KC URBAN STORMWATER CONFERENCE

JANUARY 23, 2017

Constructing Centralized Green Infrastructure

KANSAS CITY MISSOURI

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Welcome.

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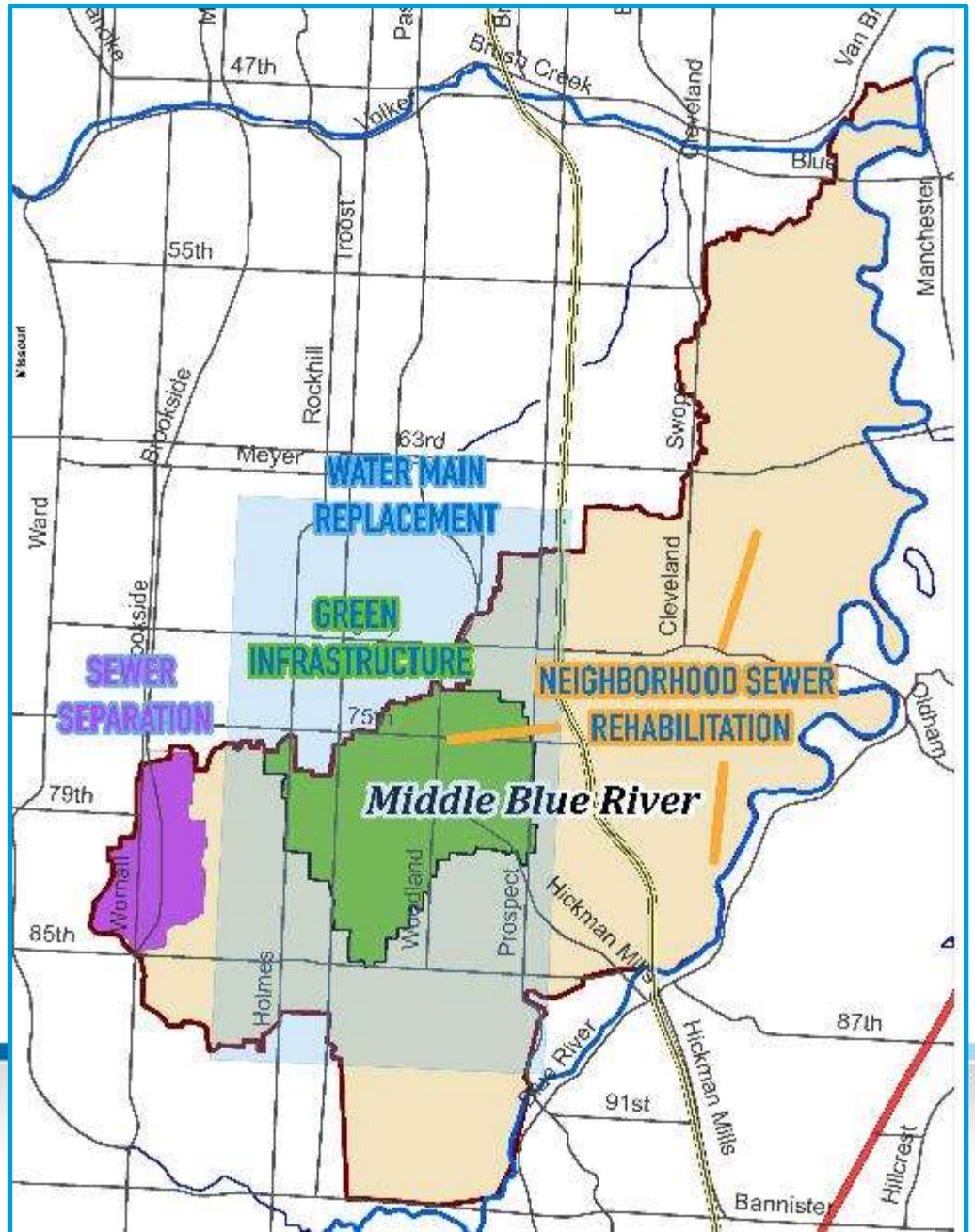
Middle Blue River Basin Green Infrastructure



