Marysville Access Management Plan Study

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Prepared for:

CITY OF MARYSVILLE
Public Works Department
80 Columbia Avenue
Marysville, WA 98270

Prepared by:

Perteet
Engineering, Inc.

Civil and Transportation Consultants
2707 Colby Avenue, Suite 900, Everett, WA 98201
(425) 252-7700 / FAX (425) 339-6018

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MARYSVILLE ACCESS MANAGEMENT PLAN STUDY

EXECUTIVE SUMMARY

Perteet Engineering, Inc. and Gibson Traffic Consultants were retained by the City of Marysville to develop an access management plan and driveway design standard for implementation to the City arterial system. The objective of the plan is to provide the City with a guideline for access review and approval that would assist the City in obtaining the goals and benefits of access management. The report outlines these goals and benefits which include improving safety, preserving capacity, supporting alternative travel modes, improving the human environment, and gaining business acceptability.

The development of the access management standards was based on a review of existing access management standards currently in use by WSDOT and local agencies. These standards were supplemented with input from developers of various land uses that described their desired access needs and criteria. The review of the agency standards and developer criteria were evaluated in conjunction with the City of Marysville Comprehensive Plan and Development Codes. Review of the City's future transportation and land use plans coordinated the development of recommended standards with specific challenges and growth plans for the City.

The access management plan standards recommended for the City were developed for the arterial street network and potential pedestrian-oriented arterial corridors. Driveway design standards were also evaluated and compared to the current standards used by the City. The recommended access management plan standards for driveway location and spacing are dependent on posted arterial speed and adjacent intersection traffic control. These two factors were determined as the most important conditions impacting access driveway operations and safety. The spacing standards are shown in Table 1 of this report. The recommended spacing standards are supplemented with additional location recommendations that should be considered during the access review process such as opposing driveway alignment.

The driveway design standards identify the recommended values for throat length, driveway approach grades, and driveway widths for residential and commercial uses. The recommended driveway design standards for pedestrian-oriented corridors are 30 percent less than the standards for normal City arterials.

Implementation of the access management plan has been identified to occur at four and possibly five levels. The recommendations consider these implementation levels which include the permitting process, the access management plan and projects, and the land use regulation process, with the possible fifth level of implementation being acceptance of the access management concepts by the development community. To develop support for implementation of the access management standards, coordination of the plan with the permit process, land use plans and local comprehensive plans should be considered. Support for the access management plan is also gained through education of the developer incentives and economic impacts through public involvement strategies.

The access management plan recommends standards that should be applied throughout the City arterial system; however, there are nonconforming access locations that will require an independent review for a variance of the access conditions. These independent reviews for nonconforming access should be conducted through a variance request process to consider alternative access, traffic flow impacts, and development access needs.

The adoption of the City of Marysville Access Management Plan will provide a standard review and approval process for future development that would benefit the residential and business communities of Marysville.

INTRODUCTION

Access management plans are developed to protect the public's investment in its streets and highways as well as produce other environmental benefits. The American Association of State Highway and Transportation Officials (AASHTO) *Policy on Geometric Design of Highways and Streets* states that "the ability to control access relates directly to the safety and capacity of the arterial" and "provision of access control is vital to the concept of an arterial if it is to provide the service life for which it is designed." The City of Marysville has retained Perteet Engineering, Inc. and Gibson Traffic Consultants to identify issues associated with the development of an access management plan and prepare standards for the City's arterial street system with this purpose in mind.

This report documents the development of the access management plan standards for the City based on the following tasks:

- Identify the goals and benefits of access management.
- Review the current access management and driveway development standards used by local agencies.
- Review the access criteria desired by various land use developers.
- Develop access recommendations and driveway design standards for the City of Marysville Access Management Plan.
- Identify implementation considerations associated with the application of the recommended access management plan standards.

The recommendations outline driveway location and design standards for the arterial system and potential pedestrian-oriented corridors. The recommendations also consider variance issues resulting from implementation of the access management plan for nonconforming driveway locations. Other implementation considerations such as the coordination of access with City land use plans and the public involvement process are also addressed.

GOALS AND BENEFITS OF ACCESS MANAGEMENT

The goals and benefits of access management are conventionally defined as those of improving safety and preserving or restoring the capacity of the arterial. Only recently have the benefits to all modes in the arterial right-of-way received the attention they are due. Pedestrians and bicyclists have particularly benefited from fewer and better defined driveways, smoother traffic flow, and median refuges.

Access management also benefits the environment by increasing the efficiency of the motorized modes, thus reducing air pollution and reducing fuel consumption. The natural and human environment is benefited by the preservation of capacity, which reduces the demand for additional lanes. The traveling public, regardless of mode, benefit from having a smoother and less challenging trip with reduced conflicts.
Business benefit by protecting their customer base from deterioration as a result of reduced travel times and difficult access. Many of these benefits are little understood and appreciated. One

benefit that falls into this category is that of neighborhood safety. The arterial system is designed to carry inter- and intra-city trips that do not belong on local streets. When the arterial system does not work properly, many drivers seek faster and less congestive routes through local neighborhood streets.

Improve Safety

With few exceptions, studies of the applications of access management have shown improved safety over unmanaged conditions. The techniques that have been applied include median separation, driveway elimination and management, spacing of traffic signals, access purchase and channelization to remove turning vehicles from through lanes.

