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Section 4
Minimum Design Standards

4.1 Introduction

This Section of the Coordinated Water System Plan (CWSP) provides a set of minimum design and performance specifications for new water utilities and for all existing utilities planning to install capital facilities for expansion purposes in the Skagit County Critical Water Supply Service Area (CWSSA). Municipalities are included in this definition with respect to service outside their corporate limits.

In Subsection 4.3, the application of these minimum design standards for water utility planning and construction is set forth. The design standards themselves are described in Subsection 4.5 *General Provisions*, identifying laws, regulations and standard specifications which are applicable unless otherwise superseded; and Subsection 4.6 *Specific Provisions*, detailing specific design standards adopted by the Water Utility Coordinating Committee (WUCC) of Skagit County (County).

The Public Water Systems Coordination Act and the procedures outlined in the CWSP apply uniformly to all public water supply systems in Skagit County as they relate to design standards in the unincorporated area, and other administrative procedures. These standards do not supersede any other legally constituted and applicable standards that are more stringent.

4.2 Purpose

The purpose of these standards is to set a base level of utility planning, design, and construction for public water utilities. This base level must provide for development at a level of service consistent with adopted land use plans and ordinances of the agencies with jurisdiction.

Subject to certain exceptions contained in the Public Water System Coordination Act, each utility, including municipalities, is to adopt design standards as a part of its water system plan (WSP). It is intended that a utility may adopt the minimum design standards described herein or may adopt higher standards, provided such standards are not inconsistent with applicable land use plans.

The design of facilities for the expansion of an existing system or establishment of a new system, including Group B systems, must be reviewed and approved by either the Skagit County Health Department (SCHD) or State Department of Health (DOH) before any construction begins. This review and approval will be based upon

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the minimum standards identified herein, unless the utility has adopted more stringent standards that are not inconsistent with applicable comprehensive plans.

Following completion of the CWSP, all expanding Group A Water Systems (see Table 3-1) must update their WSPs to be consistent with this CWSP. The documentation must include the documents listed below.

To conduct the system review process, DOH and SCHD require the documentation shown on Table 4-1 to be on file:

Table 4-1
System Review Process Required Documentation

System Designation	Required Documentation on File With DOH
Group A Water Systems	***(See Exhibit 1-1 and 3-1)***
Large and Expanding Systems	DOH Operating Permit and Approved Water System Program including CIP/CFP
Non-Expanding Systems	DOH Operating Permit, Small Water Management Program, and CIP/CFP
Group B Water Systems	***(See Exhibit 1-1 and Appendix E)***
Existing Systems	Approval Status and Water Facilities Inventory
New Systems	Completed Group B Workbook and Satellite System Management Agreement (if applicable)

4.3 Application of Standards - Priority and Ranking

These standards are set forth to ensure a sufficient quantity and quality of water is provided to ensure public health, and sufficient flow is available for public safety in areas of the County where fire protection is specified. Plans for expansion must be consistent with other County and water supplier adopted land use plans and WSPs, as generally outlined below.

The following list of policies and plans (Table 4-2) is intended to reflect the priority or ranking of authority. For example, the Skagit County County-wide Planning Policies establish the overall objective or policy. Number 4, or Water System Plans, must be consistent with, or help implement, the Planning Policies.

Table 4-2
Policy and Plans Priority and Ranking

Planning Documents	Purpose
1. Skagit County Countywide Planning Policies	Land use planning and policy
2. Skagit County, City, and Town Comprehensive Plans	Land use planning and policy
3. Skagit County Coordinated Water Supply Plan (CWSP)	County wide functional water supply plan
4. Water System Plan (WSP) (or Completed Group B Workbook)	Individual water system plan
5. Capital Improvement Plan (CIP) for 6, 10, and 20-Year Planning Horizon	Capital Facilities Plan (CFP)/Capital Improvement Plan (CIP)
6. System Annual CFP/CIP (Update to #4)	Annual CFP/ Budget
7. Modified CFP/CIP (Special Project Modification)	Modified CFP/Budget

4.3.1 Definition of Expansion and In-Fill

For purposes of application of the design standards presented herein, "expansion of service" is defined as systems requiring upgrades to source of supply, storage, and/or the distribution system (including extension of mains) to provide new water service and meet health and fire flow demands. Additional service is considered "in-fill" when service can be met without upgrades to the existing source of supply, storage, and/or the distribution system. Repair of existing systems shall not be considered expansion.

