City of Pharr, Texas
Assessed Value and Estimated Value of Taxable Property
Last Ten Fiscal Years
(amounts expressed in thousands)

Fiscal Year Ended	Tax Year	Residential Property	Commercial Property	Industrial Property	Minerals	Other	Total Assessed	Less: Ag Loss &Tax Exempt Real Property	Total Taxable Assessed Value	Total Direct Tax Rate	Estimated Actual Taxable Value	Assessed Value[1] as a Percentage of Actual Value
2011	2010	$ 1,903,835	$ 561,456	$ 14,999	$ 16,865	$ 265,722	$ 2,762,876	$ 591,022	$ 2,171,854	$ 0.68	$ 2,171,854	127.21%
2012	2011	$ 1,913,524	$ 574,336	$ 13,337	$ 11,027	$ 256,980	$ 2,769,204	$ 604,760	$ 2,164,444	$ 0.68	$ 2,164,444	127.94%
2013	2012	$ 1,978,273	$ 591,866	$ 12,310	$ 11,038	$ 265,359	$ 2,858,847	$ 662,530	$ 2,196,317	$ 0.68	$ 2,196,317	130.17%
2014	2013	$ 1,989,015	$ 623,074	$ 12,350	$ 9,132	$ 320,085	$ 2,953,655	$ 687,001	$ 2,266,654	$ 0.68	$ 2,266,654	130.31%
2015	2014	$ 2,130,562	$ 665,903	$ 12,239	$ 6,201	$ 316,074	$ 3,130,979	$ 753,721	$ 2,377,258	$ 0.68	$ 2,377,258	131.71%
2016	2015	$ 2,255,602	$ 734,905	$ 11,444	$ 4,972	$ 377,209	$ 3,384,132	$ 812,816	$ 2,571,316	$ 0.65	$ 2,571,316	131.61%
2017	2016	$ 2,302,343	$ 826,519	$ 11,971	$ 3,175	$ 374,763	$ 3,518,771	$ 827,461	$ 2,691,310	$ 0.65	$ 2,691,310	130.75%
2018	2017	$ 2,384,074	$ 951,399	$ 12,021	$ 5,914	$ 385,546	$ 3,738,955	$ 896,151	$ 2,842,804	$ 0.65	$ 2,842,804	131.52%
2019	2018	$ 2,561,140	$ 1,001,555	$ 11,949	$ 4,586	$ 415,996	$ 3,995,226	$ 808,535	$ 3,186,691	$ 0.65	$ 3,186,691	125.37%
2020	2019	$ 2,463,601	$ 1,081,404	$ 11,199	$ 2,812	$ 464,453	$ 4,264,978	$ 803,940	$ 3,461,038	$ 0.65	$ 3,461,038	123.23%

Source: Hidalgo County Central Appraisal District

Note: Assessed values are determined as of July 17th, and relate to taxes levied on the first day of the following fiscal year. Assessed value is equal to 100% of estimated value. All property is assessed the same rate regardless of real or personal property, commercial, residential, or industrial.

[1]Includes tax-exempt property.

City of Pharr, Texas
Property Tax Rates[1] and Tax Levies
Direct and Overlapping[2] Governments
Last Ten Fiscal Years

Fiscal Year Ending	City of Pharr Tax Rate			Overlapping Tax Rates: Drainage District #1			Hidalgo County			P.S.J.A ISD		
	Operating	Debt Service	Total	Operating	Debt Service	Total	Operating	Debt Service	Total	Operating	Debt Service	Total
2011	$ 0.60	$ 0.078	$ 0.68	$ 0.04	$ 0.03	$ 0.07	$ 0.52	$ 0.07	$ 0.59	$ 1.17	$ 0.19	$ 1.36
2012	$ 0.60	$ 0.077	$ 0.68	$ 0.05	$ 0.03	$ 0.08	$ 0.52	$ 0.07	$ 0.59	$ 1.17	$ 0.19	$ 1.36
2013	$ 0.60	$ 0.077	$ 0.68	$ 0.06	$ 0.04	$ 0.10	$ 0.52	$ 0.07	$ 0.59	$ 1.17	$ 0.19	$ 1.36
2014	$ 0.60	$ 0.080	$ 0.68	$ 0.05	$ 0.05	$ 0.10	$ 0.53	$ 0.06	$ 0.59	$ 1.17	$ 0.19	$ 1.36
2015	$ 0.58	$ 0.072	$ 0.65	$ 0.05	$ 0.05	$ 0.10	$ 0.53	$ 0.06	$ 0.59	$ 1.17	$ 0.19	$ 1.36
2016	$ 0.58	$ 0.072	$ 0.65	$ 0.05	$ 0.05	$ 0.10	$ 0.53	$ 0.06	$ 0.59	$ 1.17	$ 0.23	$ 1.40
2017	$ 0.58	$ 0.070	$ 0.65	$ 0.05	$ 0.05	$ 0.10	$ 0.53	$ 0.06	$ 0.59	$ 1.17	$ 0.23	$ 1.40
2018	$ 0.58	$ 0.072	$ 0.65	$ 0.05	$ 0.05	$ 0.10	$ 0.53	$ 0.05	$ 0.58	$ 1.17	$ 0.21	$ 1.38
2019	$ 0.57	$ 0.151	$ 0.72	$ 0.05	$ 0.05	$ 0.11	$ 0.55	$ 0.07	$ 0.62	$ 1.07	$ 0.20	$ 1.27
2020	$ 0.57	$ 0.151	$ 0.72	$ 0.05	$ 0.05	$ 0.10	$ 0.57	$ 0.16	$ 0.73	$ 1.05	$ 0.22	$ 1.27

Fiscal Year Ending	Overlapping Tax Rates: South Texas ISD			South Texas College			Total Direct & Overlapping Rates
	Operating	Debt Service	Total	Operating	Debt Service	Total	
2011	$ 0.05	$ -	$ 0.05	$ 0.11	$ 0.04	$ 0.15	$ 2.90
2012	$ 0.05	$ -	$ 0.05	$ 0.11	$ 0.04	$ 0.15	$ 2.90
2013	$ 0.05	$ -	$ 0.05	$ 0.11	$ 0.04	$ 0.15	$ 2.92
2014	$ 0.05	$ -	$ 0.05	$ 0.11	$ 0.04	$ 0.15	$ 2.93
2015	$ 0.05	$ -	$ 0.05	$ 0.14	$ 0.05	$ 0.18	$ 2.93
2016	$ 0.05	$ -	$ 0.05	$ 0.14	$ 0.05	$ 0.18	$ 2.97
2017	$ 0.05	$ -	$ 0.05	$ 0.14	$ 0.05	$ 0.18	$ 2.97
2018	$ 0.05	$ -	$ 0.05	$ 0.14	$ 0.05	$ 0.18	$ 2.94
2019	$ 0.05	$ -	$ 0.05	$ 0.14	$ 0.04	$ 0.18	$ 2.94
2020	$ 0.05	$ -	$ 0.05	$ 0.14	$ 0.03	$ 0.17	$ 3.04

Source: City of Pharr Tax Assessor/Collector, Hidalgo County Tax Office, Pharr-San Juan-Alamo Independent School District, TEA Financial Audit Reports

[1]Tax rate is per $100 of taxable assessed value

[2]Overlapping rates are those of local and county governments that apply to property owners within the City of Pharr. Not all overlapping rates apply to all City of Pharr property owners (e.g., the rates for special districts apply only to the proportion of the government's property owners whose property is located within the geographic boundaries of the special district.

City of Pharr, Texas
Principal Property Taxpayers
Fiscal Year End 2020 and 2010
(amounts expressed in thousands)

Taxpayer	2020 Taxable Assessed Value	2020 Rank	2020 Percentage of Total Taxable Assessed Value	2010 Taxable Assessed Value	2010 Rank	2010 Percentage of Total Taxable Assessed Value
PTC TX HOLDINGS LLC	$ 47,059	1	1.36%	$ -	-	0.00%
AEP TEXAS INC-27H	$ 45,921	2	1.33%	$ 5,777	15	0.27%
46TH STREET INVESTORS & PWIP LLC & ROWLAND ENTERPRISES	$ 31,008	3	0.90%	$ -	-	0.00%
HEB GOCERY COMPANY LP	$ 23,628	4	0.68%	$ -	-	0.00%
WILDER CORPORATION OF DELAWARE	$ 18,850	5	0.54%	$ 13,226	3	0.61%
PTC TX HOLDINGS LLC	$ 15,500	6	0.45%	$ -	-	0.00%
BISSELL SOUTHWEST DC LEASING LLC	$ 15,342	7	0.44%	$ -	-	0.00%
GEAR FOR SPORTS INC.	$ 14,596	8	0.42%	$ -	-	0.00%
TX PHARR CASA LLC	$ 12,237	9	0.35%	$ -	-	0.00%
FJRS INVESTMENTS LTD	$ 11,922	10	0.34%	$ 7,101	9	0.33%
RAPID TRANSPORT	$ 11,448	11	0.33%	$ -	-	0.00%
TOYOTA OF PHARR SCION OF PHARR	$ 11,044	12	0.32%	$ -	-	0.00%
COSTCO WHOLESALE CORP	$ 10,819	13	0.31%	$ -	-	0.00%
COSTCO WHOLESALE CORP	$ 10,600	14	0.31%	$ -	-	0.00%
RAY AUDIE E	$ 10,305	15	0.30%	$ -	-	0.00%
LCN ATH GULFPORT (MULTI) LLC	$ 10,177	16	0.29%	$ -	-	0.00%
AEP TEXAS CENTRAL COMPANY	$ 9,902	17	0.29%	$ 11,937	4	0.55%
CLARK KNAPP MOTOR CO LC	$ 9,632	18	0.28%	$ -	-	0.00%
PHARR BRIDGE INVESTMENTS COMPANY LP	$ 9,498	19	0.27%	$ -	-	0.00%
JPC CENTER LLC	$ 9,427	20	0.27%	$ -	-	0.00%
Totals	**$ 338,913**		**9.8%**	**$ 38,041**		**1.8%**
Assessed Taxable Value	**$ 3,461,038**			**$ 2,171,854**		

City of Pharr, Texas
Property Tax Levies and Collections
Last Ten Fiscal Years
(amounts expressed in thousands)

