

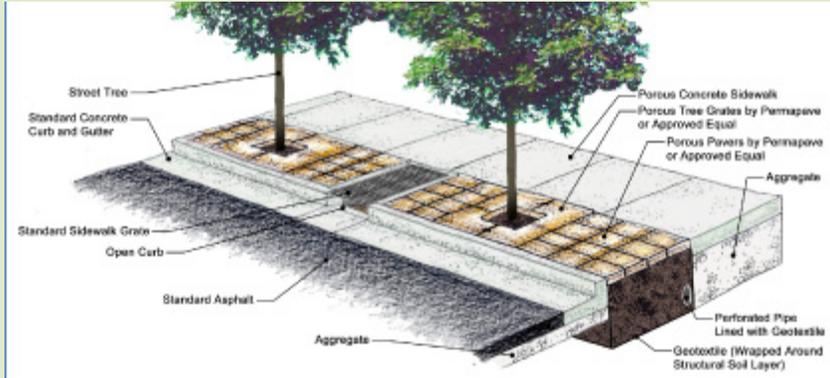
**FACT SHEET**

# Tree Trench

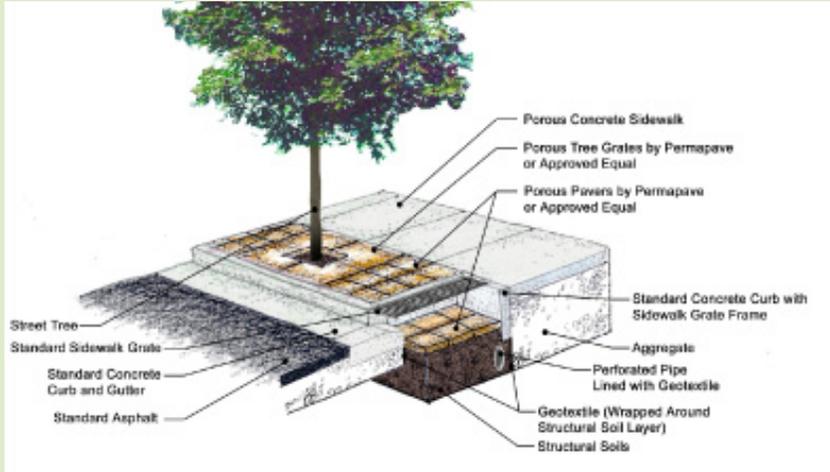
## DESCRIPTION

Tree trenches perform the same functions that other infiltration practices perform (infiltration, storage, evapotranspiration etc.) but in addition provide an increased tree canopy.

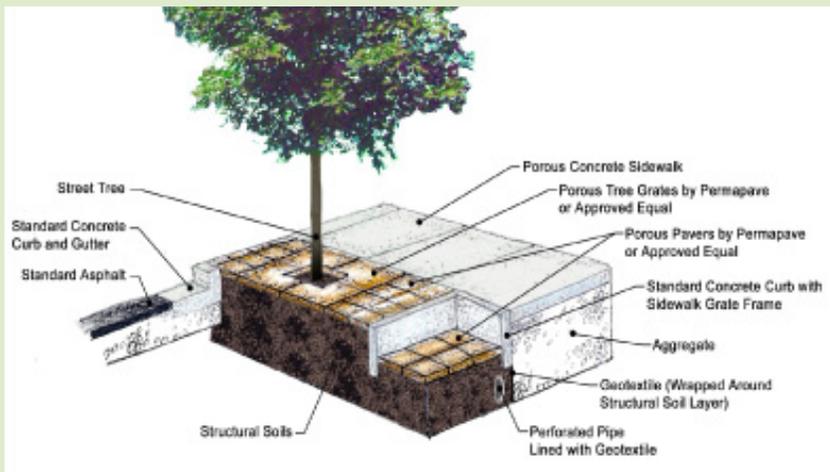
### Example of Street Tree Trench with Structural Soil and Adjacent Infiltration Trench



**Cross-Section A**



**Cross-Section B**



**Cross-Section C**



Tree trench with porous pavers and subsurface infiltration bed, located in City Lot No. 21, Syracuse, NY



Tree trench - Mifflin Street Parking Lot - City of Lancaster, PA

## BENEFITS

- Increased canopy cover
- Enhanced site aesthetics
- Air quality and climate benefits
- Runoff reductions
- Water quality benefits
- High fast track potential
- Enhanced tree health/longevity

## Potential Limitations

- Required careful selection of tree species
- Required appropriate root zone area
- Utility conflicts, including overhead electric wires, posts, signs, etc.
- Conflicts with other structures (basements, foundations, etc.)