4.3.2 Urban Growth Areas

The minimum design standards described herein shall apply to all Urban Growth Areas (UGAs). The water utility/purveyor may adopt design standards that at least meet or exceed those standards prescribed herein so long as not inconsistent with applicable comprehensive plans.

4.3.3 Non-Urban Growth Areas

Water systems in non-UGAs of the County are required to meet or exceed these minimum standards. System design criteria shall be based on land use plans for the area being served. The system must also meet the water system hydraulic requirements and DOH requirements.

4.3.4 Existing System Conformance with Minimum Standards

Existing water systems are not required to utilize these minimum standards for connection of new retail customers to existing mains (in-fill) or for repair/replacement of facilities so long as no expansion of service area is

involved. However, when in-fill development is such that demand exceeds the water system's ability to meet quantity, quality, and pressure requirements, the necessary upgrades to the system shall meet these minimum standards. When existing facilities must be repaired or replaced to serve an expanded service area, all new construction shall meet these minimum standards.

4.3.5 Interpretation of Standards

Where two sets of standards may apply, the most stringent standard shall prevail, provided standards are not inconsistent with applicable comprehensive plans. In the event that a lesser or alternative standard is proposed by local fire officials, water system, or local government, the alternative interpretation of the minimum standards shall be in writing and limited to items for which the agency has legal jurisdiction (i.e., interpretation of fire flow). In the event that an alternative interpretation of the minimum standards is applied, the liability for the variance lies with the approving agency.

4.3.6 Indian Tribes

As noted in Section 2, there is a legal question as to whether the State laws governing the CWSP process apply to non-Indian owned fee lands within Indian reservations and activities thereon. Therefore, the standards contained herein are recommended for all systems, but they might not be binding upon public water systems serving reservation fee lands or trust lands within the reservation.

As is the case regarding existing non-expanding water systems, Tribes are encouraged to adopt the standards contained herein or develop more stringent standards. Such action will enhance the goal of achieving consistency and uniformity in system design and construction throughout the CWSSA.

4.3.7 Water System Plans and Applicable Land Use Plans

New and expanding utilities shall meet water system planning requirements using land use designations as prescribed by the government with land use authority and/or jurisdiction. Such designations shall be identified in the utility's WSP, and shall be used to establish design requirements. The sequence outlined in Section 4.2 should be followed.

The utility shall prepare a WSP and a program of capital improvements required to provide the anticipated level of service within their designated water service area, consistent with the land use plan. When the utility is

requested to provide water service, it will identify that portion of planned capital facilities as well as other installations necessary to provide the service requested consistent with applicable land use plans and development ordinances. In such cases, the utility and developer may reach an agreement to provide the desired service through a schedule of improvements, which is specified by a legally binding contract.

A phased development plan shall be developed as provided in Subsection 4.3.8. The plan shall be consistent with applicable County and city ordinances and codes in effect for the utility and future capital requirements needed for the development at its maximum potential densities as designated by the applicable general purpose government. A phased development plan shall depict the capital facilities for phased construction and their conformance with these standards.

Once a water utility's plan is approved, the utility should coordinate with its land use planning agency with jurisdiction regarding any proposed land use changes which impact the required level of water service. The water service related cost of said impacts, as determined by the utility, should be fully considered by the planning agency in acting on the proposed land use change.

