NORTH TEXAS MUNICIPAL WATER DISTRICT

Pipe Routing Summary for City of McKinney Parks Crossings

McKinney Delivery Point No. 3 to McKinney Delivery Point No. 4 Pipeline Project

NTMWD Project No 101-0505-18

Wylie, TX
February 1, 2022

DRAFT

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Contents

EXECUTIVE SUMMARY ES-1
Project Overview ES-1
Identifying Route Alternatives ES-1
Recommended Pipeline Route ES-1
Park Crossing Pipeline Route ES-2
Conclusion ES-2
1 Project Overview 1
2 Identifying Route Alternatives 3
2.1 Route 1 3
2.2 Route 2 3
2.3 Route 3 4
2.4 Route 4 4
2.5 Route 5 4
2.6 Route 6 4
2.7 Route 7 4
2.8 Route 8 7
2.9 Route 9 7
2.10 Route 10 7
2.11 Route 11 7
3 Route Alternative Evaluation 9
3.1 Matrix Evaluation Criteria and Summary 9
3.2 Matrix Scoring Results 10
3.3 Cost-Benefit Analysis 10
3.4 Comparison of Pipeline Routes 11
4 Recommended Pipeline Route 15
5 Park Crossing Pipeline Route 19
6 Schedule 23
7 Conclusion 25

Tables

Table ES-1: Recommended Pipeline Route Information ES-1
Table 3-1: Evaluation Criteria and Weights 9
Table 3-2: Weighted Scores 10
Table 3-3: Summary of Routes 13
Table 4-1: Recommended Pipeline Route Information 16

Figures

Figure ES-1: Overview of Eleven Route Alternatives ES-3
Figure ES-2: Route 1 Overview Map ES-5
Figure 2-1: Overview of Eleven Route Alternatives 5
Figure 3-1: Cost-Benefit Analysis Results 11
Figure 4-1: Route 1 Overview Map 17
Figure 5-1: City of McKinney Parks Proposed Pipeline Crossing 21

EXECUTIVE SUMMARY

Project Overview

The McKinney Delivery Point No. 3 to McKinney Delivery Point No. 4 Pipeline will provide potable water to northern Collin County. This summary identifies and compares the available pipeline routes and analyzes various preliminary evaluation factors such as hydraulic capacity needs, pipeline diameter, construction requirements, private property impacts, traffic impacts, utility coordination, resident and business disruptions, construction costs, and future maintenance and operations. This routing summary was prepared to discuss the overall pipeline routing analysis. Per the Texas Parks and Wildlife Code Title 3.26.001, the summary also provides justification that there is no feasible and prudent alternative to avoid crossing Erwin Park and two future city parks located near Bloomdale Road.

Identifying Route Alternatives

Three general geographic areas of the corridor were investigated: northern, central, and southern. Initially, the team identified three main corridors from McKinney Delivery Point No. 4 to McKinney Delivery Point No. 3. After identifying the three main corridors, four north-south segments were identified. These were selected to minimize impacts associated with the crossing of private property parcels, heavily populated areas, and proposed US 380 reroute. The various combinations of the three main corridors and the four north-south segments resulted in a total of eleven routes for consideration. The routes are shown in **Figure ES-1**.

Recommended Pipeline Route

The evaluation of route alternatives results in Route 1 as the recommended route. **Figure ES-2** presents the recommended route and **Table ES-1** shows general route information.

Table ES-1: Recommended Pipeline Route Information

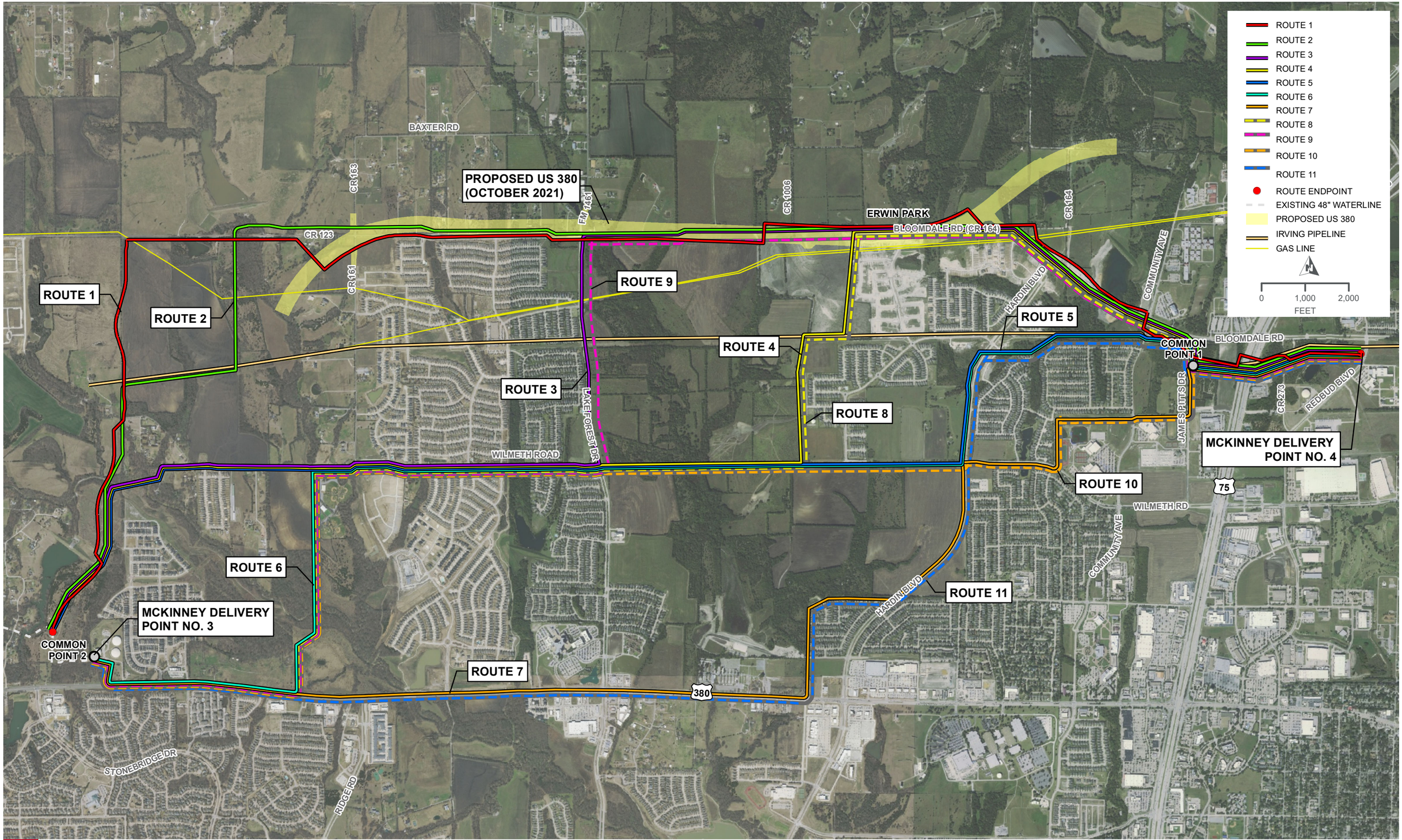
Item	Value
Pipe Diameter (inches)	72”
Pipe Material	Steel
Total Distance (linear feet)	39,340
% Open Trench	89%
% Tunnel	11%
Permanent Easement Width (feet)	80
Number of Landowners	45
Estimated ROW Acquisition Cost	$4,600,000
Total Project Cost	$42,200,000

