City of Fort Smith, Arkansas
Minutes of the Streets, Bridges and Associated Drainage
Capital Improvements Plan (CIP) Advisory Committee Meeting
February 22, 2018

A meeting of the Streets, Bridges and Associated Drainage Capital Improvement Plan (CIP) Advisory Committee was called to order at 12:00 p.m. on February 22, 2018, in the City's Planning Conference Room #326.

Committee members present:
Stan Vlademar – Ward 1
Robert Brown – Ward 3
David Armbruster – Ward 3
Nathaniel Deason – Ward 4
Philip Rosar – Ward 4

Committee members absent:
Tiffinee Baker – Ward 2
Aaron St. Amant – Ward 3 (Chairman)

City Staff Present:
Jeff Dingman, Deputy City Administrator
Stan Snodgrass, Director of Engineering
Matt Meeker, Interim Director of Operations
Jennifer Stevens, Accounting Technician
Andre Good – Board of Directors – Ward 2

Stan Snodgrass stated a Chairperson needed to be selected due to Aaron St. Amant being absent. David Armbruster nominated Robert Brown, seconded by Philip Rosar, to be the acting chairperson. All 5 committee members were in favor with 0 opposed.

Minutes of the November 30, 2017 Meeting

David Armbruster had questions on the minutes from the November 30, 2017 meeting. David Armbruster would like to have a copy of the CIP funds allocation study that was put together by the Przybysz Accounting Firm. Stan Snodgrass stated that he would ask Jennifer Walker, the Finance Director to send David a copy of the allocation study.

David Armbruster made the motion to approve the minutes from the last meeting and Stan Vlademar seconded the motion. The minutes were approved 5 in favor and 0 opposed.

Old Business:

Update on evaluation of May Branch and Town Branch Drainage Project.

Stan Snodgrass gave an overview of the May Branch and Town Branch drainage basins. He reminded the committee that the Corps of Engineers (COE) cost estimate for the May Branch channel improvements based on an 100 year flooding event ranged from $32 mil for the lower reach (downstream of 7th Street) to $65 mil for the entire reach downstream of Park Avenue. Stan also noted that in 2016 the COE advised the City that with these revised costs it is very unlikely that the City would receive any federal funds as the cost to benefit ratio is less than one.

For the Town Branch drainage basins, Stan noted previous completed work to reduce flooding in these basins. He stated that approximately $3.25 million in drainage improvement projects had been completed since 2011 which included the following:

Phase 1, Removal of significant accumulated sediment from the Town Branch storm drain between Grand Avenue and Rogers Avenue at a cost of $188K. (2011)

Phase 2, Removed the sanitary sewer line which crossed inside of the Carnall Outfall Pipe at a cost of $318K. (2011)

Phase 3, Town Branch Drainage Improvements which included improving the upstream outfall beginning at the South G Street/Towson Avenue intersection and extending to the west and south ultimately flowing into Mill Creek. The project also included reconstruction of drainage inlets along the east side of Towson Avenue between South A and D streets to allow those inlets to intercept more storm water runoff. Total cost was $2.75 mil. (2015)

Stan then introduced Travis Scott with FTN Associates, a water resources group who the City hired to revisit the COE findings on May Branch and look at other options for flood reduction projects in the May Branch and Town Branch areas.

Travis Scott went through a power point presentation which is attached to these minutes. Travis noted that their analysis/alternatives were based on a 10 year event which is lower than the 100 year design event used by the COE.

A summary of the findings by FTN Associates is shown on the last page of the minutes and noted the following alternates:

- The May Branch revised channel costs ranged from $17-$20 million for work on the lower reach (downstream of 7th Street) to a cost of $26-$30 million for the entire 3 mile reach downstream of Park Avenue.

- Town Branch Alternate 1 costs $8-$11 million for storm drain improvements to lower flooding from D Street to P Street and would reduce the flooding for 33 parcels/houses.

- Town Branch Alternate 2 added detention ponds to Alternate 1 at an additional cost of cost $3-$4 mil but only minimally lowered the flooding between D Street and J Street. The addition of these ponds would only reduce the flooding to below the finished floor elevation for one additional parcel/house. It was also noted that a standalone detention pond alternate was previously analyzed and it only reduced the flooding to below the finished floor elevation for approximately 7 to 10 parcels/houses.

- Town Branch Buyout Alternates looked at purchasing properties identified in the 10 year floodplain. Buyout Alternate 1 costs range from $1.7-$2 mil for 30 parcels/houses between E and P Street. Buyout Alternate 2 cost ranged from $3.7-$4.0 mil for 71 parcels/houses between C and P Streets to provide a more continuous "flood easement"

David Armbruster wanted to know how long it would take to construct the drainage improvements. Travis Scott estimated 5-8 years which would include completion of the design work and construction.

Andre Good asked Stan Snodgrass if he could get a list of the properties on the buyout option. Stan said he would email it to him.

Stan Snodgrass stated that he wanted some guidance from the CIP Committee on how to proceed. David Armbruster stated the buyout option is by far the most cost effective and he made a motion to go with the buyout option. Robert Brown and Phil Rosar stated that they would like to evaluate more on the situation. They would like to see a proposal from FTN to determine the costs for a similar buyout along the May Branch drainage way and also provide a cost for doing drainage improvements on May Branch extending from the Arkansas River only to North P Street. Stan noted that the construction of just the short section of channel from P Street to the river would have very low impacts to flooding properties as this area has little development. Stan also noted that the cost for this section would be significant as it is the most downstream and largest channel section. Stan Snodgrass asked Travis Scott to prepare a fee proposal for these two additional work items and those proposal costs would be presented to the committee at the next meeting.

Pavement Design Standards

Stan Snodgrass stated Garver Engineering would be at the next meeting to present their findings and recommendations for the pavement design standards.

New Business:

David Armbruster would like more sidewalks completed in the city and said the CIP Committee should also be over that work. Stan Snodgrass stated that this committee is

not over sidewalks, it is an advisory committee for the Streets, Bridges and Associated Drainage Capital Improvements Plan. David Harris made a comment that the Street and Drainage CIP and sidewalk program are completely different in funding and types of projects and are unrelated to each other.

