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## PUBLIC SERVICE AND INFRASTRUCTURE

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Photo by Kath Williams

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## INTRODUCTION TO PSI CREDITS

Giving consideration to the rich characteristics of the region and the need to minimize the impact of development on the surrounding environment, a section entitled “Public Service and Infrastructure” has been developed. While this section is not typically encountered in a green build rating system, given the fragile resources that surround development in the Greater Yellowstone region, it was important that good practice be recognized.

Public services and associated infrastructure assets discussed in this section are historically owned and managed by local or central government. However, there are approaches that can be taken at the development and individual structure level that will both directly and indirectly protect our environmental resources and ensure that the Greater Yellowstone region’s quality of life is maintained for future generations.

Public services and the infrastructure necessary to accomplish such services (including water, electricity, garbage, and snow removal) are often provided by the local jurisdiction or private sector services. Typically such services are subject to regulations to ensure protection of public health, safety, and the environment. In the Greater Yellowstone region, the responsibility for the development of infrastructure may be within the scope of work for the owners/developers.

The goal of this credit category is to recognize best practices in the public utilities sector. Code compliance is essential and therefore required of participants in the GY-Framework program.

Water resources in the region not only provide for human life but are also a key element to the ecosystem, wildlife, and agriculture in the region. This credit category carries a prerequisite that requires water metering to ensure efficient use of water resources can be monitored by the end user. While this is a common practice for residential and commercial drinking water supplies in many countries, as well as for industrial self-supply water, in areas within the Greater Yellowstone region this is less common. Particularly with agriculture, a major water user in the region.

The benefits of metering are that, in conjunction with volumetric pricing, it provides an incentive for water conservation; it helps to detect water leaks in the distribution network and individual service fixtures. It also provides a basis for reduction of non-revenue water use.

Similar to the prerequisite of water metering to promote efficient water use, points throughout this credit category focus on efficient use and reuse of water and energy resources. These include direct approaches such as sharing services, managing electrical loads, water efficiencies, and water quality. They also include indirect approaches such as expanded renewable energy production and resource management during construction.

Points can be earned in this credit category for addressing the following issues:

- Energy efficiency through sharing of services
- Expanded use of renewable energy production
- Management of electrical loads and controls
- Use of strategies to attain water efficiencies
- Concern for water quality
- Snow management planning
- Resource management during utility construction

Innovation is encouraged and exemplary performance will be awarded additional points.



**PSI PREREQUISITE 1: CODE COMPLIANCE  
REQUIRED**

**INTENT**

To meet minimum existing federal and state infrastructure codes, standards and permits.

**REQUIREMENTS**

Comply with/adopt existing federal, state and local infrastructure codes and standards (e.g., CWA, SDWA, RCRA, NPDES, CAA, IECC see below).

**PSI PREREQUISITE 2: WATER METERING  
REQUIRED**

**INTENT**

To conserve scarce water resources over the long-term and raise owner and consumer awareness of this need.

**REQUIREMENTS**

All projects will include metered water use in the final development to the extent possible. State and seasonal projects can apply for an exemption under special circumstances.

For public water systems\*, the system shall individually meter users, and the metering shall be strictly enforced. If service to the development or structure is not provided via public water system, the individual users shall individually meter use (i.e., irrigation users, individual wells, etc.). Where technologies allow, the intent is to raise owner and consumer awareness about their water use and potential for waste with the ultimate goal being to promote conservation and wise use of water resources.

If water has to be hauled to the site via water truck or portable tank, addition of a meter to the source will not qualify for compliance with this prerequisite except in the case where the structure is owned and maintained by a government agency for the purpose of a visitor center or other public facility that ultimately minimizes human waste in areas where high foot traffic occurs. If the proposed structure is a private development with the need to haul water, this prerequisite will not be met as it is generally believed that this type of development should not occur in areas where water resources are not readily available to sustain the development.

**PSI CREDIT 1: SHARED SERVICES: ENERGY/WATER EFFICIENCIES  
1 -2 POINTS**

**INTENT**

To encourage installation of renewable, community-owned and used energy production to avoid energy fuel depletion. Help create a cooperative atmosphere of businesses sharing renewable energy resources and responsible energy and water systems.

**REQUIREMENTS**

Collaborate with one or more neighboring developments or local regional utilities to implement the infrastructure for community-shared:

Option 1:  
Renewable energy

**AND/OR**



Option 2  
Efficient water systems (including waste water treatment).

**For Local Governments: Incorporated Towns, Cities, and Counties:**

Remove any barriers or make exceptions for developments pursuing alternative infrastructure solutions.

