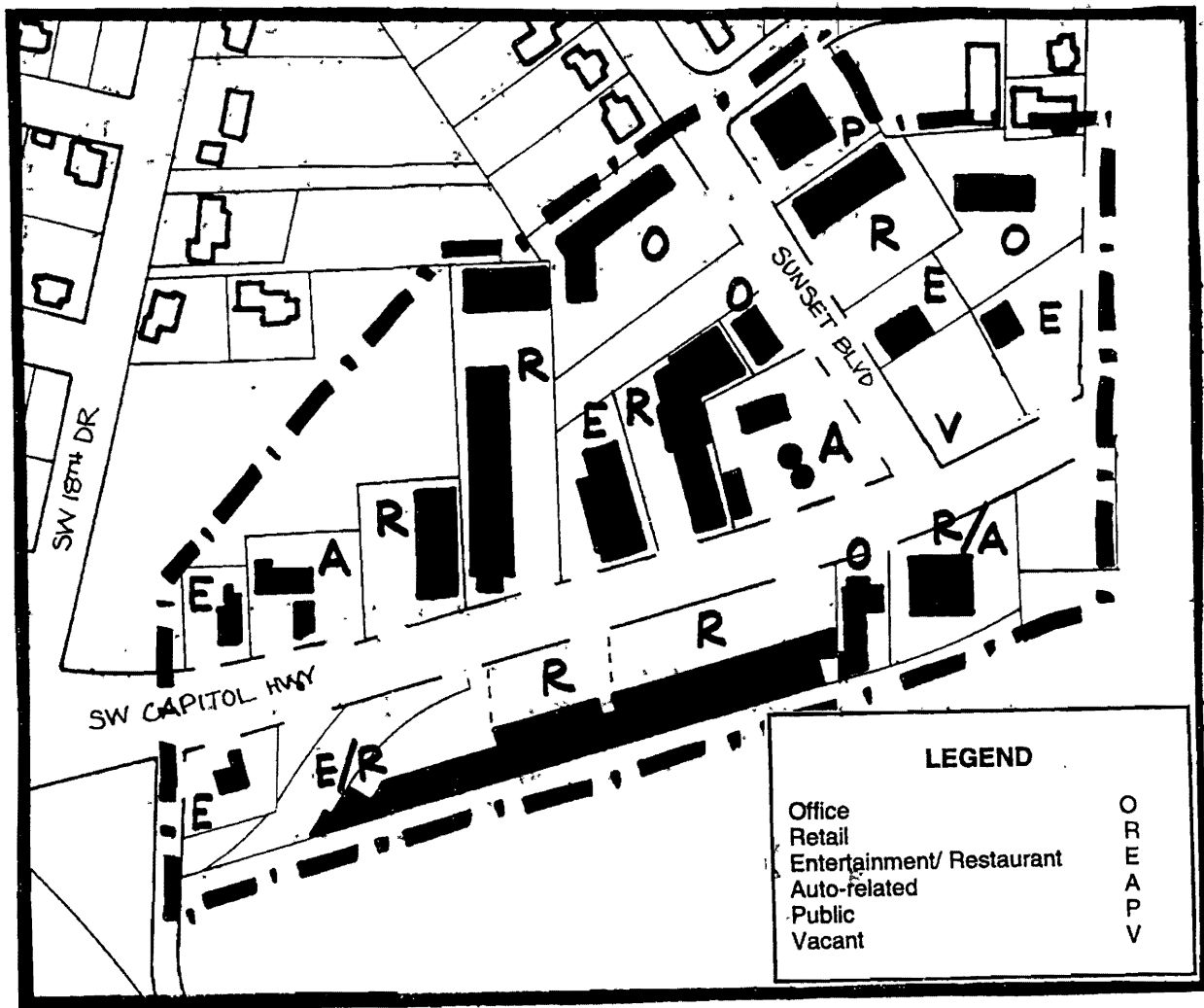
Background

The Hillsdale Business District is focused along Capitol Highway between SW Cheltenham on the east and SW 18th Drive on the west. Commercial development is located on the North and South sides of the arterial. The area also includes commercial development north of Capitol highway along Cheltenham Road and Sunset Blvd. Much of this area is zoned CG, or General Commercial, by the City of Portland. The mix of activities in the business district is broad. It includes neighborhood-oriented stores and services such as hair salons and eateries, as well as other types of activities such as medical, dental and professional offices, and specialty stores that attract regional as well neighborhood business.

Currently, the primary access mode to the business district is via personal automobile. Parking is free and plentiful. The large number of curb-cuts and building orientations facilitate access by autos. The area is served by bus transit, which is operated by Tri-Met, the regional transit authority. Seven bus routes pass through Hillsdale, providing frequent service to the area. Pedestrian and bicycle access to the business area is possible, but is impaired by a lack of adequate facilities oriented toward these modes.

Methodology and Approach

The study area was defined by following zoning and property lines to delineate a "core" business district separate from the greater Hillsdale community. The boundary embodies an area which functions as a regional retail center, drawing a market from not only surrounding neighborhoods, but also from drive-by traffic on Capitol Highway traveling between Beaverton and Portland. The boundary separates the business district from the surrounding low to medium density residential areas. Two neighborhoods meet in the business district: the Wilson neighborhood to the south of Capitol Highway and Bridlemile-Robert Gray neighborhood to the north. Wilson High School occupies a large site and bounds the study area on the south. This large non-commercial land use and the presence of high school students gives the area a characteristic which distinguishes it from similar retail centers in the City.



Map 3.1 Land Use Inventory

Numerous site visits were made to the Hillsdale Business District to facilitate understanding of land uses and transportation. An inventory of current land uses was taken and mapped (See map 3.1). A parking survey was completed and a map was produced which shows the relative location and space occupied by parking in the study area (See map 3.2). Contacts were made with city staff at the Portland Department of Transportation and City Planning Office to discuss current plans for the area and obtain documents pertaining to those plans. Some of these documents include the Portland Transportation Plan, and Planning for Transit (Tri-Met). Hillsdale Vision Group meetings were attended regularly and weekly meetings were also held by the authors of this document. Work also included field trips to other business districts to gain an understanding of what factors make these areas more or less successful for pedestrians and bicyclists.

Existing Conditions

Sidewalks and informal pedestrian pathways are the principle arteries for pedestrian travel. An assessment of the pedestrian realm of the Hillsdale Business District was undertaken in January and February of 1994. Numerous safety and access problems were pinpointed, particularly along Capitol Highway, the main pedestrian route. The following is an inventory of the condition of the pedestrian realm in the Hillsdale Business District.

Capitol Highway, North Side:

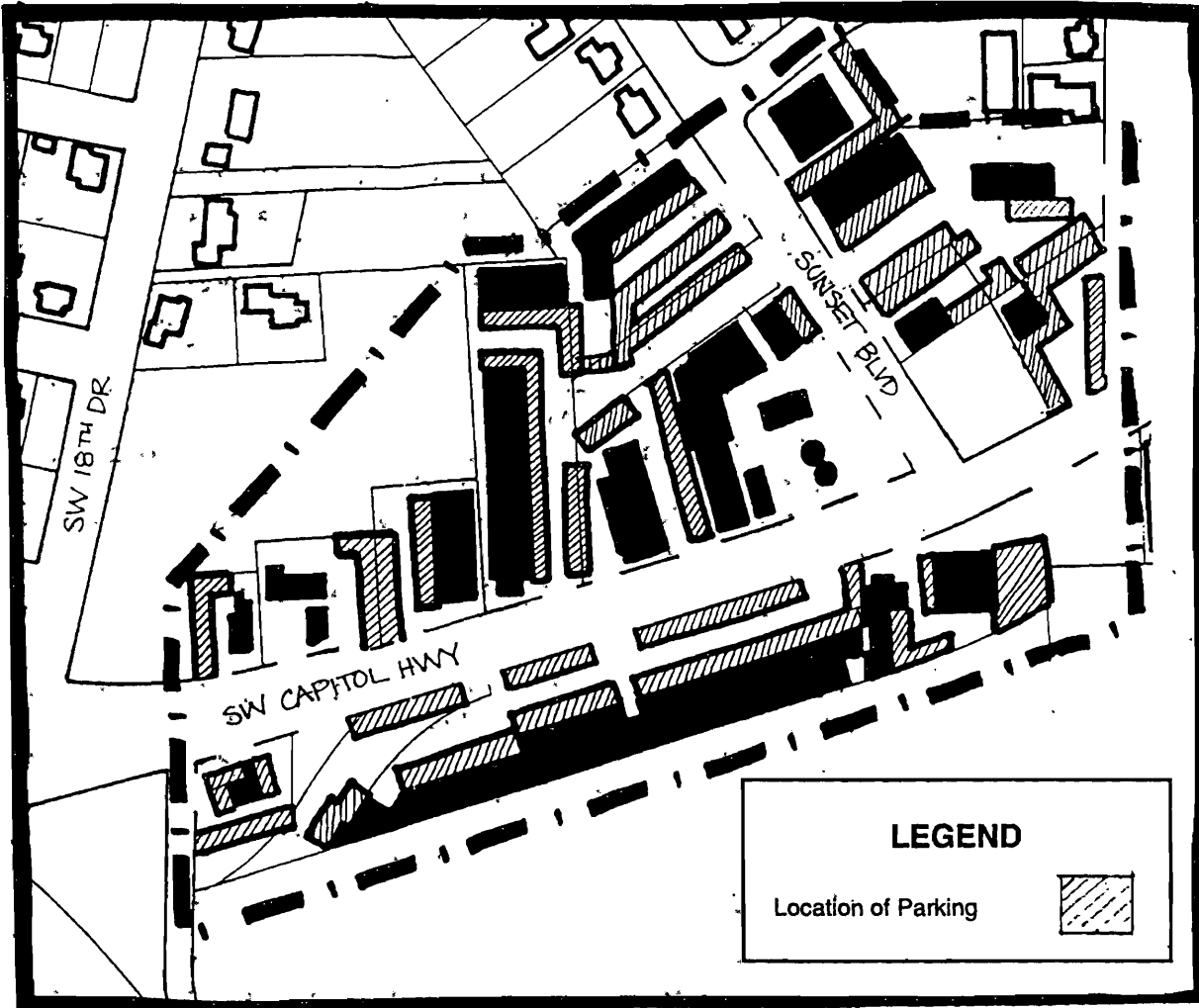
Cheltenham to Sunset

Activities located in this block include a restaurant and a vacant lot that was formerly used as the site of a gas station. An under-developed asphalt sidewalk fronts the restaurant; the vacant lot is currently fronted by a concrete sidewalk. Approximately four/ fifths of the restaurant lot is dedicated to parking, which is devoid of landscaping. Both pedestrian areas are in need of repair as the surfaces are uneven and inconsistent. Unnecessarily large curb cuts and the lack of a substantial curb may create pedestrian safety problems due to potential conflicts with vehicles.

Sunset to SW 18th

The block between Sunset and 18th fronts a variety of business activities. Uses include two gas stations, a bank, restaurants, and several small retail and service establishments. Structures in this block generally have a perpendicular orientation to Capitol. Several of these structures have little setback from Capitol, and the narrow pedestrian area is fitted between the buildings and the street. Parking exists both between the structures and behind them, and is accessed by several large curb cuts along the street. There are approximately 175 parking spaces on this block alone.

The pedestrian realm is typified by an irregular sidewalk pattern where some uses are fronted by an eight foot concrete sidewalk, while others are fronted by a narrower sidewalk. Some land uses are also fronted by an undefined asphalt pedestrian strip. Most of the curb cuts are also asphalt. This lack of definition adds to confusion



Map 3.2 Parking Location

and potential pedestrian/auto conflicts. Street trees, utility poles, street signage, neighborhood landscaping and clapboard signs currently compete for space with pedestrians. This has resulted in a situation where pedestrians must "slalom" around the obstacles in order to move from place to place.

The sidewalk surface itself is very irregular and lacks definition. Surfaces change from concrete to asphalt; widths and grades also change. Of particular concern is the sidewalk at the transit stop nearest to Sunset. Here, the sidewalk surface is cracking, broken concrete, and is constructed at levels that do not match the curb height. This creates a hazard for transit users, particularly those with walking disabilities.

Capitol Highway, South Side:

Wilson High School Entrance to Bertha Court

Capitol Highway between the entrance to Wilson and Bertha Court is home to a variety of activities. These include an auto repair facility, a pharmacy, several small retail and service establishments such as restaurants and salons, professional offices, drive-up and walk-up fast food outlets and a large specialty-oriented grocery store. Structures on the east end of the block include smaller free-standing structures with little off-street parking. Structures on the west end have considerably more parking and are both free-standing and attached. The block is dominated by several semi-attached one-story structures that have a parallel orientation to Capitol Highway. Parking for these structures is accommodated in front, between the structures and the pedestrian realm.

The pedestrian realm fronting Capitol Highway along the majority of the block is an 8' concrete sidewalk that is more consistent in surface quality than the opposing side of the street. In certain areas, however, it is paved in asphalt and is poorly defined. This condition occurs primarily on the west end of the block. Once again, street trees, utility poles, street signage, landscaping, and phone booths compete for space in the area and create obstacles for pedestrians. Autos parked in spaces abutting the sidewalk also overhang into the area, reducing the pedestrian space further. Potential conflicts exist with autos at the numerous, wide curb cuts. A narrow strip has been painted on this block of Capitol Highway for bicyclists.

Sunset Blvd., Capitol to Dewitt

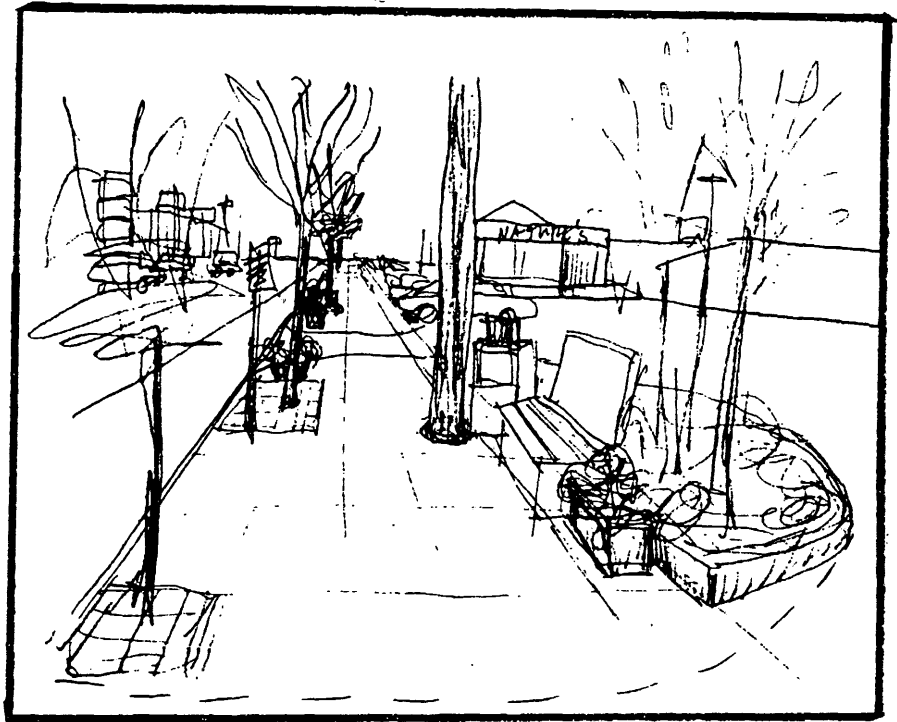
Activities along the east portion of the street include restaurants, retail and service establishments, a vacant parcel (corner) and a public library. Structures on this side of the street have both parallel and perpendicular orientations and parking for the facilities is provided off-street in lots adjacent to the structures. A concrete sidewalk adjoins Sunset and is relatively free of surface inconsistencies. Obstacles similar to those noted on Capitol exist.

