

Engineering Report

Appeal of Apportionment Determination, CPC Hearing Date October 17, 2019
Property: 6022 & 6028 Lewis Street, Dallas, Texas
Appellant: CPG Savannah Development, LLC (Savannah Developers)
Report Prepared by: Johnny Sudbury, P.E. on October 4, 2019

The existing City of Dallas 6" water main in front of the Property has a Static Flow Pressure of 75 psi, a Residual Pressure of 65 psi and a Water Flow Rate of 2,258 Gallons Per Minute (gpm). This flow rate of 2,258 gpm far exceeds the minimum required 1500 gpm for residential areas, meaning that the existing 6" main in Lewis Street has adequate fire protection capacity. The calculated domestic water demand for all existing structures on 5900 and 6000 blocks of Lewis Street is 1003 gpm. The additional domestic water demand created by the proposed new construction on the Property is 60 gpm. The present 2,258 gpm provided by the 6" existing water main in Lewis Street is more than adequate to serve the needs created by the Permit. It is concluded that there is no need to replace the 6" water main in Lewis Street for fire protection or to serve the domestic demand created by the 6022 and 6028 Lewis Street permits.

Technical analysis of the pressure and flow rate of the existing 6" water main in the 5900 and 6000 blocks of Lewis Street.

The City of Dallas issued new building permits to Savannah Developers for multifamily structures at 6022 and 6028 Lewis Street. As a condition of the release of these building permits, Savannah was required to prepare engineering plans and enter into a private development construction contract number 19-473/474-P for the replacement of an

existing 6” water main adjacent to the Property. This 6” main is considered “off-site” since it is completely outside the limits of the Property and serves all of the properties in the 5900 and 6000 blocks of Lewis Street.

Since the replacement of the water line was the only issue for the release of the permits, for the purpose of this report, it is assumed that the City of Dallas considers the other infrastructure adequate to support the development. Therefore, this report will analyze only the technical capacities of the 6” public water main located in Lewis Street.

On September 12, 2019, Dallas Water Utilities provided appellant with a water flow/pressure test on the existing 6” water main in Lewis Street, using fire hydrants located at 5943 Lewis and 6025 Lewis. EXHIBIT 1 Water Flow/Pressure Test. The static pressure was recorded to be 75 psi at 6025 Lewis and the residual pressure recorded to be 65 psi with the fire hydrant open at 5943 Lewis. The water flow in the report is recorded to be 2258 gpm.

Existing 6” main in Lewis Street has adequate flow rate for fire protection:

Section 2.4.2.4 of the Dallas Water Utilities Water and Wastewater Procedures and Design Manual states in part “...the minimum fire flows required for residential and commercial areas are 1,500 GPM and 1,750 GPM, respectively.” Because the measured Flow Rate of the 6” water main in Lewis Street is 2,258 gpm and exceeds these minimum

fire flow rates, it is concluded that the 6" water main in Lewis Street has adequate fire protection capacity and does not need to be replaced.

EXHIBIT 2 Photo of Lewis Street Fire Hydrant taken from Google Maps shows there is a fire hydrant approximately 45' directly across Lewis Street from 6022 and 6028 Lewis Street permit sites. This fire hydrant is close enough to provide adequate fire protection for the proposed buildings at 6022 and 6028 Lewis Street.

Domestic Water Demand:

Referring to the Dallas Water Utilities Procedures and Design Manual, Table 3.5.3.1.1 and Figure 3.5.3.1.2A EXHIBIT 3: Recommended Fixture Values, the water fixture units and demand for existing structures on the 5900 and 6000 blocks of Lewis Street are tabulated on the attached spread sheet, attached as EXHIBIT 4: Existing Uses and Water Demand Calculations. Data for the existing uses was gathered from information available on DCAD's website. The total demand for the 44 existing structures is 1003 gpm and the calculated demand per the DWU manual for the proposed structures on 6022 and 6028 Lewis Street is 60 gpm for a total demand of 1063 gpm after completion of construction for the two permits. This proposed increase in the water demand of 60 gpm is approximately 6% above the existing demand. The measured flow rate of the 6" water main in Lewis is 2,258 gpm, which far exceeds the calculated demand of 1063 gpm on the main after the addition of the 60 gpm of demand created by the 6022 and 6028 Lewis Street permits.

