



NORTH
TEXAS
MUNICIPAL
WATER
DISTRICT

Regional Service Through Unity... Meeting our Region's Needs Today and Tomorrow



NORTH MCKINNEY TRANSFER FORCE MAIN ROUTING

R.J. Muraski

Oct 20, 2020

McKinney City Council



AECOM Imagine it.
Delivered.



NORTH MCKINNEY TRANSFER FORCE MAIN ROUTING OPTIONS

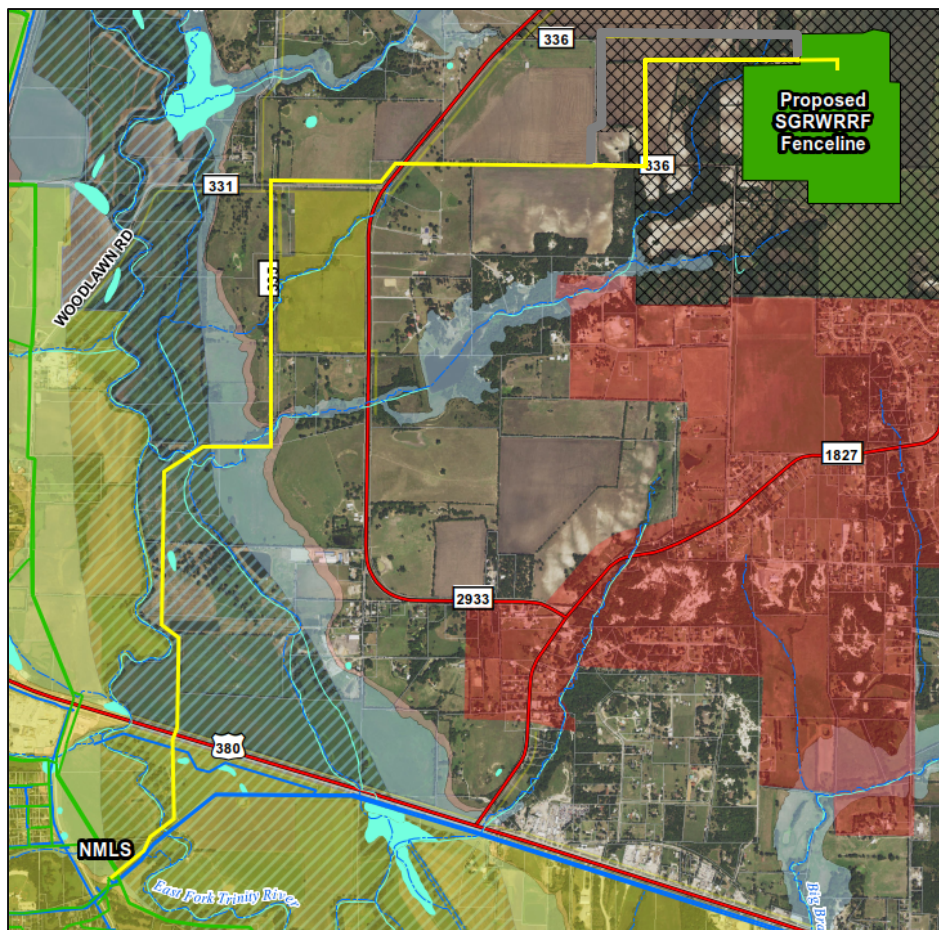
Goals & Objectives:

- **Install two (2) NTMWD parallel wastewater force mains to meet growing wastewater needs in the City of McKinney and surrounding areas (in service by early 2023)**
- **Explain options and routing alternatives for the force mains**
- **Gain approval for the recommended optimal routing alternative in order to meet growing wastewater needs in the City of McKinney and surrounding areas (and keep the project on schedule)**



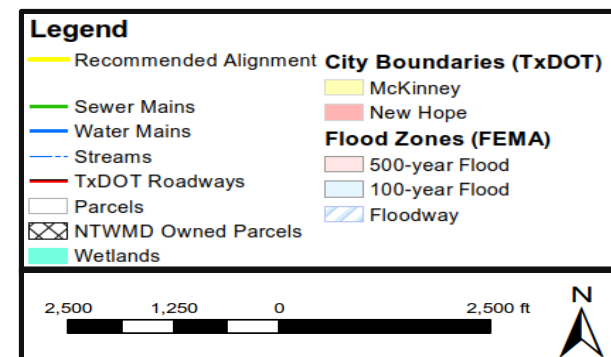
NORTH MCKINNEY TRANSFER FORCE MAIN ROUTING OPTIONS

Project Overview



NTWMD Project

- Convey wastewater to the Sister Grove Regional Water Resource Recovery Facility (SGRWRRF)
- ~5 miles of parallel 48" pipelines
- Under Design by AECOM
- 60 foot typical permanent easement
- Estimated Cost - \$32 Million
- Estimated time to construct: 1.5 years
- Completion Deadline: Dec 2022





