Overview

Prior | Goodrich RSVP
Ø Tree Canopy
Ø Emerald Ash Borer
Ø Residential Street Reconstruction
  - Stormwater management
  - Tree replacement
Ø Lessons learned
Street Trees

Ø Public tree management
  - Estimated 130,000 street trees
  - Planting, maintenance, and removal
  - Emerald ash borer

Ø Maintain and establish tree canopy cover

Ø Urban forest | trees as infrastructure
  - Tree planting on boulevards
  - Utilities in boulevards
  - Combined systems
Tree Canopy Cover

Ø Canopy Cover Assessment
  - 32.5% existing
  - 36% ROW canopy cover
    • 27% of Canopy Cover
  - 66.2% suitable to tree cover

Ø Functional Canopy Cover
  - Maximize canopy benefits including stormwater
Street Tree Assessments

Ø District 14

- 10,037 street trees
- 50% Right of Way canopy cover
- $1,073,456 worth of environmental services
- $107 per tree
- Stormwater
  - 1.6 million ft³ annually
  - ~161 ft³ per tree
Saint Paul EAB Approach

- Identified in 2009
- Management strategies
  - Remove infested trees
  - Structured removal
    - Replacement of ash monocultures
    - Replacement of ash in poor condition
  - Treatment
  - Monitor

http://www.gurnee.il.us/public_works/images/EmeraldAshBorer_lg.gif
Structured Removal

Ø Strategic removal and replacement of ash trees

  - Construction projects
  - Declining or damaged
  - Structural defects
  - Areas with a high percentage of ash trees
Residential Street Vitality Program

Prior | Goodrich RSVP
Mississippi River Boulevard Subwatershed
Prior-Goodrich RSVP

- 3 miles of residential roadway
- 11.5 acres impervious
- 81 ash trees to be removed
  - 28 on Lincoln
  - 13 on Fairmount
Stormwater Design Criteria

Ø Stormwater standards
  • Capitol Region WD
  • 1-inch volume control

Ø Considerations
  • Linear project
  • Variable soils
  • Utilities within street

Ø Stormwater solution
  Ø Boulevard tree trench

Benefits
  • Tree removal / replace
  • Stormwater mitigation (partial compliance)
Lincoln Avenue Boulevard
Typical Boulevard Trench Detail

- Bottom (sod) 6 inches below gutter
- Max 3:1 side slopes
- 1-2 ft. buffer from sidewalk
Typical Boulevard Trench Detail
Typical Boulevard Trench Detail
Cornell University Structural Soil ("CU Soil")

Ø Crushed rock, clay loam, hydrogel stabilizer
Ø Stabilizer tackifies mix together during install
Ø Roughly 25-30% void space
Stormwater Costs

Ø Total Cost = $333,000
Ø 38 boulevard features
  - Total length
    1,205 lin. ft.
  - Total volume
    16,393 ft³

Ø 5% of Total Project Cost
Stormwater Costs

Ø 1,994 Cu.Yd. Structural Soil (C.V.)
Ø Average Unit Price =
$87.13
  $80.84
  $83.25
  $97.31
Constraints to Implementation
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Addressing Concerns
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Replanting

Ø Structured Removal | EAB
  - 1:1 replacement goal

Ø Tree selection and goals
  - Site conditions
  - Street Tree Master Plan
  - Enhance species diversity

Ø Lincoln Avenue
  - Bicolor Oak, Commendation Elm
Replanting
Lessons Learned
Conclusions and Next Steps

Ø Integrated approach has value
  - May not be appropriate in every project
  - Need more and finer details

Ø Improve communication on sensitive topics

Ø Stormwater flow monitoring

Ø Tree growth monitoring
Maximizing Goals for Stormwater and Forestry