Activities along the west portion of the street include a gas station (corner), professional offices, and service and retail. Building orientation is very inconsistent: most uses have a

**Existing Sidewalk
With Obstacles**



**Alternative Sidewalk
Development**



perpendicular orientation to Sunset with large setbacks, however one use has a parallel orientation with a 12' setback. A concrete sidewalk extends from the corner of Capitol up the street about mid-block. Here the pedestrian realm becomes essentially a large asphalt driveway. Further up the block paving for pedestrians does not exist or is located sporadically. This side of Sunset is typified by large curb cuts to access parking in the "plaza" and relatively little curb. Potential safety hazards abound due to poor identification of the pedestrian realm, limited visibility and numerous vehicle movements. Temporary planters have been placed in certain areas to afford some degree of protection and beautification.

Bertha Court, Capitol Highway South

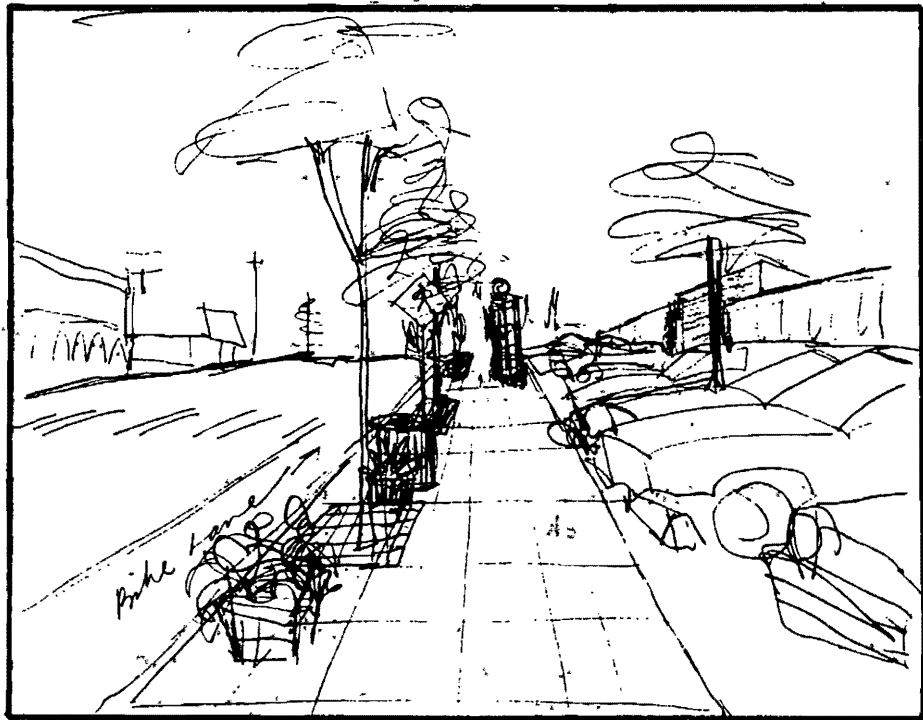
No paving exists on this route, which could be a major pedestrian path from locations south of the business district. However, the route is well traveled by pedestrians as indicated by the paths worn into the grass along the edge of the street.

Crossing Capitol Highway

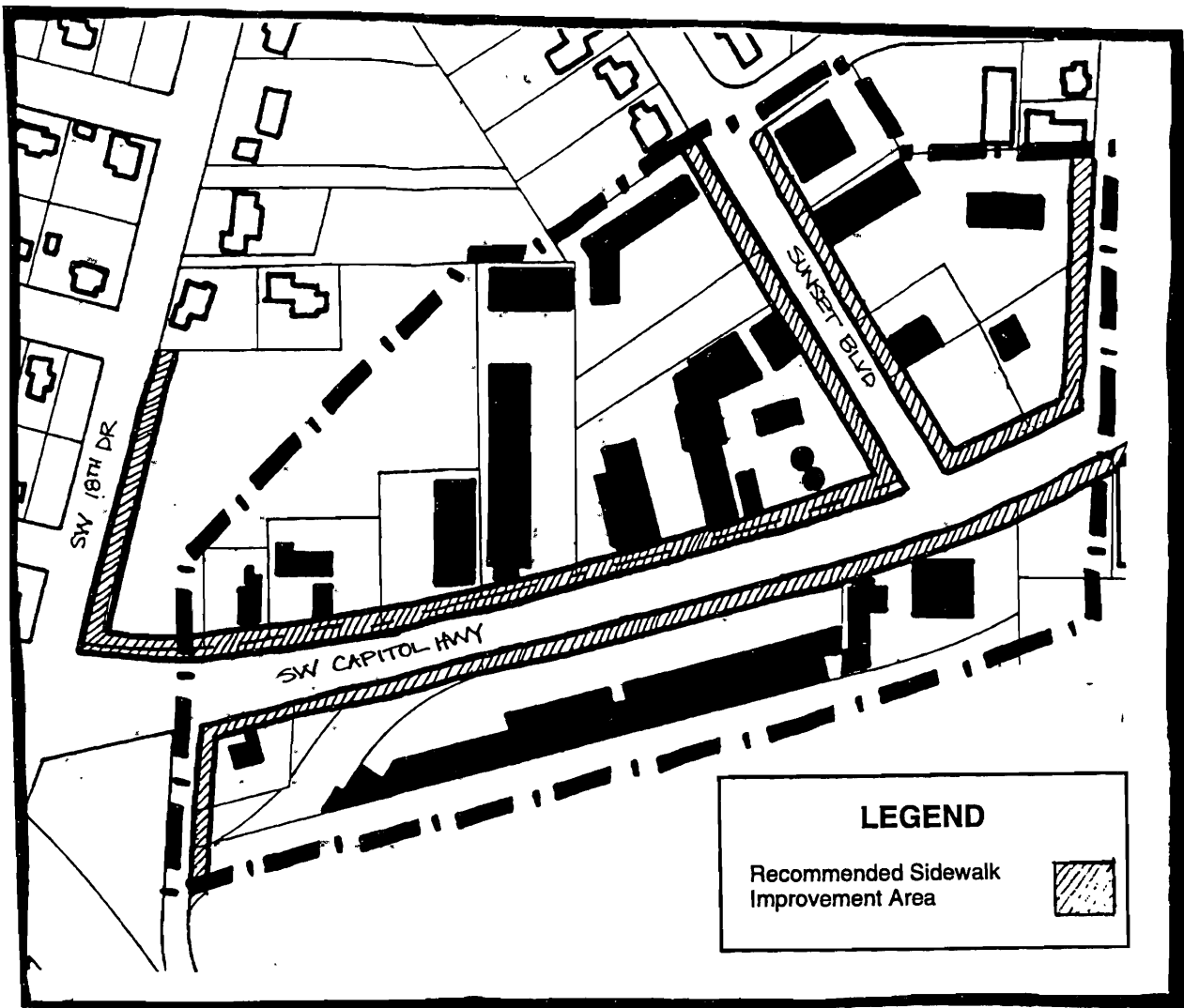
Three primary pedestrian crosswalks exist across Capitol Highway in the business area. One, located near the high school at Sunset, is signalized with pedestrian "walk" signals, and offers no apparent safety hazards. Another, located at Bertha Court/SW 18th is signalized for pedestrians except for the traffic lane westbound from Capitol to Beaverton-Hillsdale Highway, which is separated from the rest of the intersection by a small "island." This lane is a "free right" for motorists who travel uninterrupted from Sunset. Pedestrian safety is questionable due to this configuration. The third pedestrian crossing is an unsignalized crosswalk located mid-block between Sunset and Bertha/SW 18th. Pedestrians using this crosswalk are afforded no protection from oncoming vehicles, and vehicles are not alerted to the presence of pedestrians. This is an obvious safety hazard.



**Existing Crosswalk,
South Side
Capitol Highway**



**Alternative Sidewalk
With Improvements**



Map 3.3 Sidewalk Improvement Area

FIRST STEPS: ENHANCING THE PEDESTRIAN REALM

RECOMMENDATION: Increase the viability of the Hillsdale Business District by making it safe and accessible for pedestrian movement.

DISCUSSION: In the short term, Hillsdale should focus on the pedestrian realm by more clearly defining existing sidewalks and pedestrian areas. Removing obstacles and enhancing the existing pedestrian areas along Capitol Highway, Sunset Boulevard, Chetlenham Road and Bertha Court are the minimum first steps necessary for creation of a viable pedestrian zone. Further, the improvements that are recommended for these pedestrian areas will likely fit into most future redevelopment plans for the Hillsdale Business District.

Capitol Highway is clearly urban in nature; the design of the pedestrian realm should reflect this. However, it should also reflect the uniqueness of Hillsdale, and add to a sense of identity for the area. Ultimately, a continuous, uniform street edge sidewalk should be developed along both the north and south sides of Capitol Highway from Cheltenham Road to SW 18th Avenue. A minimum six foot sidewalk with a four foot area for trees and street furniture adjacent to the curb is recommended for pedestrian travel. Streets such as Sunset are less traveled than Capitol, and should receive treatment that reflects this. Sidewalks here may provide less width overall but should be obstacle free, uniform, and share design features similar to Capitol.

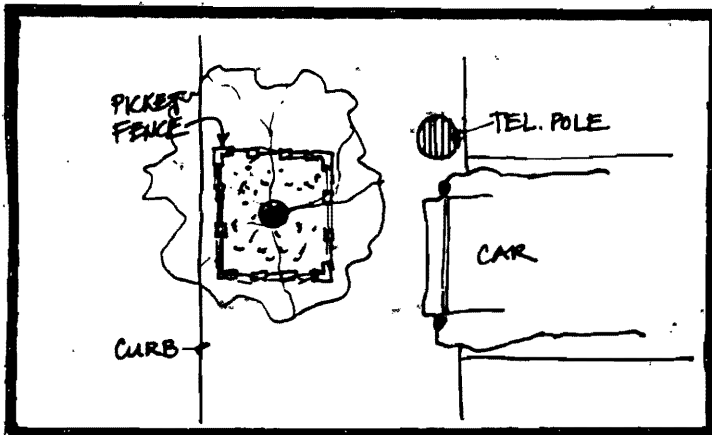
OBJECTIVE:

Increase the ease of travel along sidewalks.

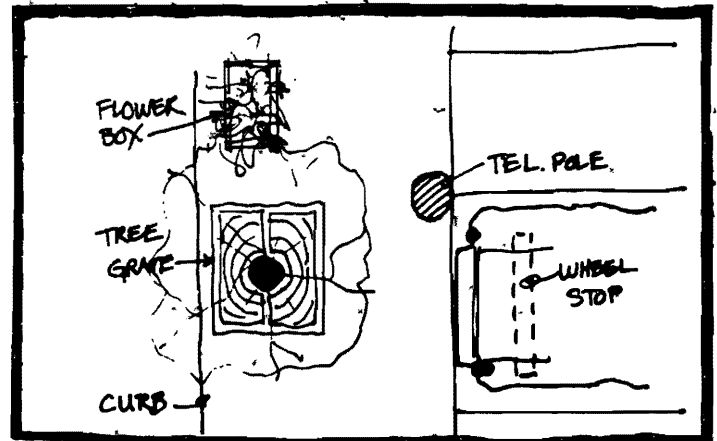
STRATEGIES:

1) *Contact business owners and ask that signs be relocated out of the pedestrian path.*

2) *Place grates around trees instead of landscaping to foster pedestrian movement around these obstacles. Planters could be located between the trees.*



Existing



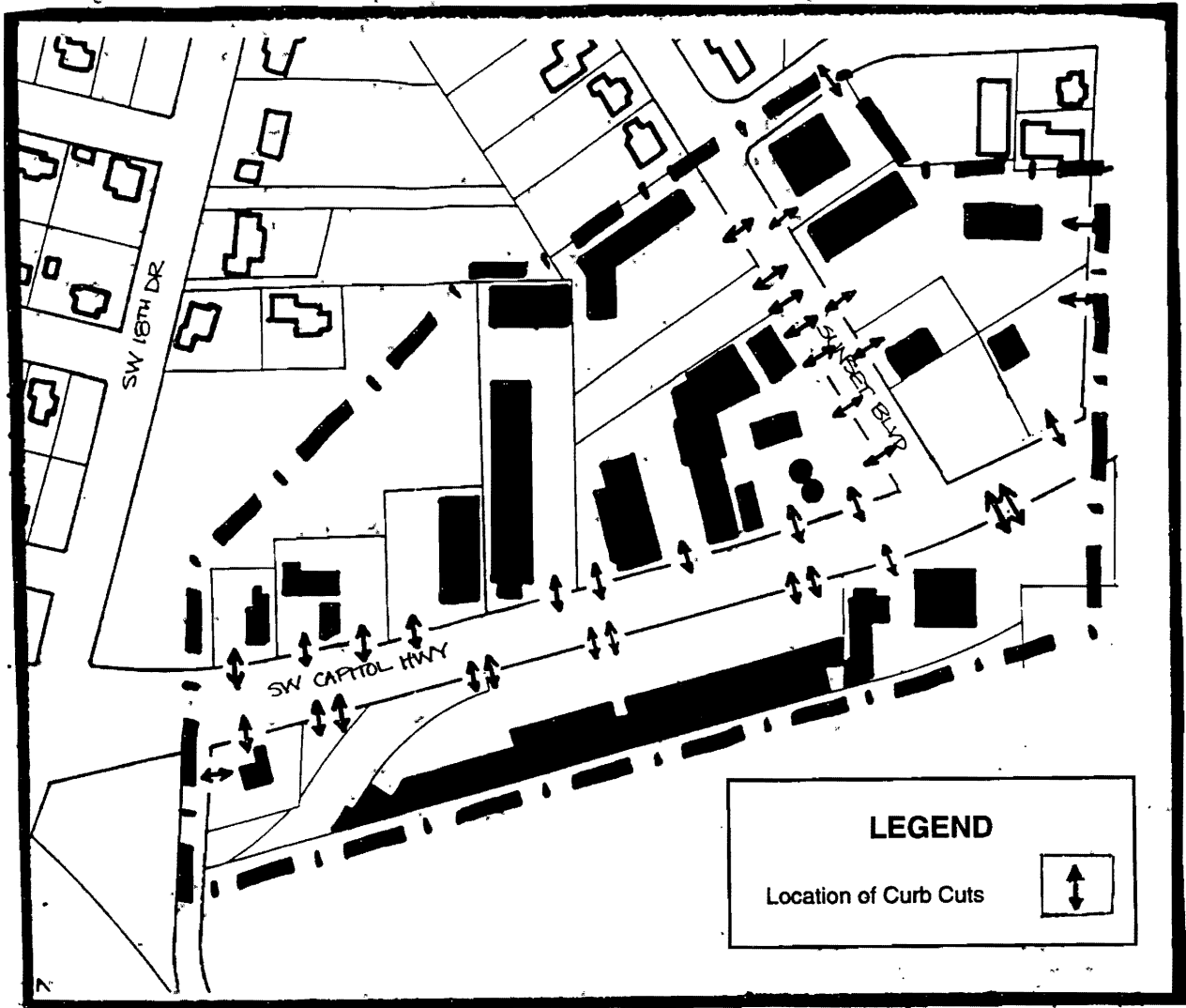
Alternative

3) *Contact the business owner(s) responsible for the phone booths which block pedestrian passage in Hillsdale and ask that they be relocated. There is no charge to move a phone booth if it is not profitable. If it is profitable, US West will move it, at the request of the proprietor, at a cost of \$200.*

4) *Relocate the Oregonian news stand at no cost.*

OBJECTIVE:

Re-orient vehicular traffic in the area to minimize automobile/pedestrian conflicts and automobile/automobile conflicts.



