



Bexar County Public Works Dept. Flood Control Program

Barbara Dr Drainage Project & the May 25th Storm



July 25, 2013

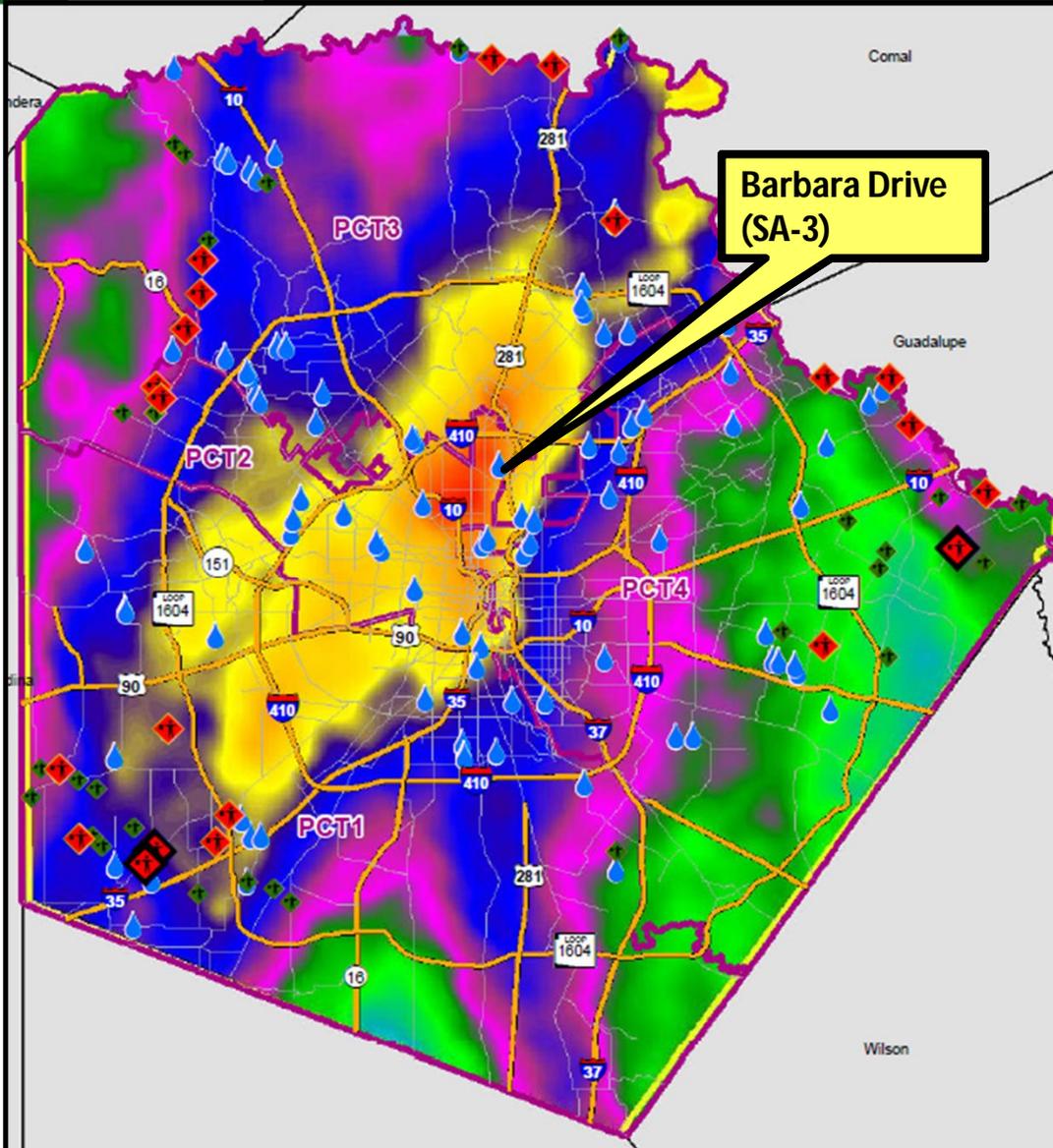


Outline



- **Impacts of the May 25th Storm**
- **Flood Control Project Feasibility**
- **Barbara Dr Project Preliminary Phase**
- **Project Feasibility Conclusions**
- **Revisiting the Preliminary Phase**
- **Options to Move Forward**