The most visible safety improvement result from major projects where multi-lane arterials have been retrofitted with raised medians replacing two-way left-turn lanes, and where driveways have been either eliminated or consolidated. Reported reductions in accidents on these projects vary from 30 percent to over 60 percent, depending upon the severity of the problem before the project. Reduction in the severity of accidents is usually even more marked than the reduction in accident rate, because the raised median nearly eliminates head-on collisions and reduces at-angle accidents.

One of the primary objectives for access management is to reduce the number of conflict points, and thus, the number of opportunities for collisions, without preventing "reasonable" access to adjacent land.

Preserve Capacity

Studies done by the State of Florida indicate that once signalized intersection density reaches five per mile, approximately one-half of the road's capacity will be lost. In order to preserve additional capacity along these corridors, access management should be a high priority. The studies done in Florida have indicated that a four-lane arterial with good access management has the same capacity as a six-lane arterial with no access management.

Support Alternative Modes (Bicycles and Pedestrians)

Advocates for alternative modes, particularly non-motorized modes, are becoming increasingly aware of the advantages of access management. Bicyclists who use the arterial system for commute trips prefer the most direct route (as do all commuters) and find arterials with high densities of driveways to be an impediment to progress and dangerous because of the scattered turning movements. Pedestrians find uncontrolled and frequent driveways both dangerous and an interference to a pleasant trip. Pedestrians also find wide arterials difficult to cross. Wide arterials go hand in hand with poor access management, as more lanes are needed to provide capacity. Crossing of wide arterials can be improved by providing refuge medians for

pedestrians. This is particularly significant in suburban areas where signalized intersections may be widely spaced.

Improve Human Environment

Application of access management techniques will ensure that through traffic progresses along the city arterials thus, preventing undesirable cut-through traffic in residential neighborhoods.

Other humane environment goals and benefits include:

- Reduction of pollution caused by congested traffic conditions.
- Improved aesthetics due to the reduction in driveways. Raised medians can be landscaped to further increase aesthetics.
- The experience of driving through an area with heavy development and poor access management is usually unpleasant due to the number of conflicting movements and stop and go driving when congestion results.

Business Acceptability

Studies have shown that businesses draw their customers from an area that is defined by travel time. If travel times to a business or shopping center are uniform, the market or draw area will be a circle. If travel speeds are cut in half, only one-quarter of the previous draw area remains. Thus, preservation of capacity on the arterial and collector systems is critical to the viability of the business community.

DEVELOPMENT OF THE MARYSVILLE ACCESS PLAN

The approach used to develop the access standards considered the current standards adopted by other Agencies, the access criteria of various land use developers in Snohomish County, and the future City of Marysville transportation and land use plans outlined in their Comprehensive Plan. The research and comparison of various access management plans provides a measure of consistency and a guideline for the detail and depth of the ultimate recommended plan standards.

Agency Standards Review

The development of the Marysville Access Management Plan criteria included an evaluation of the Washington State Department of Transportation (WSDOT) Access Management Plan and several county and city access management standards which are currently used for site access review. Access and driveway development standards were obtained from the following Agencies in addition to WSDOT: Snohomish, King and Island Counties, and the Cities of Everett, Bellevue, Kirkland, Redmond, Woodinville, Bothell, Edmonds, Lynnwood, Renton and Federal Way. The current local Agency access standards are summarized for reference and

comparison purposes in Table 1. A detailed summary of selected Agency criteria is also shown in the appendix of this report.

The review of the Agency standards and criteria indicates that design or operating speed-based criteria is currently in use by WSDOT and the three Counties reviewed. None of the local agency standards were based on design or operating speed. Overall their standards were found to be more generalized than the County jurisdiction. The speed based standards were directly correlated with driveway location and spacing but not with the design standards.

The majority of the agency standards reviewed indicate that a single driveway spacing value of 100 feet to 160 feet would be sufficient to address access application in the approval process. A review of other restrictions concerning the number of allowable access driveways per property indicates that half of the agencies reviewed allow only a single access per parcel frontage while the other half allows a driveway per length of property frontage. These frontage length requirements ranged from 75 feet to 500 feet.

The driveway design criteria for residential and commercial uses appear to be comparable in terms of driveway width and grades, however, the City of Bothell's criteria for driveway width is also based on the arterial speed. An additional design criterion used by some agencies is throat length. Driveway throat length criteria varied significantly if required at all. The City of Everett's Design Standards for throat length requirements were the most comprehensive of the Agency standards reviewed with throat length criteria based on roadway classification, size of development, and land use type.

Developer Criteria Review

Access criteria for various private land development uses was obtained from developers and property owners that have developed property in Snohomish and King Counties. Perteet Engineering conducted telephone interviews with private developers within Snohomish County to identify development access criteria. The criteria obtained included input from developers for big box retail uses (i.e., Costco); convenience store/gas station uses fast food restaurants, and various retail centers ranging from neighborhood centers to regional centers. The access criteria for private development uses are summarized in Table 2.