NORTH MCKINNEY TRANSFER FORCE MAIN ROUTING OPTIONS

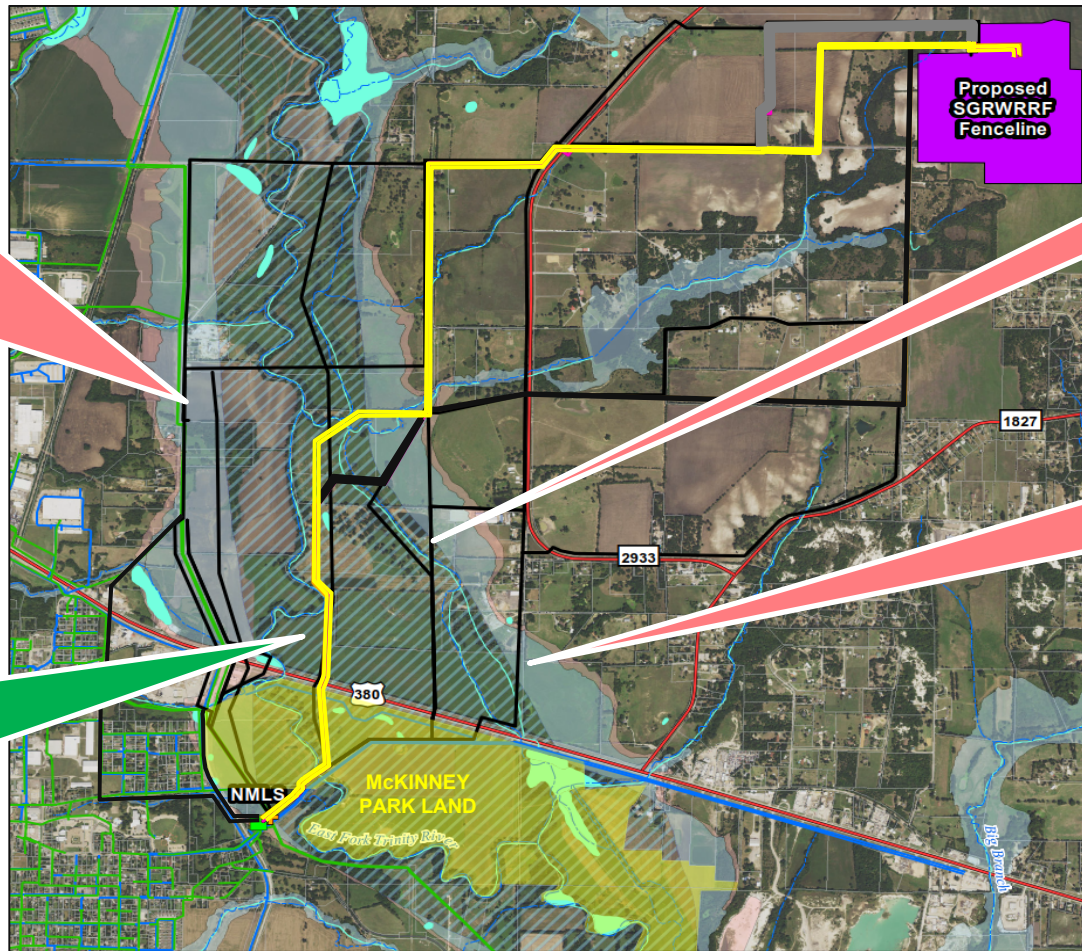
Routes Considered

OPTION 1

- No room at Airport and US 380
- Further west is in residential area
- Longest/most expensive