Citizen's Forum:

Jim Dunn the President for the U.S. Marshals Museum, stated the need for the Kelley Highway Extension project as it will provide direct access to the facility. He stated that they have an opening date of September 24, 2019. Robert Brown asked how many cars were expected to go to the museum. Jim Dunn stated that there would be 100,000 per year. Robert Brown stated that they have other roads to access this area (like Garrison Avenue, A & B Streets/Grand Avenue) and that they could use those streets to access the museum. Jim Dunn agreed yes they do, but it would be a much clearer and direct route to exit I-540 then continue straight on Kelley Highway all the way to Riverfront Drive. Jim Dunn stated that he planned to be at the next CIP Meeting to discuss the museum again and why it needs the Kelley Highway extension to be done.

The next meeting will be May 24, 2018 at 12:00 p.m. in the Planning Conference Room #326.

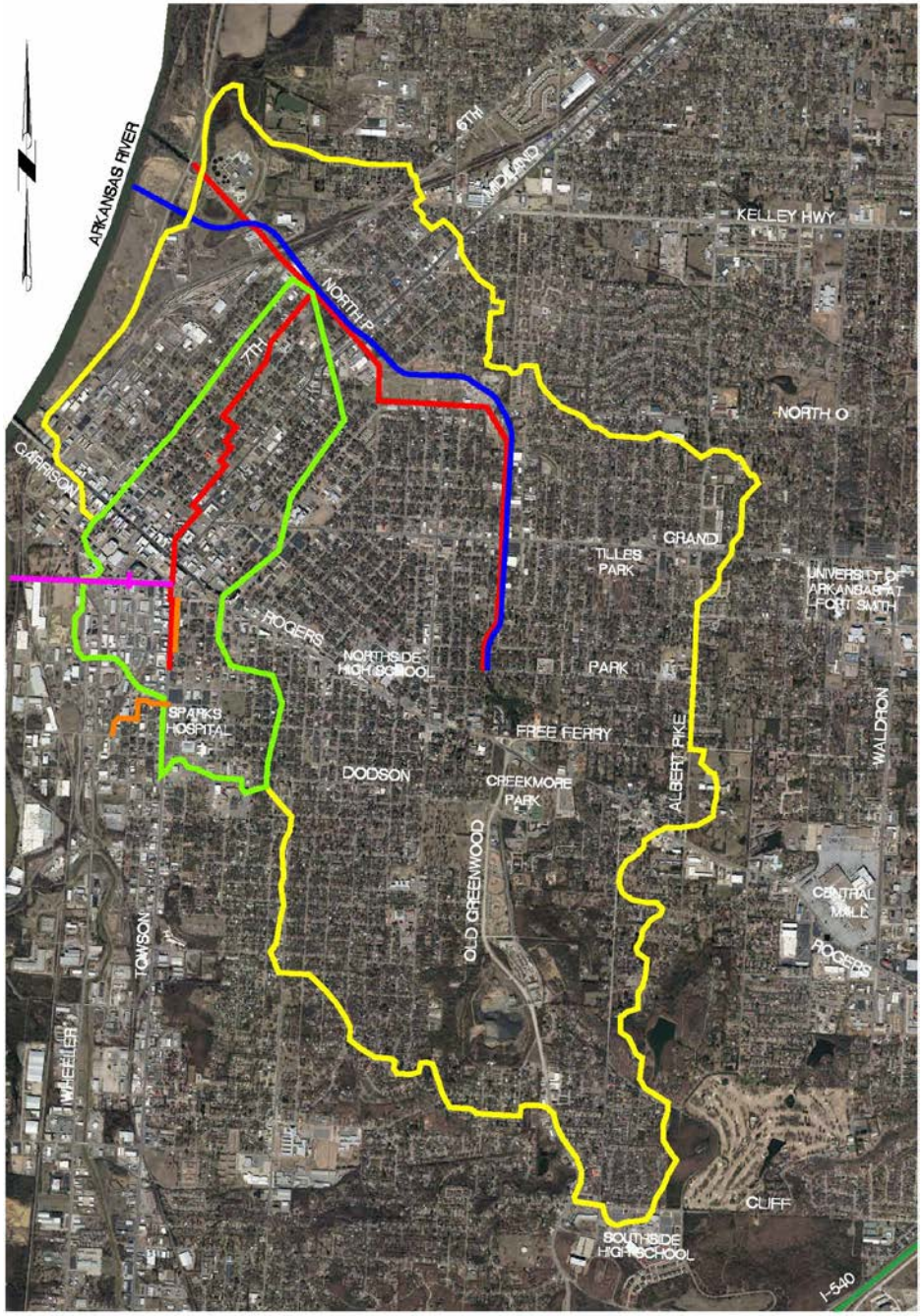
With no further discussion or business, a motion to adjourn was made by Robert Brown at 1:50 p.m. All were in favor with none opposed.