Impacts of the May 25th Storm

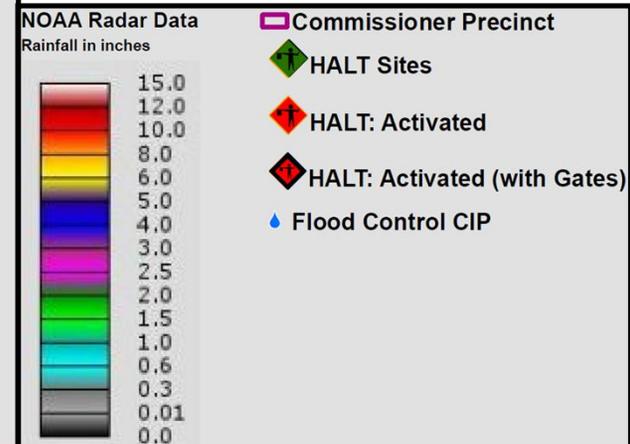


Rain Event:

May 25, 2013

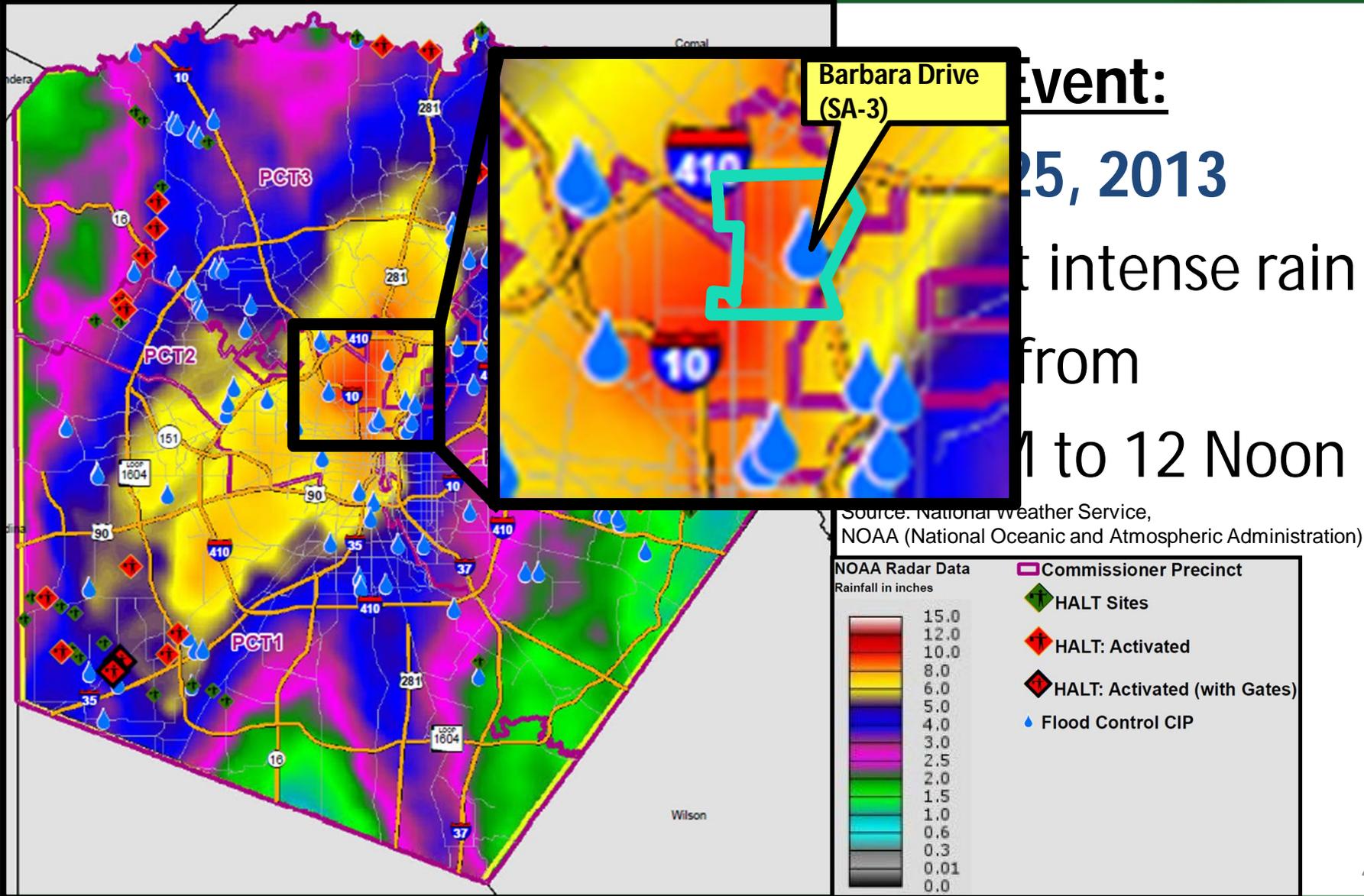
Most intense rain
was from
3 AM to 12 Noon

