

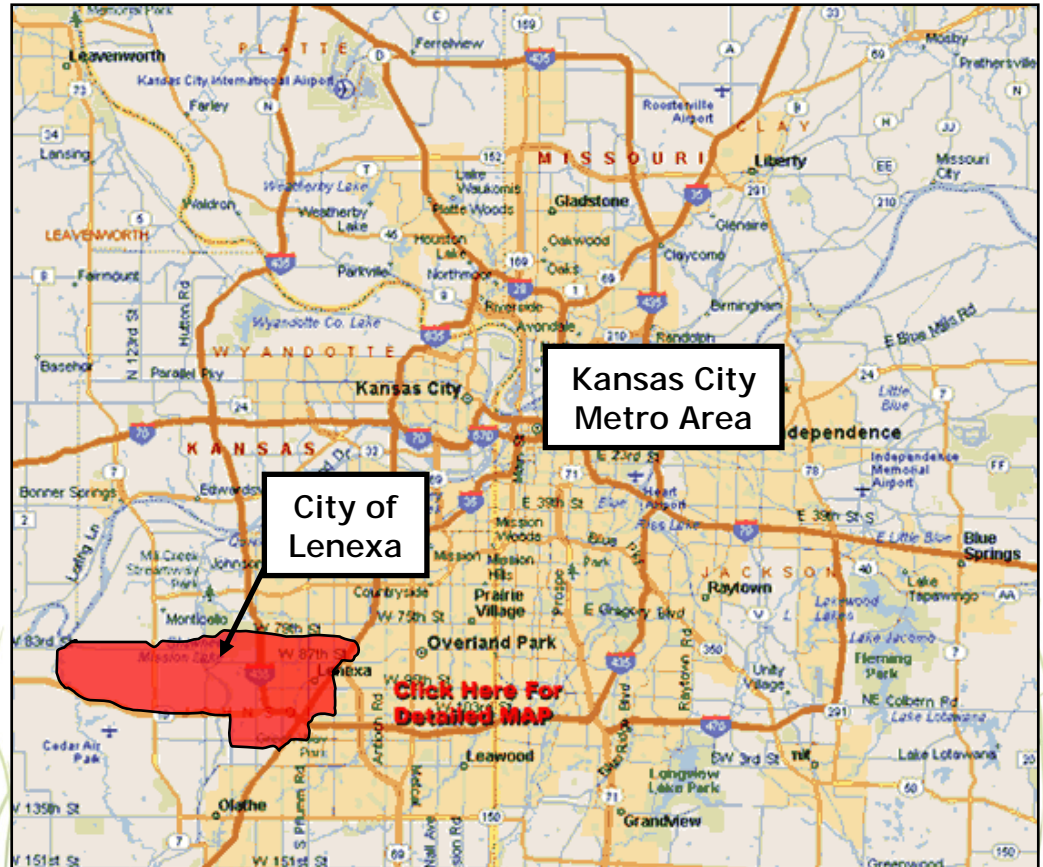
Water Quality Solutions: *Green Roof Case Study* *Lenexa Fire Station #5*



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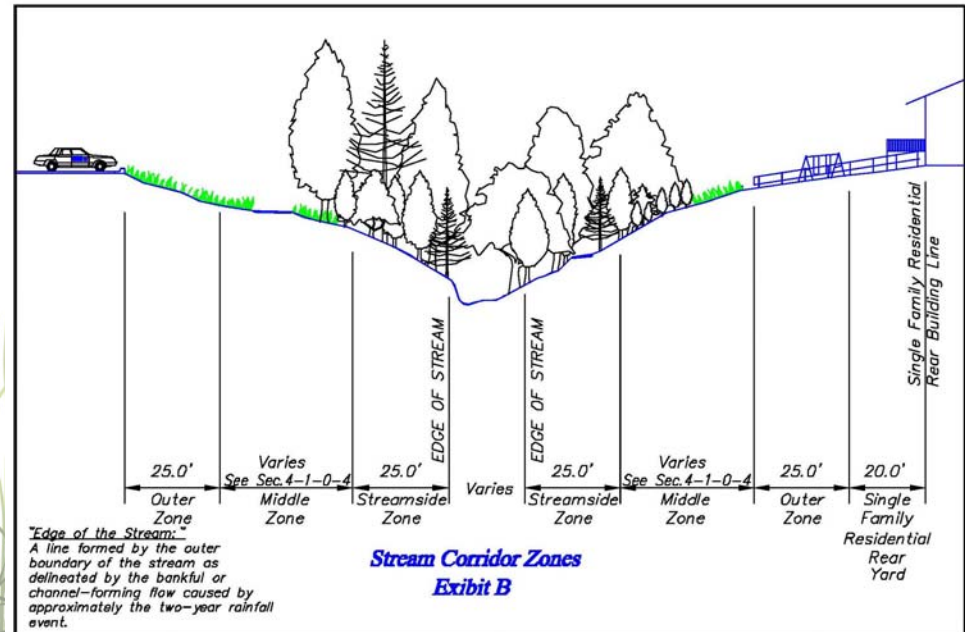
Lenexa