Map 3.4 Curb Cut Location

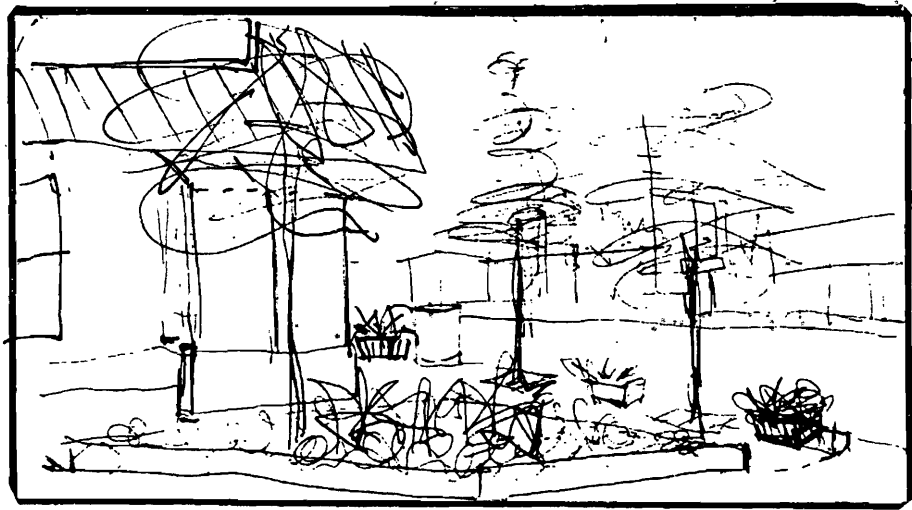
STRATEGIES:

1) *Repaint and landscape some of the ingress/egress points to the "sea of parking" to minimize driver confusion.* Map 3.2 shows parking, and Map 3.4 shows the current curb cuts in the Hillsdale business district. On Sunset, a curb cut stretches approximately 100 feet, and is broken by plantings which are currently resting on the sidewalk. Permanent landscaping may be used to help delineate the access points to Sunset along this block.

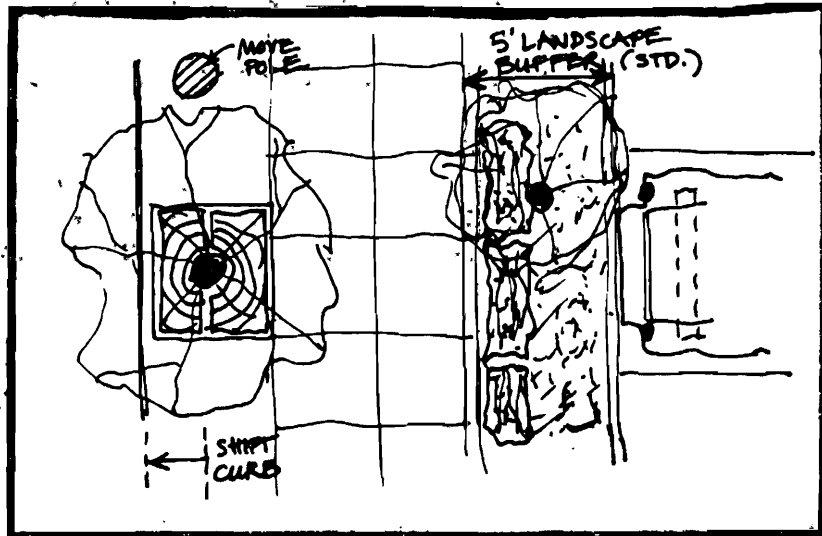
2) *Eliminate curb cuts on the north side of Capitol Highway to minimize conflict points.* There are currently nine ingress/egress points for motorists to access the business area on the north side of Capitol from Sunset to 18th. This presents a danger not only to pedestrians but also to motorists traveling along Capitol Highway, as the number of points of potential conflict between through traffic and local traffic is quite large.



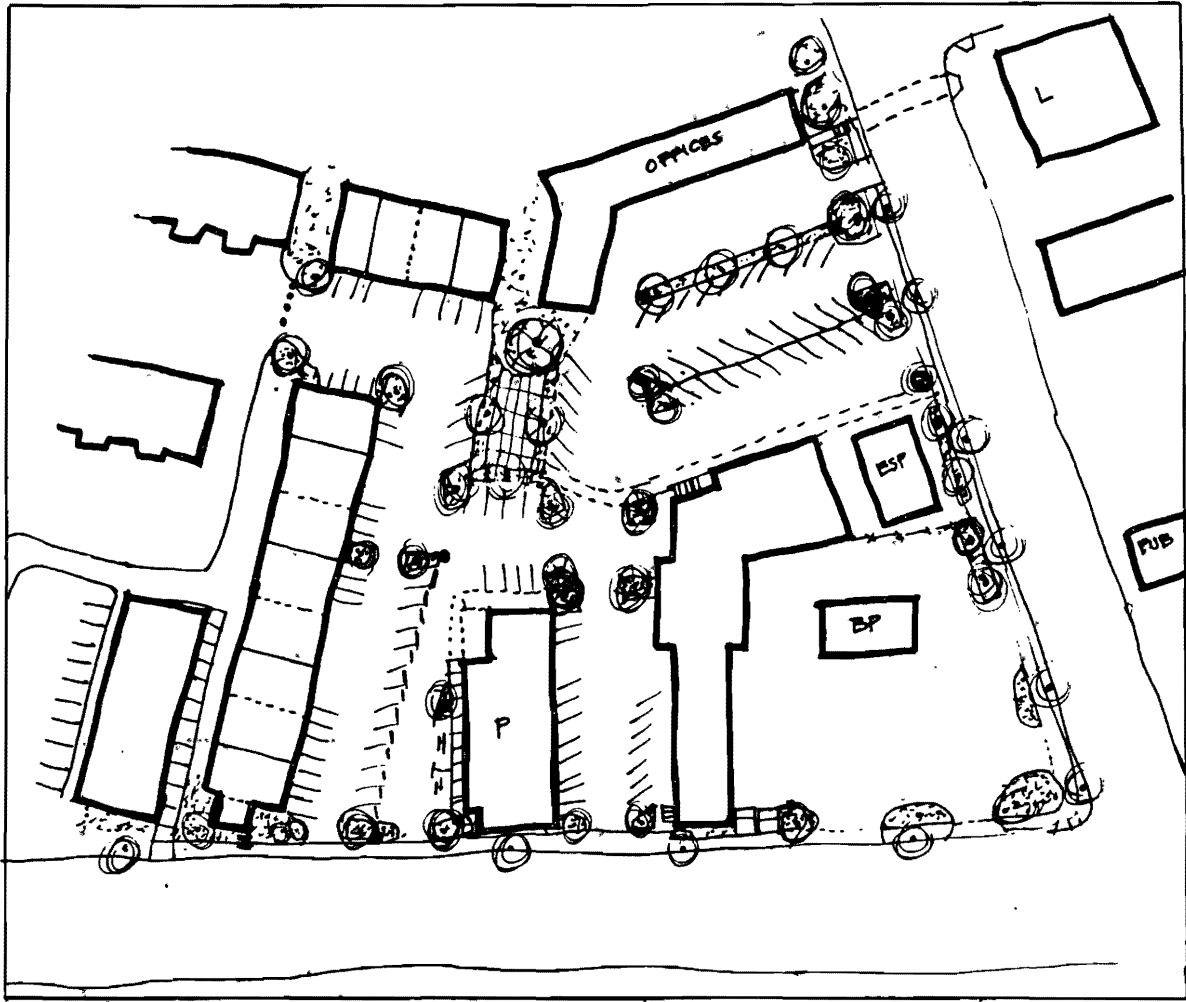
Parking Area
Without
Landscaping



Alternative 1

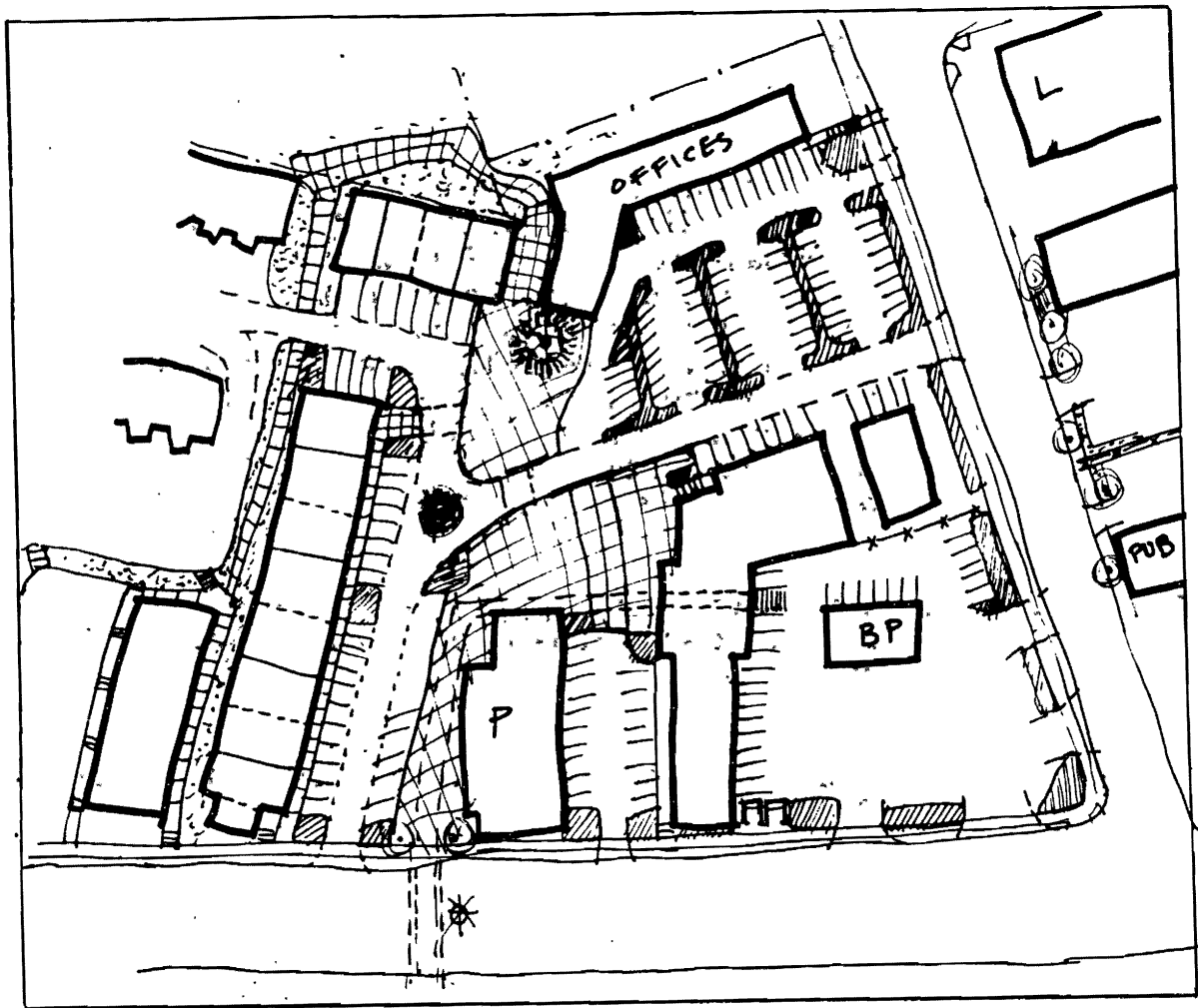


Alternative 2



Initial Landscape Improvements to Parking Area

3) *Redesign the parking scheme on the north side of Capitol Highway.* An initial phase would create landscaped islands at edges to define and protect pedestrian paths. Later, a redesigned area for shared parking could incorporate edge and internal landscaping that meets city development standards. Ultimately, the "sea of parking" could be reoriented to consolidate parking and open up areas for pedestrian plazas and walkways that connect residential and business areas.



Option for Long Range Improvements to Parking Area

OBJECTIVE: Re-construct damaged sidewalks along Capitol Highway.

- STRATEGIES:**
- 1) *Acquire right-of-ways on the north side of Capitol Highway.* The land on the north side of Capitol Highway is held in private ownership. The right-of-way or an easement must be acquired before any non-owner improvements to the sidewalk may be made.
 - 2) *Create a Local Improvement District.* A Local Improvement District (LID) could be created to help finance land acquisition, engineering and construction costs associated with sidewalk installation and repair.
 - 3) *Coordinate with the business community regarding land acquisition and sidewalk development.*

THE LONG TERM: IS PEDESTRIAN FRIENDLY ENOUGH?

Improvements to the surfaces will go a long way toward making the Hillsdale Business District a safe place for pedestrians and bicyclists. But if we build it will they come? Pedestrians and bicyclists, and auto users need more than safe and pleasing access; they need a reason to come here. Improving accessibility for pedestrians and bicyclists alone won't bring them here. Hillsdale needs to recognize this, and take steps to gain a better understanding on how their place functions to meet living, working, shopping, recreating, and socializing needs.

RECOMMENDATION: Work toward creating an attractive, pedestrian friendly business district capable of serving the needs of the community.

OBJECTIVE: Understand the market and the nature of the Business District.

STRATEGIES: 1) *Conduct a market area analysis to assess the market area of the Hillsdale Business District.*

DISCUSSION: Any long-term redevelopment efforts in Hillsdale will only be undertaken if they are economically justified. A market area study could help to determine who currently uses the area, who potential users might be, and other factors such as demographic trends that are important to consider when contemplating change. The study needs to address who uses the business area, where they begin and end their trips, the routes taken, and their mode of transportation (bike, auto, pedestrian, other?). This type of analysis is generally conducted by a consultant, but may also be completed by neighborhood associations and community groups.

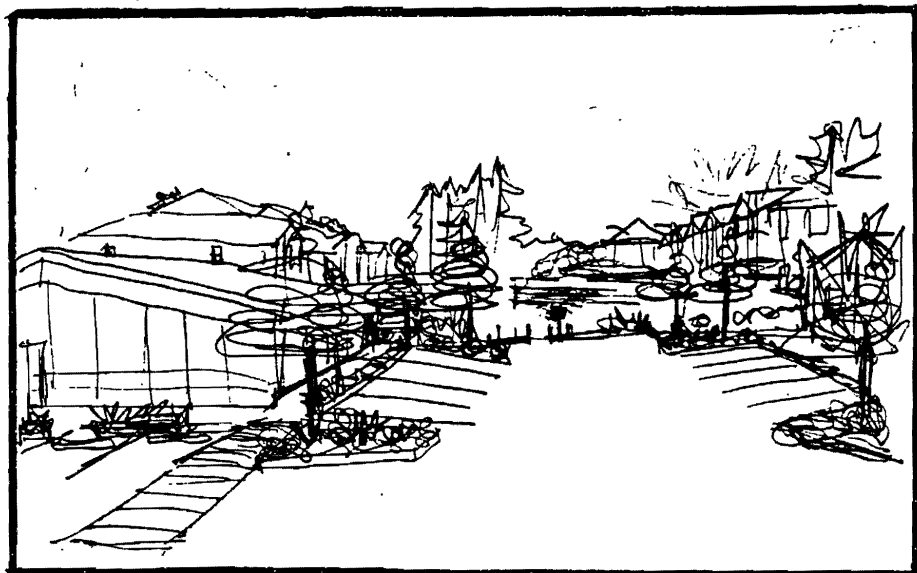
OBJECTIVE: Ensure that the larger community is engaged in efforts to enhance the livability of Hillsdale.

STRATEGY: *Devise and implement a community outreach program.*

DISCUSSION: In order to be truly successful, any long term efforts should understand and meet the needs of the larger community. Any organization that is working to change Hillsdale, and the business district, needs to develop an understanding of what people want and need. A good first step is an education and outreach program aimed at engaging the community. Appendix A describes some strategies to achieve a strong base of community support.

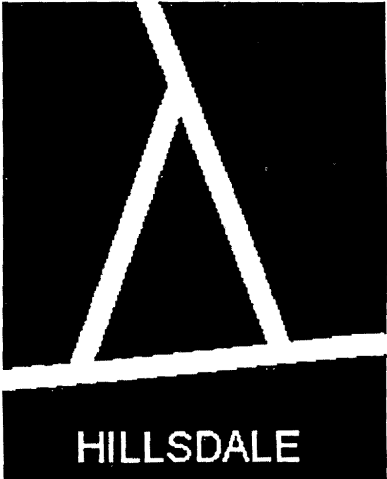


**Existing
Parking Lot**



**Pedestrian-Friendly
Alternative**

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HILLSDALE

Conclusion

This document is to be used as a how-to guide for the Hillsdale Vision Group. It provides options which are short or intermediate-term in nature (between one and ten years) and may be implemented given resources and community support. It represents the efforts of a group of people dedicated to the idea that suburbs tend to favor the automobile over other transport options, thereby limiting them, and that planning may address some of the faults inherent in typical suburban development.