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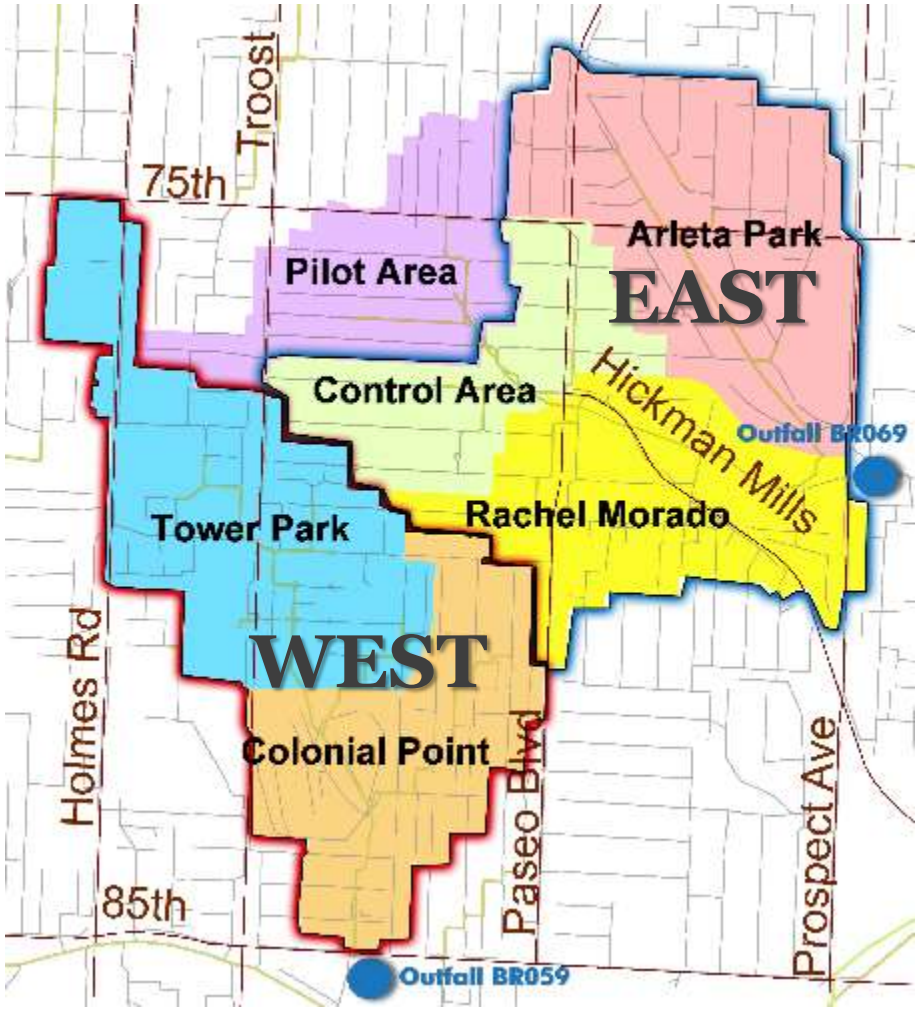
Middle Blue River Basin Green Infrastructure



- Construction underway for remaining 644 acres
- Divided into two projects areas by outfall
- 4.7 million gallons of total storage
- Strategic sewer separation

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Systems approach to GI

- Small Localized GI
  - Vacant Lots
  - Within ROW
  - Streetscapes
- Moderate-Scale GI
  - Pocket Parks
  - Neighborhood Gardens
- Large-Scale GI
  - Destination Project
  - Pond or Wetland