Park Crossing Pipeline Route

The alignment of Route 1 along Bloomdale Road was determined based on coordination with the City of McKinney and TxDOT regarding the proposed US 380 bypass alignment, existing and future development, planned road expansions (FM 1461), and environmental impacts. The alignment crosses one existing park (Erwin Park) and two future parks on the north and south side of Bloomdale Road and US 380. The pipeline crossing through the City of McKinney parks were driven to avoid ongoing and future development in the area. Furthermore, TxDOT requested that the proposed pipeline be on the south side of the US 380 alignment to allow for flexibility in the future of the road ROW. After multiple coordination meetings, Collin County and the City of McKinney agreed to NTMWD's proposed alignment in this area.

Conclusion

Using the evaluation and design criteria developed for this project, Route 1 is the recommended route. Route 1 crosses the fewest number of parcels and therefore has the fewest property owners to coordinate with for ROE and acquisition of ROW for the permanent pipeline easement. Most of the alignment parallels Bloomdale Rd which minimizes surface and street impacts. This route requires the shortest tunneling length for roadway, utility, stream, and wetland crossings resulting in the lowest cost alternative.



NORTH TEXAS MUNICIPAL WATER DISTRICT

OVERVIEW OF ELEVEN ROUTE ALTERNATIVES

MCKINNEY DELIVERY POINT NO. 3 TO MCKINNEY DELIVERY POINT NO. 4 PIPELINE

FIGURE ES-1

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PROPOSED 72" PIPELINE ALIGNMENT
ROUTE ENDPOINT
PROPOSED US 380
EXISTING 48" WATERLINE
FUTURE CITY OF MCKINNEY PARK
ERWIN PARK
PARCEL BOUNDARY

0 2,300 4,600
FEET

BAXTER RD
CR 163
FM 1461
PROPOSED US 380
CR 1006
FUTURE CITY OF MCKINNEY PARK
ERWIN PARK
CR 164
BLOOMDALE RD (CR 164)
CR 123
CR 161
PAINTED TREE DEVELOPMENT
FUTURE CITY OF MCKINNEY PARK
LAKE FOREST
ERWIN FARMS DEVELOPMENT
TIMBER CREEK DEVELOPMENT
HARDIN BLVD
COMMUNITY AVE
MCKINNEY DELIVERY POINT NO. 4
BLOOMDALE RD
WILSON CREEK
JAMES PUTTS DR
CR 273
REDBUD BLVD
WILMETH ROAD
75
MCKINNEY DELIVERY POINT NO. 3
W. UNIVERSITY DR (US 380)
380
N. STONEBRIDGE DR

NORTH TEXAS MUNICIPAL WATER DISTRICT

ROUTE OVERVIEW

MCKINNEY DELIVERY POINT NO. 3 TO MCKINNEY DELIVERY POINT NO. 4 PIPELINE

FIGURE ES-2

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1 Project Overview

The McKinney Delivery Point No. 3 to McKinney Delivery Point No. 4 Pipeline will provide potable water to northern Collin County. This pipeline is an extension to the North McKinney Pipeline Phase III transmission main; the length of this extension is approximately eight miles. The pipeline will begin at McKinney Delivery Point No. 4 (adjacent to the City of McKinney Redbud Pump Station) and convey water to the City of McKinney's University Pump Station (McKinney Delivery Point No. 3). The pipeline is required to meet future water demands. Construction is expected to be begin in early 2023; however, acquiring right of way for the project is proceeding due to the level of development in the area.

This summary identifies and compares the available pipeline routes and analyzes various preliminary evaluation factors such as hydraulic capacity needs, pipeline diameter, construction requirements, private property impacts, traffic impacts, utility coordination, resident and business disruptions, construction costs, and future maintenance and operations. Per the Texas Parks and Wildlife Code Title 3.26.001, the summary also provides justification that there is no feasible and prudent alternative to avoid crossing Erwin Park and two future city parks located near Bloomdale Road. The findings of the alternative comparisons, evaluation, analysis, and preliminary engineering recommendations for a preferred pipeline route alternative are summarized in this document.