Throughout this planning process at forums, workshops, and meetings, the authors have been challenged to produce a document that is both visionary and practical. The intent of this document is to help the Hillsdale Vision Group provide for future transportation needs by considering a multi-modal transportation network.

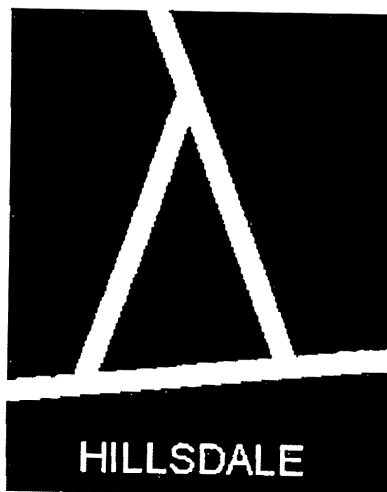
The key components of this document are recommendations for the redesign of parking and curb cuts in the Hillsdale commercial area, pedestrian and bicycle routes into Hillsdale, implementation of a community outreach program, and information on the street reclassification process in the City of Portland. The document is not an end in itself, but is part of a planning process that, hopefully, will continue long after its authors move on. Whether the recommendations made are realized, or the information provided used, will depend on the commitment of those who follow and the resources made available to them.

The document must now be discussed in the community, and its alternatives prioritized. The section on community outreach provides some useful hints on how to go about sharing it with interested people in the Hillsdale community. The document also provides its reader with a snapshot of Hillsdale, circa 1994. It may therefore be used to evaluate the success of future actions.

The authors would like to thank the Hillsdale Vision Group for their assistance and patience; the Portland State University Planning Workshop for their constructive criticism and useful input; the faculty of the Department of Urban and Regional Planning and particularly Deborah and Paul for their direction; and the numerous agencies, staff, and citizens that were contacted for information vital to this effort.

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APPENDICES



APPENDIX A

ESTABLISHING A CITIZEN PARTICIPATION BASE

The Hillsdale Vision Group is a motivated, vocal group of citizens concerned about making changes in their community. However, they may not be representative of the community as a whole. A strong showing of community support will add validity to the work of the HVG. Also, strong involvement from the community sends a message to the City that they are legitimate. This is very important when seeking additional funding and technical assistance.

A core group has already been established, thus starting from scratch isn't necessary. The HVG could be the original Steering Committee for the Hillsdale Planning Process. This committee should help guide the community through the planning process. The initial task should be increasing the public awareness of the HVG.

GOAL:

To raise the public's awareness of the Hillsdale Vision Group and its mission. This should result in increased citizen input and community involvement for the planning process.

I. Boundary

A situation unique to Hillsdale is the lack of a clear and geographically defined boundary for the study area. Many other organizations, such as Neighborhood Associations and school districts, have defined boundaries. To get a sense of the boundary for Hillsdale, an arbitrary boundary may be drawn, for example, as a one mile radius from the commercial core. This is conservatively large, but it is to be sure of including any households or areas that may consider themselves a part of the Hillsdale community. As feedback from citizen involvement strategies is received, the boundary may become more definitive.

II. Survey

A Steering Committee, or a Survey Subcommittee, should develop a survey to be distributed to all households within the one mile radius. The survey may:

- be a flyer and get the HVG name into the public eye.
- identify areas in which the respondents live, therefore streamlining the boundary.
- collect demographic information of area.
- begin the process of identifying concerns of residents.
- provide an opportunity for respondents to add their name to the mailing list.

When drafting the survey, consider a structure that will be easy to tabulate. Although open-ended questions may appear more informative, they are difficult to decode and analyze. Quantitative answers, such as a ranking system, are easy to tabulate, yet allow for responses to show levels of agreement or concern. A sample survey is attached.

The major costs of survey development are printing and distribution. There are alternatives for each, depending on human resources and financial support. Options for printing include:

- copying at local copy center
- using personal laser printers
- buying space in a local community paper
- soliciting in-kind or financial donations

Options for distribution (and returns) include:

- postage paid mail out/mail back
- insert in newsletter mail out (comprehensive mailing list recommended)
- recruit volunteers to hand deliver to each household and business (middle school project or Boy Scouts of America, for example)
- include as text in local newspaper
- provide drop boxes at area schools and businesses
- provide address for return mail, without postage

III. Contacting Organizations

Members of the Steering Committee should begin contacting formal and informal organizations in the area. This may include:

Surrounding Neighborhood Associations and Coalitions: The commercial core of the Hillsdale area is a boundary dividing two ONA identified Neighborhood Associations, Bridlemile-Robert Gray and Wilson. These Associations, along with surrounding neighborhoods that may be impacted, could be a resource in identifying topics of concern and beginning a mailing list of possible volunteers and participants. The Southwest Neighborhood Information, Inc. (SWNI), your neighborhood coalition, could act as a coordinator. SWNI may also provide some technical assistance and/or human resources (in the form of an intern). The neighborhoods of Bridlemile-Robert Gray and Wilson should be officially represented on the Steering Committee.

Local businesses: This includes neighborhood businesses and also businesses that may have a regional attraction. Businesses with other units outside the area, such as Nature's and McMenamins, have been known to be locally active. These organizations may be willing to help sponsor events and activities that generate community involvement. It is also an invitation for the business owners and managers to be a part of guiding the community. Their buy-in is important now, to decrease the chance of conflict later. The Hillsdale Business and Professionals Association should be officially represented on the Steering Committee.

School organizations: This contact is twofold: one approach to appeal to the parents, another to the students in the schools. For an audience of parents, present the HVG and its vision to a meeting of the Parent Teacher Association of each school. Some schools have developed advisory committees including parents and teachers as members. This audience base is somewhat biased because not ALL parents are being addressed, but the HVG name is getting out there. Another consideration, what are the legalities of sending pamphlets home with the students to give to their parents?

A student audience is also pertinent for volunteer support and input. Wilson High School students may assist in tabulation of surveys or distribution of flyers. Functions and activities directed towards this audience may generate advertisement by word of mouth. Also, input from this group of citizens may be much different from the older population and deserves the same consideration.

Other volunteer, grass-roots organizations: Identify other community-based organizations in your area. This may also include members of city-wide organizations, such as the Bicycle Transportation Alliance and other coalitions. Provide them with information regarding your organization and mission. This is another forum by which to get your information out to the neighborhoods.

IV. Volunteer Information Forms and Meeting Cards

The volunteer information form has two purposes. First, it establishes a data base of people interested in the current projects of the HVG. The combined address list of the two neighborhood associations in Hillsdale may be too comprehensive and dated for mailings regarding only HVG activities. A new list should be started and maintained just for HVG news. The additional information requested on the information forms will be helpful when recruiting volunteers, delegating tasks, or developing subcommittees. Second, it is advertisement. Anything with the Hillsdale Vision Group's name on it will be helpful in keeping people aware of your organization.

The volunteer information form should be distributed at all meetings and presentations. People may take extras to bring to neighbors or other interested parties. A sample information form is attached.

Meeting reminder cards are a very simple note to keep people up to date with the calendar of the Hillsdale Vision Group. The postcards can be copied four to a page, reducing postage and printing costs. The card will contain announcements of any new meetings or meeting changes. The data base from the volunteer information sheet may be used as the mailing list. A sample reminder card is attached.

V. Flyers

Flyers should be distributed and displayed at all participating locations, including retail businesses, offices, schools, and restaurants. The flyers may be posted on bulletin boards and in windows. If volunteer or financial resources allow, distribution to every household will reach a larger audience. The flyer should be easy to read, have minimal text, include interesting graphics, and be printed on bright paper.

VI. Newsletters and Newspapers

Utilize the newsletters of surrounding neighborhood associations, Wilson and Bridlemile-Robert Gray, and your neighborhood coalition, Southwest Neighborhood Information, Inc. Submit brief articles about the HVG, your mission, and current activities. These newsletters may also include your flyer or survey as an insert in their next mailing. Check with the Neighborhood Associations for more details.

The HVG newsletter should be distributed to all households at least once. The same distribution techniques as the flyer may be considered, i.e. blanket mailing or door-to-door distribution. Utilize the existing mailing lists of other neighborhood organizations.

Community newspapers may print an article or promotional spot for the Hillsdale Vision Group. Newspapers with circulations larger than the study area are also appropriate. Utilize any medium to get your message to people.

VII. Celebrate Community

Sponsor events that may generate community spirit and citizen involvement. These may be one time events, such as "Hillsdale Days" celebration. Bake sales or festivals at the schools are other examples to generate interaction among the residents of the community.

These types of function are wonderful at creating a sense of community among participants. They are also great outlets for flyers, volunteer sheets, and newsletters. Get your name out there and let people know what you are doing!

VIII. Membership Drive

Undertake a membership drive that directly reaches every household within your boundaries.

- The best approach for a membership campaign is to have volunteers go door to door calling on their neighbors. This can be a week long project or a one day blitz. Consider having a membership drive and then sponsoring a party for volunteers where they can have fun and share experiences later.
- HVG representatives and volunteers should be armed with printed material to encourage the residents to participate. This can be a brochure from HVG or a simple letter from the group's chairperson that explains the Hillsdale Vision Group, its relationship to the community, and details of upcoming activities. Also, volunteers should carry volunteer information forms with them and offer both immediate and mail in membership opportunities.
- Neighborhoods can develop a block leader network as a foundation for a membership campaign as well as other activities. Block leaders can pass out flyers and newsletters, welcome new residents, serve as a conduit for specific problems on the block, and place volunteers in activities.
- Potential participants can also be found at community gatherings. If there is a city or local area event, think of putting up a booth sponsored by your organization. This is a great opportunity to talk to people in your area. Remember, have information and membership sign up sheets available.

IX. Choosing a Strategy

Before developing a citizen involvement workplan, the resources available to the HVG must be considered. For example, is the Hillsdale Vision Group stronger in human resources or financial resources? Might SWNI contribute to the effort, in human or capital resources? Must you work within parameters of a timeline? What parts, if any, of this process have been initiated, requiring less time to complete?

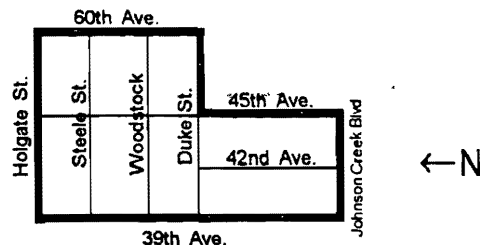
Maintaining an active citizen participation base is another matter. Make an effort to let those involved know their input is needed. Invite people to be involved in anything. Keep people aware of HVG and your activities. Face-to-face contact is the most effective form of communication. When possible, make personal appearances and talk to people.

PLEASE GIVE US YOUR OPINION. Thank you for taking the time to help with the Woodstock Neighborhood Plan by addressing the following issues. Please rate each issue in terms of how concerned you are about it. Use the scale from 1 to 5 where 1 means not at all concerned and 5 means very concerned. Please rate each issue by circling one number. For each issue area, space has been provided for you to include an issue we overlooked:

1. Do you rent ____, own and occupy a home ____, own a business ____, own rental property/land ____ in Woodstock?

2. Place an **R** in the map where you rent, **L** in the map where you own and occupy a home, a **B** where you own a business, and an **O** where you own rental property or land.

If you are out of the area designated on the map, the cross streets where you **R** ____, **L** ____, **B** ____, **O** __ are



3. **TRAFFIC ISSUES** Not _____ Very
- a. Woodstock Boulevard 1 2 3 4 5
 - b. Parking 1 2 3 4 5
 - c. Pedestrian Crossing 1 2 3 4 5
 - d. Bike Paths 1 2 3 4 5
 - e. Speeding 1 2 3 4 5
 - f. _____ 1 2 3 4 5

4. **PUBLIC SAFETY** Not _____ Very
- a. Graffiti/Gangs 1 2 3 4 5
 - b. Positive Youth Involvement ... 1 2 3 4 5
 - c. Personal Crime (Robbery, etc.) 1 2 3 4 5
 - d. Property Crime 1 2 3 4 5
 - e. Community Policing 1 2 3 4 5
 - f. _____ 1 2 3 4 5

5. **ENVIRONMENTAL QUALITY** Not _____ Very
- a. Greenspaces 1 2 3 4 5
 - b. Litter 1 2 3 4 5
 - c. Illegal Dumping 1 2 3 4 5
 - d. Air/Water/Noise Pollution 1 2 3 4 5
 - e. _____ 1 2 3 4 5

6. **LAND USE** Not _____ Very
- a. Zoning 1 2 3 4 5
 - b. Design Standards 1 2 3 4 5
 - c. Street Improvement 1 2 3 4 5
 - d. Historic Preservation 1 2 3 4 5
 - e. _____ 1 2 3 4 5

7. **BUSINESS** Not _____ Very
- a. Development 1 2 3 4 5
 - b. Community Involvement 1 2 3 4 5
 - c. School Involvement 1 2 3 4 5
 - d. Pedestrian Friendly 1 2 3 4 5
 - e. _____ 1 2 3 4 5

8. **PARKS & RECREATION** Not _____ Very
- a. Safety 1 2 3 4 5
 - b. User Friendly 1 2 3 4 5
 - c. School Involvement 1 2 3 4 5
 - d. Community Center 1 2 3 4 5
 - d. _____ 1 2 3 4 5

What three things do you like most about the Woodstock Neighborhood?

- a. _____
- b. _____
- c. _____

What three things would you like to see improved in the Woodstock Neighborhood?

- a. _____
- b. _____
- c. _____

Did we cover the issues important to you? If not, please briefly describe what we overlooked.

Interested in being added to the Woodstock Neighborhood Association Newsletter mailing list? Please enter name and address

Name: _____
 Address: _____
 City/Zip: _____

Thank You - Please return to drop boxes at: Woodstock Community Center, Woodstock IGA, Lewis and Woodstock Schools, Woodstock Library or Davidson's. Or, mail directly to Southeast Uplift, 3534 SE Main, Portland, OR 97214, Attn: Nanci Egan

Outer Southeast Neighborhood Plan Volunteer Information Form

Date _____

Name: _____ Phone: _____ day _____

evening _____

Address: _____ Best time to call _____

_____ 972 _____
In which neighborhoods do you live/work/own property? _____

Are you already familiar with the your neighborhood assoc.? Yes No
Interested in: (Check all that apply)

____ Neighborhood Plan Steering Committee _____ Public Workshops

____ Other _____ Neighborhood association activities _____

Subcommittees:

____ Historic Preservation & Urban Design

____ Economic Development _____ Transportation

____ Public Safety

____ Housing & Livability _____ Other

____ Parks, Open Space, and Environment

Best days for participation? Mo Tu Wed Thu Fri Sat Sun

Best evenings Mo Tu Wed Thu Fri Sat Sun

Preferred times for meetings _____

Others that we should contact:(Name & phone #) _____

Where do you learn about neighborhood activities? _____

MEETING REMINDER

Group _____
Date _____
Time _____ Place _____
Address _____

Special notes:

Next Meeting: _____
Questions?? RSVP - Call _____ @ _____

MEETING REMINDER

Group _____
Date _____
Time _____ Place _____
Address _____

Special notes:

Next Meeting: _____
Questions?? RSVP - Call _____ @ _____

MEETING REMINDER

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Time _____ Place _____
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Next Meeting: _____
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MEETING REMINDER

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Time _____ Place _____
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Next Meeting: _____
Questions?? RSVP - Call _____ @ _____

Appendix 1.1

Pedestrian Walkway Classifications¹

Sidewalk- A constructed concrete, asphalt or wooden walking surface to the side of, and most often elevated above, the level of the motorway or shoulder, usually with a barrier curbing at street side.

Raised-Curb Shoulder Separation- A side portion of the actual road surface for walking, physically separated from the motorway by a raised, substantial, secure barrier curb at least 15 cms (six inches) high.