Fiscal Year Ended	Tax Year	Total Tax Levy* for Fiscal Year	Collections within the Fiscal Year of the Levy		Delinquent Collections in Subsequent Years	Total Collections to Date	
			Amount	Percentage of Levy		Amount	Percentage of Levy
2011	2010	$ 14,674	$ 13,559	92.4%	$ 706.32	$ 14,265	97.2%
2012	2011	$ 14,576	$ 13,771	94.5%	$ (0.13)	$ 13,771	94.5%
2013	2012	$ 14,935	$ 14,049	94.1%	$ 178.69	$ 14,228	95.3%
2014	2013	$ 15,413	$ 14,631	94.9%	$ 96.26	$ 14,727	95.6%
2015	2014	$ 16,431	$ 15,448	94.0%	$ 242.87	$ 15,691	95.5%
2016	2015	$ 16,952	$ 15,928	94.0%	$ 297.72	$ 16,226	95.7%
2017	2016	$ 17,654	$ 16,642	94.3%	$ 293.29	$ 16,935	95.9%
2018	2017	$ 18,625	$ 17,832	95.7%	$ 80.13	$ 17,912	96.2%
2019	2018	$ 19,278	$ 18,408	95.5%	$ 142.67	$ 18,551	96.2%
2020	2019	$ 22,494	$ 21,489	95.5%	$ 125.38	$ 21,614	96.1%

*Tax Levy including modifications throughout the year

Sources: City of Pharr Tax Assessor/Collector
Hidalgo County Tax Assessor/Collector

City of Pharr, Texas
Ratios of Outstanding Debt by Type
Last Ten Fiscal Years
(amounts expressed in thousands, except per capita amount

	Governmental Activities				Business-Type Activities					
Fiscal Year	General Obligation Bonds	Certificates of Obligation	Notes	Capital Leases	Utility & Toll Bridge Bonds/Notes	Capital Leases	Notes	Total Primary Government	Percentage of Personal Income[1]	Per Capita[1]
2012	$ 14,300	$ 7,600	$ 21,500	$ 3,405	$ 55,385	$ 537	$ -	$ 102,726	0.03%	$ 1,417
2013	$ 12,800	$ 7,300	$ 28,500	$ 3,200	$ 61,000	$ 463	$ -	$ 113,263	0.03%	$ 1,562
2014	$ 11,295	$ 7,025	$ 24,064	$ 4,101	$ 58,442	$ 389	$ -	$ 105,317	0.03%	$ 1,452
2015	$ 9,710	$ 6,720	$ 20,242	$ 3,413	$ 55,917	$ 218	$ -	$ 96,219	0.04%	$ 1,327
2016	$ 7,440	$ 20,705	$ 14,254	$ 8,541	$ 52,092	$ 27	$ -	$ 103,059	0.03%	$ 1,347
2017	$ 6,305	$ 18,835	$ 1,121	$ 6,516	$ 44,268	$ 1,783	$ -	$ 78,827	0.05%	$ 1,019
2018	$ 5,898	$ 32,565	$ 6,819	$ 7,377	$ 41,097	$ 3,539	$ -	$ 97,295	0.04%	$ 1,224
2019	$ 4,090	$ 33,440	$ 18,700	$ 7,390	$ 44,400	$ 3,830	$ -	$ 111,850	0.04%	$ 1,403
2020	$ 1,430	$ 47,560	$ 4,683	$ 6,478	$ 65,613	$ 3,249	$ -	$ 129,013	0.03%	$ 1,625
2021	$ -	$ 67,085	$ 3,657	$ 6,160	$ 101,864	$ 2,722	$ -	$ 181,488	0.02%	$ 2,277

Note: Details regarding the city's outstanding debt can be found in the notes to the financial statements.

[1]See the Schedule of Demographic and Economic Statistics for personal income and population data.

City of Pharr, Texas
Ratios of General Bonded Debt Outstanding
Last Ten Fiscal Years
(amounts expressed in thousands, except per capita amount

Fiscal Year	General Obligation Bonds	Percentage of Estimated Actual Taxable Value[1] of Property	Per Capita[2]
2012	$ 14,300	0.52%	$ 197.2
2013	$ 12,800	0.45%	$ 176.5
2014	$ 11,295	0.38%	$ 154.4
2015	$ 9,710	0.31%	$ 132.8
2016	$ 7,440	0.22%	$ 97.2
2017	$ 6,305	0.18%	$ 81.5
2018	$ 5,898	0.16%	$ 74.2
2019	$ 4,090	0.10%	$ 51.3
2020	$ 1,430	0.03%	$ 18.0
2021	$ -	0.00%	$ -

Note: Details regarding the city's outstanding debt can be found in the notes to the financial statements.

[1]See the Schedule of Assessed Value and Estimated Actual Value of Taxable Property for property value data.
[2] Population data can be found in the Schedule of Demographic and Economic Statistics

City of Pharr, Texas
Direct and Overlapping Governmental Activities Debt
As of September 30, 2020
(amounts expressed in thousands)

Governmental Unit	Debt Outstanding	Estimated Percentage Applicable[1]	Estimated Share of Overlapping Debt
Debt repaid with property taxes:			
Hidalgo County	$ 350,540	9.0%	$ 31,669
Hidalgo Irrigation District #1	$ 187,783	-	-
South Texas College	$ 128,815	100.0%	$ 128,791
South Texas ISD	$ 3,360	-	-
Pharr, San Juan, Alamo Independent School District	$ 298,530	14.6%	$ 43,730
Overlapping debt			$ 204,190
City of Pharr direct debt	$ 186,277	100.0%	$ 186,277
Total direct and overlapping debt			$ 390,467

Sources: Assessed value data used to estimate applicable percentages provided by the County Board of Equalization and Assessment. Debt outstanding data provided by the county. Data as of 12/31/2010.

Note: Overlapping governments are those that coincide, at least in part, with the geographic boundaries of the city. This schedule estimates the portion of the outstanding debt of those overlapping governments that is borne by the residents and businesses of the city of Pharr. This process recognizes that, when considering the government's ability to issue and repay long-term debt, the entire debt burden borne by the residents and businesses should be taken into account. However, this does not imply that every taxpayer is a resident, and therefore responsible for repaying the debt, of each overlapping government.

[1]The percentage of overlapping debt applicable is estimated using taxable assessed property values. Applicable percentages were estimated by determining the portion of the county's taxable assessed value that is within the governments boundaries and dividing it by the county's total taxable assessed value.

City of Pharr, Texas
Legal Debt Margin Information
Last Ten Fiscal Years
(amounts expressed in thousands)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Debt Limit	$ 276,288	$ 276,920	$ 285,885	$ 295,366	$ 313,098	$ 338,412	400,700	448,005	399,523	426,498
Total net debt applicable to limit	15,750	14,300	12,800	11,295	9,710	7,440	6,819	5,898	4,090	1,430
Legal debt margin	$ 260,538	$ 262,620	$ 273,085	$ 284,071	$ 303,388	$ 330,972	$ 393,881	$ 442,107	$ 395,433	$ 425,068
Total net debt applicable to the limit as a percentage of debt limit	5.70%	5.2%	4.5%	3.8%	3.1%	2.2%	1.7%	1.3%	1.0%	0.3%

Assesed Value	$ 3,461,038
Add Back: exempt property	803,940
Total Assessed Value	4,264,978
Debt Limit (10% of total assessed value	426,498
Debt applocable to limit:	
General obligation bonds	1,430
Legal debt margin	$ 425,068

Note: Under state finance law, the City of Pharr's outstanding general obligation debt should not exceed 10 percent of total assessed property value. By law, the general obligation debt subject to the limitation may be offset by amounts set aside for repaying general obligation bonds.

City of Pharr, Texas
Pledged Revenue Coverage
Last Ten Fiscal Years
(amounts expressed in thousands)

Fiscal Year	Water & Sewer Revenue Bonds					
	Utility Sewer Charges and Other	Less: Operating Expenses	Net Available Revenue	Debt Service		Coverage
				Principal	Interest	
2011	$ 13,553	$ 6,946	$ 6,607	$ 2,465	$ 1,670	1.60
2012	$ 13,814	$ 7,465	$ 6,349	$ 2,540	$ 1,598	1.53
2013	$ 13,977	$ 7,043	$ 6,934	$ 2,540	$ 1,618	1.67
2014	$ 13,728	$ 7,862	$ 5,866	$ 2,870	$ 1,675	1.29
2015	$ 12,991	$ 7,966	$ 5,025	$ 2,950	$ 1,600	1.10
2016	$ 13,745	$ 6,315	$ 7,430	$ 3,035	$ 1,675	1.58
2017	$ 14,454	$ 6,387	$ 8,067	$ 3,382	$ 1,643	1.61
2018	$ 13,643	$ 6,590	$ 7,053	$ 2,958	$ 1,070	1.75
2019	$ 14,132	$ 6,886	$ 7,246	$ 3,084	$ 880	1.83
2020	$ 16,196	$ 7,667	$ 8,529	$ 3,165	$ 643	2.24

Note: Details regarding the government's outstanding debt can be found in the notes to the financial statements. Utility charges and other revenues include only utility service charges, investment earnings, and tap fees. Operating expenses do not include interest or depreciation. Historical information taken from prior financial reports.

City of Pharr, Texas
Demographic and Economic Statistics
Last Ten Fiscal Years

Fiscal Year	Population[1]	Median Household Income	Per Capita Personal Income	Median Age	Education Level in Years of Formal Schooling[2]	School Enrollment[3]	Unemployment Rate[4]
2011	70,400	28,000	11,420	27.1	58.1%	31,508	10.7%
2012	72,513	30,486	12,328	27.3	59.7%	31,633	8.4%
2013	73,138	30,486	12,328	28.0	59.7%	32,050	9.3%
2014	73,138	32,087	12,964	28.3	61.3%	32,287	7.9%
2015	75,382	34,655	12,694	27.6	61.3%	32,519	7.1%
2016	76,538	34,708	13,713	27.6*	62.0%	33,501	6.7%
2017	77,320	36,501	13,724	31.1	62.8%	32,838	7.7%
2018	79,487	39,445	14,826	31.1	63.3%	32,631	7.3%
2019	79,707	39,372	14,655	28.7	63.6%	32,481	6.4%
2020	79,112	39,884	15,015	28.8	64.5%	31,335	10.5%

Data Sources: U.S. Census, Texas Workforce Commission, U.S. Bureau of Labor Statistics, and PSJA ISD

[1]Population data from 2004 to 2007 taken from Planning/Zoning department. 2010 population estimate based on percentage increase of US Census Bureau totals for 2008 and 2009. 2011 population estimate based on percentage increase of US Census Bureau totals for 2009 and 2010. 2012 population estimate based on percentage increase of US Census Bureau totals for 2010 and 2011. 2013 population estimate based on percentage Increase of US Census Bureau totals for 2011 and 2012.