OPTION 2

- Minimal impact to landowners
- Follows river

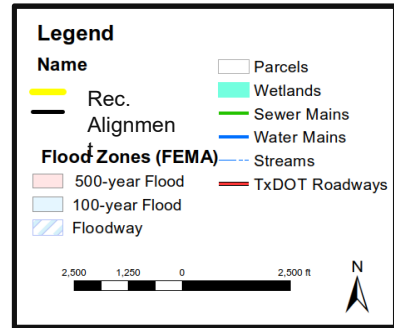


OPTION 3

- Bisects properties

OPTION 4

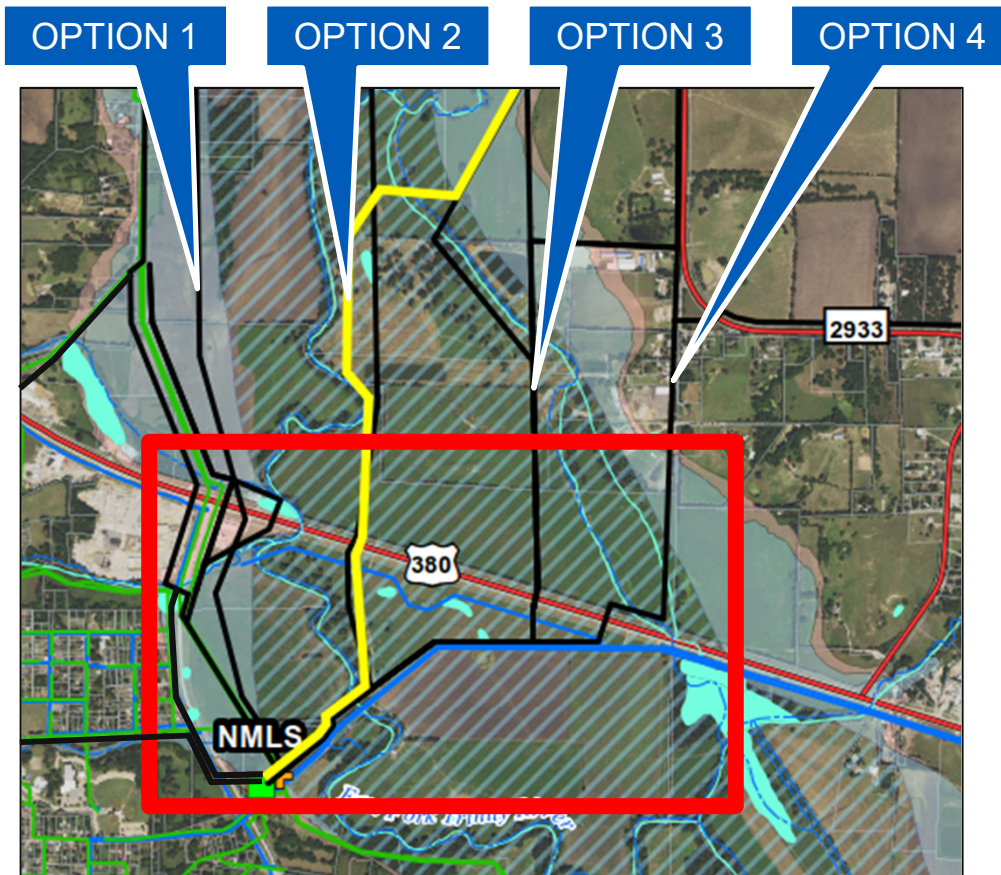
- Cuts through residential neighborhood
- Parallels TxDOT