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2 Identifying Route Alternatives

The design team began the process of selecting viable pipeline routes by reviewing City of McKinney (COM) utilities, future capital improvement program (CIP) projects, and the proposed US 380 bypass. Three general geographic areas of the corridor were investigated: northern, central, and southern. Initially, the team identified three main corridors from McKinney Delivery Point No. 4 to McKinney Delivery Point No. 3. Due to the level of development that spans from US 380 to Bloomdale Road between the Delivery Points No. 3 and No. 4, these were the only viable east/west corridors that may be able to accommodate an 80 ft permanent easement.

- The northern corridor follows Bloomdale Road (County Road (CR) 164 / CR 123) west until it turns south on the future Stonebridge Drive extension and continues to McKinney Delivery Point No. 3.
- The central corridor follows the Irving Pipeline (owned and operated by the City of Irving) to Hardin Boulevard (Blvd) where it turns south until Wilmeth Road (Rd). Then the central corridor follows Wilmeth Rd. west until it turns south on the future Stonebridge extension and continues to McKinney Delivery Point No. 3.
- The southern corridor follows the Irving Pipeline to CR 201 (James M Pitts Dr.) where it turns south and proceeds to US Highway (HWY) 380 (University Drive). The southern corridor parallels US HWY 380 west to McKinney Delivery Point No. 3.

After identifying the three main corridors, four north-south segments were identified. These were selected to minimize impacts associated with the crossing of private property parcels, heavily populated areas, and the proposed US 380 bypass. The various combinations of the three main corridors and the four north-south segments resulted in a total of eleven routes for consideration. All pipeline routes begin at McKinney Delivery Point No. 4 and head west to Common Point 1, utilizing a portion of the existing 20 ft NTMWD easement (previously owned by GTUA). The routes are briefly described below and are shown in **Figure 2-1**.

2.1 Route 1

This route begins at the McKinney Delivery Point No. 4 connection point along Redbud Blvd. Route 1 follows the Irving Pipeline west, crossing under US 75 to James Pitts Dr, and turns northwest toward Bloomdale Rd. The route crosses the tributary stream of Bloomdale Lake, parallels Bloomdale Rd. and proposed US 380 for approximately 3.85 miles and turns south and parallels the future Stonebridge Dr. extension, and then proceeds south to the McKinney Delivery Point No. 3 connection.

2.2 Route 2

Route 2 follows the same alignment as Route 1 but only parallels Bloomdale Rd for 3.3 miles before turning south through undeveloped land until crossing the City of Irving pipeline. From this point it turns west, paralleling the Irving pipeline. Route 2 then traverses across four parcels of undeveloped land to the southwest, and then parallels the future Stonebridge extension south to the McKinney Delivery Point No. 3 connection.

2.3 Route 3

Route 3 follows the same alignment as Route 1 and 2 except this route only parallels Bloomdale Rd for 1.8 miles before turning south to parallel Lake Forest Drive (CR 1461) until reaching Wilmeth Rd. The route travels west on Wilmeth Rd for 1.5 miles, passing through a densely developed area. Due to limited easement availability in this area and to minimize the disturbance to residents, the entire section in Wilmeth Rd will be tunneled. Route 3 meets Route 2 on CR 124 and is the same as Route 2 from this point to the McKinney Delivery Point No. 3 connection.

2.4 Route 4

This route follows the same alignment as the previous three routes except Route 4 only parallels Bloomdale Rd for approximately 3,500 feet before turning south, crossing through undeveloped land until it reaches Holley Ridge Way. At Holley Ridge Way, the route turns west until CR 943. Route 4 parallels CR 943 south to Wilmeth Rd, proceeds west on Wilmeth Rd through the densely developed area, and is the same as Route 3 from this point to the McKinney Delivery Point No. 3 connection.

2.5 Route 5

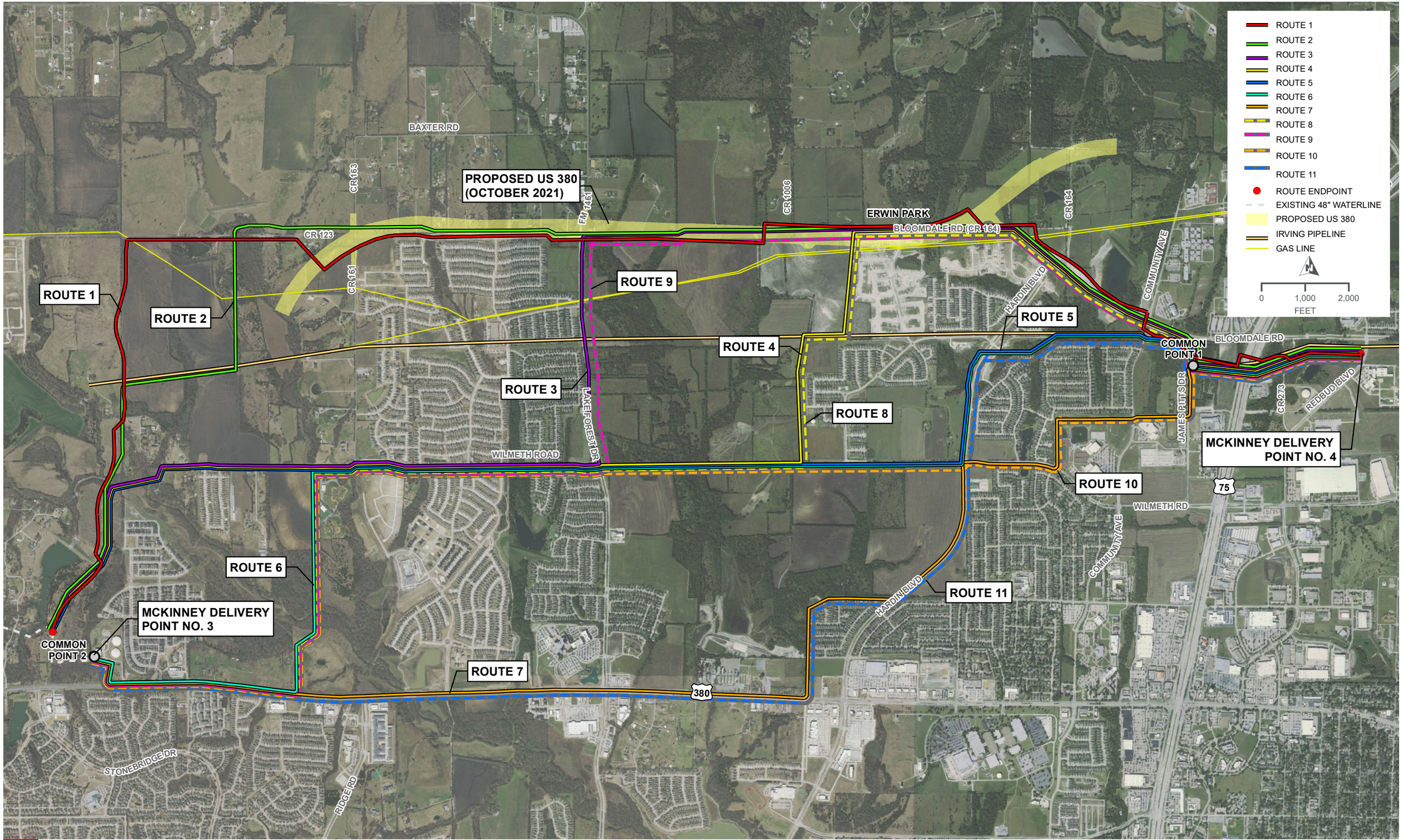
Route 5 follows the Irving Pipeline, crossing under US 75 to Hardin Blvd. where it turns south until Wilmeth Rd/CR 943. The route parallels Wilmeth Rd. for 3.5 miles until it reaches Sleepy Hollow Rd and then parallels the future Stonebridge extension south to the McKinney Delivery Point No. 3 connection.

