

Puget Sound Stormwater Infrastructure Hierarchical Framework Chart

King County Implementation**

Function	Convey		Control							Connect			Concept
Function Types	Open Conveyance	Closed Conveyance	Flow Control			Water Quality				Access	No Sump	Sump	Pump Link
Components	<ul style="list-style-type: none"> Curb/Gutter Ditch Natural Drainage Trench Drain Channelized Flow* 	<ul style="list-style-type: none"> Culvert Pipe Screw Pump 	<ul style="list-style-type: none"> Other Control 	<ul style="list-style-type: none"> Swale 	<ul style="list-style-type: none"> Proprietary Device 	<ul style="list-style-type: none"> Control Structure 	<ul style="list-style-type: none"> Filter 	<ul style="list-style-type: none"> Pond/Vault 	<ul style="list-style-type: none"> Tank 	<ul style="list-style-type: none"> Access Riser Clean Out Manhole <u>Archaic Access</u> 	<ul style="list-style-type: none"> Concrete/Curb Inlet Drop Inlet Grate Inlet Type 2 <u>Deep Inlet Type 2</u> <u>Archaic No Sump</u> 	<ul style="list-style-type: none"> Catch basin Grate Inlet Type 1 <u>Archaic Sump</u> 	
Component Types	<ul style="list-style-type: none"> Curb/Gutter <ul style="list-style-type: none"> Asphalt Wedge Concrete Barrier Rolled Vertical 	<ul style="list-style-type: none"> Pipe <ul style="list-style-type: none"> Force Main Stormwater Pipe Tightline Underdrain Culvert <ul style="list-style-type: none"> Arch Bottomless Arch Box Bottomless Box Round Squash 	<ul style="list-style-type: none"> • Dry Well • Injection Well - Infiltration Trench <ul style="list-style-type: none"> ▫ Non-Veg <ul style="list-style-type: none"> Permeable Pavement ▫ Veg <ul style="list-style-type: none"> Dispersion ▫ Full <ul style="list-style-type: none"> Basic - Swale <ul style="list-style-type: none"> ▫ Cell ▫ Planter Bioretention <ul style="list-style-type: none"> Limited Footprint Amended soils Rain Garden Rainwater Harvesting Vegetated Roof 	<ul style="list-style-type: none"> Swale <ul style="list-style-type: none"> <u>Biofiltration (All Types)</u> <u>Compost Amended</u> <u>Continuous Inflow</u> <u>Infiltration</u> Other Control <ul style="list-style-type: none"> Proprietary Device <ul style="list-style-type: none"> <u>Filterra</u> <u>Stormfilter Basin</u> <u>Stormfilter Pond</u> <u>Stormfilter Vault</u> <u>Stormceptor</u> <u>StormTech</u> <u>Others</u> 	<ul style="list-style-type: none"> Pond/Vault <ul style="list-style-type: none"> <u>Combined Water Quality</u> <u>Detention</u> <u>Infiltration</u> <u>Sand Filter with Underdrain</u> <u>Stormwater Treatment Wetland</u> <u>Oil/Water Separator Vault</u> <u>Settling</u> Filter <ul style="list-style-type: none"> <u>Filter Strip</u> <u>Media</u> <u>Sand</u> 	<ul style="list-style-type: none"> Control Structure <ul style="list-style-type: none"> <u>Baffle</u> <u>Flow Splitter</u> <u>Orifice</u> <u>Riser</u> <u>Weir</u> Tank <ul style="list-style-type: none"> <u>Combined</u> <u>Detention</u> <u>Infiltration</u> <u>Water Quality</u> 	<ul style="list-style-type: none"> Manhole <ul style="list-style-type: none"> Type 1 Type 2 Type 3 Type 4 Other Drop Inlet <ul style="list-style-type: none"> Type 1 Type 2 Catch basin <ul style="list-style-type: none"> Type 1 Type 1L Type 1P Type 2 Other 	<ul style="list-style-type: none"> Link <ul style="list-style-type: none"> <u>Discharge Point</u> <u>Incoming Discharge Point</u> <u>Outfall (to Receiving Waters)</u> <u>Infall (from Natural Waters)</u> 					

