



# Infrastructure & Development Committee

## Hooper Business Park Drainage

January 10, 2024

Public Works & Engineering



# Hooper Business Park Infrastructure



## Roadway/Sanitary Sewer

- Lakewood Drive under construction
- Extension of Lakewood Drive to tollway under design – staff working with NTCOG, NTTA, and TxDOT (construction funding to be identified)
- Sewer lift station and force main to serve business park, Craftmasters and surrounding development anticipated to begin construction early 2024

## Stormwater Retention/Detention

- Design underway – construction anticipated to begin summer 2024
- Performance Agreement obligates start of construction no later than June 30, 2024 and completed no later than September 30, 2026





# Hooper Business Park Drainage

Initial Design Objectives (approved by 4A EDCB and City Council October 2022)

- Survey
- Drainage analysis to determine stormwater management options
- Schematic Design developed from drainage analysis
- Construction plans





# Hooper Business Park Drainage



## Preliminary Drainage Analysis Results

- Significant volume of stormwater conveyed from offsite through property
- Large channel needed to convey offsite flow
- CR 1019 experiences flooding making the road impassable during moderate rain events

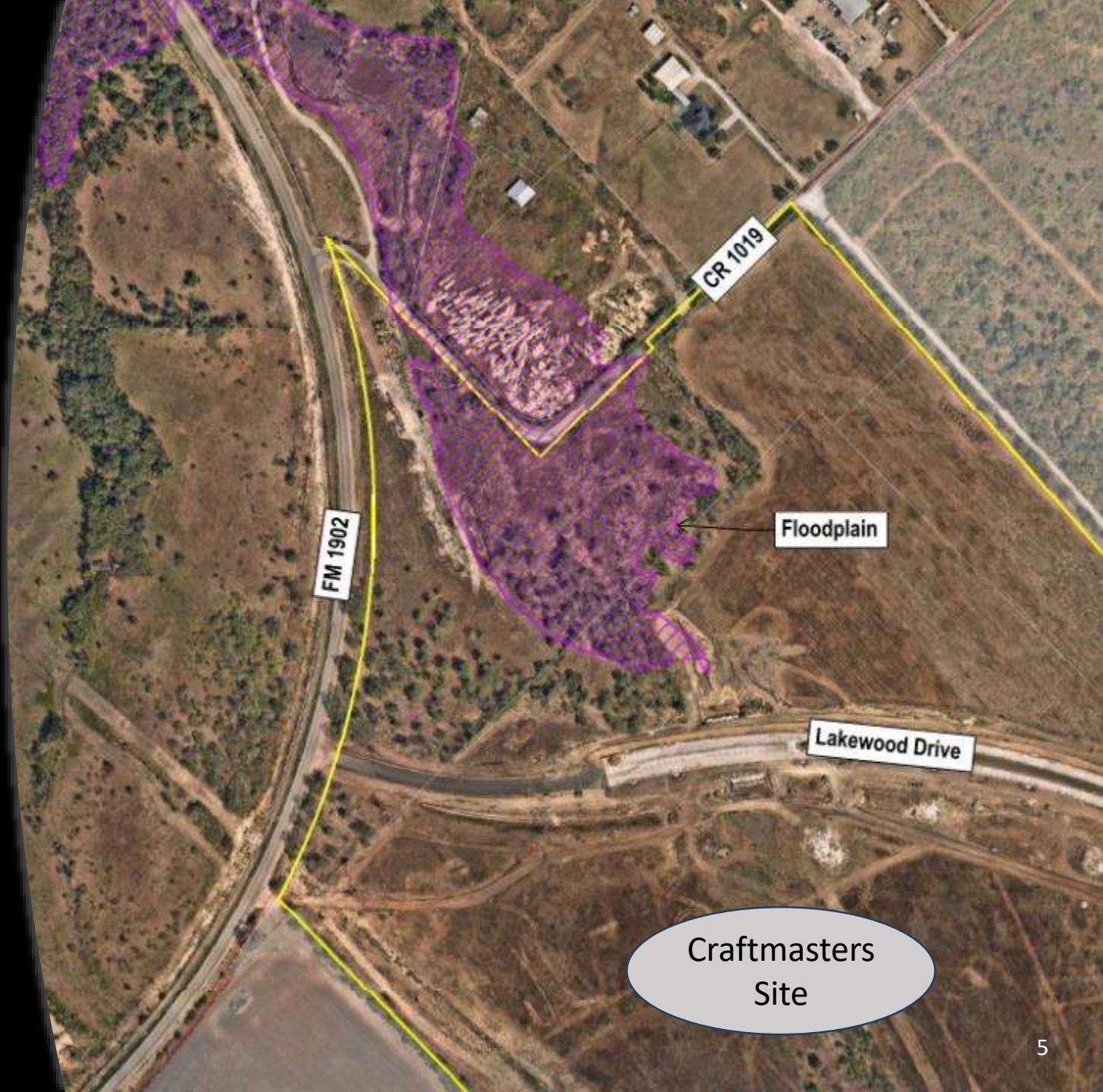
Based on preliminary drainage analysis, staff recommended amending the initial scope to include additional alternatives and roadway design



# Hooper Business Park Drainage

Revised Design Objectives (approved by 4A EDCB and City Council July 2023)

- Additional drainage analysis for two retention ponds
- Additional survey for roadway design
- Re-align CR 1019 – relieves flooding issues and allows temporary connection to Lakewood until FM 1902 is re-aligned in the future until Lakewood is extended
- Sidewalk/trail around pond connecting to Lakewood and Craftmasters site to the south
- Evaluation of three alternatives
- Estimated Construction Budget - \$6.5M





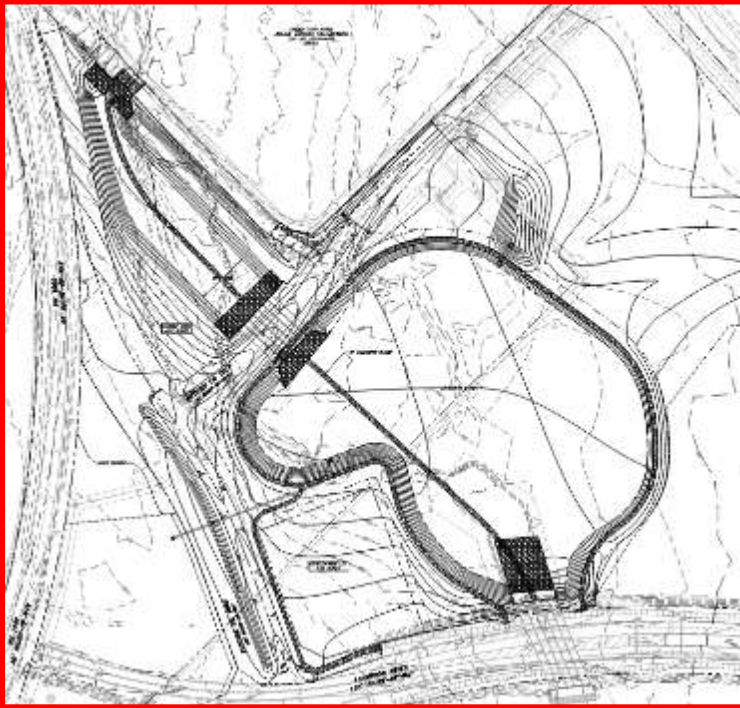
# Hooper Business Park Drainage

## Additional Considerations

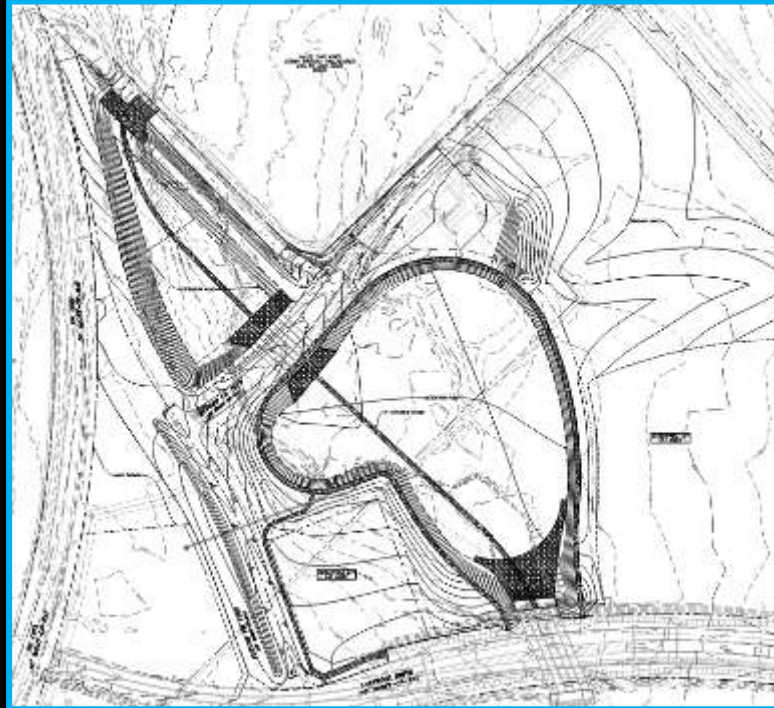
- Preserve as much developable land as possible
- Accommodate the sanitary sewer lift station site
- Allow for potential 0.65-acre Atmos easement site for regulator station
- Preserve approximately 3-acre for ***potential*** fire station site
- Accommodate a 20-foot wide JCSUD water line easement

# Hooper Business Park Drainage

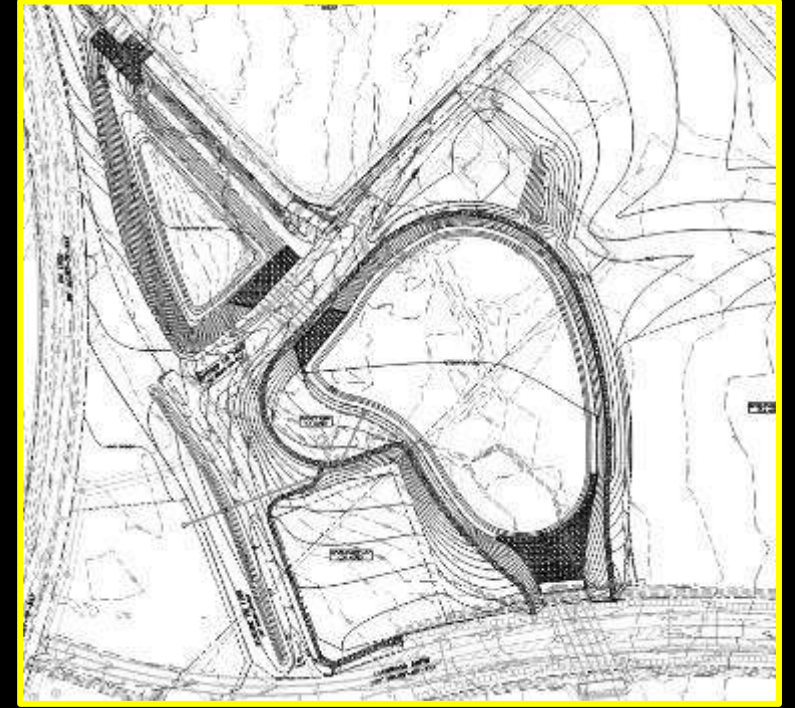
## Evaluation of Three Alternatives



Single Detention  
Pond (dry)