Source: National Weather Service,
NOAA (National Oceanic and Atmospheric Administration)





Impacts of the May 25th Storm



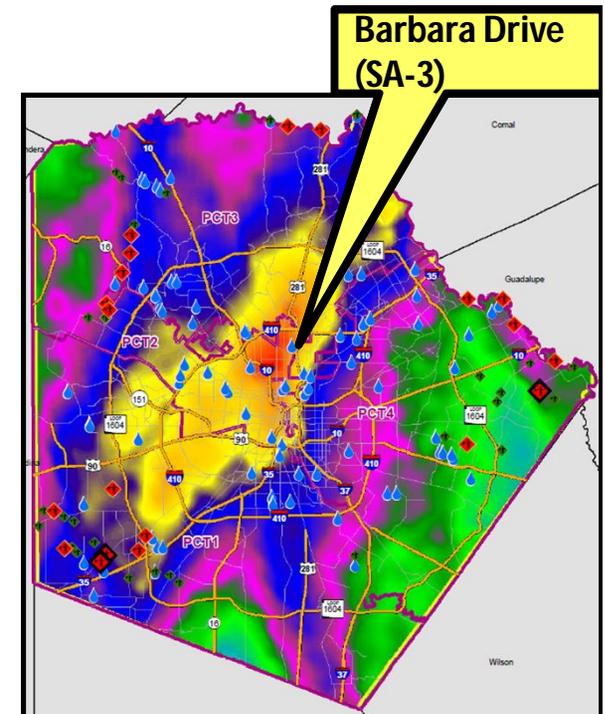


Impacts of the May 25th Storm



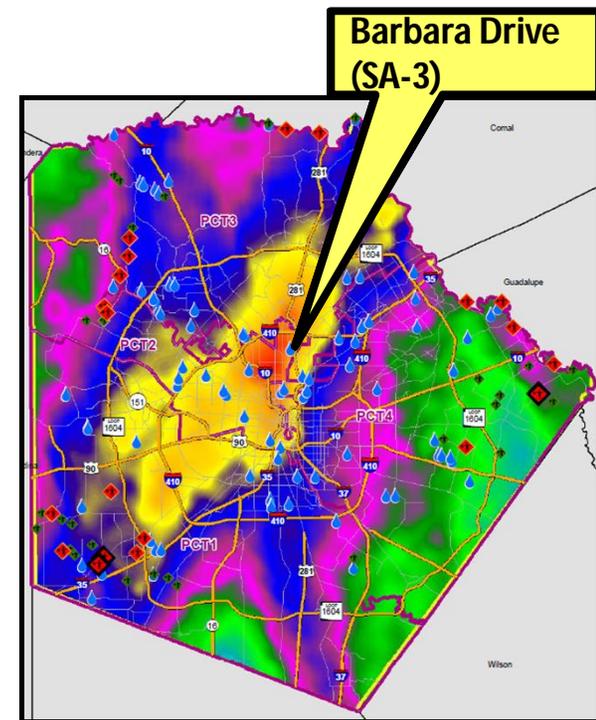
Rain Event: May 25th

- **250-year storm (0.4% event)** in north central Bexar County
(Interpolation of storm event based on SARA Regional Hydrology and Hydraulic Standards)
 - Over 12.2 inches in 24-hrs (**red – center of storm**)
 - SAT Airport Rain Gauge:
 - » May 24th: 2.33 inches
 - » May 25th: 9.87 inches
- **25 to 100-year storm**
(4% to 1% event) in central north and central west Bexar County
 - 6 to 9 inches in 12-hrs (**yellow/orange**)



