

TRANSPORTATION ELEMENT

I. INTRODUCTION

1. Growth Management Act Requirements

The Growth Management Act requires jurisdictions to prepare a transportation element which includes the following sub-elements and features:

- 1) Land use assumptions used in estimating travel;
- 2) Facilities and services needs, including:
 - a. An inventory of air, water and land transportation facilities and services, including transit alignments, to define existing capital facilities and travel levels as a basis for future planning;
 - b. Level of service standards for all arterials and transit routes to serve as a gauge to judge performance of the system. These standards should be regionally coordinated;
 - c. Specific actions and requirements for bringing into compliance any facilities or services that are below an established level of service standard;
 - d. Forecasts of traffic for at least ten years based on the adopted land use plan to provide information on the location, timing and capacity needs of future growth;
 - e. Identification of system expansion needs and transportation system management needs to meet current and future demands.
- 3) Finance, including:
 - a. An analysis of funding capability to judge needs against probable funding resources;
 - b. A multi-year financing plan based on the needs identified in the comprehensive plan, the appropriate parts of which shall serve as the basis for the six-year street, road, or transit program required by RCW 35.77.010 for cities, RCW 36.81.121 for counties, and RCW 35.58.2795 for public transportation systems;
 - c. If probable funding falls short of meeting identified needs, a discussion of how additional funding will be raised or how land use assumptions will be reassessed to ensure that level of service standards will be met;

- 4) Intergovernmental coordination efforts, including an assessment of the impacts of the transportation systems of adjacent jurisdictions; and
- 5) Demand management strategies.

In addition to the Growth Management Act requirements, the Transportation Element must also comply with the Metropolitan Transportation Plan (MTP). The MTP is the transportation element of Vision 2020 which is the Puget Sound Region's growth management, economic, and transportation strategy. The MTP's four main policy areas to balance transportation demand with supply are:

- 1) Transportation System Management (achieve maximum efficiency of the current system without adding major new infrastructure through activities such as transit priorities and signalization improvement);
- 2) Transportation Demand Management (reduce the number of vehicles on the road to increase the mobility of people and to move freight);
- 3) Expanding Transportation System Capacity (expand regional transit facilities and services and completing a roadway network useful for all travel modes); and
- 4) Managing the Transportation Impacts of Growth (Coordinate land use and mobility issues).

These transportation policy areas are addressed in this Element.

2. Purpose of Transportation Element

The Transportation Element considers the location and condition of the existing traffic circulation system; the cause, scope, and nature of transportation problems; the projected transportation needs; and plans for addressing all transportation needs while maintaining established level of service standards. The Transportation Element addresses motorized and non-motorized transportation needs.

The type and availability of transportation resources are major factors in the development of land use patterns, while conversely, the way that land is used greatly influences the need and location for new transportation. The relationship between transportation and land use is one of continuous interaction and their planning must be coordinated. The Land Use Plan Map and the Transportation Plan are interdependent and will guide decision making to achieve the community's goals.

The Growth Management Act requires jurisdictions to apply the concept of concurrency to transportation facilities. Jurisdictions are to establish Level of Service Standards with measurable criteria to judge the adequacy of roadway service provision. Transportation improvements are required to be made concurrent with the development, meaning in place at the time of development or to have a financial commitment to complete the improvements within six years of development use. It is up to each jurisdiction to determine the acceptable timetable for completion of the improvements, as mandated in its concurrency management regulations. For example, the jurisdiction's regulations

may state that improvements must be completed no more than two years after the development is complete, rather than allowing six years.

3. Transportation Element Background

The basis of the Transportation Element is the City of Brier Comprehensive Transportation Plan prepared by David Evans and Associates, Inc. which was edited and revised by the Brier City Council. It was adopted by the City Council in March 1994. The 2000 Plan Update reflects the current requirements of the Growth Management Act as well as the current requirements for certification by the Puget Sound Regional Council.

The development of the Transportation Element involved a number of steps. Initially, existing data and studies, including the Brier Comprehensive Plan, Park Plan, plans of adjacent cities, and plans of Snohomish County and Regional agencies, were reviewed.

A list of the documents and plans that were reviewed and used during the planning process are included in Appendix A.

The next step was an inventory of Brier's existing transportation system. The inventory included a detailed field check of the streets, walkways, and trails in Brier. This information, combined with data from the documents gathered in the previous step, was entered into a geographic database. Streets, walkways, and trails were then classified, according to motorized and non-motorized classification criteria developed by the City after review of the classification standards of Snohomish County and the Washington State Department of Transportation.

Deficiencies of streets and non-motorized facilities were then identified. From these findings, a list of transportation improvement projects and programs was developed and identified in the 1994 Plan. As part of the 2000 Plan Update, further analysis of the transportation system in Brier was undertaken. This analysis includes identifying current levels of service for major streets and forecasting to 2012 future levels of service. The impacts of future growth in Brier on adjacent areas are discussed. Transportation Demand Management techniques that are appropriate for Brier also are discussed. Finally, an updated project needs list has been developed to address current and future needs over the next six years.

a. Citizen/Agency Review

The transportation plan is designed to be a document that is usable by the citizens of Brier. As a result, an important part of the planning process was citizen and agency review. Presentations during the 1994 comprehensive planning process were made in a series of eleven workshops and public meetings to the City Council, Planning Commission, Parks Board, Members of the Equestrian Board, City Staff, and the public. The Draft Plan was also sent to adjacent cities, Snohomish County, Community Transit, Puget Sound Regional Council, and Washington State Department of Transportation for their review and comment. For the 2000 Update, additional community meetings and public hearings by the City Council will be held during the Comprehensive Plan review and adoption process.

After a detailed review of the existing transportation system in Brier, a set of motorized and non-motorized street and path classification criteria was developed.

4. Existing Conditions

Brier is a city with a 1998 population of 6,295 and an area of 1,390 acres. The city is located in Snohomish County in Washington and lies just north of the King/Snohomish County border. Brier's western border is shared with the City of Mountlake Terrace, while to the north and east of the city is unincorporated Snohomish County. Figure 1 is a vicinity map.

Brier is located between regional Interstates 5 and 405. Access to these major north-south freeways is provided by a series of minor arterials (as classified by the Snohomish County Arterial Plan). However, within Brier, the highest level of street is a collector which typically connects to arterial. The streets in Brier classified by Snohomish County as collectors are:

- Brier Road/Poplar Way
- Old Poplar Way
- 228th Street SW
- 34th Ave W (between 228th ST SW and 232nd ST SW)*
- 232nd ST SW (between 34th Ave W and Brier Road)*

* Classified as a collector for TEA-21 funding

Snohomish County's designation for a "Collector", also known as a "Collector Arterial" is equivalent to Brier's "Major Traffic Street" classification. Snohomish County lowest street designation is a "Non-arterial". This classification is equivalent to Brier's "Minor Traffic Street" and "Neighborhood Street" designations.

Brier has a total of 26 miles of roadway with the majority of these roadways being low-volume neighborhood streets. Increasing cross-town commute traffic is growing and becoming a concern.