Two Detention  
Ponds (dry)



Two Retention  
Ponds (wet)



Further analysis determined initial channel to convey off-site flow could be modified increasing developable remainder

Lift Station Site

CR 1019 Re-Alignment

Approx. 15 acres remain for development

Proposed Atmos Easement 0.65 acre

Approx. 1.6-acre pad site

Approx. 1.3-acre pad site

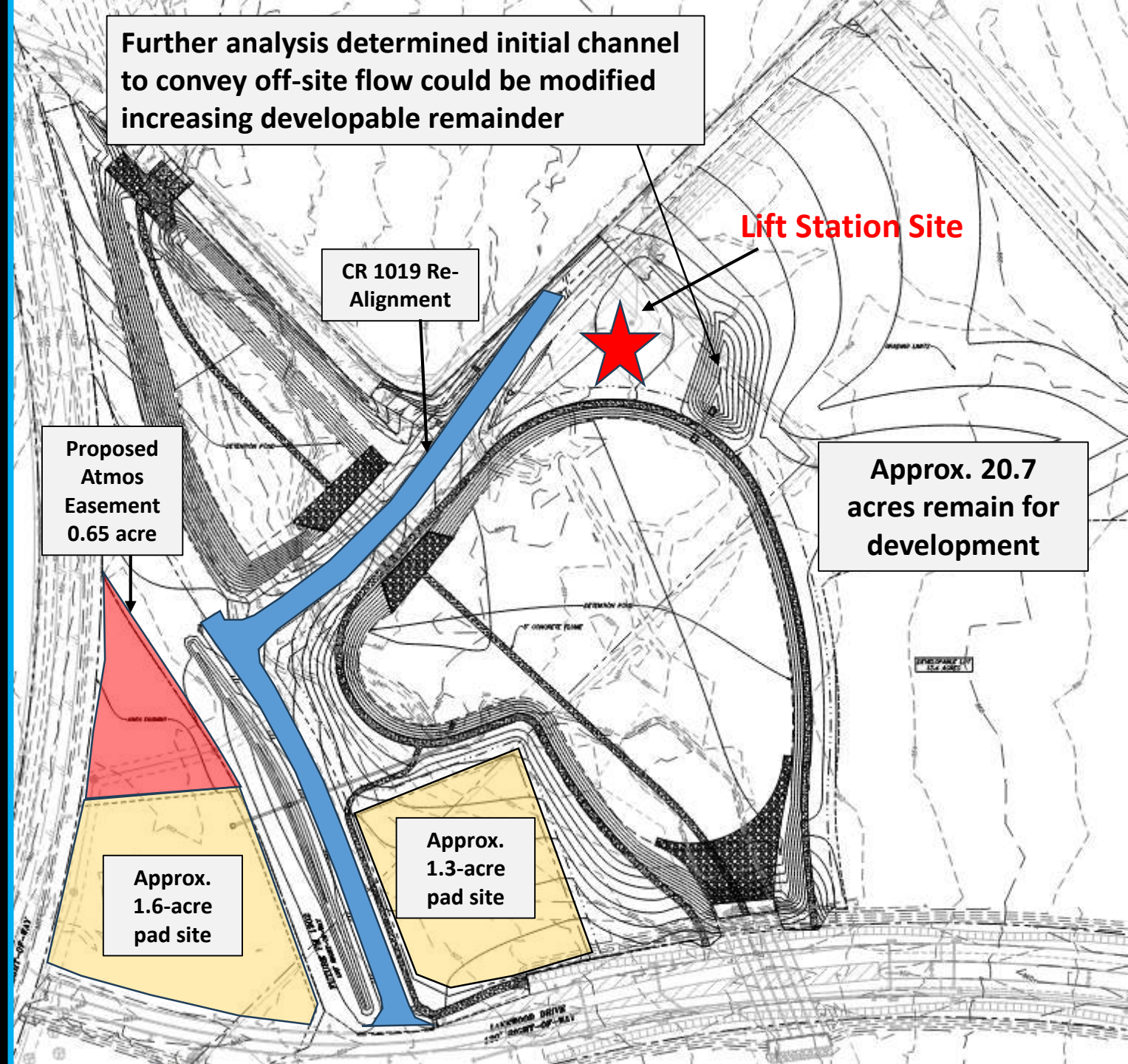
## Single Detention Pond (dry)

- Combination of dry pond and channel
- Concrete flume in pond and channel to prevent “soggy” bottom and facilitate maintenance
- Two pad sites for development (prime locations at intersection of FM 1902 and Lakewood)
- 8 ft. sidewalk/trail and landscaping around pond
- Remaining approx. 15 acres accommodates potential 8-acre Craftmasters Headquarters



## Two Detention Ponds (dry)

- Two dry ponds (no channel) – southern pond slightly smaller than single pond with channel
- Concrete flume in both ponds to prevent “soggy” bottom and facilitate maintenance
- Two pad sites for development at prime locations (intersection of FM 1902 and Lakewood)
- 8 ft. sidewalk/trail and landscaping around pond
- Remaining approx. 20.7 acres accommodates potential 8-acre Craftmasters Headquarters





Further analysis determined initial channel to convey off-site flow could be modified and additional land be utilized for development

CR 1019  
Re-Alignment

Lift Station Site

Approx.  
20.7 acres  
remain for  
development

Proposed  
Atmos  
Easement  
0.65 acre

Approx.  
1.6-acre  
pad site

Approx.  
1.3-acre  
pad site

## Two Retention Ponds (wet)

- Two “wet” ponds (no channel)
- Aeration fountains
- Potential for small pocket park
- Two pad sites at intersection of FM 1902 and Lakewood
- 8 ft. sidewalk/trail and landscaping around pond
- Remaining approx. 20.7 acres accommodates potential 8-acre Craftmasters Headquarters



# Hooper Business Park Drainage

	Single Detention Pond (Dry)			Two Detention Ponds (Dry)			Two Retention Ponds (wet)		
	Quantity	Unit	Est Cost	Quantity	Unit	Detention (Dry)	Quantity	Unit	Retention (Dry)
<b>Storm Drain</b>			\$ 1,381,764.00			\$ 1,273,975.00			\$ 1,234,903.00
<b>On-site Excavation</b>									
Clearing and Grubbing	25	acre	\$ 62,500.00	24	acre	\$ 60,000.00	24	acre	\$ 60,000.00
Cut	61,423	SY	\$ 491,381.00	61,164	SY	\$ 489,310.00	103,380	SY	\$ 827,040.00
Fill	20,181	SY	\$ 161,449.00	18,548	SY	\$ 148,381.00	18,405	SY	\$ 147,240.00
Export*	41,242	SY	\$ 618,622.00	42,616	SY	\$ 639,241.00	84,974	SY	\$ 1,274,610.00
<b>Pond Improvements</b>									
Pond Fountain			\$ -			\$ -	2	EA	\$ 200,000.00
8' Concrete Ped Trail	2,342	SY	\$ 128,810.00	1,757	SY	\$ 96,619.00	1,757	SY	\$ 96,619.00
Landscaping	10	acre	\$ 250,000.00	10	acre	\$ 250,000.00	10	acre	\$ 250,000.00
<b>Contingency 25%</b>			\$ 773,631.00			\$ 739,381.00			\$ 1,022,603.00
<b>Construction Surveying 3.5%</b>			\$ 135,385.00			\$ 129,392.00			\$ 178,956.00
<b>Total Estimated Pond Cost</b>			\$ 4,003,542.00			\$ 3,826,299.00			\$ 5,291,971.00
CR 1019 Re-Alignment			\$ 540,810.00			\$ 540,810.00			\$ 540,810.00
<b>Contingency 25%</b>			\$ 135,202.00			\$ 135,202.00			\$ 135,202.00
<b>Construction Surveying 3.5%</b>			\$ 23,660.00			\$ 23,660.00			\$ 23,660.00
<b>Total Estimated Roadway Cost</b>			\$ 699,672.00			\$ 699,672.00			\$ 699,672.00
<b>Total Estimated Construction Cost</b>			\$ 4,703,214.00			\$ 4,525,971.00			\$ 5,991,643.00

*\*Export has significant value and could be sold or spread on remaining property to offset development costs*



# Chisholm Summit Infrastructure

Funded by 4A Economic Development Corporation Bonds



Item	Allocation	Current Estimated Cost
Lakewood Drive Construction	\$18,000,000	\$17,980,957
Landscaping (Option C – Most dense option)	\$2,500,000	\$1,747,861 (based on Council feedback Nov 13, 2023)
Storm Drainage	\$6,500,000	\$5,991,643
Bury existing overhead electric	\$1,000,000	\$669,139 (actual cost - Council action Nov 13, 2023)
New pedestrian and street lighting*	\$2,500,000	\$599,414 (actual cost - Council action Dec 11, 2023)
Lakewood Extension Design	\$1,000,000	\$1,090,915
<b>Total</b>	<b>\$31,500,000</b>	<b>\$28,079,929</b>

*\*City's costs reduced as a result of UCS installation of infrastructure to support new pedestrian and street lighting infrastructure and support other development in the area*