2.6 Route 6

This route follows the same alignment as Route 5 to Wilmeth Rd, traverses west on Wilmeth Rd through the densely developed area. The route crosses the future extension of Ridge Rd and continues to CR 124. The route then turns south after crossing Stover Creek and traverses through undeveloped land, following parcel boundaries to US HWY 380. Route 6 travels west paralleling US HWY 380 on the northern side to the McKinney Delivery Point No. 3 connection.

2.7 Route 7

Route 7 follows the Irving Pipeline, crossing under US 75 to James Pitts Dr where it turns south and parallels the county road on the west side until the intersection at Justice St., turns west and proceeds behind Scott Johnson Middle School and McKinney North High School. The route then turns south along an unknown easement until Wilmeth Rd, turns west until Hardin Blvd and follows Hardin Blvd. southwest for 0.9 miles, turning west and proceeds behind the Heritage Bend subdivision. A storm water retention pond is encountered that will require a tunneled crossing. The route then turns south following parcel boundaries down to US HWY 380 and travels west, paralleling US HWY 380 on the northern side to the McKinney Delivery Point No. 3 connection.



NORTH TEXAS MUNICIPAL WATER DISTRICT

OVERVIEW OF ELEVEN ROUTE ALTERNATIVES

MCKINNEY DELIVERY POINT NO. 3 TO MCKINNEY DELIVERY POINT NO. 4 PIPELINE

FIGURE 2-1

PATH: O:\10122913_10189_NTMWD_MCKINNEY_PIPELINE_PH4\MAP_DOCS\FIGURES\MCKINNEY_PHASE4_OVERVIEW_11X17.MXD - USER: KLOVEJOY - DATE: 10/26/2021

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2.8 Route 8

This route follows the same alignment as Route 4 to Wilmeth Rd and travels west on Wilmeth Rd through the densely developed. The route crosses the future extension of Ridge Rd and continues along Wilmeth Rd. The route then turns south after crossing Stover Creek and crosses undeveloped land following parcel boundaries to US HWY 380, and then turns west paralleling the northern side of US HWY 380 to the connection at McKinney Delivery Point No. 3

2.9 Route 9

This route follows the same alignment as Route 3 to Wilmeth Rd and travels west on Wilmeth Rd through the densely developed. The route crosses the future extension of Ridge Rd and continues along Wilmeth Rd. The route then turns south after crossing Stover Creek and crosses undeveloped land following parcel boundaries to US HWY 380, turns west and parallels US HWY 380 on the northern side to the McKinney Delivery Point No. 3 connection.

2.10 Route 10

The route follows the same alignment as Route 7 to Wilmeth Rd and follows Wilmeth Rd through the densely developed area. The route crosses the future extension of Ridge Rd and continues along Wilmeth Rd. The route turns south after crossing Stover Creek and crosses undeveloped land following parcel boundaries to US HWY 380, turning west, and paralleling the northern side of US HWY 380 to the McKinney Delivery Point No. 3 connection.

2.11 Route 11

This route follows the Irving Pipeline, crossing under US 75 to Hardin Blvd turning south until Wilmeth Rd and then proceeding west until Hardin Blvd. Route 11 follows Hardin Blvd southwest for 0.9 miles at which point it turns west and crosses behind the Heritage Bend subdivision. A storm water retention pond is encountered that will require a tunneled crossing. The route then turns south following parcel boundaries down to US HWY 380 and travels west, paralleling the northern side of US HWY 380 to the McKinney Delivery Point No. 3 connection.

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3 Route Alternative Evaluation

HDR, in conjunction with North Texas Municipal Water District (NTMWD), developed a decision model to evaluate the pipeline routes. The model is based on evaluating and scoring non-cost (benefit) criteria and assessing the resulting cost-benefit ratio, or the value gained in making an investment decision. HDR and NTMWD established the non-cost criteria based on the project scope, key differentiators, and relative importance to NTMWD. After identifying and defining non-cost criteria, weighting factors were assigned to each of the criteria. Cost is not assigned a weight in the cost-benefit decision model. The cost-benefit approach instead allows for the benefits of each alternative to be assessed on a unit cost basis. The result is an understanding of what additional value is gained (or lost) in making a given investment.