Other elements of Brier's transportation system include air transportation in the region, which is accessible by highway, and bus transportation provided by Community Transit. Community Transit's bus service is comprised of the "C-11" line, which is a community-based service offering curb to curb service between Brier and the Lynnwood Park and Ride lot. Connections to other bus lines are available at the Park and Ride. The other bus service available in Brier is the "477" line with service to Seattle. There is a Park and Ride lot in Brier located next to City Hall at 228th St. SW and 29th Ave. W. to serve the 477 bus line.

It should also be noted that there are no known railroad rights of way in Brier, so that transportation mode is not available for either personal ridership or movement of freight and goods. The expeditious movement of freight and goods via truck in and through the City is not an issue as there is limited commercial development and there are no arterials. The postal service and other delivery services have not experienced any difficulty in providing services within Brier.

FIGURE 1 VICINITY MAP

FIGURE 2 LAND USE

Brier does not have any state-owned transportation facilities, or any with state-wide significance.

a. Land Use

Land use is an important element in any transportation system. Figure 2 shows the land use in Brier. The majority of Brier's land use (over 80%) is zoned for single-family residential. Neighborhood business (commercial) land use is restricted by zoning to a two and one half acre area. As a result, Brier residents travel outside of Brier for shopping and employment. With the exception of Abbey View Cemetery and home occupations, there are no major destinations which attract traffic in the City. Within Brier, land use such as neighborhood businesses, parks, and schools are trip destinations for residents. These destinations include:

- Brier Park
- Brierwood Park
- Bobcat Park
- Brier Horse Arena
- Brier Elementary School
- Brier Terrace Middle School
- Brier City Hall
- Brier Library
- Brier Community Church
- Saint Paul's Orthodox Church
- Brier neighborhood business area

b. Transportation System Inventory

As part of the Comprehensive Plan development, a survey of the existing conditions of Brier's streets, walkways and trails was conducted. The survey included a field check of every street in Brier, as well as examination of undeveloped areas which potentially might include trails or walkways. This survey collected information on:

- Right-of-Way Width
- Number of Lanes
- Sidewalks
- Drainage
- Emergency Access
- Lane Widths
- Grades
- Speed Limits
- Geometrics
- Pavement Type
- Pavement Condition
- Trails and Paths
- Abutting Land Use

This information was collected for each intersection to intersection segment on Brier's street system and then entered into a computerized data base. This database is contained in a document titled "City of Brier Roadway Inventory, August 20, 1996" (on file in the Brier Public Works Department). Overall, Brier's streets are two-lane roads with a maximum speed limit of 30 miles per hour. The Brier Road/Poplar Way corridor, which is Brier's main street, has 20 foot wide lanes along most of its length and carries the highest traffic volumes. Other streets typically have two lanes varying from 9 to 16 feet in width. Storm water drainage is provided by open ditches or by curbs, gutters and closed drain pipes.

With the exception of subdivisions, several minor streets, and Brier Road, curbs and gutters are not in place. Hilly terrain and curving roads result in geometric (sight distance, etc.) and radius problems along:

- 214th Street SW (Geometrics)
- Vine Road (Geometrics)
- 236th Street SW (Geometrics)
- 238th Street SW (Geometrics)
- Alaska Road (Curves)

Figure 3 shows the location of these problems.

There are several streets that are in poor condition with potholes and uneven pavement. Figure 4 shows the location of roadways with either old overlay (greater than 10 years) which will need replacing or with obvious problems.

Brier's current transportation system has facilities for non-motorized use. Most prominent is a multi-use trail along the east side of Brier Road/Poplar Way. In addition, in many parts of Brier, there is informal use of the roadway by equestrians, pedestrians, and bicyclists.

c. Historical Growth

Brier and the areas around Brier have experienced rapid growth in the last twenty years. Brier's population increased by 78 percent between 1980 and 1990 with the number of housing units almost doubling. Between 1990 and 1998, Brier's population grew by 21%, while the number of housing units increased by 12%. Table 1 shows the historical growth of Brier. This growth is similar to the rapid development found throughout most of the Puget Sound region.

TABLE 1
Historical Growth

Population	1980	1990	1998	% Change 1980-1990	% Change 1990-1998
Population ¹	2,915	5,210	6,295	78.7%	21%
Housing Units ¹	946	1,822	2,047	92.6%	12.3%

¹Office of Financial Management

Figure 3 - Roadway Problems

Figure 4 - Pavement Conditions

Figure 5 - 1991 Average Daily Traffic Volumes

d. Traffic Volumes

Existing traffic volumes on selected Brier streets were collected in 1997 by Traffic Count Consultants as part of the 236th St. SW Draft EIS, 1998, by KJS Associates, Inc. and by Snohomish County for Old Poplar Way in 1998. All traffic volumes were adjusted to 1997 Average Daily Traffic Volumes. Figure 5 shows the volumes. The highest street volumes in Brier are Brier Road/Poplar Way and 228th Street SW. These streets have 5,000 or more daily vehicle trips.

e. Accidents

According to the Washington State Patrol accident records for 1996 (the latest tabulated data), the pattern of accidents is dispersed and there are no problem locations for accidents in Brier. There were only two locations at which there were two accidents (the highest concentration of accidents in 1996): 214th St. SW/Poplar Way; and 228th St. SW/35th Ave. W. In general, five accidents or more at a single location in a twelve month period would trigger the review for improvements, including stop signs or signals, if warranted. A survey of accidents in Brier for 1998-1990 did not reveal any problem locations for accidents. The pattern of accidents was dispersed and indicated that no one location was unsafe.

3. Street And Path Classification Criteria

The following street and path classification criteria were developed for Brier after a review of classification standards used by the Washington State Department of Transportation and Snohomish County. The criteria include streets as well as non-motorized walkways and bikeways. Table 2 shows the operational and design features associated with each classification. Appendix B shows detailed classification criteria.

a. Street Classification

Major Traffic Street (Collector)

Principal route for movement of traffic through and to Brier. This class of street connects local cities and commercial areas to Brier. In addition, this street connects to higher level regional streets outside of Brier city limits. This level of streets carries through trips. Daily traffic volume is 3,000 or more vehicles.

Minor Traffic Street

Serves as a distributor of traffic from major traffic streets to less important streets and to secondary generators such as schools and parks. Minor traffic streets also serve trips between areas within and immediately around Brier. This level of streets has less traffic carrying capacity than major traffic streets and their design should discourage through trips. Daily traffic volume is 1,000 to 3,000 vehicles.

Neighborhood Traffic Street

Collects and distributes traffic from higher level streets to residential areas. The design and operation control should discourage through trips. Traffic volume is less than 1,000 vehicles per day.