NORTH MCKINNEY TRANSFER FORCE MAIN ROUTING OPTIONS

Focus Area



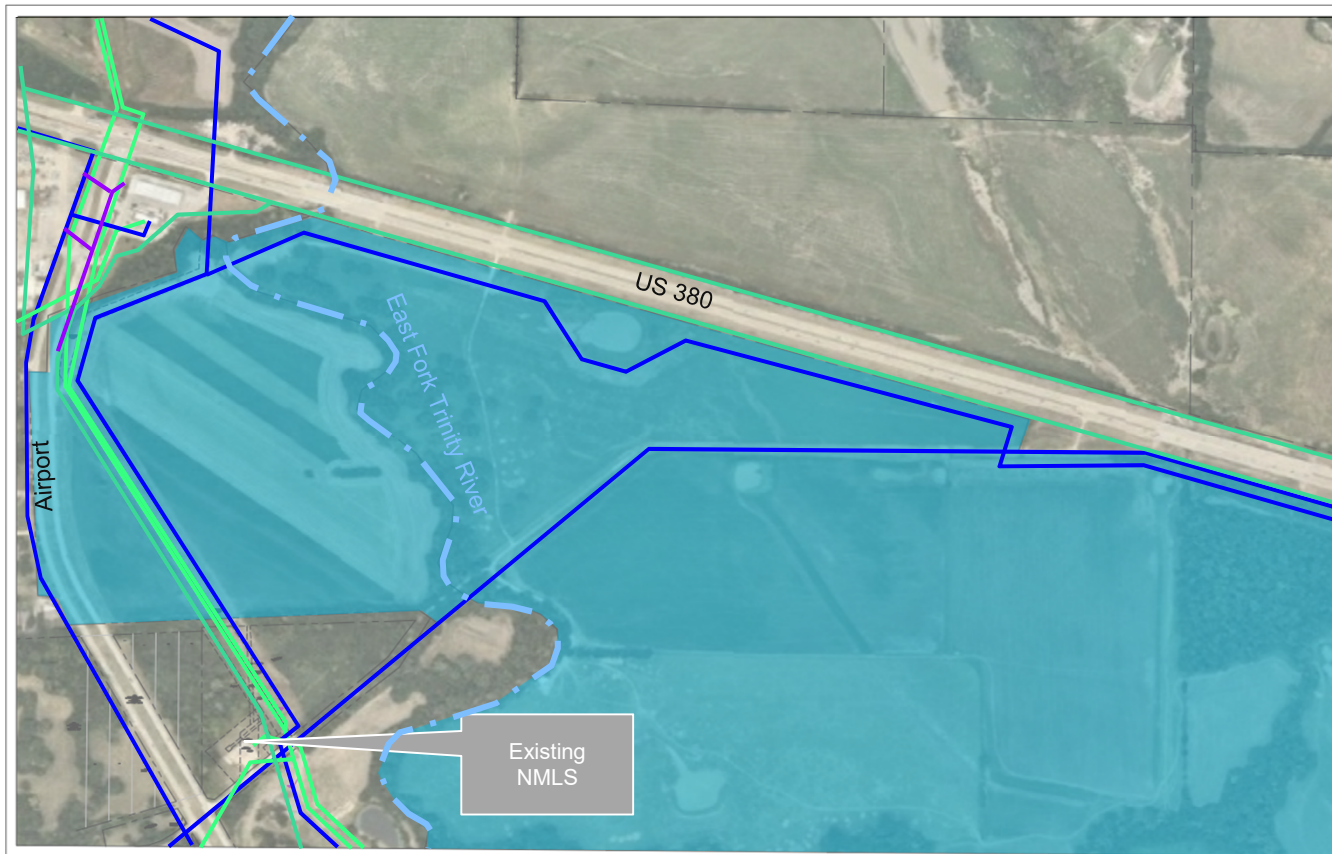
Location Map






 Area of Focus for Routing Options through Park Land



NORTH MCKINNEY TRANSFER FORCE MAIN ROUTING OPTIONS

EXISTING CONDITIONS:



-  Existing overhead electrical
-  Existing water lines
-  Existing wastewater lines
-  Existing storm sewer
-  Existing McKinney Park Land

DESIGNED BY	JS
DRAWN BY	JC
CHECKED BY	JL
REVIEWED BY	



AECOM TECHNICAL SERVICES, INC.
 13385 MOORE ROAD, SUITE 400
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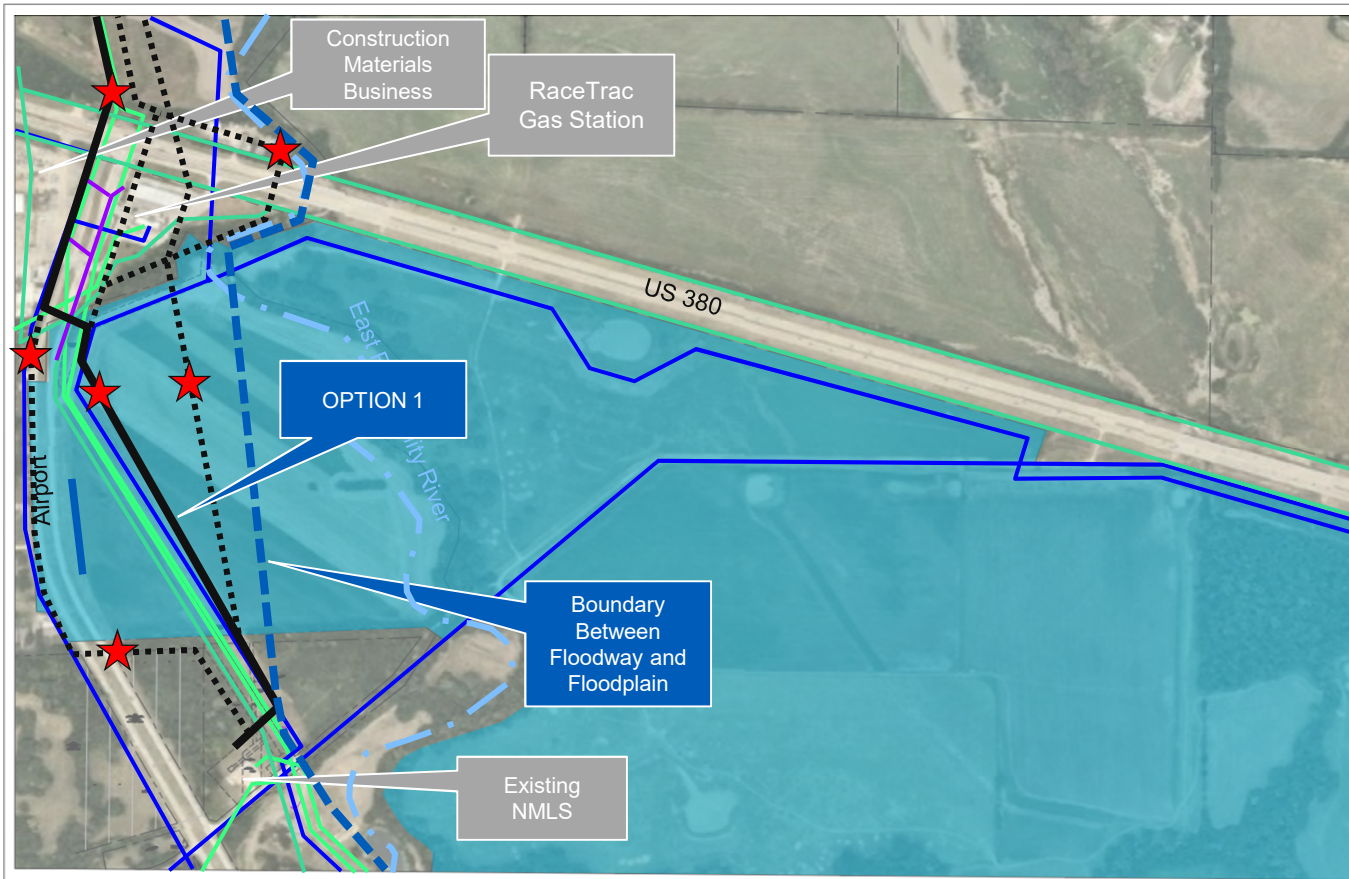
NORTH TEXAS MUNICIPAL
 WATER DISTRICT
 NORTH MCKINNEY TRANSFER FORCE MAIN
 PHASE I & II