[2]Represents population age 25 or greater that has graduated from high school.

[3]School Enrollment data includes enrollment for Pharr San Juan and Alamo School Disctrict. (As of 12/26/2020)

[4]Unemployment rate as of September 2019. (Source: Workforce Solutions)

* Data Not Available

City of Pharr, Texas
Principal Employers
Fiscal Year Ending 2020 and 2011

	2020		
Employer	Employees	Rank	Percentage of Total City Employment[1]
Pharr-San Juan-Alamo ISD	4,748	1	14.95%
City of Pharr	835	2	2.63%
Maximus	547	3	1.72%
Walmart	376	4	1.18%
Ticketmaster	365	5	1.15%
Atento	360	6	1.13%
VDP Healthcare	333	7	1.05%
HEB Food Stores	290	8	0.91%
Lacks	250	9	0.79%
Home Depot	225	10	0.71%
Total	**8,329**		**26.40%**

	2011		
Employer	Employees	Rank	Percentage of Total City Employment[1]
Pharr-San Juan - Alamo ISD	3,000	1	13.38%
Convergy's	1,000	2	4.46%
Valley View ISD	700	3	3.12%
Ticketmaster	600	4	2.68%
VDP Healthcare	500	5	2.23%
City of Pharr	400	6	1.78%
Lack's Valley Stores Ltd	360	7	1.61%
Royal Freight	350	8	1.56%
HEB	300	9	1.34%
Atento Contact US Teleservices	245	10	1.09%
Total	**7,455**		**33.24%**

Source: Workforce Solutions Lower RGV

* Information was not tracked to provide stated information.

City of Pharr, Texas
Full-Time Equivalent City Government Employees by Function
Last Ten Fiscal Years
Budgeted Full-time Equivalent Employees as of September 30, 2020

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
GENERAL FUND										
City Manager	7.5	9.5	8.5	15.0	9.0	7.0	8.0	8.0	11.0	12.0
Finance	9.0	14.0	14.0	14.0	12.0	10.0	8.0	8.0	9.0	10.0
Police Department	172.0	174.5	176.5	186.5	178.5	183.0	169.0	169.0	168.0	172.0
Purchasing	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	2.0	4.0
Municipal Court	7.5	7.5	8.0	7.0	8.0	9.0	10.0	10.0	9.0	10.0
Fire Protection	74.0	73.0	78.0	82.0	80.0	80.0	80.0	80.0	83.0	76.0
Public works	49.0	49.0	49.0	48.0	50.0	63.0	53.0	53.0	50.0	47.0
Information Technology	2.5	2.0	5.0	10.0	12.5	19.5	13.5	13.5	14.0	14.5
Media	0.0	0.0	0.0	0.0	0.0	0.0	8.0	8.0	14.0	8.0
Municipal Library	22.5	22.5	23.5	25.0	23.5	27.5	27.5	27.5	30.0	28.0
Grants	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Parks & Recreation	64.3	68.1	62.1	56.8	112.6	31.0	54.0	54.0	53.0	79.0
Communication	0.0	0.0	0.0	0.0	0.0	6.0	23.0	23.0	25.0	27.0
Human Resources	0.0	0.0	0.0	0.0	4.0	6.0	8.0	8.0	7.0	9.0
Development Services	18.5	18.5	20.0	22.5	23.0	23.0	24.0	24.0	23.0	25.0
Engineer	0.0	4.0	5.5	4.5	6.5	7.5	8.5	8.5	7.0	9.5
Total General Fund	433.8	449.6	457.1	479.6	527.9	477.5	499.5	499.5	508.0	534.0
UTILITY FUND										
Administrative	9.0	9.0	9.0	9.0	9.0	9.0	10.0	10.0	10.0	10.0
Water Production	10.0	10.0	13.0	15.0	15.0	15.0	15.0	15.0	15.0	16.0
Water Distribution	24.0	26.5	27.0	30.5	30.5	28.5	32.5	32.5	30.0	36.5
Water Treatment Plant	13.0	17.0	18.0	19.0	19.0	19.0	19.0	19.0	15.0	19.0
Lift Station	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Utility Fund	57.0	62.5	67.0	73.5	73.5	71.5	76.5	76.5	70.0	81.5
INTERNAL SERVICE FUND										
Chief Mechanic	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Laborers	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Total Internal Svc Fund	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Director	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Others	24.0	22.0	22.0	27.0	23.5	23.5	19.0	19.0	21.0	23.5
Total Int'l Bridge	25.0	23.0	23.0	28.0	24.5	24.5	20.0	20.0	22.0	24.5
OTHER										
CDBG	5.5	4.5	3.5	4.0	0.0	0.0	5.0	4.0	3.0	3.0
Golf Course	15.5	15.5	17.0	23.5	20.5	22.0	24.0	24.0	24.0	22.5
Events Center	0.0	6.4	8.0	17.5	18.5	4.0	4.0	4.0	5.0	12.0
Total Other	21.0	26.4	28.5	45.0	45.0	40.5	33.0	32.0	32.0	37.5
GRAND TOTAL	**540.8**	**565.5**	**580.6**	**631.1**	**675.9**	**619.0**	**634.0**	**633.0**	**637.0**	**682.5**

Source: City of Pharr Budget Reports

City of Pharr, Texas
Operating Indicators by Function
Last Ten Fiscal Years

Function	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Police										
Physical arrests	3,395	3,477	2,197	3,573	2,423	1,805	2,150	3,215	1,596	1,205
Parking & Traffic Violations	10,742	9,654	12,607	12,893	19,628	13,684	12,543	13,523	11,636	12,131
Fire										
Number of calls answered	2,018	1,850	2,491	2,488	2,899	2,926	1,527	1,711	2,714	2,398
Inspections	1,842	2,620	2,263	2,942	2,184	2,675	2,197	2,273	631	1,628
Highways and streets										
Street resurfacing (miles)	9	7	6.44	7.31	1.41	10	8	8	8	6.38
Potholes repaired	4000	1500	545	1297	506	3089	3947	1801	1801	822
International Bridge										
Car Crossings	1,038,430	946,847	937,829	866,328	794,930	865,200	843,452	856,392	677,062	456,470
Truck Crossings	440,705	463,714	485,299	508,180	523,373	548,172	566,918	578,617	623,155	643,396
Culture and recreation										
Pharr Events Center	20	72	60	91	69	160	74	76	54	57
Other Community Center Events	329	703	442	unknown	unkown	382	41	unkown	unkown	unkown
Water										
New connections	428	304	372	256	303	447	425	420	340	696
Water mains breaks	768	~1365	~1625	~1642	~1726	1,410	1,107	1,107	739	739
Average daily consumption (millions of gallons)	6.6 MGD	7.0 MGD	6.9 MGD	7.1 MGD	6.46 MGD	6.7 MGD	5.4 MGD	7 MGD	7.34 MGD	7.34 MGD
Wastewater										
Average daily sewage treatment (thousands of gallons)	4.9 MGD	4.9MGD	4.8 MGD	5.1 MGD	5.2 MGD	4.9 MGD	4.8 MGD	4.57 MGD	4.97 MGD	4.97 MGD

Sources: Various City Departments

City of Pharr, Texas
Capital Asset Statistics by Functior
Last Ten Fiscal Years

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Public Safety										
Police:										
Stations	2	2	2	2	2	2	3	3	3	3
Patrol units	125	62	61	68	68	83	93	98	100	96
Fire stations	3	3	3	3	3	3	3	3	3	3
Highways and streets										
Streets (miles)	214	214	214	214	214	214	214	214	348	348
Streetlights	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknnnown
Traffic signals	58	61	68	72	75	77	77	77	100	100
Culture and recreation										
Parks Acreage (Developed)	57	79	46	57	57	57	57	57	127	122
Swimming pools	-	-	1	1	1	1	1	1	1	1
Tennis courts	2	2	2	2	2	2	2	2	2	2
Community and Convention Center:	4	4	4	4	4	7	7	7	7	7
Water										
Water mains (miles)	325	~304	~304	~303	~304	~350.84	~356	~356	~351	355
Fire hydrants	1,946	~2,214	~2,214	~2,213	~2,214	~2,563	~2219	~2219	2,665	2,663
Maximum daily capacity (thousands of gallons)	10 MGD	10 MGD	10 MGD	19 MGD	20 MGD	20 MGD	19MGD	19MGD	19MGD	19MGD
Sewer										
Sanitary sewers (miles)	269	267	~267	~266	~267	~273.55	~280	~280	274	275
Storm sewers (miles)	97.2	Unknown	96.63	95.63	95.64	97.34	98	98	97	97
Maximum daily treatment capacity (thousands of gallons)	8 MGD	8 MGD	7.4 MGD	6.4 MGD	7.3 MGD	6.44 MGD	8 MGD	8 MGD	8 MGD	9.52MGD

Sources: Various City Departments

SINGLE AUDIT SECTION

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Associates:
Janet Robles, CPA

INDEPENDENT AUDITOR'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH *GOVERNMENT AUDITING STANDARDS*

To the Honorable Mayor and City Council
City of Pharr, Texas

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the governmental activities, the business-type activities, the aggregate discretely presented component units, the blended component units, each major fund, and the aggregate remaining fund information of the City of Pharr, Texas, as of and for the year ended September 30, 2021, and the related notes to the financial statements, which collectively comprise the City of Pharr, Texas' basic financial statements and have issued our report thereon dated April 12, 2022.

Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered the City of Pharr, Texas' internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the City of Pharr, Texas' internal control. Accordingly, we do not express an opinion on the effectiveness of the City of Pharr, Texas' internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies and therefore, material weaknesses or significant deficiencies may exist that have not been identified. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. We did identify certain deficiencies in internal control, described in the accompanying schedule of findings and questioned costs as item 2021-001 that we consider to be a significant deficiency.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the City of Pharr, Texas' financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material

effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

City of Pharr, Texas's Response to Findings

City of Pharr, Texas' response to the findings identified in our audit is described in the accompanying schedule of findings and questioned costs. City of Pharr, Texas' response was not subjected to the auditing procedures applied in the audit of the financial statements and, accordingly, we express no opinion on it.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Oscar R. Gonzalez, CPA & Associates, PLLC
Certified Public Accountants

Pharr, Texas
April 12, 2022

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INDEPENDENT AUDITOR'S REPORT ON COMPLIANCE FOR EACH MAJOR PROGRAM AND ON INTERNAL CONTROL OVER COMPLIANCE REQUIRED BY THE UNIFORM GUIDANCE AND THE STATE OF TEXAS *SINGLE AUDIT CIRCULAR*

To the Honorable Mayor and City Council
City of Pharr, Texas

Report on Compliance for Each Major Federal and State Program

We have audited the City of Pharr, Texas' compliance with the types of compliance requirements described in the *OMB Compliance Supplement* and the State of *Texas Single Audit Circular* that could have a direct and material effect on each of the City of Pharr, Texas's major federal and state programs for the year ended September 30, 2021 City of Pharr, Texas' major federal and state programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

Management's Responsibility

Management is responsible for compliance with federal and state statutes, regulations, and the terms and conditions of its federal and state awards applicable to its federal and state programs.

Auditor's Responsibility

Our responsibility is to express an opinion on compliance for each of the City of Pharr, Texas' major federal and state programs based on our audit of the types of compliance requirements referred to above. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance) and the State of Texas *Single Audit Circular* (Circular). Those standards, Uniform Guidance and the Circular require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal and state program occurred. An audit includes examining, on a test basis, evidence about the City of Pharr, Texas' compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for each major federal and state program. However, our audit does not provide a legal determination of the City of Pharr, Texas' compliance.

Opinion on Each Major Federal and State Program

In our opinion, the City of Pharr, Texas, complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal and state programs for the year ended September 30, 2021.

Report on Internal Control over Compliance

Management of the City of Pharr, Texas, is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered the City of Pharr, Texas' internal control over compliance with the types of requirements that could have a direct and material effect on each major federal and state program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal and state program and to test and report on internal control over compliance in accordance with the Uniform Guidance and Circular, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the City of Pharr, Texas' internal control over compliance.

A *deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal or state program on a timely basis. A *material weakness in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal and state program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance the Circular. Accordingly, this report is not suitable for any other purpose.

Oscar R. Gonzalez, CPA & Associates, PLLC
Certified Public Accountant

Pharr, Texas
April 12, 2022

CITY OF PHARR, TEXAS

SCHEDULE OF EXPENDITURES OF FEDERAL AND STATE AWARDS
FOR THE YEAR ENDED ***SEPTEMBER 30, 2021***

Federal Grantor/Pass Through Grantor/ State Grantor/Program Title	Federal CFDA Number	Pass-Through Entity Identifying Number	Grant Expenditures	Expenditures to Subrecipients
FEDERAL AWARDS				
CDBG ENTITLEMENT GRANTS CLUSTER				
U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT				
Direct Programs				
Community Development Block Grant 2018	14.218	B-18-MC-48-0507	$ 361,502	$ 115,464
Community Development Block Grant 2019	14.218	B-19-MC-48-0507	162,619	5,306
Community Development Block Grant 2020	14.218	B-20-MW-48-0507	430,579	69,303
Community Development Block Grant-**COVID19** (CARES ACT 2020)	14.218	B-20-MW-48-0507	236,556	60,127
Total U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT			$ 1,191,256	$ 250,200
Total CDBG Entitlement Grants Cluster			**$ 1,191,256**	**$ 250,200**
U.S. DEPARTMENT OF JUSTICE				
Direct Programs:				
(HOPE) COVID-19 Response Project - TX Offcie of the Governor	16.034	2020-VD-BX-0002	$ 138,865	$ -
Total Direct Programs			$ 138,865	$ -
Indirect Programs:				
Pass-through from Texas Office of the Governor-Criminal Justice Division (CJD)				
Human Trafficking Liaison Grant	16.575	2019-V2-GX-0011	$ 41,736	$ -
Crime Victims Liaison Grant	16.575	2019-V2-GX-0011	41,200	-
Domestic Violence Coordinator Project	16.575	2019-V2-GX-0011	39,592	-
Total Pass-through Texas Office of the Governor-Criminal Justice Division (CJD)			$ 122,528	$ -
Total U.S. DEPARTMENT OF JUSTICE			**$ 261,393**	**$ -**
U.S. DEPARTMENT OF THE TREASURY				
Pass-through Direct Programs:				
Operation Task Force	16.922	112SA1599	$ 103,861	$ -
Total U.S. DEPARTMENT OF TREASURY			**$ 103,861**	**$ -**
U.S. DEPARTMENT OF TRANSPORTATION HIGHWAY PLANNING AND CONSTRUCTION				
Pass-through Texas Department of Transportation (TXDOT)				
Federal-Aid Highway Program	20.205		$ 2,438,649	$ -
Total U.S. DEPARTMENT OF TREASURY			**$ 2,438,649**	**$ -**
HIGHWAY SAFETY CLUSTER				
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION				
Pass-through Texas Department of Transportation (TXDOT)				
STEP - Commercial Motor Vehicle (CMV)	20.600	2021-PharrPD-S-CMV-00006	$ 11,762	$ -
STEP - Comprehensive Grant	20.600	2021-PharrPD-S-1YG-00015	11,969	-
Total State and Community Highway Safety			$ 23,731	$ -
Click it or Ticket	20.614	2021-PharrPD-CIOT-00035	$ 7,527	$ -
Click it or Ticket	20.614	2021-PharrPD-CIOT-THA-00010	2,917	-
Total National Traffic Safety Administration			$ 10,444	$ -
STEP - Impaired Driving Mobilization (IDM)	20.616	2021-PharrPD-IDM-00005	$ 17,099	$ -
Total National Priority Safety Programs			$ 17,099	$ -
Total Pass-through Texas Department of Transportation			$ 51,274	$ -
Total Highway Safety Cluster			**$ 51,274**	**$ -**

CITY OF PHARR, TEXAS

SCHEDULE OF EXPENDITURES OF FEDERAL AND STATE AWARDS
FOR THE YEAR ENDED ***SEPTEMBER 30, 2021***

Federal Grantor/Pass Through Grantor/ State Grantor/Program Title	Federal CFDA Number	Pass-Through Entity Identifying Number	Grant Expenditures	Expenditures to Subrecipients
FEDERAL AWARDS				
U.S. DEPARTMENT OF THE TREASURY				
Direct Program				
American Recovery Act Plan (ARPA)	21.019	746001875	$ 3,332,760	$ -
Pass-through Direct Local Grant Program County of Hidalgo				
Coronavirus State and Local Fiscal Recovery Funds (COVID 19)	21.027		$ 957,482	$ -
Total U.S. DEPARTMENT OF TREASURY			**$ 4,290,242**	**$ -**
TEXAS WATER DEVELOPMENT BOARD (TWDB) FIF LOAN & LOAN FORGIVENESS				
Direct Program				
Clean Water State Revolving Fund	66.458		$ 169,175	$ -
Drinking Water State Revolving Fund	66.458		191,500	-
Total TEXAS WATER DEVELOPMENT BOARD			**$ 360,675**	$ -
U.S. DEPARTMENT OF HOMELAND SECURITY				
Direct Program				
2019 Staffing for Adequate Fire and Emergency Response (SAFER)	97.083	EMW-2019-FF-01465	$ 107,289	$ -
Total Direct Program			$ 107,289	$ -
Pass-through Governor's Division of Emergency Management:				
Operation Stonegarden	97.067	EMW-2019-SS-00034-S01	$ 309,220	$ -
HAZMAT Regional Equipment Project	97.067	EMW-2019-SS-00034-S01	61,823	-
Total Pass-through Governor's Division of Emergency Management			$ 371,043	$ -
Total U.S. DEPARTMENT OF HOMELAND SECURITY			**$ 478,332**	**$ -**
		TOTAL FEDERAL AWARDS	**$ 9,175,682**	**$ 250,200**
STATE AWARDS				
TEXAS PARKS & WILDLIFE DEPARTMENT ARTICLE VI				
Northside Library & Wellness Center	N/A		$ 5,000,000	$ -
TEXAS DEPARTMENT OF MOTOR VEHICLES				
South Texas Auto Theft Enforcement Task Force	N/A	608-21-0310100	$ 91,124	$ -
TEXAS OFFICE OF THE ATTORNEY GENERAL				
Victims Coordinator Liasion Grant (VCLG)	N/A	2106953	$ 34,608	$ -
TEXAS GOVERNOR'S OFFICE DIVISION OF EMERGENCY MANAGEMENT	N/A	2021-BL-ST-0016	$ 185,561	$ -
TEXAS WATER DEVELOPMENT BOARD (TWDB) FIF GRANT & LOAN	N/A	231-043	$ 466,992	$ -
		TOTAL STATE AWARDS	**$ 5,778,285**	$ -
		TOTAL FEDERAL AND STATE AWARDS	**$ 14,953,967**	**$ 250,200**

City of Pharr, Texas

NOTES TO SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS

Year Ended September 30, 2021

1. General Statement

The accompanying Schedule of Expenditures of Federal Awards (Schedule) presents the activity of all the federal award activity of the City of Pharr, Texas, under programs of the federal government for the year ended September 30, 2021. The information in this Schedule is presented in accordance with the requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards* (Uniform Guidance). The City's reporting entity is defined in Note I.B. to the City's basic financial statements. All federal awards received directly from Federal agencies and federal awards passed through state agencies are included on the Schedule. Because the Schedule presents only a selected portion of the operations of the City, it is not intended to and does not present the financial position or changes in net position of City of Pharr, Texas.