TABLE 2
Street Classifications
Summary Of Design And Planning Features

CATEGORY	NO. OF LANES	AVE. DAILY TRAFFIC	TYPICAL SPEEDS	TYPICAL SPACING	TRANSIT USE	ON-STREET PARKING	TURN POCKETS/ 2-WAY LN	CROSS-WALKS	TRAFFIC DIVERTERS	THROUGH CONNEC-TIONS
MAJOR St.	2+	3,000+	30	Mile	Yes	Possible	Yes	Yes	No	Yes
MINOR St.	2+	1,000 to 3,000	20-30	¼ Mile	Possible	Possible	Possible	Yes	No	Possible
NEIGHBORHOOD St.	2	1,000 or less	25	500 to 1,000 ft.	Possible	Possible	No	Possible	Possible	No
LOCAL NBHD. St.	2	500 or less	20-25	100 to 500 ft.	No	Possible	No	Possible	Possible	No
SCENIC ROUTE	ANY	OF THE	ABOVE	FEATURES	POSSIBLE					
BICYCLE LANE	4-5 ft.	1-3K+	25-30	Contin. System	Possible	No	Possible	Possible	No	Possible
SIGNED BICYCLE ROUTE	2+	0-3K+	15-30	Contin. System	Possible	No	Possible	Possible	Possible	Possible
WALKWAY/ SIDEWALK	5+ ft.	--	--	City-wide	--	--	--	Possible	--	Yes
MULTI-USE TRAIL	3+ ft.	--	--	City-wide	--	--	--	Possible	--	Yes
OFF-ROAD TRAIL	Varies	--	--	City-wide	--	--	--	Possible	--	Yes

Local Neighborhood Service Street

Provides access to neighborhoods and individual driveways and provides on-street parking and access to off-street parking and loading for the immediate residential area. Local neighborhood streets are usually dead end streets or cul-de-sacs connected to Neighborhood Traffic Streets and occasionally to higher level streets. Traffic volumes are as generated by the immediate neighborhood, but generally less than 500 vehicles per day.

Scenic Route

Special category which can include any of the above street classifications. This type of street has special street characteristics and landscaping and should provide for pedestrian and non-motorized traffic. Typically a scenic route is designed to project a scenic atmosphere to a street otherwise intended to move traffic.

For comparison purposes it should be noted that Snohomish County's designation for a "Collector", also known as a "Collector Arterial" is equivalent to Brier's "Major Traffic Street" classification. Snohomish County lowest street designation is a "Non-arterial". This classification is equivalent to Brier's "Minor Traffic Street" and "Neighborhood Street" designations.

b. Non-Motorized On And Off Road Street Classifications**Bicycle Lane**

Roadway of which a portion has been designated by traffic control devices for preferential or exclusive use by bicycles to provide separation from motor vehicle traffic. Typically, they are installed to encourage bicycle use on a particular street.

Signed Bicycle Route

Shared roadways (for bicycle and motor vehicles) which are signed as "Bike Routes. Typically they are used to create local recreational loop routes and provide continuity for regional systems.

Walkway/Sidewalk

Paved, graveled or soft-surfaced facility for the exclusive use of pedestrians and slow speed bicyclists. Typically, they are adjacent to all classes of streets and may provide connections between neighborhoods, schools, and other destinations where streets do not go through. A minimum of five feet in width is necessary for walkways and sidewalks.

Multi-Use Trail

A soft surface trail for exclusive use of joggers, walkers, equestrians, and mountain bikes. Typically, they either parallel a street or go through open space in a connected, continuous system. A minimum of three feet, with a total clearance of six to twelve feet, is necessary for multi-use trails.

Off-Road Trail

A soft surface trail for multiple users. Future trails to provide connections and links between adjacent developments. Design standards will depend on uses and locations.

6. Level of Service

a. Level of Service Criteria

Level of Service is generally defined as the ability of a roadway or intersection to carry the volume of traffic. The Level of Service (LOS) is typically measured using a six tiered rating system that has become a standard used by the majority of jurisdictions in the region.

At one end of the scale is a LOS of 'A', where motorists experience a free flow of traffic and there is seldom more than one vehicle waiting at an intersection. The low end of the scale is a LOS of 'F' which represents gridlock and indicates a failure of the roadway or intersection to accommodate traffic volumes. The LOS in-between represent intermediate degrees of traffic volume and waiting times. Table 3 summarizes the relationships of average stopped delay with the level of service at unsignalized intersections. There are no signalized intersections in the City of Brier.

TABLE 3 Unsignalized Intersection Level Of Service Criteria		
LEVEL OF SERVICE	Avg. Total Delay (seconds per vehicle)	General Description
A	<5	Nearly all drivers find freedom of operation. Very seldom is there more than one vehicle in the queue.
B	5.1 to 10	Some drivers begin to consider the delay an inconvenience. Occasionally there is more than one vehicle in the queue.
C	10.1 to 20	Most drivers feel restricted, but not objectionably so. Many times there is more than one vehicle in the queue.
D	20.1 to 30	Drivers feel quite restricted. Often there is more than one vehicle in the queue.
E	30.1 to 45	A condition in which the demand is near or equal to the capacity of the intersection. There is almost always more than one vehicle in the queue.
F	>45	Forced flow; represents an intersection failure condition.

Source: 1994 Highway Capacity Manual

b. Street Level of Service

Street level of service is based on the average travel speed for the segment, or entire street under consideration. The average speed is derived from the travel time on the street segment(s) including the intersection approach delay. On a given facility, such factors as poor progression, improper spacing of side streets and driveways, and increasing traffic flow can substantially degrade the Level of Service. Table 4 contains the street level-of-service definitions, which are based on average travel speed of Brier Road and 228th Street SW.

TABLE 4 Street Level Of Service Criteria Range Of Free Flow Speeds Of 35 To 25 Mph		
LEVEL OF SERVICE	Avg. Travel Speed (MPH)	General Description
A	≥25	Free flow-operations at average travel speeds. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay is minimal.
B	19 to 24.9	Reasonably unimpeded operations. Ability to maneuver is only slightly restricted and stopped delays are not bothersome. Drivers are not generally subjected to appreciable tension.
C	13 to 18.9	Stable operations. Ability to maneuver may be more restricted than in LOS B, longer queues may contribute to lower average travel speeds.
D	9 to 12.9	Borders on a range on which small increases in flow may cause substantial decrease in average travel speeds.
E	7 to 8.9	Is characterized by significant intersection approach delays and average travel speeds of one-third the free flow speed or lower.
F	<7	Traffic flows at extremely low speeds below one-third of the free flow speed. High approach delays at intersections.

Source: 1994 Highway Capacity Manual

c. Existing Level of Service

Table 5 shows a sample of major intersections in the vicinity of Brier for comparison of existing levels of service.

TABLE 5 1997 Level Of Service (PM Peak Hour)	
Intersection	LOS
228th Street SW/44th Ave W	B
228th Street SW/Brier Road	C
236th Street SW/Cedar Way	B
236th Street SW/Brier Road	A
232nd Street SW/35th Ave W	A

Source: City of Brier 236th ST SW Draft EIS

Local Access streets in Brier typically have a LOS of 'A'. Since these streets do not provide routes through the City, they are unlikely to experience an increase in traffic due to growth in surrounding jurisdictions. Within Brier, the highest level street is a collector. Collectors currently experience a LOS of 'C' during the peak hour, but function at a higher LOS at other times. The streets in Brier classified by Snohomish County as collectors are:

- Brier Road/Poplar Way
- Old Poplar Way
- 228th Street SW
- 34th Ave W (between 228th ST SW and 232nd ST SW)*
- 232nd ST SW (between 34th Ave W and Brier Road)*

* Classified as a collector on an interim basis

d. Minimum Level of Service Standards

This plan proposes the following minimum Level of Service standards for roads and intersections within the City of Brier (Table 6).