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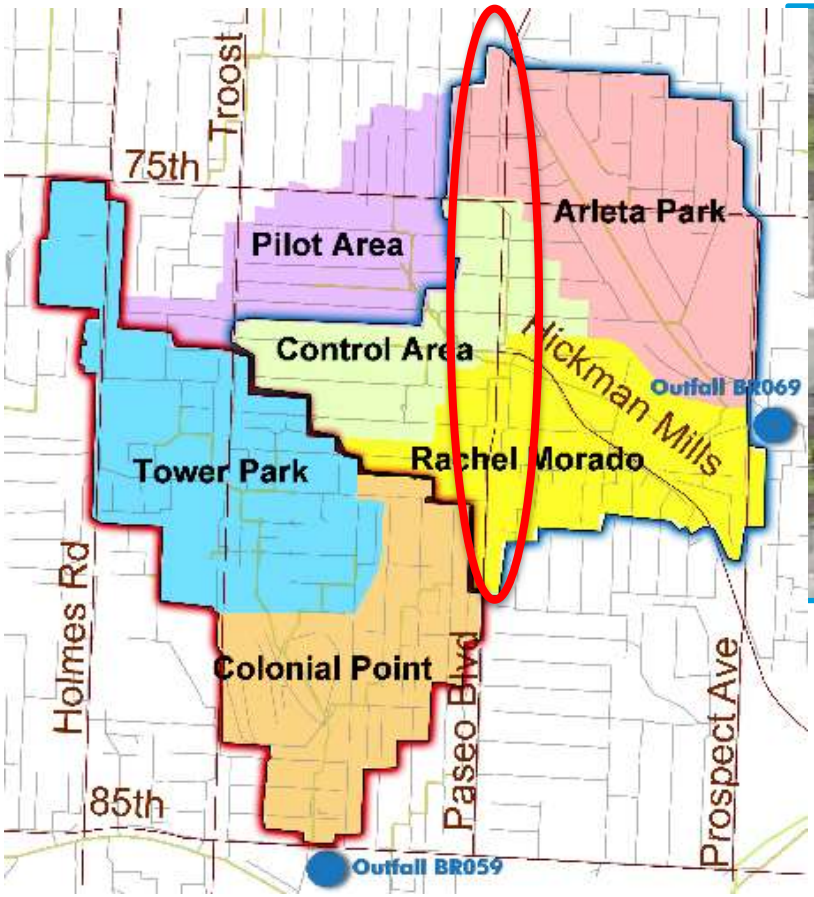
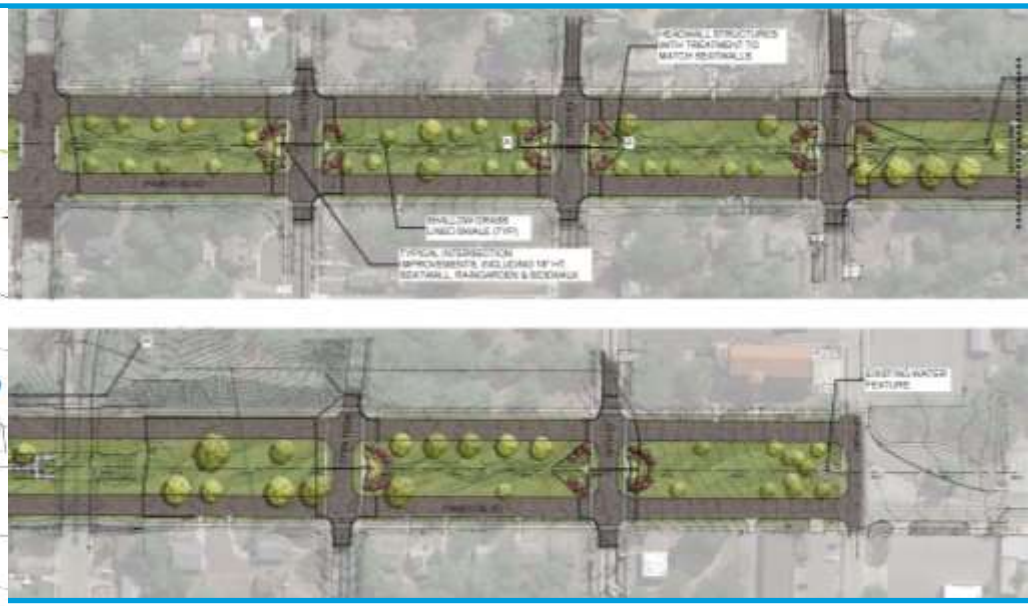
The Paseo Median: Utility Conflicts