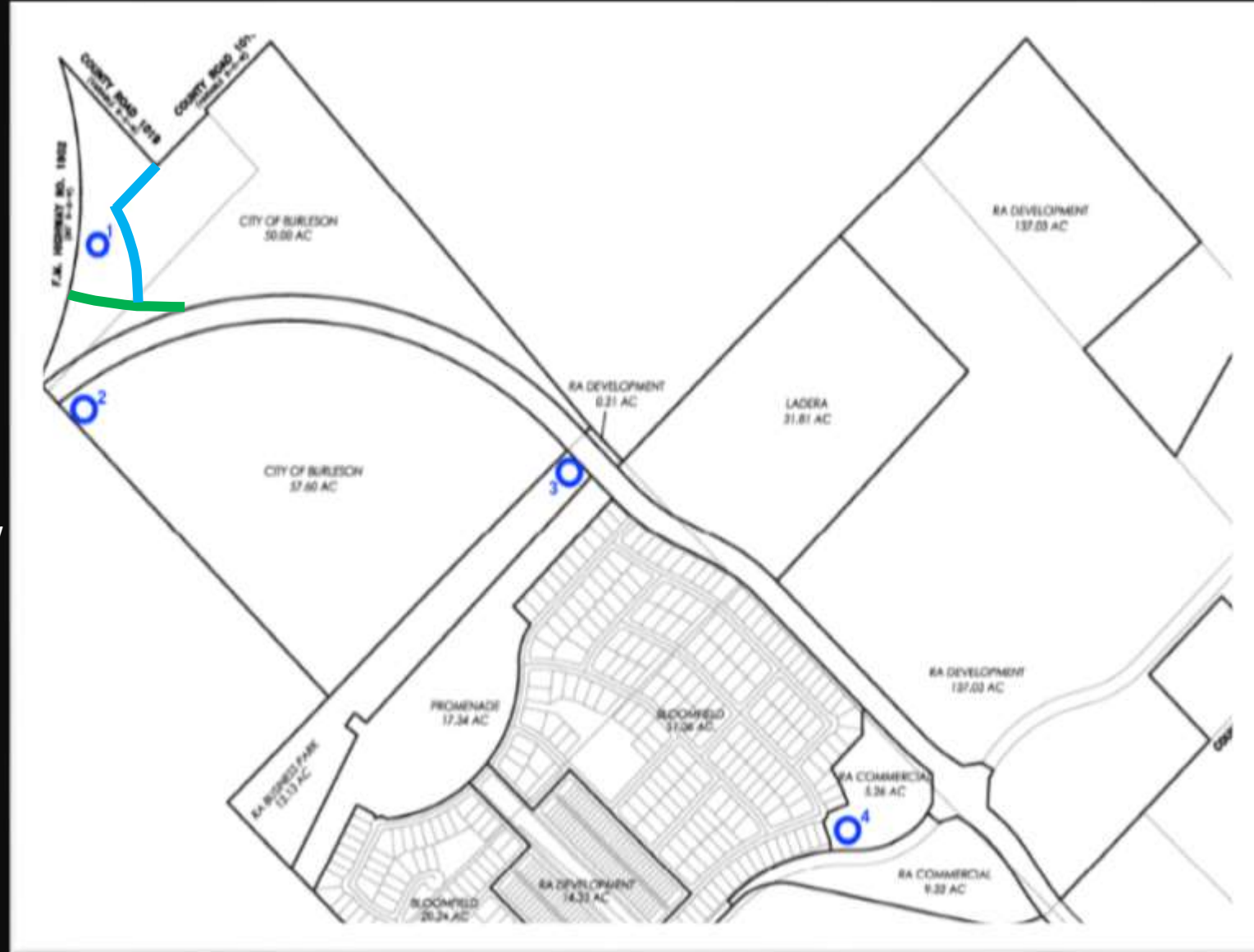
# Potential Locations for Atmos Regulator Station

## Atmos Energy

- Nearest source of existing gas – 2.5 miles away
- Gas to be provided for Hooper Business Park, Chisholm Summit and future development
- Existing high pressure transmission gas line will extend from FM 917 and FM 1902 – Atmos requires a minimum exclusive 30-foot easement/right-of-way
- Regulator station converts high pressure to low pressure for distribution lines
- Low pressure gas line will extend along Lakewood Drive

## Potential Regulator Station Locations

- 1 - City owned property
- 2 - Craftmasters
- 3 and 4 – Privately owned (RA Development)





# Potential Locations for Atmos Regulator Station

## Option 1 (City-Owned)

### Advantages

- No cash participation from City
- Adjacent to FM 1902 where high pressure line is planned
- Low pressure gas line may be located within Lakewood Drive right-of-way
- Offset from Lakewood Drive and “gateway” into business park

### Disadvantages

Occupies 2/3 acre that could be developed





# Potential Locations for Atmos Regulator Station

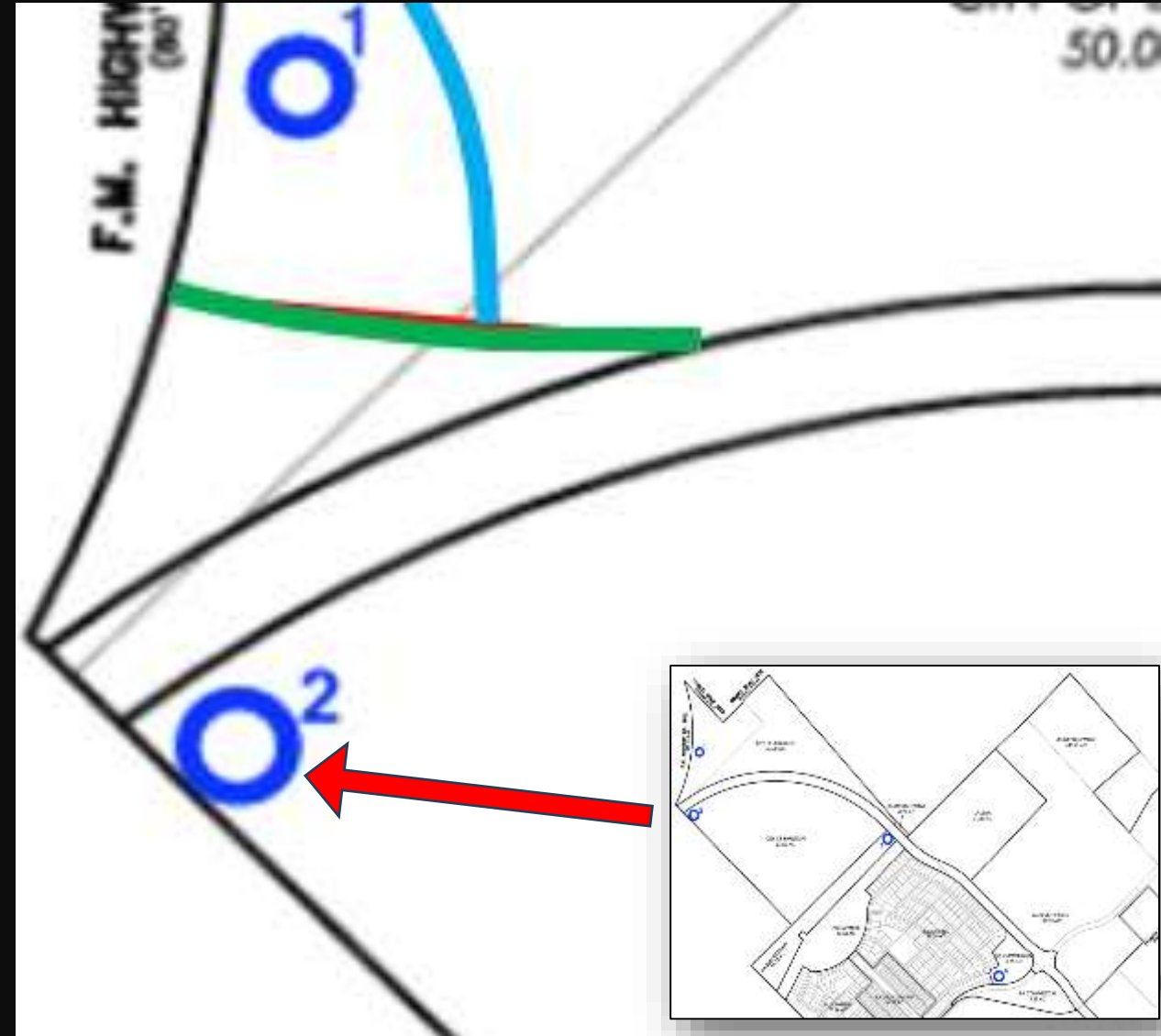
## Option 2 (Craftmasters)

### Advantages

- No cash participation from City
- Low pressure gas line may be located within Lakewood Drive right-of-way
- Additional 2/3 acre available for development

### Disadvantages

- High pressure gas line may need relocation with extension of Lakewood Drive
- Visible from entrance to business park from Chisholm Trail Parkway
- Coordination with Craftmasters required
- Additional easements/right-of-way potentially needed from Animal Pancakes (construction delay)





# Potential Locations for Atmos Regulator Station

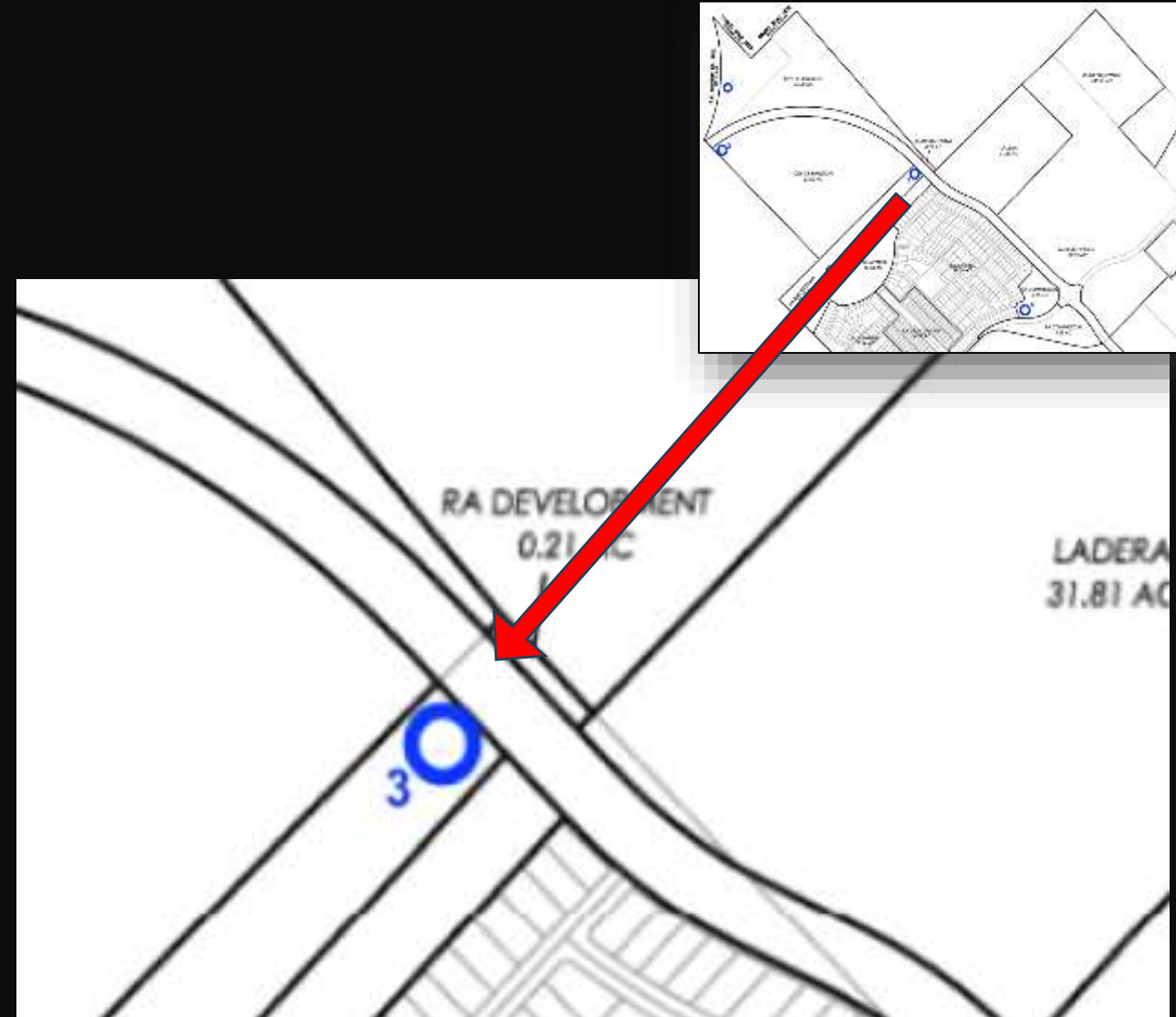
## Option 3 (Privately Owned)