- Kansas City metro
- 45,000 residents
- 34 square miles
- Watersheds drain to Kansas & Missouri rivers



Green by Ordinance

- Stormwater utility fee & sales tax funds for “Rain to Recreation”
- Stream setbacks
- Zones of Influence
- Level of Service



Green infrastructure

- Realistic expectations
 - No such thing as “no maintenance”
 - Non-traditional appearance
 - Limitations of outcomes
- Start simple
- Initial buy-in is crucial
(But not everyone has to love it to proceed)

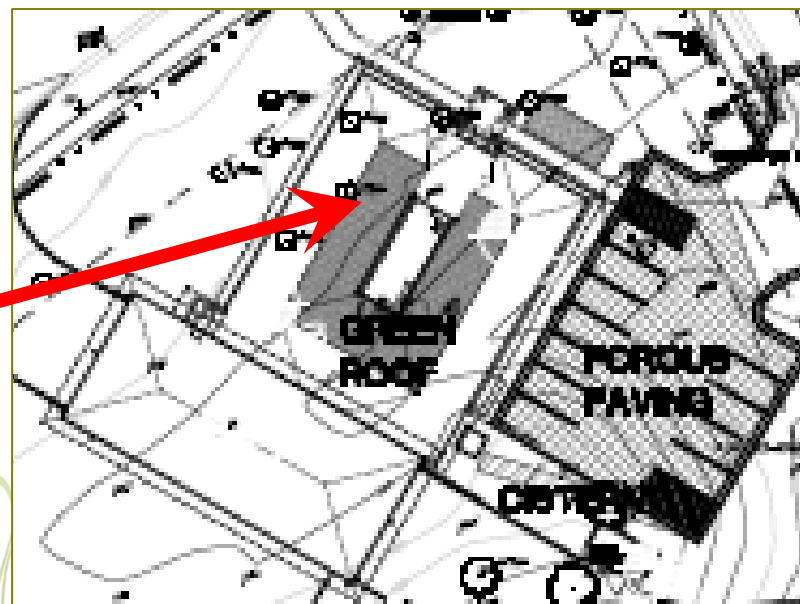
Fire Station #5

- 96th Street & Prairie Star Parkway
- Pending LEED® Certification



Fire Station #5

- Detention basin
- Native landscaping
- Porous pavement
 - Monitor flow redux
- Cistern
- Green roof
 - Monitor water quality & flow redux



Fire Station #5

- Installation



Fire Station #5

- Installation



Fire Station #5

- Installation



Fire Station #5

- Installation: October 7, 2009



Fire Station #5

- Installation: November 5, 2009



Fire Station #5

- Installation: February 3, 2010



Resources

- Mid America Regional Council (MARC) Manual
- US EPA Office of Watershed Management
- Water Environment Research Foundation (WERF)
- National Association of Counties (NACO)
- Kansas Dept of Health & Environment (KDHE) Clean Water Neighbor Grants

Resources

- Design tools
- Performance data
- Lifecycle cost
- Maintenance
- Case studies

The collage features four overlapping web browser screenshots:

- Top Left:** A browser window titled "Better Site Design Resources" from [www.cwp.org](http://www.cwp.org/Resource_Library/Better_Site_Design/Index.htm). It displays the logo for the "CENTER FOR WATERSHED PROTECTION".
- Top Right:** A browser window titled "Green Infrastructure Demo..." from [www.cnt.org](http://www.cnt.org/natural-resources/demonstration-projects/). It features the "CNT Sustainable Communities Attainable Results" logo and a search bar.
- Middle Left:** A browser window titled "WERF | Research Profile" from [www.werf.org](http://www.werf.org/AM/Template.cfm?Section=Research_Profile&Template=/CustomSource/Research/PublicationProfile.cfm). It shows the "Water Environment Research Foundation" logo and navigation links like "HOME", "ABOUT WERF", "NEWS", and "SEARCH".
- Middle Right:** A browser window titled "BMPDB - Home" from www.bmpdatabase.org. It displays the "INTERNATIONAL STORMWATER BMP DATABASE" logo and a navigation menu with options like "BMP Performance Summaries", "Retrieve BMP Studies", and "Research Tools / Master Database".
- Bottom:** A browser window titled "Green Values Stormwater ..." from [greenvalues.cnt.org](http://greenvalues.cnt.org/calculator/calculator.php). It shows the "GREEN VALUES STORMWATER MANAGEMENT CALCULATOR" interface. The "Green Interventions" section includes:
 - Roof Drains to Raingardens at All Downspouts:
 - Half of Lawn Replaced by Garden with Native Landscaping:
 - Porous Pavement used on Driveway, Sidewalk and other non-street pavement:
 - Green Roofs:The "RESULTS" section states: "The difference between the conventional system and the green intervention(s) you chose **decreases** the total 100 year life cycle costs and **increases** benefits by \$1,377,482! This strategy reduces peak discharge by 28%."

rain
to recreation

Summary

- Take advantage of resources
- Be realistic
- Walk the talk

Thank you!



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