SECTION 6
Capital Improvement Program

WATER 6.1

Section 6 Capital Improvement Program

6.1 Water Distribution System Recommended Improvements

The proposed water improvements were modeled to provide the City both short-term and long-term proposed improvements. The proposed short-term improvements are shown in Project No. 1-10 and are anticipated to be implemented in the next 10-years of the City's CIP budget. The proposed long-term improvements, Project No. 11-17, are anticipated to be implemented by 2040. The analyses performed for both the short-term and long-term improvements and their respective results are outlined below.

6.1.1 10-Year CIP Water Improvements

The majority of the City's existing water distribution was installed in the early 1960s. B&W recommends performing test holes throughout the City on these unknown water mains in order to determine material type and condition. Water mains of asbestos cement (AC) material are typically brittle and more prone to fracturing as opposed to water mains of ductile iron pipe (DIP) or polyvinyl chlorine (PVC) materials. If it is determined that the water mains are of AC material, it is recommended that these pipes be placed as a priority. ***Figure 6-1*** is an overview of all water distribution system proposed projects.

Except in areas where upsizing the water main is recommended, it is assumed that all water mains will be replaced via pipe-bursting method with HDPE material. In areas where the water main is being upsized, it is assumed the water main will be installed via open-cut trench method. The City has had success with pipe-bursting method of installation in the past and this will help decrease costs by reducing the amount of site restoration when installing the new water main and associated appurtenances. It is recommended to replace all existing 4-inch diameter water main with 6-inch diameter. This will allow for additional fire flow protection and increased distribution capacity.

The proposed improvements for each project are described in further detail in the sections that follow and include conceptual cost estimates for each project. In addition to installing the new water main, the conceptual costs include replacing existing valves, 10% of existing fire hydrants, and connecting water services to the new water mains. The conceptual construction cost estimate includes the cost for detailed design and construction engineering and inspection for the project. The construction cost information is preliminary in nature. These costs are based upon comparisons of previous and current similar types of work and materials underway in the Southeast Florida area. All costs developed herein are in 2019 dollars and do not include land acquisitions or easement.

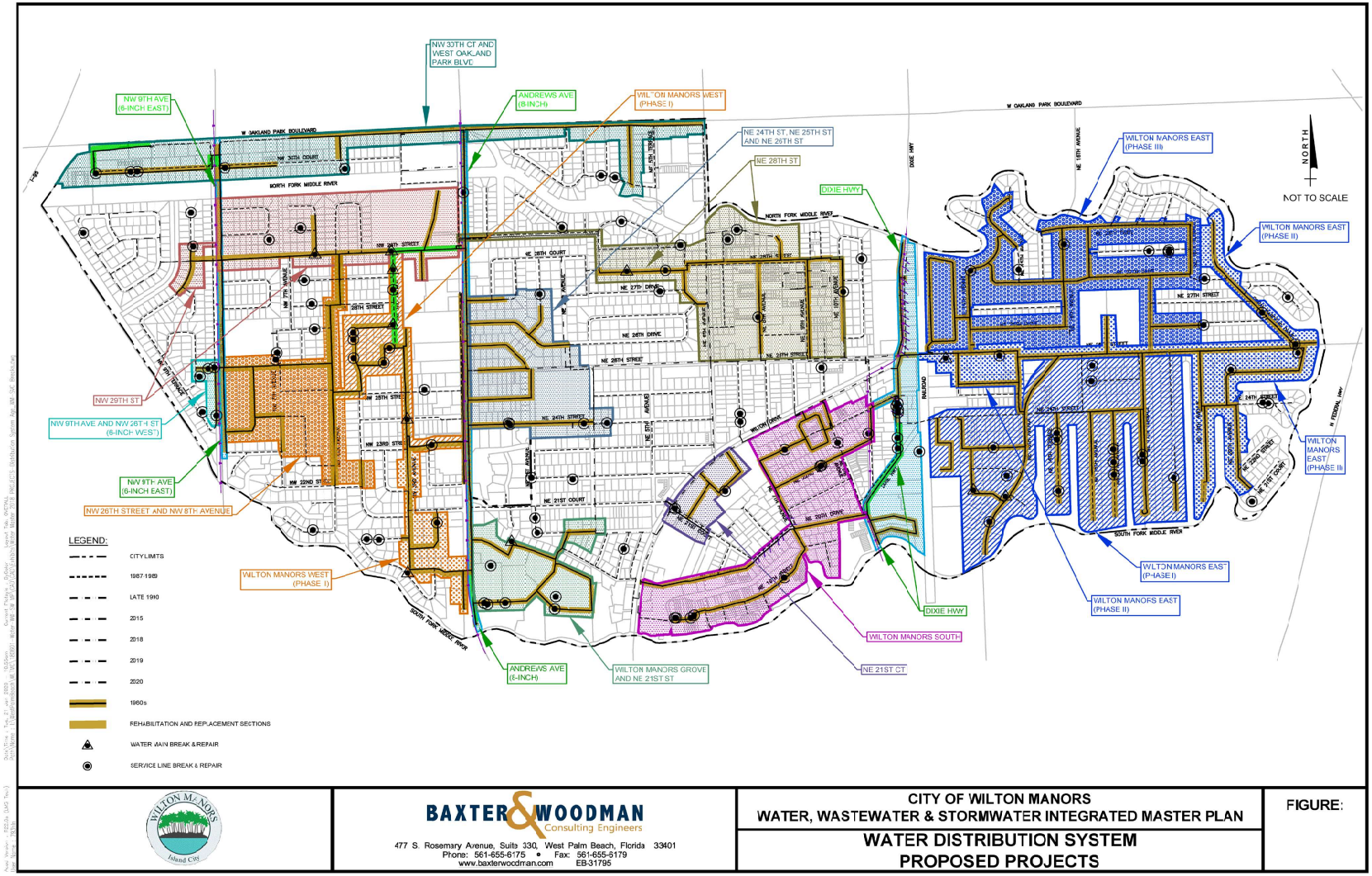

Figure 6-1: Water Distribution System Proposed Projects

6.1.1.1 Project #1: Dixie Highway 10-inch Water Main Improvements

Dixie Highway runs north-south and is located in the eastern portion of the City. There are existing 8-inch and 4-inch parallel water mains on Dixie Highway from NE 26th St. to the crossing of the Middle River. It is recommended to replace these two (2) parallel water mains with one (1) 10-inch water main. There are also two (2) 6-inch parallel water mains on Dixie Highway from NE 20th Dr. to NW 26th St. It is also recommended to replace these two (2) parallel water mains with one (1) 10-inch water main. All other existing 6-inch and 8-inch water mains within the project vicinity should be replaced with new 6-inch or 8-inch water mains.

Fire hydrants that are currently installed on the 4-inch and 8-inch water mains along Dixie Highway should be reconnected to the new 10-inch water main. The current fire hydrants on Dixie Highway were predominantly installed on the west side of the road. In the event of a fire on the north bound lanes of Dixie Highway, the current fire hydrant layout would require that both the north and south bound lanes be closed. It is recommended to reconfigure fire hydrant locations on Dixie Highway by staggering the fire hydrants on both the east and west sides of the road.

Table 6-1: 10-Year CIP – Project #1 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$ 54,712.50	$ 54,712.50
Mobilization (2.5%)	1	LS	$ 27,356.25	$ 27,356.25
Maintenance of Traffic	4,850	LF	$ 3.00	$ 14,550.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 27,356.25	$ 27,356.25
			Subtotal General:	$ 123,975.00
Water Main Replacement				
Tie-In	10	EA	$ 2,000.00	$ 20,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	1,750	LF	$ 160.00	$ 280,000.00
Furnish and Install 8-inch HDPE Water Main and Fittings (Pipe Bursting)	400	LF	$ 170.00	$ 68,000.00
Furnish and Install 10-inch HDPE Water Main and Fittings (Open-Cut Trench)	2,700	LF	$ 205.00	$ 553,500.00
Abandon and Grout Existing Water Main	5,300	LF	$ 15.00	$ 79,500.00
6-inch Gate Valve	11	EA	$ 1,250.00	$ 13,750.00
8-inch Gate Valve	5	EA	$ 1,500.00	$ 7,500.00
10-inch Gate Valve	5	EA	$ 3,000.00	$ 15,000.00
Furnish and Install Fire Hydrant Assembly	2	EA	$ 3,000.00	$ 6,000.00
Water Service w/ Meter Box	51	EA	$ 1,000.00	$ 51,000.00
			Subtotal Water Main Replacement:	$ 1,094,250.00
			Total Construction	**$ 1,218,225.00**
			Contingencies (20%)	$ 243,645.00
			Engineering, Legal Admin. Costs (15%)	$ 182,733.75
			Total Cost:	**$ 1,644,603.75**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.
-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.
-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.
- Water main cost does not include the following: transfer of rear yard services, driveway replacement.
- All existing 4-inch water main to be upgraded to 6-inch water main.

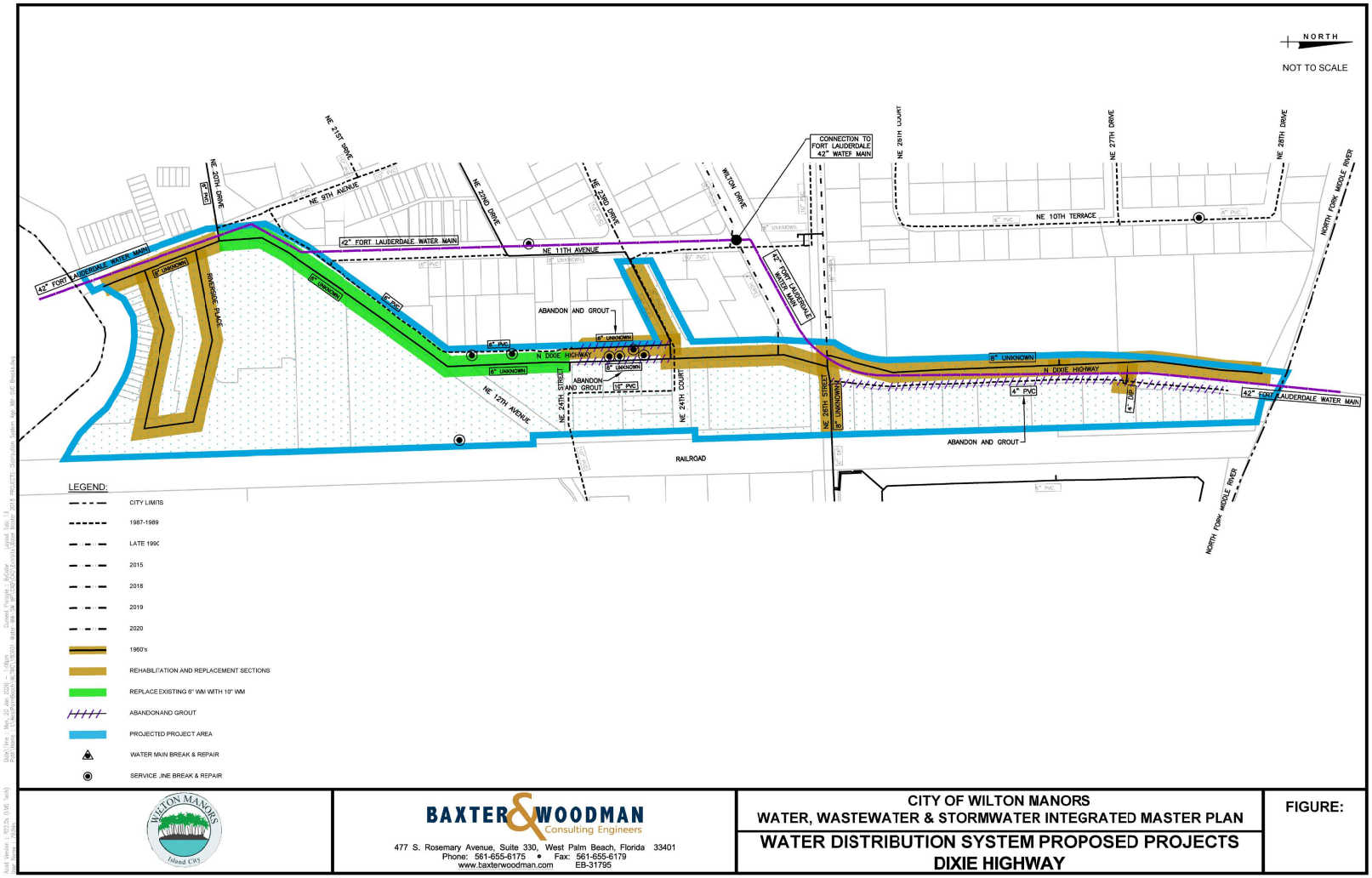

Figure 6-2: Project #1 – Dixie Highway 10-inch Water Main Improvements

6.1.1.2 Project #2: NW 30th Court and West Oakland Park Boulevard Water Main Replacement

NW 30th Ct. and W. Oakland Park Blvd. run east-west and border the City on the northwest. There are parallel 6-inch and 8-inch water mains along NW 30th Ct.. It is recommended to abandon and grout the existing 6-inch water mains and connect all existing water services and fire hydrants to the to-be-replaced 8-inch water main. It is also recommended to replace the 6-inch water mains on W Oakland Park Blvd., NW 11th Ter., and Powerline Road with 8-inch water mains in order to provide additional capacity for future redevelopment within this area and to prevent bottle-neck effect from occurring in areas where the water main transitions from 6-inch to 8-inch. It is also recommended to replace all existing 6-inch water main in this region with new 6-inch HDPE water main.