### Advantages

- Not located on city property
- Low pressure gas line may be located within Lakewood Drive right-of-way
- Increased acreage for development

### Disadvantages

- High pressure gas line requires minimum 30' exclusive easement/right-of-way on the northside of Lakewood Drive decreasing developable land
- City or Craftmasters to fund low pressure gas line to serve business park
- Craftmasters discussing purchase of this area





# Potential Locations for Atmos Regulator Station

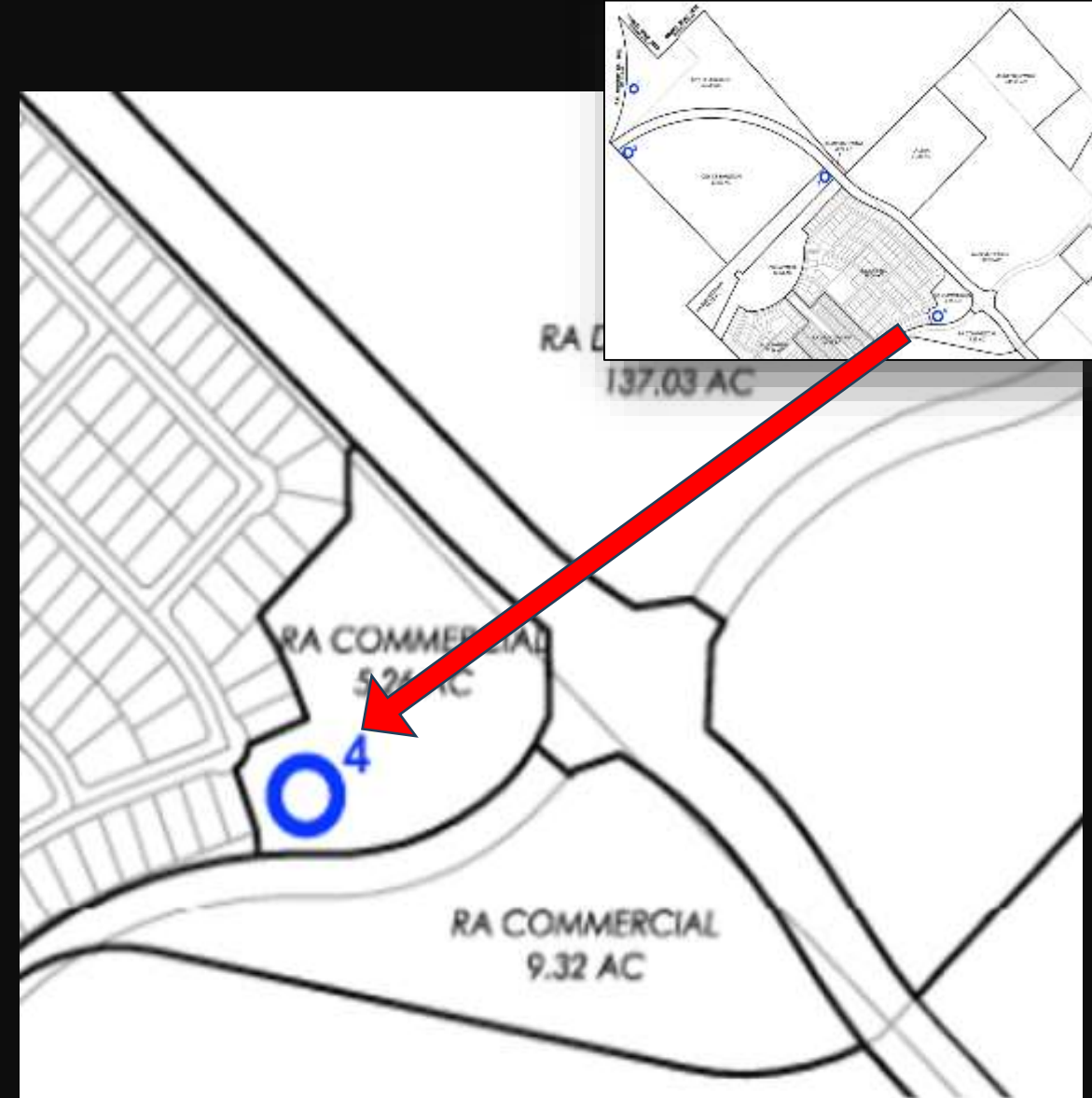
## Option 4 (Privately Owned)

### Advantages

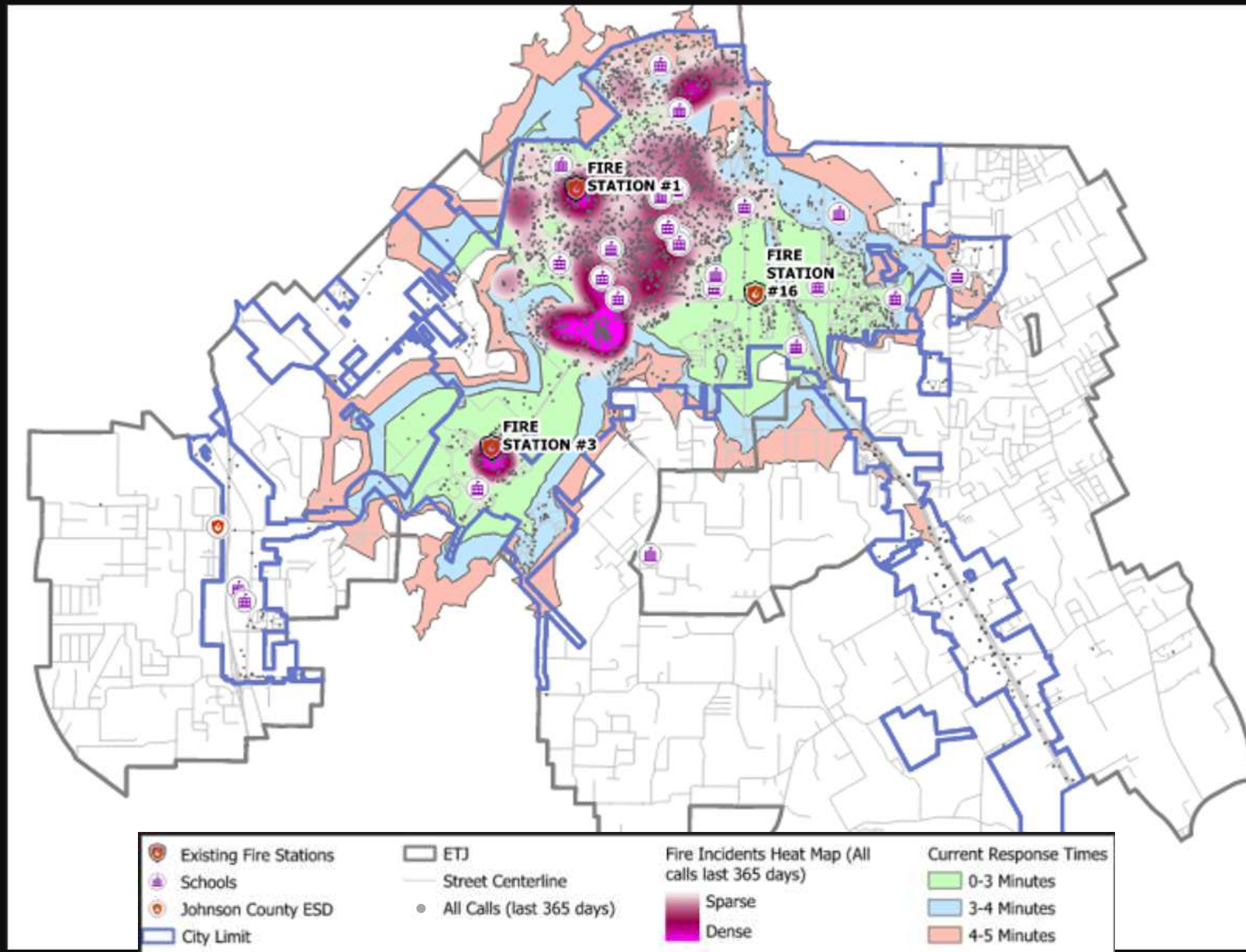
- Site would not be located on city property
- Low pressure gas line may be located within Lakewood Drive right-of-way

### Disadvantages

- High pressure gas line requires minimum, exclusive 30-foot easement/right-of-way along CR 1016 – redesign required
- Property acquisition from private owners, likely delaying construction
- Craftmasters schedule per the Performance Agreement may be affected
- City or Craftmasters to fund low pressure gas line to serve business park
- Reduced acreage for commercial development at roundabout



# One Year Fire Department Call Volume





# Future Fire Station

## Chisholm Summit Development Agreement:

- Requires dedication of at least a 3-acre site to the city for public safety / municipal purposes facility
- Provides that parties will mutually agree on location and land conveyed by June 7, 2024
- Does not include site selection parameters for the station such as response time, availability of utilities, or other cost considerations for design and construction
- Modification of 380 Agreement requires consent of all parties (eight private property owners and City)

