

Appendix C. Change Types

Table C-1 provides the full list of change types and definitions.

Table C-1. Change Types and Definitions

Facility Change	Definition
No change	There are no planned modifications. <i>Note that this change type cannot be used in combination with any other change type.</i>
New	A new facility is being proposed or implemented. <i>Note that this change type cannot be used in combination with any other change type.</i>
Abandonment	<p>All unit processes or BMPs that make up the facility type will no longer be used or will be demolished in the future. Examples are:</p> <ul style="list-style-type: none"> • Taking a treatment plant out of service. Its flows are redirected to another treatment plant. • Taking a biosolids handling facility out of service and centralizing all biosolids treatment at one regional biosolids handling facility. • Replacing OWTs with a central collection and treatment system. <p>Abandonment does <i>not</i> include taking single unit processes or BMPs out of service while still maintaining the overall type of the facility (e.g., switching from chlorination to ultraviolet disinfection). This change should be categorized as “process improvement.”</p> <p>If a facility is to be demolished and replaced in the same location, the change should be categorized as “replacement.”</p> <p><i>Note that this change type cannot be used in combination with any other change type.</i></p>
Climate change adaptation	Implementing changes at the facility to mitigate the impacts (e.g., floods, hurricanes) of climate change. The climate change adaptation strategies are sufficient in and of themselves to document need for projects. The strategies do not need to be linked to a water quality or public health benefit.
Expansion	<p>Increasing the service area of an existing sewer system or NPS BMP. It also includes the addition of new OWTs in a municipality where there are presently OWTs with the rehabilitation change type.</p> <p>This change does not include the construction of an entirely new sewer system, which should be categorized as “new.”</p> <p>Increasing the treatment capacity for existing treatment plants, biosolids handling facilities, MS4s, decentralized treatment systems, NPS BMPs, and desalination facilities. These changes should be categorized as “increase capacity.”</p>

Facility Change	Definition
Improve energy efficiency	Implementing improvements to the facility to be more energy efficient (e.g., measures to reduce chemical needs or O&M costs at a facility). The energy and other economic efficiencies will be sufficient in and of themselves to document need for projects. The energy efficiencies are not required to be linked to a water quality or public health benefit.
Improve water efficiency (new for 2022 survey)	Implementing improvements to the facility that reduce the demand for POTW capacity through reduced water consumption (e.g., water meters, plumbing fixture retrofits or replacement, water-efficient appliances, water-efficient irrigation equipment, education programs). The water efficiency strategies will be sufficient in and of themselves to document need for projects.
Increase capacity	<p>Increasing the treatment capacity of existing treatment plants, biosolids handling facilities, MS4s, decentralized treatment systems, and NPS BMPs with respect to flow or tonnage. Examples are:</p> <ul style="list-style-type: none"> ● Increasing a wastewater treatment plant’s design flow from 1 to 2 MGD. ● Increasing a biosolids handling facility’s capacity from 0.25 to 0.35 tons per day. ● Increasing the size of a multiple-unit leach field to handle additional flow. ● Increasing the size of a sediment basin used to capture runoff from a construction site. ● Replacing existing sewers with larger-capacity sewers or expanding existing pump stations to pump more flow. <p>This change <i>does not</i> include:</p> <ul style="list-style-type: none"> ● Increasing the level of treatment to meet more stringent effluent limits. This change should be categorized as “increase level of treatment.” ● Increasing the size of a sewer system by adding new sewers and expanding the service area. This change should be categorized as “expansion.” ● Adding sand filtration to an existing non-centralized treatment system. This change should be categorized as “process improvement.”
Increase level of treatment	Improving the degree of treatment. This refers to any improvement in unit processes or BMPs that improves the effluent quality or decreases the concentration of most water quality variables from runoff or nonpoint sources. The addition of nutrient removal is considered to be an improvement in effluent quality (e.g., secondary effluent with nutrient removal represents higher-quality effluent than secondary effluent without nutrient removal).
Instrumentation/electrical/laboratory	Adding new or modifying existing instrumentation systems (e.g., SCADA [supervisory control and data acquisition]), electrical systems, or laboratory facilities at an existing facility of any type.

Facility Change	Definition
Process improvement	<p>Any improvement to a facility that does not increase the capacity, increase the level of treatment, expand the service area, or make a similar change for existing treatment plants, biosolids handling facilities, MS4s, decentralized treatment systems, and NPS BMPs. Examples are:</p> <ul style="list-style-type: none"> ● Replacing coarse bubble diffusers with fine bubble diffusers at a wastewater treatment plant. ● Upgrading membranes at a desalination facility. ● Replacing pumps in a pump station. ● Adding sand filters to an existing decentralized cluster system. <p>If a more detailed or more appropriate change type is available, it should be used.</p>
Redevelopment	Expanding, modifying, or otherwise upgrading existing gray or green stormwater management measures.
Rehabilitation	<p>Restoring or repairing parts of existing treatment plants, combined or separate sewer systems, biosolids handling facilities, MS4s, individual on-site systems, and NPS BMPs with no increase in capacity or level of treatment. Examples are:</p> <ul style="list-style-type: none"> ● Performing extensive repair of existing sewers beyond the scope of normal maintenance programs. ● Repairing deteriorating tank walls at a treatment plant. ● Replacing a deteriorated cover on an anaerobic digester. ● Adding a forebay to prevent sediment from entering a retention pond. ● Replacing membranes at a desalination facility. <p>This change does <i>not</i> include:</p> <ul style="list-style-type: none"> ● Replacing of one or more sewers with another while maintaining the same capacity. These changes should instead be categorized as “replacement.” ● Performing any work that could be considered normal O&M.
Renewable energy (new for 2022 survey)	Implementing renewable energy production (e.g., wind, solar, methane capture and energy conversion equipment, biosolids drying/dewatering and energy conversion equipment, co-digestion, combined heat and power systems, hydroelectric systems). The renewable energy strategies will be sufficient in and of themselves to document need for projects. The strategies do not need to be linked to a water quality or public health benefit.
Replacement	An existing facility is considered obsolete and is demolished, and a new facility is constructed on the same site. For treatment plants, this generally implies the same degree of treatment as the demolished plant.