Edgeline Shoulder Separation- A longitudinally painted line, ten or more centimeters wide, designating a side portion of the road surface for walking or bicycling.

Edge line Shoulder Separation with Implanted Reflectors- As in above, but with reflectors implanted at fixed intervals of a meter or so within or alongside the painted line.

Natural Footpath- A walkway of unconsolidated surface, created by pedestrian movement to the side of the road.

Constructed Footpath- A walkway intentionally graded, surfaced with sufficient (unconsolidated) gravel, cinders or sea shells to provide a continuous surface to the side of the motorway.

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¹ Gassaway, Alexandar

Appendix 1.2

Bikeways Classifications and Considerations

Bike Paths or Multi-use Trails (Class I): These have their own right of ways, and are often found along abandoned rail lines, rivers, or utility easements or new developments. The width of these paths depend on other uses and availability of land.

Considerations: Although bike paths are often enjoyed by recreational bikers because they are generally more scenic and are set away from auto movement, they require a significant amount of right of way and are often more expensive than other types of bikeways. In addition, connecting to roadways is often difficult and there are frequent conflicts between the various types of path users.

Bike Lanes (Class II): Designated one-way lanes on public roadways. Depending on other roadway characteristics, these lanes can range in width from 4' to 6'. Adjacent automobile travel lanes must be at least 10' each with 11' preferred.

Considerations: Bike lanes are usually installed on roadways with higher traffic volumes. They are generally preferred by bicycle commuters since they can attain a higher travel speed since they are often level, straight and easily connected. Lanes can be included more cheaply as part of new road construction. On existing streets, new bike lanes usually require a narrowing of the automobile travel lane or removal of parking.

Bike Routes (Class III): Identified only by sign, these are shared with pedestrian and/or automobile traffic.

Considerations: These routes are often installed on wider roads with lower volumes of traffic. The basic concept is that vehicles and bicyclists learn to be considerate of each other's travel needs.

Bike Boulevards: Streets where bicycle and pedestrian traffic has priority and automobile through traffic is discouraged. Generally constructed on streets with lower traffic volumes.

Considerations: Bike boulevards work well on grid-style roadways where intersections can be improved to assist bicycle movement and discourage motor vehicle travel. More bike boulevards have been created on the east side of Portland because of the straighter connecting roadways.

Appendix 1.3

Sources

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APPENDIX 2.1

STREET PURPOSES AND LAND USES

TRAFFIC STREETS

TRANSIT STREETS

BIKEWAYS

PEDESTRIANWAYS

TRUCK ROUTES

TRAFFIC STREETS

	FUNCTIONAL PURPOSE	INTERCHANGES/ INTERSECTIONS	LAND USE AND DEVELOPMENT	DESIGN TREATMENT & TRAFFIC OPERATIONS
<p>REGIONAL TRAFFICWAY</p>	<p>Regional Trafficways serve inter-regional district movement with only one trip end in transportation district or bypass a district completely.</p>	<p>Regional Trafficways should connect with other Regional Trafficways, Major City Traffic Streets and District Collectors.</p> <p>Regional Trafficways should not connect to Neighborhood Collectors or Local Service Streets.</p> <p>Regional Trafficways should support desired development patterns as defined by Comprehensive Plan, adopted plans and policies.</p>	<p>Encourage private and public development of regional significance to locate adjacent to Regional Trafficway interchanges.</p> <p>Regional Trafficways should not provide access to areas where development is discouraged by the Comprehensive Plan.</p>	<p>Regional Trafficways should be grade-separated, and have limited access where traffic demands, topography, and adjoining development allow.</p> <p>Regional Trafficways are designed and operated to serve through movement and prohibit access to Local Service Streets and private property.</p> <p>Buffer adjacent neighborhoods from Regional Trafficways.</p>
<p>MAJOR CITY TRAFFIC STREET</p>	<p>Major City Traffic Streets serve as the principle route for traffic and emergency vehicle movements which have at least one trip end within a Transportation District.</p> <p>Major City Traffic Streets should provide connections to Regional Trafficways and serve major activity centers within each Transportation District.</p> <p>Traffic with no trip ends within a Transportation District should be encouraged to use Regional Trafficways and discouraged from using Major City Traffic Streets.</p>	<p>Intersections with Major City Traffic Streets and streets with similar or higher classifications should be designed to facilitate the movement of traffic and to allow all turning movements.</p> <p>Intersections with District and Neighborhood Collectors and Major City Traffic Streets should provide for all desired turning movements without requiring use of a Local Service Street.</p> <p>Local Service Street intersections should yield right of way to or be denied access to Major City Traffic Streets.</p>	<p>Auto-oriented land uses should be encouraged to locate adjacent to Major City Traffic Streets, according to the Comprehensive Plan and Zoning Code.</p> <p>Major development centers which attract trips from throughout or beyond the transportation district should locate along Major City Traffic Streets.</p>	<p>A Major City Traffic Street is intended to provide concentrated traffic access for those living or doing business within the district.</p> <p>On-street parking on Major City Traffic Streets can be removed and additional right-of-way be purchased to provide adequate traffic access.</p> <p>The provision of off-street parking on Major City Traffic Streets should be encouraged, as provided in the Comprehensive Plan and Zoning Code.</p>

TRAFFIC STREETS

	FUNCTIONAL PURPOSE	INTERCHANGES/ INTERSECTIONS	LAND USE AND DEVELOPMENT	DESIGN TREATMENT & TRAFFIC OPERATIONS
<p>MAJOR CITY TRAFFIC STREET <i>(continued)</i></p>				<p>Improvements on Major City Traffic Streets should support appropriate land uses abutting the street.</p> <p>Before improvements are made or parking removed on Major City Traffic Streets, alternatives and their impacts on adjacent land uses should be studied.</p> <p>Where feasible, buffer residential developments adjacent to Major City Traffic Streets.</p> <p>When removing parking along Major City Traffic Streets, special consideration should be given to insuring a safe pedestrian environment.</p> <p>Do not prohibit pedestrian/bicycle crossings along Major City Traffic Streets for distances greater than four blocks or approximately 1,000 feet.</p> <p>Provide protected crossing opportunities, where needed, on Major City Traffic Streets.</p>

TRAFFIC STREETS

	FUNCTIONAL PURPOSE	INTERCHANGES/ INTERSECTIONS	LAND USE AND DEVELOPMENT	DESIGN TREATMENT & TRAFFIC OPERATIONS
<p>DISTRICT COLLECTOR</p>	<p>District Collectors provide concentrated access to district activity centers and to serve trips which both start and end in a district.</p> <p>District Collectors should serve as a distributor of traffic and emergency vehicles from a Major City Traffic Street to streets of similar or lower classifications.</p> <p>Discourage regional trips from using District Collector streets.</p>	<p>Intersections with District Collectors and streets of similar or higher classification should be designed to facilitate the safe movement of traffic along each street, as well as turning movements between such streets.</p> <p>Design District Collector intersections to allow turning movements into neighborhood streets without requiring the use of Local Service Streets.</p> <p>Intersections with District Collectors and Neighborhood Collectors should be appropriately controlled and designed to allow turning movements into the neighborhoods without the use of a Local Service Street.</p> <p>Intersections with District Collectors and Local Service Streets should be designed so that the Local Service Street yields right of way to or is denied access to the District Collector.</p>	<p>New land uses in conformance with the Comprehensive Plan which attract trips from the surrounding neighborhoods or from throughout the district are encouraged to locate on District Collector Streets.</p> <p>Regional land uses are discouraged from locating on District Collectors except where the collector is near and directly connected to a Regional Trafficway.</p>	<p>Parking removal or additional right-of-way purchase on District Collectors should be undertaken only at specific problem locations or under special circumstances to accommodate the equally important functions of traffic movement and access to abutting properties.</p> <p>Provide protected crossing opportunities on District Collectors every quarter mile on streets with insufficient gaps to allow safe crossing without protection.</p>

TRAFFIC STREETS

	FUNCTIONAL PURPOSE	INTERCHANGES/ INTERSECTIONS	LAND USE AND DEVELOPMENT	DESIGN TREATMENT & TRAFFIC OPERATIONS
<p>NEIGHBORHOOD COLLECTOR</p>	<p>Neighborhood Collector Streets are intended to serve as a distributor of traffic from a Major City Traffic Street or District Collector Street to the Local Service Streets, and to serve trips which both start and end within an area bounded by Major City Traffic Streets, and District Collector Streets.</p> <p>Neighborhood Collectors should also provide access for emergency vehicles to and from adjacent Transportation Districts, within the District and to individual neighborhoods.</p> <p>Inter-district, non-local traffic should be discouraged from using Neighborhood Collector Streets.</p>	<p>Intersections with Neighborhood Collectors and streets of similar or higher classification should be designed to facilitate the safe movement of traffic along each street as well as turning movements between such streets.</p> <p>Intersections with Neighborhood Collectors and Major City Traffic Streets should be controlled to allow all desired turning movements into the neighborhood, without requiring the use of Local Service Streets.</p> <p>Intersections with a Neighborhood Collector Street and a Local Service Street should be treated such that a Local Service Street yields right-of-way to, or is denied access to, the Neighborhood Collector Street.</p>	<p>New land uses and major expansions of existing land uses which attract a significant volume of traffic trips from outside the neighborhood area should be discouraged on Neighborhood Collectors, as provided by the Comprehensive Plan and Zoning Code.</p>	<p>Parking removal or additional right-of-way purchase should not be undertaken on Neighborhood Collectors except at specific problem locations or special circumstances to accommodate the equally important functions of traffic movement and access to abutting properties.</p> <p>Preference should be given to the distribution of traffic to the neighborhoods on Neighborhood Collectors.</p> <p>Non-local inter-district trips should be discouraged on Neighborhood Collectors.</p> <p>Provide protected crossing opportunities on Neighborhood Collectors every quarter mile on streets with insufficient gaps to allow safe crossing without protection.</p>

TRAFFIC STREETS

	FUNCTIONAL PURPOSE	INTERCHANGES/ INTERSECTIONS	LAND USE AND DEVELOPMENT	DESIGN TREATMENT & TRAFFIC OPERATIONS
<p>LOCAL SERVICE STREET</p>	<p>Local Service Streets are intended to provide the following: distribute local traffic and emergency vehicles access; access to local residences or commercial uses; visual setting or entry way to land uses; pedestrian circulation system; meeting place for residences; and play area for children in locations where a woonerf street treatment has been implemented.</p>	<p>Intersections between Local Service Streets which experience safety, speed, or non-local traffic problems may be treated in such a way as to control access or deny traffic movements.</p>	<p>Auto-oriented land use should be discouraged from using Local Service Streets as their primary access.</p> <p>The design of Local Service Streets should correspond directly to the land use it serves.</p>	<p>Local Service Streets give preference to access to individual properties, and also to the special needs of residents and property owners along the street.</p> <p>Access for motor vehicles may be selectively restricted on Local Service Streets to allow for non-traffic uses or improved safety, using the established city process.</p> <p>Local Service Streets are intended to provide on-street parking and access to local residences or commercial uses.</p> <p>The use of Local Service Streets for one-way couplets is not generally appropriate.</p>

TRANSIT STREETS

	FUNCTIONAL PURPOSE	STATIONS, TRANSFERS & STOPS	LAND USE AND DEVELOPMENT	DESIGN TREATMENT & OPERATING CHARACTERISTICS
<p>REGIONAL TRANSITWAY</p>	<p>Regional Transitways are intended to provide for inter-regional and inter-district transit trips.</p> <p>Regional Transitways are intended to provide for frequent high-speed, high capacity, express and limited transit service.</p>	<p>Stations and stops on Regional Transitways should be located in such a way as to provide direct service to regional and neighborhood commercial centers and major trip generators along the transitway.</p> <p>Stations and stops on Regional Transitways should provide a safe and convenient covered waiting area and means of transfer to other transit services. Transit information and access for pedestrians and bicyclists should also be provided.</p> <p>On Regional Transitways, minimum distance between stations and/or stops should be approximately one-half mile.</p> <p>In high density areas in the Central City, closer station spacing may be appropriate.</p> <p>On Regional Transitways, locate stations and stops to provide convenient access to neighborhoods and commercial centers. Stations located within 25 minutes travel time of downtown should primarily be served by feeder bus connections. Those beyond 25 minutes travel time, should be served by either park and ride or feeder bus service.</p>	<p>Regional Transitways should provide connectors between downtown and all regional activity centers.</p> <p>Regional Transitways should not provide direct access to areas in which urban growth is to be discouraged, as defined by the Comprehensive Plan.</p> <p>Private and public developments of regional significance (for example, shopping centers, stadiums, arenas, etc.) should be encouraged to locate adjacent to Regional Transitways to reduce traffic impact on adjoining areas and streets.</p> <p>On Regional Transitways, land uses surrounding transit stations should be planned and designed to support transit-oriented development and provide a high level of multi-modal access to the station site within one-half mile.</p> <p>Density should peak at the station center and decrease proportionately based on distance from the station.</p>	<p>A Regional Transitway should be an exclusive transit facility where the level of service demands and the topography and adjoining development allow.</p> <p>Where feasible, neighborhoods in a developed area should be buffered from the direct impact of Regional Transitways.</p> <p>Design treatment of a Regional Transitway should consider auto, transit, bicycle and pedestrian circulation at the station area.</p>

TRANSIT STREETS

	FUNCTIONAL PURPOSE	STATIONS, TRANSFERS & STOPS	LAND USE AND DEVELOPMENT	DESIGN TREATMENT & OPERATING CHARACTERISTICS
<p>MAJOR CITY TRANSIT STREET</p>	<p>Major City Transit Streets are intended to provide transit service for all person trip ends having none, one or both of its trip ends within a Transportation District.</p> <p>Major City Transit Streets are intended to provide concentrated transit services to connect and reinforce major activity centers and residential areas.</p> <p>Major City Transit Streets are intended to provide for local, limited and express transit operations.</p>	<p>Facilities at transfer points on Major City Transit Streets should provide a safe and convenient covered waiting area and a means of transfer between transit routes. Transit route information and access for pedestrians and bicyclists should be provided.</p> <p>On Major City Transit Streets, locate stations and stops to provide convenient access to neighborhoods and commercial centers. Stations located within 25 minutes travel time of downtown should primarily be served by feeder bus connections. Those areas beyond 25 minutes travel time, should be served by either park and ride or feeder bus service.</p> <p>On a Major City Transit Street, stops should be 400 to 750 feet apart in high to medium density areas and 600 to 1000 feet apart in low density areas.</p> <p>Limited transit service should stop at transfer points and activity centers along Major City Transit Streets.</p>	<p>Transit oriented land uses should be encouraged to locate along Major City Transit Streets.</p> <p>Auto-oriented land uses should be discouraged from locating along Major City Transit Streets, except where the street is also classified as Major City Traffic Street.</p> <p>Encourage land use densities along Major City Transit Streets to vary directly with the planned capacity of transit service and in conformance with the Comprehensive Plan.</p>	<p>Major City Transit Street are intended to provide service for living and doing business within the transportation district.</p> <p>Where neighborhood commercial uses occur along Major City Transit Streets, pedestrian and bicycle improvements and on-street parking should be encouraged.</p> <p>On Major City Transit Streets, employ preferential transit service, including transit priority treatment (such as signal pre-emption or exclusive lanes), which may involve removing on-street parking or acquiring additional right-of-way.</p> <p>Adequate pedestrian and bicycle crossings should be provided along a Major City Transit Street at or near transit stops.</p>