Table 1
Urban Arterial Access Criteria Summary

Agency	Street Classification	Operating Speeds	Driveway Location Criteria			Driveway Design Criteria			Ref. Doc
			Spacing to adj Street	Spacing btwn Driveways	Other Restrictions	Throat Length	Driveway Grade	Driveway Width	
WSDOT	Class 5 Class 4 Class 3	25-35 mph 30-35 mph 30-40 mph	329 ft 2640 ft 2640 ft measure from edges	125 ft 250 ft 330 ft measure from edges	1 driveway per parcel				RCW 47-50 WAC 468-51 468-52
Snohomish Co.	Arterials	25-50 mph	85 ft - 230 ft (stop) 115 ft - 460 ft (signal) depend on turn restrict. measure from edges	105 ft @ 25 mph to 275 ft @ 50 mph measure from edges	one 2-way or two 1-way access per 500 ft total property frontage access should be located directly opposite of other dwys		5% max	Residential - 30' com/ind - 40' <2k indust. - 50' >2k adt	1992 EDDS
King Co.	Urban Minor or Collector Arterials	35 mph 35-50 mph 35-55 mph	150 ft 300 ft 500 ft	no guidelines	1 dwy if < 75 ft of frontage 2 or more dwys if > 75 ft frontage			20 ft w/18 ft paved	1993 Road Standards
Island Co.	Arterials and Collector Roads	25-50 mph	105 ft @ 25 mph to 275 ft @ 50 mph measure from midpts.	105 ft @ 25 mph to 275 ft @ 50 mph measure from midpts					Land Development Standards
Everett	Driveways					25ft - 250ft Sec 3-6			Everett Design Standards
Bellevue	Public Streets		150 ft measure from edges	100ft min. 20ft w/ approval measure from edges	No more than 1 dwy if 200 ft or less of frontage 100 ft max offset or direct opposite		7% - 10% 15% max	SF = 30 ft max MF = 26-36 ft Comm = 30-36 ft (for 2-way dwys)	Dev. Manual Ord. 4822 WPO 530C-ORD
Kirkland	Arterials		150 ft min	100 ft min	1 per propery frontage 75 ft offset for <500 vpd dwy 150 ft offset for >500 vpd dwy offset to right facing existing dwy	<50 vpd 15ft <100 vpd 20ft <300 vpd 30ft >300 vpd 40 ft	15% max 6% avg.	20-30 ft for 2-way 12-15 ft for 1-way	Public Works Dwy Standards
Redmond	Public Streets		100 ft min measure from edges	100 ft min unless approved measured from edges	1 dwy per parcel frontage 1 dwy per 150 ft frontage or 3 dwys per 2 lots w/common pkg 100 ft max offset		10% max	20 ft min 30 ft max	Appendix G Community Dev. Guide
Woodinville (adopted Redmond)	Public Streets		100 ft min measure from edges	100 ft min unless approved measured from edges	1 dwy per parcel frontage 1 dwy per 150 ft frontage or 3 dwys per 2 lots w/common pkg 100 ft max offset		10% max	20 ft min 30 ft max	City Ord. 49
Bothell	Arterials		160 ft	160 ft	must be right turn only if less than 100 ft spacing	25 ft min	8% max 15% with approval	resident = 20 ft max comm: 25 mph-30 ft 26-45 mph - 35 ft over 45 mph - 40 ft	Bothell Design & Construction Standards 4/96
Edmonds					1 dwy per lot in downtown	20 ft min	14% max 20% with approval	20 ft for residential 30 ft for commercial 40 ft max	Dev. Code 18.80.060 4/97
Federal Way	Class 1 Class 2 Class 3 Class 4	*raised median *raised median TWLTL TWLTL	1320 ft signal intersect 1320 ft sig I/S, 330 stop 660 ft sig I/S, 150 ft 660 ft sig I/S, 150 ft	125 ft (rt) - 660 (sig left) 125 ft (rt)-660(sg) 330(st) 125 ft (rt turn) - 150 ft (left) 125 ft (rt turn) - 150 ft (left)	raised median if 2+ lanes per direction, adt>25k, or 10+ accid. TWLTL if adt>5k or 10+ accident per million veh. miles	*note: measure from street R-O-W and edges			Draft Standards (20% variance allowed)
Renton	Public Streets		50 ft from stop 125 ft from signal	indust, wrhse, shop ctr. is 40 ft min other uses is 18 ft min 5 ft from property line	no more than 2 per 330 ft of frontage		8% max all 15% for residential	indst, wrhs, shop ctr is 50 ft max res. is 20 ft max other is 30 ft max	Renton Parking and Loading Ordinance - Ch 14

Table 2
Developer Access Criteria Summary

Development	Size/Sq. Ft.	Shared Access	Driveway Location Criteria			Driveway Design Criteria			Other Comments
			Desired # on Primary Street	Desired # on Secondary Street.	Turn Movement Requirements/Criteria	Driveway Width	Curb Radius	Ped Access Concerns	
Costco Big Box	100,000 sf	flexible	2 dwys min. (1 is ok) 1 rti/rto is ok	1 for service use	1 must be full access				adjacent to regional network must have reciprocal easement agreement
C-Store Gas Station	2,000 to 4,000 sf	depends on how profitable site is	2 dwys is min for truck (1 on primary & 1 on secondary)	1 is acceptable	full access on primary is desired rti/rto is ok on occasion	35 ft	Trucks= 45 ft outside 35 ft inside Auto=35 ft		access must accom. 75 ft truck trailer adjacent arterial is approx. 20k ADT
Fast Food	3,000 to 5,000 sf	acceptable	1 dwy is acceptable	1 with turn restrictions on primary	full access on primary is desired rti/rto is possible	30 ft	truck standard		must accom. delivery truck or provide on-street loading zone
Retail Center	50,000-100,000 sf	cannot be primary access	2 dwys min. > 15k sf 1 dwy with full access	1 for service use if > 50k	full access desired for 1 dwy min. 1 full acc prefer over mult. rti/rto primary should be at midpt. of frontage			200 ft max from parking @ on-site lots	method for variance high vols = tough low vols = no custom.