4.3.8 Phased Development

If water service is requested of a utility in an area where only limited service is currently provided, the cost of installing all facilities at once in order to meet the desired level of service may be prohibitive. In this case, the utility and developer may reach an agreement to provide the desired service through a schedule of improvements over a reasonable period of time consistent with applicable land use plans and development ordinances. This phased development plan must be approved by the County and the purveyor for service in unincorporated areas, the city agency with jurisdiction within corporate limits, the County and the city agency with jurisdiction within UGAs, and must be consistent with the approved water comprehensive plan of the utility. A phased development plan must meet the requirements of County-wide Regional Policy 12.5 as implemented in comprehensive plans and development regulations.

A phased development plan shall be applicable when the following conditions are met:

(1) The written agreement between the utility and developer setting forth the phased development plan is submitted and approved prior to issuing a development permit (subdivision, plat, short plat, etc.). The plan must identify the water service level to be initially provided, projected growth expected in the new service area, additional capital

facilities required, a schedule of construction, and eventual level of service to be provided. The phased construction schedule must provide for compliance with design standards in a reasonable period of time and consistent with applicable land use plans and development ordinances.

(2) If the proposed new service is within the utility's designated service area, the utility shall have an approved comprehensive plan. If the new service is proposed outside of a designated service area, or if it is to be developed by a Satellite Management Agency (SMA), the utility or SMA shall submit an amendment to its comprehensive plan which addresses the needs of the new service area.

(3) All water mains and other permanent facilities installed during the phased development period shall be in accordance with the eventual system design identified in the utility's plan.

If land use changes occur, or if growth does not occur as anticipated, the utility may submit a revised plan, which identifies the reasons for relief from the original plan and a fixed date for compliance to be achieved.

4.4 Standards Incorporated By Reference

The existing standards listed below, or as may be modified by the appropriate authorities, are hereby incorporated by reference. Priority for application of these standards is in the order listed, but the most stringent applies. These standards will apply to water system design, installation, modification, and operation.

- ❑ Rules and Regulations of the State Board of Health Regarding Public Water Systems.
- ❑ Applicable State, County, or city rules, regulations, ordinances, and standards.
- ❑ Standards of the American Water Works Association (AWWA).
- ❑ Recommended Standards for Water Works (aka Ten States Standards)
- ❑ Standard Specifications for Road, Bridge, and Municipal Construction, as published by the Washington State Department of Transportation/ American Public Works Association (DOT/APWA), latest edition.

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4.5 General Provisions

4.5.1 Source Development

New and previously unapproved sources must be designed to meet the Departments of Ecology (Ecology) and DOH regulations and design guidelines. These include Chapter 173-160 WAC, "Minimum Standards for Construction and Maintenance of Water Wells," as administered by Ecology, and Chapter 246-290 and 246-291 WAC, "Drinking Water Regulations of the State Board of Health," as administered by DOH.

All test and production wells must be drilled in accordance with detailed drilling and testing specifications, which have either been prepared by, or received prior approval, of the utility.

4.5.2 Water Rights

Water rights must be obtained in accordance with Ecology regulations and procedures. Copies of water rights documents, correspondence, and other records are to be maintained on file with the purveyor.

4.5.3 Water Quality

Water quality must be proven to conform with the federal Safe Drinking Water Act (as amended), DOH criteria specified in Chapter 246-290 and 246-291 WAC, and/or any additional requirements more stringently applied by the local health department. Each utility may reserve the right to reject any source whose raw water quality does not meet these criteria.

4.5.4 General Construction Standards

Selection of materials and construction of water system facilities in the Skagit County CWSSA shall conform to the provisions of Subsection 4, with the additional provisions:

(1) All owners/operators of water systems which have lines in County roads rights-of-way must comply with franchise requirements outlined in ordinances passed by the Board of County Commissioners authorizing such use of the road and rights-of-way.

(2) Construction within incorporated areas remains subject to municipal permitting requirements.