# Fort Smith, AR

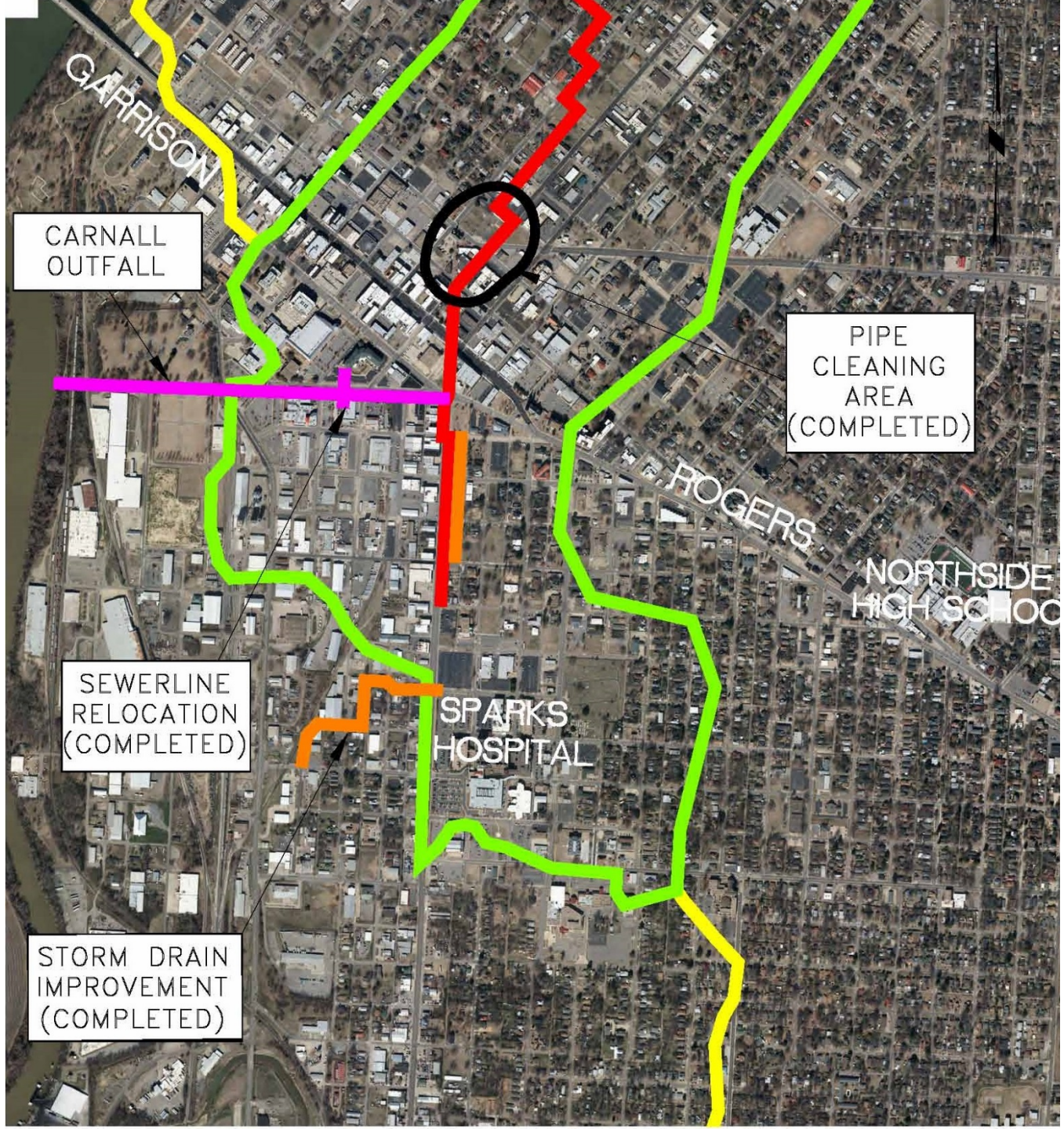
May Branch Drainage Improvements and

Town Branch Drainage Improvements

# May Branch and Town Branch Basins



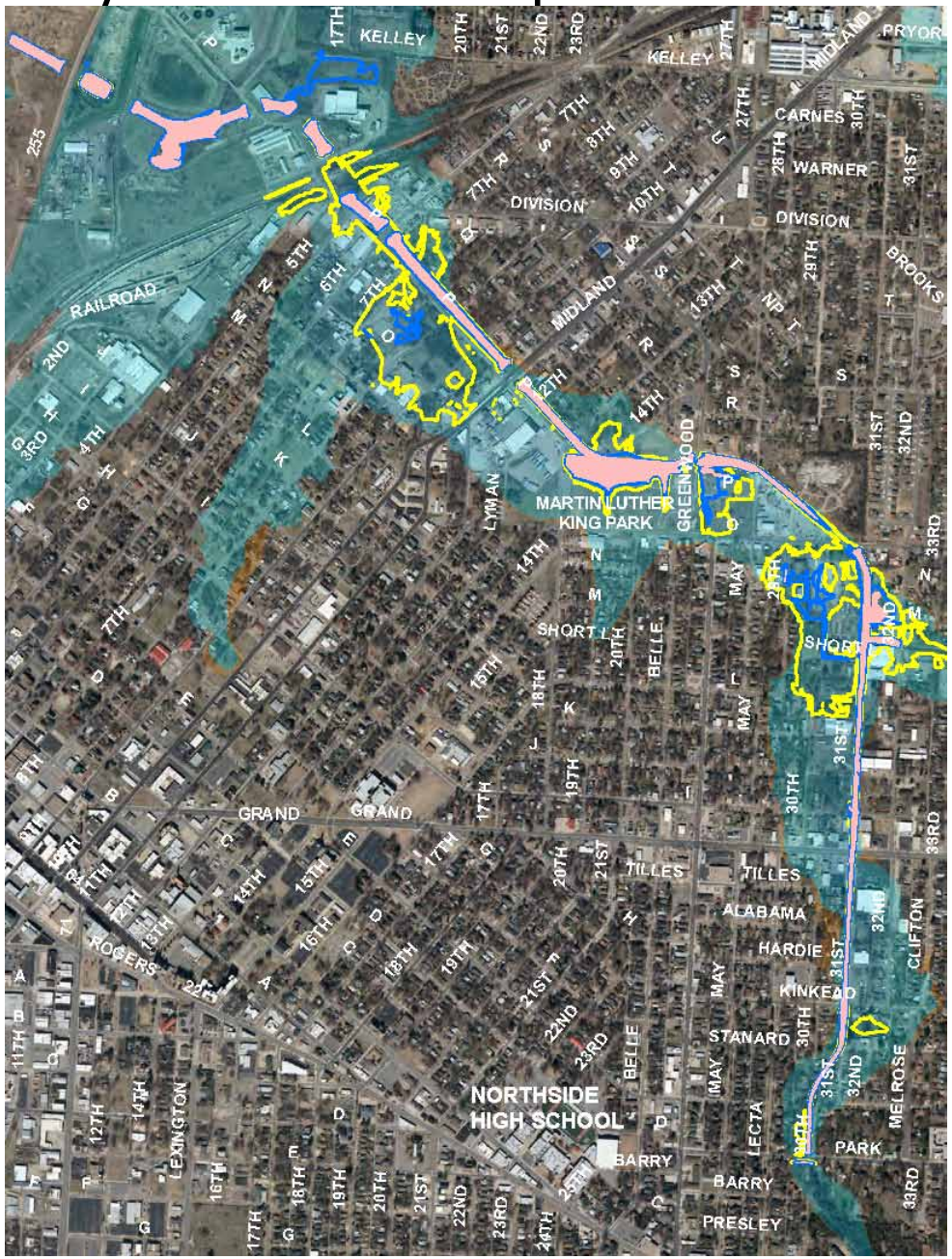
# Town Branch Completed Drainage Improvements