3.1 Matrix Evaluation Criteria and Summary

HDR and NTMWD established evaluation criteria that includes two cost and seven non-cost factors based on the project scope, key differentiators, and relative importance to NTMWD. After identifying and defining non-cost criteria, weighting factors were assigned to each of the criteria. Cost is not assigned a weight in the cost-benefit decision model. **Table 3-1** below describes each criteria and presents the assigned weights.

Table 3-1: Evaluation Criteria and Weights

Evaluation Criteria	Weight (%)	Description
Cost Factors		
Capital Cost	Cost factored in using benefit to cost ratio (no weights assigned)	Construction cost for the proposed route, including tunneling, surface improvements, appurtenances, etc.
Easement Cost		Cost of acquiring an 80 ft. wide permanent easement (75% of appraised land value). Temporary easement was not included in cost.
Non-Cost Factors		
Right-of-Way Acquisition	20%	The number of parcels crossed, impacts to future US 380 highway expansion by TXDOT, and impacts to COM future CIP projects.
Environmental and Cultural Impacts	5%	Impacts to the environment (streams, wetlands, etc.) and historic sites during and upon completing construction; includes related permitting implications.
Existing Utilities	15%	Ease of obtaining corridor and level of coordination required with adjacent and crossing utilities.
Surface and Street Impacts	15%	Level of street repair along US HWY 380 and COM road right-of-way (ROW) required to construct the pipeline.
Traffic Impacts	5%	Level of traffic control required to construct the pipeline.
Schedule and Constructability	20%	Route complexity due to available easement width and access.
Operation and Maintenance (O&M)	20%	Accessibility to the pipeline corridor to maintain appurtenances and make repairs and additional cathodic protection required to protect the line due to foreign crossings.

3.2 Matrix Scoring Results

A matrix evaluation was used to weigh factors and score each route from 1 (unfavorable) to 5 (favorable) for each factor to aid in choosing the preferred route for each segment. **Table 3-2** summarizes the results of the evaluation. Route 1 received the highest overall matrix score, and is the preferred alternative based on non-cost criteria.