NORTH MCKINNEY TRANSFER FORCE MAIN ROUTING OPTIONS

OPTION 1: Route FMs through intersection of Airport and US 380



- Option 1
- Option 1 Alternates
- ★ Intended Appurtenances

Benefits

- Minimized length in park land
- Minimized floodway construction

Disadvantages

- Constructability issues
- business impact during construction
- Traffic control issues
- Longest overall length of FMs
- Construction in more developable land (floodplain vs floodway)
- Delays for redesign

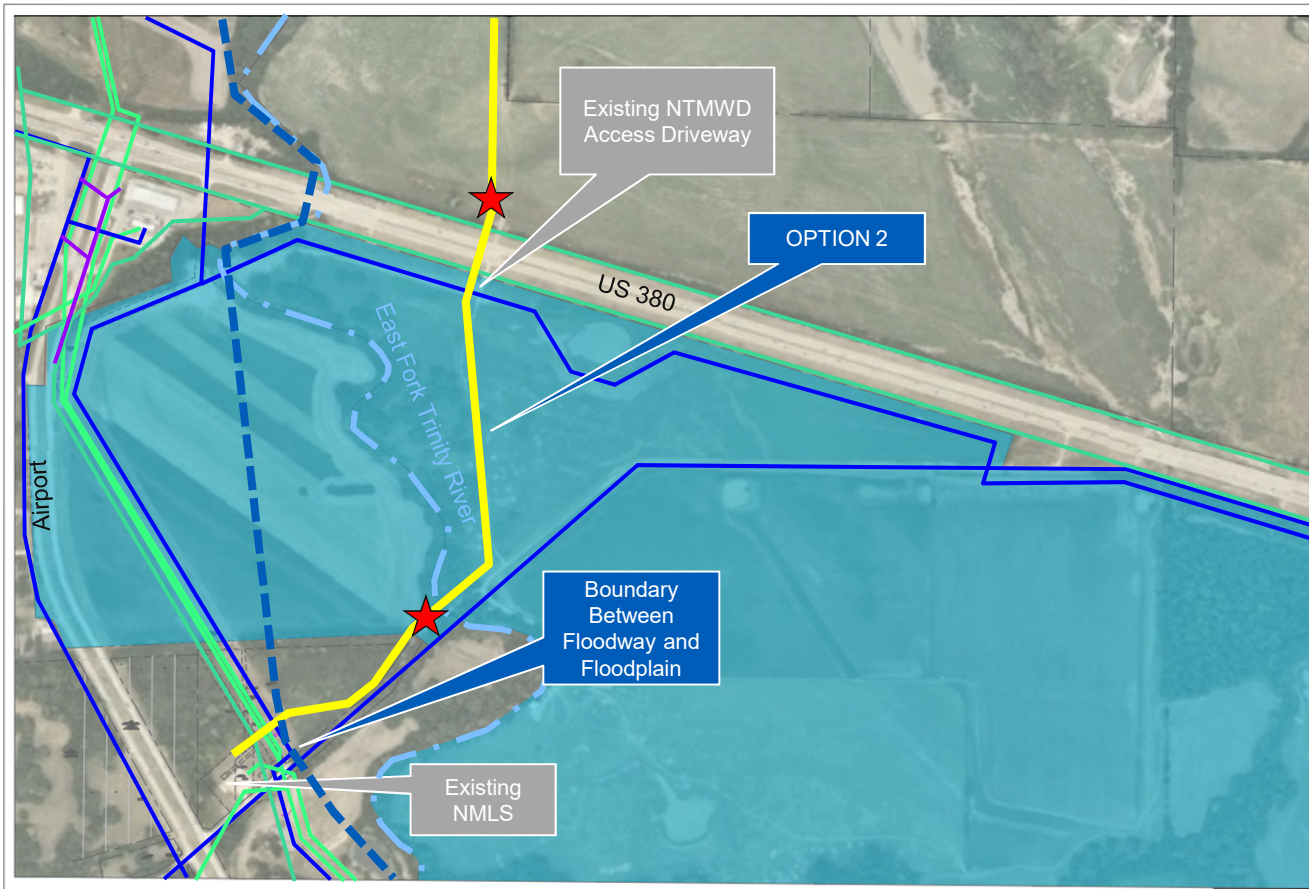
Estimated Costs (NTMWD)