Descriptors	MATERIAL	ACCESSORIES	ACCESSORIES (Cont.)	EVENTS	Externals	STATS	OBSERVATIONS
(Across many or all components) <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Note: None of the Descriptors or Externals have been vetted by the committee </div>	Connector <ul style="list-style-type: none"> Brick Concrete Clay Steel: Closed Conveyance <ul style="list-style-type: none"> Aluminized Asphalt Galvanized Aluminum (helical) Ductile Iron Plastic: HDPE ADS PVC Drisco SWPE CPEP LCPE Trench Ditch <ul style="list-style-type: none"> Grass Gravel Half Round Rock Sand Permeable Pavement <ul style="list-style-type: none"> Asphalt Brick Cement 	Cover: <ul style="list-style-type: none"> Solid Cover Grate - Beehive <ul style="list-style-type: none"> Birdcage Door Debris Barrier: <ul style="list-style-type: none"> Trash Rack Jail House Stand Pipe: <ul style="list-style-type: none"> FROP T Elbow Energy Dissipater: <ul style="list-style-type: none"> Riprap Pad Gabion Splash Block Baffle Wall Flow Control: <ul style="list-style-type: none"> Baffle Flow Splitter Orifice Weir 	Overflow: <ul style="list-style-type: none"> Sized Pipe Outlet Spillway Stand Pipe T-Section Horizontal Overflow Pipe Vent: <ul style="list-style-type: none"> Y/N Quantity Berm: <ul style="list-style-type: none"> Perimeter ditch structure Interior Oil/Water Separator: <ul style="list-style-type: none"> Baffle Coalescing Plate FLOW DIRECTION <ul style="list-style-type: none"> Bidirectional Grade Break Unknown 	Inspection Date Inspection Frequency Mapping Date Maintenance Frequency Maintenance Date Repair Date Replacement Date MEASURED <ul style="list-style-type: none"> Diameter Depth Height Length Width Invert Elevation Slope Ratio Sump Depth Up for consideration <ul style="list-style-type: none"> Roof gutter Air Vents Inflow from: <ul style="list-style-type: none"> Ground Pipe Surface 	(Non - SW System) LOCATION <ul style="list-style-type: none"> Physical <ul style="list-style-type: none"> Driveway Roadway Shoulder Trail Legal <ul style="list-style-type: none"> Private Public Easement Other Muni ROW Tract 	ID # LAT/LONG Parcel # Collection # Facility # Inlet # Outlet #	Dry Weather Flow Odor Color Turbidity Maintenance Structure Maintenance Cleaning Vegetation Density Salmonids Fish Kills N.Z. Mudsnaills ICIDDE Illicit Connection Sewage Fungus Surface Scum or Sheen Deposits & Staining Floatables Trash & Debris

Legend

- Color = Definition & hierarchy completed
- Underlined = Not defined or definition not vetted by committee
- Italics* = Hierarchy placement not vetted by committee
- Light Grey = Not in King County mapping database
- Bold** = Defined by Department of Ecology
- Feature mapped as point by King County
- Feature mapped as line by King County
- Feature mapped as polygon by King County

Last edit: 10/30/2014

**King County expanded this version of the hierarchical chart in order to complete the component list and map their stormwater inventory. Changes made to the original Framework are shown within the legend symbology. The core working version of this document is available in the Resources Archive page on the Washington Stormwater Center's website.

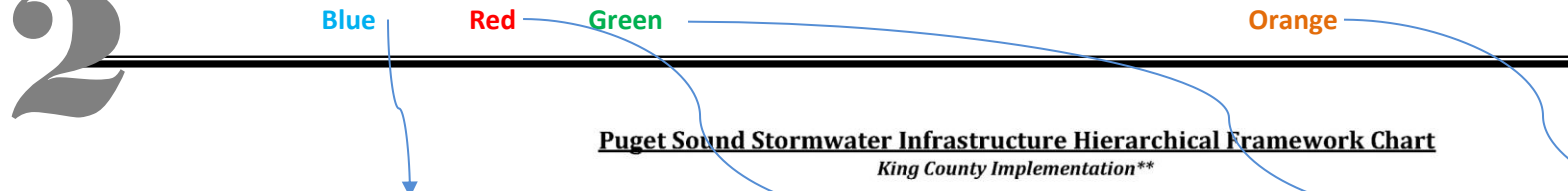
* Channelized Flow - Not designed, constructed or usually maintained

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The **Standardized Framework** organizes stormwater features in a top to bottom format from the general to the more specific.

First by Function
then Function Types
Components
then Component Types

The **Standardized Framework** for a Stormwater Management System Inventory organizes stormwater features from left to right into the categories of functionally what they do with stormwater: Convey it, Control it, Connect it to other components or the Component is a Concept.