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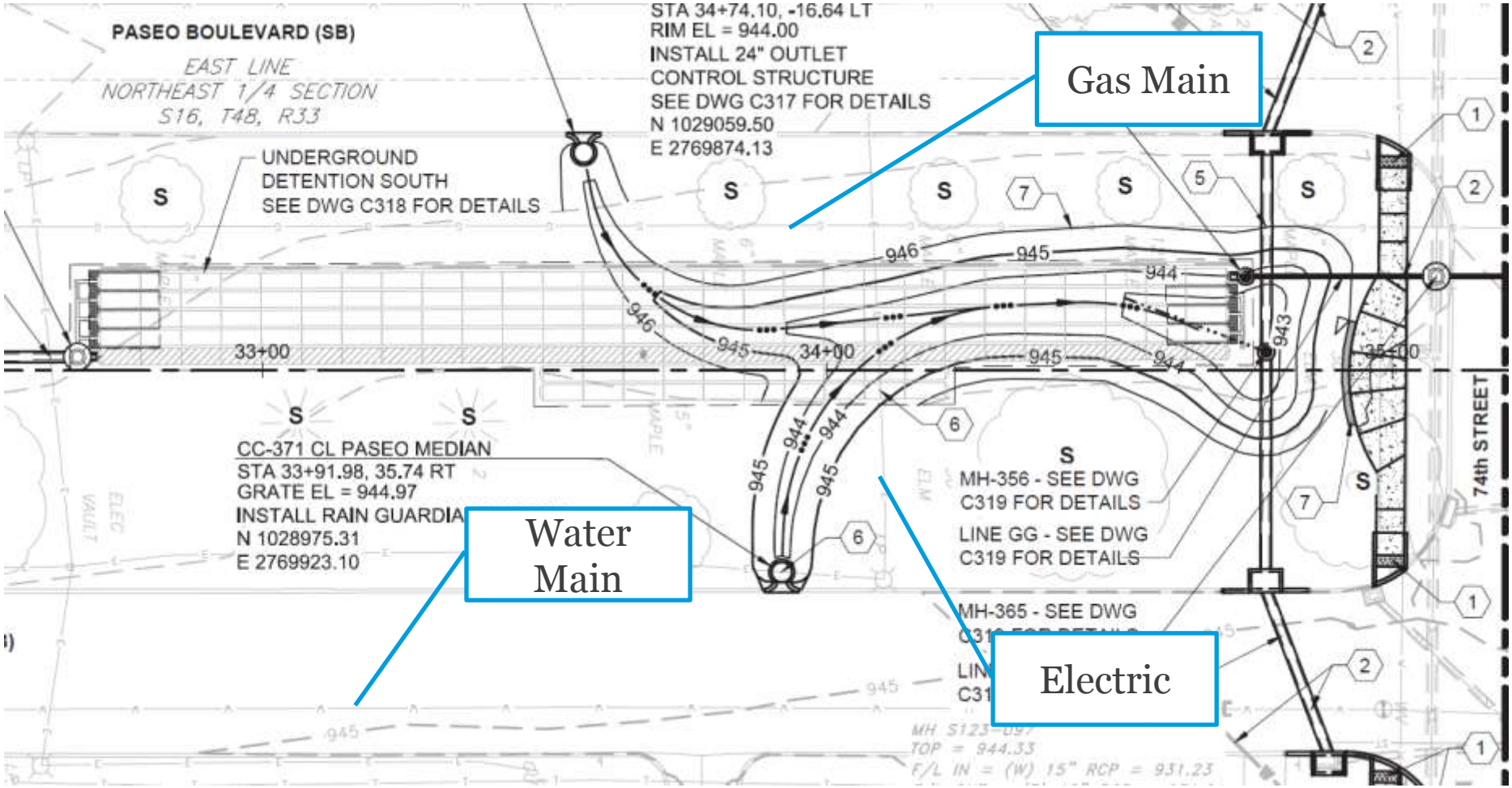

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The Paseo Median: Utility Conflicts

