



The following tables can be used in the planning of TTS Decompose and TTS Waste Away toilets. Both toilets use the BTW urine diversion seat. Urine from both systems is diverted into a shallow septic field. Solid waste is diverted to an earthen below ground vault for onsite degradation (Decompose) or to a bag or bin collection system for removal and further treatment or disposal offsite (Waste Away). The Decompose functions most similarly to how a composting toilet is advertised to function, yet no bulking agent is required, and no mixing is needed (only annual wetting of the raw waste pile and shoveling away from under the conveyor to prevent fresh material building up on the surface of the decomposing pile. The Waste Away system is most similar to the helicopter barrel fly out system common in high alpine sites, but the advantage is that all liquid waste has been removed, making 5x less waste mass, dryer material that does not slosh, and easier handling (bags with large loops).

TTS DECOMPOSE Basic Planning Metrics	Toilet users per year		
	1,000	10,000	30,000*
Raw waste pile (m ³)	0.03	0.3	0.9
Decomposed volume (m ³)	<0.01	<0.1	<0.3
Volume decomposed after 10 years (m ³)	<0.10	<1.0	<3.0

*add another toilet stall beyond 30,000 users per year to prevent stall line ups

-Basic metrics for Decompose collected from Smith Rocks State Park and Squamish Smoke Bluffs toilets.

Installed 2014/2015 with year-round use, around 100 users per day.

-TTS DCV is the below ground vault structure which contains and processes the urine diverted solid waste.

TTS Decompose Detailed Planning Metrics		# of years until cone of raw material touches bottom of conveyor discharge		
Standard	2'-Deep DCV	3	1	0.25
	4'-Deep DCV	5	4	0.5
ADA	2'-Deep DCV	4	1.5	0.3
	4'-Deep DCV	6.5	6	0.75
		Portion of DCV Full after 10 Years of Usage (%)		
Standard	2'-Deep DCV	6%	60%	180%
	4'-Deep DCV	3%	30%	90%
ADA	2'-Deep DCV	4%	40%	121%
	4'-Deep DCV	2%	20%	60%

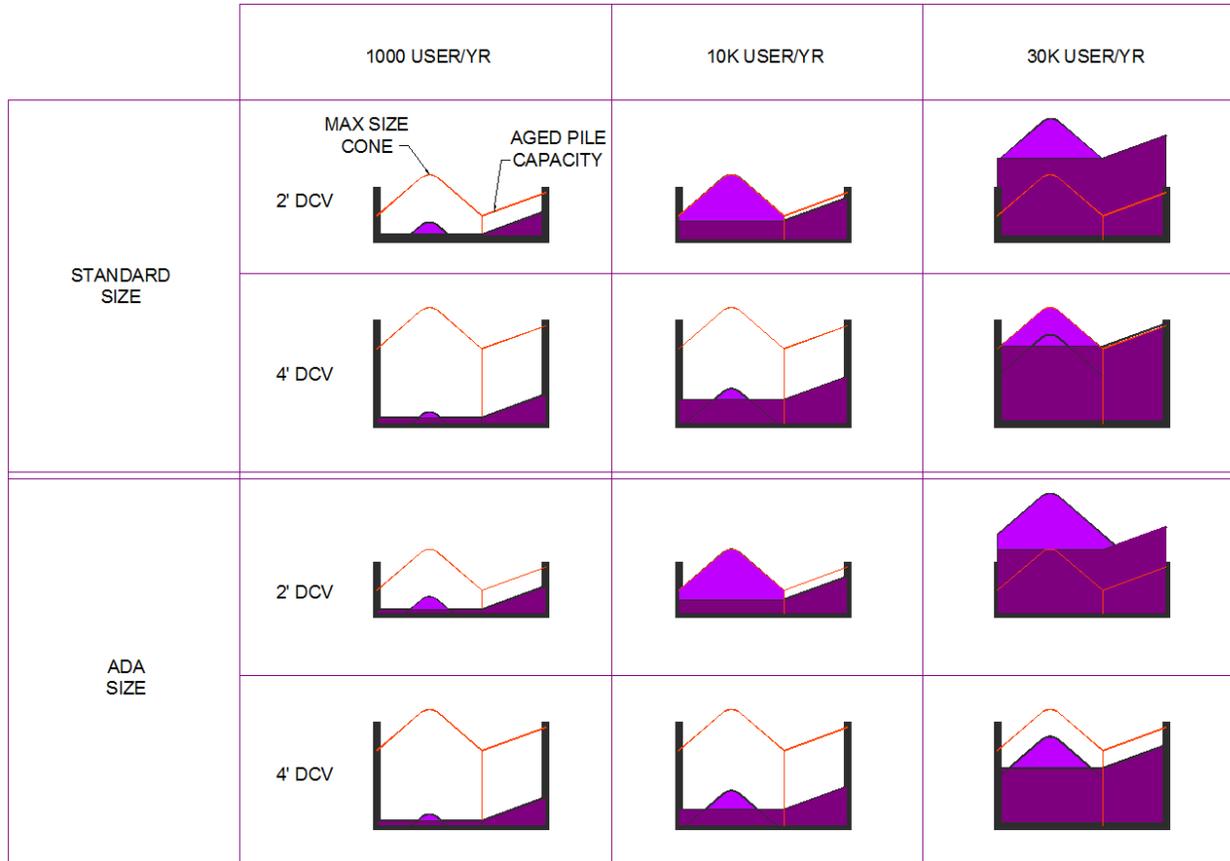


Figure 1. Graphical representation of the TTS Decompose DCV fullness after 10 years of light, moderate, and heavy use (light purple shows portion of maximum sized fresh waste cone filled in a year, dark purple shows portion of DCV filled after 10 years).

TTS Waste Away Planning Metrics	Toilet users per year		
	1,000	10,000	30,000*
Raw waste volume (gal)	20	200	600
# of Mini Waste Away bags / yr (30 gal)	<1	7	30
# of Waste Away Drums / yr (55 gal)	<1	4	15
# of full size Waste Away bags / yr (200 gal or 1 cy)	<1	1	3

*add another toilet stall beyond 30,000 users per year to prevent stall line ups

-Detailed metrics for Decompose and Waste Away collected from Joffre Lakes, BC Parks, Strathcona, BC Parks, Longs Peak Rocky Mountain NP *(CO), and Mount Rainier National Park (WA). Installed 2015-2017 with predominantly three-season use, from 20 to 100 users per day.

-TTS DCV is the below ground vault structure which contains and processes the urine diverted solid waste. Waste Away Bags are used to remove dry solid waste for offsite disposal or treatment.