# May Branch Preliminary Drainage Improvements

- 14,987 ft of channel from the AR River to Park Avenue, prev. USACE design
- 11 Road Crossings, 5 RR Crossings (40-ft span arch or 4,10-ft x 12-ft concrete box culverts), 1 levee with 4, 10-ft x 12-ft box culverts and gate structures, new pedestrian bridge crossing of existing Riverside Trail
- Modified design based upon 10-year storm event (vs. 100-yr USACE design)
  - 10-year event = 6.3 inches, 24-hr storm, 100-year event = 9.6 inches, 24-hr storm
- Trapezoidal Channel,
  - 4-ft bottom width, 2:1 side slopes, 6-ft depth, 28-ft top width at upstream end
  - 24-ft bottom width, 3:1 side slopes, 33-ft depth, 224-ft top width at downstream end

# May Branch Improvements – Proposed Floodplain



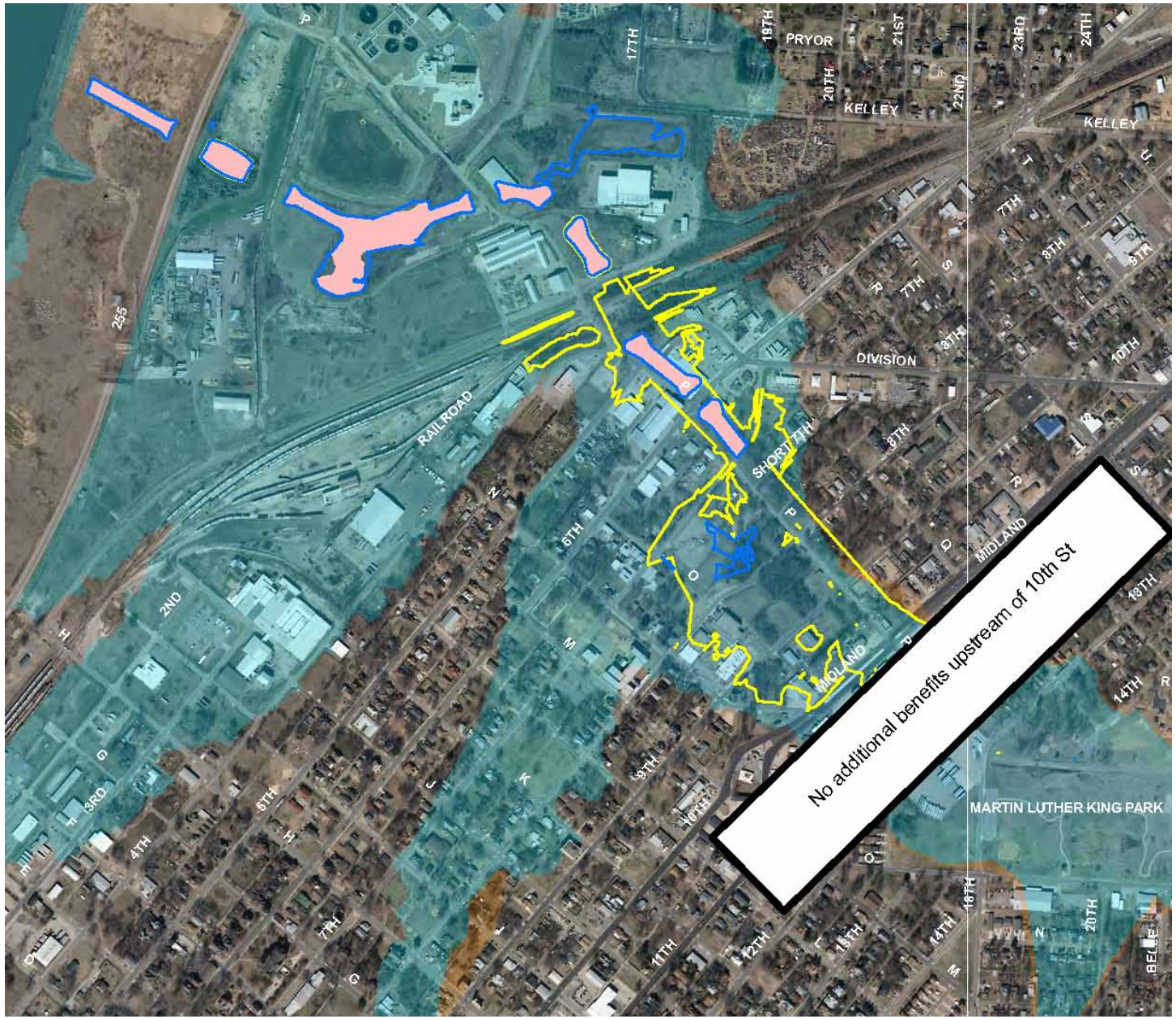

- 10-year event for May Branch (proposed) is contained within channel with no flooding of structures due to event
- 100-year event (proposed) is contained in the upstream portion of the reach and elevations are reduced generally from 1 to 5 ft compared to existing.
- Conceptual Opinion of Cost:

$26 million – $30 million

# May Branch Lower Reach Improvement Floodplain

- Approximately 4,800 ft of improvements – AR River to 7th St (Town Branch outfall)
- Benefits in floodplain reduction up to 7th St consistent with the larger project
- Still have 3 Road Crossings, 5 RR Crossings, 1 levee with gate structure, Riverside Trail crossing
- Provides substantial reduction to Town Branch downstream elevations
- Conceptual Opinion of Cost:

  $17 million - $20 million



# Town Branch Alternatives

Map of Town Branch Existing Conditions-

Design alternatives considered:

- 1) Underground Storm Drain Improvements
- 2) Detention ponds
- 3) Buyouts
  - A) Selected Residences based on Finished Floor Elevations compared to 10-year flood event
  - B) Selected Properties to provide flood easement along deepest area of flooding