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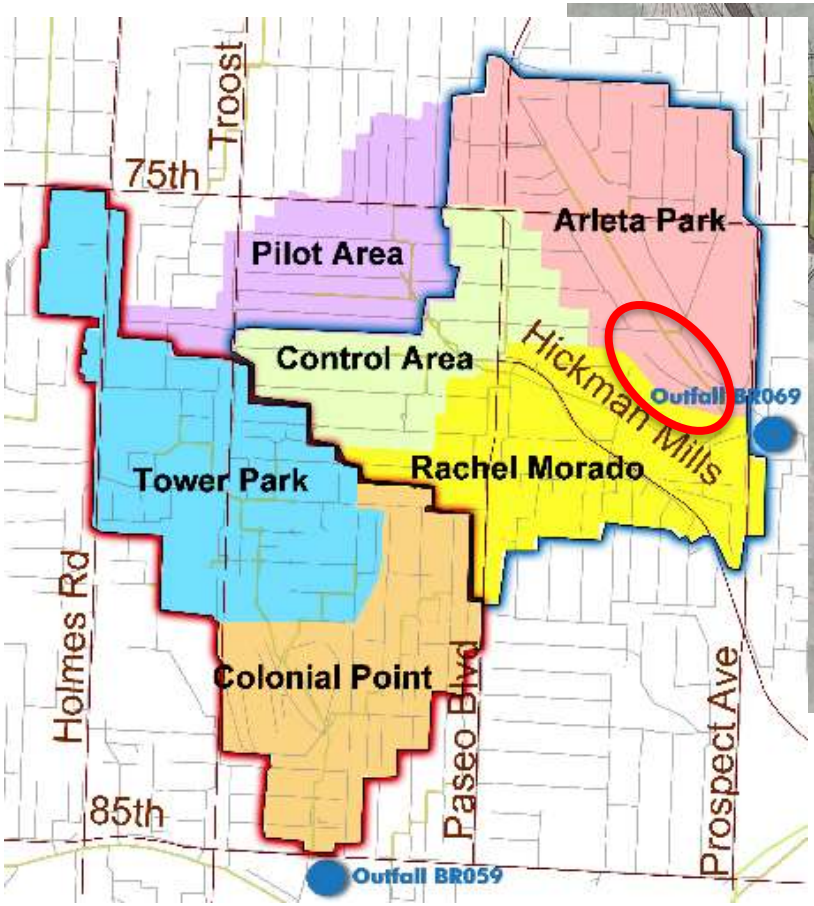
Central Green Infrastructure: Utility Coordination

1. Transmission Mains can't be moved
2. More utilities are impacted then expected with centralized green infrastructure
3. Walk through at 90%
4. Stay on top of utility relocations during construction
5. Understand the extent of the utilities relocation plans
6. Abandon infrastructure will be encountered

Arleta Park Centralized Green Infrastructure



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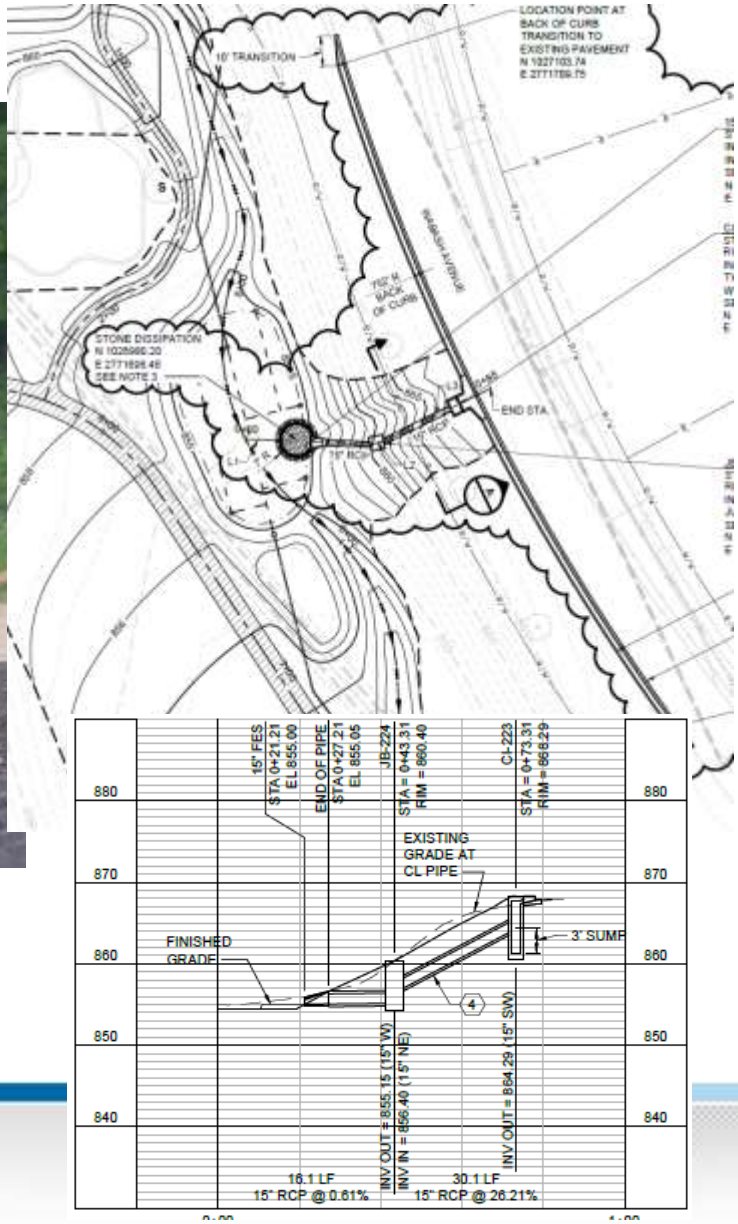
Arleta Park: Current Construction