TABLE 6 Minimum Los Standards Peak Hour	
Intersection Type	LOS
Neighborhood-Minor Traffic Streets/ Neighborhood-Minor Traffic Streets	B
Neighborhood-Minor Traffic Streets / Major Traffic Streets	C
Major Traffic Streets / Major Traffic Streets	D
Street Type	
Neighborhood and Minor Traffic Streets	B
Major Traffic Streets	D

7. Transportation System Improvements

a. Traffic Volumes Forecast

1997 traffic data were projected to 2012. Figure 7 shows the forecast volume. The forecast volume gave an indication of the future demands on Brier's roads.

Traffic Count Consultants, Inc measured the average weekday traffic volumes for the principal streets in Brier in 1997. Future daily traffic demand on the City's collector streets is estimated on Table 7. It is recognized that the combination of continued growth of southwest Snohomish County, probable improvements in the regional highway network, and a greater choice in alternative transportation modes, make these estimates tentative. To be consistent with the work completed in 1998, by KJS Associates, Inc., future daily traffic demands are based on actual traffic growth rates between 1988 and 1997, an average increase of 1.1 percent per year. The forecast also assumes that 236th Street SW will not be opened to through traffic.

Intensive development is not expected to occur in Brier as the majority of the land has been developed. Much of the remaining undeveloped land is undevelopable due to sensitive areas, and land use restrictions. In addition, there are no industrial sites and only four, low traffic generating neighborhood businesses in Brier. Based on the 2012 projected volumes, existing Level of Service standards are not likely to change during the planning period.

INSERT FIGURE 7

**TABLE 7
City Of Brier Existing And Forecasted
Average Daily Traffic Volumes**

	1997 Measured Volumes *	2002 Projected Volumes *	2004 Projected Volumes	2012 Projected Volumes
Brier Road, south of 228 th	5,400	5,700	5,800	6,400
Brier Road, north of 228 th	5,500	5,900	6,000	6,500
Brier Road, south City Limits	4,200	4,400	4,500	4,950
Poplar Way	7,700	8,100	8,300	9,100
Old Poplar Way	1,000	1,100*	1,100*	1,200
228 th St SW, west of Brier Rd	11,300	11,900	12,200	13,300
228 th St SW, east of Brier Rd	4,900	5,200	5,300	5,800
Vine Road	1,500	1,580	1,620	1,800
214 th St SW	1,600	1,690	1,730	1,900

*The projections for 2002 and 2004 for Old Poplar Way are the same due to rounding.

Source: City of Brier 236th ST SW Draft EIS, 1998 and 1998 Traffic Counts for Old Poplar Way

b. Future Transportation System Development and Management

Future Roads

Brier has limited room for additional development and expansion of the transportation system. There is one main area of possible growth and transportation system additions. The area likely to be developed during the planning period is the triangle formed by Old Poplar Way, Brier Road and 228th Street SW. The new roads in this area would be served by Old Poplar Way and Brier Road. There is also possible growth along Poplar Way from the north city limit to Vine Road. Any new roads in this area would be served by Poplar Way.

Transportation Demand Management

Another way to address the future transportation system demands is through the use of transportation demand management (TDM) techniques. TDM is beneficial in that it can help to reduce the number of cars on the road, and thereby improve the air quality, reduce the consumption of petroleum fuels, and reduce traffic congestion without the construction of new roads.

TDM can be implemented in Brier by encouraging carpooling and vanpooling, promoting transit use, and promoting bicycling and walking. It is especially important for commute trips when traffic congestion is at its worst. Community Transit offers many public awareness campaign tools to encourage transit alternatives to reduce automobile trips. In addition, the City will work with Community Transit to increase service in Brier in order to have more opportunities for transit use. Increasing transit ridership to optimum levels would assist in TDM improvement in the City.

Transportation System Management

Transportation system management is intended to achieve maximum efficiency of the current system without adding major new infrastructure. An efficient system in Brier will

have a positive impact on the overall transportation system in the region. Other benefits of transportation system management are cost savings in not having to build new roads, reduced traffic congestion, and reduced air pollution.

Brier’s transportation system is fairly efficient, especially since traffic congestion and capacity are not issues the City has had to face. However, the City is committed to a balanced and efficient transportation system, and recognizes that improvements to the existing system may be necessary as the population grows. Increased transit service to enhance the links between surrounding communities is a system improvement that could be implemented in the near term. This service could include additional bus lines or expanded door to door service. The City will also monitor key busy intersections, such as Brier Road and 228th St. SW, to ensure that traffic flows smoothly through them. Future improvements, if necessary, might include turn lane pockets, signals, or roundabouts (traffic circles).

Traffic Management

Effective traffic management on the existing streets will reduce traffic speeds, vehicle noise, visual impacts and through traffic volumes in residential neighborhoods by physical, psychological, visual social and legal (regulatory and enforcement) means. Table 8 lists common action of traffic management programs.

TABLE 8 Traffic Management Activities		
Reducing	By What Means	Example
Through Volumes	Physical	Traffic circles, chicanes, or curb bulb-outs. Installation of signs such as “Residential Street; Local Access Only”
Vehicle Noise	Psychological; Physical	Variable-spaced paint stripes to reduce speeds and thus noise. Landscape buffers and planter strips.
Visual Impacts	Visual	Landscaping to block through views.
Traffic Speeds	Social; Physical	Neighborhood “Speed Watch” program, and/or implementation of traffic calming methods listed above. Construction of narrower streets, especially when lined with trees or other landscaping.
Accidents	Legal	Strict speed enforcement; spot safety improvements

Source: Adapted from WSDOT A Guidebook for Residential Traffic Management

Strategies for achieving effective traffic management are as follows:

- Education, encouragement and enforcement programs such as “emphasis patrols” by local police to catch speeders, elementary school programs to teach and reinforce “defensive walking and biking habits” to school children, or speed watch programs by residents.
- Laws and ordinances – prohibiting through trucks in residential areas, posting speed limits in residential areas, or on-street parking restrictions.
- Traffic control devices – ranging from turn prohibitions at key entry points to a succession of stop signs.
- Geometric design features – physical restrictions to induce low speed travel such as narrow streets, traffic circles, chicanes, bulb-outs or chokers, and traffic diverters and street closures.

c. Impact of Brier’s Transportation and Land Use Plan on Adjacent Jurisdictions

The future development within Brier’s City Limits and in its 1,800 acre Planning or Sphere of Interest Area (municipal urban growth area) will consist primarily of single family residential dwellings. Non-residential development is likely to include new parks and open space or redevelopment of neighborhood business uses located within Brier. Since there are limited employment and shopping opportunities within the City, residents will continue to go west to Mountlake Terrace (via 228th St. SW and 214th St. SW) and north to Lynnwood (via Poplar Way, through unincorporated Snohomish County) for employment, shopping, or to reach I-5 for travel to Seattle, Everett, or Bellevue/East Side. Additional traffic will head east through Bothell, possibly via Vine Road, Atlas Road, and 228th St. SW, to reach the Canyon Park business park. Traffic is likely to increase for persons traveling south through Lake Forest Park to reach north Seattle for employment or those seeking recreational opportunities at Lake Washington, or on the Burke-Gilman Bicycle Trail.