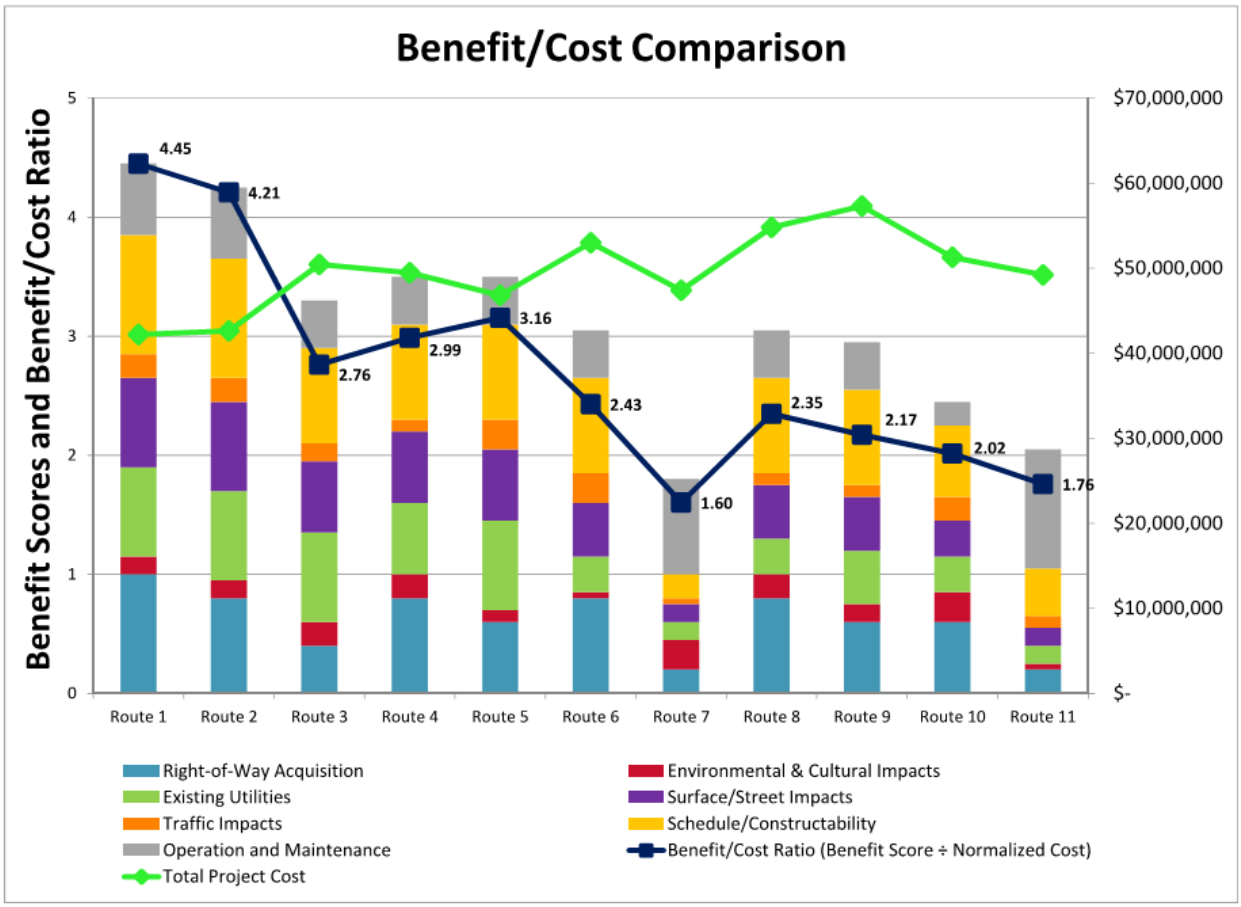
Table 3-2: Weighted Scores

Evaluation Criteria	Right-of-way Acquisition	Environmental & Cultural Impacts	Existing Utilities	Surface / Street Impacts	Traffic Impacts	Schedule / Constructability	O&M	Total
Alternatives	20%	5%	15%	15%	5%	20%	20%	
Route 1	1.00	0.15	0.75	0.75	0.20	1.00	0.60	4.45
Route 2	0.80	0.15	0.75	0.75	0.20	1.00	0.60	4.25
Route 3	0.40	0.20	0.75	0.60	0.15	0.80	0.40	3.30
Route 4	0.80	0.20	0.60	0.60	0.10	0.80	0.40	3.50
Route 5	0.60	0.10	0.75	0.60	0.25	0.80	0.40	3.50
Route 6	0.80	0.05	0.30	0.45	0.25	0.80	0.40	3.05
Route 7	0.20	0.25	0.15	0.15	0.05	0.20	0.80	1.80
Route 8	0.80	0.20	0.30	0.45	0.10	0.80	0.40	3.05
Route 9	0.60	0.15	0.45	0.45	0.10	0.80	0.40	2.95
Route 10	0.60	0.25	0.30	0.30	0.20	0.60	0.20	2.45
Route 11	0.20	0.05	0.15	0.15	0.10	0.40	1.00	2.05

3.3 Cost-Benefit Analysis

HDR's *Texas Water Development Board – Unified Costing Model for Regional Planning* was used to develop costs for each alternative. Total project cost included capital, land acquisition, and a 15 percent contingency. The benefit for each route was divided by the normalized cost to determine the benefit/cost ratio which is shown in **Figure 3-1**.

Figure 3-1: Cost-Benefit Analysis Results



3.4 Comparison of Pipeline Routes

Routes 1 and 2 were the most viable routes based on their scores. Both routes have the lowest surface/street impacts, impact the lowest number of parcels, impact the least number of existing known utilities, have the shortest tunnel length, and are the shortest in length. One of the main reason's routes 3, 4, 5, 8, 9, and 10 were not selected is based on the high cost of tunneling down Wilmeth Road and being located in the road right of way. Routes 6, 7, and 11 were not considered viable as they parallel US 380 which is a congested corridor that cannot accommodate an 80 ft permanent easement for the entire reach based on the number of existing utilities. **Table 3-3** provides a summary of each route based on the alignment criteria evaluated.

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Table 3-3: Summary of Routes

Alignment Criteria	Category	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6	Route 7	Route 8	Route 9	Route 10	Route 11
ROW Acquisition	Length of Future US 380 Impact	31,690	29,450	22,110	14,250	8,290	9,610	20,060	15,610	23,470	8,150	19,810
	Parcels	**45**	**48**	**57**	**52**	**54**	**51**	**61**	**49**	**54**	**54**	**59**
Enviro/Cultural Resources	Potential Wetlands	8	8	7	6	7	8	5	7	8	4	9
	Streams	15	15	14	11	17	19	11	13	16	13	17
	Potential Arch. Site (not eligible for inclusion in NRHP)	1	1	1	1	1	0	1	0	0	0	1
	Potential Arch. Site (needs confirmation)	0	0	0	1	0	0	0	1	0	0	0
	Σ Enviro / Cultural Crossings	**24**	**24**	**22**	**19**	**25**	**27**	**17**	**21**	**24**	**17**	**27**
Existing Utilities	Water Main	13	14	11	11	12	28	38	27	27	30	36
	Sewer Main	3	3	5	10	7	8	9	7	6	5	12
	Storm Drain	1	1	5	6	7	9	12	8	6	10	10
	Gas Line	4	4	4	4	0	0	0	4	0	0	0
	Σ Utility Crossings	**21**	**22**	**25**	**31**	**26**	**45**	**59**	**46**	**39**	**45**	**58**
Surface / Street Impacts	Pipe Length in McKinney Road ROW (ft.)	2,800	2,800	4,320	4,320	4,320	4,320	1,880	4,320	4,320	6,200	0
	Pipe Length Along Current US 380 (ft.)	0	0	0	0	0	4,220	15,880	4,220	4,220	4,220	15,880
	Σ Surface / Street Impacts (ft.)	**2,800**	**2,800**	**4,320**	**4,320**	**4,320**	**8,540**	**17,760**	**8,540**	**8,540**	**10,420**	**15,880**
Traffic Impacts	Pipe Length Along Wilmeth (ft.)	0	0	9,300	9,300	9,300	6,560	2,160	6,560	6,560	8,720	0
	Pipe Length Along Current US 380 (ft.)	0	0	0	0	0	4,220	15,880	4,220	4,220	4,220	15,880
	Pipe Length Along Bloomdale Rd (ft.)	12,330	12,330	4,660	6,660	0	0	0	6,660	4,660	0	0
	Σ Traffic Impacts (ft.)	**12,330**	**12,330**	**13,960**	**13,960**	**9,300**	**10,780**	**18,040**	**15,440**	**15,440**	**12,940**	**15,880**
Schedule / Constructability	**Pipe Length w/ Reduced Esmt Width (ft.)**	**830**	**830**	**5,650**	**5,650**	**5,650**	**8,540**	**19,830**	**8,540**	**8,540**	**12,490**	**15,880**
Operation & Maintenance	Streams Crossings	15	15	14	13	17	19	11	15	16	13	17
	Major Gas (Crossings or parallel)	4	4	4	2	0	1	1	3	5	1	1
	Major Water Line (Crossings or parallel)	0	0	1	1	2	3	3	2	2	3	3
	Other Utilities (OHE, phone, comm)	2	2	3	3	3	10	7	8	8	9	9
	Σ Cathodic Protection - Related	*21*	*21*	*22*	*19*	*22*	*33*	*22*	*28*	*31*	*26*	*30*
	Tunnel Length (ft.)	4,290	4,510	8,650	8,760	9,020	10,700	8,040	10,280	11,070	9,970	8,700
	Pipe Length in McKinney Road ROW (ft.)	**2,800**	**2,800**	**4,320**	**4,320**	**4,320**	**4,320**	**1,880**	**4,320**	**4,320**	**6,200**	**0**