TRANSIT STREETS

	FUNCTIONAL PURPOSE	STATIONS, TRANSFERS & STOPS	LAND USE AND DEVELOPMENT	DESIGN TREATMENT & OPERATING CHARACTERISTICS
<p>MINOR TRANSIT STREET</p>	<p>Minor Transit Streets are intended to provide for district transit service.</p>	<p>On Minor Transit Streets, stops should be located between 400 and 600 feet apart in medium density commercial areas and between 500 to 1000 feet apart in other areas.</p> <p>Facilities at transfer points on Minor Transit Streets should provide an adequate covered waiting area. Transit information and direct and convenient pedestrian and bicycle access should be provided between transfer points.</p>	<p>Encourage direct and convenient pedestrian and bicycle access between transit stops and land uses along Minor Transit Streets.</p> <p>The density of development along Minor Transit Streets should be encouraged to vary directly with the planned capacity of transit service and in conformance with the Comprehensive Plan.</p>	<p>Transit movement is not the primary function of Minor Transit Streets.</p> <p>Parking removal, or purchase of additional right-of-way for transit purposes on Minor Transit Streets should not be undertaken except at specific locations, in order to provide for transit stops and intersection improvements.</p> <p>The size and type of vehicle used on Minor Transit Streets should be appropriate to the needs of the land uses being served along the entire route.</p>
<p>LOCAL SERVICE STREET</p>	<p>Local Service Streets are intended to provide service to local residents and commercial areas and para-transit service. Where no alternatives are available, they may be used as route end loops for regularly scheduled routes.</p>	<p>On Local Service Streets, the location of stops should be based upon Tri-Met Service Standards.</p>	<p>The design of Local Service Streets should correspond directly to the land uses served.</p>	<p>Design treatment and transit operations on Local Service Streets should give preference for access to individual properties and to the specific needs of property owners and residents along the street.</p>

BIKEWAYS

	FUNCTIONAL PURPOSE	DESIGN TREATMENT
<p>BICYCLE ROUTES</p>	<p>Bicycle Routes are designed to establish adequate and convenient routes for bicycling, and to provide access to public transit.</p> <p>Bicycle Routes may be shifted to a parallel street where the street can be designed to accommodate bicycles through a capital improvement project.</p>	<p>While all streets should be designed for bicycle passage, special provisions for bicycle use should be considered on streets classified as Bicycle Routes.</p> <p>Intersections of Bicycle Routes and all other rights-of-way should be designed to minimize conflicts and provide adequate bicycle crossings.</p> <p>Bicycle lanes should be considered on Bicycle Routes which are also classified as Regional Trafficways, Major City Traffic Streets, District Collectors or Neighborhood Collectors and on Major and Minor Transit Streets.</p> <p>Design treatment and traffic operations on Bicycle Routes also classified as Local Service Streets should minimize conflicts between bicycles and other modes of traffic.</p> <p>Treatment to and operations of Bicycle Routes designated on Local Service Streets should not, as a side effect, create, accommodate, or encourage additional through automobile traffic.</p> <p>Parking may be removed on Bicycle Routes to provide separate bicycle lanes, except where it is deemed essential to serve adjacent land uses.</p> <p>All Bicycle Routes, with or without bicycle lanes, should be signed.</p>
<p>LOCAL SERVICE STREETS</p>	<p>Local Service Streets are intended to serve local circulation and access for bicycle and pedestrian movements.</p>	<p>Local Service Streets may not be signed, except if deemed necessary.</p>
<p>BICYCLE PATHS</p>	<p>Bicycle Paths are off-street facilities designed to establish adequate and convenient routes for bicycling and may be shared with pedestrians.</p>	<p>Intersections of Bicycle Paths and all other rights-of-way should be designed to minimize conflicts and provide adequate bicycle crossings.</p> <p>Bicycle Paths shared with pedestrians should emphasize design features and adequate path markings that allow for the safety of all users.</p> <p>Landscape and trail design for Bicycle Paths should conform to Zoning Code specifications for the Greenway Trail.</p>

PEDESTRIANWAYS

	FUNCTIONAL PURPOSE	LAND USE CRITERIA	DESIGN TREATMENT & TRAFFIC OPERATIONS
<p>PEDESTRIAN DISTRICT</p>	<p>Pedestrian Districts are intended to provide for the ease of pedestrian movement and the use of the right-of way for pedestrian activities in areas of frequent pedestrian use, such as neighborhood commercial centers.</p> <p>Pedestrian Districts include both sides of the street(s) along its boundaries.</p> <p>In those Pedestrian Districts zoned for auto-oriented uses, there is a need for enhanced pedestrian awareness and design treatments.</p>	<p>Pedestrian Districts are areas characterized by dense, mixed-use development retail, service oriented commercial use; concentration of pedestrian generating activities; and commercial or institutional center of neighborhood or district-wide importance.</p>	<p>Arterial streets within Pedestrian Districts should be designed to buffer pedestrians from traffic.</p> <p>In Pedestrian Districts, design treatments, such as wide planting strips, street trees, and on-street parking should be considered.</p> <p>Where two arterial streets cross within Pedestrian Districts, design treatment such as curb extensions, marked crosswalks and traffic signals should be considered to minimize the crossing distance, directing pedestrians across the safest route, and provide safe gaps.</p> <p>Pedestrian Districts should include convenient access to transit stops and parking lots.</p>
<p>PEDESTRIAN PATH WITH CROSSINGS</p>	<p>Pedestrian Paths with Crossings are intended to provide adequate and convenient pedestrian access to activities along streets shared with other modes of travel and adequate and convenient movement of pedestrians across such streets and rights-of-way shared with other modes of travel.</p>	<p>Pedestrian Paths with Crossings are usually located along streets which include: important transit transfer points on Major City Traffic and Transit Streets; by major pedestrian generating activity centers; and places where pedestrian paths cross rights-of-ways shared other modes of travel.</p>	<p>Pedestrian Paths with Crossings are designed to buffer pedestrians from traffic. Design treatments such as landscape strips, street trees and on-street parking should be considered, consistent with the street's traffic classification.</p> <p>Pedestrian Paths with Crossings should have signalized crossings and pedestrian refuges, where needed.</p> <p>Where two Pedestrian Paths cross, and there is a legal crosswalk, design treatments such as curb extensions, marked crosswalks and traffic signals should be considered to minimize the crossing distance and direct pedestrians across the safest route, and provide safe gaps.</p>

PEDESTRIANWAYS

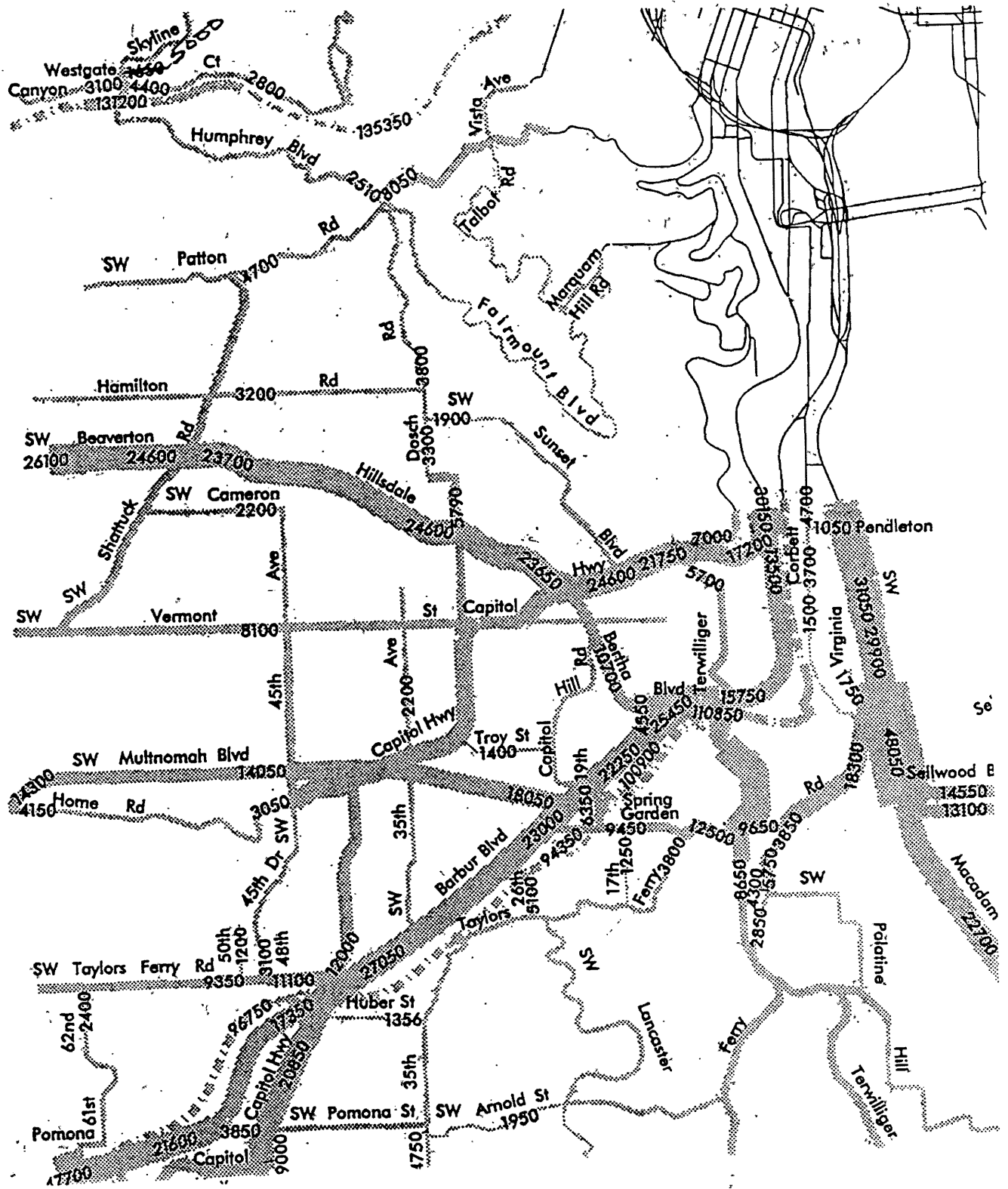
	FUNCTIONAL PURPOSE	LAND USE CRITERIA	DESIGN TREATMENT & TRAFFIC OPERATIONS
<p>PEDESTRIAN PATH</p>	<p>Pedestrian Paths are intended to provide adequate and convenient pedestrian access to activities along streets which are shared with other modes of travel.</p>	<p>Pedestrian Paths are usually located in residential areas; neighborhood commercial, industrial and institutional centers; and along the appropriate traffic/transit streets to provide for intra- and- inter-district travel.</p>	<p>Pedestrian Paths are designed to buffer pedestrians from traffic.</p> <p>Pedestrian Paths should have design treatments such as landscape strips, street trees, and on-street parking should be considered.</p>
<p>RECREATIONAL PATH</p>	<p>Recreational Paths are intended to serve as recreational trails and to connect neighborhood activity centers with recreation areas.</p>	<p>Recreational Paths are usually located along river corridors; through park and forest areas; and other scenic or undeveloped corridors.</p>	<p>Railings, barriers, and wide sidewalks should be provided on both sides of bridges on Recreational Paths.</p> <p>Landscaping and trail design for Recreational Paths should conform with the Zoning Code specifications for the Greenway Trail.</p>

TRUCK ROUTES

	FUNCTIONAL PURPOSE	LAND USE CRITERIA	DESIGN TREATMENT & TRAFFIC OPERATIONS
<p>TRUCK DISTRICT</p>	<p>Truck Districts are intended to provide for convenient truck movement in areas serving large numbers of truck trip ends.</p> <p>Truck Districts should include truck terminals and industrial sanctuaries.</p> <p>All streets should be available for use by trucks in Truck Districts.</p>	<p>Encourage large industrial centers with high truck use to locate within Truck Districts.</p> <p>Encourage national and international shippers to locate near multi-modal facilities within Truck Districts.</p>	<p>Street improvements in Truck Districts should be designed to serve industrial areas.</p>
<p>REGIONAL TRUCK ROUTE</p>	<p>Regional Truck Routes are intended to serve truck trips with one or no trip ends in a transportation district and usually located on Regional Trafficways.</p> <p>Regional Truck Routes serve as access to Truck Districts.</p>	<p>Encourage high truck use activities to locate near interchanges with Regional Trafficways.</p> <p>Provide interchanges with Regional Truck Routes to directly serve Truck Districts.</p>	<p>Regional Truck Routes should be limited access facilities with design standards to accommodate trucks.</p>
<p>MAJOR TRUCK ROUTE</p>	<p>Major Truck Routes are intended to serve truck trips with one or both trip ends in a transportation district.</p> <p>Major Truck Routes should distribute truck traffic from Regional Truck Routes to Minor Truck Routes</p>	<p>Encourage land uses which attract large numbers of truck trips from inside and outside transportation districts to locate along Major Truck Routes.</p>	<p>In new or reconstructed Major Truck Routes, residential uses adjacent to these routes should be buffered from noise impacts where warranted.</p>

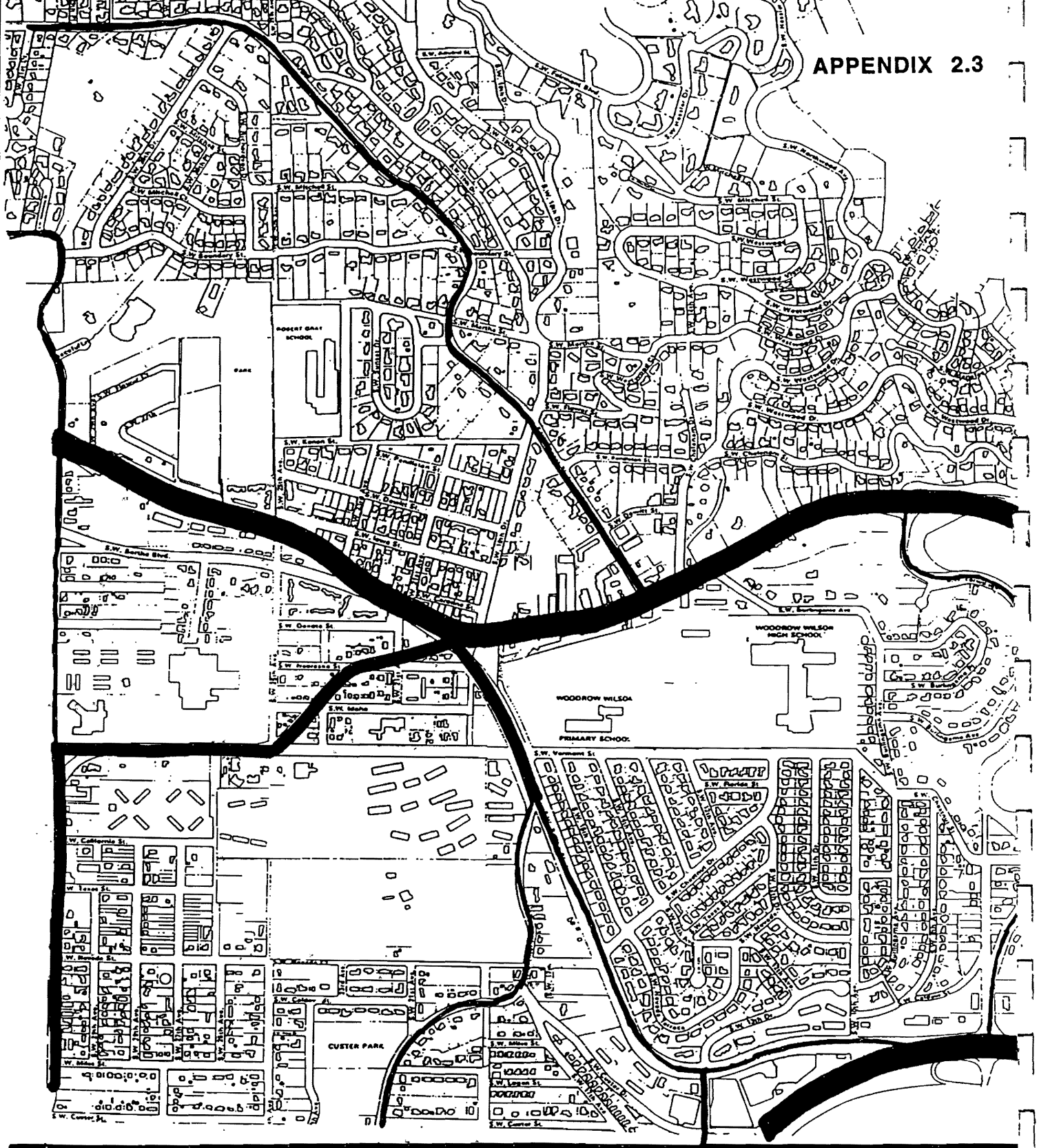
TRUCK ROUTES

	FUNCTIONAL PURPOSE	LAND USE CRITERIA	DESIGN TREATMENT & TRAFFIC OPERATIONS
<p>MINOR TRUCK ROUTE</p>	<p>Minor Truck Routes are intended to serve truck trips with both trip ends in a transportation district.</p> <p>Minor Truck Routes should distribute truck trips from Major Truck Routes to Local Service Streets to and from shipping and receiving points.</p>	<p>Discourage land uses which require high truck use, such as regional truck terminals, from locating on Minor Truck Routes, in conformance with the Comprehensive Plan and Zoning Code.</p>	<p>Discourage non-local truck trips from using Minor Truck Routes.</p>
<p>LOCAL SERVICE STREET</p>	<p>Local Service Streets are intended to serve local circulation, access and service requirements for truck movements.</p> <p>Local Service Streets are intended to provide access for local land uses.</p>	<p>Major sources of truck traffic should be discouraged from using Local Service Streets as their primary access.</p> <p>The design of a Local Service Street should correspond directly to the land use and the level of trip generation of land uses located along the street.</p>	<p>Local Service Streets should give preference to accessing individual properties and the specific needs of property owners and residents along the street.</p>