Given the nature of the future development in Brier, traffic patterns are likely to remain the same as they currently are, but there is likely to be additional traffic generated by the anticipated development. There may be some traffic congestion and associated delays on major streets, particularly during morning and afternoon commute hours. It is unlikely that the Level of Service will be lowered in the adjacent jurisdictions due to the minimal amount and type of development anticipated in Brier.

Impacts of the adjacent jurisdictions of Mountlake Terrace, Lynnwood, Snohomish County, Bothell, and Lake Forest Park on Brier are also anticipated. Bothell and Snohomish County are planning improvements to 228th St. SE, which will have an impact. As neighboring cities and the unincorporated County increase in population, there will be increased impacts on Brier, primarily for nonlocal through traffic, but it is not anticipated that the Level of Service will decrease below the established level of service of “D” due to through traffic.

Additional coordination with these jurisdictions is essential so that Brier does not have a substantial increase in nonlocal, through traffic which will reduce its Level of Service, especially since Brier currently does not have any State roads or roads meeting the arterial categories or any roads that are designed to accommodate large traffic volumes.

Without State roads or those designated as arterials, the City is not eligible for funding earmarked for maintenance of these types of streets.

d. Coordination of Land Use and the Transportation System

Future residential development in Brier is planned to continue with the established pattern of zoning. It is anticipated that Brier's development will continue to support at least one fixed bus line associated with a Park and Ride lot and curb-to-curb bus service. Much of the future development will be located in the northeast quadrant of Brier, which is within walking or biking distance to the Park and Ride Lot, which could mean an increase in bus ridership and/or carpooling or vanpooling. Accessory dwelling units, which are allowed in Brier, should be especially encouraged to locate within one mile of the Park and Ride Lot or 228th St. SW, to further encourage transit use, vanpooling, carpooling, walking, and bicycling.

In addition, it is anticipated that non-motorized travel will increase during the planning period because more sidewalks, multi-use trails, and connections to existing trails will be built. These new sidewalks and trails can be used to encourage alternative forms of commuting by making it easier to walk or bicycle to the Park and Ride Lot, or to connect to one of the regional trails such as the Interurban and Centennial Trails to the west and north, and to the Burke-Gilman trail to the south, all of which are located near employment centers. Education about alternative transportation modes, trip reduction, and non-motorized travel will be very important as the City grows and traffic congestion in the Puget Sound Region increases.

Community Transit also has policy guidelines to encourage public transportation systems which help to reduce traffic congestion, promote energy conservation, and improve mobility within the community. The foundation of these policies is to effectively coordinate land use decisions with public transportation services. Brier's efforts to coordinate land use and mobility, as described above, should demonstrate the City's commitment to a balanced and efficient transportation system.

e. Proposed System Classification

The street and path classification criteria described previously were applied to Brier's transportation system to determine its future street system. Figure 8 is the proposed future street classification. The street classifications are similar to current uses with several exceptions.

Reflecting Brier's residential character, the majority of the streets are local neighborhood traffic and service streets with 1,000 or fewer daily trips. Several streets serve enough neighborhoods to warrant higher level classification as a minor traffic street, with 1,000 to 3,000 daily trips. Minor traffic streets include the following: 236th Street SW; 232nd Street SW; 214th Street SW; Vine Road; 34th Avenue W.; and 35th Avenue W.

The highest level of streets in Brier are Major Traffic Streets, which carry 3,000 or more vehicles a day and function as through roadways. The Major Traffic Streets in Brier are Brier Road/Poplar Way and 228th Street SW.

The proposed classification breaks down as follows:

- Major traffic street - 3.6 miles total
- Minor traffic street - 3.1 miles total
- Local neighborhood traffic street - 11.7 miles total
- Local neighborhood service street - 7.3 miles total

At this time, the classification criteria "scenic route" is not proposed to be applied to any specific streets in Brier. Special scenic features such as a tree-lined street or a street that offers unique views of a special place in Brier might help the street qualify for the scenic route classification. One tool that could be used to ensure that the character and appearance of a designated scenic route is retained is the use of traffic diverters. For exemplary purposes only, a typical traffic diverter is shown in Figures 9 and 10. Signage identifying these scenic routes will be placed along the routes to ensure awareness of the designation and to draw attention to features that help to make Brier a special place.

A proposed perimeter and loop multi-use trail for Brier is shown in Figure 11. This proposes the addition of a number of soft-surface, multi-use trails to form a loop route through Brier.

A walkway, sidewalk and trail classification map is shown in Figure 12. Shown are a number of soft-surface, multi-use trails. Most of these trails are part of the proposed perimeter trail. In addition, the location of several possible off-road trails are identified.

Figure 13 shows proposed bikeways. Again, a number of the proposed bikeways are designed to be part of a perimeter trail.

f. Transportation Projects

See the Capital Facilities Plan Element for the schedule of transportation system improvements. Brier will continue to improve its street system as shown in the Capital Facilities Plan (CFP). It includes projects designed to correct identified maintenance problems and roadway deficiencies. Other projects on the list include nonmotorized improvements and traffic calming improvements. Table 8 indicates the sections, type of projects, and estimated cost of the improvements.

In addition to the capital facilities projects, the City plans on installing new crosswalks across Brier Road/Poplar Way; Vine Road; 232nd Street SW, and 236th Street SW to increase safety. Additional safety improvements will be constructed as conditions warrant. These safety improvements cost approximately \$500 to \$1,000 and are likely to be funded from the General Fund.

Figure 8 - Proposed Street Classification

Figure 9 - Typical Traffic Diverter (Plan View)

Figure 10 - Typical Traffic Diverter (Overhead View)

Figure 11 - Perimeter and Loop Multi-Uses Trail

Figure 12 - Walkways, Sidewalks and Trails

Figure 13 - Bicycle Ways

The total estimated costs of the proposed transportation improvement projects is \$1,859,000. The average annual costs if these projects were spread out over the six years is approximately \$309,833.

8. Funding

Over the past two decades the traditional sources of state and municipal public road funding have declined and securing funding has become more competitive. Funding road projects, especially in light of the rapidly increasing costs for improvements, has become more difficult. The main outcome of reduced funding is that some projects might be delayed if there is not sufficient funding in a given year.

Despite the funding challenges, Brier has received funding in recent years from the State (pass through funds to the City) to assist in paying for its road improvements. In 1996, Brier spent approximately \$146,000 on road projects. In 1997, \$679,000 was spent on projects, including road widening and a 300 foot concrete wall near Scriber Creek as part of the widening project. In 1998, an additional \$664,000 was spent to complete the Scriber Creek/Brier Road project, along with overlay work and design was commenced on partial sidewalks on 228th St. S.W. and 214th St. S.W. The funding portion from grants totaled \$662,250 for 1997 and 1998. The City has received \$100,000 in TIB funding for 1999 which is earmarked for completion of the two sidewalk projects noted above.

If there are potential funding shortfalls based on the projected transportation system needs, the City will need to raise additional funds for transportation improvements, consider revising its level of service standards, or reassess its land use assumptions. It is forecast that the Level of Service will not change by 2012, even with the anticipated growth and development. Therefore, the focus of the strategy is on the funding side. In Brier, raising additional funds will primarily rely on alternative, outside sources, rather than raising City property taxes or floating bonds to fund transportation projects. Recognizing that traditional sources of funding are often inadequate, a number of alternative funding strategies could be used to pay for Brier's roadway projects.