2022 GO Bond Program includes \$15,943,000 for design and construction of future fire station

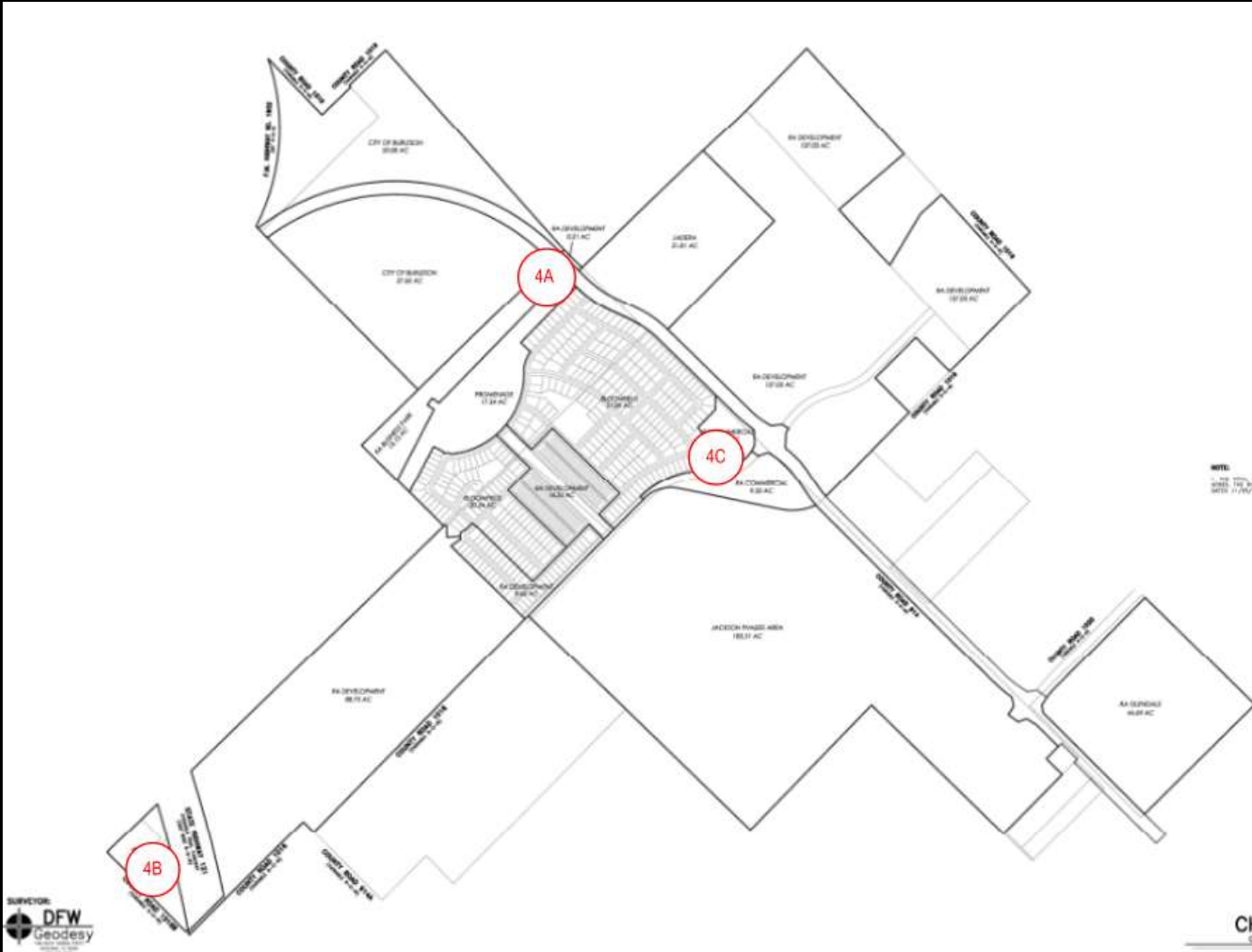


## Potential Sites for Future Fire Station Offered by RA Development

Option 4A - NW portion of property  
on Lakewood Drive

Option 4B - SW parcel on Chisholm  
Trail Parkway at CR 1016/CR 1016B

Option 4C - SW corner of Lakewood  
Drive / CR 1016 Intersection





# Future Fire Station Site 4A

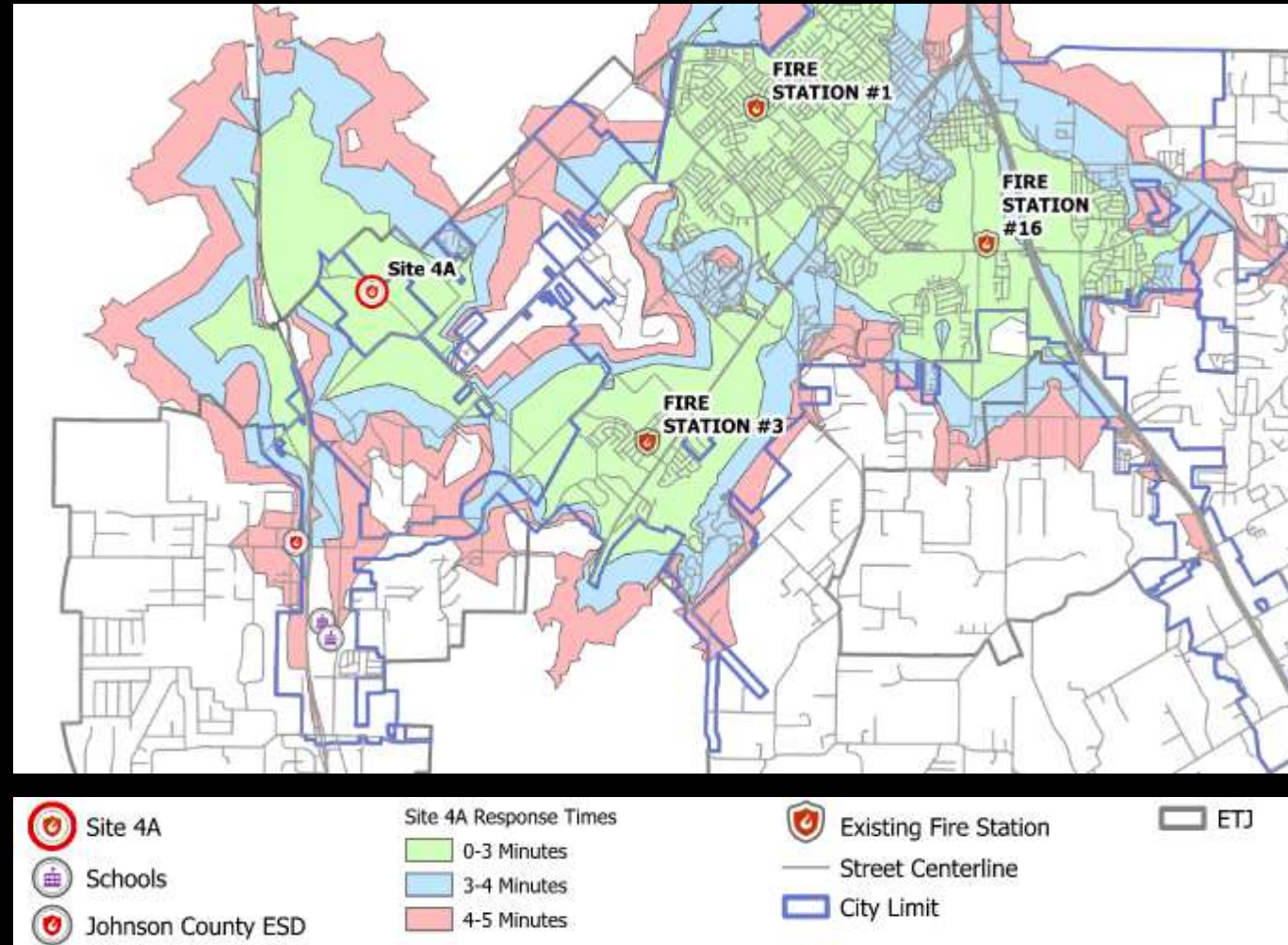
## Lakewood Drive – NW of Electrical Powerlines

### Advantages

Lakewood Drive provides adequate access to site

### Disadvantages

- Also offered as potential Atmos regulator station site
- Site is long and narrow
  - Adjacent to overhead power easements
  - 25-foot pipeline easement within property
- Cost to extend sewer – city responsibility
- Modification of newly constructed Lakewood Drive
  - Median, turn lanes, streetlights, storm, etc.
- Detention of stormwater is required



*Total Response times = Response times above + 2 minutes*

# Future Fire Station Site 4B

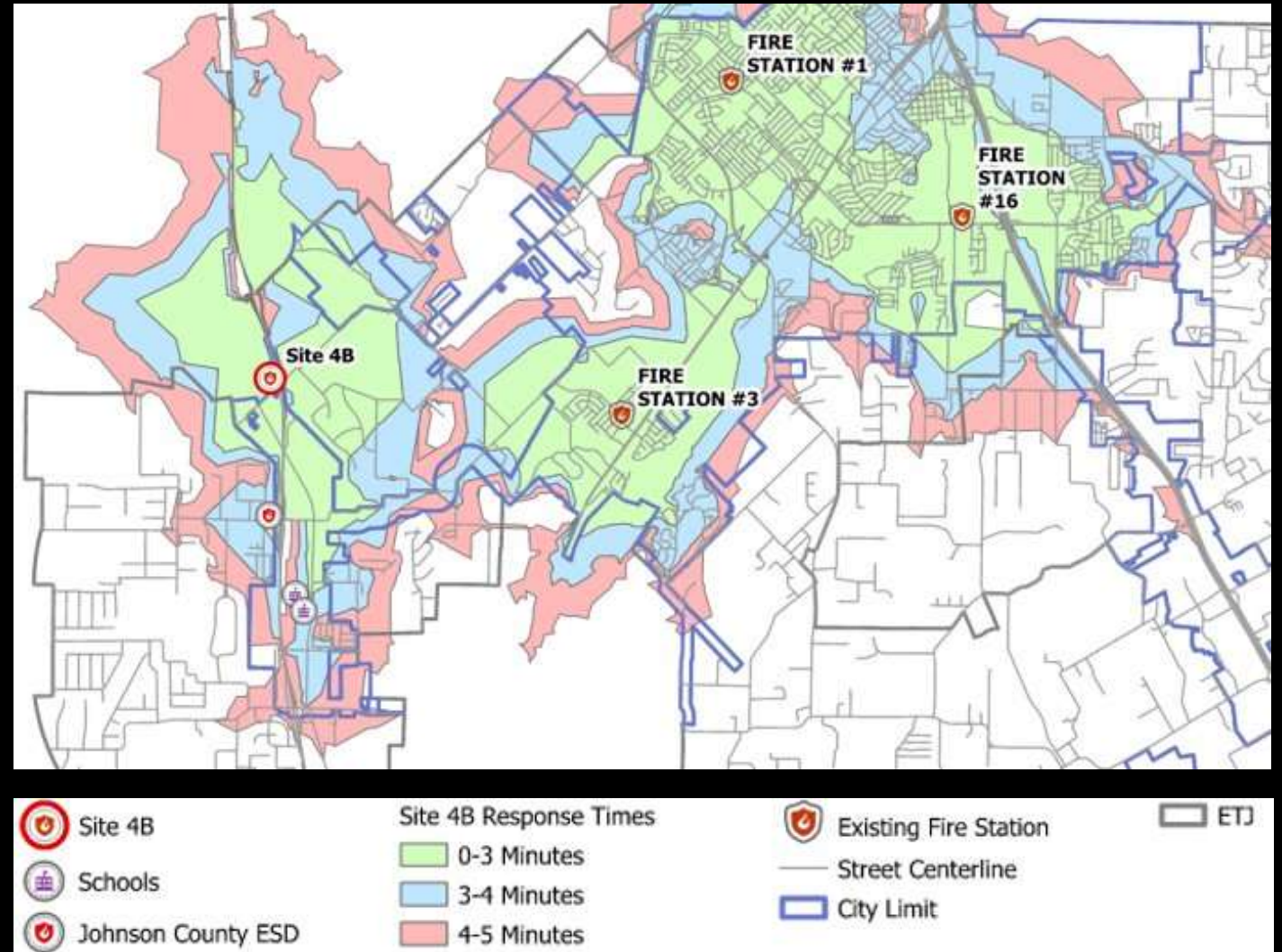
CR 1016B / CR 1016 / CTP

## Advantages

FM 1902 provides adequate access to site

## Disadvantages

- New lift station and extension of sewer at estimated > \$10M city expense (includes boring under tollway) - could be served by onsite sanitary sewer facility in the interim
- Potential improvements to JCSUD's water system – city's responsibility
- Detention of storm water is required