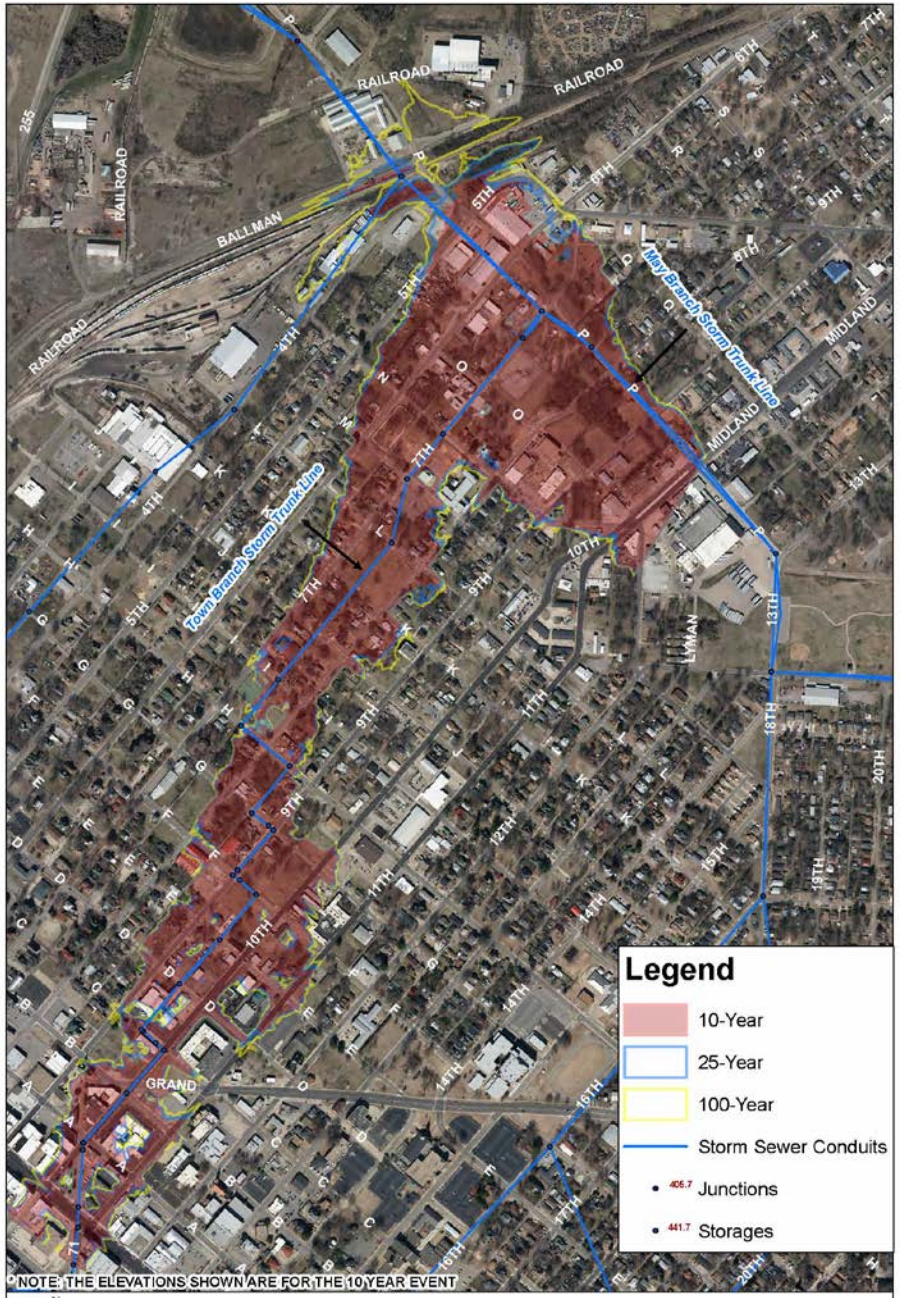
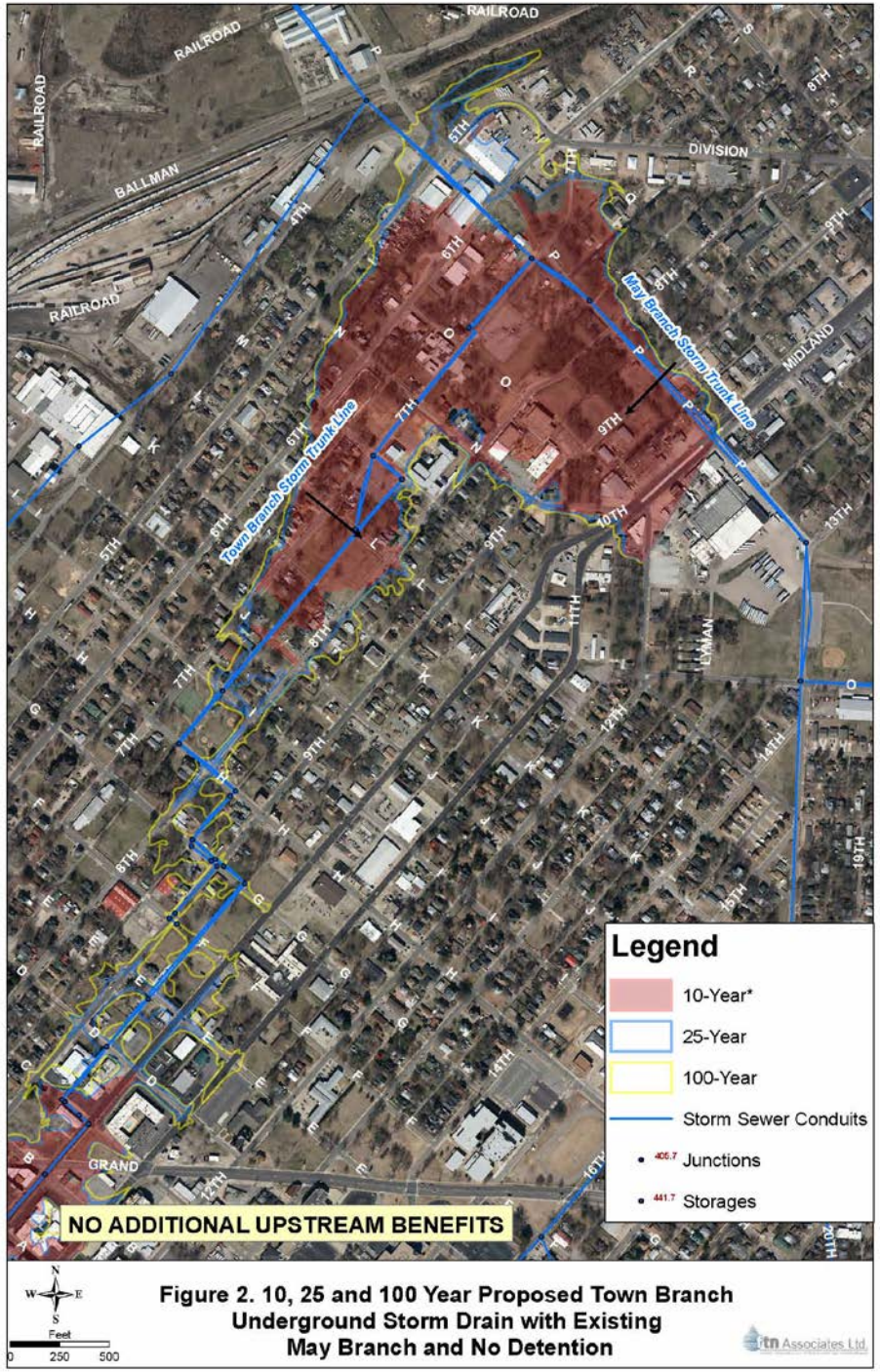



Figure 1. 10, 25 and 100 Year Existing Town Branch Inundation with Existing May Branch

tn Associates Ltd.




