

City of Evanston
Stormwater Management Techniques
Underground Stormwater Storage Fact Sheet Comparison

Underground Vault Material	Cost	Shapes / Types	Bottom Types / Options	Anticipated Life Span	Maintenance / Design Concerns	Traffic Load Capabilities	Storage Volume	Infiltration Ability	Typical Manufacturers / Products
	(\$ / CU FT)			(Years)					
Concrete	\$7 - \$15	<ul style="list-style-type: none"> • Box • Arch 	<ul style="list-style-type: none"> • Aggregate Bedding • Concrete Footing 	+/- 50-100	Boxes and Arches can be high enough to provide adequate headroom for cleaning or removing debris. Otherwise typically cleaned with vacuum / high pressure water jet vehicle. Arches typically require significant excavation / depth for installation due to their typical sizes. Usually designed as a single chamber / structure. Requires Confined Space Entry training	Typical Highway Loading (HS-20 / HS-25)	High - Open chambers to maximize storage capability. Box structures typically have more storage based on their footprint than arch systems.	High - Large footprint with aggregate beddings between the footings to promote infiltration	Contech / StormTrap Contech / CON/SPAN Contech / Terre Arch/Box Hy-Span
Plastic / HDPE	\$5 - \$10	<ul style="list-style-type: none"> • Arch • Circular (with perforated weep holes) 	<ul style="list-style-type: none"> • Aggregate Bedding 	+/- 50-75	Typically cleaned with a vacuum / high pressure water jet vehicle. For use under roadways and parking lots, the design must be adequate for vehicle loading. Requires fill for stability. Needs minimum fill cover. Can be designed as a single chamber (pipe) or multiple pipe lines connected via header pipes. Can be fitted into irregular spaces. Water table must be below pipe(s). Requires Confined Space Entry training.	HS20 / HS25 Traffic Loading for Parking Lots / Roadways	Medium-High - Open space under arch can be supplemented with void space in the bedding / backfill aggregate. Circular pipes typically supplemented with void space from aggregate.	Medium to High - Arches typically provide more contact area at the bottom to promote infiltration. Circular pipes have perforations around circumference which does not promote total use unless the pipe is full	ADS / N-12 Pipe Systems ADS / StormTech Chambers ADS / MEGA GREEN Contech / ChamberMaxx Contech / DuroMaxx
CMP	\$5 - \$10	<ul style="list-style-type: none"> • Arch • Circular (with perforated weep holes) 	<ul style="list-style-type: none"> • Aggregate Bedding 	+/- 30-75	Typically cleaned with a vacuum / high pressure water jet vehicle. For use under roadways and parking lots, the design must be adequate for vehicle loading. Requires fill for stability. Needs minimum fill cover. Can be designed as a single chamber (pipe) or multiple pipes lined connected via header pipes. Can be fitted into irregular spaces. Can be prone to corrosion even with protective coatings. Requires Confined Space Entry training.	HS 20 Traffic Loading for Parking Lots / Roadways	Medium-High - Open space under arch can be supplemented with void space in the bedding / backfill aggregate. Circular pipes typically supplemented with void space from aggregate.	Medium to High - Arches typically provide more contact area at the bottom to promote infiltration. Circular pipes have perforations around circumference which does not promote total use unless the pipe is full	Contech / CMP

General Comments:

- 1) Each underground vault material has specific and detailed guidelines for backfill. These guidelines are typically provided by the vendor and/or agencies such as IDOT or FHWA. Care must be taken during construction when backfilling to maintain the structural stability of the vault.
- 2) Inflow treatment (i.e. street sweeping, catch basins, inlet filters, etc.) can reduce the frequency of cleaning and maintaining the vault systems.
- 3) To promote infiltration, it is recommended that the vault system be installed above the water table.
- 4) It is currently recommended to only utilize underground vaults in areas of high subsurface infiltration unless there is a connection available to a separate storm sewer system that does not ultimately discharge to an MWRD interceptor or deep tunnel system.
- 5) Costs are general installation costs and do not include removal / replacement of surface material (i.e. pavement), utility relocation, or design costs. Costs may vary depending on the size and volume of the project.