Promote alternative infrastructure by offering incentives to developers who are reducing the load or demand on the municipally supplied services.

**PSI CREDIT 2: RENEWABLE ENERGY: EXPANDED USE**

**1 - 3 POINTS**

**INTENT**

To reduce dependency on fossil fuels through the use of green energy resource alternatives.

**REQUIREMENTS**

Develop or incorporate into future project developments through construction, CC&R's or other binding documents, renewable, non-polluting source(s) of energy sufficient to meet a percentage of the energy needs of the project as follows:

Minimum percent of project's energy needs from renewable, non-polluting resources <u>produced on-site</u>	Points
10%	1
20%	2
30% or more	3

**For Local Governments: Incorporated Towns, Cities, and Counties:**

A municipality can earn points by providing:

- Information on renewable energy being purchased
- Green tags purchased for general load
- Information on any net metered facilities they may have that are generating renewable energy (i.e., biomass from wastewater treatment plant or landfill, wind, solar, etc.)
- Documentation that a specific city project is being fueled in part from a renewable resource
- Copy of ordinance supporting right to solar access



Copy of signed agreement to generate ethanol from solid waste

### PSI CREDIT 3

### CARBON EMISSIONS REDUCTION

1 POINT

#### INTENT

To demonstrate leadership in addressing climate change and to reduce carbon emissions in the region.

#### REQUIREMENTS

Purchase carbon offsets (1 point).

Calculations should take into account both impacts of development as well as operations. Purchase of carbon offsets can help achieve emission reductions by supporting projects elsewhere, such as wind farms, solar installations, energy efficiency projects, and/or reforestation projects.

OR

Reduce carbon emissions by at least 50% either on or off-site. (1 point)

Exceptional performance points will be rewarded if the project reduces carbon emissions at 100% for three years.

Reductions in carbon emissions can be achieved by, but are not limited to: use of bio-fuels in diesel vehicles, purchasing hybrid or electric vehicles, providing access to renewable energy to residents, comprehensive recycling and composting programs, following LEED Silver or higher building guidelines.

Any offsets against operation impacts should be backed by a contract.

### PSI CREDIT 4:

### ELECTRIC LOAD/DEMAND EFFICIENCY

1 - 2 POINTS

#### INTENT

To reduce the need for power peaking capacity and to minimize the need for upgrades to transmission and distribution electrical systems.

#### REQUIREMENTS

Install demand controls to selectively shed electric loads during peak periods.

- For controllability of 10% or more of the total electrical peak demand for the development (1 point)
- For controllability of 20% or more of the load for the development (2 points)

**For Local Governments: Incorporated Towns, Cities, and Counties:**

Implement a community-wide program of peak load reduction.



**PSI CREDIT 5: WATER USE EFFICIENCY**

**1 - 4 POINTS**

**INTENT**

To reduce water quantity demand by promoting water use efficiency or water reuse.

**REQUIREMENTS**

Use existing and innovative technologies to promote water use efficiency or water reuse.

Indoor Use: (1 point)

For buildings, employ strategies that in aggregate use less water than the water use baseline calculated for buildings (not including irrigation in the calculation) using water efficient or low demand fixtures or through diverted non-potable water (stormwater, recycled greywater or treated wastewater effluent). Calculations are based on estimated occupant usage and shall include only the following fixtures: water closets, urinals, toilets, lavatory faucets, showers, and kitchen faucets.

30% less water	1 point
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Landscape Use: (1 point)

For irrigation, use only captured rainwater, recycled wastewater or greywater, or water conveyed by a public agency or irrigation district/company specifically for non-potable uses. Use to reduce irrigation needs by 50% based upon mid-summer baseline calculations.

**OR**

Install landscaping that does not require permanent irrigation systems and is either native or adaptable to the regional climate. Temporary irrigation systems used for plant establishment are allowed only if removed within one year of installation.

Stormwater Use: (1-2 points)

Implement a comprehensive stormwater management plan for the project that infiltrates, re-uses, or evapotranspires runoff from 90% of the average annual rainfall or 1” of rainfall from a percentage of the project’s development footprint and other areas that have been graded so as to be effectively impervious, as listed below:

Minimum % of the development footprint	Points
30%	1 point
60%	2 points

Plan should identify practices to be employed, such as permeable pavements, rainwater harvesting systems or green roofs. Development footprint will include typically impervious surfaces included in the definition of “development footprint,” such as roofs and pavements, even though the surfaces may be made pervious as part of the stormwater management plan.