These strategies include the following sources:

- TIP funding is the Six Year Transportation Improvement Program. This is State distributed funding.
- TIA funding is the Transportation Improvement Account which grants funds from the Transportation Improvement Board (TIB) to be prepared for eligible projects.
- LID, or Local Improvement District funding assesses fees on property owners who choose to tax themselves to finance improvements.
- Impact fees and frontage mitigation assess developers for the cost of roadway improvements. This option will be discussed in greater detail.

- Federal and State transportation funding, such as the new TEA-21 (Transportation Equity Act for the 21st Century), could be requested by the City. Other funds include:

Public Works Trust Fund – The State Department of Community Development (DCD) provides low interest loans available for capital facilities planning, emergency planning, and construction of bridges, roads, domestic water, sanitary sewer, and storm sewer.

Community Development Block Grant – Approximately \$5 million in Community Development Block Grant (CDBG) funding is available annually statewide through the federal Department of Housing and Urban Development for public facilities, economic development, and housing projects which benefit low and moderate income households.

Community Economic Revitalization Board Grant (CERB) – The State Department of Trade and Economic Development provides low interest loans and occasionally grants to finance sewer, water, access roads, bridges and other facilities for a specific private sector development.

Urban Arterial Trust Account Grants (UATA) – The Washington State Transportation Improvement Board (TIB) provides funding for projects to alleviate and prevent traffic congestion.

Transportation Improvement Account Grants (TIA) – The State TIB provides funding for projects to alleviate and prevent traffic congestion caused by economic development or growth.

- IAC funding is from the Inter Agency Committee for Outdoor Recreation. The program combines funds from several sources and makes them available for outdoor recreation and conservation purposes. Agencies which apply need to have a parks and recreation plan.

Transportation improvements are also funded and constructed by developers for subdivisions and other land development projects in order to meet the City's development regulations and to mitigate project impacts. These regulations also extend to major and minor traffic streets in the project vicinity where project impacts have been identified through the SEPA process.

Developer assessments can take on many different forms. Traditional methods include the Local Improvements District (LID). Its application has been generally restricted to the abutters of a road improvement who will directly benefit. However, the concept is extended to a greater benefit area that may include non-abutters.

The LID is still considered one of the most equitable and desirable forms of developer assessment. It causes road improvement costs to be spread over all potential benefactors, including existing as well as new developments, and a reasonable public share. It permits execution of road improvements at such a time as it is necessary; and it permits the recovery of the improvement costs incrementally over a 10 to 20 year period of time at municipal bond interest rates.

By avoiding "up front" capital assessments, development projects can be more economically viable. By spreading recovery costs over time, such costs can be better handled commensurate with the cash flow economics of a completed land development project. The public share of the road improvements costs can also be collected incrementally over a measured period of time.

A practice that is becoming more commonly used by municipal governments is an "up-front" assessment of development projects for desired road improvements. These requirements are being imposed during the SEPA and permitting processes as conditions of development permit. They take on different forms ranging from various off-site road construction requirements to direct cash assessments for off-site road improvements to be paid prior to occupancy.

An outcome of the 2000 Plan Update is that Brier will be in a better position to seek alternative funding sources once the Plan meets GMA requirements and is regionally certified by the PSRC. It will become eligible for grants and funding not previously open to the City due to the lack of a certified Plan. In addition, stronger policies and ordinances will be in place to require improvements for needs generated by new development. By continuing a multi-faceted funding approach and considering new funding sources, such as impact fees or public/private partnerships, Brier will be able to continue to improve its transportation system.

9. Capital Facilities Plan

The transportation capital facilities priorities are incorporated into the City's overall capital facilities plan which is located in the Capital Facilities Element. Potential funding sources from the list above are identified for each project included in the Capital Facilities Plan.

II. TRANSPORTATION ELEMENT GOALS, OBJECTIVES AND POLICIES

GOAL TR1.0: Provide a multi-model transportation system which meets the needs of motorized and non-motorized travel.

Policy TR1.1: Develop a system of transportation facilities and services that serves the access and circulation needs of City residents and visitors.

Policy TR1.2: Establish and apply a functionally defined hierarchy of streets and appropriate design guidelines for street development.

Policy TR1.3: Establish an on-going street right-of-way review program in order to bring existing streets up to standards and to plan for new streets and improvements.

Policy TR 1.4: Work with Community Transit to ensure that transit service within Brier is designed to meet, to the extent possible, the needs of the users and to ensure that the public is aware of the service.

Policy TR 1.5: Collaborate with the State DOT and Community Transit to continue to offer convenient transit connections such as between the central Brier Park and Ride and bus route number 477 with service to Seattle, and the "Connect" curb to curb service between Brier and the Lynnwood Park and Ride.

Policy TR 1.6: Participate in programs and provide information to the citizens on transportation demand management techniques such as ridesharing, promoting transit use, and increasing the use of non-motorized transportation in order to reduce the number of automobile trips within Brier and to help reduce pollutants that affect the air quality of the Puget Sound region.

Policy TR 1.7: Provide handicap access in compliance with federal laws for all transportation components, including buses, non-residential parking areas, streets, sidewalks, and multi-use trails.

Policy TR 1.8 Adopt a minimum peak hour Level of Service as follows:

Streets

"B" for all Minor Traffic and Neighborhood Streets; and
"D" for all Major Traffic Streets;

Intersections

"B" for Neighborhood-Minor Traffic Streets/ Neighborhood-Minor Traffic Streets;
"C" for Neighborhood-Minor Traffic Streets/Major Traffic Streets; and
"D" for Major Traffic Streets / Major Traffic Streets

GOAL TR 2.0: Ensure the safety of the traveling public.

Policy TR 2.1: Attempt to reduce accidents by analyzing transportation elements to determine unsafe locations.

Policy TR 2.2: Provide for a safe integration of bicycle, pedestrian, equestrian, and motorized networks.

GOAL TR 3.0: Provide cost effective transportation facilities and services compatible with and supportive of the City's residential character.

Policy TR 3.1: Strive for equitable allocation of improvement cost responsibilities among public jurisdictions and the private sector.

Policy TR 3.2: Coordinate land use development plans with transportation and mobility needs for the community to promote non-motorized travel, pedestrian travel, and transit use.

Policy TR 3.3: Develop and adopt concurrency management regulations.

GOAL TR 4.0: Establish a transportation system and facilities which fulfill Brier residents' desire to remain a residential community which encourages minimal, non-local traffic.

Policy TR 4.1: Plan and design streets to provide a logical network related to all segments of the planning area and to the community at large to discourage non-local trips.

Policy TR 4.2: Provide adequate traffic flow on Major Traffic streets while limiting traffic on all other streets.

Policy TR 4.3: Continue to pursue the current road maintenance program and encourage property owners to maintain the appearance of the public right-of-way adjacent to their property.

Policy TR 4.4: Continue to upgrade City streets to current adopted standards based on availability of funds and existing physical constraints.