Replacing the 6-inch water main crossing Powerline Road with an 8-inch water main is required in order to provide adequate fire protection for the proposed redevelopment along N. Andrews Ave. and W. Oakland Parkway.

Table 6-2: 10-Year CIP – Project #2 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$ 85,237.50	$ 85,237.50
Mobilization (2.5%)	1	LS	$ 42,618.75	$ 42,618.75
Maintenance of Traffic	8,900	LF	$ 3.00	$ 26,700.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 42,618.75	$ 42,618.75
			Subtotal General:	$ 197,175.00
Water Main Replacement				
Tie-In	12	EA	$ 2,000.00	$ 24,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	5,550	LF	$ 160.00	$ 888,000.00
Furnish and Install 8-inch HDPE Water Main and Fittings (Pipe Bursting)	2,150	LF	$ 170.00	$ 365,500.00
Furnish and Install 8-inch HDPE Water Main and Fittings (Open-Cut Trench)	1,200	LF	$ 190.00	$ 228,000.00
Abandon and Grout Existing Water Main	3,300	LF	$ 15.00	$ 49,500.00
6-inch Gate Valve	15	EA	$ 1,250.00	$ 18,750.00
8-inch Gate Valve	8	EA	$ 1,500.00	$ 12,000.00
Furnish and Install Fire Hydrant Assembly	3	EA	$ 3,000.00	$ 9,000.00
Water Service w/ Meter Box	110	EA	$ 1,000.00	$ 110,000.00
			Subtotal Water Main Replacement:	$ 1,704,750.00
			Total Construction	**$ 1,901,925.00**
			Contingencies (20%)	$ 380,385.00
			Engineering, Legal Admin. Costs (15%)	$ 285,288.75
			Total Cost:	**$ 2,567,598.75**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.

- All existing 4-inch water main to be upgraded to 6-inch water main.

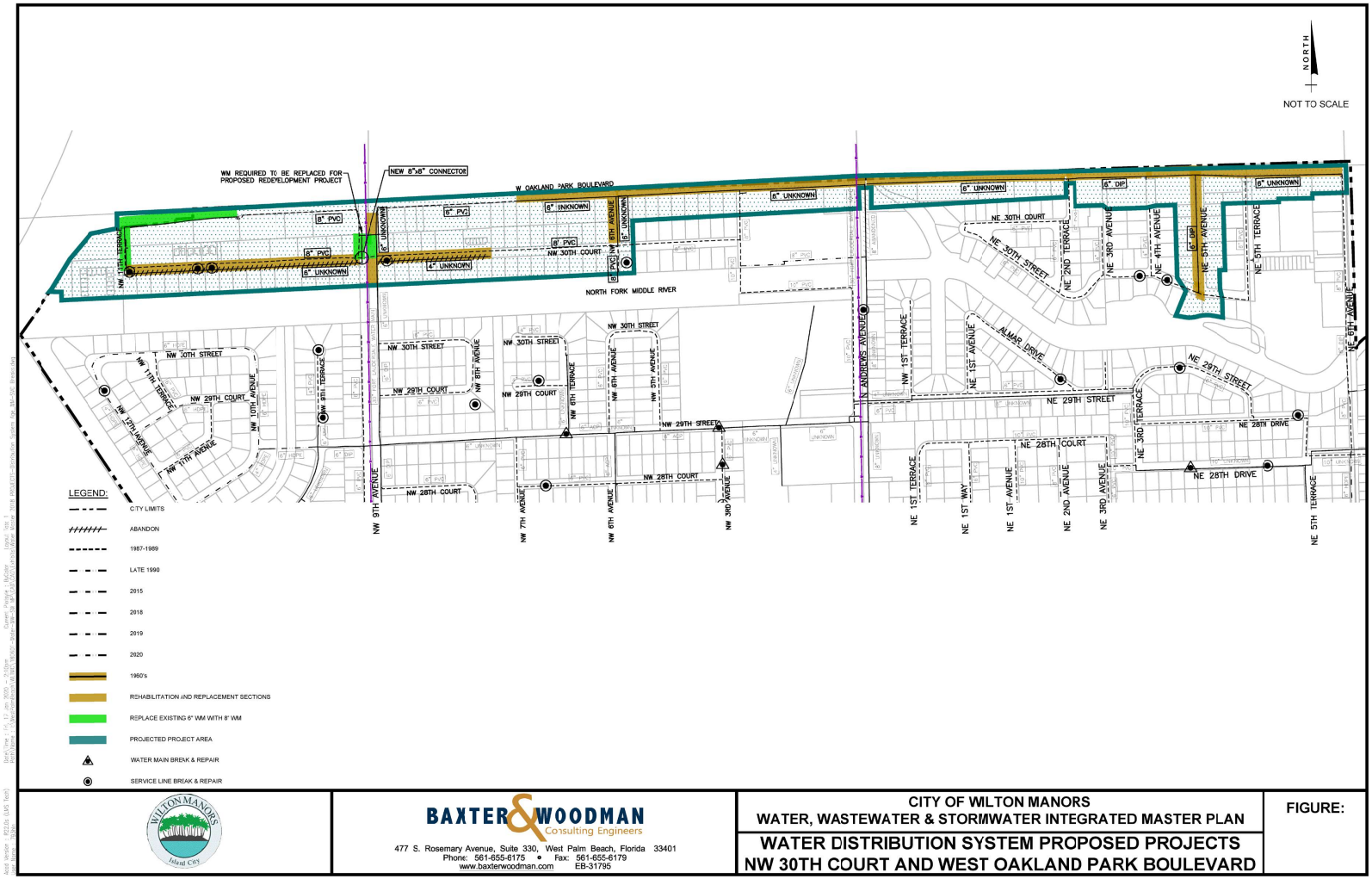

Figure 6-3: Project #2 – NW 30th Court and West Oakland Park Boulevard Water Main Replacement

6.1.1.3 Project #3: Wilton Manors West Phase I Water Main Replacement

Wilton Manors West is located in the western portion of the City. This project was divided into two (2) phases. Phase I was prioritized because there is inadequate existing fire flow in this region. In order to improve fire flow to this region of the City, it is recommended to replace the existing 6-inch water main on NW 3rd Ave. from NW 26th Ct. to NW 29th St. with new 8-inch water main. All other existing 4-inch and 6-inch water mains within this region should be replaced with new 6-inch water mains. Phase II of the Wilton Manors West Water Main Replacement project is described in Project # 13.

Table 6-3: 10-Year CIP – Project #3 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$ 57,370.00	$ 57,370.00
Mobilization (2.5%)	1	LS	$ 28,685.00	$ 28,685.00
Maintenance of Traffic	5,780	LF	$ 3.00	$ 17,340.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 28,685.00	$ 28,685.00
			Subtotal General:	$ 132,080.00
Water Main Replacement				
Tie-In	10	EA	$ 2,000.00	$ 20,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	4,250	LF	$ 160.00	$ 680,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Open-Cut Trench)	430	LF	$ 180.00	$ 77,400.00
Furnish and Install 8-inch HDPE Water Main and Fittings (Open-Cut Trench)	1,100	LF	$ 190.00	$ 209,000.00
Abandon and Grout Existing Water Main	1,500	LF	$ 15.00	$ 22,500.00
6-inch Gate Valve	34	EA	$ 1,250.00	$ 42,500.00
8-inch Gate Valve	6	EA	$ 1,500.00	$ 9,000.00
Furnish and Install Fire Hydrant Assembly	2	EA	$ 3,000.00	$ 6,000.00
Water Service w/ Meter Box	81	EA	$ 1,000.00	$ 81,000.00
			Subtotal Water Main Replacement:	$ 1,147,400.00
			Total Construction	**$ 1,279,480.00**
			Contingencies (20%)	$ 255,896.00
			Engineering, Legal Admin. Costs (15%)	$ 191,922.00
			Total Cost:	**$ 1,727,298.00**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.
- All existing 4-inch water main to be upgraded to 6-inch water main.

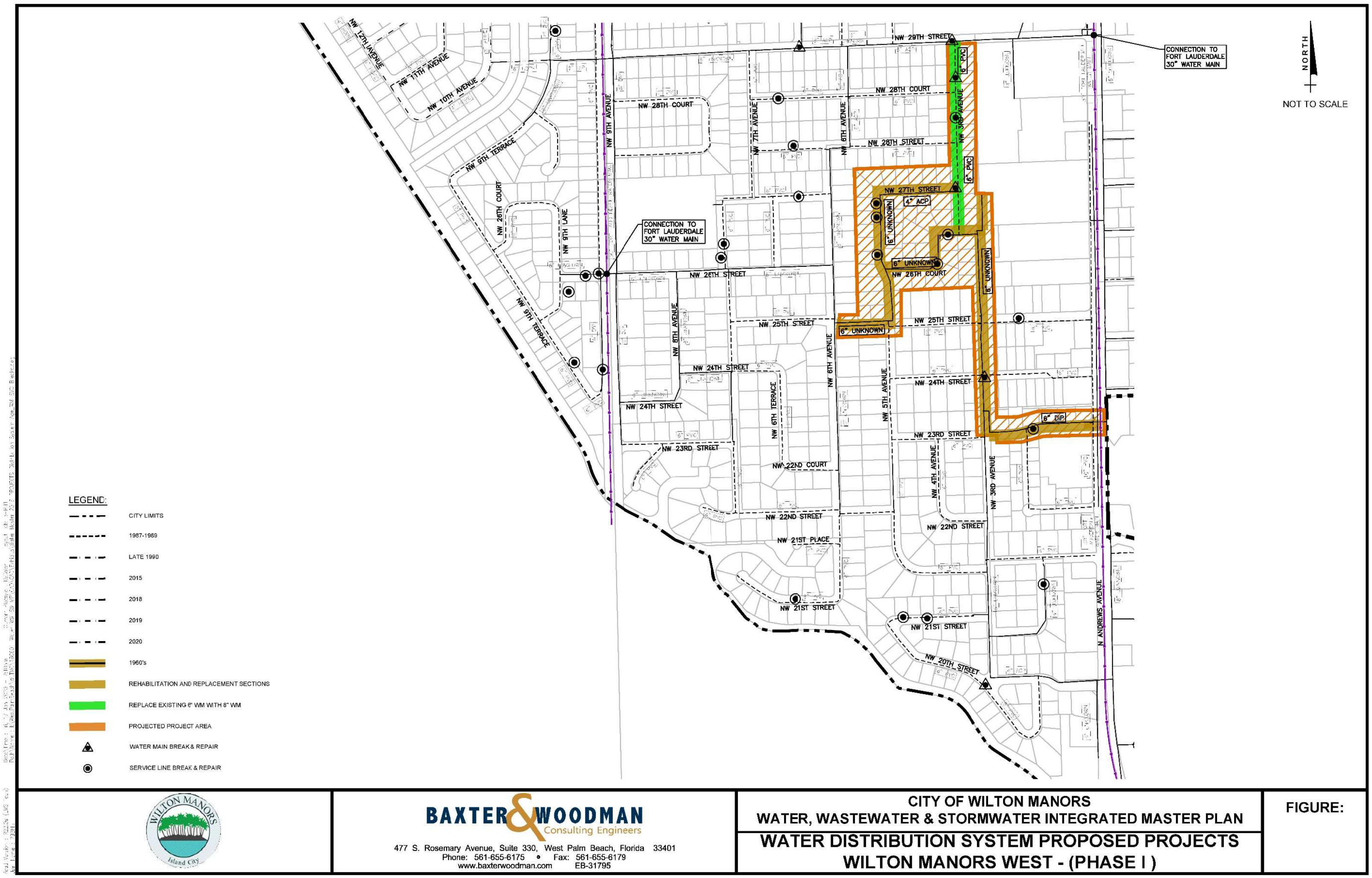

Figure 6-4: Project #3 – Wilton Manors West Phase I Water Main Replacement

6.1.1.4 Project #4: NW 29th Street Water Main Replacement

NW 29th St. is located in the northwest portion of the City. This project was prioritized because there is inadequate existing fire flow in this region. In order to improve fire flow to this region of the City, it is recommended to replace the 6-inch water main on NW 29th St. from N. Andrews to NW 3rd Ave., with an 8-inch water main. All other existing 4-inch and 6-inch water mains should be replaced with new 6-inch water mains.

Table 6-4: 10-Year CIP – Project #4 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$ 48,425.00	$ 48,425.00
Mobilization (2.5%)	1	LS	$ 24,212.50	$ 24,212.50
Maintenance of Traffic	4,960	LF	$ 3.00	$ 14,880.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 24,212.50	$ 24,212.50
			Subtotal General:	$ 111,730.00
Water Main Replacement				
Tie-In	17	EA	$ 2,000.00	$ 34,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	3,800	LF	$ 160.00	$ 608,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Open-Cut Trench)	340	LF	$ 180.00	$ 61,200.00
Furnish and Install 8-inch HDPE Water Main and Fittings (Open-Cut Trench)	820	LF	$ 190.00	$ 155,800.00
Abandon and Grout Existing Water Main	1,200	LF	$ 15.00	$ 18,000.00
6-inch Gate Valve	26	EA	$ 1,250.00	$ 32,500.00
8-inch Gate Valve	4	EA	$ 1,500.00	$ 6,000.00
Furnish and Install Fire Hydrant Assembly	2	EA	$ 3,000.00	$ 6,000.00
Water Service w/ Meter Box	47	EA	$ 1,000.00	$ 47,000.00
			Subtotal Water Main Replacement:	$ 968,500.00
			Total Construction	**$ 1,080,230.00**
			Contingencies (20%)	$ 216,046.00
			Engineering, Legal Admin. Costs (15%)	$ 162,034.50
			Total Cost:	**$ 1,458,310.50**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.
- All existing 4-inch water main to be upgraded to 6-inch water main.