# Town Branch-Underground Storm Drain Improvements

- ~ 5,350 ft Reinforced Concrete Box Culvert – E St to P St
  - Runs parallel to and/or replaces portions of existing Town Branch trunk line
  - Vertical cuts with trench safety systems required to reduce impacts to streets
- Crossing 14 Streets or Intersections
  - Thoroughly developed infrastructure with many existing utility crossings
- Improvements – 10-year floodplain below ground, D St to J St, reduces elevations by ~1 ft B to D and J to P Sts.
- Conceptual Opinion of Cost:

$8-9 million

# Town Branch Detention Storage - All

- The combined ponds and underground storm drain option was analyzed and flood reductions were inadequate to justify this approach (0.5 ft to 1 ft additional reduction compared to storm drain only)
- 10 ponds total - adds storage of approximately 26 acre-ft, equivalent to about 0.05 ft or ½ inch of rain over entire watershed.
- Conceptual Opinion of Cost:

$3-4 million

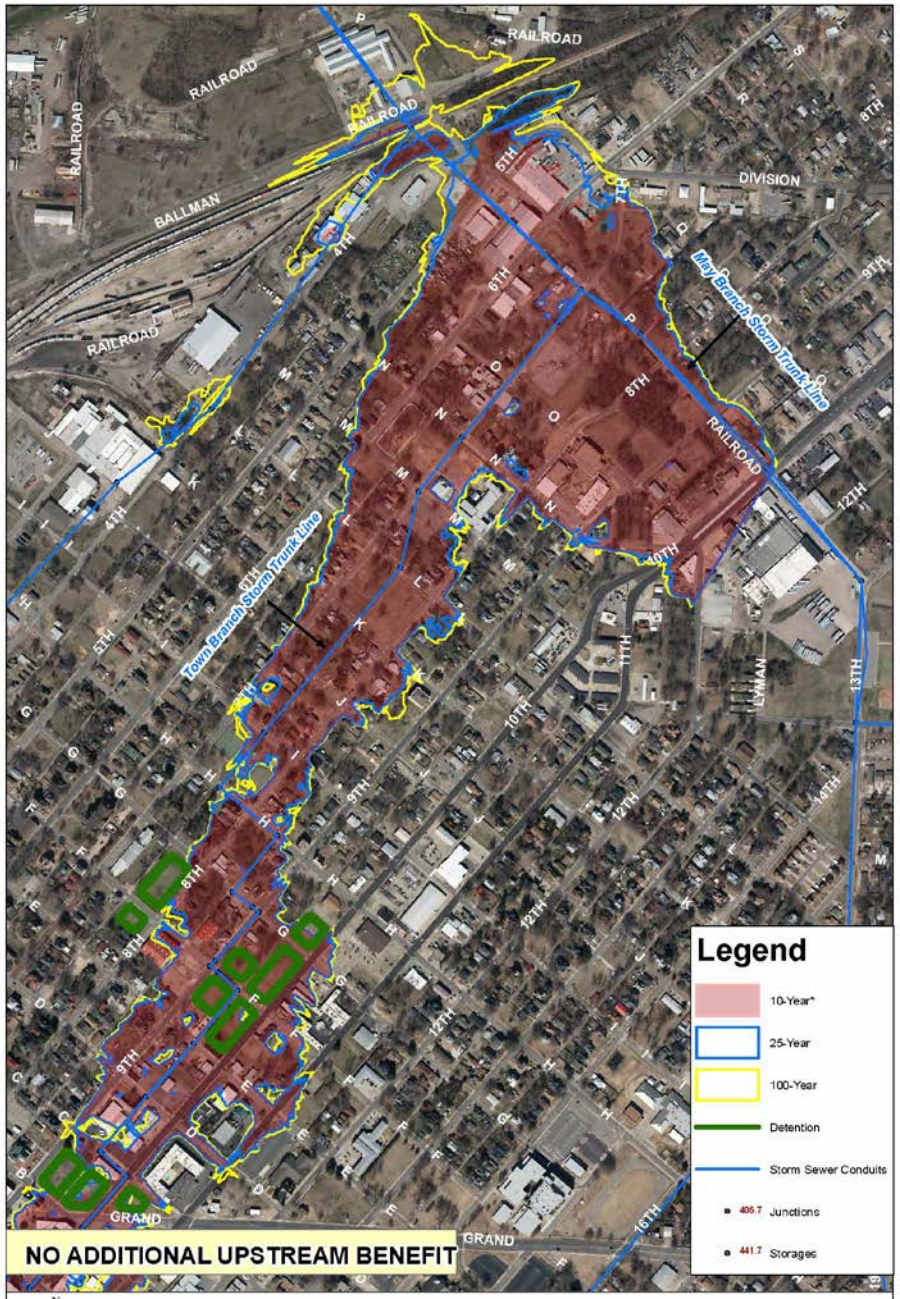
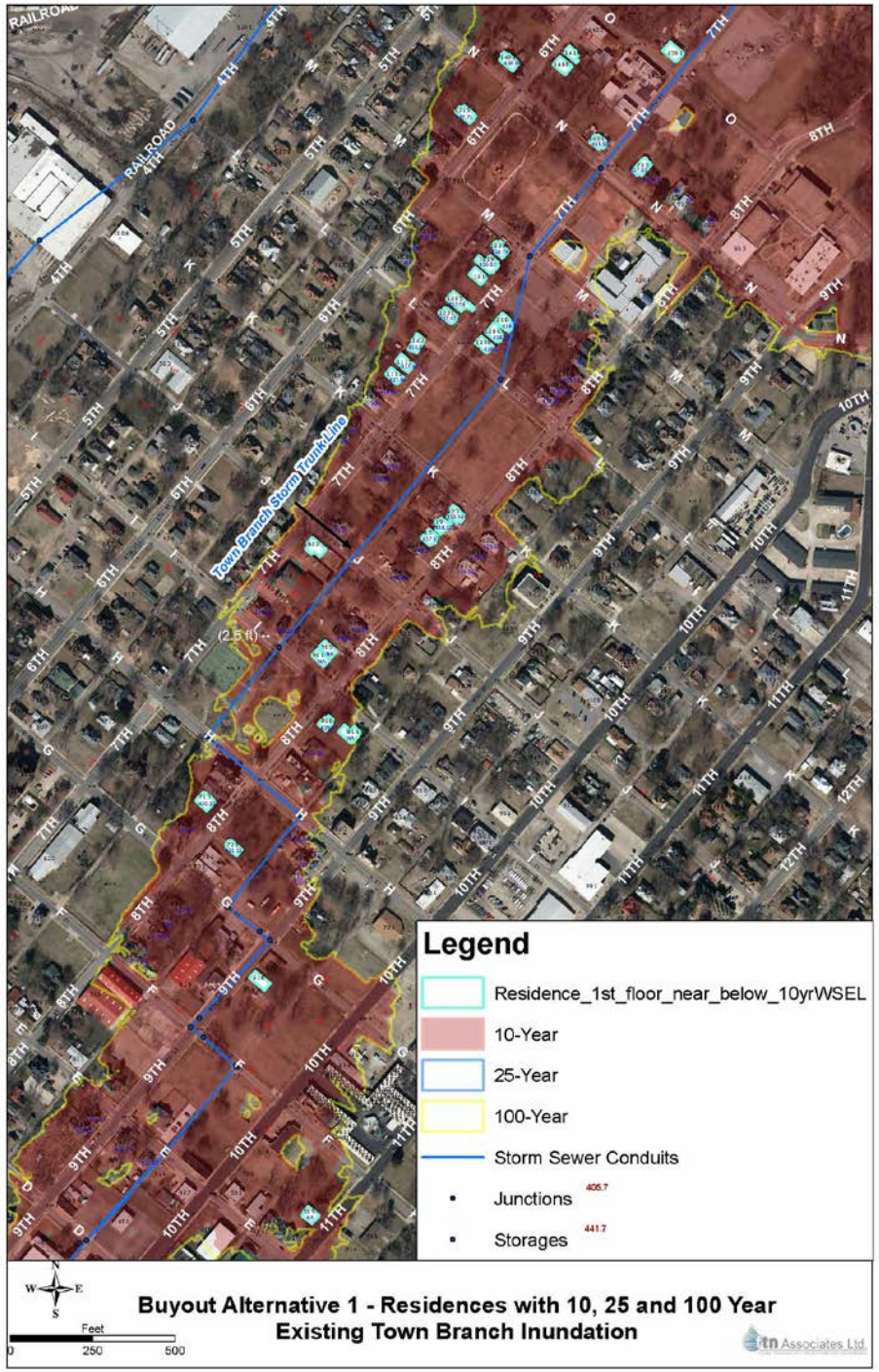