Policy TR 4.5: Continue the City's neighborhood traffic control program in coordination with Public Works and the Police Department to address specific neighborhood traffic concerns.

Policy TR 4.6: Encourage safety and beautification projects for all roads in the City.

- Policy TR 4.7: Encourage, where possible, the provision of landscaping strips on all streets at the time of acquisition and/or development.
- Policy TR 4.8: Recognize the needs of and incorporate designs for emergency vehicle, refuse collection and public transportation in city road design and construction.
- Policy TR 4.9: Develop traffic mitigation priorities, with roundabouts (traffic circles) being a high priority, in order to preserve the character of Brier.

GOAL TR 5.0: Provide transportation facilities and services in a manner that protects and enhances the environment.

- Policy TR 5.1: Avoid siting transportation facilities in environmentally sensitive areas.
- Policy TR 5.2: Implement appropriate mitigating measures where impacts are identified.
- Policy TR 5.3: Encourage buffering between motorized travel and non-motorized transportation modes by physical space, landscape strips or other physical or design methods.
- Policy TR 5.4: Evaluate all land use permit applications for biofiltration and storm drainage requirements, and capital improvements (for example, curbs and gutters improvements).

GOAL TR6.0: Develop a functional, safe and convenient system of pedestrian, bicycle and equestrian pathways and facilities throughout the city.

- Policy TR 6.1: Encourage the development of pedestrian right-of-way and lighted trails which can provide safe passage between neighborhoods, schools, businesses, and recreational areas.
- Policy TR 6.2: Provide for the safe and convenient integration of bicycle, pedestrian, equestrian and motorized networks.
- Policy TR 6.3: Provide sidewalks, or walkways on at least one side of every street, especially near schools.
- Policy TR 6.4: Require sidewalks on all streets designated as school walk routes between schools and major and minor traffic streets.
- Policy TR 6.5: Consider and encourage the designation of additional public rights-of-way for trails and walkways for access and circulation of non-motorized travel.
- Policy TR 6.6: Encourage sidewalks, bikeways and multi-use trails along public roads.

GOAL TR7.0: Communicate and coordinate the transportation needs and interests of Brier with adjacent communities and applicable transportation agencies.

Policy TR 7. 1: Communicate and coordinate with the surrounding areas so their transportation plans can be adapted in order to minimize cross-traffic through Brier.

Policy TR 7.2: Participate with other jurisdictions in the planning process of regional transportation systems.

GOAL TR 8.0: Provide parking facilities and controls that complement the road system.

Policy TR 8.1: Promote adequate off-street parking for all land uses.

Policy TR 8.2: Establish design requirements for nonresidential land uses-

GOAL TR 9.0: Strive to attain or maintain federal and state air quality requirements.

Policy TR 9.1: Support the air pollution abatement and prevention activities of the Puget Sound Air Pollution Control Agency (PSAPCA), including the requirements of the federal and state clean air acts.

Policy TR9.2: Promote and support public education efforts regarding air quality impacts.

APPENDIX A

Background Data

APPENDIX A – BACKGROUND DATA

- City of Brier Comprehensive Plan - Draft Final - September, 1988
- City of Brier Draft Comprehensive Plan - November, 1988
- City of Brier Comprehensive Plan - April, 1989
- Brier Comprehensive Park, Trail, and Open Space Plan - 1989
- Brier Subdivision Ordinance - May 1990
- Assorted Brier Planning Commission Minutes
- Assorted Traffic Studies -
 - Castle Crest
 - Country Side
 - Vanek Plat
 - Community Christian Church
- Historical Traffic Counts 1983-1986 - Snohomish County Department of Public Works - 1988
- Kroll Map Company - Atlas of Everett and Southwest Snohomish County - 1990
- Snohomish County - Design Standard and Specifications - Snohomish County Department of Public Works - 1990
- Road Needs Report - Snohomish County Department of Public Works - November, 1990
- Market Profile Analysis - Consumer and Business Demographic Reports - 1988
- Population Trends for Washington State - Office of Financial Management - 1990
- Snohomish County Comprehensive Parks & Recreation Guide - 1986
- Snohomish County Parklands Guide - 1988
- Community Transit Comprehensive Plan 2001 - 1989
- Southwest County Area Comprehensive Plan - Southwest Snohomish County Planning Council - 1965
- City of Lynnwood Traffic Flow Map - 1988
- Lynnwood Policy Plan - 1989
- City of Mukilteo Comprehensive Plan - 1988
- Mountlake Terrace Comprehensive Policy Plan - 1983
- Alderwood Area Comprehensive Plan - Snohomish County Planning Department - 1973
- City of Mill Creek Comprehensive Plan - Draft - 1990

APPENDIX B

CLASSIFICATION CRITERIA

APPENDIX B – CLASSIFICATION CRITERIA

MAJOR TRAFFIC STREET (Collector)

Functional Purpose

- Principal route for movement of traffic through and to Brier. This class of street connects local cities and commercial areas to Brier. In addition, this street connects to higher level regional streets outside of Brier city limits. This level of street carries through trips.

Physical Design Features

- Residential areas should be buffered by distance and landscaped with planted strips.
- Landscaped planting strip with trees.
- Intersections at grade with direct access to adjacent property.
- Traffic controls at intersection with other streets.
- Provisions made for pedestrian use, including frequent crosswalks and signage.
- May be designed to include bicycle routes, walking paths and equestrian trails.
- Two lanes.
- Spacing between streets of approximately 1 mile.

Operational Characteristics

- Speeds of 25 to 35 mph.
- Daily traffic volume of 3,000+ vehicles.
- Traffic on other lower classifications of streets stop at Major Traffic Streets.
- Parking restricted as necessary for the movement of motorized and non-motorized traffic.
- Traffic control used to control turning movements as necessary for safe and efficient flow of traffic.

MINOR TRAFFIC STREET

Functional Purpose

- Serves as a distributor of traffic from a Major Traffic Street to less important streets, to secondary generators such as schools and parks and to serve trips between areas within and immediately around Brier.
- Has less traffic carrying capacity than Major Traffic Streets. The design and operational controls should give preference to the distribution of traffic and should discourage through trips.

Physical Design Features

- Intersections at grade with direct access to adjacent property.
- Landscaped planting strips.
- Traffic signs at intersections with other streets as warranted to provide for the safe distribution of traffic.
- Provision of safe pedestrian facilities along such routes. The design should provide for maximum separation between pedestrian and motorized travel lanes and for safe and frequent pedestrian crossings. Pedestrian crossing prohibitions would be unusual at any intersection with another Minor Traffic Street or street of lower classification.
- May be designated bike, pedestrian or equestrian routes, incorporate paths or horse lanes or be open for the general use of non-motorized vehicles and horses.
- Incorporates two lanes; incorporate a two-way, left-turn lane if necessary.
- Spacing between Minor Traffic Streets of .25 mile.

Operational Characteristics

- Typical traffic speeds of 25 mph except 20 mph in school zones.
- Traffic volumes of 1,000 to 3,000 vehicles per day.
- Traffic on Neighborhood Traffic Streets is stopped to give the right-of-way to traffic on Minor Traffic Streets. Access between Minor and Local Neighborhood Service Streets may be restricted to protect adjacent land uses from undesirable levels of traffic.
- On-street parking generally permitted, but may be restricted to facilitate efficient traffic flow.
- Access to adjacent property may be restricted for safety considerations.