- \$33 to \$36 M



NORTH MCKINNEY TRANSFER FORCE MAIN ROUTING OPTIONS

OPTION 2: (Recommended): Parallel to East Fork Trinity River



- Option 2
- ★ Intended Appurtenances

Benefits

- No additional access needed from US 380
- No surface features needed in park land east of East Fork Trinity River
- Least impact to property/business north of US 380
- Option currently in design

Disadvantages

- Most construction in floodway

Estimated Costs (NTMWD)

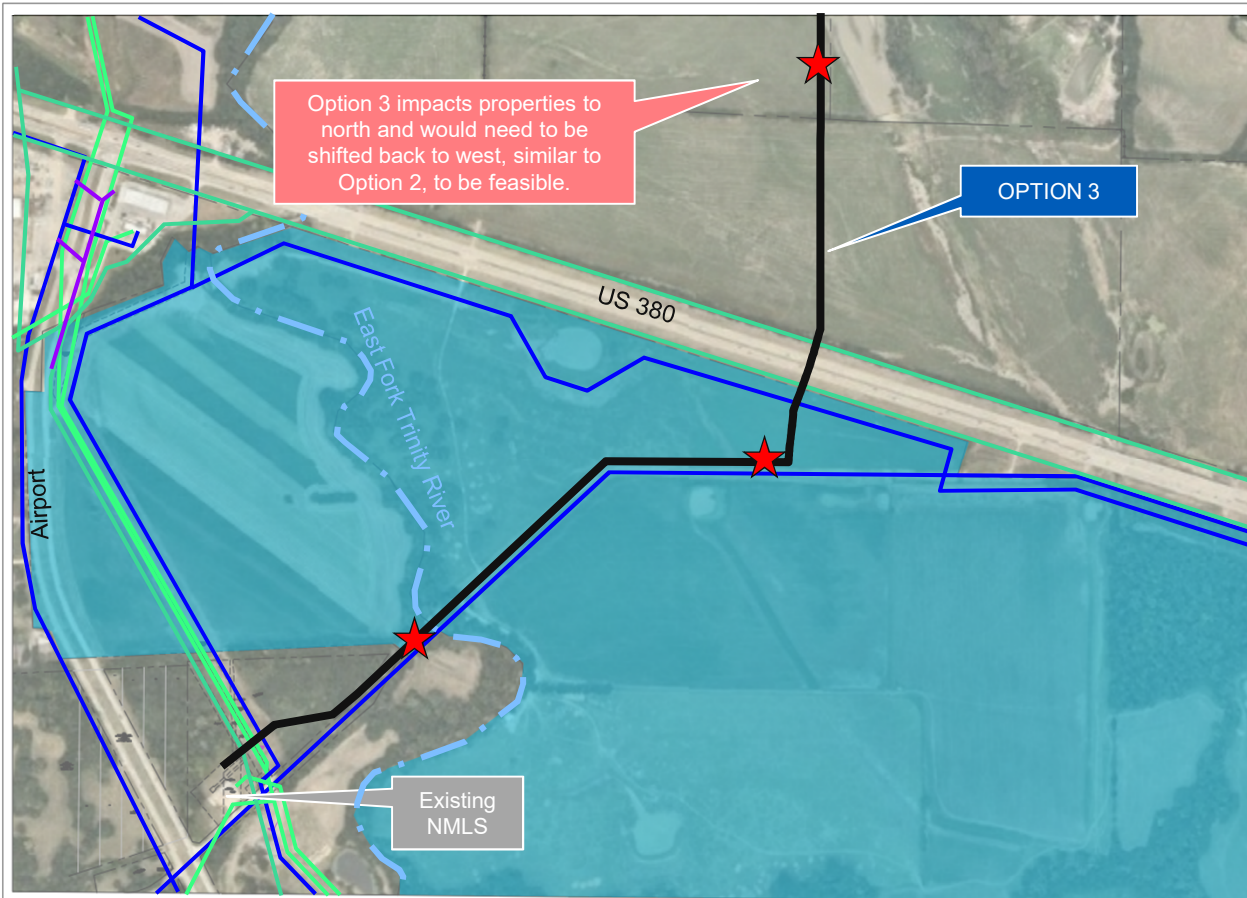
- \$32 M

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NORTH MCKINNEY TRANSFER FORCE MAIN ROUTING OPTIONS

OPTION 3: Route to Minimize Overall FM Length



- Option 3
- ★ Intended Appurtenances

Benefits

- Slightly shorter overall FM length

Disadvantages

- Requires surface feature in park land east of East Fork Trinity River
- Bisects properties north of US 380 (impact to property owners)
- Need additional driveway off of US 380
- Delays for redesign

Estimated Costs (NTMWD)