2. Summary of Significant Accounting Policies

The federal grant funds were accounted for in the Grant Fund, a governmental fund type, and in an enterprise fund. The accounting and financial reporting treatment applied to a fund is determined by its measurement focus. The governmental fund types are accounted for using a current financial resources measurement focus. With the governmental fund type measurement focus, only current assets and current liabilities generally are included on the balance sheet. Operating statements of these funds present increases (i.e., revenues and other financing sources) and decreases (i.e., expenditures and other financing uses) in net current assets.

The modified accrual basis of accounting is used for the governmental fund types. This basis of accounting recognizes revenues in the accounting period in which they become susceptible to accrual, i.e., both measureable and available, and expenditures in the accounting period in which the fund liability is incurred, if measureable, except for certain compensated absences and claims and judgments, which are recognized when the obligations are expected to be liquidated with expendable available financial resources.

Enterprise funds are used to account for those operations that are financed and operated in a manner similar to private business or where the governing body has decided that the determination of revenues earned, costs incurred, and/or net income is necessary for management accountability. Enterprise funds are accounted for on the flow of economic resources measurement focus and use the accrual basis of accounting. Under this method, revenues are recorded when earned and expenses are recorded at the time liabilities are incurred.

Federal grant funds are generally considered earned to the extent of expenditures made under the provisions of the grant, and accordingly, when such funds are received, they are recorded as deferred revenues until earned.

3. Indirect Cost Rate

The City has elected not to use the 10% *de minimis* indirect cost rate as allowed under the Uniform Guidance

4. Relationship to Federal Financial Status Reports

Amounts reported on the Schedule may not agree with the amounts reported in the related Federal financial status reports filed with grantor agencies, because of the effect of accruals made in the Schedule.

CITY OF PHARR, TEXAS
SCHEDULE OF FINDINGS AND QUESTIONED COSTS
FOR THE YEAR ENDED SEPTEMBER 30, 2021

A. Summary of Auditor's Results

1. Financial Statements
   Type of auditor's report issued: UNMODIFIED

   Internal control over financial reporting:

   One or more material weaknesses identified? ____ YES __X__ NONE REPORTED

   One or more significant deficiencies identified that are not considered to be material weaknesses? __X__ YES ____ NONE REPORTED

   Noncompliance material to financial statements noted? ____ YES __X__ NONE REPORTED

2. Federal and State Awards
   Internal control over major programs:

   - One or more material weakness identified? ____ YES __X__ NONE REPORTED
   - One or more significant deficiencies identified that are not considered to be material weaknesses? ____ YES __X__ NONE REPORTED

   Type of auditor's report issued on compliance for major programs: UNMODIFIED

   Any audit findings disclosed that are required to be reported in accordance with section 200.516 of the Uniform Guidar ____ YES __X__ NO

   Identification of major programs:

CFDA Numbers	Name of Federal and State Program or Cluster
14.218	Community Development Block Grants/Entitlement Grants
20.205	Highway Planning and Construction Cluster
21.019	Coronavirus Relief Fund
21.027	American Rescue Plan Act
N/A	Texas Parks & Wildlife, Northside Library Project

Dollar threshold used to distinguish between type A and type B programs:	Federal	State
	$ 750,000	$ 750,000

Auditee qualified as low-risk auditee? ____ YES __X__ NO

City of Pharr, TX
Schedule of Findings and Responses
Year Ended September 30, 2021

II. FINANCIAL STATEMENT FINDINGS

Schedule Reference (2021-001) BRIDGE OPERATIONS - FINANCIAL MANAGEMENT SYSTEM

SIGNIFICANT DEFICIENCY

Criteria: The Bridge-Operations financial management system includes the related business processes relevant to financial reporting and communication of all financial transactions and individual crossings related to the Pharr International Bridge. This system should provide accurate and reliable financial information. The City should establish internal control procedures within both the financial management system and manual systems by which all transactions are initiated, authorized, recorded, processed, corrected as necessary, transferred to the general ledger, and reported in the financial statements.

Condition: During the audit, we noted ineffective controls related to the financial information provided by the financial management system of bridge operations. The daily bridge reports on several days throughout the fiscal year were materially inaccurate. Furthermore, the personnel reconciling the daily reports were aware they were not accurate and manually reported the amounts collected for the day in a separate excel spreadsheet. Though internal control procedures were in place, they were not followed as the supervisor still approved the financial information as reconciling to the bridge operation financial report knowing they were not matching. In interviewing the supervisor and personnel, we became aware the issue is a common occurrence with the system.

Cause: Controls relating to recording, processing, and correcting the financial management system of bridge operations were not adhered to. Personnel were not recording the information from the financial management system since they were aware it was inaccurate but were signing off on the daily reports that they did match, nor did they inform the finance department that the system was providing inaccurate information.

Effect: The lack of internal controls with the financial management system increases the risk of fraud. The deferred revenues and customer receivables cannot be accurately calculated based on reports generated from the system and create major discrepancies at year end with Finance Department for financial reporting purposes.

Recommendation: City Management should consider requiring the financial management system for bridge operations vendor to provide a Soc. 1, Type 2 report for their software. This will provide the City reliance that the software is suitably designed and provides operating effectiveness of controls. In addition, personnel related to reporting should comply with the internal controls that are in place.

III. FEDERAL AWARDS FINDINGS

None.

Corrective Action Plan
Year Ended September 30, 2021

Schedule Reference (2021-001), Bridge Operations-Financial Management System

Senior leaders and staff from Bridge, IT and Finance agree with this finding. An initial corrective action meeting took place on April 7th to discuss steps necessary to implement action plan to eliminate this significant deficiency.

The plan is to officially communicate to software provider and provide them an opportunity to comply with SOC reports; if such attempt fails, then City will officially communicate the need to terminate contract and City will request permission to City Commission to advertise for replacement with a full detail of criteria and specifications that include compliance with SOC reports and Financial Reporting capacity that allows Finance and Bridge staff to reconcile any unused AVI's and Tickets.

Contact Person responsible for corrective action:

Primary Government-City of Pharr, Texas

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City of Pharr, TX
Schedule of Prior Year Findings
Year Ended September 30, 2021

SUMMARY OF AUDITORS RESULTS – PRIOR FISCAL YEAR.

Schedule Reference (2020-001) INTERNAL CONTROL OVER MANAGEMENT OF POLICIES AND PROCEDURES RELATING TO CREDIT CARDS

SIGNIFICANT DEFICIENCY

Criteria: Chapter 9 of the City's Purchasing Manual establishes policies and procedures related to the use of credit cards. The manual stipulates that usage of the cards is for unforeseen non-routine or emergency purchases, travel related charges, meeting preparation purposes, and for use with vendors that do not accept purchase orders.

Condition: During the audit, we noted ineffective controls for cardholder issuance as it relates to purchase allowability amounts and signature of cardholders documented. Through audit procedures, the listing of active cardholders provided by the Purchasing Director and Finance Department was not complete or accurate when compared to the cardholder listing provided by the banking institution. Furthermore, we note transactional limits for cardholders were not aligned with established policies and procedures set by the City of Pharr.

Through inspection of the Purchasing Manual and inquiry with the Purchasing Director, credit card purchases are authorized for:

- Unforeseen non-routine, charges that are considered an emergency need
- Travel related charges
- Meeting preparation purposes
- Vendors that do not accept PO's

However, through inspection of the transactions and analytical procedures, the auditor noted ten (10) vendors comprised of 15% of the total expenses for the annual activity. The categories for the top vendors included grocery, hardware, electronics, and office supplies. The auditor concludes the number of transactions and total dollar amount for the vendors to be excessive of the definition of "unforeseen, non-routine" or purchase requirements of emergency needs. Chapter 6 – Emergency Purchases of the Purchasing Manual defines procedures dealing with emergency purchases, including verification qualifies as an emergency purchase as defined in State Law and Local Government Code defined in Chapters 252, 262, and 271.

Effect: Controls relating to routine purchases were not adhered to, since the purchases were made with credit cards instead of a purchase order. Additionally, historical information regarding vendor activity/transactions was not maintained in the accounting software during the year, since the credit card system oversteps the vendor payment system. Currently, there is no requirement to inventory purchases made by each department to validate purchases made on behalf of the City of Pharr were adequate and maintained within the facilities. Without an inventory process for purchases made, cardholders are not held accountable to physical items purchases and expensed to their related departments. In the past, employees were encouraged the use of credit cards by employees to obtain reward benefits from the banking institution which has caused an excessive amount of purchases which are not emergency, unforeseen or non-routine transactions, as established by the City of Pharr's Purchasing Manual.

The risk that exists with an excessive amount of users includes cardholder's abusing the policy and utilizing the credit card purchase for minimal transactions. Through auditor analytics, it should be noted over three

thousand (3,000) transactions have an absolute value of $30 or less. As all transaction require proper accounting for presentation to the financial statements, the process for identifying business purpose, items purchased, department and fund balance to impact, etc. add pressure to the finance function as their duties are further increased in acquiring the required documentation.

Cause:
Cardholder/ Employees:
Employees have been encouraged by the previous purchasing manager to use of credit cards for purchases to receive reward benefits from the banking institution. Additionally, the ease of use of credit cards for routine transactions has allowed for circumvention of the City of Pharr's policies and procedure, questioning the conduct risk of employees respecting and abiding to set policies and procedures when management is not enforcing its mandate.

Recommendation: City Management should reconsider the intended purpose of utilizing credit cards throughout the City of Pharr. By re-defining the process utilization of credit cards for normal, usual transactions versus emergency purchases, City Management may relieve the departmental burden to the Finance department, lack of controls in the Purchasing department, and employee misconduct as noted through circumvention of the established Purchasing Manual that is currently occurring throughout the City of Pharr. Any purchasing process must include procedures to account for purchases through an inventory management process, where individual departments are held accountable to the requirements set forth by State and Local laws.

Should City Management choose to keep the intended purpose of credit cards as currently established by the Purchasing Manual (unforeseen, emergencies, traveling, etc.), the process should be re-designed to include a strong system of internal controls that are actively monitored and evaluated for effectiveness. This includes training of employees to define the terms of the credit card usage, defining true "emergency" purchases, enforcing transactional and monthly cardholder limits, documenting employee accountability through agreement signatures, implement accountability and internal control responsibilities for each department, establish a centralized location for review of transactions and implement disciplinary actions when employees' actions are not aligned to the Purchasing Manual and departmental policies.