APPENDIX 2.2




AVERAGE DAILY TRAFFIC

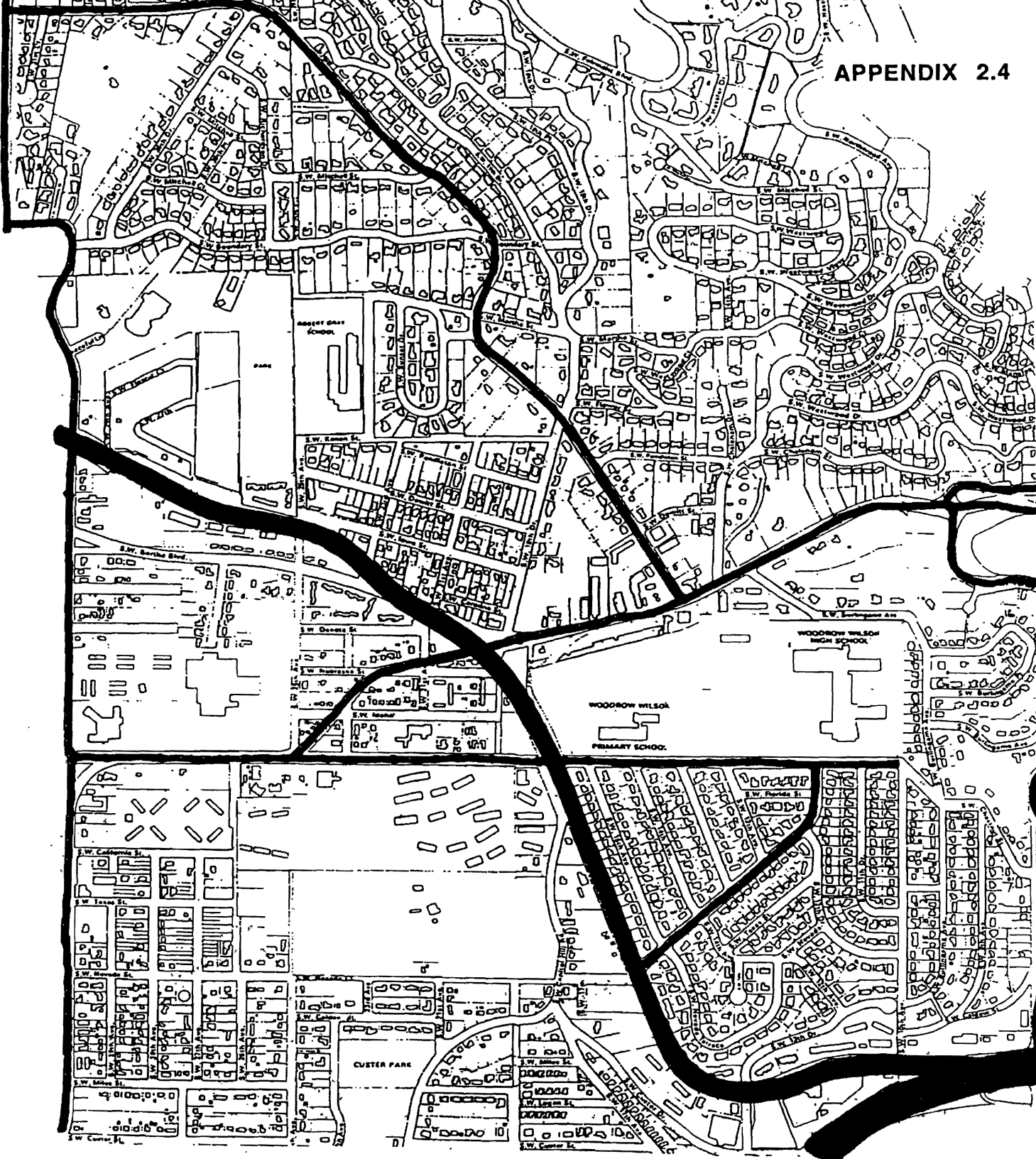


TITLE

**TRAFFIC STREET
CLASSIFICATION**

LEGEND




-  MAJOR CITY TRAFFIC STREET
-  DISTRICT COLLECTOR
-  NEIGHBORHOOD COLLECTOR



TITLE

**TRANSIT STREET
CLASSIFICATION**

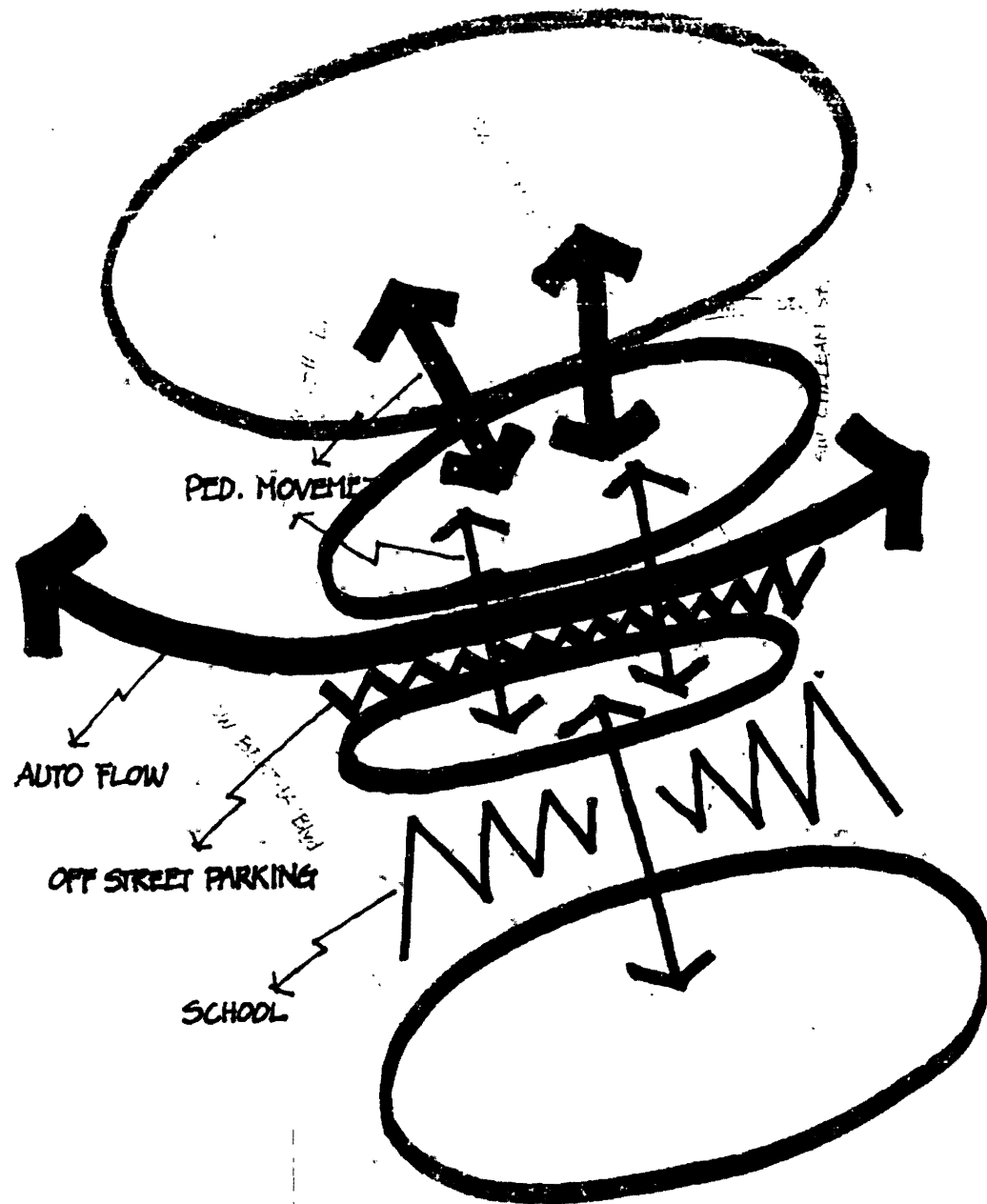
LEGEND

-  REGIONAL TRANSITWAY
-  MAJOR CITY TRANSIT STREET
-  MINOR TRANSIT STREET

APPENDIX 2.7

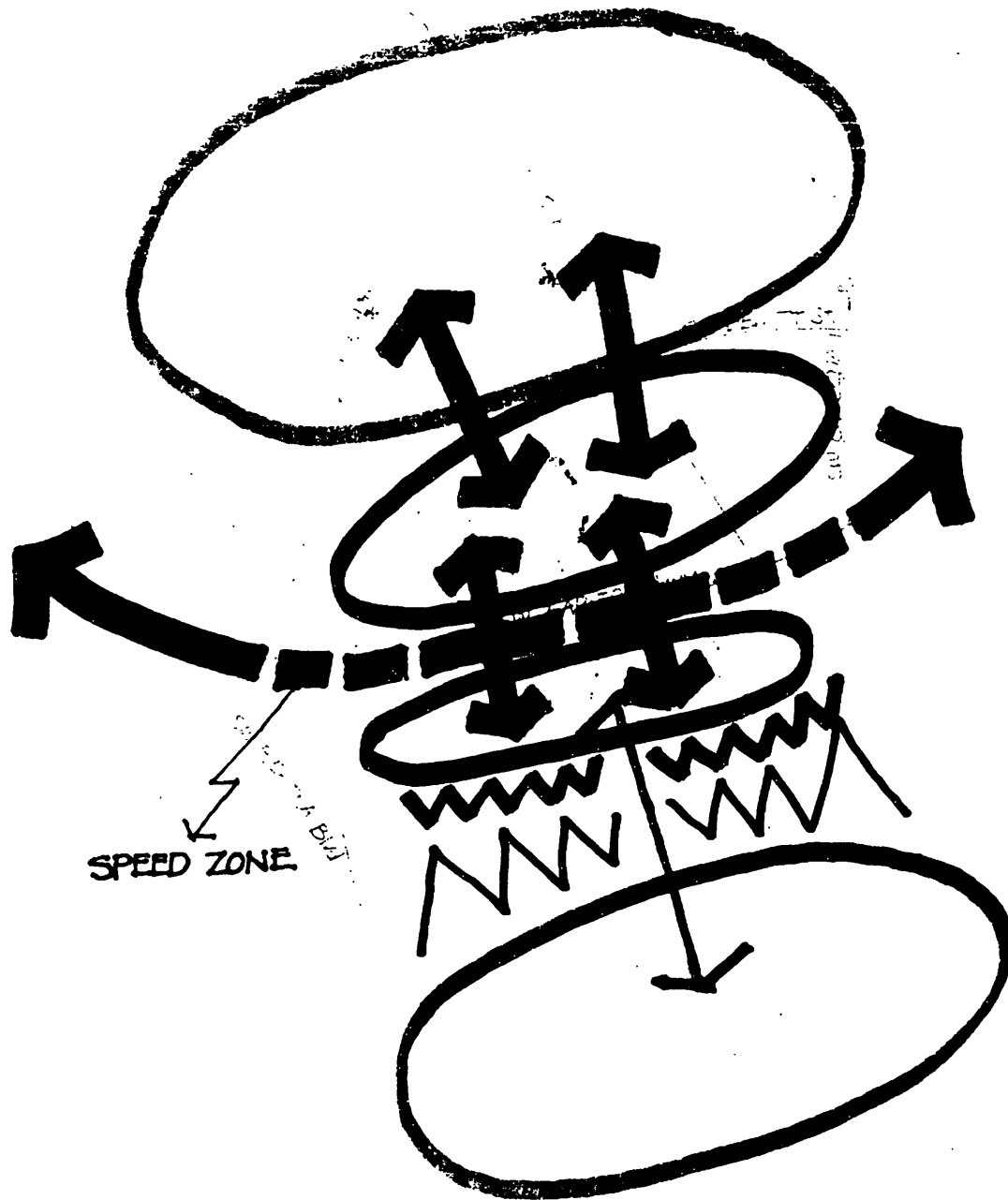
ALTERNATIVES FOR PEDESTRIAN CROSSING OF CAPITOL HIGHWAY

AS IS:



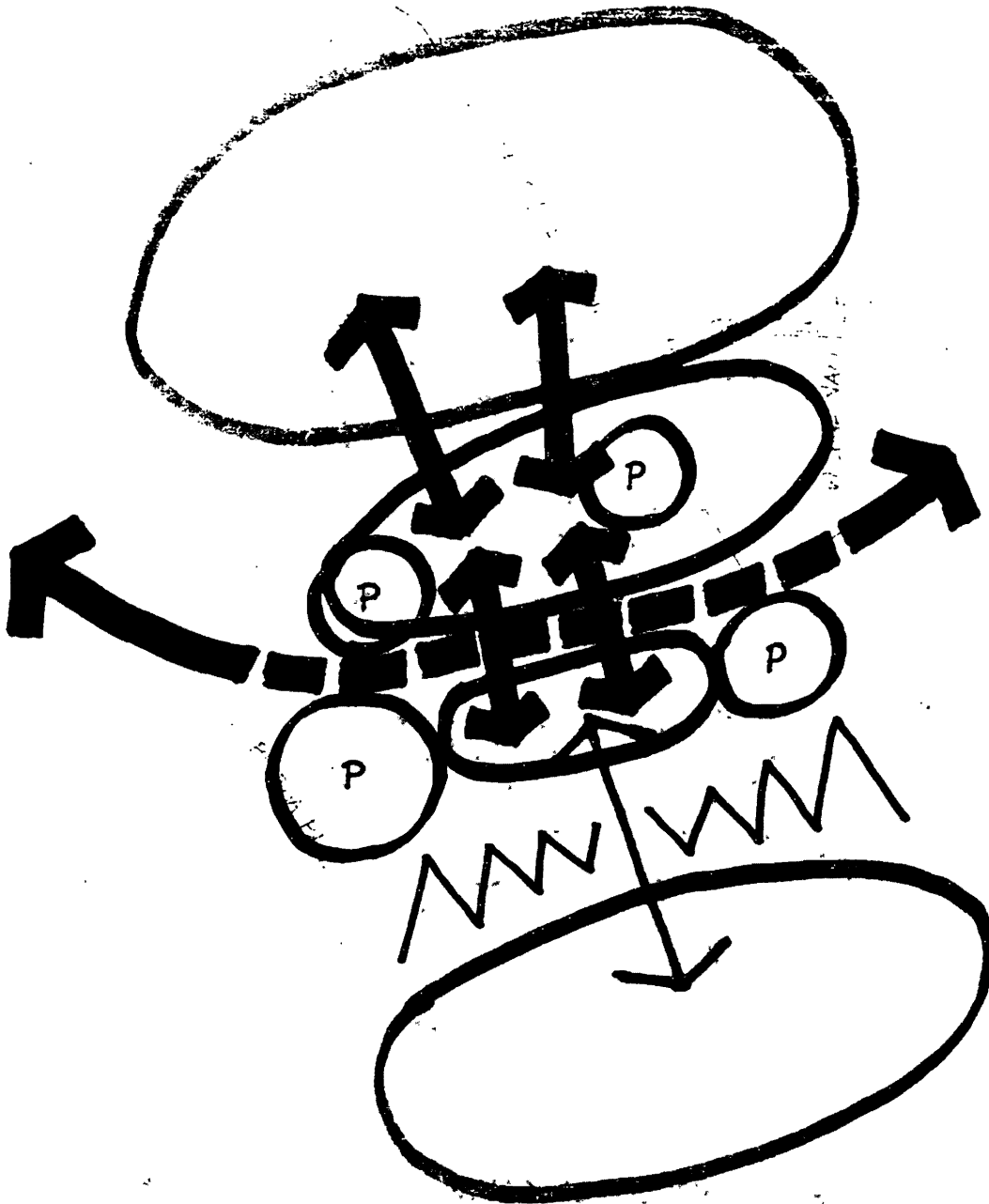
- * PARKING UPFRONT IS A MAJOR PEDESTRIAN BARRIER
- * AUTO FLOW ON CAPITOL HIGHWAY IS MOSTLY PASS THROUGH.
- * WEAK PEDESTRIAN CONNECTIVITY BETWEEN NORTH & SOUTH COMMERCIAL CORE.