Shearer Hills/Ridgeview

- Sustained significant, damaging flooding in residential and commercial properties
- On May 25th, neighborhood experienced a 250-year storm (0.4% event)



The Unified Development Code of San Antonio requires design to accommodate the 100-year storm (1% event)



Flood Control Project Feasibility



The following metrics are reviewed during the Preliminary Phase to determine the feasibility (benefit to cost potential) of a project:

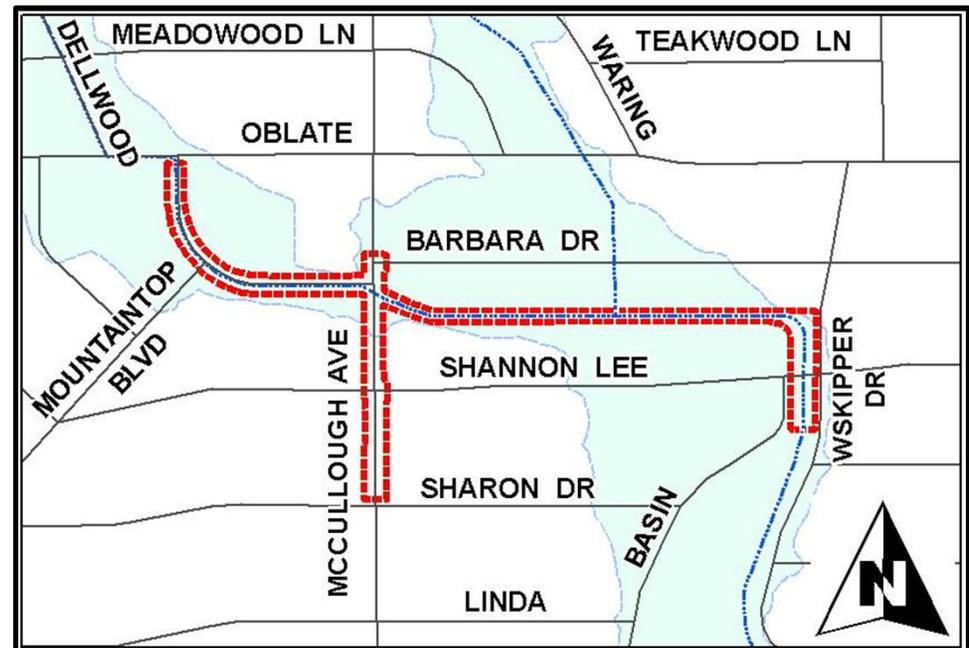
- Increased mobility & public safety
 - Traffic volume over low water crossings
 - Access for isolated neighborhoods and schools
 - School and VIA bus routes
- Floodplain reduction
 - Homes/businesses removed
 - Undeveloped property removed
- Management of upstream/downstream impacts
- Total project costs (construction, real estate, utility relocation)
- Constructability
- Community impact and public support



Barbara Dr Project Preliminary Phase



- The Preliminary Phase Study began July 28, 2011
 - The goal of the Barbara Dr Project was to provide unflooded access along McCullough Ave and reduce flooding along Barbara Drive
 - The area of proposed improvements started south of Oblate to the outfall of the system at W Skipper Dr
 - The estimated construction cost was \$8.5M