Individual departments:
The City of Pharr does not currently require individual departments to monitor credit card purchase activity to ensure that expenditures adhered to established policies and procedures as prescribed by the Purchasing Manual. The process for reconciling credit card activities to general ledger accounting should include departmental manager's oversight. Purchases should be inventories at the department level, with departmental management attesting to receipt of the item(s).

Purchasing department:
The responsibility of issuing and terminating credit cards, verification of current cardholders, and establishing card limits lies within the Purchasing department. The Purchasing department does not verify cardholder users and limits on a periodic basis. Additionally, issuance of credit cards should be limited throughout the City of Pharr.

Finance department:
In order to account for individual purchases, the Finance department must establish a process for acquiring and retaining the business purpose, receipts, and other documentation for each transaction. Analytical procedures should be performed on a periodic basis to detect and prevent material misstatements arising from excessive use of credit card transactions throughout the City of Pharr. The Finance department is encouraged to work together with other departments, such as the Purchasing department and other areas with high credit card use to design a process of accountability through a holistic approach.

Current Status: Item has been corrected.

III. FEDERAL AWARDS FINDINGS

Schedule Reference (2020-002) Community Development Block Grant (CDBG) – Special Test and Provisions – Environmental Reviews

SIGNIFICANT DEFICIENCY

Criteria: The auditor randomly selected subrecipients of the CDBG program during the audit year in scope. The subrecipient's activities as noted in the Activity Summary Report were described as "to provide housing rehabilitation to three (3) single-family residential units and two complete (2) reconstructions." After inquiry and documentation request, the auditor was unable to verify the City of Pharr, as the grantee, ensured pre-rehabilitation inspections were conducted, verified deficiencies were corrected, and work was properly completed in accordance with contract specifications. The special test was not met. Additionally, the City of Pharr was unable to provide the auditor evidence an environmental review for the selected project occurred, such as the Green Building Retrofit Checklist. The special test was not met.

Condition: Per the Compliance Supplement for CDBG, Environmental Reviews: Projects must have an environmental review unless they meet criteria specified in the regulations that would exempt or exclude them from RROF and environmental certification requirements.
Per 24 CFR Section 570.506 – Records to be maintained: Each recipient shall establish and maintain sufficient records to enable the Secretary to determine whether the recipient has met the requirements of this part.

Effect: The City of Pharr has not met the compliance requirement for rehabilitation projects. When CDBG funds are used for rehabilitation, the grantee must ensure that the work is properly completed (24 CFR section 570.506)

Cause: Weak departmental control over document retention and recent turnover in the CDBG department during the auditor's fieldwork has caused the City of Pharr failure to provide documentation to meet the special test for the selected subrecipient's activity.

Recommendation: The department should verify reporting requirements for all federal programs are met on a timely basis and evidence of such be available for auditor inspection during audit fieldwork.

Current Status: Not yet corrected.

Schedule Reference (2020-003) City-wide internal control effectiveness in relation to grant management

SIGNIFICANT DEFICIENCY

Criteria: During inquiry and request of policies and procedures within the grant department, the auditor noticed internal controls were properly designed within the CDBG department, which include controls in the forms of checklists, assignment of responsibilities, established deadlines, and monitoring procedures for compliance. Auditor selected a random sample of subrecipients to verify monitoring controls were effective. During auditor test of operating effectiveness, the auditor concluded ineffective controls due to a lack of evidence retention, empty checklists, and lack of monitoring of subrecipients as designed in the policies and procedures.

Condition: Per 2 CFR Section 200.303 (a) – Internal Controls: The Non-Federal entity must: establish and maintain effective internal control over the Federal award that provides reasonable assurance that the non-Federal entity is managing the Federal award in compliance with Federal statutes, regulations, and the terms and conditions of the Federal award. These internal controls should be in compliance with guidance in "Standards for Internal Control in the Federal Government" issued by the Comptroller General of the

United States or the "Internal Control Integrated Framework", issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Effect:
Auditor noted a lack of evidence and incomplete monitoring procedures, concluding ineffective operating controls over the grant.

Cause:
Per auditor inquiries, the City of Pharr's management has informed the auditor the process for approving a grant-wide policy and procedure manual has been delayed. Additionally, reliance on the CDBG department for grant management has caused hierarchal issues when it relates to accountability of the City-wide grant-management department.

Recommendation: The auditor recommends the City of Pharr adopt an internal control standard, specifically, the Standards for Internal Control in the Federal Government, which is provided by the US Government Accountability Office, also known as the Green Book. The auditor recommends management review of Part 6 of the Compliance Supplement to gain insights related to internal controls for non-compliance. Additionally, management must enforce an internal accountability process to verify that designed controls are effective on a periodic basis.

Current Status: Not yet corrected.

Attachment 6

2018 Wastewater System Master Plan
FINAL
City of Pharr, Texas

Date:
February 7, 2019

Submitted by:

STATE OF TEXAS
JAVIER GARCIA
83920
LICENSED
PROFESSIONAL ENGINEER
2/25/19

GARCIA INFRASTRUCTURE CONSULTANTS, LLC

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Table of Contents

Section 1.0
Introduction

1.1 Objective

Garcia Infrastructure Consultants, LLC (GIC) was retained by the City of Pharr (City) to develop a Wastewater System Master Plan. The goal was to evaluate the integrity of the existing wastewater system infrastructure and develop a long-term-capital-improvements plan (CIP) to handle projected growth to the Year 2040. The CIP will form the basis for funding the future design, construction, and financing needed to address system deficiencies and future flows.

1.2 Scope

The scope of this evaluation is outlined below:

1. Projected Flows
    a. Develop wastewater flow projections to Year 2040.
2. Collection System
    a. Review existing wastewater system maps and update as necessary to support our analysis. This review is limited to main sewer trunk mains, lift stations, and associated force mains.
    b. Identify sewer shed for each respective lift station and estimate flow to each lift station.
    c. Conduct a condition assessment of each lift station. This assessment also included collecting basic technical information regarding each facility.
    d. Identify system deficiencies.
    e. Develop CIP to address system deficiencies and improvements to meet future growth.
3. Wastewater Treatment Plant
    a. Conduct an assessment of the overall treatment process to identify system deficiencies.
    b. Develop a CIP to address plant deficiencies and improvements to meet future growth.

1.3 Background

The City is located in the Rio Grande Valley and has a population of approximately 76,000. Pharr, like other communities in the Rio Grande Valley, has experienced tremendous growth over the last 30 years. The City on average adds approximately 500-connections/year. Continued population and service area growth will eventually result in the need for future capacity increases at both the water and wastewater treatment plants. This Master Plan will allow the City to plan

for both water and wastewater utilities to efficiently meet the growing demand for water and wastewater services. Refer to Section 2.0 for population projections.

The City's wastewater collection and treatment system facilities serve approximately 98% of the City's residents. A few areas are still served by individual septic units. The wastewater treatment plant receives an average daily flow of 4.1-mgd (average for 2017). The treatment plant includes three separate treatment trains; two (2) carousel oxidation ditches (extended air) and one (1) BNR Process Train. The collection system includes an extensive gravity flow system with thirty-three (33) lift stations. One of the primary goals of the City is to reduce the number of lift stations by adding sewer systems or combining aging facilities.

A separate element introduced in our report is recommended policy changes. Staff struggles to enforce basic design standards for new lift stations constructed by private Developers. Our report includes recommended policy changes to help staff secure the design features required to properly operate and maintain new Developer lift stations.

Section 2.0

Population and Land Use Projections

2.1 Land Use

The City's Land Use Map was recently updated and included in the 2015 Comprehensive Plan Updated which was prepared by the Texas A&M Engineering Extension Service. A copy of the plan is included in Appendix A.

2.2 Population

Historical population figures for Pharr and Hidalgo County are presented in Table 2.1 for Years 2005 through 2019. Data shows that Pharr has outpaced growth in Hidalgo County and represents approximately 9% of the county's population.

Table 2.1
Historical Population of Pharr and Hidalgo County
City of Pharr 2018 Wastewater Master Plan

Year	City of Pharr		Hidalgo County		% of County
	Population	% Change	Population	% Change	Population
2005	59,000		680,000		8.7%
2006	60,000	1.7%	700,000	2.9	8.6%
2007	62,000	3.3%	720,000	2.9	8.6%
2008	65,000	4.8%	750,000	4.2	8.7%
2009	66,000	1.5%	780,000	4.0	8.5%
2010	71,000	7.6%	790,000	1.3	9.0%
2011	72,000	1.4%	798,000	1.0	9.0%
2012	73,000	1.4%	800,000	0.3	9.1%
2013	74,000	1.4%	805,000	0.6	9.2%
2014	76,000	2.7%	810,000	0.6	9.4%
2019	82,000	-	1,000,000	-	8.2%

The Projected population growth for the City of Pharr is shown in Table 2.2 as developed by the Texas Water Development Board (TWDB).

Table 2.2
TWDB Population Projections through the Year 2070
City of Pharr 2018 Wastewater Master Plan

Year	City of Pharr Population	*City of Pharr Population Correction
2000	46,700	41,096
2006	61,400	54,032
2010	66,000	58,080
2020	89,220	78,514
2030	110,785	97,491
2040	132,437	116,545
2050	154,131	135,635
2060	175,826	154,727
2070	196,918	173,288

*A correction is applied to account for reduction in population due to area served by North Alamo for water demand.

Population projections from Table 2.2 were used throughout the Master Plan to develop flow and demand projections.

Section 3.0

Wastewater Flow Projections

3.1 Wastewater Flows

Wastewater flow projections are based on Texas Water Development Board (TWDB) population projections and historical water use data. Current wastewater and per capita flows were computed from historical plant data.

The City of Pharr (City) currently operates a single wastewater treatment plant located at 2400 S. Veterans Blvd and serves a population of approximately 76,000. The City's Wastewater Treatment Plant (WWTP) has an annual average daily flow (AADF) rated capacity of 8-mgd and a peak hourly flow of 24-mgd. Flow rates that are recognized as the most important for design and operation of a collection and treatment system include AADF, maximum month average daily flow (MMADF), maximum day (MD), and peak hourly flow (PHF). These flow rates are defined below:

Annual Average Daily Flow (AADF) is the average flow rate over a 24-hour period on total annual flow rate data. This flow is the arithmetic average over 365 days.