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4 Recommended Pipeline Route

Comparing the eleven route alternatives, Route 1 received the highest ranking for Right-of-way Acquisition, Existing Utilities, Surface and Street Impacts, and Schedule and Constructability. Route 1 offers the best access for maintenance out of the eleven alternatives by impacting the least number of parcels; the pipeline is located near an easily accessible road but offset enough to reduce the danger of traffic. Because of this, Route 1 has the least impact to City of McKinney roads. Route 1 is also the optimal location for connections to future delivery points to the west and north. Route 2 was the close second alternative but encroaches on more parcels and therefore causes a greater impact to City of McKinney landowners in the area. It also has a higher construction cost due to the greater tunnel length required.

Routes 3 through 11 have large impacts to City of McKinney road right-of-way as well as US 380. Placing the pipeline in the road right-of-way will cause traffic disruption during construction and future O&M activities, as well as major street and pavement restoration. Since the construction in public street rights-of-way is complex, schedules are extended, thereby increasing the period of disruption to the public as well as the risks to public safety. Furthermore, routes that parallel US HWY 380 may require some level of coordination with TXDOT.

Due to the level of development in this area, Routes 3 through 11 will have reduced easement widths, which result in the need to perform tunneling operations in sections of the pipeline alignment. These routes are within the City of McKinney road right-of-way and would have an easement width reduced from 80 feet to 40 feet. Constructing the pipeline or pipelines in a reduced easement width can slow productivity, increase the project schedule, and increase project cost. This impact will be observed along US 380, which already has a congested utility corridor, reducing the available easement width and requiring additional tunneling. Other areas that may be impacted are along Wilmeth Road.

After taking into consideration all weights and factors for each of the routes as identified in the route evaluation matrix in **Table 3-2**, Route 1 scored the highest overall matrix score and has the greatest cost-benefit ratio. Therefore, Route 1 is recommended as the preferred alternative. The recommended route is shown in **Figure 4-1** and **Table 4-1** shows general route information.

Table 4-1: Recommended Pipeline Route Information

Item	Value
Pipe Diameter (inches)	72” (See Section 7)
Pipe Material	Steel
Total Distance (linear feet)	39,340
% Open Trench	89%
% Tunnel	11%
Permanent Easement Width (feet)	80
Number of Landowners	45
Estimated ROW Acquisition Cost	$4,600,000
Total Project Cost	$42,200,000

PROPOSED 72" PIPELINE ALIGNMENT
ROUTE ENDPOINT
PROPOSED US 380
EXISTING 48" WATERLINE
FUTURE CITY OF MCKINNEY PARK
ERWIN PARK
PARCEL BOUNDARY

0 2,300 4,600
FEET

BAXTER RD
CR 163
FM 1461
PROPOSED US 380
CR 1006
FUTURE CITY OF MCKINNEY PARK
ERWIN PARK
CR 164
BLOOMDALE RD (CR 164)
CR 123
CR 161
PAINTED TREE DEVELOPMENT
FUTURE CITY OF MCKINNEY PARK
LAKE FOREST
ERWIN FARMS DEVELOPMENT
TIMBER CREEK DEVELOPMENT
HARDIN BLVD
COMMUNITY AVE
MCKINNEY DELIVERY POINT NO. 4
BLOOMDALE RD
WILSON CREEK
JAMES PUTTS DR
CR 273
REDBUD BLVD
WILMETH ROAD
75
MCKINNEY DELIVERY POINT NO. 3
W. UNIVERSITY DR (US 380)
380
N. STONEBRIDGE DR

NORTH TEXAS MUNICIPAL WATER DISTRICT

ROUTE OVERVIEW

MCKINNEY DELIVERY POINT NO. 3 TO MCKINNEY DELIVERY POINT NO. 4 PIPELINE

FIGURE 4-1

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5 Park Crossing Pipeline Route

Route 1 generally parallels proposed US 380/Bloomdale Road on the north or south side. The alignment along Bloomdale Road was determined based on coordination with the City of McKinney and TxDOT regarding the proposed US 380 bypass alignment, existing and future development, planned road expansions (FM 1461), and environmental impacts. The alignment crosses one existing park (Erwin Park) and two future parks on the north and south side of Bloomdale Road and US 380. The pipeline crosses Erwin Park and land recently purchased by the City of McKinney to avoid the Erwin Farms and Timber Creek developments. After crossing Erwin Park and future city park land, the alignment crosses CR 1006 and turns south, paralleling the south side Bloomdale Road on the City of McKinney's future park land property before entering the Painted Tree Development. The pipeline will require an 80 ft permanent easement only. No temporary easement will be needed. The proposed easement was staked on January 20, 2022, and the City was notified.

The location of the US 380 crossing was selected based on future plans for a CR 1006 overpass and input from the City of McKinney, Collin County, and TXDOT. The location of this park crossing was driven to limit impacts to future development on the north side of US 380 if the water line continued on the north side of Bloomdale Road. There are two ponds just west of Erwin Park that are in conflict with the pipeline crossing but there will be no impact to the hydrology upstream or downstream of the area. Also, the ponds have been determined non-jurisdictional water crossings. Therefore, no permit will be required to remove, drain, modify, or fill the ponds and can be removed after construction. Furthermore, TxDOT requested that the proposed pipeline be on the south side of the US 380 alignment to allow for flexibility in the future of the road ROW. After multiple coordination meetings, Collin County and the City of McKinney agreed to NTMWD's proposed alignment in this area. **Figure 5-1** shows the recommended pipeline route park crossings.