The construction for the 6022 and 6028 Lewis Street permits is for the redevelopment of only 2 lots out of 48 lots on the 5900 and 6000 blocks of Lewis Street, and represent only 4% of the users on the water system. Therefore, it is concluded that the existing 6" water main in Lewis Street has more than adequate capacity to handle the additional domestic water usage demand created by the 6022 and 6028 Lewis Street permits.



Johnny Sudbury, P.E.

JBS Solutions, LLC

Development Services Department

FAX TRANSMITTAL MEMO

320 East Jefferson Room 200, Dallas, Texas 75203

DATE: 9/12/2019 TIME: 8:26 AM

PAGES SENT (INCLUDING COVER SHEET):

TO: NAME: Johnny Sudbury, P.E.
COMPANY: JBS Solutions, LLC
FAX NO: VOICE: 214-914-6492
Email is jsudbury.jbs@gmail.com

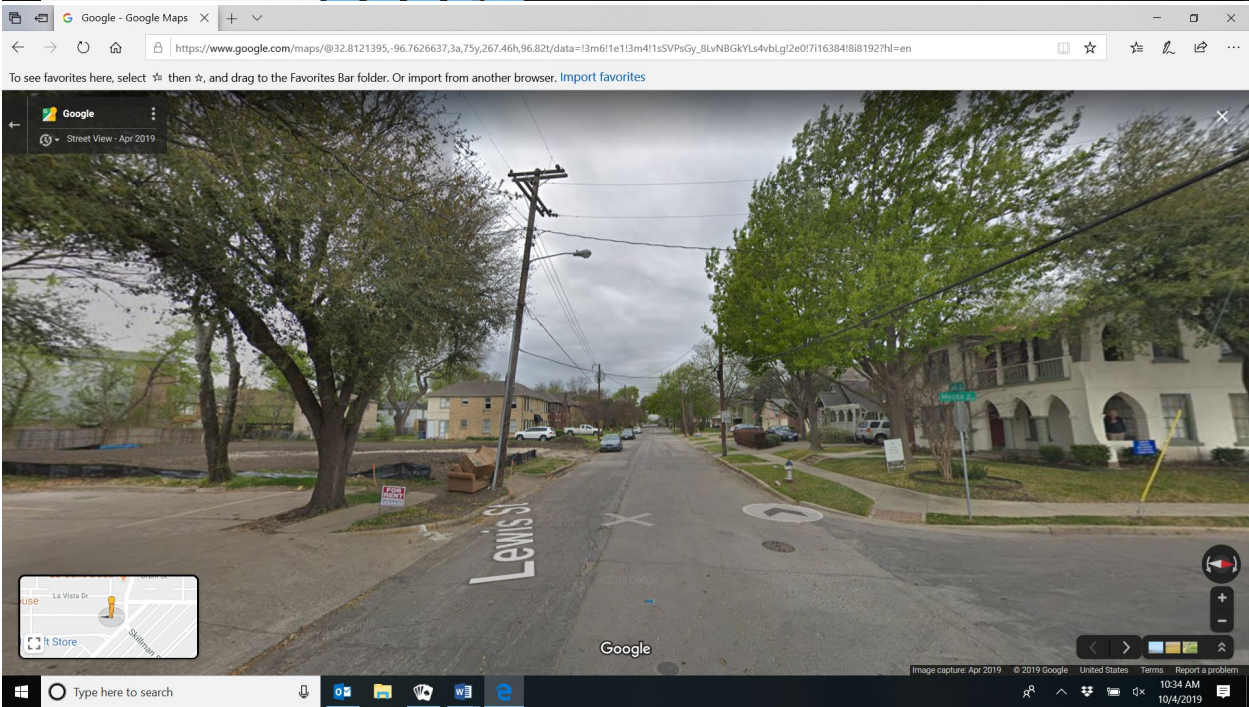
From The Desk of Henry M. Renteria

Telephone Number NO.: 214-948-4536 - FAX NO.: 214-948-4211
email henry.renteria@dallascityhall.com FAX NO.: 214-948-4599

COMMENTS: 6000 Lewis Street for Johnny Sudbury, Project # 4363,
Attached is the Water Flow/Pressure test you requested for:

Lewis St	6000	3005	FIRE FLOW TEST
Street Name		Street No.	
Date: 9/11/2019	Time: 8:45:00 AM		
STATIC PRESSURE <u>75</u> lbs	RESIDUAL PRESSURE <u>65</u> lbs		
<u>6025 Lewis St.</u> Location of Static Hydrant	<u>5943 Lewis St.</u> Location of Flowing Hydrant		
Notes on Static Hydrant	Notes on Flowing Hydrant		
Plot pressure is <u>45/50</u> lbs. flowing from <u>2 - 2.5"</u> nozzle(s).		Gallons per Minute <u>2256</u>	
Main Size <u>6", 8"</u>	Water Map <u>33-28</u>	MAPSCO <u>36X</u>	
Foreman <u>Jimmy Hollie</u>	Remarks		
SEARCH		Show All Tests	

Exhibit 2



3.5.3.1.1 Combined Fixture Value:

The following recommended fixture value shown in **Table 3.5.3.1.1** can be used to estimate the combined fixture value as necessary:

Table 3.5.3.1.1: Recommended Fixture Value

Fixture	Fixture Value @ 60 psi
Bathtub	8
Bedpan Washers	10
Bidet	2
Dental Unit	2
Drinking Fountain (public)	2
Faucet (kitchen sink)	2.2
Faucet (lavatory)	1.5
Shower Head (shower only)	2.5
Faucet (utility sink)	4
Urinal (flush valve)	35
Urinal (wall or stall)	16
Urinal Trough (2 ft. unit)	2
Toilet Flush Valve	35
Toilet Tank Type	4
Dishwasher	2
Clothes Washer	6
Hose (50 ft length wash down)	5
1/2" connection	9
5/8" connection	12
3/4" connection	

Source: AWWA M22: Sizing Water Service Lines and Meters, Second Edition

3.5.3.1.2 Peak Domestic Demand:

Figure 3.5.3.1.2A and **Figure 3.5.3.1.2B** can be used to determine low and high range of peak demands using the estimated combined fixture value:

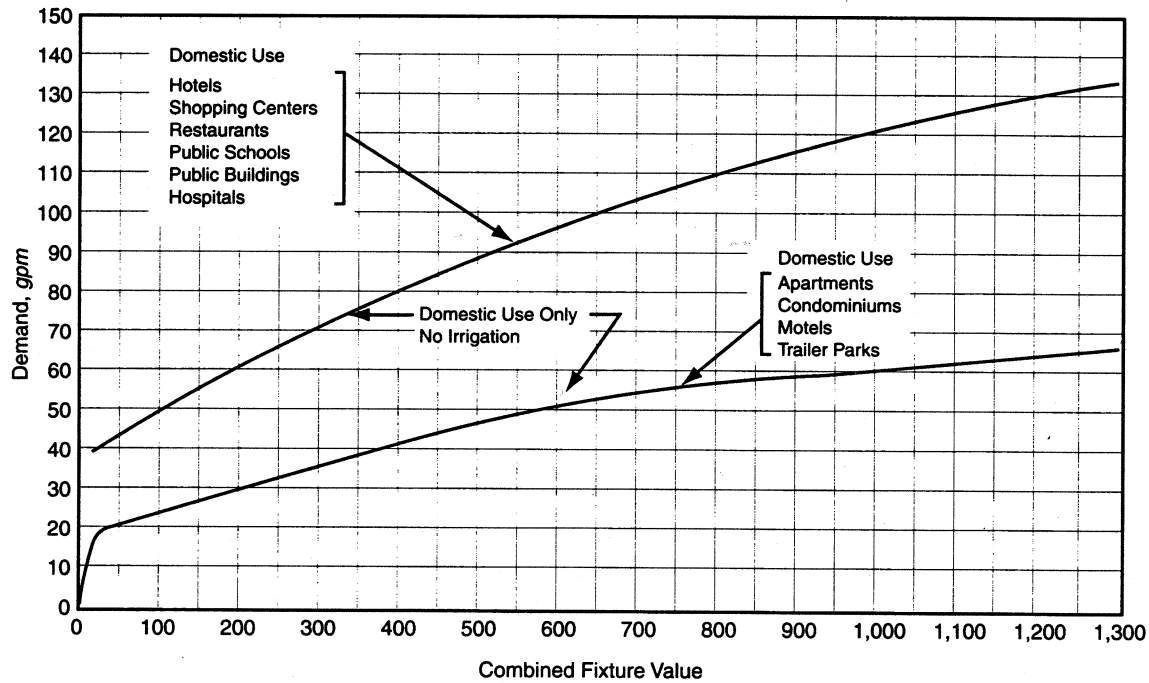


Figure 3.5.3.1.2A: Water Flow Demand per Fixture Value – Low Range

Source: AWWA M22: Sizing Water Service Lines and Meters, Second Edition

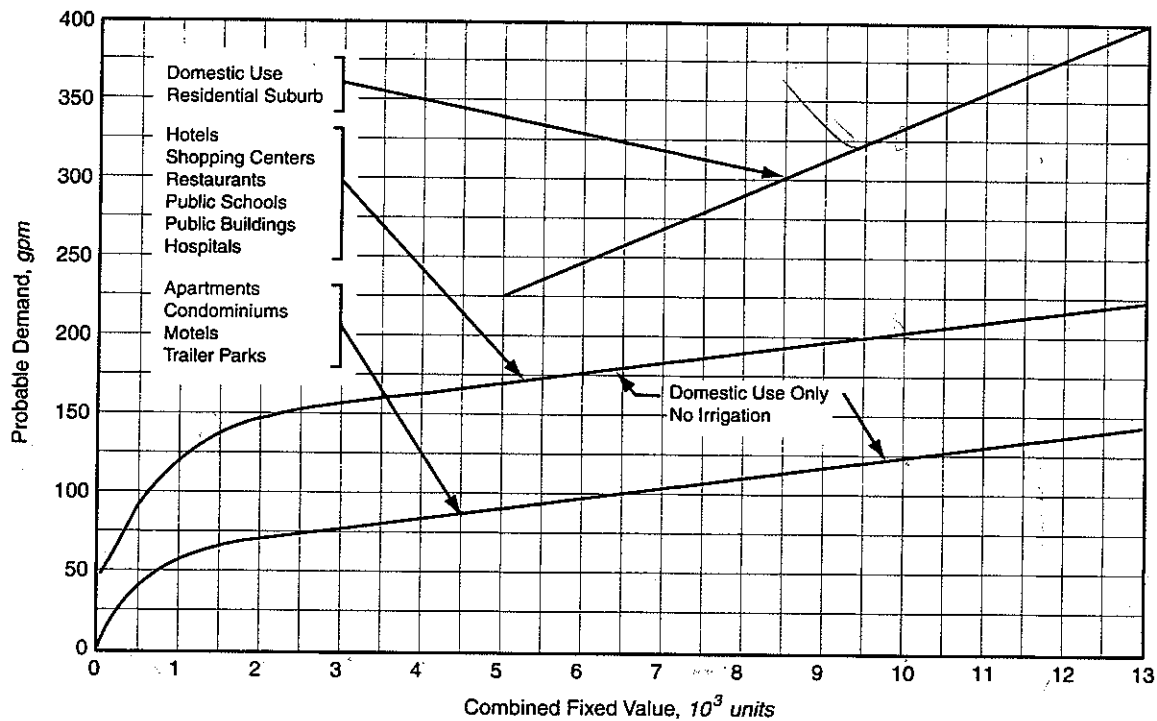


Figure 3.5.3.1.2B: Water Flow Demand per Fixture Value – High Range

Source: AWWA M22: Sizing Water Service Lines and Meters, Second Edition

Exhibit 4

Existing Uses and Water Demand Calculations															
5900-6000 Bock Lewis Street															
Lot	Address	Street	Year Built	Building Type	Units	Kitchen Sink	Dishwasher	Washing Machine	Hose Bibs	Toilets	Bathtub	Shower Only	Lavatories	Fixture Units	COD Table (AWWA)
						2.2	2.0	6.0	5.0	4.0	8.0	2.5	1.5	Fixture Units	
1	5953/5955	Lewis St	1948	Duplex	2	2	2	2	4	2	2		2	67.4	21
2	5957/5959	Lewis St	NEW	Duplex	2	2	2	2	4	6	4		6	105.4	24
3	5961/5963	Lewis St	1940	Duplex	2	2	2	2	4	3	3		3	80.9	23
4	5965/5967	Lewis St	1940	Duplex	2	2	2	2	4	3	2		3	72.9	21
5	5969	Lewis St	1986	MF	8	8	8	8	2	8	8		8	199.6	30
6	6001/6003	Lewis St	1935	Duplex	2	2	2	2	4	2	2		2	67.4	21
7	6007	Lewis St		Vacant										0	
8	6009	Lewis St	1935	MF	4	4	4	4	2	4	4		4	104.8	24
9	6013/6015	Lewis St	1998	Duplex	2	2	2	2	4	4	2		4	78.4	23
10	6017/6019	Lewis St	1998	Duplex	2	2	2	2	4	4	2		4	78.4	23
11	6021/6023	Lewis St	1940	Duplex	2	2	2	2	4	2	2		2	67.4	21
12	6025/6027	Lewis St	1940	Duplex	2	2	2	2	4	3	3		3	80.9	23
1	5954	Lewis St		Vacant										0	
2	5956/5958	Lewis St	2011	Duplex	2	2	2	2	4	6	4		6	105.4	24
3	5962	Lewis St	1924	SFR	1	1	1	1	2	2	2		2	47.2	20
14	5966/5968	Lewis St	1930	Duplex	2	2	2	2	4	2	2		2	67.4	21
21	5970	Lewis St	1926	SFR	1	1	1	1	2	2	2		2	47.2	20
15	6002/6004	Lewis St	1931	Duplex	2	2	2	2	4	2	2		2	67.4	21
22	6006	Lewis St	1931	SFR	1	1	1	1	2	1	1		1	33.7	20