- \$31 M

NO. 375	1/24/20	1/24/20	DESIGNED BY: JS DRAWN BY: JC CHECKED BY: JL REVIEWED BY:		AECOM TECHNICAL SERVICES, INC. 13365 N. HENRI ROAD, SUITE 400 DALLAS, TEXAS 75243 WWW.AECOM.COM TRFPE REG. NO. F-2892	NORTH TEXAS MUNICIPAL WATER DISTRICT NORTH MCKINNEY TRANSFER FORCE MAIN PHASE I & II	
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NORTH MCKINNEY TRANSFER FORCE MAIN ROUTING OPTIONS

OPTION 4: Parallel to Existing Water Line

- Option 4
- ★ Intended Appurtenances

Benefits

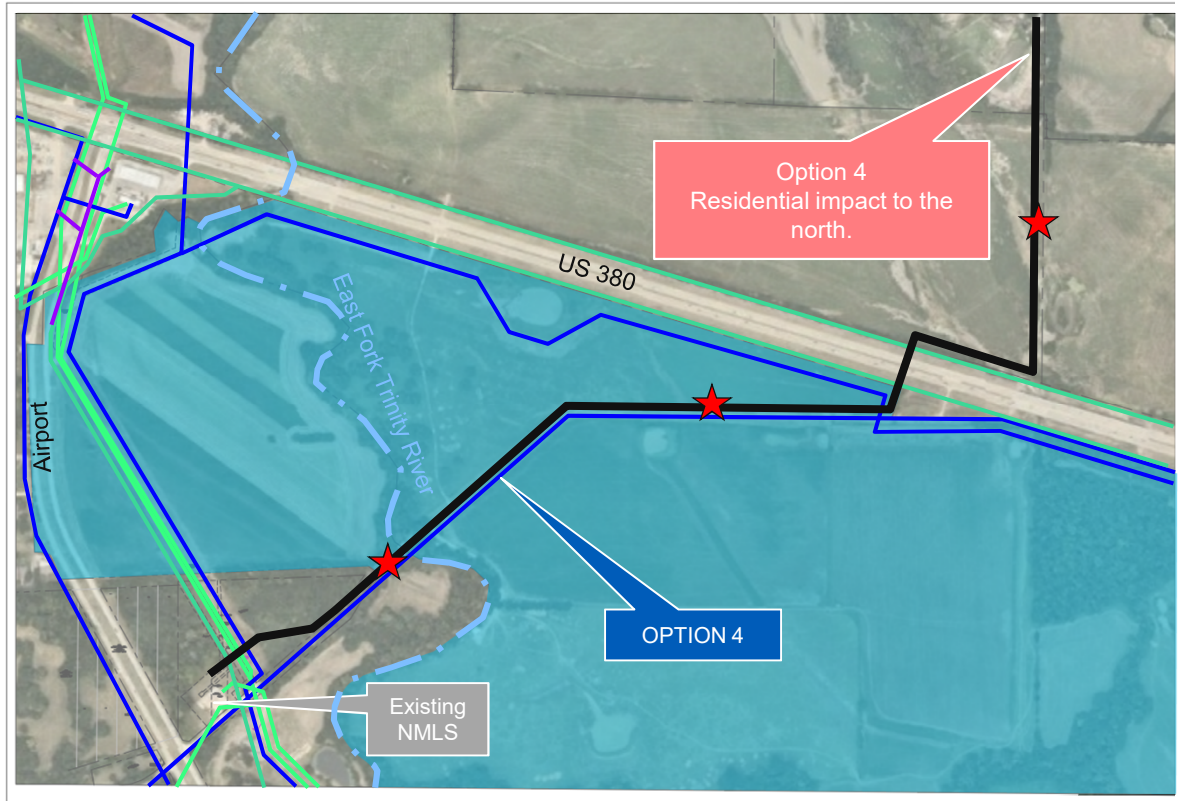
- Parallels existing utilities through park land

Disadvantages

- Longest length in park land
- Requires surface feature in park land east of East Fork Trinity River
- Constructability issues through residential area north of US 380
- Portions paralleling TxDOT ROW (potential for future relocation)
- Delays for redesign

Estimated Costs (NTMWD)