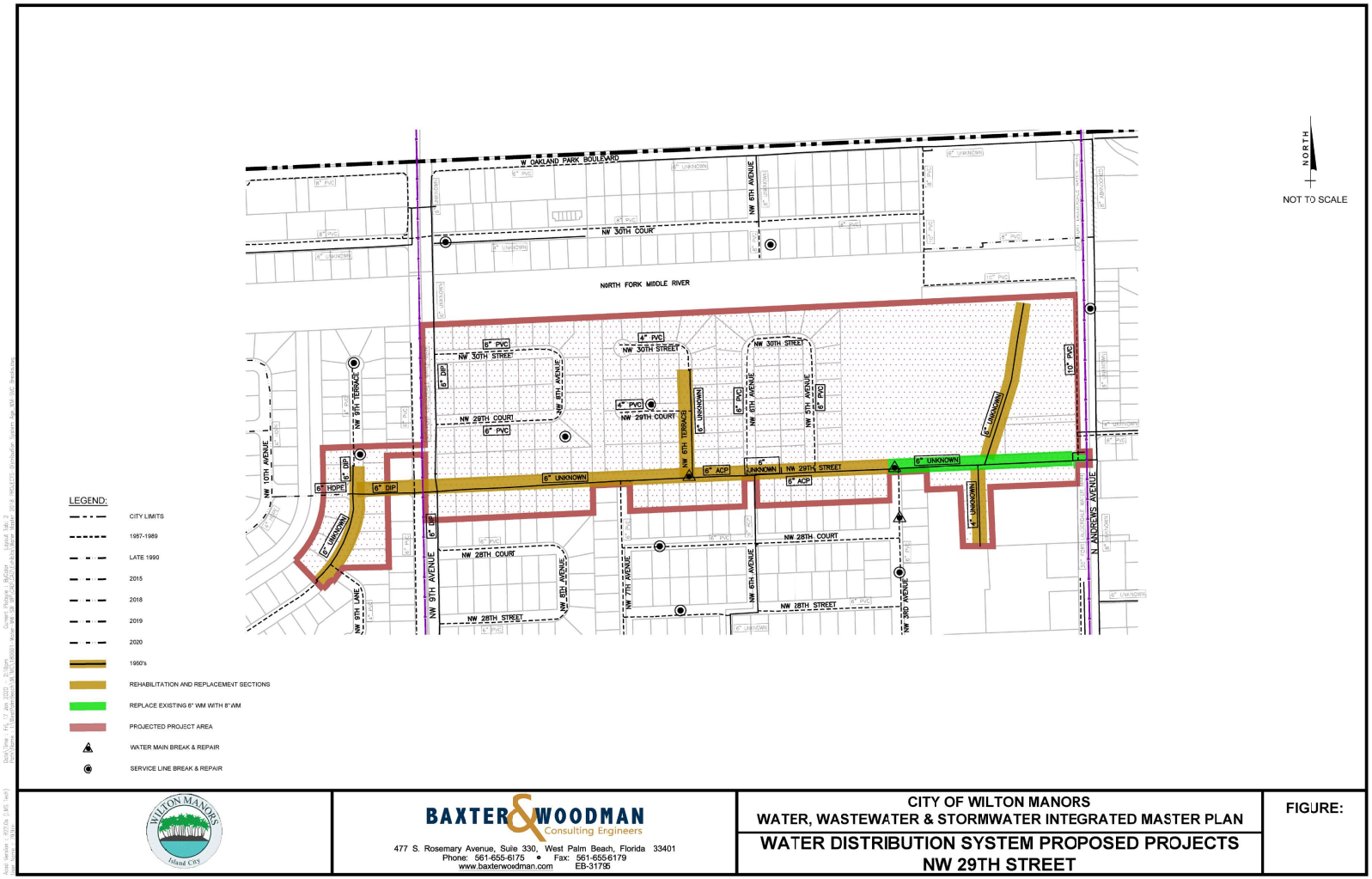

Figure 6-5: Project #4 – NW 29th Street Water Main Replacement

6.1.1.5 Project #5: NW 9th Avenue & NW 26th Street Water Main Replacement

NW 9th Ave. and NW 26th St. are located on the far western portion of the City. This is a smaller project that has been prioritized because there have been several water service line breaks in this area within the past 10 years. It is recommended to replace all existing 6-inch water main in this region with new 6-inch HDPE water main.

Table 6-5: 10-Year CIP – Project #5 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$ 9,625.00	$ 9,625.00
Mobilization (2.5%)	1	LS	$ 4,812.50	$ 4,812.50
Maintenance of Traffic	1,000	LF	$ 3.00	$ 3,000.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 4,812.50	$ 4,812.50
			Subtotal General:	$ 22,250.00
Water Main Replacement				
Tie-In	4	EA	$ 2,000.00	$ 8,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	1,000	LF	$ 160.00	$ 160,000.00
6-inch Gate Valve	10	EA	$ 1,250.00	$ 12,500.00
Furnish and Install Fire Hydrant Assembly	1	EA	$ 3,000.00	$ 3,000.00
Water Service w/ Meter Box	9	EA	$ 1,000.00	$ 9,000.00
			Subtotal Water Main Replacement:	$ 192,500.00
			Total Construction	**$ 214,750.00**
			Contingencies (20%)	$ 42,950.00
			Engineering, Legal Admin. Costs (15%)	$ 32,212.50
			Total Cost:	**$ 289,912.50**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.
- All existing 4-inch water main to be upgraded to 6-inch water main.

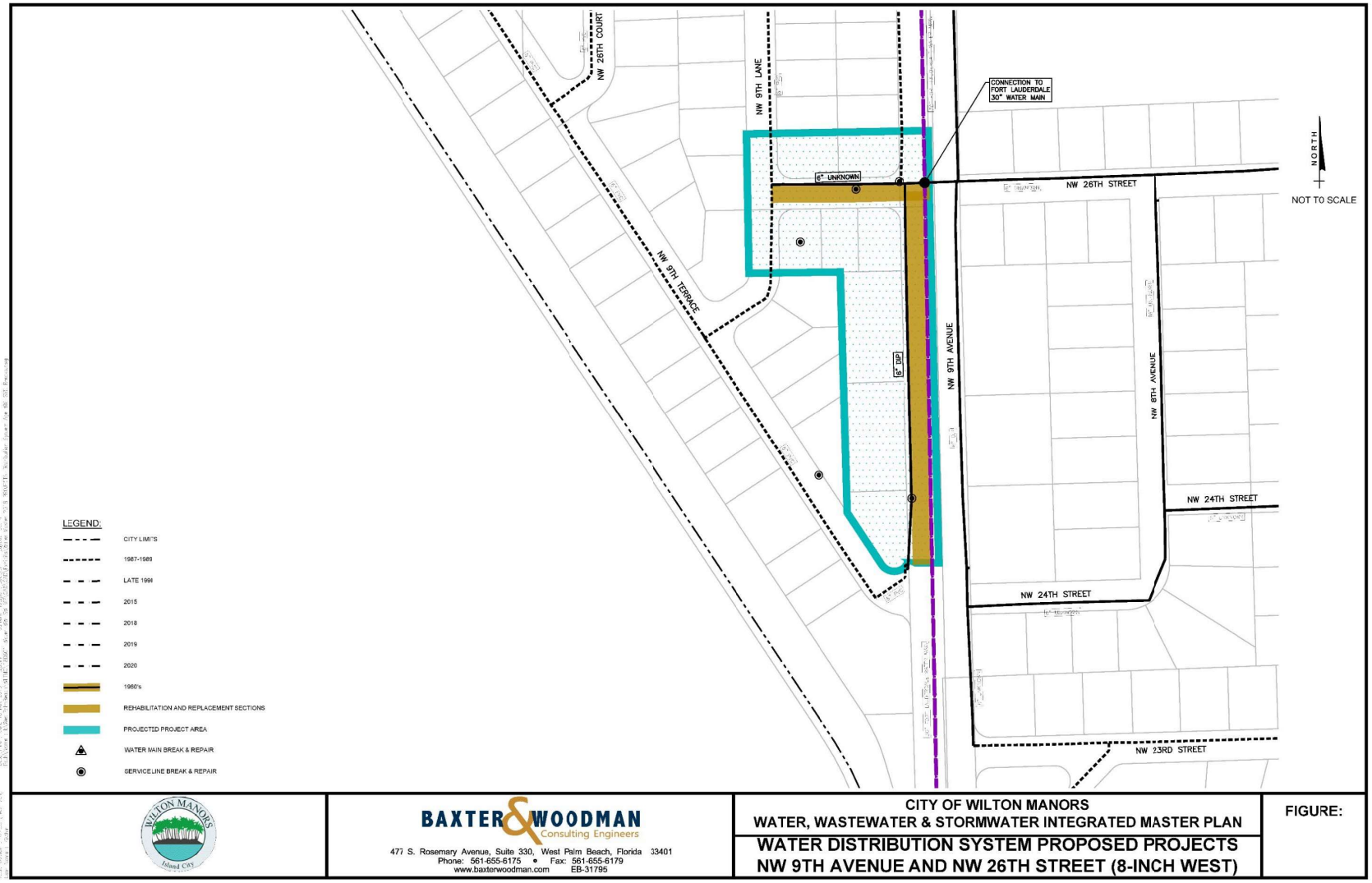

Figure 6-6: Project #5 – NW 9th Avenue & NW 26th Street Water Main Replacement

6.1.1.6 Project #6: Wilton Manors East Phase I Water Main Replacement

The majority of the water mains located in the eastern portion of the City are of unknown material and were installed in the 1960s. As part of a three (3) phase project, it is recommended to replace all the water mains within this area. Phase I consists of 4-inch and 6-inch pipe in the south side of this region. All existing 4-inch and 6-inch water mains will be replaced with new 6-inch water mains. It is also recommended to install new fire hydrants at the southern end of the following roads in order to provide adequate fire coverage: NE 15th Ter., NE 16th Ave., NE 17th Ave., NE 17th Ter., and NE 18th Ave.

Table 6-6: 10-Year CIP – Project #6 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$121,112.50	$ 121,112.50
Mobilization (2.5%)	1	LS	$ 60,556.25	$ 60,556.25
Maintenance of Traffic	11,950	LF	$ 3.00	$ 35,850.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 60,556.25	$ 60,556.25
			Subtotal General:	$ 278,075.00
Water Main Replacement				
Tie-In	13	EA	$ 2,000.00	$ 26,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	7,700	LF	$ 160.00	$ 1,232,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Open-Cut Trench)	4,250	LF	$ 180.00	$ 765,000.00
Abandon and Grout Existing Water Main	4,250	LF	$ 15.00	$ 63,750.00
6-inch Gate Valve	30	EA	$ 1,250.00	$ 37,500.00
10-inch Gate Valve	2	EA	$ 3,000.00	$ 6,000.00
Furnish and Install Fire Hydrant Assembly	8	EA	$ 3,000.00	$ 24,000.00
Water Service w/ Meter Box	268	EA	$ 1,000.00	$ 268,000.00
			Subtotal Water Main Replacement:	$ 2,422,250.00
			Total Construction	**$ 2,700,325.00**
			Contingencies (20%)	$ 540,065.00
			Engineering, Legal Admin. Costs (15%)	$ 405,048.75
			Total Cost:	**$ 3,645,438.75**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.
- All existing 4-inch water main to be upgraded to 6-inch water main.

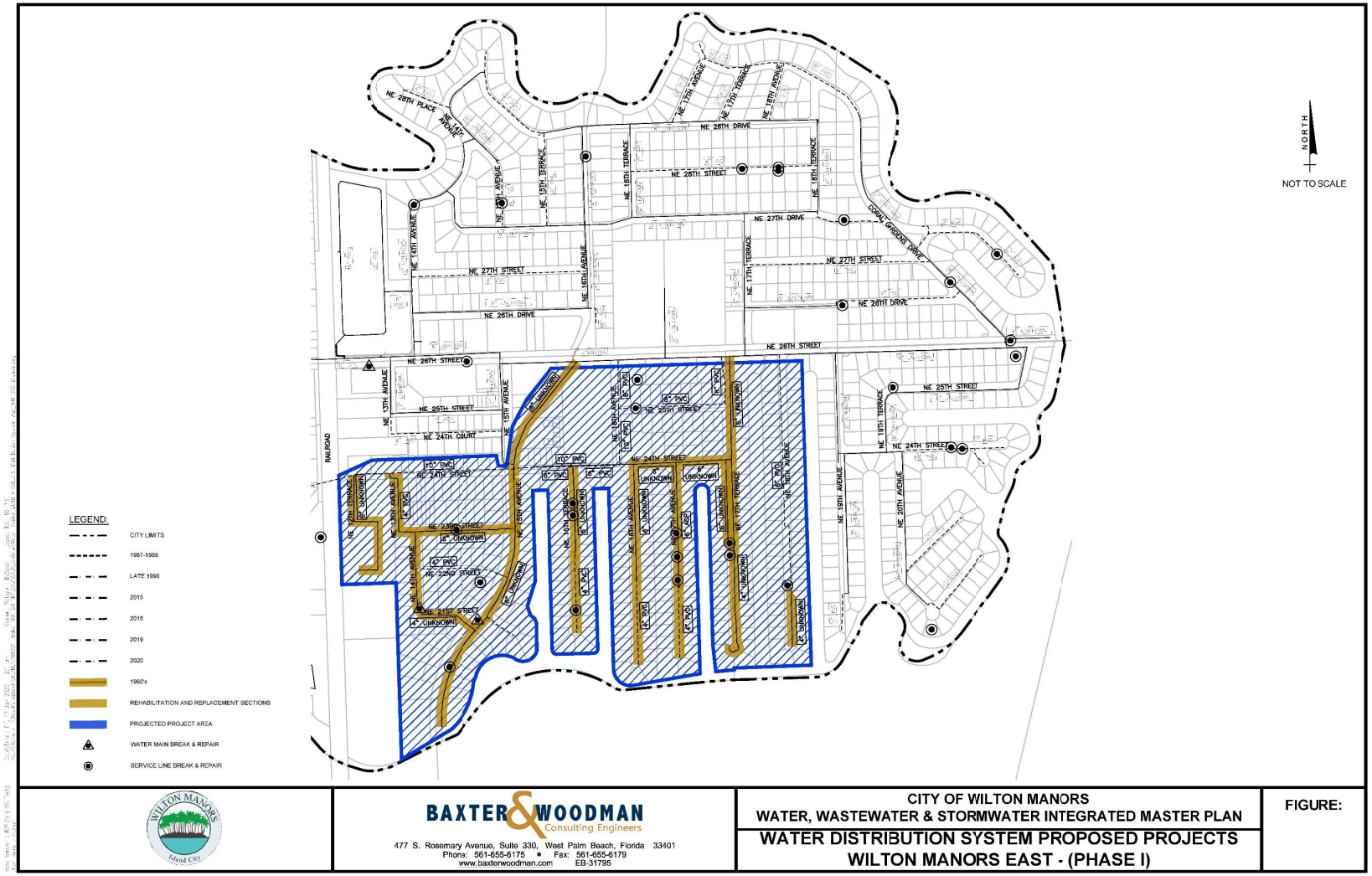

Figure 6-7: Project #6 – Wilton Manors East Phase I Water Main Replacement

6.1.1.7 Project #7: Wilton Manors Grove & NE 21st Street Water Main Replacement

Wilton Manors Grove is a residential condominium neighborhood area located at the south end of Andrews Ave. It is recommended to replace all existing 6-inch water main in this region with new 6-inch HDPE water main.