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Function Types	Open Conveyance	Closed Conveyance	Flow Control			Water Quality				Access	No Sump	Sump		
Components	Curb/Gutter Ditch Natural Drainage Trench Drain Channelized Flow*	Culvert Pipe Screw Pump	Other Control	Swale	Proprietary Device	Control Structure	Filter	Pond/Vault	Tank	Access Riser Clean Out Manhole Archaic Access	Concrete/Curb Inlet Drop Inlet Grate Inlet Type 2 Deep Inlet Type 2 Archaic No Sump	Catch basin Grate Inlet Type 1 Archaic Sump	Pump Link	Underground Injection Control Well Link
Component Types	Curb/Gutter Asphalt Wedge Concrete Barrier Rolled Vertical	Pipe Force Main Stormwater Pipe Tightline Underdrain Arch Bottomless Arch Box Bottomless Box Round Squash	Other Control Dry Well Injection Well Infiltration Trench Permeable Pavement Dispersion Bioretention Limited Footprint Amended soils Rain Garden Rainwater Harvesting Vegetated Roof	Swale Non-Veg Veg Full Basic Swale Cell Planter	Proprietary Device Filterra Stormfilter Basin Stormfilter Pond Stormfilter Vault Stormceptor StormTech Others	Control Structure Baffle Flow Splitter Orifice Riser Weir	Pond/Vault Combined Water Quality Detention Infiltration Sand Filter with Underdrain Stormwater Treatment Wetland Oil/Water Separator Vault Settling	Filter Filter Strip Media Sand	Tank Combined Detention Infiltration Water Quality	Manhole Type 1 Type 2 Type 3 Type 4 Other	Drop Inlet Type 1 Type 2	Catch basin Type 1 Type 1L Type 1P Type 2 Other	Link Jurisdiction Other public agency Private Discharge Point Incoming Discharge Point Outfall (to Receiving Waters) Infall (from Natural Waters)	

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The Descriptors have in general not been reviewed by the committee for either their hierarchical position or definition. The Descriptors will be used to further classify and describe the Components and Component Types.

Descriptors	MATERIAL	ACCESSORIES	ACCESSORIES (Cont.)	EVENTS	Externals	STATS	OBSERVATIONS
(Across many or all components)	Connector: Brick, Concrete, Clay, Steel Closed Conveyance: Aluminum, Ductile Iron, Plastic, HDPE, ADS, PVC, Drisco, CPEP, LCPE Trench Ditch: Grass, Gravel, Half Round, Rock, Sand Permeable Pavement: Asphalt, Brick, Cement	Cover: Solid Cover, Grate - Standard, High Velocity, Vertical Beehive, Birdcage, Door Debris Barrier: Trash Rack, Jail House Stand Pipe: FROP T, Elbow Energy Dissipater: Riprap Pad, Gabion, Splash Block, Baffle Wall Flow Control: Baffle, Flow Splitter, Orifice, Weir	Overflow: Sized Pipe Outlet, Spillway, Stand Pipe, T-Section, Horizontal Overflow Pipe Vent: Y/N, Quantity Berm: Perimeter, ditch structure, Interior Oil/Water Separator: Baffle, Coalescing Plate FLOW DIRECTION: Bidirectional, Grade Break, Unknown	Inspection Date, Inspection Frequency, Mapping Date, Maintenance Frequency, Maintenance Date, Repair Date, Replacement Date MEASURED: Diameter, Depth, Height, Length, Width, Invert Elevation, Slope Ratio, Sump Depth Up for consideration: Roof gutter, Air Vents Inflow from: Ground, Pipe, Surface Outflow To: Ground, Pipe, Surface, Surface water	(Non - SW System) LOCATION: Physical (Driveway, Roadway, Shoulder, Trail), Legal (Private, Public Easement, Other Muni, ROW, Tract)	ID #, LAT/LONG, Parcel #, Collection #, Facility #, Inlet #, Outlet #	Dry Weather, Flow, Odor, Color, Turbidity, Maintenance Structure, Maintenance Cleaning, Vegetation Density, Salmonids, Fish Kills, N.Z. Mudsnails, ICIDDE, Illicit Connection, Sewage Fungus, Surface Scum or Sheen, Deposits & Staining, Floatables, Trash & Debris

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General

Specific

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The Legend displays a quick reference for the **Standardized Framework**. Color on the terms name means that its definition and Hierarchy was vetted by the committee. Underlined term definitions were not vetted by the committee. Italianized terms are not yet defined.