NEIGHBORHOOD TRAFFIC STREET

Functional Purpose

- To collect and distribute traffic from higher level streets to residential areas. The design and operational controls should give preference to the distribution of traffic and should discourage through trips.

Physical Design Features

- Intersections at grade with direct access to adjacent property.
- Landscaped planting strips.
- Intersections with Major, Minor or other Neighborhood Traffic Streets should be signed as warranted to facilitate the safe movement of traffic along each street as well as to facilitate turning movements between such streets.
- The design should provide for safe pedestrian movement along such routes. Pedestrian crossing prohibitions would be unusual at any intersections.
- May have designated path, incorporate non-motorized or horse lanes or be open for the general use of non-motorized vehicles or horses.
- Incorporates two through lanes; two-way, left-turn lanes generally not applied.
- Spacing between Neighborhood Traffic Streets of 500 to 1,000 feet.

Operational Characteristics

- Typical traffic speeds of 25 mph except 20 mph in school zones.
- Traffic volumes of less than 1,000 vehicles per day.
- Traffic on Local Neighborhood Service Streets is stopped to give the right-of-way to traffic on Neighborhood Traffic Streets. Access between Neighborhood and Local Neighborhood Service Streets may be restricted to protect the lower class street and adjacent land uses from undesirable levels of traffic.
- Traffic movement and service to abutting properties are both important functions of Neighborhood Traffic Streets; therefore, parking removal or the acquisition of additional right-of-way for moving traffic should not be undertaken except at specific locations or under special circumstances.
- Parking generally unrestricted except for safety considerations.

LOCAL NEIGHBORHOOD TRAFFIC STREET

Functional Purpose

- Provide access to neighborhoods and driveways and provides on-street parking and access to off-street parking and loading for the immediate residential area. These streets are often residential cul-de-sacs connected to Neighborhood Traffic Streets and occasionally to higher level streets.

Physical Design Features

- Intersections at grade with direct access to adjacent property.
- Landscaped planting strips.
- The design should provide for safe pedestrian movement with safe and frequent pedestrian crossings.
- Typically open for the general use of non-motorized transportation and may be utilized for designated bicycle, pedestrian and equestrian routes.
- One to two through lanes and one to two parking lanes should be provided. Streets should be designed and located to prevent the continuous or unobstructed flow of traffic through a neighborhood.
- Spacing between Local Neighborhood Traffic Streets of 100 to 500 feet.

Operational Characteristics

- Typical Traffic speeds of 25 mph except 20 mph in school zones.
- Traffic volumes as generated by the immediate neighborhood, but generally less than 500 vehicles per day, depending upon the land use intensity and distance between surrounding higher classified streets.
- Intersections with other Local Neighborhood Streets uncontrolled except as found necessary for safety or to control traffic volumes or speeds. The control utilized may consist of signing as guided by the MUTCD or by such restrictive devices as traffic circles or traffic diverters consistent with emergency and other access needs.
- Traffic on Local Neighborhood Service Streets is stopped at intersections with higher classified streets. Access to higher classified streets may be restricted as consistent with emergency access needs to protect the neighborhood from significant volumes of non-local traffic.
- Parking generally unrestricted although restrictions may be applied for emergency vehicle access, and general traffic safety.

SCENIC ROUTE

Functional Purpose

- To provide special landscaping and park-like features to streets or to recognize scenic significance of streets otherwise intended to move traffic and/or provide access. This classification is in addition to a "traffic" street classification.

Physical Design Features

- All types of street design.
- Design may include scenic route signs, medians, benches, planting strips and other features to increase park-like appearance of the street.
- Often concurrent with walkways, bike paths, and multi-use trails.

Operational Characteristics

- As dictated by principal use of the street.

BICYCLE LANE

Functional Purpose

- Roadway of which a portion has been designated by traffic control devices for preferential or exclusive use by bicycles to provide separation from motor vehicle traffic. Typically, they are installed to encourage bicycle use on a particular street.

Physical Design Features

- One-way facilities, one on each side of the street (two-way bicycle lanes are not advisable).
- Typically located between the parking areas and the traffic lanes, or where parking is prohibited, the lanes are located between the curb and the traffic lanes.
- Designated by a painted white line four feet from the curb or five feet from a parked car; and a bicycle symbol painted in the bike lane at intervals of one block.
- Where there are heavy volumes of left turning bicycles, a separate turning lane for bicyclists may be provided.
- General guidelines for striping and signing are in the MUTCD and the AASHTO Guide for the Development of New Bicycle Facilities.

Operational Characteristics

- As dictated by principal use of street.
- A wide range of bicyclists speeds (8 to 25 mph) and a wide range of users can be expected.

SIGNED BICYCLE ROUTE

Functional Purpose

- Shared roadways (i.e. bicycle and motor vehicles) which are signed as "Bike Routes". Typically, they are used to create local recreational loop routes and provide continuity for regional systems.

Physical Design Features

- Designated by installing Bicycle Route signs. Pavement stencils and arrows may also be used to demarcate Bicycle Routes.
- Wide curb lanes (13 to 15 feet side) desirable.
- May or may not have a striped Bicycle Lane.

Operational Characteristics

- As dictated by principal use of street.
- A wide range of bicyclists speeds (8 to 25 mph) and a wide range of users can be expected.

WALKWAY/SIDEWALK

Functional Purpose

- Paved facility for the exclusive use of pedestrians and slow speed bicyclists. Typically, they are adjacent to all classes of streets and may provide connections between neighborhoods, schools and other destinations where streets do not go through.

Physical Design Features

- Five feet wide minimum. Extra width needed at schools, bus stops, and other high pedestrian locations.
- Concrete where adjacent to streets. Asphalt may be appropriate in some situations through parks and open areas.
- Typically separated from the curb (or edge) of a street by a two to six foot planting strip. May be directly adjacent to the curb in some residential situations.
- On one side of every street. On both sides of street where space allows.

Operational Characteristics

- Walkers are primary users.
- Likely to be mixed use with joggers and children on bicycles.

MULTI-USE TRAIL

Functional Purpose

- Soft surface trail for exclusive use of joggers, walkers, equestrians, and mountain bikes. Typically, they either parallel a street or go through open space in a connected, continuous system.

Physical Design Features

- Soft surface.
- Minimum of three feet wide with a total clearance of six feet up to a height of twelve feet.
- Typically separated from the curb (or edge) of a street by a six foot planting strip. May be directly adjacent to the curb in some situations.
- On one side of a street. Typically, paired with a paved walkway/sidewalk on the other side of a street.

Operational Characteristics

- Likely to be mixed use with joggers, walkers, equestrians, and mountain bikes.

POSSIBLE OFF-ROAD TRAIL

Functional Purpose

- Future desired trails show where the potential exists for a connection or linkage, but where research or exploration is needed. The classification serves as an alert to the City of Brier where it may be possible to consider incorporating trails in adjacent developments.

Physical Design Features

- As dictated by use. Typically a soft surface, multi-use trail.

Operational Characteristics

- Likely to be mixed use with joggers, walkers, equestrians, and mountain bikes.