*Total Response Times = Response times above + 2 minutes*



# Future Fire Station Site 4C

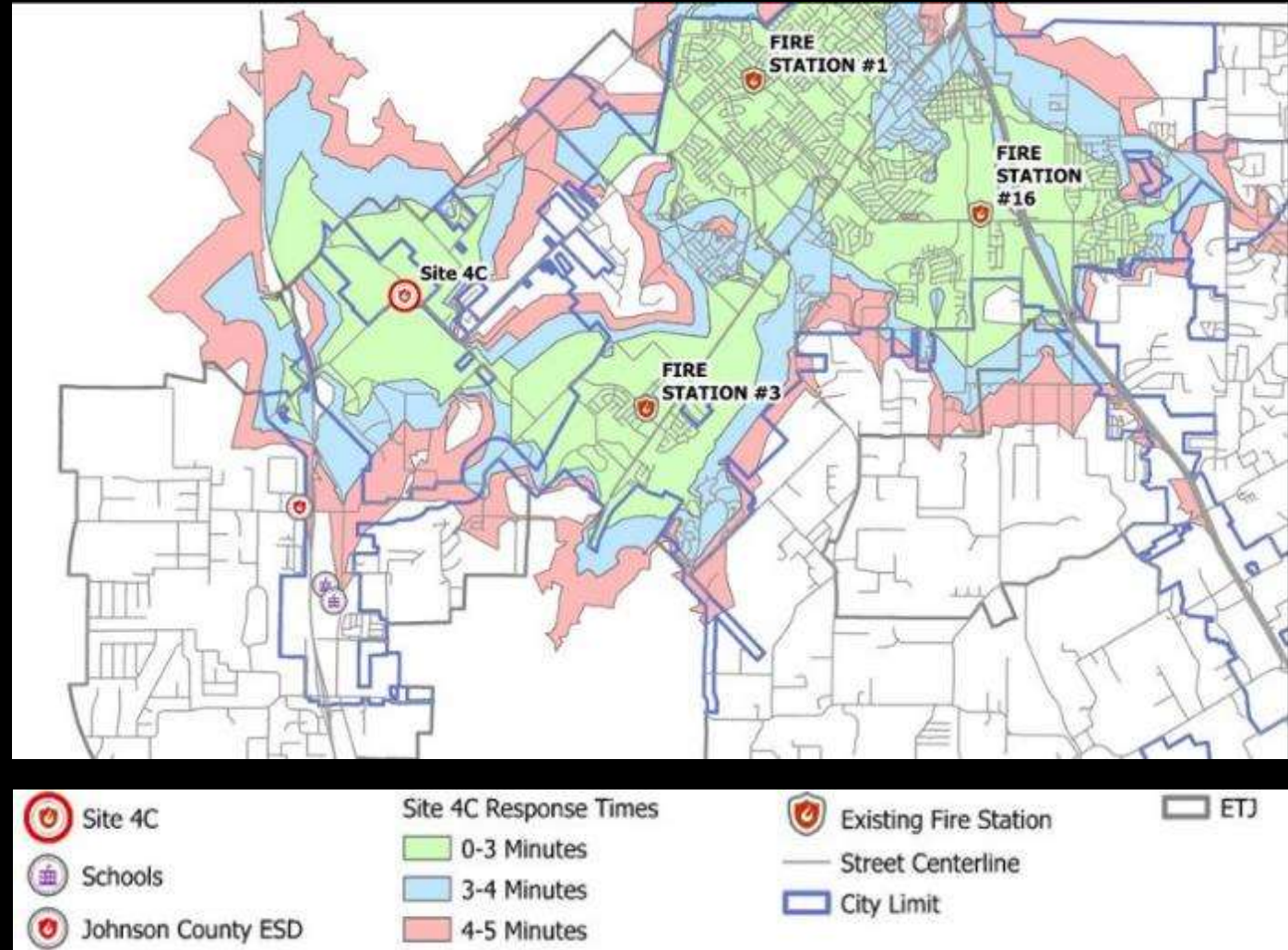
## Lakewood Drive / CR 1016 Roundabout

### Advantages

- Lakewood Drive / CR 1016 provides access to site
- Utilities readily available to serve site
- Detention accounted for in current Chisholm Summit submittal (redesign underway)

### Disadvantages

- Also offered as potential Atmos regulator station site
- Consumes desirable commercial development land at roundabout
- Location not ideal for left turn lane into site from Lakewood Drive



*Total Response times = Response times above + 2 minutes*

# Future Fire Station Site 4D

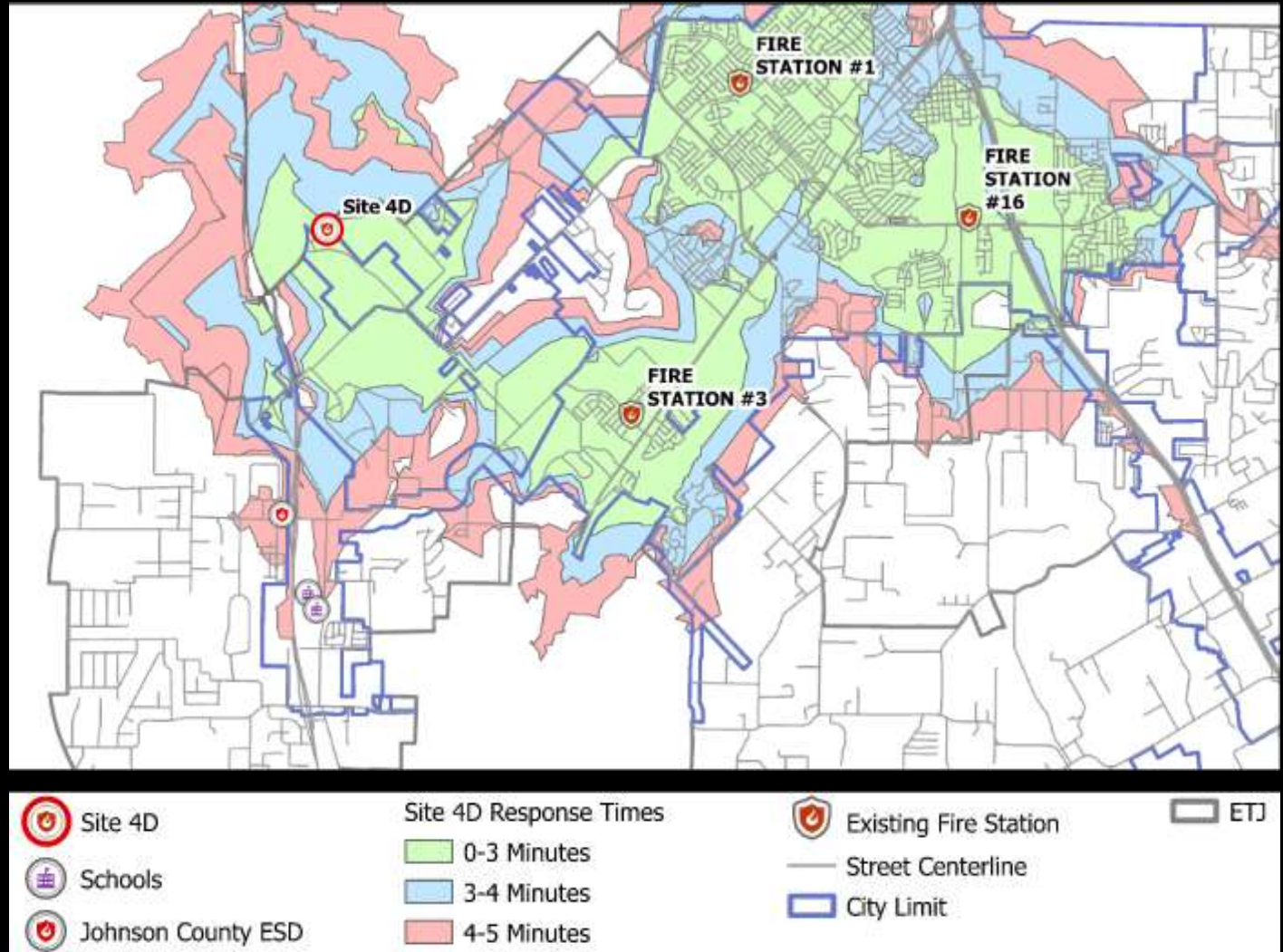
## HBP Option

### Advantages

- Utilities readily available
- Detention accounted for in business park drainage design
- Access to site from realigned CR 1019 (currently in design)

### Disadvantages

- Consumes city property in lieu of dedication by developer
- Requires 380 Agreement amendment
- Does not provide <7 min total response to Blue Bird Meadows or Joshua schools to the south