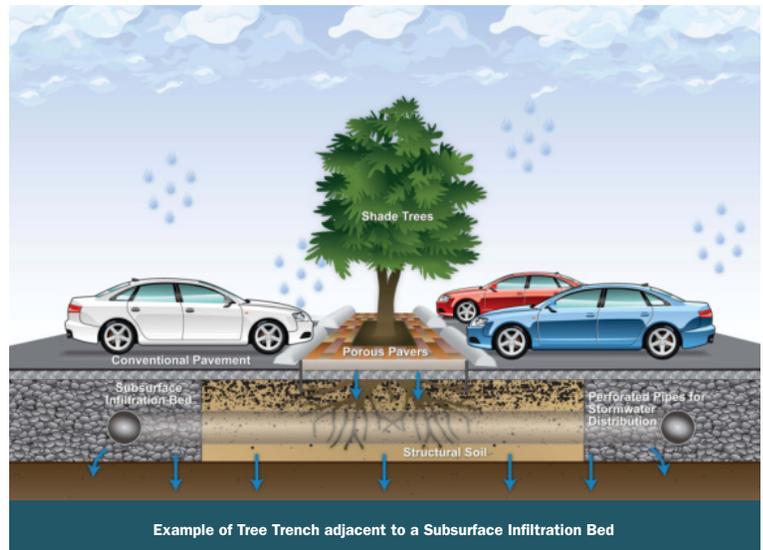
### Potential Applications

Potential Applications	
Residential	Yes
Commercial	Yes
Ultra Urban	Limited
Industrial	Yes
Retrofit	Yes
Highway / Road	No
Recreational	Yes
Public / Private	Yes

Stormwater Quality Functions		Stormwater Quality Functions		Additional Considerations	
Volume	Medium	Total Suspended Solids	High (70-90%)	Capital Cost	Medium
Groundwater Recharge	Medium	Total Phosphorus	Medium (60%)	Maintenance	Medium
Peak Rate	Medium	Total Nitrogen	Medium (40-50%)	Winter Performance	High
Erosion Reduction	Medium	Temperature	High	Fast Track Potential	High
Flood Protection	Low / Medium	-	-	Aesthetics	High



Tree trench with porous macadam and subsurface infiltration bed  
F&M College, Lancaster PA



Example of Tree Trench adjacent to a Subsurface Infiltration Bed

## VARIATIONS

- Structural soil or alternative (eg. Silva Cell)
- Porous pavers
- Open vegetated tree trench strip (planted with ground cover or grass)
- Tree grates
- Alternate storage media (modular storage units)
- Prefabricated tree pit

## KEY DESIGN FEATURES

- Flexible in size and infiltration
- Native Plants
- Quick drawdown
- Linear infiltration/storage trench
- Adequate tree species selection and spacing
- New inlets, curb cuts, or other means to introduce runoff into the trench

## SITE FACTORS

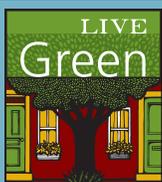
- Overhead clearance; minimize utility conflict
- Root zone
- Water table
- Soil permeability/Limiting zones

## MAINTENANCE

- Water, mulch, treat diseased trees, and remove litter as needed
- Annual inspection for erosion, sediment buildup, vegetative conditions
- Biannual inspection of cleanouts, inlets, outlets, etc.
- Maintenance cost for prefabricated tree pit: 100-\$500 per year

## COST

- \$850 per tree
- \$10-\$15 per square foot
- \$8000-\$10,000 to purchase one prefabricated tree pit system including filter material, plants, and some maintenance;
- \$1500-\$6000 for installation



For more information about the Green Infrastructure program please contact:

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the city of **Lancaster**  
*a city authentic*