Table 6-7: 10-Year CIP – Project #7 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price		Total
General					
General Conditions (5%)	1	LS	$ 39,344.00	$	39,344.00
Mobilization (2.5%)	1	LS	$ 19,672.00	$	19,672.00
Maintenance of Traffic	4,493	LF	$ 3.00	$	13,479.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 19,672.00	$	19,672.00
			Subtotal General:	$	92,167.00
Water Main Replacement					
Tie-In	6	EA	$ 2,000.00	$	12,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	4,493	LF	$ 160.00	$	718,880.00
6-inch Gate Valve	16	EA	$ 1,250.00	$	20,000.00
10-inch Gate Valve	3	EA	$ 3,000.00	$	9,000.00
Furnish and Install Fire Hydrant Assembly	1	EA	$ 3,000.00	$	3,000.00
Water Service w/ Meter Box	24	EA	$ 1,000.00	$	24,000.00
			Subtotal Water Main Replacement:	$	786,880.00
			Total Construction	**$**	**879,047.00**
			Contingencies (20%)	$	175,809.40
			Engineering, Legal Admin. Costs (15%)	$	131,857.05
			Total Cost:	**$**	**1,186,713.45**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.
- All existing 4-inch water main to be upgraded to 6-inch water main.

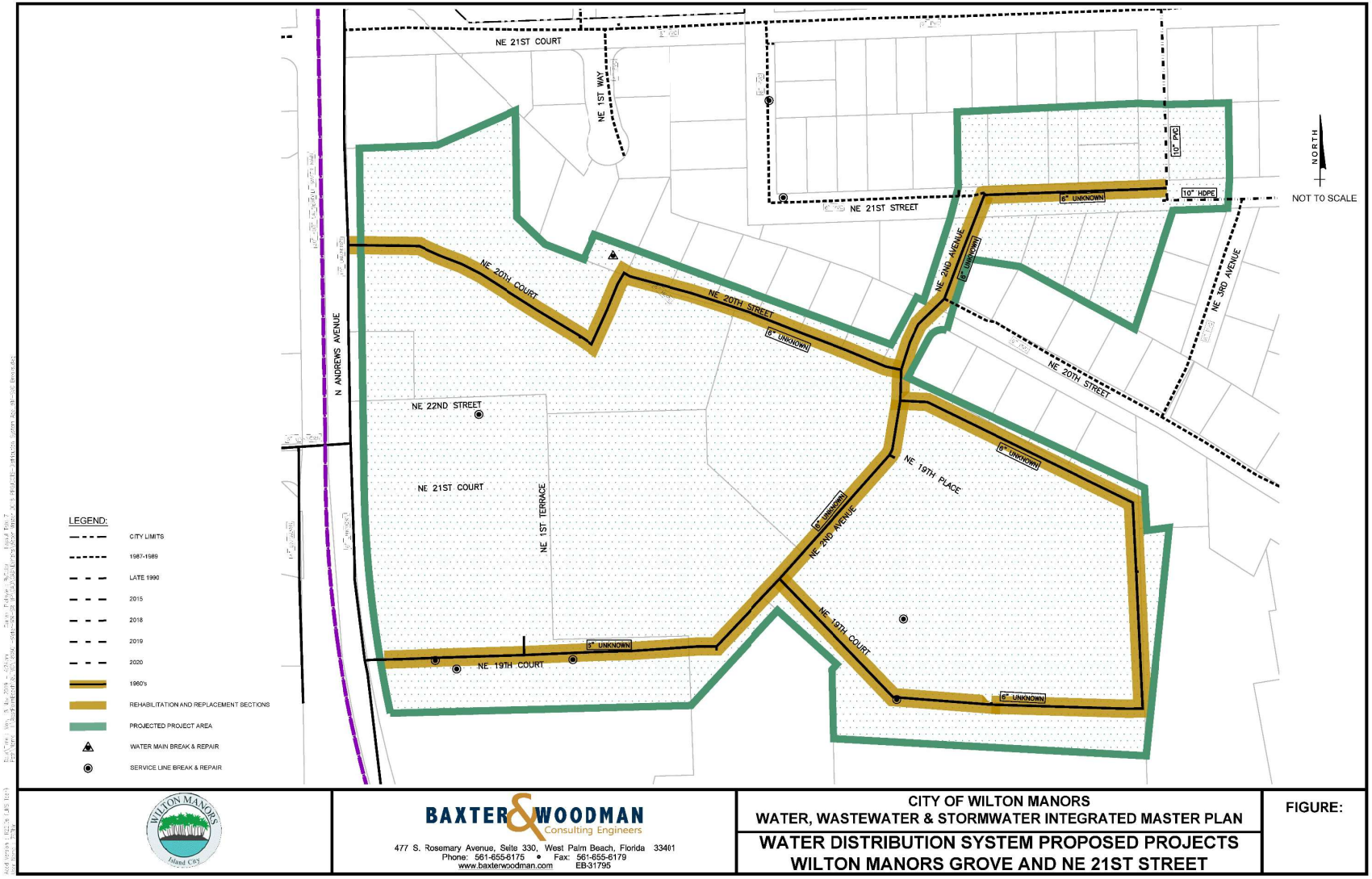

Figure 6-8: Project #7 – Wilton Manors Grove & NE 21st Street Water Main Replacement

6.1.1.8 Project #8: Wilton Manors South Water Main Replacement

Wilton Manors South is located in the central south portion of the City. It is recommended to replace all existing 6-inch water main in this region with new 6-inch HDPE water main in this region. There are parallel 6-inch and 10-inch water mains located on NE 20th St. between NE 21st Ct. and NE 7th Ave. and also on NE 7th Ave. between NE 21st St. and NE 20th Dr. It is recommended to abandon and grout the existing 6-inch water main and move all water services and hydrants to the existing 10-inch water main.

Table 6-8: 10-Year CIP – Project #8 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$ 79,225.00	$ 79,225.00
Mobilization (2.5%)	1	LS	$ 39,612.50	$ 39,612.50
Maintenance of Traffic	7,400	LF	$ 3.00	$ 22,200.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 39,612.50	$ 39,612.50
			Subtotal General:	$ 180,650.00
Water Main Replacement				
Tie-In	21	EA	$ 2,000.00	$ 42,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	7,400	LF	$ 160.00	$ 1,184,000.00
Abandon and Grout Existing Water Main	1,600	LF	$ 15.00	$ 24,000.00
6-inch Gate Valve	38	EA	$ 1,250.00	$ 47,500.00
10-inch Gate Valve	4	EA	$ 3,000.00	$ 12,000.00
Furnish and Install Fire Hydrant Assembly	2	EA	$ 3,000.00	$ 6,000.00
Water Service w/ Meter Box	269	EA	$ 1,000.00	$ 269,000.00
			Subtotal Water Main Replacement:	$ 1,584,500.00
			Total Construction	**$ 1,765,150.00**
			Contingencies (20%)	$ 353,030.00
			Engineering, Legal Admin. Costs (15%)	$ 264,772.50
			Total Cost:	**$ 2,382,952.50**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.
- All existing 4-inch water main to be upgraded to 6-inch water main.

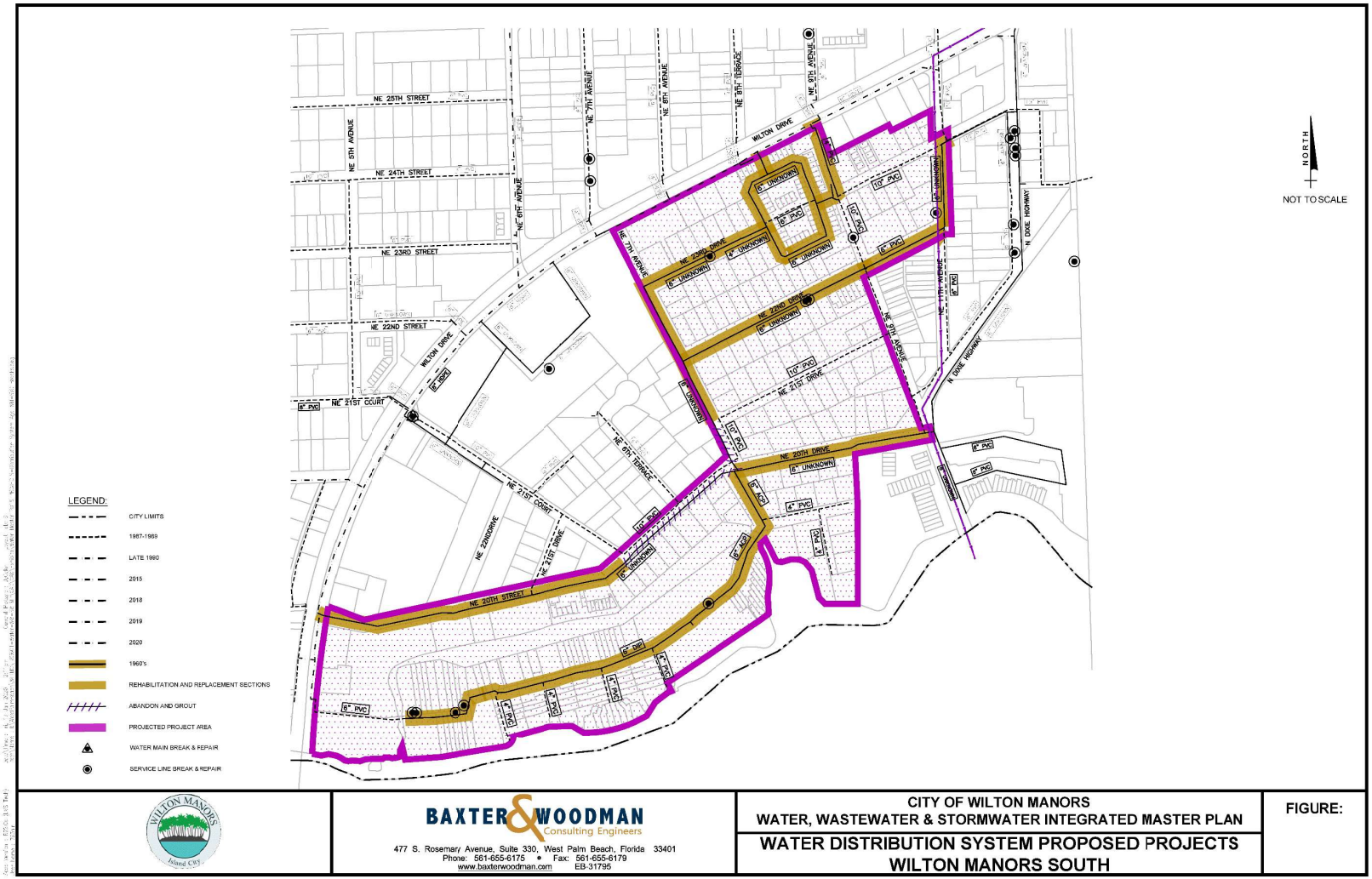

Figure 6-9: Project #8 – Wilton Manors South Water Main Replacement

6.1.1.9 Project #9: NE 28th Street Water Main Replacement

There are existing parallel 6-inch and 10-inch water mains on NE 29th St. between N. Andrews Ave. and NE 3rd Ter. It is recommended to abandon and grout the existing 6-inch water main on NE 29th St. between N. Andrews Ave. and NE 3rd Ter. and replace the existing 10-inch water main with new 10-inch HDPE water main. This water main will begin at NE 10th Ter. and connect to the existing 10-inch water main on the west side of N. Andrews Ave. There is also 6-inch and 10-inch parallel water mains on NE 9th Ave. from NE 26th St. to NE 28th St. It is recommended to abandon and grout the 6-inch water main. All other existing 6-inch water mains should be replaced with new 6-inch HDPE water mains. All existing water services off of the decommissioned 6-inch main should be moved to the proposed 10-inch water main.