Figure 3. 10, 25 and 100 Year Existing Town Branch Inundation with Existing May Branch and All Detention

tn Associates Ltd.




# Buyout Alternative 1

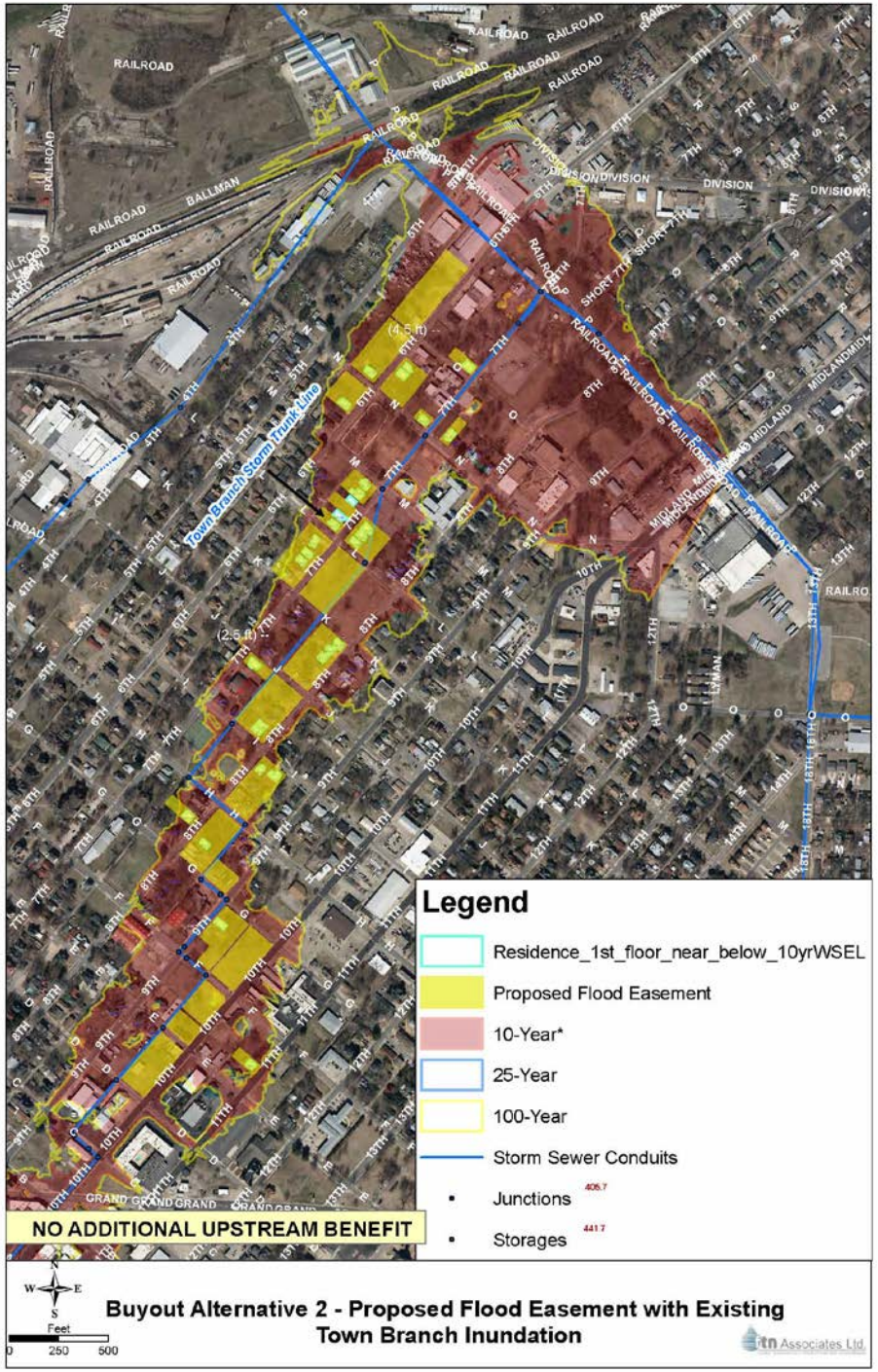
- Identified 30 homes from E St to P St with Finished Floor Elevation near or below computed 10-year flood water surface elevation
- Purchase, demolition, local relocation costs considered
- Approximated Totals –