- \$33 M



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NORTH MCKINNEY TRANSFER FORCE MAIN ROUTING OPTIONS

Options Summary

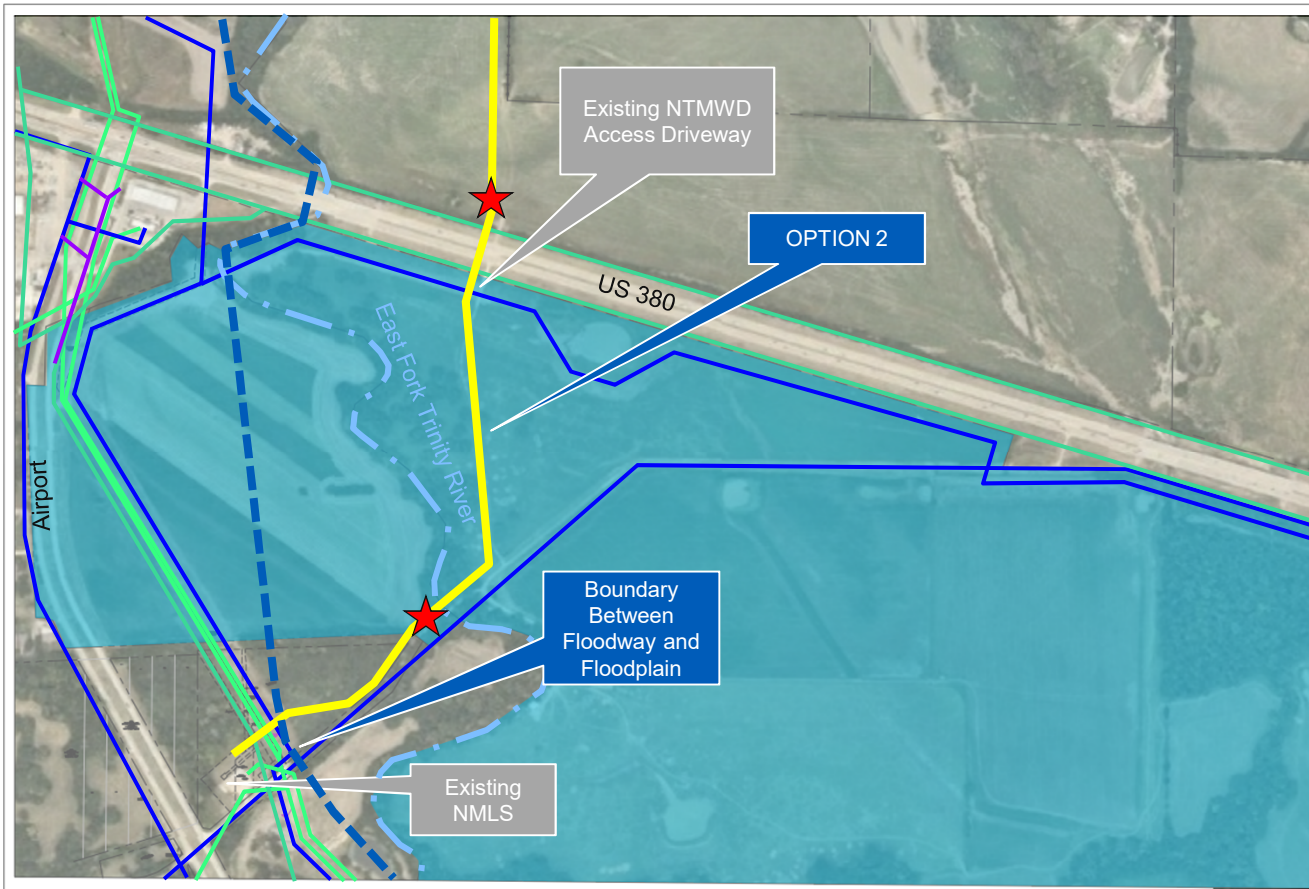
Option	Description	Schedule Impact	Est Total Costs to NTMWD*	Notes
1	Route FMs through intersection of Airport and US 380	Yes, ~6 Month delay	\$33 M	<ul style="list-style-type: none"> New design and field work Impact to businesses at intersection No space for FM corridor at intersection
2 (Recommended)	Parallel to East Fork Trinity River	None	\$32 M	<ul style="list-style-type: none"> Design in progress Minimal impact to park land
3	Route to Minimize Overall FM Length	Yes, ~6 Month delay	\$31 M	<ul style="list-style-type: none"> New design and field work Bisects properties north of US 380 Requires air valve east of E. Fork Trinity River
4	Parallel to Existing Water Line	Yes, ~6 Month delay	\$33 M	<ul style="list-style-type: none"> New design and field work Impacts residential area north of US 380 Parallels TxDOT Requires air valve east of E. Fork Trinity River

*Est costs are based on estimates provided in the preliminary design report for this project and do not include additional engineering fees associated with redesign and additional field work required for Options 1, 3 or 4



NORTH MCKINNEY TRANSFER FORCE MAIN ROUTING OPTIONS

OPTION 2 (Recommended): Parallel to East Fork Trinity River



- Option 2
- ★ Intended Appurtenances

Benefits

- No additional access needed from US 380
- No surface features needed in park land east of East Fork Trinity River
- Least impact to property/business north of US 380
- Option currently in design,

Disadvantages

- Most construction in floodway

Estimated Costs (NTMWD)

- \$32 M

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NORTH MCKINNEY TRANSFER FORCE MAIN ROUTING

Recommendation:

Option 2 is the optimal alternative for both the City of McKinney and NTMWD

- Minimizes impact to existing park land
 - No surface features east of the East Fork Trinity River
 - No new access driveway from US 380
 - Easement may still be used for parking/trails/sports fields
- Least impact to property/business owners north of US 380
- No delays - keeps Project on schedule for City of McKinney and surrounding areas to meet growing wastewater needs
 - Essential for operational date of new Sister Grove Regional Water Resource Recovery Facility



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