(3) All projects requiring design by a registered professional engineer shall be inspected by the utility or its designated representative before closure of any excavation.

4.5.5 Hydrostatic Pressure Test

A hydrostatic pressure leakage test will be conducted on all newly constructed water mains, fire lines, fire hydrant leads and stubouts in accordance with DOT/APWA Section 7-11.3(11) or AWWA C-600 specifications, unless specified otherwise by the designated utility.

4.5.6 Disinfection and Bacteriological Testing

All pipe, reservoirs, and appurtenances shall be flushed and disinfected in accordance with the standards of DOH, AWWA C651-86 and C652-86, or DOT/APWA Section 7-11.3(12), unless specified otherwise by the designated utility.

4.5.7 Utility Interties

Planning for specific locations, size, and alignment of major water lines should consider emergency interties with adjacent water utilities.

4.5.8 Flow Measurement

All Group A service lines shall be installed so that each residential, commercial, and industrial structure will have a separate metered service for domestic water received from the utility. If approved by the designated utility, domestic water consumption may be measured by a master meter for service to a complex, under single ownership, and where water utility line subdivision is impractical. Service lines providing fire flow may be required by the utility to be equipped with a fire detection check valve and/or appropriate cross-connection control devices as required by WAC 246-290-490.

All new groundwater sources for public water supplies shall be provided with an access port for measurement of depth to water, and measuring devices for determining flow rate and total production. Installation of these devices is also recommended for existing groundwater sources. All new sources for which water treatment is included shall be provided with flow measurement.

4.5.9 Cross Connection Control

Where the possibility of contamination of the supply exists, water services shall be equipped with appropriate cross connection control devices in accordance with Chapter 246-291 (Group B) or 246-290 (Group A) WAC. The designated utility and/or the County cross-connection control program shall determine the need, size, kind, and location of the device.

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4.6 Specific Provisions

4.6.1 Pressure Requirement

Water systems shall be designed to maintain a minimum residual pressure of 30 psi at the meter, or property line if there is no meter, under maximum demand flow conditions, excluding fire demand. For water systems requiring fire flow capability, the distribution system shall be designed to provide the required fire flow at a pressure of at least 20-psi at the hydrant during maximum instantaneous demand (MID) conditions (WAC 246-290).

4.6.2 Pipe Sizing and Materials

The minimum pipe diameter for distribution mains shall be 8 inches within UGAs. Minimum main size in non-UGAs will be determined by system hydraulic requirements. Land use activities generally included in these two categories are listed below in Subsection 4.6.12, Fire Flow Requirements. Exceptions to the minimum diameter requirement for sub-areas of the system may be granted by DOH under the following conditions:

(1) Fire flow is not required under current land use, the potential for reclassification of land use to a higher density in the foreseeable future is not anticipated or is remote, and a smaller diameter pipe for sub-areas of the system is justified by hydraulic analysis; or,

(2) A remote system serving four lots or less is to be developed within a designated service area and the designated utility has entered into a water service agreement with the developer which includes provisions for eventual direct connection of the development. Fire protection requirements, if any, must be met during the interim.

Water main size shall be adequate to deliver fire flow and to maintain the pressure requirement defined above. All water mains shall meet applicable engineering and health standards adopted by the State of Washington or the water purveyor, including Chapters 246-290 and 246-293 WAC.

Water mains serving fire hydrants, either as part of new construction or planned phased improvements, shall be not less than 8 inches diameter for a deadend line, nor less than 6 inches diameter if looped. Hydrant leads extending less than 50 feet or across a street shall be of a suitable size to carry the required fire flow, but shall not be less than 6 inches diameter. In a deadend cul-de-sac, normal domestic mains less than 6 inches diameter may be installed from the last hydrant to remaining residences.

All pipe material shall be equal to or greater than AWWA standard specifications unless previously approved by the DOH. All pipe material for new water systems shall be constructed with "lead-free" materials. The lead content for joint compound materials (solder and flux) used for pipe installation shall be less than 0.2 percent in order to be considered "lead-free." The lead content for all installed pipes shall be such that it does not contribute more than 0.011 mg/L to the water.