*Total Response times = Response times above + 2 minutes*



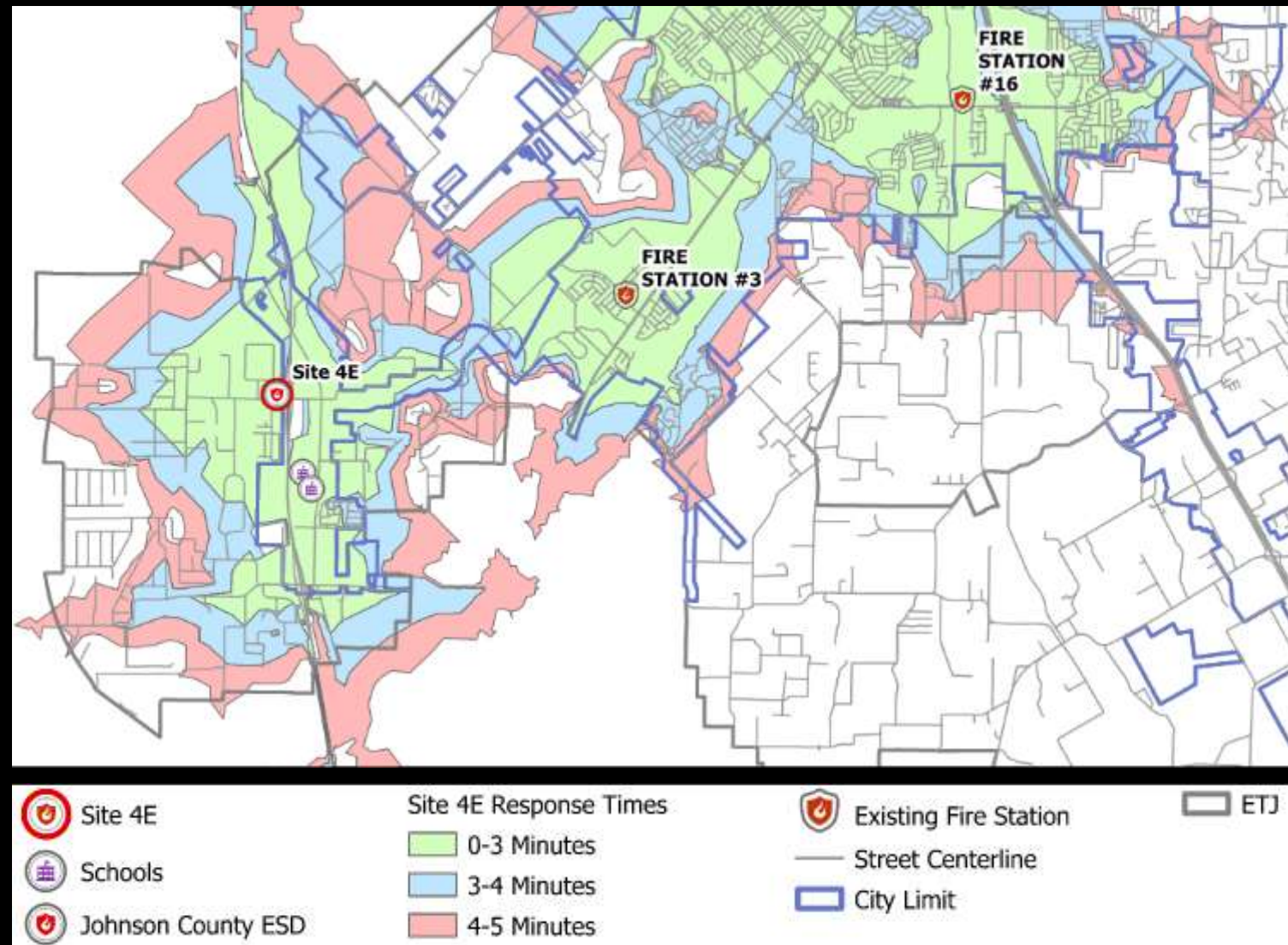
# Conceptual Site 4E

## Johnson County ESD #1

Provided to show the near-ideal response times with a station in the vicinity of the existing Johnson County Station

If the Committee desires, staff is prepared to engage the county to explore options

- Could require 380 Agreement amendment
- Does provide <7 min total response to
  - Bluebird Meadows and Joshua schools to the south
  - Craftmasters, the rest of the Hooper Business Park, and Chisholm Summit development to the north



*Total Response times = Response times above + 2 minutes*

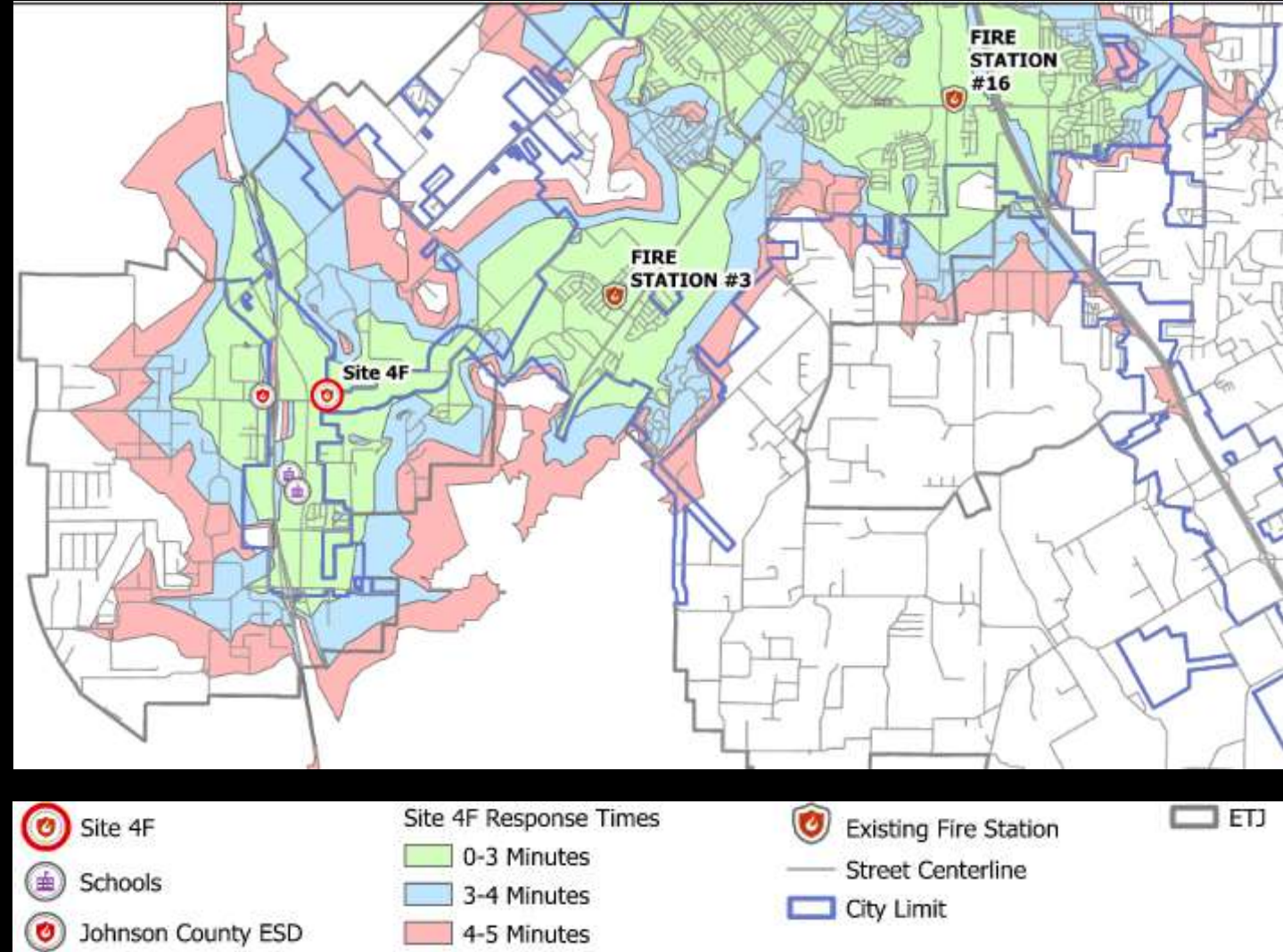
# Conceptual Site 4F

## CR 913, East of FM1902

Provided to show the goal response times of 7 minutes or less are met with a station in this vicinity

If the Committee desires, staff is prepared to engage the county to explore options

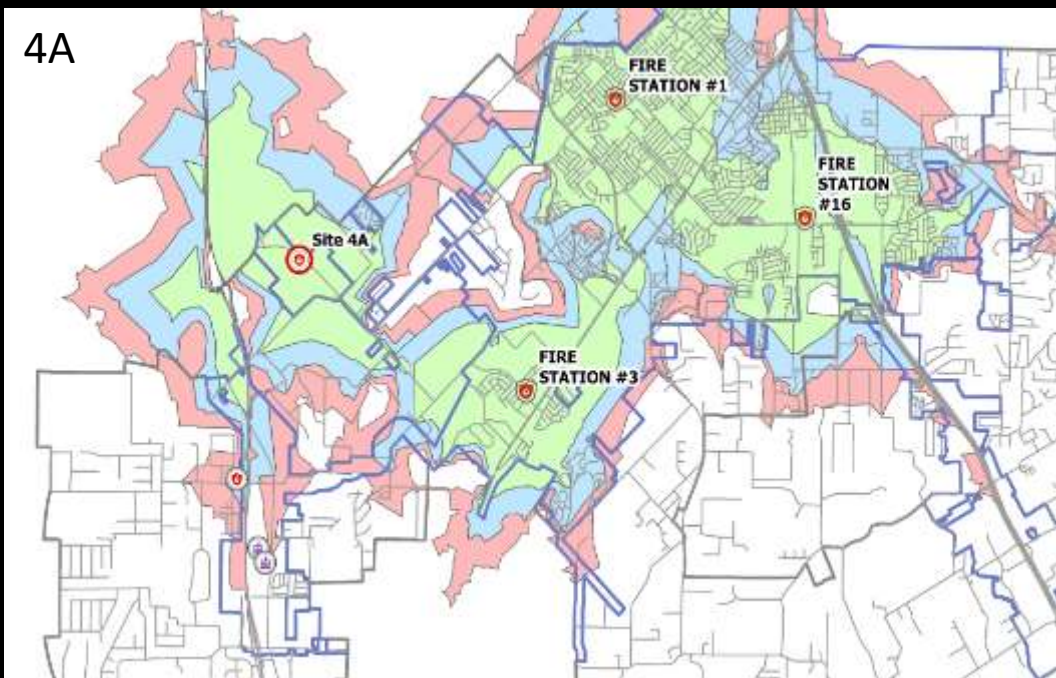
- Could require 380 Agreement amendment
- Requires a site large enough to accommodate stormwater detention and onsite sanitary sewer system (nearest sewer is approximately 2.5 miles away)



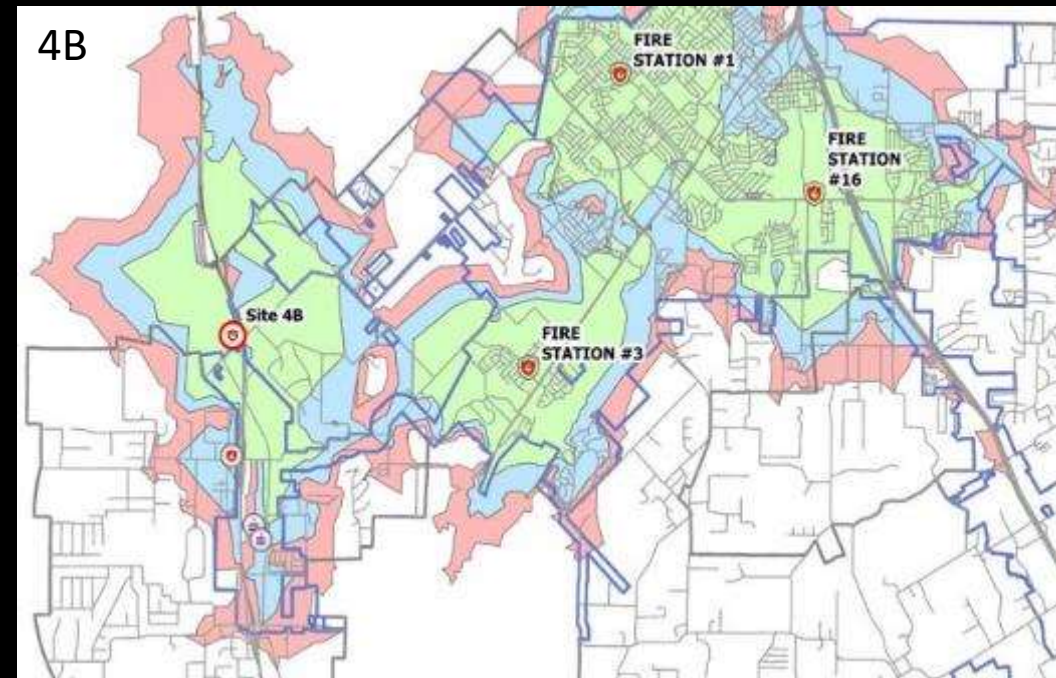
*Total Response times = Response times above + 2 minutes*