The developer criteria for site access were found to be flexible in general, primarily depending on the economic viability and potential of the project site. Each of the various developers indicated that a single full access driveway was desirable over multiple restricted turn movement driveways.

The use of shared access driveways was also found to be a common solution acceptable for each of the developers interviewed. The need for at least two or more driveways is primarily for accommodating projected traffic volumes generated by development and as a necessity for truck accessibility and circulation requirements for deliverables, particularly convenience store/gas station uses or other smaller parcel uses that rely on goods delivered via semi tractor-trailer class trucks. It should be noted that this applies to land uses that have deliveries occurring during normal business hours and cannot be accommodated by temporary on-street loading measures.

City of Marysville Access Considerations

To develop an access management plan that would achieve the outlined goals and provide the economic and environmental benefits discussed previously, a review of the City of Marysville Comprehensive Plan was conducted to identify the current and future transportation and land use plans. The transportation and land use elements of the Comprehensive Plan identify the future arterial system and projected traffic volumes, future pedestrian and bicycle corridors, and the designated land use plans adjacent to the arterial systems.

The review of future transportation and land use plans allow for the coordination of access and land use prior to construction of development or transportation projects. This coordination reduces the potential need for retrofitting solutions to accommodate traffic growth and/or designated land use plans. The review of the City's projected traffic volumes and zoning plans also identify the potential locations where non-conforming access spacing may occur and plans to address access issues may be developed ahead of time.

In general, the development of the City of Marysville access management plan standards considered the applicability of the recommendations in conjunction with the future City plans to assure that the criteria is reasonable.

ACCESS PLAN RECOMMENDATIONS

The Access Management Plan recommendations were developed primarily from the standards of local Agencies with an emphasis on the standards established by WSDOT and Snohomish County. Additional emphasis was placed on the standards from these jurisdictions since arterial speed is used as a basis for determining their driveway spacing requirements. Therefore, the access management plan recommendations are based on speed and traffic control since both elements have a functional relationship to sight distance and access safety.

Arterial Access Standards

The access management plan spacing standards recommended for implementation in the City of Marysville arterial system are shown in Table 3. Figure 1 depicts the corresponding dimensional locations graphically. As shown in Table 3, the driveway spacing standards for a full access driveway range from 125 feet to 300 feet depending on the speed of the arterial, adjacent intersection traffic control, and spacing between adjacent driveways.

Driveway spacing standards for right turn in/right turn out only driveways are slightly lower ranging from 100 feet to 260 feet depending on arterial speed, traffic control and the direction of travel relative to adjacent signalized intersections. The direction of travel relative to the intersection (approaching or departing) is important to maintaining traffic flow where accelerating vehicles and drivers slowing down to enter driveways are the cause of many rear end accidents.

Right turn driveway spacing standards are lower since there are less points of vehicular conflict. Access locations restricted to right turn in only or right turn out only movements range from 100 feet to 175 feet depending on arterial speed and traffic control.

In addition to the access driveway spacing standards above, the following standards should also be considered and implemented as applicable:

- Driveways are to be restricted to right turns only with the use of medians or driveway pork-chop islands with appropriate signing consistent with WSDOT design criteria and the Manual on Uniform Traffic Control Devices (MUTCD).