4.6.3 Isolation Valving

Valving shall be installed in a configuration that permits isolation of lines. A valve is not required for short block lines of less than 100 feet. Valves should be installed at intersections with maximum spacing at 500 feet in commercial, industrial, and multi-family districts, 800 feet in residential districts, and 1/4 mile in arterial mains.

4.6.4 Air and Air-Vacuum Relief Valves

In order to minimize problems associated with air entrainment, the purveyor shall provide for installation of air or combined air-vacuum relief valves at appropriate points of high elevation in the system. In no case shall the installation be such that there is a possibility of back-siphonage into the distribution system.

4.6.5 Blow-off Valves

A blow-off assembly shall be installed on all deadend runs of 200 feet or more, and at designated points of low elevation within the distribution system. The blow-off assembly shall be installed in the utility right-of-way except where an access and construction easement is provided for in writing by the water utility. In no case shall the installation be such that there is a possibility of back-siphonage into the distribution system.

4.6.6 Pressure Reducing Stations

A manifold system shall be installed at pressure reducing stations that provides for a redundant pressure reducing valve, a bypass valve, or other suitable device which assures reliability and continuity of service.

4.6.7 Storage

The sizing of permanent storage facility requirements are based upon five components:

(1) Working Storage, which is the increment of storage contained in the reservoir between the pump on and pump off operating elevations;

(2) Equalizing Storage, required to supplement production from water sources during high demand periods;

(3) Standby Storage, required as backup supply in case the largest source is out of service; and,

(4) Fire Storage, required in order to deliver the level of fire flow service identified in the utility's approved plan (see "Fire Flow Requirements" below) for the required duration.

(5) Dead storage, which is the increment of storage at the bottom of the tank to account for pump protection, silt stops, and meeting minimum pressure requirements.

As a minimum, sizing of storage facilities shall be adequate to provide for equalizing, working, and dead storage plus the larger of standby or fire storage requirements. Equalizing, operating, dead and standby storage volumes shall be determined using "Sizing Guidelines for Public Water Supplies," DOH. Fire storage volumes shall be determined using the fire flow and duration as provided in levels of service requirements of Skagit County or municipal ordinance and the utility's approved plan. Sites providing gravity flow should be considered when siting storage facilities.

4.6.8 General Facility Placement

Below-ground facilities shall be located in accordance with applicable municipal or County ordinance. Where no ordinance applies, water mains shall be installed at a location that is compatible with the existing water system, the terrain, and the location of other utilities. In new subdivisions, wherever practical, water mains should be installed parallel to the centerline on the north or east sides of the street.

In addition, all piping, pumping, source, storage, and other facilities shall be located on public rights-of-way or dedicated utility easements. Utility easements must be a minimum of 15 feet in width, and piping shall be installed no closer than 5 feet from the easement's edge. Exceptions to this minimum easement may be approved by the operating water utility. Unrestricted access shall be provided to all public water system lines and their appurtenances, and public fire hydrants that are maintained by public agencies or utilities.

4.6.9 Pipe Cover

The depth of trenching, installation of pipes, and backfill shall be such as to provide a minimum cover of 30 inches over the top of the pipe for transmission and distribution lines and 24 inches for service piping. Back-filling up to 12 inches over the top of the pipe shall be evenly and carefully

placed. The remaining depth of trench is to be filled in accordance with applicable construction standards identified in General Provision. Materials capable of damaging the pipe or its coating shall be removed from the backfill material.

4.6.10 Water, Sewer Line, and Stormwater Separation Distances

Whenever possible, transmission and distribution water piping shall be separated at least 10 feet horizontally from on-site waste disposal piping, drainfields, and/or wastewater gravity or force mains. The bottom of the water main shall be 18 inches above the top of the sewer. Where local conditions prevent such horizontal and/or vertical separation, closer spacing is permissible where design and construction meet the special requirements of Ecology criteria for Sewage Works Design. Where applicable, consideration should also be given to stormwater piping and the appropriate design criteria applied.