Table 6-9: 10-Year CIP – Project #9 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$ 57,887.50	$ 57,887.50
Mobilization (2.5%)	1	LS	$ 28,943.75	$ 28,943.75
Maintenance of Traffic	5,000	LF	$ 3.00	$ 15,000.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 28,943.75	$ 28,943.75
			Subtotal General:	$ 130,775.00
Water Main Replacement				
Tie-In	20	EA	$ 2,000.00	$ 40,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	3,000	LF	$ 160.00	$ 480,000.00
Furnish and Install 10-inch HDPE Water Main and Fittings (Pipe Bursting)	2,000	LF	$ 185.00	$ 370,000.00
Abandon and Grout Existing Water Main	2,600	LF	$ 15.00	$ 39,000.00
6-inch Gate Valve	31	EA	$ 1,250.00	$ 38,750.00
10-inch Gate Valve	9	EA	$ 3,000.00	$ 27,000.00
Furnish and Install Fire Hydrant Assembly	2	EA	$ 3,000.00	$ 6,000.00
Water Service w/ Meter Box	157	EA	$ 1,000.00	$ 157,000.00
			Subtotal Water Main Replacement:	$ 1,157,750.00
			Total Construction	**$ 1,288,525.00**
			Contingencies (20%)	$ 257,705.00
			Engineering, Legal Admin. Costs (15%)	$ 193,278.75
			Total Cost:	**$ 1,739,508.75**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.
- All existing 4-inch water main to be upgraded to 6-inch water main.

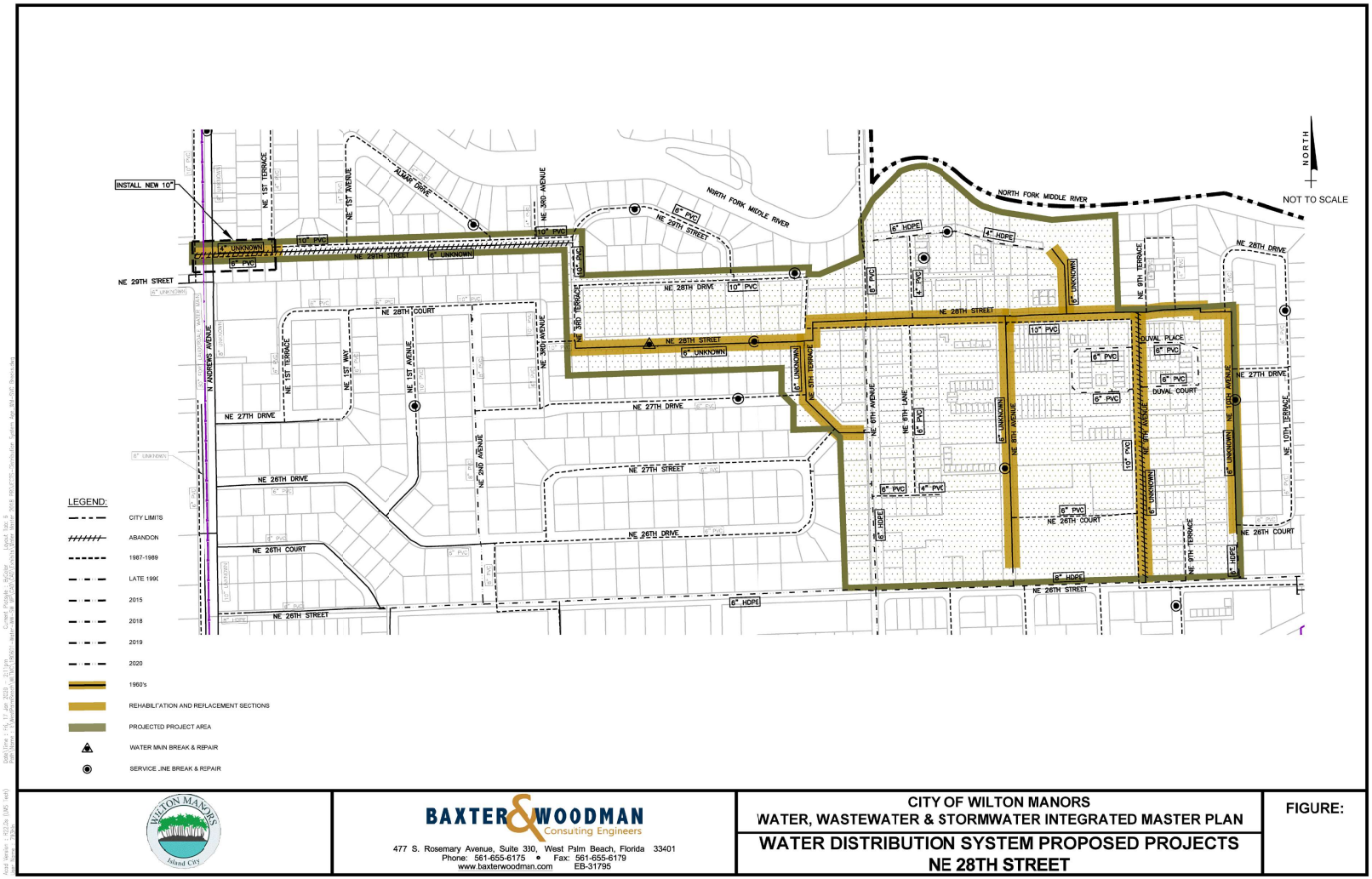

Figure 6-10: Project #9 – NE 28th Street Water Main Replacement

6.1.1.10 Project #10: NE 21st Court Water Main Replacement

It is recommended to abandon and grout the existing 6-inch water main on NE 21st Ct. between Wilton Dr. and NE 22 Dr. All water services and fire hydrants connected to the to-be-abandoned 6-inch water main should be connected to the existing 10-inch water main on NE 21st Ct. All other existing 6-inch water mains should be replaced with new 6-inch HDPE water mains.

Table 6-10: 10-Year CIP – Project #10 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price		Total
General					
General Conditions (5%)	1	LS	$ 14,312.50	$	14,312.50
Mobilization (2.5%)	1	LS	$ 7,156.25	$	7,156.25
Maintenance of Traffic	1,400	LF	$ 3.00	$	4,200.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 7,156.25	$	7,156.25
			Subtotal General:	$	32,825.00
Water Main Replacement					
Tie-In	7	EA	$ 2,000.00	$	14,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	1,400	LF	$ 160.00	$	224,000.00
Abandon and Grout Existing Water Main	500	LF	$ 15.00	$	7,500.00
6-inch Gate Valve	11	EA	$ 1,250.00	$	13,750.00
10-inch Gate Valve	2	EA	$ 3,000.00	$	6,000.00
Furnish and Install Fire Hydrant Assembly	1	EA	$ 3,000.00	$	3,000.00
Water Service w/ Meter Box	18	EA	$ 1,000.00	$	18,000.00
			Subtotal Water Main Replacement:	$	286,250.00
Total Construction				**$**	**319,075.00**
Contingencies (20%)				$	63,815.00
Engineering, Legal Admin. Costs (15%)				$	47,861.25
Total Cost:				**$**	**430,751.25**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.

- All existing 4-inch water main to be upgraded to 6-inch water main.

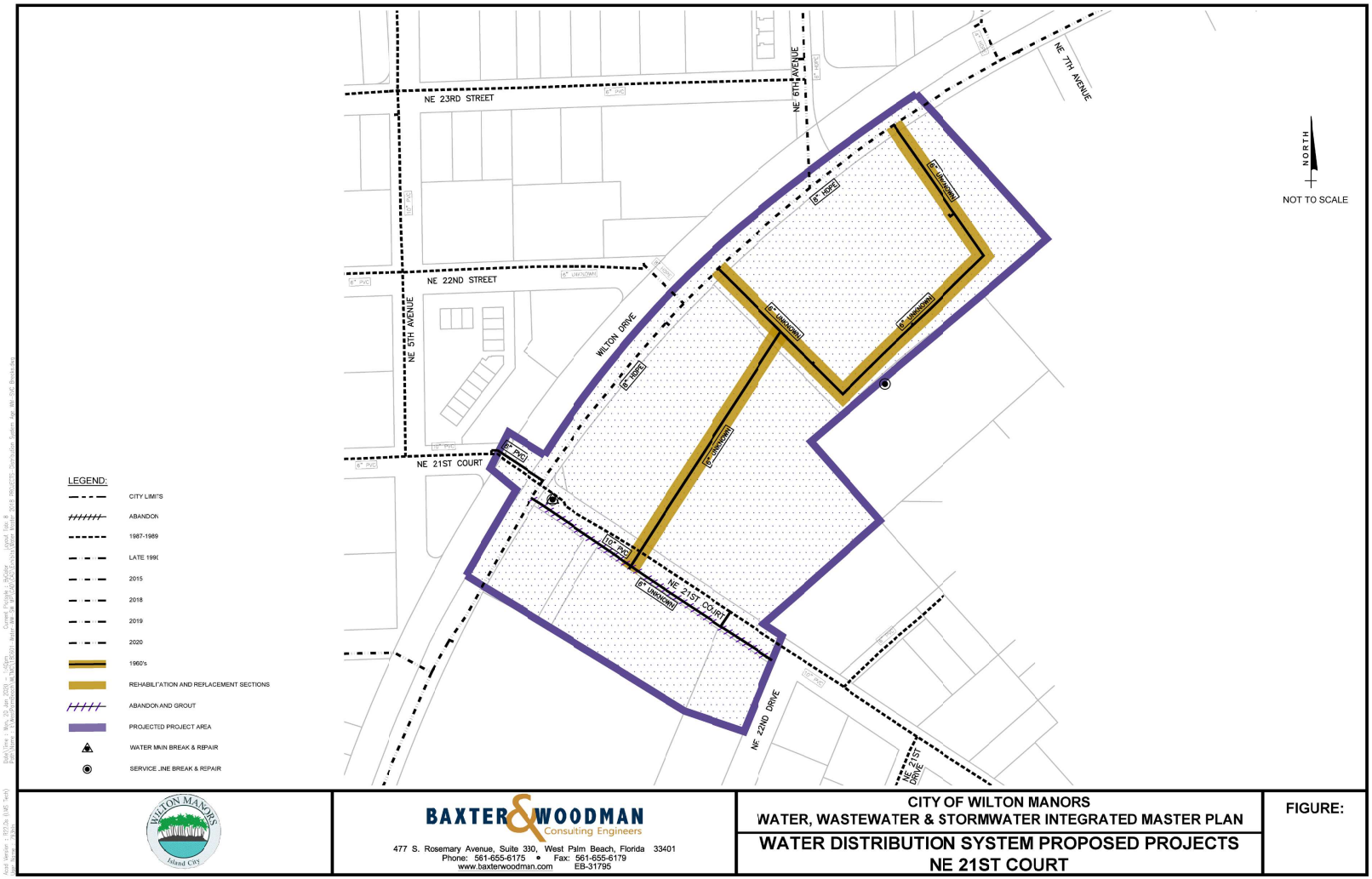

Figure 6-11: Project #10 – NE 21st Court Water Main Replacement

6.1.2 20-Year CIP Water Improvements

The following projects should be re-evaluated for priority in the next master planning document based on new pipe material information and pipe break logs. The projects were identified based on pipe age and the water mains should be replaced within the next 20 years.

Except in areas where upsizing the water main is recommended, it is assumed that all water mains will be replaced via pipe-bursting method with HDPE material. In areas where the water main is being upsized, it is assumed the water main will be installed via open-cut trench method. The City has had success with pipe-bursting method of installation in the past and this will help decrease costs by reducing the amount of site restoration when installing the new water main and associated appurtenances. It is recommended to replace all existing 4-inch diameter water main with 6-inch diameter. This will allow for additional fire flow protection and increased distribution capacity.

The proposed improvements for each project are described in further detail in the sections that follow and include conceptual cost estimates for each project. In addition to installing the new water main, the conceptual costs include replacing existing valves, 10% of existing fire hydrants, and connecting water services to the new water mains. The conceptual construction cost estimate includes the cost for detailed design and construction engineering and inspection for the project. The construction cost information is preliminary in nature. These costs are based upon comparisons of previous and current similar types of work and materials underway in the Southeast Florida area. All costs developed herein are in 2019 dollars and do not include land acquisitions or easements.

6.1.2.1 Project #11: Andrews Avenue 8-inch Water Main Replacement

Andrews Ave. runs north-south and is located in the western portion of the City. It is recommended to replace all existing 6-inch and 8-inch water main along Andrews Ave. from NE 19th Ct. to W. Oakland Park Blvd. with new 8-inch water main.

Table 6-11: 20-Year CIP – Project #11 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$ 52,825.00	$ 52,825.00
Mobilization (2.5%)	1	LS	$ 26,412.50	$ 26,412.50
Maintenance of Traffic	4,850	LF	$ 3.00	$ 14,550.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 26,412.50	$ 26,412.50
			Subtotal General:	$ 120,200.00
Water Main Replacement				
Tie-In	18	EA	$ 2,000.00	$ 36,000.00
Furnish and Install 8-inch HDPE Water Main and Fittings (Pipe Bursting)	4,850	LF	$ 170.00	$ 824,500.00
Furnish and Install 8-inch HDPE Water Main and Fittings (Open-Cut Trench)	600	LF	$ 190.00	$ 114,000.00
Abandon and Grout Existing Water Main	600	LF	$ 15.00	$ 9,000.00
8-inch Gate Valve	34	EA	$ 1,500.00	$ 51,000.00
Furnish and Install Fire Hydrant Assembly	2	EA	$ 3,000.00	$ 6,000.00
Water Service w/ Meter Box	16	EA	$ 1,000.00	$ 16,000.00
			Subtotal Water Main Replacement:	$ 1,056,500.00
			Total Construction	**$ 1,176,700.00**
			Contingencies (20%)	$ 235,340.00
			Engineering, Legal Admin. Costs (15%)	$ 176,505.00
			Total Cost:	**$ 1,588,545.00**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.
- All existing 4-inch water main to be upgraded to 6-inch water main.