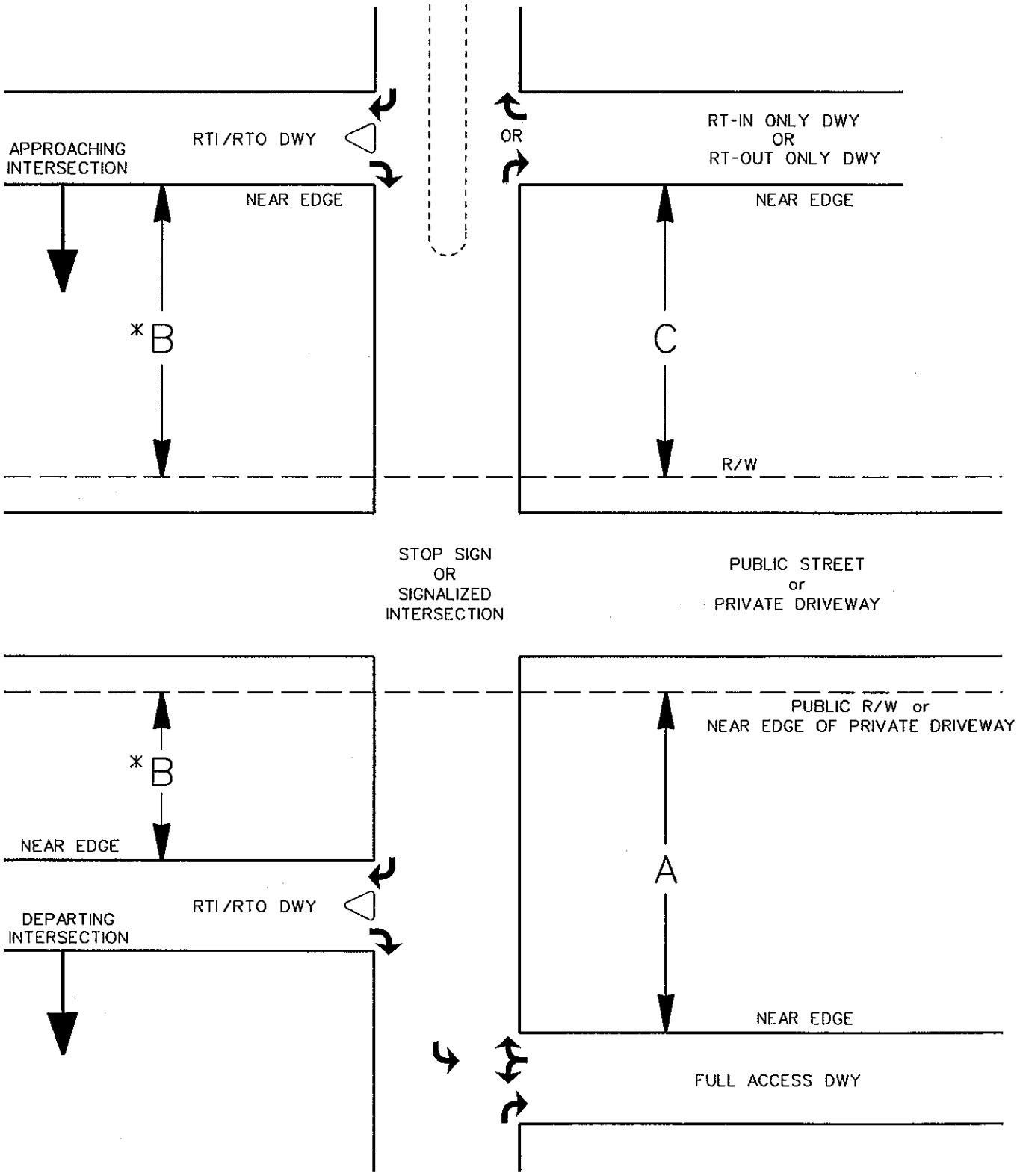
- Left turn access may be restricted if left turn traffic movements significantly interrupt traffic flow and operations as determined by the City Engineer. Channelization allows traffic to exit the main flow of traffic to conduct the left turn movement while maintaining the capacity of the through lanes. Left turn channelization warrant analysis based on WSDOT Design Manual guidelines should be conducted to identify if improvements should be provided or constructed.

- Only one (1) full access shall be allowed for every 500 feet of any contiguous parcel ownership or master plan arterial frontage. In all cases, the number of access locations should be minimized and existing access consolidated if possible.

Table 3
City of Marysville
Driveway Location and Spacing Guidelines

Posted Speeds	Adjacent Intersection Control	Full Access (A)	Right Turn In/ Right Turn Out Only (B)	Right Turn Out or Right Turn In Only (C)
< or = 30 mph	STOP SIGN	125 FT	100 FT	100 FT
	SIGNALIZED	230 FT	125 - APPROACH 150 - DEPART	100 FT
35 mph	STOP SIGN	150 FT	120 FT	120 FT
	SIGNALIZED	250 FT	150 - APPROACH 200 - DEPART	135 FT
40 mph	STOP SIGN	175 FT	140 FT	140 FT
	SIGNALIZED	275 FT	175 - APPROACH 250 - DEPART	150 FT

Refer to Figure 1 for corresponding graphic locations



* Dimension B for Right Turn In/Right Turn Out only driveways depends on which side of intersection driveway is located (Approaching or Departing).

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City of Marysville
Access Management Plan
Driveway Location Spacing

Figure 1

- Access point should be placed directly opposite each other. If this is not possible, a separation between the nearest edges of such opposite access points shall meet the spacing criteria set forth in Table 3.

- Where a property has frontage on more than one roadway, access will generally be limited to the lowest volume roadway where the impacts of a new access will be minimized. Access onto other higher volume roadways may be denied or restricted in the interest of traffic safety or in order to lessen congestion on the higher volume road.

- The spacing measurement for all access standards shall be measured from the near edge of access driveways and the right-of-way line for public streets or the near edge of the adjacent driveway.

- Spacing for proposed driveways access adjacent to railroad right of way shall be measured from the railroad stop bar to the near edge of the driveway.

- Provisions for joint access may be required for two adjacent developments where a proposed new access will not meet the spacing requirements of this plan or to limit the number of access points on the arterial. In the event the adjacent property is not ready for development, the first property ready for development may use an interim access.

- Sight distance standards for ingress and egress movements shall be satisfied for all proposed access locations based on AASHTO guidelines.

Requiring turn movement restrictions based on traffic volumes should be considered when average daily traffic volumes on the arterial reaches between 24,000 to 28,000 vehicles per day. National studies have indicated that arterials with two-way left turn lanes start to become unsafe at this level of daily traffic, although most retrofitting projects occur when traffic volumes reach approximately 40,000 ADT. Access restriction considerations due to high traffic volumes should be reviewed on a case-by-case basis depending on the hourly loading of the daily volumes and the distribution of traffic volumes during the peak hours.