**PSI Credit 5:**

**Water Use Efficiency (continued)**

**For Local Governments: Incorporated Towns, Cities, and Counties:**

Demonstrate policies that encourage water efficiency or minimizing water waste. These policies should be established in ordinance. Policies could include a demand side management program (requiring low use fixtures), metering and water charges based upon metered use, and program to audit accounts with high water use. Credit should also be given for either creative municipal re-use of treated wastewater effluent, grey water, or storm water by irrigating city grounds with such waters and/or that have an established program that encourages development to reuse such waters in their development.

Existing or proposed “Storm Water Management Program” encouraging permeable surface use to minimize runoff and risk of contamination.

Implement post construction phase “Best Management Practices” (BMP); storm water management program to treat storm water runoff, and minimize impact to neighboring water bodies, and minimize erosion and sedimentation.

**PSI CREDIT 6:**

**WATER QUALITY**

**1 POINT**

**INTENT**

To improve and protect water quality.

**REQUIREMENTS**

Option 1:

Rural projects with individual on-site potable water wells shall build or connect to a public/community wastewater system. **(1 point)**

**OR**

Option 2:

Rural projects having individual on-site wastewater treatment systems shall build or connect to a public/community water system. **(1 point)**

**OR**

Option 3:

Rural projects not connected to a community wastewater system or a community water system shall develop their project under an approved comprehensive watershed plan that directs acceptable wastewater handling and treatment.

**AND**

- Treat 50% of wastewater on-site to secondary standards with treated water infiltrated or used on-site.
- On-site treatment system takes into consideration site specific geological constraints (i.e., soils, groundwater level).



- Educational programs and/or materials are established to inform occupants of appropriate treatment methods and required maintenance to keep their system operating at the maximum efficiency.  
(1 point)

**For Local Governments: Incorporated Towns, Cities, and Counties:**

A municipality desiring to receive points in this section shall demonstrate the following:

Existing or proposed “Source Water Protection Plan” addressing all neighboring land uses.

Requirements for individual on-site treatment systems have been developed and include a comprehensive watershed management plan based upon geological constraints, vulnerable aquifers or water bodies, and allowable treatment alternatives/standards based upon the unique site criteria

**PSI CREDIT 7: SNOW PLAN**

**1 POINT**

**INTENT**

To reduce the impact of snow and meltwater on pedestrian travel and safety, on nearby water bodies, and on stormwater systems.

**REQUIREMENTS**

Establish a comprehensive snow management plan including snow removal from streets, sidewalks, and bicycle lanes, snow storage, and meltwater management to prevent contamination of ground or surface water or flooding. Avoid use of chemicals or salts as melting agents.

**AND**

Ensure removal of snow and ice from sidewalks and similar pedestrian areas in a timely manner to facilitate walking and prevent injury. Add language to commercial leases and/or CC&R’s which require timely and appropriate removal methods.

**AND**

Properly configure and maintain pedestrian crossings to avoid blocked storm and meltwater inlets and resulting water and ice barriers to pedestrian use.

**PSI CREDIT 8: UTILITY CONSTRUCTION AND RESOURCE MANAGEMENT**

**1 POINT**

**INTENT**

To reduce environmental impacts and social costs, and provide economic alternatives to traditional open cut methods of utility installation, rehabilitation, or replacement.

**REQUIREMENTS**

A municipality desiring to receive points in this section shall demonstrate measures to:

- Monitor and reduce water system loss due to transmission system leaks



- Reduce wastewater system infiltration and inflow (I&I)
- Have established and routinely update a “Capital Improvements Plan” (CIP) that addresses municipal utilities
- Provide a written commitment to the appropriate use and implementation of Trenchless technology for the rehabilitation, replacement, or installation of water, wastewater, or stormwater conveyance utilities

Any areas having to improve the condition or capacity of water, wastewater, or storm water conveyance utilities shall investigate the applicability of Trenchless technology to rehabilitate, replace, and/or install new utilities. Determine through the submittal process defined below if Trenchless technology is appropriate.

- Reduce by 80% Asphalt and/or Concrete pavement **removal** associated with water, wastewater, or storm water conveyance utility rehabilitation, replacement, or installation. **(1 point)**

**OR**

- Reduce by 80% **new** Asphalt and/or Concrete pavement **replacement** associated with water, wastewater, or storm water conveyance utility rehabilitation, replacement, or installation. **(1 point)**

**OR**

- Where water, wastewater, or stormwater conveyance utilities require rehabilitation, replacement, or installation, and/or require additional capacity, utilize the appropriate Trenchless technology method for the conditions and intended result **(1 point)**.

**Avoid use of Poly Vinyl Chloride (PVC) in any new utility material where possible.**