Barbara Dr Project Preliminary Phase



- The Preliminary Engineering Report was completed on April 30, 2012
 - Findings reflected the following:
 - Construction costs for the Barbara Dr Project **increased from \$8.5 M to \$13.4 M**
 - Construction costs of an **additional \$10.8 M** would be required to reduce flooding upstream from El Montan to Oblate (Dellwood Project)
 - Significant **real estate acquisition and constructability challenges** uncovered
 - Although McCullough Ave at Barbara Drive would have unflooded access, because of existing flooding north and south on McCullough and east and west along Oblate, **the project would not increase mobility**
 - Current FEMA mapping (100-year storm, 1% event) is not reflective of actual flooding conditions



Narrative of the Preliminary Phase



- Since the goals of the project **would not be met**, an additional study (Technical Memorandum) was authorized on July 27, 2012 to determine the following:
 1. **Could street grate inlets on Barbara Dr south of Oblate reduce Barbara Dr Project construction costs?**
 2. **What would be the limits and cost of a project to provide unflooded access along McCullough to the north of Barbara Dr?**
 3. **What would be the total costs of an Ultimate Solution Project to reduce all of the flooding in the area from El Montan and McCullough to W Skipper Dr?**



Barbara Dr Project Preliminary Phase



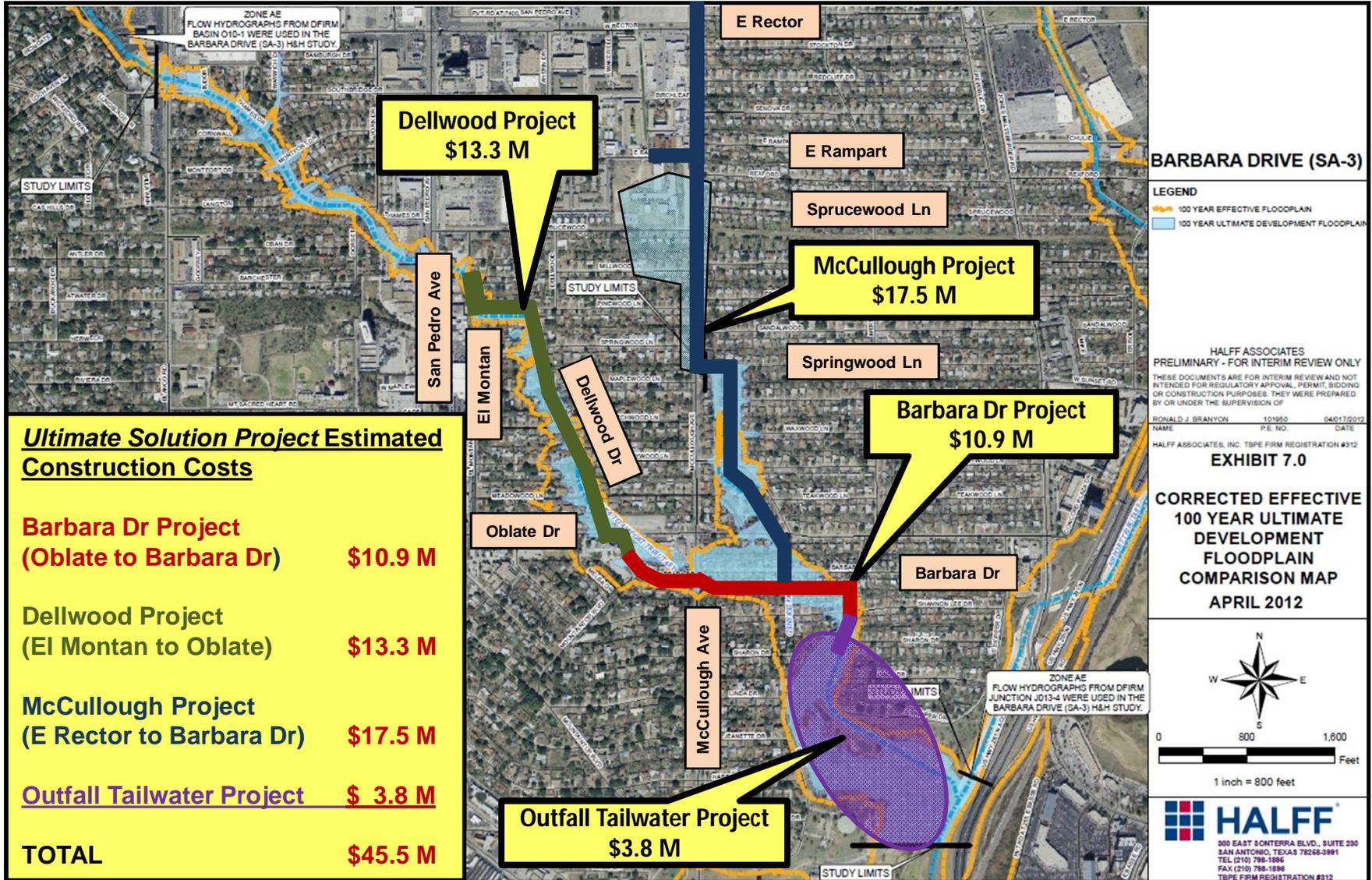
- The Technical Memorandum was finalized on November 2, 2012 with the following conclusions:
 1. Barbara Dr Project construction costs could be reduced from **\$13.4 M** to **\$10.9 M** if grate inlets are installed. Total grate area is 30' X 15' with 2 curb inlets.
 2. To provide unflooded access along McCullough to the north of Barbara Dr, construction costs of **\$17.5 M** would be required for improvements from E. Rector to Barbara Dr (McCullough Project)
 3. The Ultimate Solution Project require the following projects:

Ultimate Solution Project Estimated Construction Costs

Barbara Dr Project (Oblate to W Skipper)	\$10.9 M (With Street Grate)
Dellwood Project (El Montan to Oblate)	\$13.3 M (Includes \$2.5 M for Add. Box Culverts)
McCullough Project (E Rector to Barbara Dr)	\$17.5 M (To address McCullough flooding)
<u>Outfall Tailwater Project</u>	<u>\$ 3.8 M</u> (Additional outfall capacity)
TOTAL	\$45.5 M



Barbara Dr Project Preliminary Phase



LEGEND

- 100 Year Effective Floodplain
- 100 Year Ultimate Development Floodplain

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 PRELIMINARY - FOR INTERIM REVIEW ONLY
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RONALD J. BRANVON 10/19/12 04/01/2012
 NAME P.E. NO. DATE

HALFF ASSOCIATES, INC. TSPF FIRM REGISTRATION #312

EXHIBIT 7.0

CORRECTED EFFECTIVE 100 YEAR ULTIMATE DEVELOPMENT FLOODPLAIN COMPARISON MAP
APRIL 2012

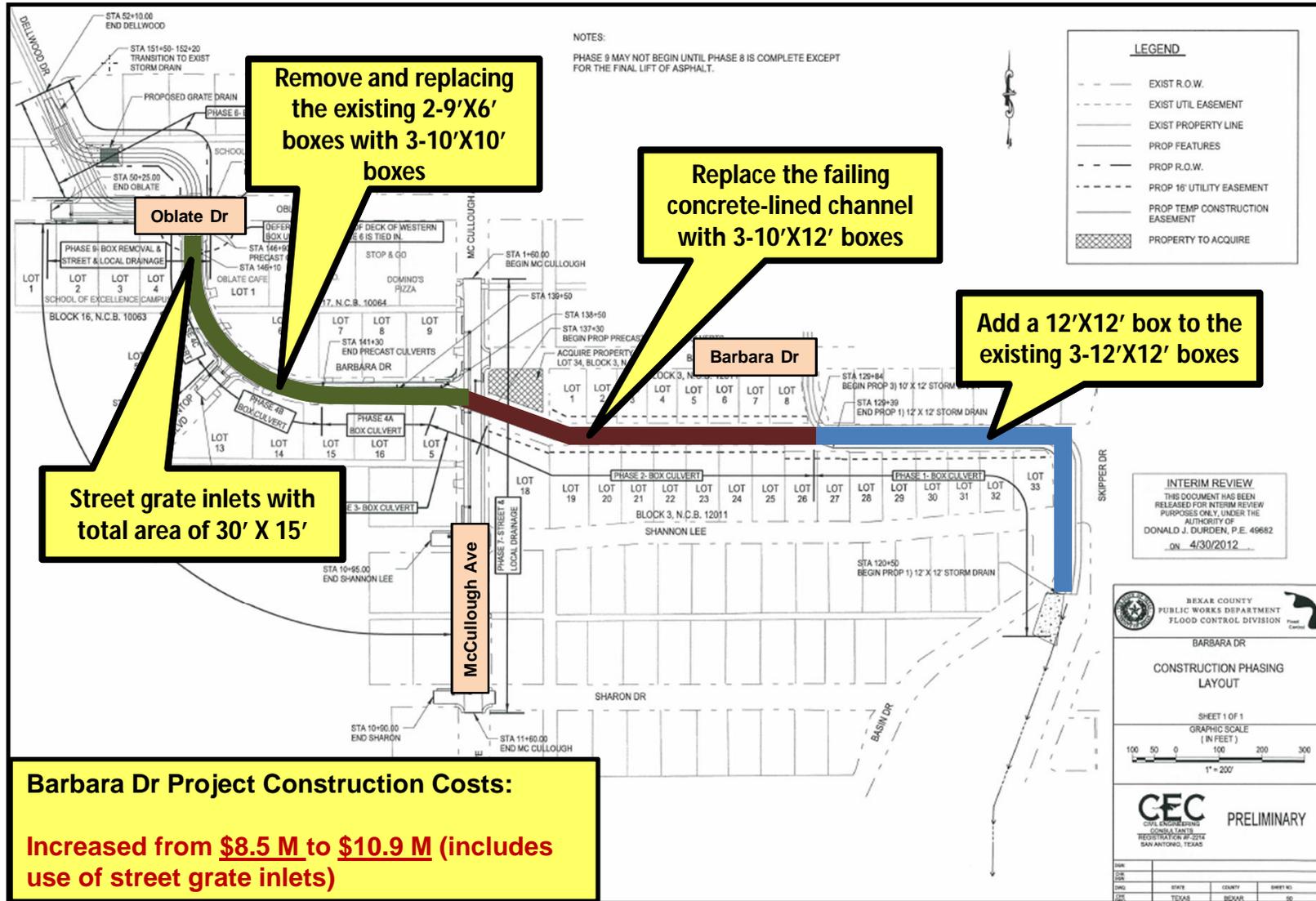
0 800 1,600
 Feet

1 inch = 800 feet

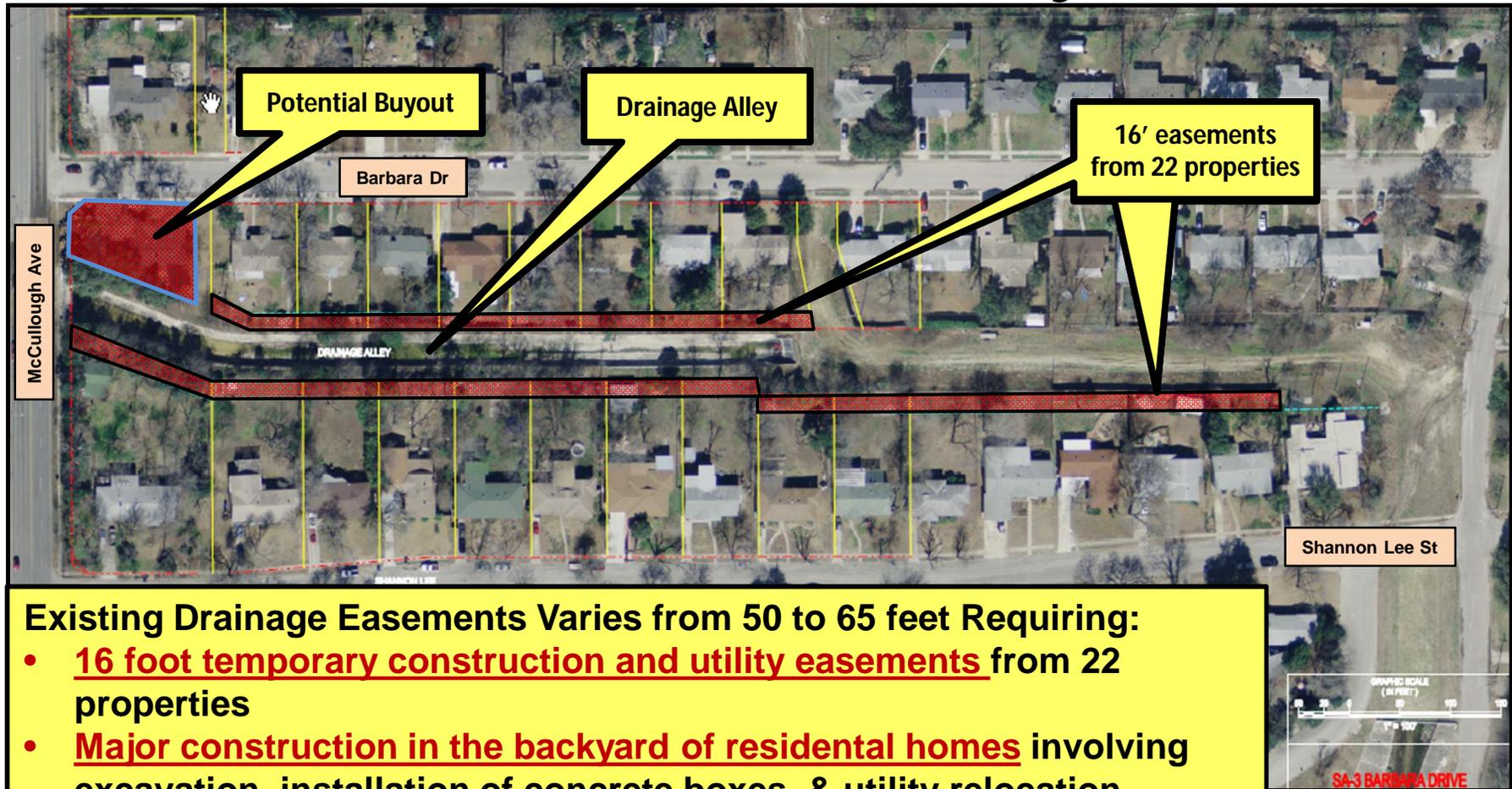
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 TSPF FIRM REGISTRATION #312