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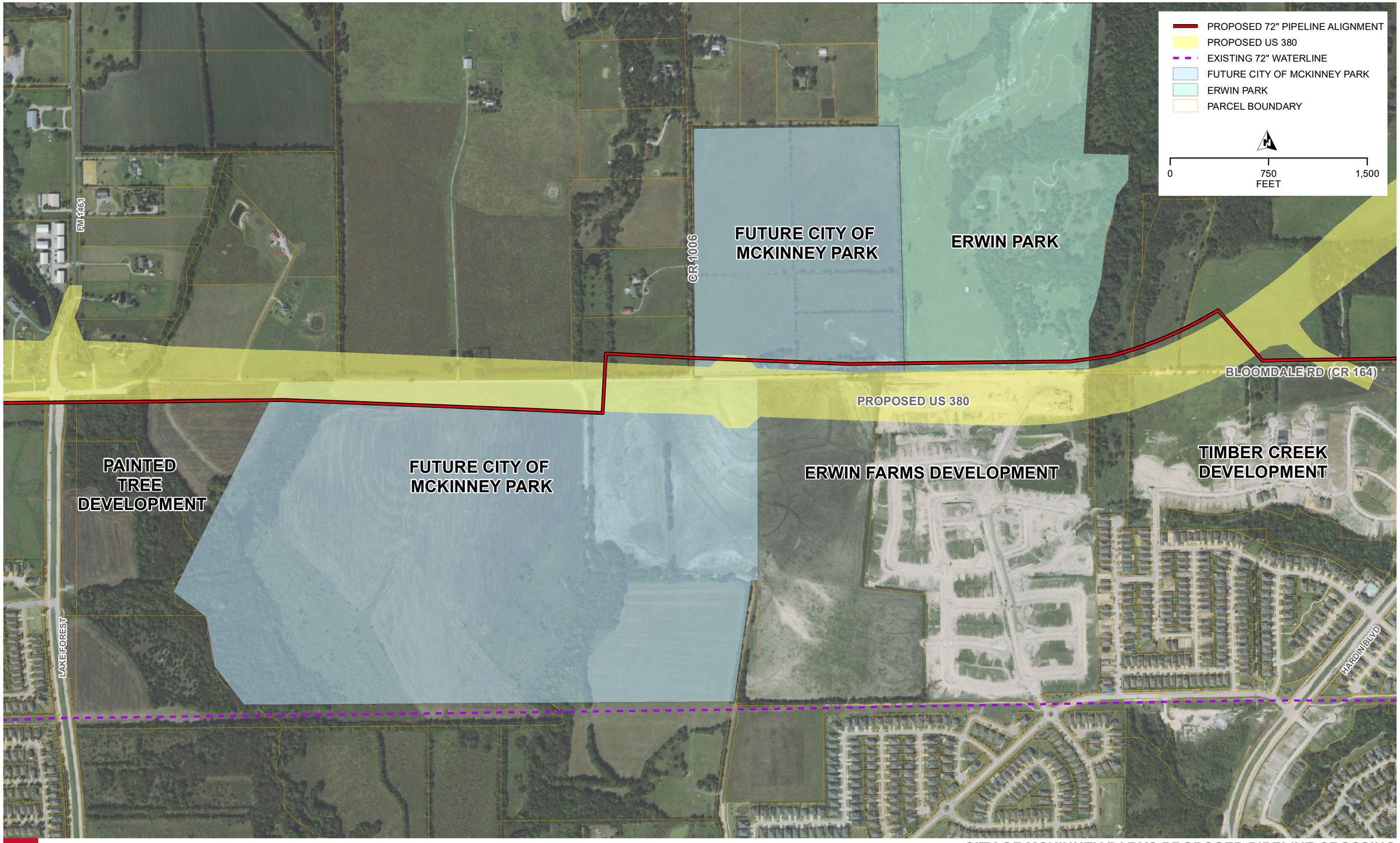

NORTH TEXAS MUNICIPAL WATER DISTRICT

CITY OF MCKINNEY PARKS PROPOSED PIPELINE CROSSING

MCKINNEY DELIVERY POINT NO. 3 TO MCKINNEY DELIVERY POINT NO. 4 PIPELINE

FIGURE 5-1

PATH: C:\USERS\KLOVEJOY\DESKTOP\MCKINNEY_PHASE4_OVERVIEW_ROUTE_11X17-PARKS.MXD - USER: KLOVEJOY - DATE: 10/26/2021

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6 Schedule

HDR will complete a 30% design in November of 2021 and has begun the easement acquisition process. The design will be advanced to the 60% design stage which is expected to be completed in February 2022. Construction of the pipeline will occur starting October 2022. A summary of the key dates is summarized:

- Completion of 30% Design- November 2021
- Advance the project to 60% Design- February 2022
- Finalize design October 2022
- Begin construction early 2023

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7 Conclusion

Using the evaluation and design criteria developed for this project, Route 1 is the recommended route. Route 1 crosses the fewest number of parcels and therefore has the fewest property owners to coordinate with for ROE and acquisition of ROW for the permanent pipeline easement. Also, Route 1 has fewer existing site constraints and will allow for acquisition of the full easement width recommended (80 feet). Most of the alignment parallels Bloomdale Rd which minimizes surface and street impacts. This route requires the shortest tunneling length for roadway, utility, stream, and wetland crossings resulting in the lowest cost alternative. To minimize any impact to park facilities, any potential ground structures such as manholes will designed at grade. Also, the Erwin Park Dorba Mountain Bike Trail will be temporarily moved during construction but will be restored to current conditions post construction. A tree survey will be completed and NTMWD will submit a tree permit in accordance with the City of McKinney's tree ordinance requirements. Furthermore, all construction items will be moved to adjacent properties when not being utilized and during construction will be kept within the bounds of the permanent easement.

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