18	6010/6012	Lewis St	1930	Duplex	2	2	2	2	4	2	2		2	67.4	21
24	6014/6016	Lewis St	1930	Duplex	2	2	2	2	4	2	2		2	67.4	21
25	6018/6020	Lewis St	1930	Duplex	2	2	2	2	4	2	2		2	67.4	21
1	6022	Lewis St		Vacant	5	5	5	5	0	15	5	5	20	193.5	30
1	6028	Lewis St		Vacant	5	5	5	5	0	15	5	5	20	193.5	30
1	5903	Lewis St	1935	SFR	1	1	1	1	2	1	1		1	33.7	20
2	5905	Lewis St	1986	MF	8	8	8	8	8	8	8		8	229.6	30
3	5909/5911	Lewis St	1953	Duplex	2	2	2	2	4	2	2		2	67.4	21
4	5913/5915	Lewis St	2014	Duplex	2	2	2	2	4	8	6		8	132.4	25
5	5917/5919	Lewis St	1998	Duplex	2	2	2	2	4	6	4		6	105.4	24
6	5923/5625	Lewis St	1998	Duplex	2	2	2	2	4	6	4		6	105.4	24
13	5927/5929	Lewis St	1939	Duplex	2	2	2	2	4	2	2		2	67.4	21
14	5931/5933	Lewis St	1933	Duplex	2	2	2	2	4	3	3		3	80.9	23
15	5935/5937	Lewis St	2005	Duplex	2	2	2	2	4	6	4		6	105.4	24
16	5941/5943	Lewis St	1935	Duplex	2	2	2	2	4	2	2		2	67.4	21
4	5945	Lewis St	1940	SFR	1	1	1	1	2	3	3		3	60.7	21
3	5949/5951	Lewis St	1936	Duplex	2	2	2	2	4	2	2		2	67.4	21
1	5900	Lewis St	1935	MF	8	8	8	8	2	8	8		8	199.6	30
2A	5906/5908	Lewis St	1997	Duplex	2	2	2	2	4	6	4		6	105.4	24
3A	5914	Lewis St	2000	MF	4	4	4	4	4	12	8		12	190.8	30
5	5918	Lewis St	1935	SFR	1	1	1	1	2	2	2		2	47.2	20
6	5922	Lewis St	1937	Duplex	2	2	2	2	4	2	2		2	67.4	21
Tr 1/1.1	5924/5926	Lewis St	2006	Duplex	2	2	2	2	4	6	4		6	105.4	24
Tr 2/2.1	5928/5930	Lewis St	2006	Duplex	2	2	2	2	4	6	4		6	105.4	24
Tr 3/3.1	5932/5934	Lewis St	2006	Duplex	2	2	2	2	4	6	4		6	105.4	24
Tr 4/4.1	5936/5938	Lewis St	2007	Duplex	2	2	2	2	4	6	4		6	105.4	24
Tr 5	5942	Lewis St	1935	SFR	1	1	1	1	2	2	2		2	47.2	20
Tr 6	5946	Lewis St	1934	SFR	1	1	1	1	2	2	2		2	47.2	20
1	5948/5950	Lewis St	2003	Duplex	2	2	2	2	4	6	4		6	105.4	24
					112	Total Dwelling Units								Total	1063

 Previous Redevelopment Properties

 Active Redevelopment Properties