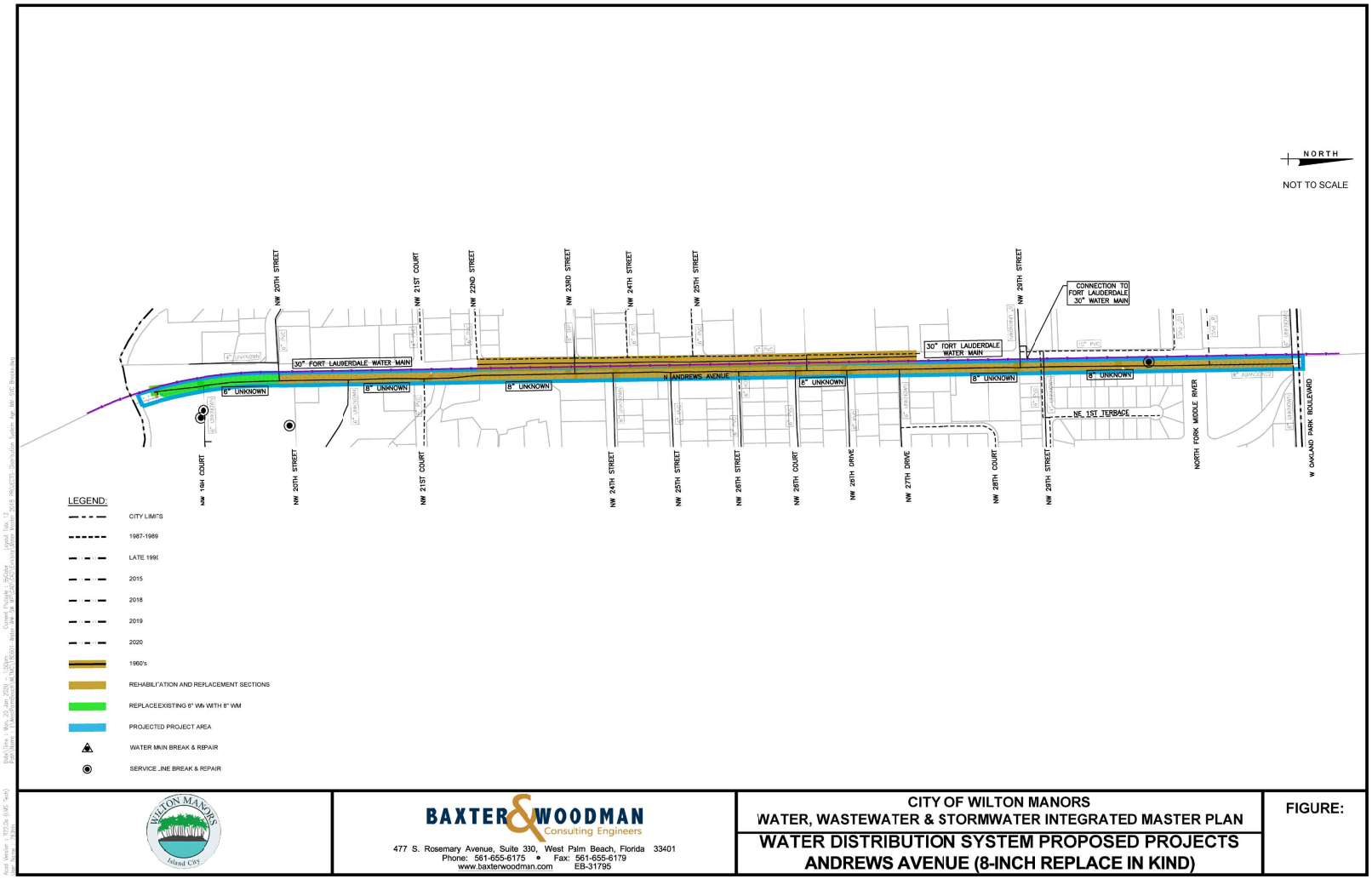

Figure 6-12: Project #11 – Andrews Avenue 8-inch Water Main Replacement

6.1.2.2 Project #12: NW 9th Avenue 6-inch Water Main Replacement

NW 9th Ave. runs north-south in the western portion of the City. It is recommended to replace the existing 6-inch water main on NW 9th Ave from NW 23rd St. to W. Oakland Park Blvd. with new 8-inch water main. Upsizing the water main in this area will provide for additional fire flow coverage and system capacity.

Table 6-12: 20-Year CIP – Project #12 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$ 40,000.00	$ 40,000.00
Mobilization (2.5%)	1	LS	$ 20,000.00	$ 20,000.00
Maintenance of Traffic	3,500	LF	$ 3.00	$ 10,500.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 20,000.00	$ 20,000.00
			Subtotal General:	$ 90,500.00
Water Main Replacement				
Tie-In	14	EA	$ 2,000.00	$ 28,000.00
Furnish and Install 8-inch HDPE Water Main and Fittings (Open-Cut Trench)	3,500	LF	$ 190.00	$ 665,000.00
Abandon and Grout Existing Water Main	3,500	LF	$ 15.00	$ 52,500.00
8-inch Gate Valve	25	EA	$ 1,500.00	$ 37,500.00
Furnish and Install Fire Hydrant Assembly	1	EA	$ 3,000.00	$ 3,000.00
Water Service w/ Meter Box	14	EA	$ 1,000.00	$ 14,000.00
			Subtotal Water Main Replacement:	$ 800,000.00
			Total Construction	**$ 890,500.00**
			Contingencies (20%)	$ 178,100.00
			Engineering, Legal Admin. Costs (15%)	$ 133,575.00
			Total Cost:	**$ 1,202,175.00**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.
- All existing 4-inch water main to be upgraded to 6-inch water main.

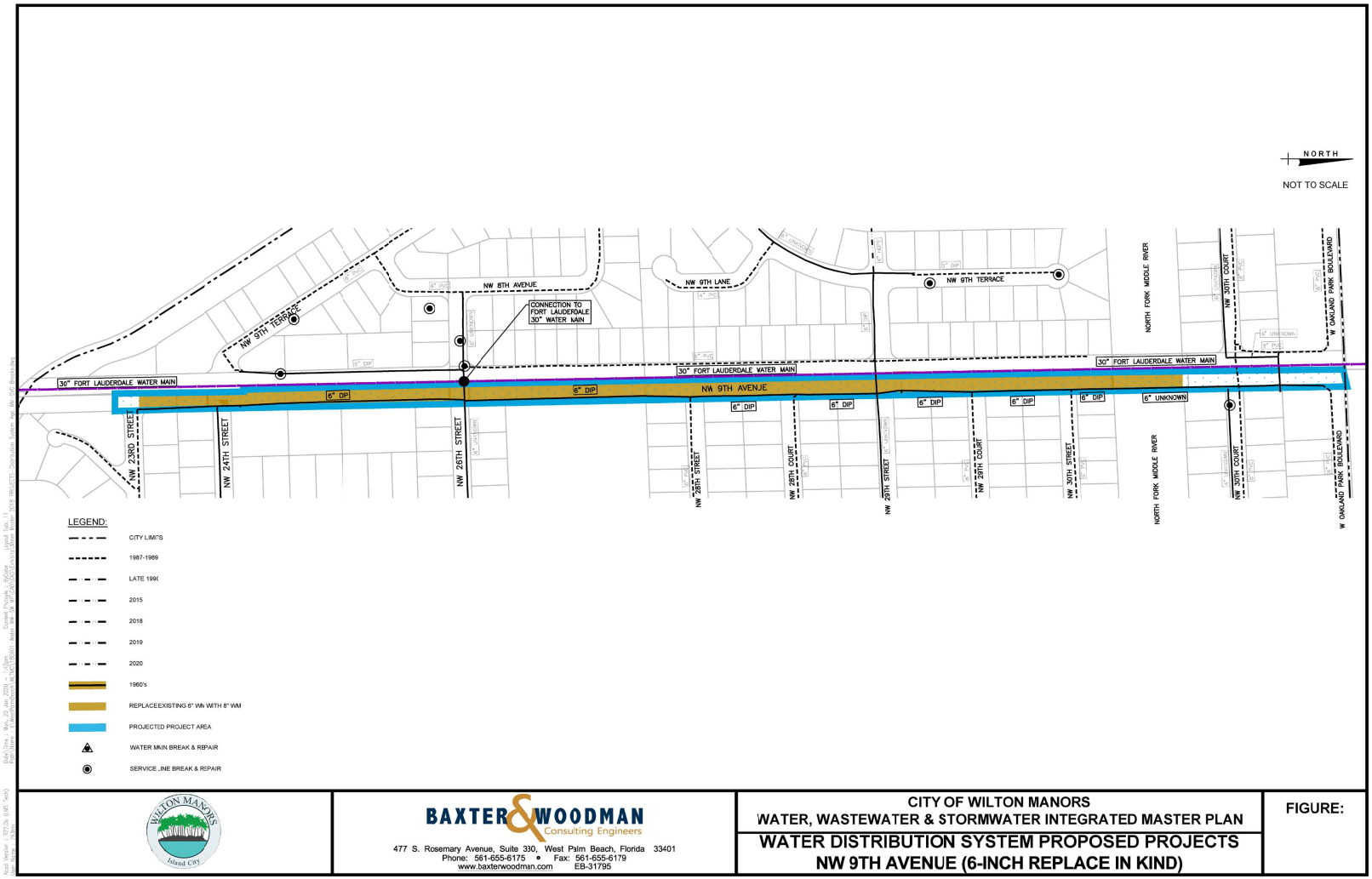

Figure 6-13: Project #12 – NW 9th Avenue 6-inch Water Main Replacement

6.1.2.3 Project #13: Wilton Manors West Phase II Water Main Replacement

Wilton Manors West is located in the western portion of the City. This project was broken up into two (2) phases. For Phase II, it is recommended to replace all existing 4-inch and 6-inch water main in this region with new 6-inch water main. Phase I of the Wilton Manors West Water Main Replacement project is described in Project # 2.

Table 6-13: 20-Year CIP – Project #13 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$ 32,862.50	$ 32,862.50
Mobilization (2.5%)	1	LS	$ 16,431.25	$ 16,431.25
Maintenance of Traffic	2,100	LF	$ 3.00	$ 6,300.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 16,431.25	$ 16,431.25
			Subtotal General:	$ 72,025.00
Water Main Replacement				
Tie-In	9	EA	$ 2,000.00	$ 18,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	2,100	LF	$ 160.00	$ 336,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Open-Cut Trench)	1,150	LF	$ 180.00	$ 207,000.00
Abandon and Grout Existing Water Main	1,150	LF	$ 15.00	$ 17,250.00
6-inch Gate Valve	20	EA	$ 1,250.00	$ 25,000.00
Furnish and Install Fire Hydrant Assembly	2	EA	$ 3,000.00	$ 6,000.00
Water Service w/ Meter Box	48	EA	$ 1,000.00	$ 48,000.00
			Subtotal Water Main Replacement:	$ 657,250.00
			Total Construction	**$ 729,275.00**
			Contingencies (20%)	$ 145,855.00
			Engineering, Legal Admin. Costs (15%)	$ 109,391.25
			Total Cost:	**$ 984,521.25**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.

- All existing 4-inch water main to be upgraded to 6-inch water main.