ALTERNATIVE 1: BACKSIDE PARKING



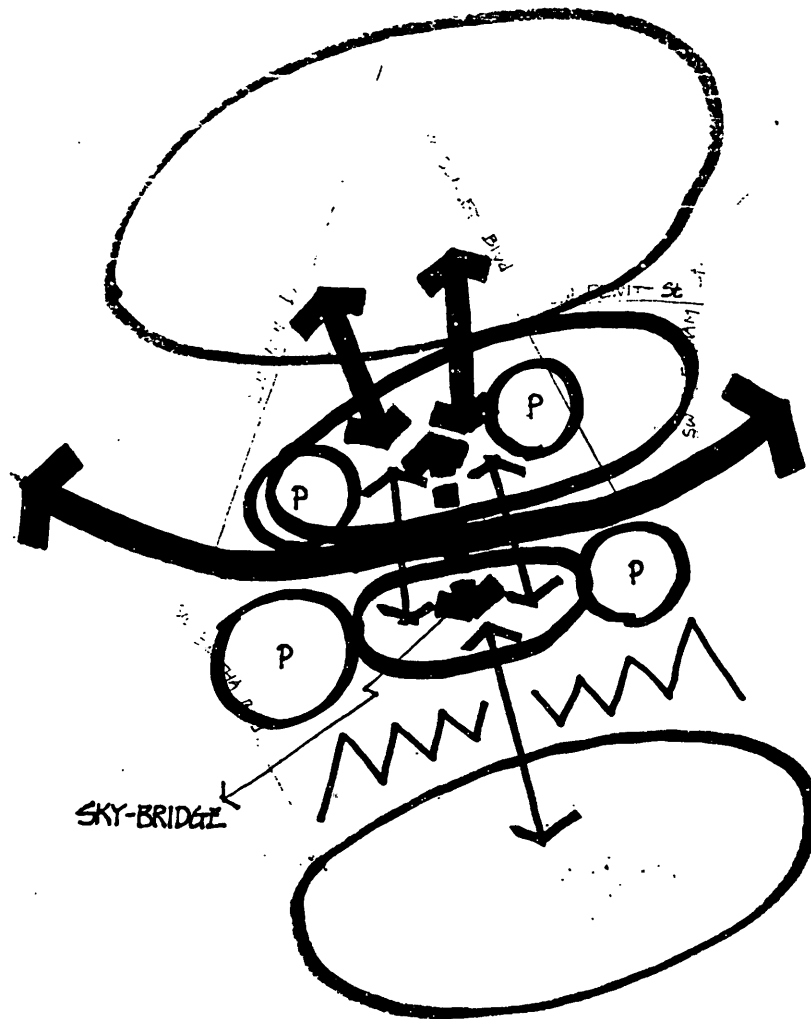
- * MOVE PARKING TO REAR
- * SPEED ZONE BETWEEN 18TH DR. & SW CHELENAM DR.
- * INCONVENIENT LINKAGE BETWEEN PARKING AND SHOPS.
- * INTERNAL LAYOUT OF SHOP MUST BE ADJUSTED FOR REAR PARKING.

ALTERNATIVE 2: CLUSTERING PARKING



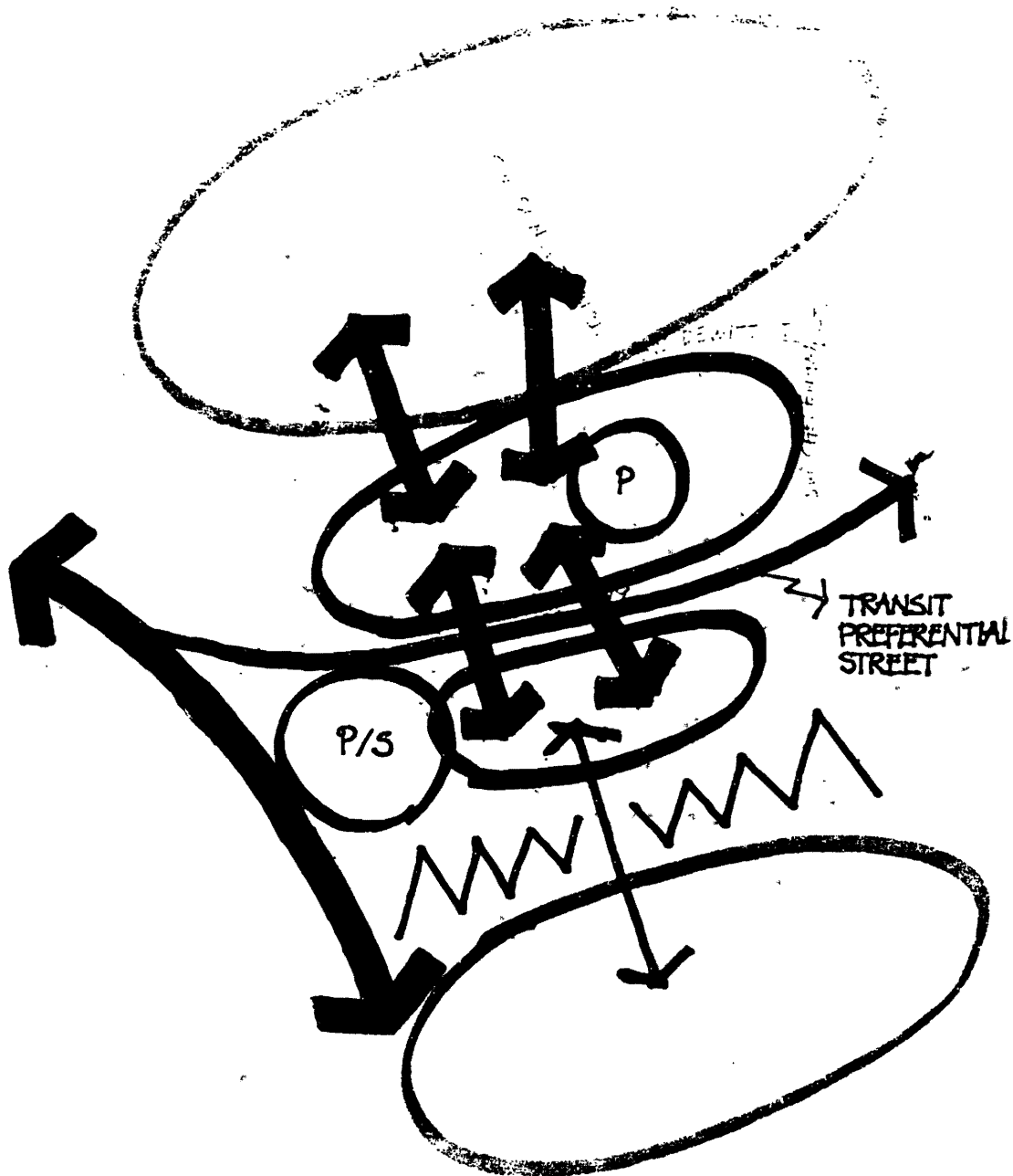
- * CLUSTER PARKING AT THE EAST & WEST ENDS OF THE CORE.
- * SPEED ZONE
- * PEDESTRIAN MOVEMENT BETWEEN NORTH & SOUTH CORE IS IMPROVED.
- * ADEQUATE PARKING CAPACITY IS REQUIRED TO SUPPORT THE CORE.

ALTERNATIVE 3: SKYBRIDGE ACCESS



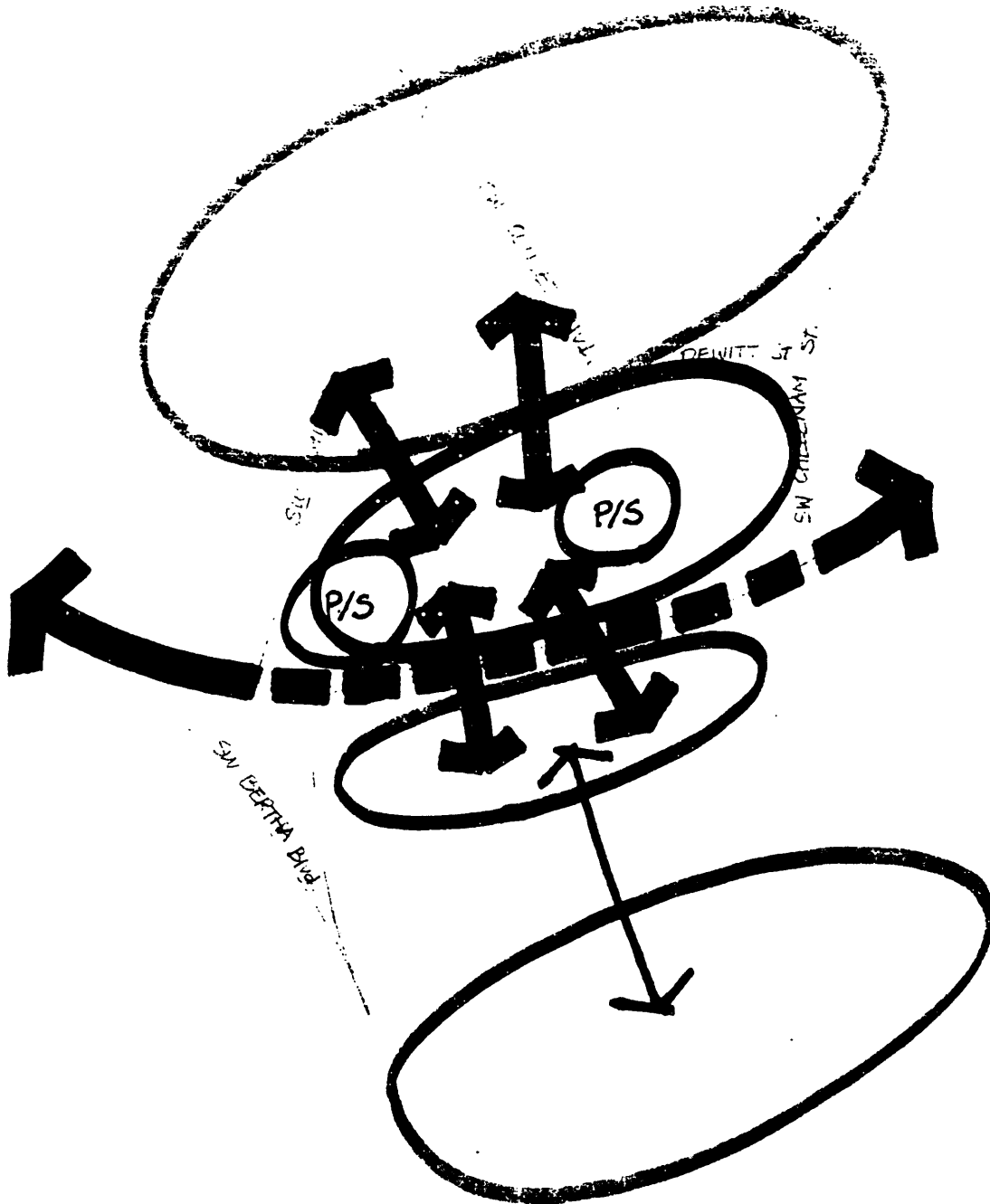
- * MAINTAIN CURRENT TRAFFIC FLOW ON THE MAJOR CITY TRAFFIC STREET.
- * SKYBRIDGE UTILIZING SLOPE MAY IMPROVE PEDESTRIAN MOVEMENT BETWEEN NORTH AND SOUTH CORE.
- * PARKING SPACES LOCATED ADJACENT TO BOTH EAST AND WEST ENDS OF THE CORE.
- * CONSTRUCTION COST OF SKYBRIDGE IS ADDITIONAL AND AESTHETIC ISSUE MAY ARISE.

ALTERNATIVE 4: TRAFFIC SHIFT



- * DEFINE CAPITOL HIGHWAY AS A MAJOR TRANSIT STREET.
- * LARGE CAPACITY PARK-N-RIDE STRUCTURE BETWEEN BERTHA AND THE CORE.
- * SHIFT MAIN TRAFFIC FLOW TO BERTHA- MAY INCREASE VMT OF CAPITOL HIGHWAY THROUGH TRAFFIC.
- * POSSIBLE LOSS OF COMMERCIAL BUSINESS BY SHIFTING TRAFFIC FLOW TO OTHER STREET.

ALTERNATIVE 5: CLUSTERING CORE



- * COMBINE COMMERCIAL CORES TO NORTH .
- * CHANGING SOUTH TO MEDIUM/HIGH DENSITY RESIDENTIAL.
- * SPEED ZONE ON CAPITOL HIGHWAY
- * RELOCATION COSTS COULD BE ISSUE
- * REZONING SOUTH CORE IS REQUIRED.

TRI MET ROUTE PLANNING PROCESS

Tri-Met has established criteria for reclassifying transit streets as well. Their formal process for reclassifying takes the form of an "annual planning service cycle." As outlined below, this includes:

May - August

Requests for new or modified services are generated by Tri-Met staff, local jurisdictions and the public.

- Staff-generated proposals are based on observations and ongoing analysis of system, through market research, sector plans, and requests from individuals or groups. The staff routinely works with land developers, businesses, and community groups to identify service needs and potential service changes.

- The Annual Neighborhood Needs Assessment program provides the opportunity for community and neighborhood groups to suggest service changes. Each neighborhood association or community group in the region is asked to prepare a list of service needs that are most important to the local area. This systematic process provides a flow of neighborhood-based information for use in the evaluation of service requests. Communities may also provide Tri-Met with service requests through their usual community processes.

September - November

Road Factor Review

- Vehicle loading standards specify the acceptable average number of passengers per vehicle passing the peak load point of a given line during the hour of highest passenger loading during the day.

- "Load Factor" is the number of passengers on board a vehicle divided by the vehicle's seating capacity.

On-time Performance Review

- A vehicle is considered "on time" if it arrives no more than one minute earlier or five minutes later than scheduled arrival time. At least 75% of all trips on a line should be on time at each timepoint during the days that the line is surveyed.

Effectiveness Review

- Effectiveness is a measure of how well the public responds to Tri-Metis services; it indicates the degree to which a particular service is able to attract riders.

Evaluation of Service Request

- Requests for new services, extended periods of operation, and the frequency improvements are evaluated with respect to the design guidelines.

December - January

Comparative Evaluation

- The comparative evaluation is used to determine how well existing services meet Board objectives, and to evaluate the desirability and economic feasibility of proposed new services.

Annual Service and Marketing Plan Adopted by Board

- The Annual plan identifies service change strategies for the fiscal year and is based on the service standards application.

September, January, April and June

Quarterly Service Adjustments

- In order to accommodate shifts in demand and to improve system performance, the minor adjustments are implemented four times a year: September, January, April, and June.

- Proposed changes are outlined in the Quarterly Service Report