Arleta Park: Construction Field Change

Arleta Park: Construction Field Change



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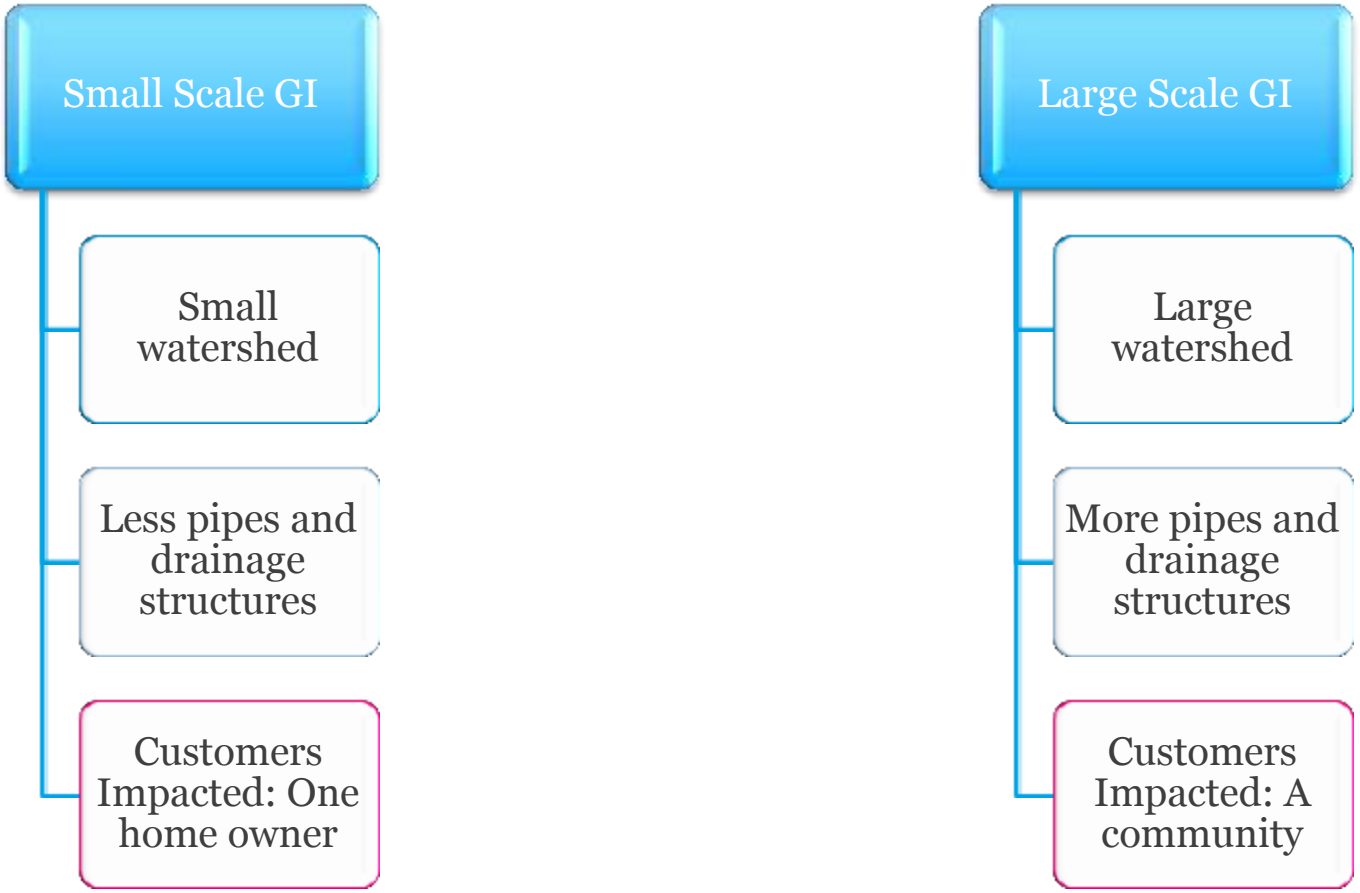
Arleta Park: Erosion Control

1. Centralized GI, harder to identify points of erosion during design.
2. Based on contractors means and methods, with centralized GI heavier equipment and larger areas disturbed.
3. Larger flows and higher velocities means different erosion control needs.
4. Have to keep flow out of the site until established and ready to introduce runoff.