Additionally, Snohomish County Procedure 4210 for Level of Service Determinations outlines a range of traffic volumes for level of service grades at peak hour conditions. These traffic volume levels are shown in the appendix of this report. These volumes can be adopted for use as guideline to determine turn movement restriction applications and development approval volumes for arterial roadway sections.

Pedestrian-Oriented Arterial Corridors

Driveway spacing and location standards for the City of Marysville pedestrian-oriented corridors are recommended to encourage pedestrian activity and minimize vehicular conflicts. Therefore, access driveway locations within these corridors are not recommended until alternative access and parking plans have been evaluated.

Since posted speed limits for the pedestrian corridors are generally 25 mph, access spacing standards are not as critical as vehicular arterials. However, to obtain the objective of reducing vehicular and pedestrian conflicts, access driveways should be kept to minimum number and width. Curb returns should also be minimized to reduce the travel length for pedestrians for one side of the driveway to the other.

Driveway Design Standards

The review of driveway design standards currently required by local Agencies were compared to the current driveway standards utilized by the City of Marysville. Based on the results of the review, the following access driveway standards for throat length, driveway grades, and driveway widths are recommended.

- Driveway throat lengths should be a minimum of 20 feet increasing relative to the projected driveway traffic volumes and expected queue lengths. In no case shall access driveway ingress, egress, or vehicle storage affect traffic flow on the arterial.

- Access driveway grades for commercial uses should not exceed 8% without City approval and in no case shall exceed 15%. Residential access grades shall not exceed 15% in any case.

- Driveway width standards shall be 12 feet minimum and 30 foot maximum for residential uses, and 30 foot minimum and 40 foot maximum for commercial/industrial driveways on arterial streets.

- The recommended driveway width standards for the City's pedestrian-oriented corridors should be approximately 30% less than the arterial standards outlined for residential and commercial uses.

ACCESS PLAN IMPLEMENTATION

Awareness of the goals and benefits of access management is an important factor in developing support for implementation. Taking access management from policy to implementation has been identified to occur at four different levels and can potentially occur at a fifth. The four levels are the permitting processes, access management plans and projects and the land use regulation process. The potential fifth level is the adoption of access management concepts by the development community. Implementation of the access management plan should also consider

variances to the standards that would be evaluated on a case-by-case basis with consideration given to traffic flow and safety, alternative access to the property, and the existing or potential adjacent land uses.

Permit Process

The permitting process is the most basic level of access management implementation. Without the other levels of access management implementation, the permitting process will be a struggle. Development of access management plans supports a smoother permitting process. These plans are usually developed at the corridor level, for locations where strip development has started or has a high potential to occur.

Access management projects cover a range of possibilities, from small safety projects dealing primarily with channelization, to large access control projects where raised medians are constructed and frontage roads built. Projects usually occur to correct deficiencies that have developed as a result of poor practices. However, projects can also be part of the natural progression of implementing access management plans. Where no plan exists, a project will usually be retrofit.

Along with access management plans, the land use regulation process has the opportunity to implement access management with the least impact, in the most efficient manner. The fifth level of implementation occurs when developers see the improvements in the operation of the transportation system that result from the application of access management principles.

Land Use Connection

Access management deals with that portion of the arterial system that connects the transportation system to the land use. Land use regulation can be designed to minimize impacts on the transportation system while supporting the purpose of the land development. Access management can be incorporated into land use by: applying the concepts to land development and subdivision regulations; including policies and principles in local comprehensive plans; providing developer incentives; and carefully considering the economic benefits of applying access management as well as the impacts.

- *Increase minimum lot frontage along thoroughfares -*
- *Encourage joint access and parking lot cross access -*
- *Review lot splits to prevent access problems -*
- *Minimize commercial strip zoning and promote mixed use and flexible zoning -*
- *Establish reverse frontage requirements for subdivision and residential lots -*
- *Require measurement of building setbacks from future right of way line -*
- *Promote unified circulation and parking plan -*

Local Comprehensive Plans

Local Comprehensive Plans provide an opportunity for local agencies to create an environment that encourages good access management. A statement of policy on the part of the local

governments that recognizes and supports access management will serve to incorporate these concepts into the foundation of the jurisdiction's development strategy. The general policy and objective of the City of Marysville Comprehensive Plan regarding access are:

- Minimize ingress and egress points at commercial sites to reduce traffic impediments, and
- Reduce the number of individual access points from arterials by encouraging joint use.

The City of Marysville Development Code and Comprehensive Plan supports these objectives by stating in the Development Code (Chapter 20.24.090 Street Improvements) that "the city may require that access to such streets (arterials) may be limited, such as common lot access points..." and in Chapter D (Transportation Plan) of the Comprehensive Plan where it states, "Access to properties along principal and minor arterials should be consolidated wherever possible to maximize the capacity of the facilities and reduce potential safety conflicts."

Developer Incentives

Traditionally, developers are seen as wanting to maximize business opportunities by maximizing access, and in fact, many do feel this way. Therefore, it is important that local agencies educate them on the benefits of access management. Besides the benefits that the community as a whole will experience, as noted in the Goals and Benefits sections of this report, developers, or their clients, will benefit from increased traffic volumes, shorter travel times, and increased safety for their clients. When access management concepts are applied to parking lot circulation, customers will also find it easier to access businesses.