Barbara Dr Project Preliminary Phase



Real Estate and Constructability



Existing Drainage Easements Varies from 50 to 65 feet Requiring:

- 16 foot temporary construction and utility easements from 22 properties
- Major construction in the backyard of residential homes involving excavation, installation of concrete boxes, & utility relocation
- Impacts to fences, sheds, detached garages, playscapes, etc.



Project Feasibility Conclusions

Barbara Dr Project



- Benefit to Cost Review
 - Barbara Dr Project (Oblate to W Skipper)
 - \$10.9 M** Construction Cost (does not include real estate)
 - 43 properties removed from the floodplain
 - At a cost of ~\$253,000 per home
 - No improvements to mobility since flooding will still occur north and south on McCullough and east and west on Oblate
 - Invasive construction and easements required in backyards adjacent to drainage alley
 - Large street grate inlets require special maintenance

Based on the feasibility metrics, the Barbara Dr Project would not be recommended for construction.



Project Feasibility Conclusions

Ultimate Solution Project



- Benefit to Cost Review
 - Ultimate Solution Project (El Montan and E Rector to W Skipper)
 - \$45.5 M** Construction Cost (does not include real estate)
 - 169 properties removed from the floodplain
 - At a cost of ~\$269,000 per home
 - Invasive construction and easements required in backyards adjacent to drainage alley

Based on the feasibility metrics, the Ultimate Solution Project would not be recommended for construction.



Revisiting the Preliminary Phase



Options to move forward:

1. City pursues a voluntary buyout program along Barbara Dr and Shannon Lee.
2. County pursues a funding partnership with the City (*to cover the shortfall*) for the construction and real estate to move forward with the **Barbara Dr Project**.
3. City uses the Preliminary Phase studies provided by the County to develop a comprehensive plan to address the progression of the **Ultimate Solution Project** for the area.



Barbara Drive Drainage



Questions ?