4.6.11 Fire Hydrants

Standard Conditions

All fire hydrants shall comply with standards issued by the Fire Marshal with jurisdiction. Hydrants shall be the dry-barrel type with two hose outlets with inside diameters of 2-1/2 inches and one large pumper outlet with an inside diameter of 4 inches. Small ports shall have national standards threads measuring 3.0625 inches outside diameter at 7-1/2 threads per inch. Pumper ports shall be No. 3 Pacific Coast threads measuring 4.828 inches outside diameter at 6 threads per inch. The operating nut shall be 1-1/4 inch pentagon. When fire protection facilities are to be installed by the developer, the work shall include access roads, serviceable prior to and during the time of construction.

Local fire authorities may require that a 5-inch Stortz fitting be added to the pumper port of new hydrants. Mutual aid response shall be analyzed to insure compatibility. The Fire Marshal is to be informed in writing when such standards are required.

Hydrants shall be set plumb to finished grade with the pumper port facing the street. The lowest outlet should be no less than 16 inches above grade level and with no less than 36 inches of clear area around the hydrant for clearance. View of hydrants shall not be obstructed by any structure or vegetation within a distance of 50 feet in the direction of vehicular approach.

Hydrants located in areas subject to heavy vehicular traffic (other than roadways), such as parking lots or driveways, shall be protected against

damage from collision. The color of all public hydrants shall be determined by the local fire authority in consultation with the water utilities. Location markers for flush hydrants shall carry the same color designation as determined above.

It shall be the installer's responsibility to notify the fire department in writing when a hydrant is available for use. Upon approval of the local fire protection authority and water utility, hydrants shall become the property of the water utility. The location of all valves, fire hydrants, and hydrant designed flow capacity shall be properly and accurately marked on identifiable plans or drawings, one copy of which shall be furnished to the Fire Marshal at the time of inspection.

All fire alarm systems, fire hydrant systems, fire extinguishing systems (including automatic sprinklers), wet and dry standpipes, basement inlet pipes, and other fire protection systems and appurtenances shall meet the approval of the local fire protection authority as to installation and location and shall be subject to periodic tests. Plans and specifications shall be submitted to the local fire protection authority for review and approval prior to construction.

Low Flow/Non-Standard Hydrants (Existing Systems)

It is recognized that some water systems have installed fire hydrants which do not provide fire flow that meets standards. Fire protection connection to these systems can result in negative pressures and possible cross contamination of the system.

Existing water systems, with installed hydrants having a capacity which is below minimum standards, must identify such hydrants by a color coding system to be determined by the Skagit County Fire Chiefs Association.

Maintenance and Testing Responsibilities

During the preparation of the 1993 CWSP, discussions regarding standards for fire hydrants and fire flow involved the WUCC, County Fire Marshal, city and district fire chiefs, attorneys, and the Consultant. One result of these discussions was identification of the need for a maintenance and testing agreement between the fire authorities and the water utilities. Therefore, a model agreement was developed for that purpose. A model agreement is included as Appendix F. The agreement clearly delineates basic responsibilities and should be executed by each utility providing fire flows and the appropriate fire official. Responsibility for individual items should be changed by mutual and written agreement between the utility and fire protection agency.

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4.6.12 Fire Flow Requirements

Water supply facilities for expanding public water systems shall be designed to meet the fire flow objectives set forth below, or additional requirements scheduled by the Fire Marshal with jurisdiction. Fire protection for new structures must meet the requirements identified by the Fire Marshal with jurisdiction. Utilities shall develop their capital improvement program for meeting these objectives in consultation with the appropriate local fire authorities. It is the intent that said program may be scheduled to be phased-in over a specific period considered to be reasonable for the individual circumstances and consistent with applicable land use plans and development ordinances. The program shall be described in the utility's WSP and be subject to DOH approval.