Economic Impacts

Business people will have many concerns regarding the impacts of access management upon their businesses. Studies to date, on the economic impacts of access management, and raised medians in particular are inconclusive.

What is known up to this time is that an area will not be negatively impacted by a raised median project over the long term. However, before this occurs, there may be some turn over in businesses, especially from convenience type stores to destination businesses. This pattern is not inevitable, depending on factors such as the number of alternatives available to customers, and the volumes of traffic.

It is rarely as easy to retrofit access management applications, from both a design and an economic perspective, as it is to design good circulation and access to begin with. It is easier to plan good access before the site is designed, than it is to wait until the site design is completed. It is also easier to build opportunities for joint access into the initial design phase than to attempt retrofitting.

Public Involvement

The backbone of almost every access management effort is public involvement. Property owners consider many access management applications a threat to them. They are more likely to cooperate if they are approached at an early stage of the process. They need to be invited to help solve a problem, not approve a proposal that agency staff has already developed.

Public involvement requires building trust, early and continuous involvement, providing good information, and responsiveness to the public. Many questions are asked repeatedly by the public at meetings on access management. Staffs can command respect and develop trust by being prepared and by providing good information to the public.

Variance Considerations

1. A variance to the Marysville Access Management Plan standards shall be granted by the City, only if the applicant demonstrates all of the following in writing:
   - **a.** Special conditions and circumstances exist which are peculiar to the land such as size, shape, topography or location, not applicable to other lands in the same neighborhood, and that literal interpretation of the provisions of the access standards would deprive the property owner of rights commonly enjoyed by other properties similarly situated in the same neighborhood;
   - **b.** Special conditions and circumstances do not result from the actions of the applicant, and are not self-imposed hardships;
   - **c.** Granting of the variance requested will not confer a special privilege to the subject property that is denied other lands in the same neighborhood;
   - **d.** Granting of the variance will not be materially detrimental to the public welfare or injurious to the property or improvements in the neighborhood in which the subject property is situated;
   - **e.** Granting of the variance requested will be in harmony with the general purpose and intent of the access management plan and engineering standards;
   - **f.** The purpose of the variance is not merely to permit the subject property to be utilized more profitably by the owner or to economize on the cost of improving the property;
   - **g.** Granting of the variance will not be detrimental to the existing safety or capacity of the corridor.
2. In granting any variance the City may prescribe appropriate conditions and safeguards that will ensure that the purpose and intent of the access management plan and engineering standards will not be violated.
3. The City Engineer may approve, approve with conditions, or deny variances to the Access Management Plan standards. For change in existing Land Use, Public Notice of the variance request will be provided to property owners within 300 feet of the subject property. All decisions shall be accompanied by written finding relating to the variance criteria. The City Engineer's decisions under this section shall be final on the date issued. Administrative interpretations and administrative approvals may be appealed by applicants or aggrieved adjacent property owners to the Hearing Examiner. Appeal shall be filed within 14 days of

the issuance of decision. The appeal process is identified in Chapter 15.11 of the Marysville Municipal Code.

CONCLUSION

The development and review of the access management plan is based on existing standards utilized by WSDOT and local Agencies. The objectives of developing standards including improving safety, preserving capacity, enhancing alternative travel modes and the surrounding environment, and improving developer awareness will assist the City of Marysville in their access review process and maintenance of arterial service.

The detailed review of the range of agency standards provided a broad awareness of the strengths and weaknesses associated with access management and the potential issues where variances should be considered. The input provided by developers also gave insight to the development of the access management plan in terms of identifying the primary access concerns and criteria for different land use development and their needs.

Implementation of the ultimate access management plan will require the support of the residential and business community, City of Marysville, and inter-jurisdictional agencies. Education and awareness of the benefits for the access management plan will assist in acceptance of the standards.

In conclusion, the Marysville Access Management Plan criteria will provide the City with a workable foundation and basis for the review and approval of proposed site access for future development and growth.

Appendices

Perteet Engineering
Incorporated

Access Management Summary

Minimum Driveway Spacing for Adjacent Intersections and Other Driveways

		Full Access					Right-Turn In/Out			Right-Turn Out		Right-Turn In	
		Federal Way	Snoh. Co.	WSDOT Minimum									
Speed (mph)	Driveway Location	Classes 1-4 Minimum	Arterial Minimum	Class 5 Minimum	Interim	Class 4	Federal Way	Snohomish County	WSDOT Minimum	Federal Way	WSDOT Minimum	Federal Way	WSDOT Minimum
25-30	Approaching Intersection	w/6L @ Signal only w/4L 660 Sig/330 Stop	125* 230 Signal	125	125	250	w/6L 330 w/4L 250 w/2WLTL 125	85 Stop 115 Signal	115	w/6L 330 w/4L 250 w/2WLTL 125		125	100 75 w/median
	Departing Intersection	w/2WLTL 2-4L 150						115 Stop 230 Signal	125		100		100
35	Approaching Intersection	Same as above	150* 275 Signal	230	125	250	Same as above	105 Stop 135 Signal	Same as above	Same as above		Same as above	Same as above
	Departing Intersection							135 Stop 275 Signal	230		Same as above		
40	Approaching Intersection	Same as above	185* 320 Signal	230	250	250	Same as above	120 Stop 160 Signal	Same as above	Same as above		Same as above	Same as above
	Departing Intersection							160 Stop 320 Signal			Same as above		
45	Approaching Intersection	Same as above	230* 365 Signal	n/a			Same as above	140 Stop 180 Signal	Same as above	Same as above		Same as above	Same as above
	Departing Intersection							180 Stop 365 Signal			Same as above		

Note: **Distances shown above are in feet and are to be measured from the near edge of throat at driveways or the near edge of right of way at a public road cross street.**

* Distances between adjacent, one-way access points (with the inbound access upstream) can be one-half the distances shown above.