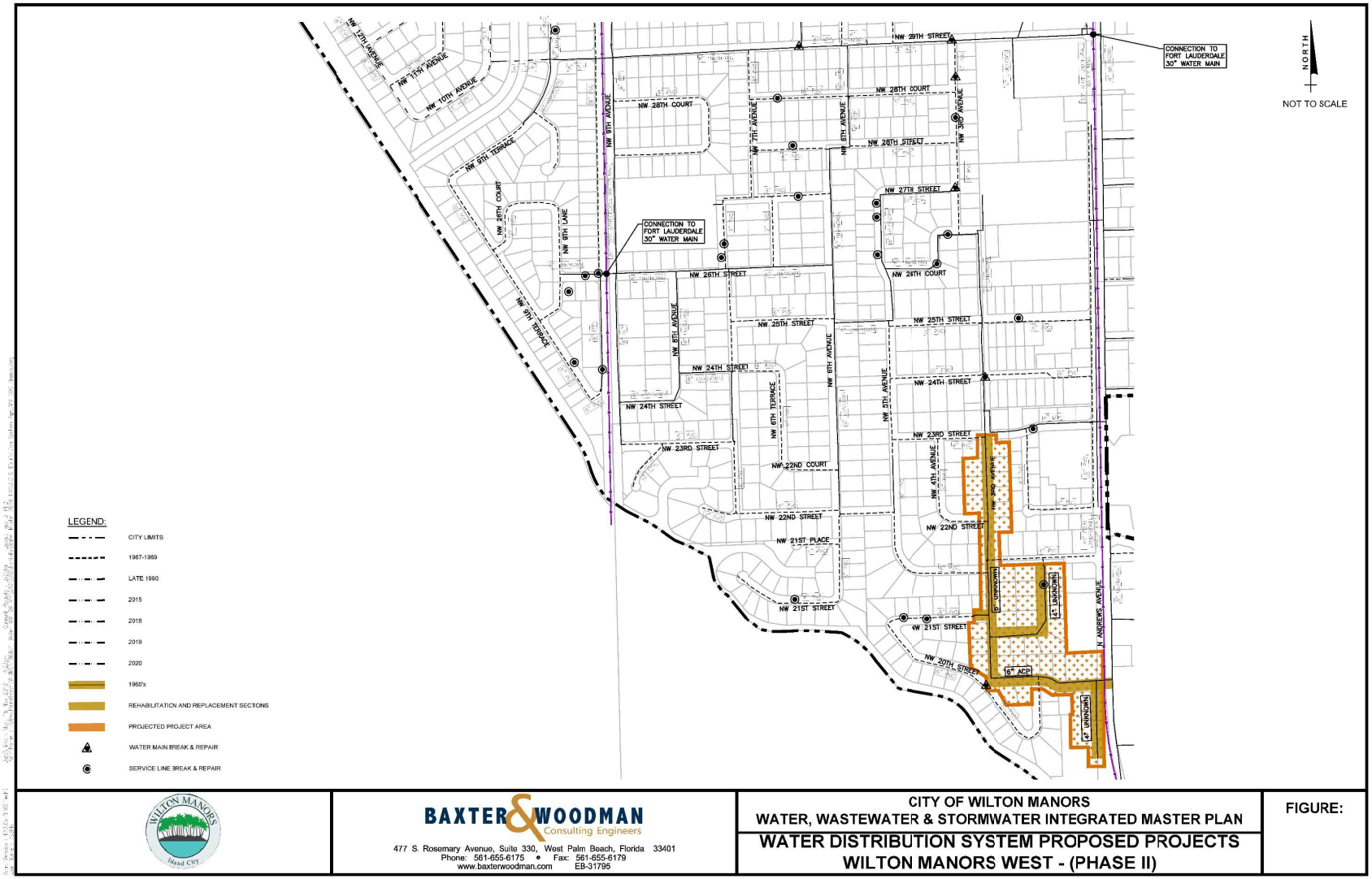

Figure 6-14: Project #13 – Wilton Manors West Phase II Water Main Replacement

6.1.2.4 Project #14: NW 26th Street and NW 8th Avenue Water Main Replacement

NW 26th St. and NW 8th Ave. are located in the western portion of the City. This project has is adjacent to the Wilton Manors West projects and has a direct interconnect with Wilton Manors West Phase I. It is recommended to replace all existing 6-inch water main in this region with new 6-inch HDPE water main.

Table 6-14: 20-Year CIP – Project #14 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$ 49,550.00	$ 49,550.00
Mobilization (2.5%)	1	LS	$ 24,775.00	$ 24,775.00
Maintenance of Traffic	5,100	LF	$ 3.00	$ 15,300.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 24,775.00	$ 24,775.00
			Subtotal General:	$ 114,400.00
Water Main Replacement				
Tie-In	16	EA	$ 2,000.00	$ 32,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	5,100	LF	$ 160.00	$ 816,000.00
6-inch Gate Valve	36	EA	$ 1,250.00	$ 45,000.00
Furnish and Install Fire Hydrant Assembly	2	EA	$ 3,000.00	$ 6,000.00
Water Service w/ Meter Box	92	EA	$ 1,000.00	$ 92,000.00
			Subtotal Water Main Replacement:	$ 991,000.00
			Total Construction	**$ 1,105,400.00**
			Contingencies (20%)	$ 221,080.00
			Engineering, Legal Admin. Costs (15%)	$ 165,810.00
			Total Cost:	**$ 1,492,290.00**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.
- All existing 4-inch water main to be upgraded to 6-inch water main.

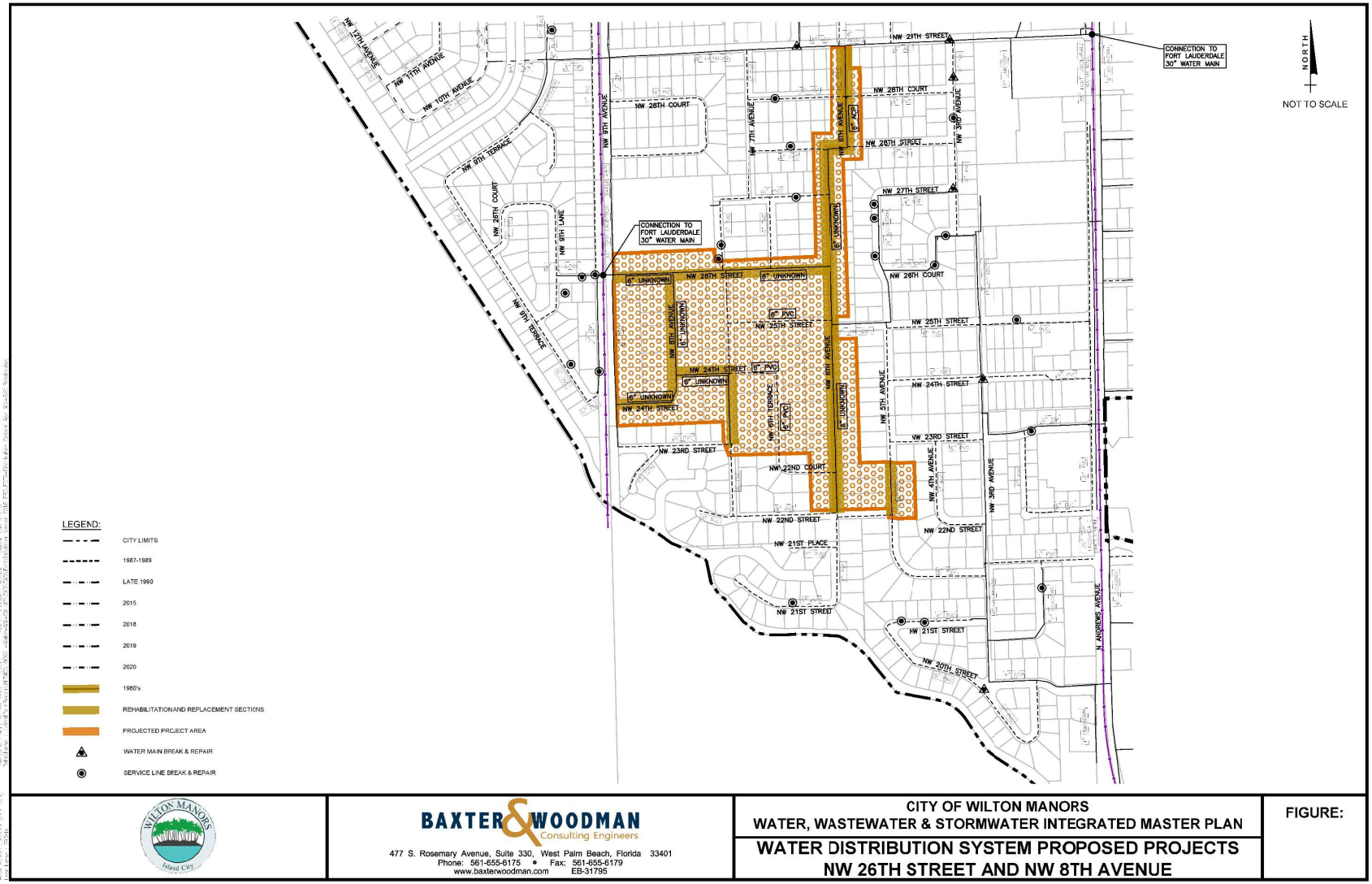

Figure 6-15: Project #14 – NW 26th Street and NW 8th Avenue Water Main Replacement

6.1.2.5 Project #15: NE 24th, 25th, and 26th Street Water Main Replacement

NE 24th St., 25th St., and 26th St. are located in the central western portion of the City. It is recommended to replace all existing 6-inch water main in this region with new HDPE 6-inch water main.

Table 6-15: 20-Year CIP – Project #15 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$ 53,900.00	$ 53,900.00
Mobilization (2.5%)	1	LS	$ 26,950.00	$ 26,950.00
Maintenance of Traffic	5,600	LF	$ 3.00	$ 16,800.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 26,950.00	$ 26,950.00
			Subtotal General:	$ 124,600.00
Water Main Replacement				
Tie-In	13	EA	$ 2,000.00	$ 26,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	5,600	LF	$ 160.00	$ 896,000.00
6-inch Gate Valve	28	EA	$ 1,250.00	$ 35,000.00
Furnish and Install Fire Hydrant Assembly	1	EA	$ 3,000.00	$ 3,000.00
Water Service w/ Meter Box	118	EA	$ 1,000.00	$ 118,000.00
			Subtotal Water Main Replacement:	$ 1,078,000.00
			Total Construction	**$ 1,202,600.00**
			Contingencies (20%)	$ 240,520.00
			Engineering, Legal Admin. Costs (15%)	$ 180,390.00
			Total Cost:	**$ 1,623,510.00**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.
- All existing 4-inch water main to be upgraded to 6-inch water main.

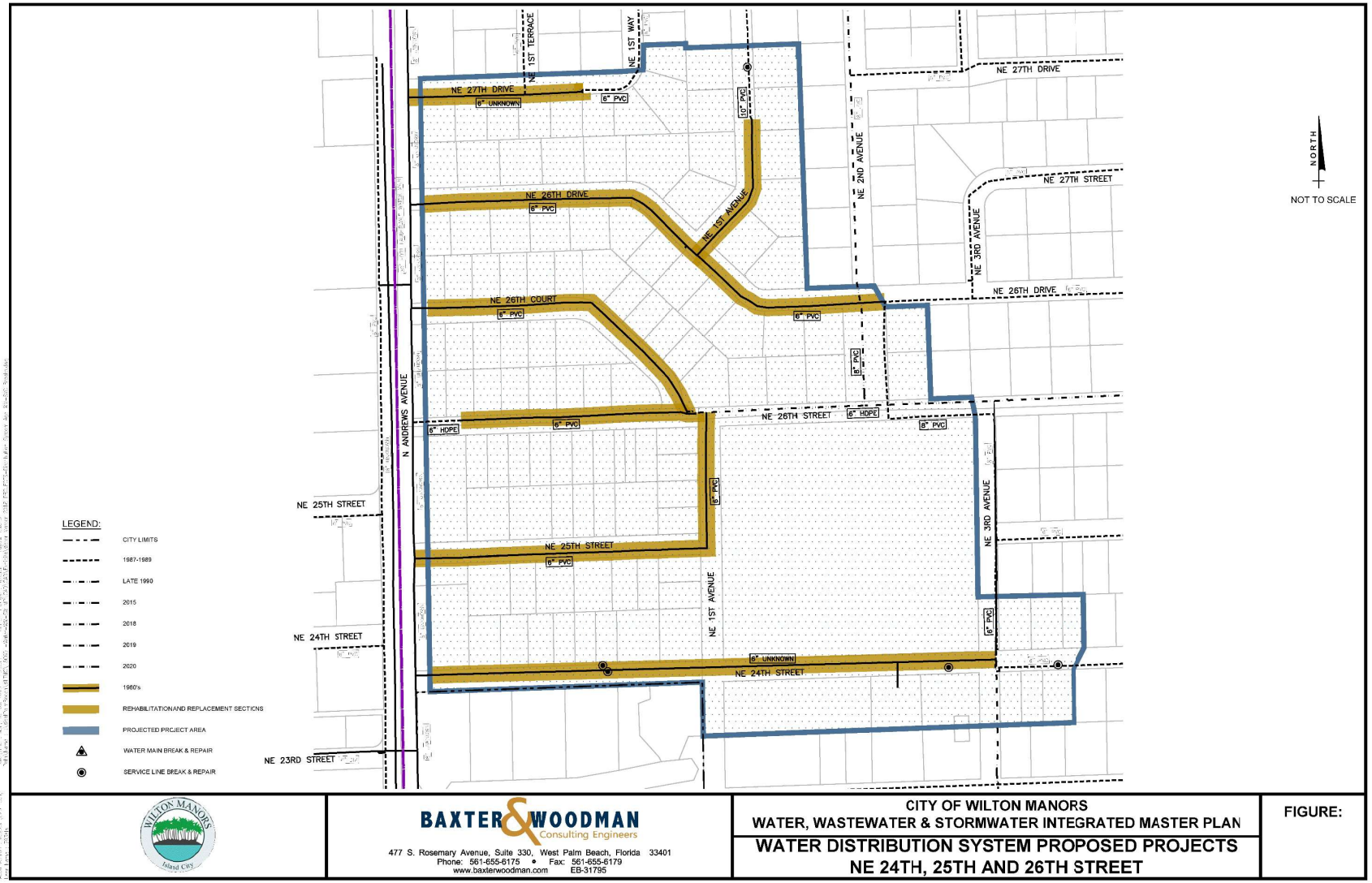

Figure 6-16: Project #15 – NE 24th, 25th, and 26th Street Water Main Replacement

6.1.2.6 Project #16: Wilton Manors East Phase II Water Main Replacement

The majority of the water mains located in the eastern portion of the City are of unknown material and were installed in the 1960s. As part of a three (3) phase project, it is recommended to replace all the water mains within this area. Phase II consists of replacing all existing 4-inch and 6-inch water main in this region with new 6-inch water main.