In applying the minimum fire flow standards described in Table 4-3 on the following page, the Uniform Fire Code will take precedence over specified building structure requirements, when site-specific interpretation is required. Also, common standards should be developed for application within County and city designated urban growth management areas. These common standards must equal or exceed the standards described herein.

4.7 Severability

If any provision of these standards or their application is found to be invalid, the remainder of the standards and their implementation are not affected.

Table 4-3
Minimum Fire Flow Design Standards For New And Expanding Water Systems[1]

Land Use Designations Or Densities	Minimum Fire Flow (Gallons Per Minute)	Minimum Duration (Minutes)	Maximum Hydrant Spacing (Feet)
Urban Growth Areas [2]			
Industrial	1500[4]	60	[3]
Commercial	1500 [4]	60	[3]
Multi-Family Residential	1500 [4]	60	500
Single-Family & Duplex Residential	1000	60	500
Non-Urban Growth Areas			
Commercial / Industrial	1500 [4]	60 [4]	[4]
1 Dwelling Unit Per Lot Less Than 2.5 Acres	500 [5]	30 [5]	900 [5]
1 Dwelling Unit Per Lot 2.5 Acres Or Larger	NONE [5]	NONE [5]	NONE [5], [6]
Natural Resource Lands	NONE [5]	NONE [5]	[5], [6]

(1) The design standards may be amended to reflect changes to Comprehensive Plan land use designations and/or their densities. Proposed amendments will be presented to the Skagit County CWSP WUCC for approval.

(2) These criteria establish a minimum water system design standard. Each water system in an urban growth area must comply with the standards of the local government with jurisdiction. When there are different or conflicting standards, the most stringent standard shall apply. Prior to the issuance of a development permit, the approving authority shall establish fire flow, duration and hydrant spacing requirements.

(3) As determined by the appropriate fire official.

(4) Fire flow for individual buildings or groups of buildings is to be determined by the Skagit County Fire Marshal per Uniform Fire Code Appendix IIIA and the Skagit County Fire Marshal policy on fire flow. The application of lesser or alternative standards shall be in accordance with Section 4.3.5 (Interpretation of Standards).

(5) Fire flow will be required for a Conservation and Reserve Development (CaRD) land division as follows.

CaRD Characteristics	Fire Flow Requirement
5 or more lots	Option 1: Fire flow of 500 gpm for 30 minutes with hydrant spacing of 900 ft. or, Option 2: Fire Marshal approved fire prevention water system that provides adequate pressure and flow to support NFPA 13D sprinkler systems is required for all residential dwellings. In addition, if the property is located in an Industrial Forest, Secondary Forest, or Rural Resource designated land the fire protection requirements as listed in Skagit County Code 14.16.850 (6)(b)(iii)(b-e) also apply.
4 or fewer lots	None required, unless the property is located in an Industrial Forest, Secondary Forest, or Rural Resource designated land. If the property is located in such designated land the fire protection requirements as listed in Skagit County Code 14.16.850 (6)(b)(iii)(b-e) apply. However, NFPA 13D sprinklers are only applicable to residential dwellings.

As of the effective date of the CWSP, where in-fill development or extension of an existing water system occurs to serve an existing platted lot, the Skagit County Fire Marshal may limit the requirement for fire flow or fire suppression in accordance with Table 4-1 to the newly developed lot only. Group B public systems may choose to separate the fire flow from water flow. Separate tank and hydrant(s) location is subject to Skagit County Fire Marshal approval.

(6) Hydrants shall be installed when water lines are installed or replaced and are capable of supplying a tanker truck with a minimum of 500 gallons per minute at a minimum residual pressure of 20 psi. Tanker truck filling hydrants are to be located at major roadway intersections and along roads at a spacing not to exceed one mile to assist in fire protection.