Federal Way

Raised Medians will be required if any of the following conditions are met:

1. More than 2 throught traffic lanes in each direction
2. ADT over 25,000
3. Accident rate > 10 accidents per million vehicle miles, if street currently has a two-way left-turn lane.

Two-Way Left-Turn Lanes will be required if any of the following conditions are met:

1. ADT over 5,000
2. Accident rate over 10 accidents per million vehicle miles.

Allow a variance of 20% in the standards to accommodate unique site conditions.

Island County

Allow a variance of 10% in the standards to accommodate unique site conditions.

King County

Neighborhood collectors require 150 foot centerline to centerline spacing of public roads.
Urban collector arterials require 300 foot centerline to centerline spacing of public roads.

Kirkland

150 feet from intersection
100 feet between same-side driveways
Offset a proposed driveway 75 feet to the right of an existing opposite driveway if driveway volumes are < 500 ADT and if the driveway cannot be aligned with the opposite driveway.

Agency	Speed (mph)	Driveway Location Relative to Intersection	Median	FULL access measured from edge of dwy or ROW	Restricted Access Movements Allowed	RT Out	RT In	Minimum Signal Progression Efficiency	Stop Sign	Signal	Dist. from break in Median	Throat	Dwy Grade	Dwy Width	OTHER INFORMATION	Ref. Doc.
WA State Normal	Posted 30-40 Urban		None	Class 3 330 ft	All			Adequate	330						No more than one access shall be provided to an individual parcel or to contiguous parcels under the same ownership	RCW 47-50 WAC 468-51 468-52
	Posted 30-35 Urban		None	Class 4 250 ft					250							
	Posted 25-35		None	Class 5 125ft					125							
WSDOT Sub-standard Minimum corner clearance	Irrelevant	Approaching Intersection	Raised Median		Right In/Out				115							
					Right In Only				75							
		Departing Intersection			Right In/Out				230'							
		Approaching Intersection	None raised		Right In Only				100							
					Full Access				230'							
		Departing Intersection	None Raised		Right In Only				100							
					Full Access				230'							
					Right Out Only				100							
Federal Way		Irrelevant	Raised	6 Lanes Only at signalized intersections		330	125	40%							20-40% signal prog. effic. Allows for a 20% variation from standards Raised median required if 5+ lanes or>25,000 ADT or > 10 Acc/MEVM 2WLTL for >5,000ADT or 10acc/MEV	Draft Standards
			Raised	4 lanes 660 from signalized, 330 from others		250	125	30%								
			TWLTL	2-4 Lanes 150 ft		125'	125'	20%								
Snohomish County	25		none	105												1992 EDDS
	30	Approaching Intersection	None	125					115	230	n/a	90 degrees min. 75 degrees	5% max.	Residential 10-30 ft Comercial 25-40ft Industrial 25-50ft	If possible, locate opposite other driveways. On a corner lot, driveway should be as far away as possible from intersection. No portion of an access will be permitted within curb returns. Access lowest volume roadway. Review necessity of medians on a case by case basis. Nearest edge of access point must be 3+ feet from nearest point of a fire hydrant, no parking zone, utility pole, traffic signal installation, light standard, mailbox cluster or other similar appurtenance. Only one 2-way or two 1-way access points per 500 feet of frontage. Access where possible to minor Road only	
		Departing Intersection							115	230						
		Approaching Intersection	Raised						85	115						
		Departing Intersection							115	230	115 or 0					
	35	Approaching Intersection	None	150					135	275	n/a					
		Departing Intersection							135	275						
		Approaching Intersection	Raised						105	135						
		Departing Intersection							135	275	135 or 0					
	40	Approaching Intersection	None	185					160	320	n/a					
		Departing Intersection							160	320						
		Approaching Intersection	Raised						120	160						
		Departing Intersection							160	320	160 or 0					
	45	Approaching Intersection	None	230					180	365	n/a					
		Departing Intersection							180	365						
		Approaching Intersection	Raised						140	180						
		Departing Intersection							180	365	180 or 0					
King County	25-45	Any Road 500' CL to CL														1993 Road Standards
	25-40	Any Road 300' CL to CL														
	25	Any Road 150' CL to CL														
Kirkland	1 SFD Dwy			100'								<59 vpd 15ft <100 vpd 20 ft <300 vpd 30 ft	15% max. 6% Avg.	20'-30' 2-way 12'-15' 1-way	One access per frontage	DPW Dwy Standards
	< 500 ADT			100'					100'	150'						
	> 500 ADT			150'		100'	100'		100'	150'						