Maximum Month Average Day Flow (MMADF) (Design Flow) is the average day flow for the month with the maximum flow. MMADF is commonly considered to be the Plant's design flow or permitted capacity. To absorb the highs and lows in a given data set, a 30-day rolling average is computed, and the highest flow is selected to be the MMADF or design flow. Currently, the City of Pharr's WWTP has a permitted design capacity of 8.0-million gallons per day (mgd).

Peak Hourly Flow (PHF) is the highest flow rate measured over a two-hour period. Generally, these peaks occur during a two-year, two-hour, wet weather event. PHF rates are also part of the permit capacity and are used to design pumping and disinfection facilities. Currently, the City has a permitted PHF of 24-mgd.

Population projections established in Section 3.0 were used to extrapolate the historical wastewater flows to the Year 2070. Such knowledge of future water demands will be essential in determining the required improvements at the WWTP.

3.2 Historical and Projected Flow rates

TCEQ requires treatment plants be designed for a maximum 30-day average wet-weather flow, which is also referred to as the maximum month average daily flow (MMADF). Historical flow trends at the WWTP were analyzed and used in combination with population projections to determine future flow conditions. Future flows were established based on a per capita basis gallon per day per capita (GPCD) (75-gpdc) and using a peaking factor of 1.2 to compute MMADF. GIC also projected future flows based on historical trends. Table 3.1 shows the projected flows that will form the basis of our study and ultimately, development of the CIP. Data shown between 2015 and 2018 is based on historical data. Data between 2020 to 2070 are projections using the GPCD values previously reported. Table 3.2 highlights current flows (2018) and

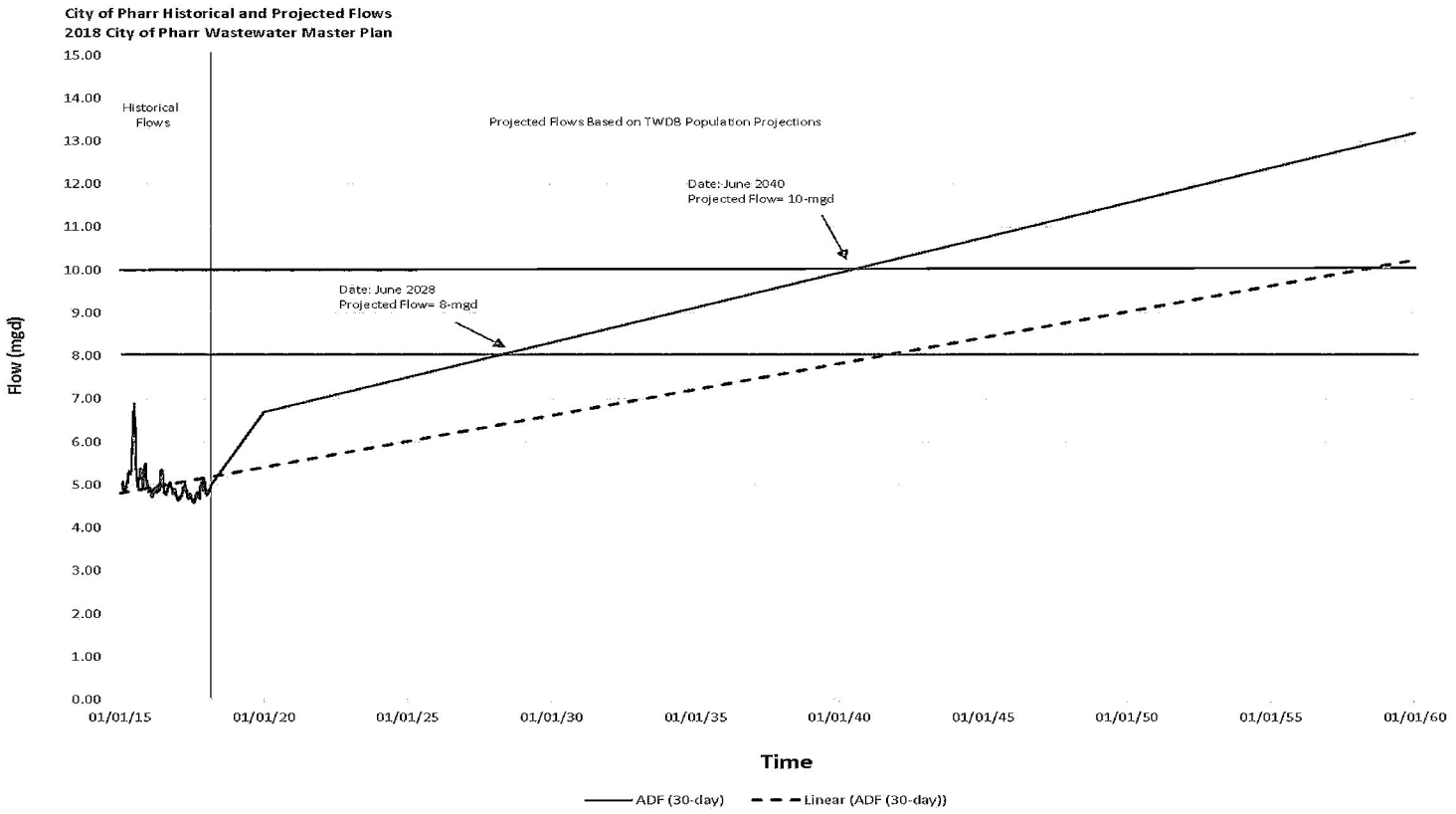
planning flows (2040). Exhibit 3.1 presents this same information graphically. The graph also shows when the plant is expected to reach capacity.

TABLE 3-1
Historical and Projected Flows
City of Pharr 2018 Wastewater Master Plan

Year	AADF (MGD)	MMADF (MGD)	Max. Day (MGD)	Peak Hourly (MGD)
2015	5.7	6.9	8.6	20.7
2016	4.4	5.4	6.7	16.1
2017	4.2	5.1	6.4	15.4
2018	4.1	5.0	6.2	15.0
2020	5.5	6.7	6.9	16.6
2030	6.9	8.3	8.6	20.6
2040	8.2	9.9	10.3	24.6
2050	9.6	11.6	11.9	28.7
2060	10.9	13.2	13.6	32.7
2070	12.2	14.8	15.3	36.6

TABLE 3-2
Pharr WWTP Flows
City of Pharr 2018 Wastewater Master Plan

Year	**AADF (MGD)**	**MMADF (MGD)**	**Max Day (MGD)**	**2-Hr Peak (MGD)**
Existing Flows (2018)	4.1	5.0	6.1	15.0
Planning Year Flows (2040)	8.2	10.0	10.3	24.6


City of Pharr Historical and Projected Flows
2018 City of Pharr Wastewater Master Plan
Historical Flows
Projected Flows Based on TWDB Population Projections
Date: June 2040
Projected Flow= 10-mgd
Date: June 2028
Projected Flow= 8-mgd
Flow (mgd)
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
01/01/15
01/01/20
01/01/25
01/01/30
01/01/35
01/01/40
01/01/45
01/01/50
01/01/55
01/01/60
Time
ADF (30-day)
Linear (ADF (30-day))

Section 4.0

Wastewater Treatment Plant

4.1 Wastewater Treatment Plant

The Pharr WWTP site is in Hidalgo County, adjacent to Veterans Blvd and approximately 2-miles south of the intersection of Veterans Blvd and Business US 83. Treated effluent is discharged into the Hidalgo County Drainage Ditch No. 1, which empties into the Main Floodway and Arroyo Colorado in Segment 2202 of the Nueces-Rio Grande Coastal Basin.

The wastewater treatment plant site and structure locations comply with TCEQ site location requirements for WWTPs. There is a 150-foot buffer zone between plant structures and residential properties. The plant is not closer than 500 feet from public water wells, or 250 feet from private water wells. The Pharr WWTP site is approximately 50.95 acres. Refer to **Appendix B.**

The purpose of this evaluation is to estimate the capital investment needed at the facility to reliably and efficiently treat wastewater generated within the Pharr collection system. The investment is based on identifying the deficiencies and upgrades needed to meet future demands and regulatory requirements. Specific tasks in this evaluation include:

1. Establish projected flows per population projections through the Year 2040.
2. Develop an understanding of the existing treatment plant facilities through conducting site visits, reviewing record drawings, and interviewing plant staff.
3. Perform desktop process analysis using the EnviroSim wastewater treatment simulator BioWin to identify process limiting components and better understand the actual plant capacity.
4. Hydraulic modeling was not necessary for this evaluation.
5. Summarize the process capacity of the existing facility based on current mechanical and operational conditions.
6. Summarize the condition of the existing infrastructure.
7. Recommend a capital improvements program that outlines plant modifications needed to address deficiencies and to meet projected future flows.

4.1.1 Design Flow

4.1.1.1 Plant Capacity

The plant design flow rates, as established in the current discharge permit, are summarized below. A copy of the City's Discharge Permit is included in **Appendix C**.

Annual Average Daily Flow (AADF)= 8.0-mgd
Peak Hourly Flow (PHF)= 21-mgd

4.1.1.2 Projected Flows

Projected flows are covered in **Section 3.0** and based on the City's Comprehensive Plan and Texas Water Development Board (TWDB) Population Projections. TCEQ requires that whenever a wastewater treatment plant reaches 75% of the permitted daily average flow for three consecutive months, the permittee is required to initiate engineering and financial planning for expansion and/or upgrading the treatment plant. Whenever flows reach 90%, the permittee should be in construction. Existing flows fluctuate but generally in the 4-mgd range. **Table 4-1** summarizes these flows and compares to the discharge permit. Based on these projections, the plant will reach 75% of the permitted design flow approximately in 2025 and reach the permitted capacity in 2040. The plant is currently operating at approximately 51% capacity.