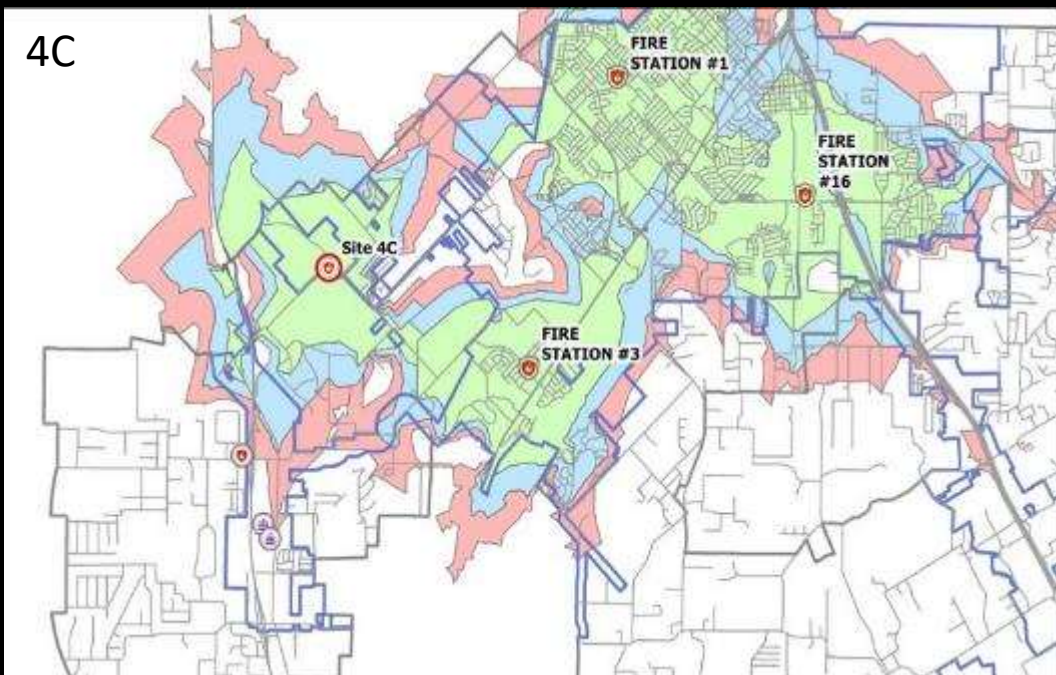
4A



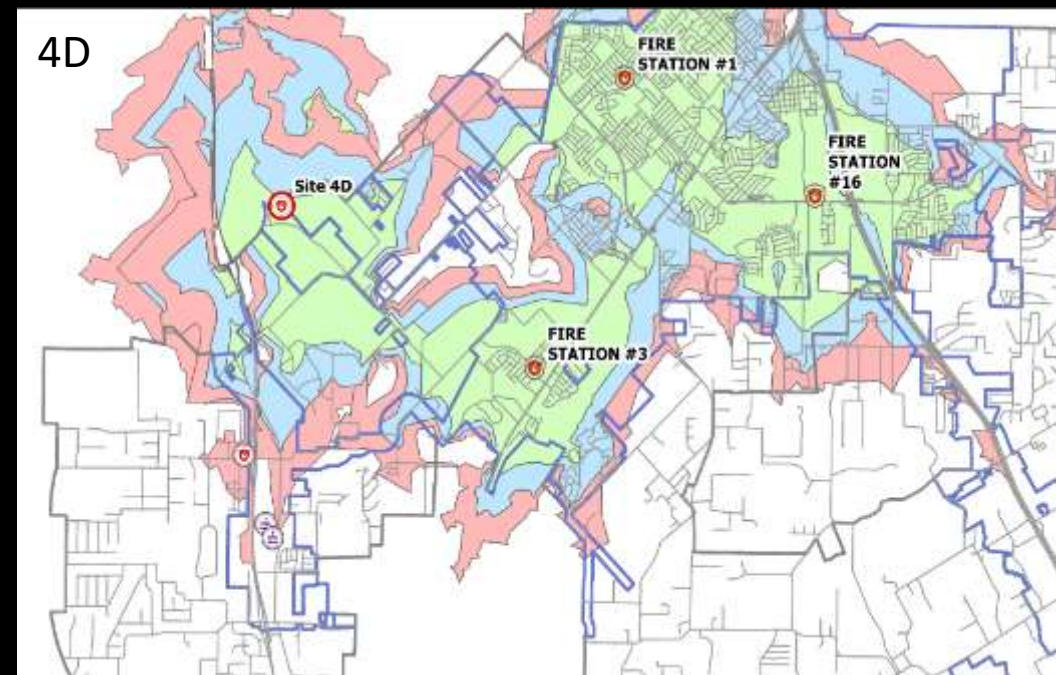
4B



4C

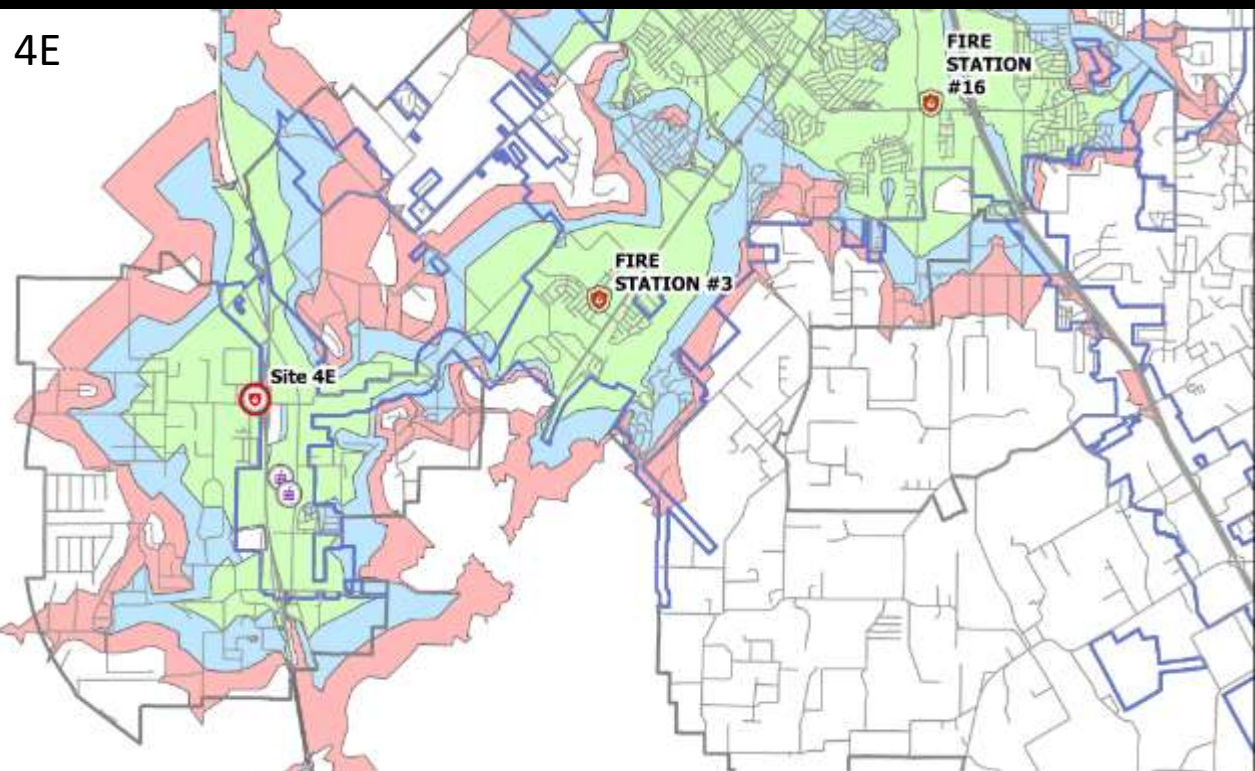


4D

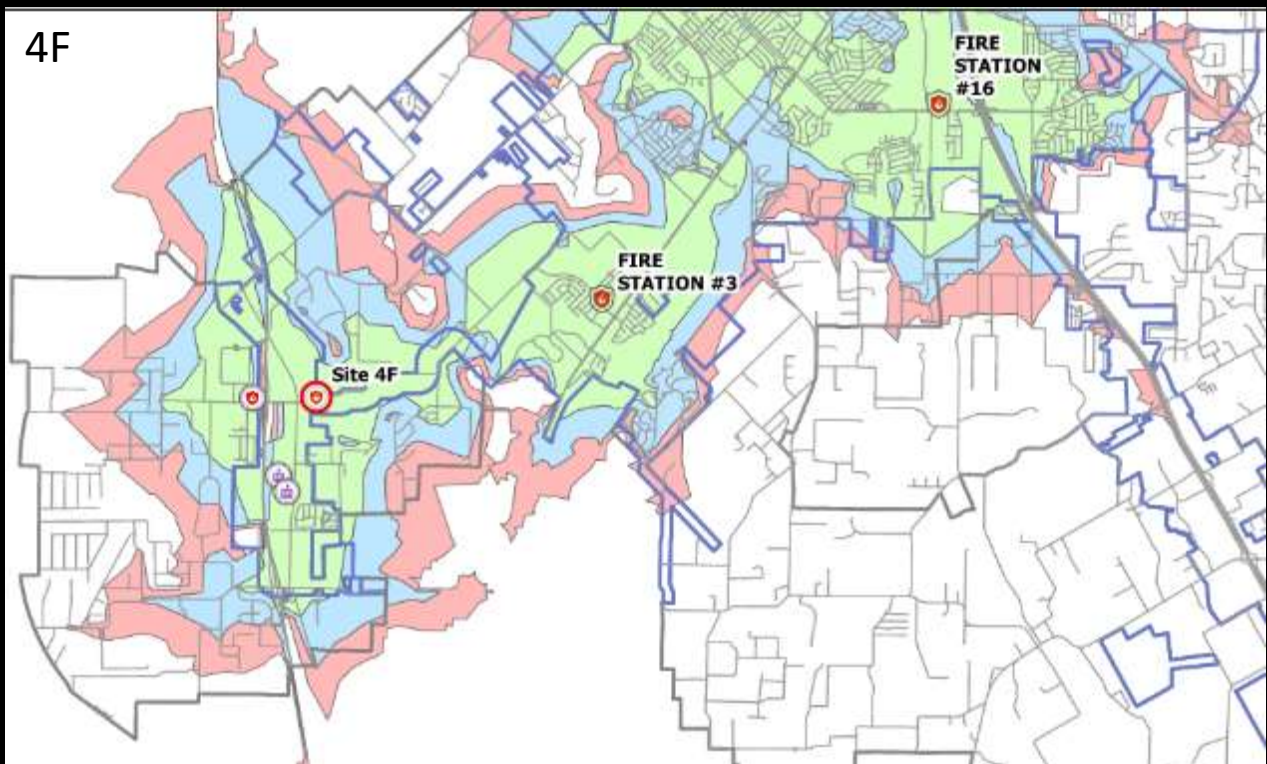




4E



4F







# Questions / Discussion

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