  $1.7 - 2 Million

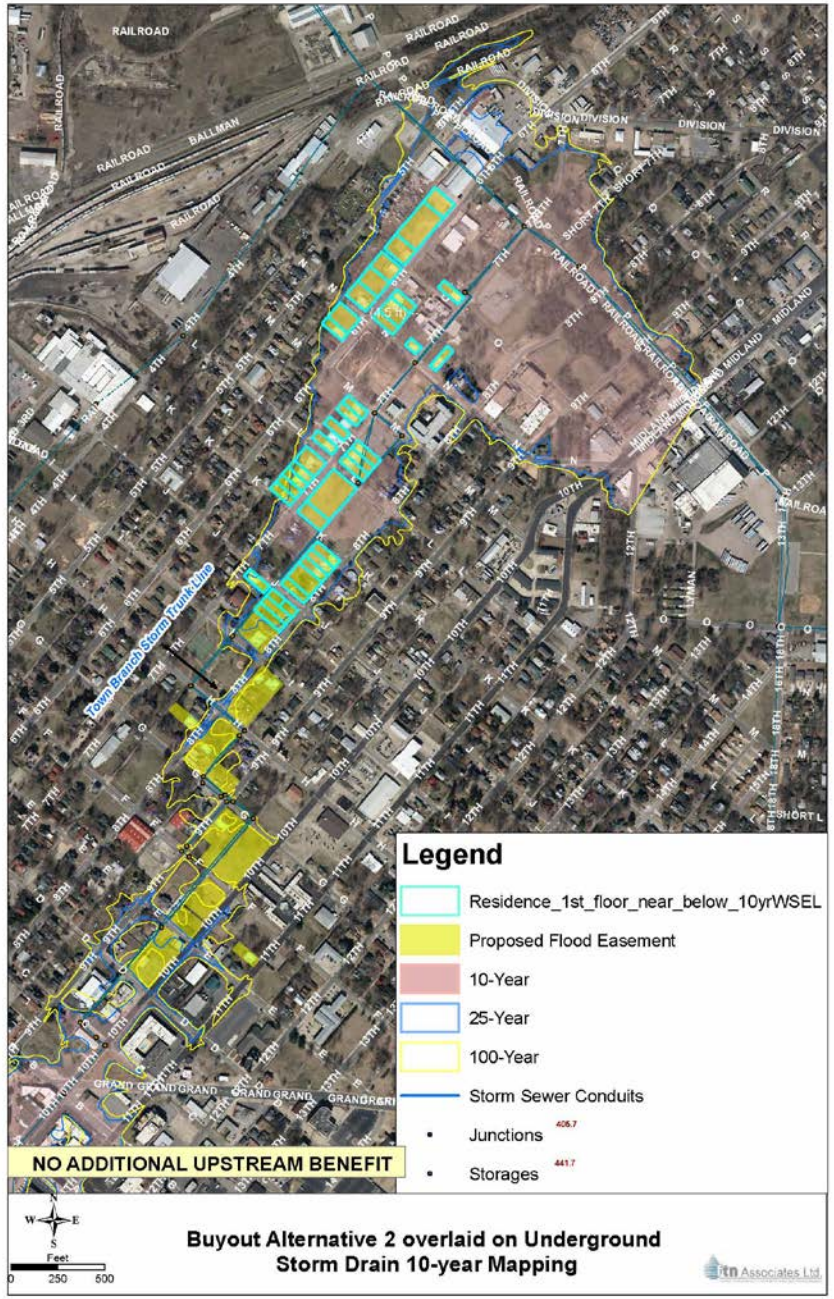
# Buyout Alternative 2

- Identified 71 parcels in the 10-yr to 100-yr floodplain, from C St to P St, including homes from Alternative 1
- Other businesses / homes included to provide continuous ‘flood easement’ and trail connectivity including existing City parks and other property
- Purchase, demolition, local relocation costs considered
- Approximated Totals –

  $3.7 - $4 Million



# Buyout Alternative 2 overlay on Underground Storm Drain




- Buyout Alternative 2 (BA2) identified 71 parcels at high risk for flood inundation for potential purchase
- Underground Storm Drain (USD) option would remove 33 of these 71 parcels from D to I St
- To obtain similar benefit as BA2, an additional 38 parcels from I to P St would need to be acquired, resulting in an updated USD option approximated cost of $9.5-$10.8 million.

# Summary

- May Branch Alternatives
  - Drainage Improvements along nearly 3-mile reach from Park Ave to AR River, to provide 10-year storm event level of protection, Conceptual Cost $26-$30 million
  - Improvements to lower reach only, from 7th St to AR River, for 10-year storm event level of protection, Conceptual Cost $17-$20 million
  - Both alternatives also reduce flood elevations in lower extent of Town Branch watershed, from K to P Sts.
- Town Branch Alternatives
  - Underground Storm Drain reduces existing 10-year flood elevations 2ft – 4.5 ft from D to J St, with lesser improvements downstream of J, & upstream of D. Conceptual Cost $8 – $10.8 million
  - Detention ponds only reduce existing 10-year flood elevation by 1 ft or less, generally from D to J St, Conceptual Cost range $3-$4 million
  - Buyout alternatives approximated cost ranges $1.7-2 million and $3.7-$4 million