Table 6-16: 20-Year CIP – Project #16 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$124,112.50	$ 124,112.50
Mobilization (2.5%)	1	LS	$ 62,056.25	$ 62,056.25
Maintenance of Traffic	11,500	LF	$ 3.00	$ 34,500.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 62,056.25	$ 62,056.25
			Subtotal General:	$ 282,725.00
Water Main Replacement				
Tie-In	19	EA	$ 2,000.00	$ 38,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	11,500	LF	$ 160.00	$ 1,840,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Open-Cut Trench)	1,500	LF	$ 180.00	$ 270,000.00
Abandon and Grout Existing Water Main	1,500	LF	$ 15.00	$ 22,500.00
6-inch Gate Valve	59	EA	$ 1,250.00	$ 73,750.00
Furnish and Install Fire Hydrant Assembly	3	EA	$ 3,000.00	$ 9,000.00
Water Service w/ Meter Box	229	EA	$ 1,000.00	$ 229,000.00
			Subtotal Water Main Replacement:	$ 2,482,250.00
			Total Construction	**$ 2,764,975.00**
			Contingencies (20%)	$ 552,995.00
			Engineering, Legal Admin. Costs (15%)	$ 414,746.25
			Total Cost:	**$ 3,732,716.25**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.
- All existing 4-inch water main to be upgraded to 6-inch water main.

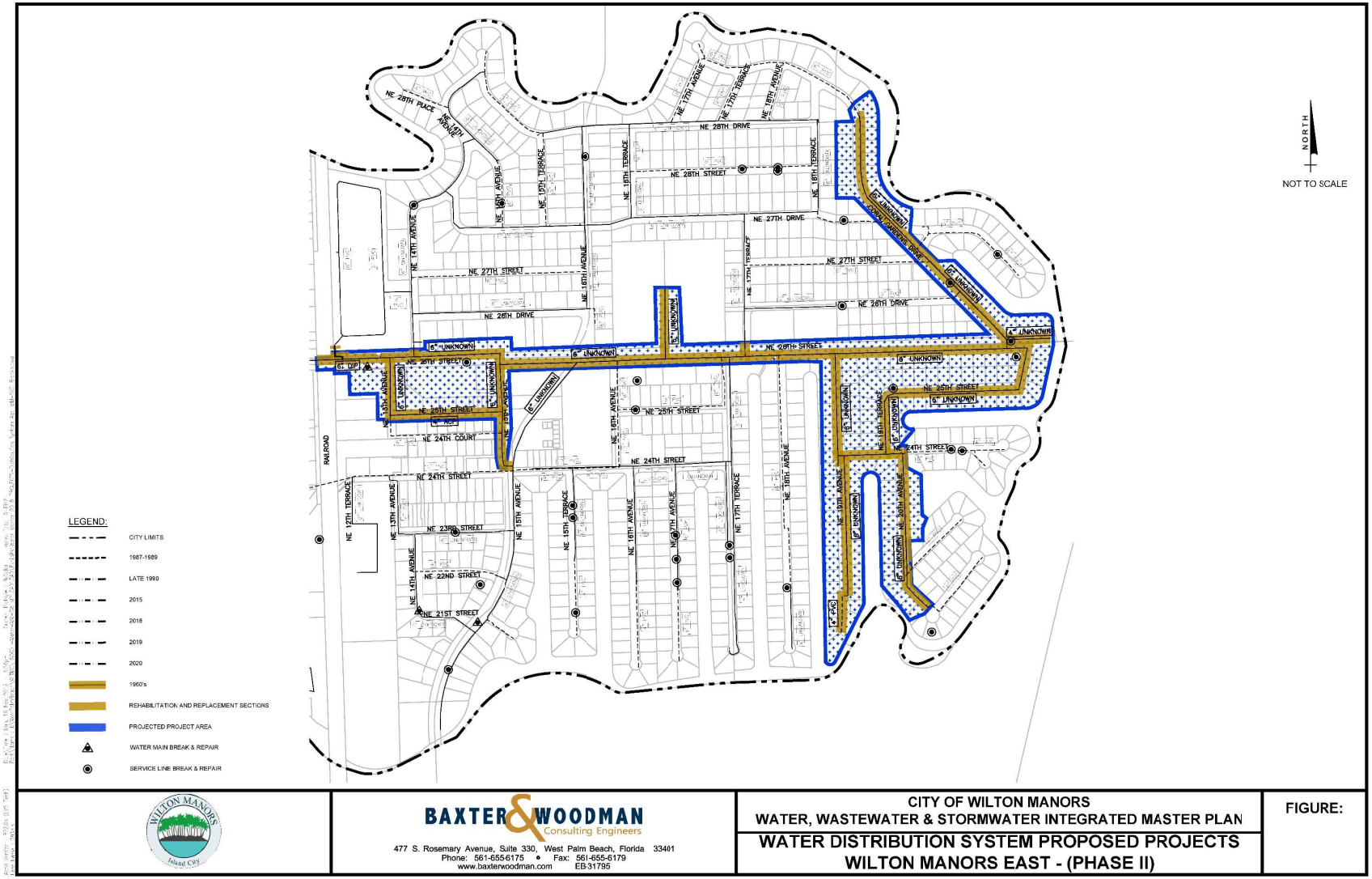

Figure 6-17: Project #16 – Wilton Manors East Phase II Water Main Replacement

6.1.2.7 Project #17: Wilton Manors East Phase III Water Main Replacement

The majority of the water mains located in the eastern portion of the City are of unknown material and were installed in the 1960s. As part of a three (3) phase project, it is recommended to replace all the water mains within this area. Phase III consists of replacing all existing 4-inch and 6-inch water main in this region with new 6-inch water main.

Table 6-17: 20-Year CIP – Project #17 Engineer's Opinion of Probable Construction Cost

	Estimated Quantity	Unit	Unit Price	Total
General				
General Conditions (5%)	1	LS	$127,362.50	$ 127,362.50
Mobilization (2.5%)	1	LS	$ 63,681.25	$ 63,681.25
Maintenance of Traffic	14,850	LF	$ 3.00	$ 44,550.00
Clearing and Misc. Site Work (2.5%)	1	LS	$ 63,681.25	$ 63,681.25
			Subtotal General:	$ 299,275.00
Water Main Replacement				
Tie-In	20	EA	$ 2,000.00	$ 40,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Pipe Bursting)	12,650	LF	$ 160.00	$ 2,024,000.00
Furnish and Install 6-inch HDPE Water Main and Fittings (Open-Cut Trench)	1,100	LF	$ 180.00	$ 198,000.00
Abandon and Grout Existing Water Main	1,100	LF	$ 15.00	$ 16,500.00
6-inch Gate Valve	59	EA	$ 1,250.00	$ 73,750.00
Furnish and Install Fire Hydrant Assembly	3	EA	$ 3,000.00	$ 9,000.00
Water Service w/ Meter Box	186	EA	$ 1,000.00	$ 186,000.00
			Subtotal Water Main Replacement:	$ 2,547,250.00
			Total Construction	**$ 2,846,525.00**
			Contingencies (20%)	$ 569,305.00
			Engineering, Legal Admin. Costs (15%)	$ 426,978.75
			Total Cost:	**$ 3,842,808.75**

Note:

- Costs are based on conceptual design (2019 dollars). Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinion of probable Construction Cost provided herein are made on the basis of Engineer's experience and qualifications and represent Engineer's best judgement as an experienced and qualified Engineer familiar with the construction industry. Engineer cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable construction cost prepared by Engineer.

-Water main open-cut cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

-Water main pipe bursting cost include the following: pipe materials, fittings and appurtenances, pipe installation, testing, connections to existing, service connections, and trench restoration.

- Water main cost does not include the following: transfer of rear yard services, driveway replacement.

- All existing 4-inch water main to be upgraded to 6-inch water main.

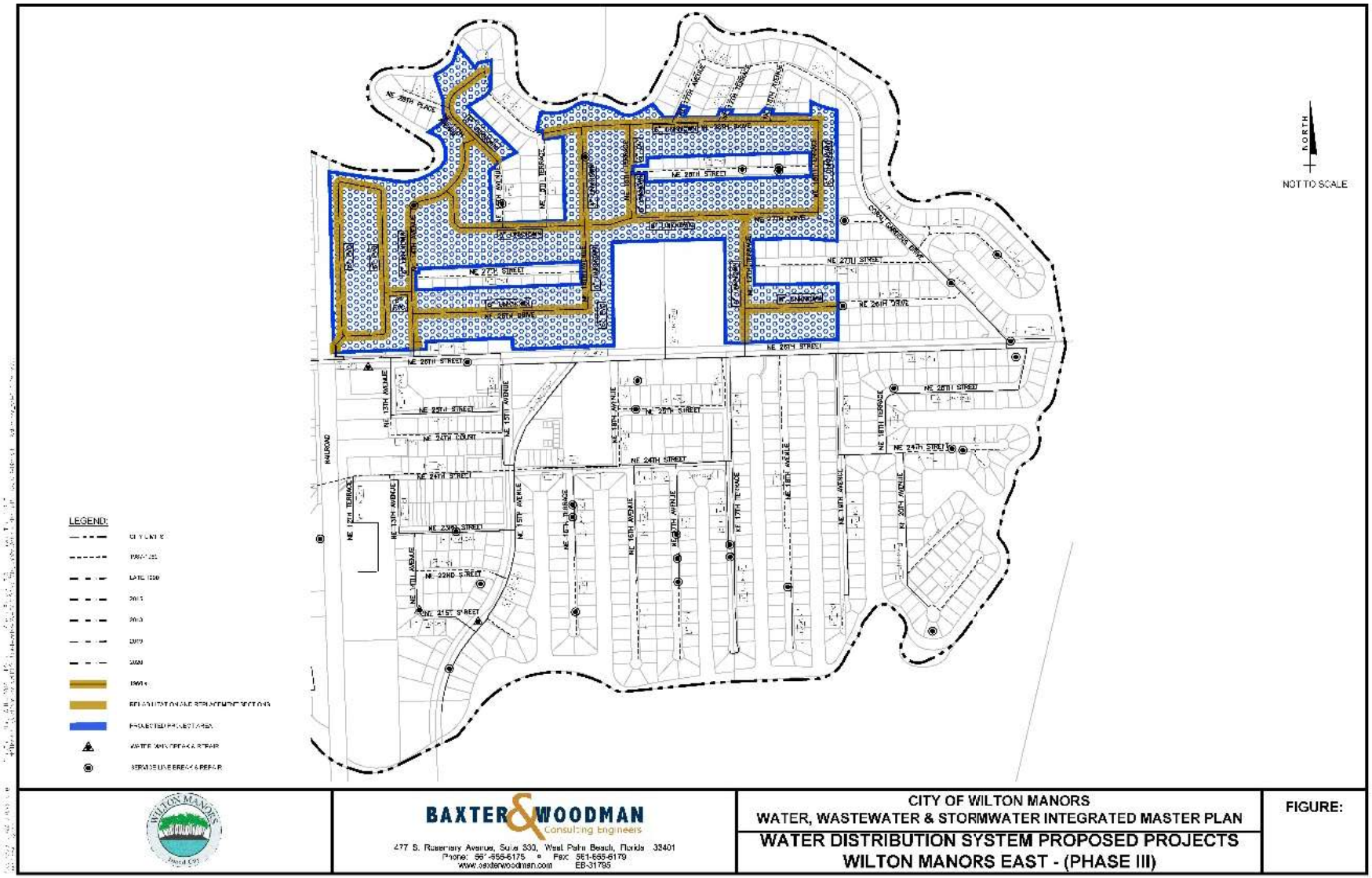

Figure 6-18: Project #17 – Wilton Manors East Phase III Water Main Replacement

6.1.2.8 CIP Water Improvements Summary

For the City's 10-Year (short-term) CIP budgetary projects, locations for proposed water main improvements were chosen based on a condition assessment on the existing water mains. Factors include pipe age, material, available fire flow protection, and where water main breaks have occurred in the past.

As summarized in ***Table 6-18***, the proposed improvements were summarized and prioritized into seventeen (17) CIP projects. The proposed water improvements were modeled to provide the City both short-term and long-term proposed improvements. The proposed short-term improvements are shown in Project No. 1-10 and are anticipated to be implemented in the next 10-years of the City's CIP budget. The proposed long-term improvements, Project No. 11-17, are anticipated to be implemented by 2040.

Table 6-18: CIP Project Summary

Project		Estimated Cost of Recommended Improvements
Project #1: Dixie Highway 10-inch Water Main Improvements	$	1,644,603.75
Project #2: NW 30th Court and West Oakland Park Boulevard Water Main Replacement	$	2,567,598.75
Project #3: Wilton Manors West Phase I Water Main Replacement	$	1,727,298.00
Project #4: NW 29th Street Water Main Replacement	$	1,458,310.50
Project #5: NW 9th Avenue & NW 26th Street Water Main Replacement	$	289,912.50
Project #6: Wilton Manors East Phase I Water Main Replacement	$	3,645,438.75
Project #7: Wilton Manors Grove & NE 21st Street Water Main Replacement	$	1,186,713.45
Project #8: Wilton Manors South Water Main Replacement	$	2,382,952.50
Project #9: NE 28th Street Water Main Replacement	$	1,739,508.75
Project #10: NE 21st Court Water Main Replacement	$	430,751.25
Project #11: Andrews Avenue 8-inch Water Main Replacement	$	1,588,545.00
Project #12: NW 9th Avenue 6-inch Water Main Replacement	$	1,202,175.00
Project #13: Wilton Manors West Phase II Water Main Replacement	$	984,521.25
Project #14: NW 26th Street and NW 8th Avenue Water Main Replacement	$	1,492,290.00
Project #15: NE 24th, 25th, and 26th Street Water Main Replacement	$	1,623,510.00
Project #16: Wilton Manors East Phase II Water Main Replacement	$	3,732,716.25
Project #17: Wilton Manors East Phase III Water Main Replacement	$	3,842,808.75
	Total:	**$ 31,539,654.45**