Centralized Green Infrastructure Planning

1. Concept Design
2. Public Involvement
3. Stake Holder Coordination
4. Basis of Design or 30% Design
5. Easement Acquisition
6. Utility Coordination
7. 60% Design
8. 90% Design
9. Final Design and Bidding
10. Construction

Public Involvement



Easement Acquisition

Types of Easements

1. Temporary Easement
2. Permanent Easement
3. Land Acquisition

Potential Schedule Impact

1. Absentee Landlords
2. Condemnation Proceedings

Utility Coordination

KCP&L Pole within Prescriptive Easement

"If a utility is installed uncontested, for over a 12 year period, they have prescriptive rights"

Restoration

1. Seeding vs. Sodding: Established lawns shall be restored with sod
2. Sidewalk: All sidewalks and driveways reconstructed along street under the jurisdiction of the Parks Dept. shall be in accordance with the plans and specifications of that department.
3. Handicap Access Ramp: Restore at every crossing, even if there isn't one to begin with.
4. Street: Full depth street restoration within trench width vs. street width or street centerline
5. Driveway/sidewalk: Restore to the nearest joint.

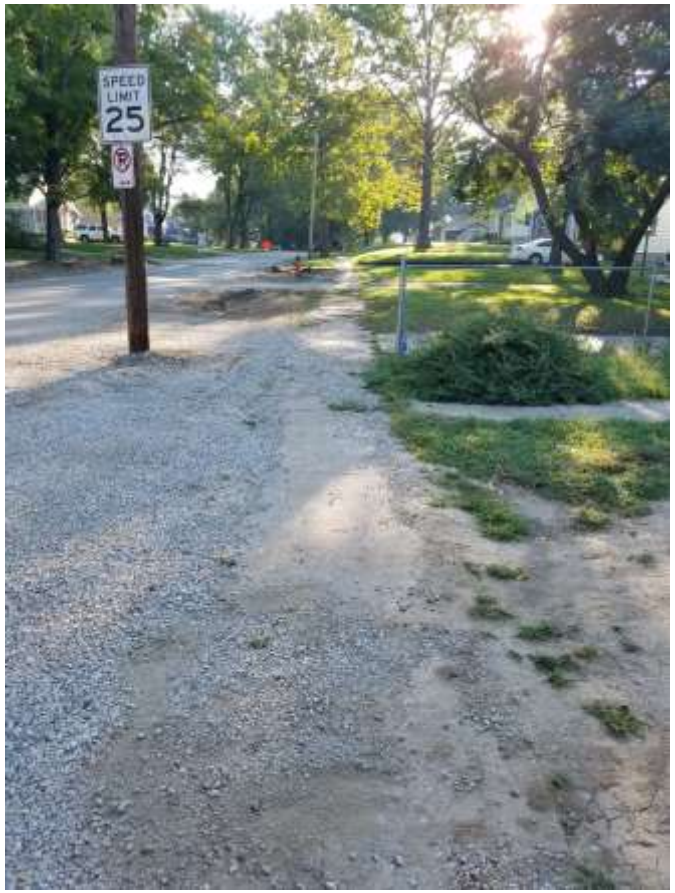
Restoration: Driveway Approach

Undisturbed Panel

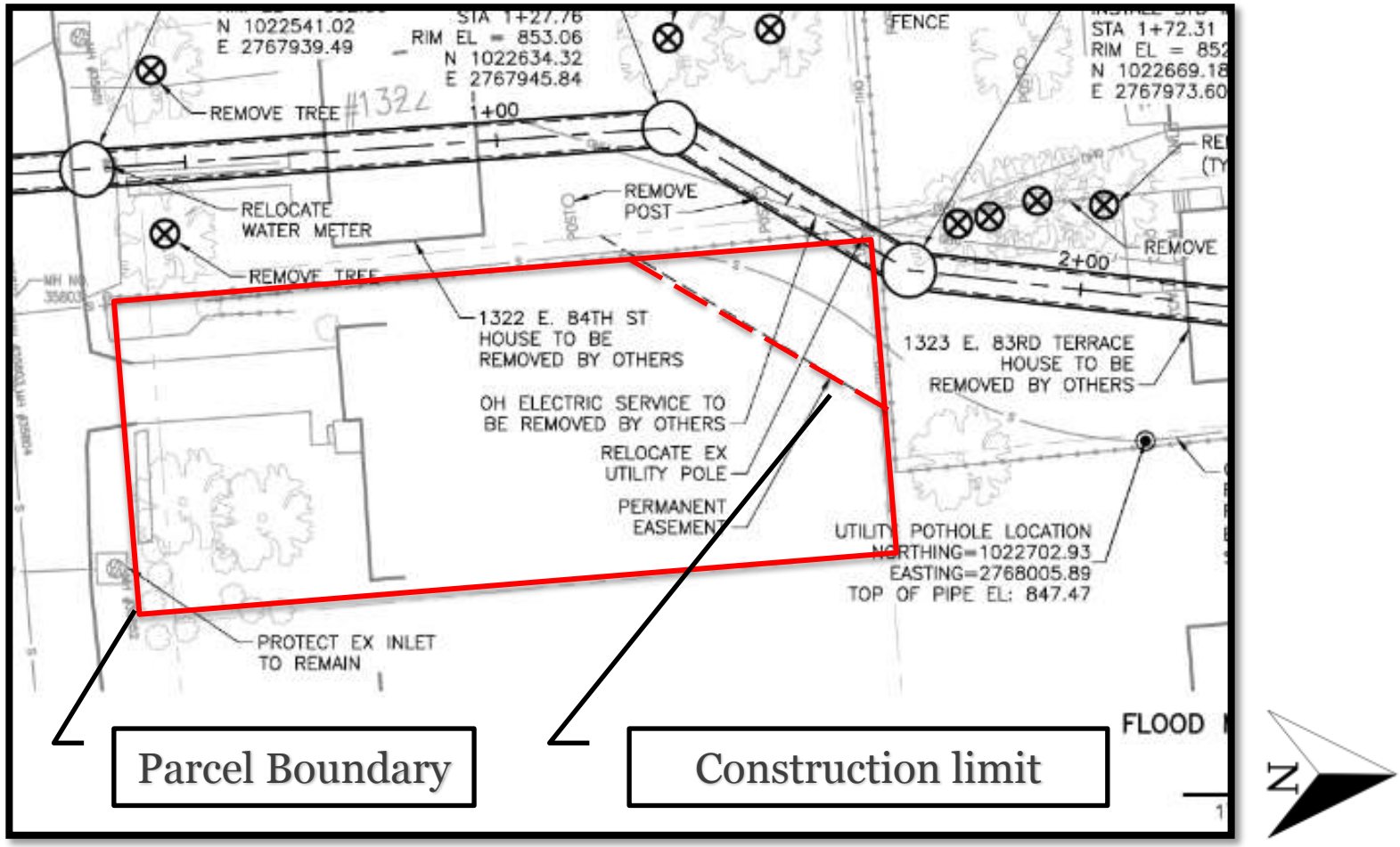
Restoration: Driveway Approach and Sidewalk

'Tie driveway approaches—damaged during construction, to an already deteriorated sidewalk'

This fulfills the requirements of the contract, but leaves the street looking half done/unfinished and may cause a tripping hazard



Construction limits = Restoration limits



Restoration: Remove and Replace Fence within construction limits

Picture looking East

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Angry Home Owner!

Thoughts…

1. Keep Change Orders to a Minimum and Claims to a 'Zero'.
2. Maximize Public Acceptance of the product as a whole: from constructing underground features to visible surface features
3. Reduce 311 calls

Questions?

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Arleta Park: Completion 2017

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Arleta Park: Before

Rachel Morado: Completion 2017

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Rachel Morado: Current Construction

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Lessons Learned: Maximizing the Investment

Neighborhood Involvement

City-wide collaboration is key

Use a Variety of Improvements

Detention Storage

Porous Pavement

Vegetated Infiltration

Different Scales

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Timing is everything.

Late plantings mixed with drought and high heat required extra watering and extra replacement costs

Coordination of Projects

Overlapped construction with other city departments for maximum efficiency and use of resources

Coordination with utility companies resulted in moving up neighborhood gas line work to coincide with project area construction

Plan for Maintenance