Projections indicate that the plant will not reach capacity until Year 2040. Therefore, the recommended improvements target maintenance repairs and upgrades to replace inoperable or dilapidated equipment that has reached its intended design lift. It is important to continue monitoring flows at the plant. As improvements are made to the sanitary sewer collection system it will result in higher flows at the Plant. GIC developed several options to add capacity to the biological treatment process which are summarized in **Section 4.2.3**. The Secondary Clarifiers, Effluent Filters, UV Disinfection, and post aeration system are currently rated at 10-mgd. Therefore, if flows climb at a higher rate or the GPCD increase, the City has the flexibility of choosing from the various alternatives presented in this section to increase capacity. In addition, the City can also opt to add the third BNR Train.

TABLE 4-1
Pharr WWTP Design Flows
City of Pharr 2018 Wastewater Master Plan

Year	AADF (MGD)	MMADF (MGD)	Max Day (MGD)	2-Hr Peak (MGD)
Existing Flows (2018)	4.1	5.0	6.1	15.0
TCEQ Permit Flows	8.0	-	-	21.0
Year 2040 Flows	8.3	10.0	10.3	24.6

4.1.2 Wastewater Characteristics

Historical wastewater flow, BOD_5 and TSS data were analyzed to determine historical loads to the plant and develop design loads for assessing future treatment requirements if required. The analysis shows that while flows to the plant have declined slightly, loads to the plant have significantly increased since the last upgrade. Refer to Table 4-2. This change probably results from reduced per capita water use and a more concentrated wastewater.

TABLE 4-2
Design BOD_5 and TSS Loads
City of Pharr 2018 Wastewater Master Plan

Year	Avg Daily Flow	Max Month ADF	BOD_5	Annual Average BOD_5 Load	Max Month BOD_5 Load	TSS	Annual Average TSS Load	Max Month TSS Load
	(MGD)	(MGD)	(mg/L)	(lb/day)	(lb/day)	(mg/L)	(lb/day)	(lb/day)
2015	5.7	6.9	236	11,178	13,532	93	4,434	5,365
2016	4.4	5.4	208	7,605	9,334	94	3,473	4,202
2017	4.2	5.1	207	7,225	8,773	105	3,718	4,498
2018	4.1	5.0	227	7,734	9,432	101	3,472	4,201
Existing Design	8.0	10.0	220	12,797	14,626	160	9,341	10,675
Build-out	8.3	10.0	220	15,174	18,282	100	9,270	8,340

4.1.3 Nitrogen Loads

Limited influent nitrogen data are available for this plant. The recommended Total Kjeldahl Nitrogen (TKN) loads for the upgrade are based on the available plant ammonia data plus the estimated organic nitrogen fraction of the suspended solids. A TKN concentration of 43 mg/L was used for the design of the latest upgrade.

4.1.4 Effluent Quality

The existing discharge permit limit concentrations are shown in Table 4-3.

TABLE 4-3
Pharr WWTP Permit Discharge Limits
City of Pharr 2018 Wastewater Master Plan

Parameter	Units	Limits
MMADF	MGD	10.0
BOD_5	mg/L	7
	lb/day	466
TSS	mg/L	12
	lb/day	800
NH_3-N	mg/L	2.0
	lb/day	133
DO	mg/L	6.0

The third train (MLE) facilities are designed to achieve a total nitrogen (TN) concentration of less than 8 mg/L.

The City operates a recycle system to irrigate a golf course as well as for plant process water. The system reduces the amount of water that is discharged from the WWTP and total maximum daily load (TMDL) to the receiving stream. The rules for use of reclaimed water are stipulated in TCEQ Rule 210.32. There are two classifications for reclaim water use:

1. Type I Reclaimed Water Use includes irrigation and other uses in areas where the public may be present during the time when irrigation takes place or other uses and where the public may come into contact with the water. This category includes irrigation of residential and urban properties, golf courses and other recreational land, fire protection, irrigation of food crops, pastures for milking animals, and toilet or urinal flushing water.

2. Type II Reclaimed Water Use includes irrigation or other uses where the public is not present during the time when irrigation activities occur and where the public will not come in contact with the reclaimed water. This category includes irrigation of sod farms, silviculture, limited access highway rights of way. Generally, the site must be remote and have controlled access. Irrigation of crops where the reclaimed water is unlikely to have direct contact with the edible part of the crop, or crops that are pasteurized prior to distribution may be irrigated with Type II reclaimed water.

The applicable reclaimed water quality standards for these two classifications when produced from a WWTP are shown in Table 4-4. The outcome of these rules is that Type I reclaimed water generally requires filtration whereas Type II water does not.

The effluent filters in the last upgrade have sufficient capacity to filter all effluent produced at the plant. Filtration makes the effluent suitable for a wider variety of reuse applications.

TABLE 4-4
Reclaimed Water Quality Requirements
City of Pharr 2018 Wastewater Master Plan

Parameter	Type I	Type II
BOD_5 or $CBOD_5$, mg/L	5	15
Turbidity, NTU	3	na
Fecal Coliform, CFU/100 mL*	20	200
Fecal Coliforms, Max CFU/100 mL**	75	800

* geometric mean
** single grab sample

4.1.5 Overview of Existing Facilities

The existing Pharr WWTP includes a main influent pump station, headworks structure, two (2) oxidation ditch systems and associated clarifiers (Train 1 & 2), a biological nutrient removal (BNR) basin and associated secondary clarifiers (Train 3), cloth media filtration, and UV disinfection. Sludge management facilities include a sludge holding tank, gravity belt thickener, two aerobic digesters, and a belt filter press (BFP) facility for biosolids dewatering.

The influent pump station has four, 40-HP Flygt submersible pumps, each with a capacity of 2,870-gpm. The pump station has a maximum (firm) capacity of 12.3 MGD with three (3) pumps in operation. The 16-ft diameter Pista Grit System has a rated capacity of 20 MGD. Screened and degritted wastewater is split by weirs and flows to the two oxidation ditch systems and BNR Basins.

Oxidation Ditch No. 1 has a basin volume of 1.5 MG, two 2-speed, 125 HP surface aerators and is rated for 2.25 MGD. There are two 60-ft diameter secondary clarifiers (1 and 2) with 12-foot side water depths. The return activated sludge (RAS) pump station has three (3) 15-HP Gorman-Rupp and two (2) 5-HP Gorman-Rupp waste activated sludge (WAS) pumps.

Oxidation Ditch No. 2 has a basin volume of 2.3 MG, two 2-speed, 125 HP surface aerators and is rated for 2.75 MGD. There are two 60-ft diameter secondary clarifiers (3 and 4) with 12-foot side water depths. The RAS Pump Station 2 has three (3) 15-HP centrifugal pumps and two (2) 5-HP WAS pumps.

The third biological treatment train has two aeration basins in a MLE configuration, and two clarifiers (5 and 6). Construction of these facilities was completed in 2010, as well as other system improvements (including effluent filters and UV disinfection). The third treatment train is located directly south of the headworks.

Appendix D shows an overall detailed process flow diagram for the Pharr WWTP for both liquid and treatment streams.

Effluent from all treatment trains pass through effluent filters. The filters reduce the effluent suspended solids, and produce an effluent suitable for Type I reuse.

Disinfection is achieved using UV disinfection. Two channels are each equipped with two banks of lamps.

Effluent that is reused at the WWTP or offsite is chlorinated in an adjacent basin at the UV disinfection basin to achieve high level disinfection and maintain a chlorine residual to prevent bacterial re-growth. Small 150-lb gas cylinders are used for this purpose.

The sludge management system includes the following:

- Waste Activated Sludge storage in an aerated tank (converted gravity thickener).
- WAS can be thickened, if desired, in a gravity belt thickener prior to aerobic digestion.
- Two aerobic digester are used for digestion.
- Sludge is ultimately dewatered at a dewatering facility which includes two (2) belt presses, two (2) progressive cavity sludge cake pumps, and ultimately discharges into two roll-off boxes.

4.1.6 Condition Assessment

The following sections describe the current condition of the wastewater treatment plant which includes the influent lift station, liquid train, and sludge handling system. wastewater collection system lift stations and wastewater treatment facilities.

4.1.6.1 Main Plant Influent Lift Station

The influent pump station has four, 40-HP Flygt submersible pumps, each with a capacity of 2,870-gpm. These pumps provide a maximum (firm) capacity of 12.3 MGD with three (3) pumps in operation and 16.4 MGD when four pumps operate.

Lift Station No. 6 (in the collection system) pumps wastewater directly to the top of the headworks and bypasses the Influent Lift Station. The direct pumping to the headworks allows a total plant peak design flow of 21.6 MGD.

The existing lift station was not modified as part of the last expansion and has been in operation since 1983, approximately 35-years. The City should consider replacing, or expanding and upgrading the Influent Lift Station. The volume of the lift station wet well is too small, which results in overflows. This is a health hazard for plant staff.

The odor control fan, that evacuates corrosive gases from the wet well, is not operational.

4.1.6.2 Headworks

The Headworks includes a 6-ft wide, mechanical fine screen, bypass channel with manually cleaned screen, a 16-ft diameter Pista Grit System rated to treat 20-MGD, and a flow splitter structure. Screenings are washed, compacted and conveyed to a screenings hopper.

Screened and degritted wastewater flows to a splitter box where it is directed to the two oxidation ditch systems and BNR Basin. This system proportionally splits the flow and load between the on-line treatment trains.

The Headworks facility was modified as part of the last two expansion projects. It was originally built in the mid-80's as part of the first train, upgraded when Train 2 was added in 1997, and again when Train 3 was constructed in 2010. Refer to **Table 4.5** for existing screening facility details.

TABLE 4-5
Wastewater Screen Facilities
City of Pharr 2018 Wastewater Master Plan

Item	Existing
Number	1
Capacity, MGD	21.8
Channel width, ft	6.0
Channel depth, ft	5.0
Opening Size	¼"
Design Headloss, ft @ 30% blocked.	1.08
Max. water level upstream, ft	4.0

The existing grit removal system was originally installed during construction of Train 1. Minor improvements were made in 2010, the self-priming control panel was replaced.

The headworks has surpassed its intended design life. The overall condition of the concrete did not reveal any significant issues given age and service. No immediate repairs are necessary.

The fine screen is operational and requires maintenance. The screen cleaning brush was missing during the site visit, the HMI monitor was not operating, and the grinder had been removed. Motors on the screening unit are severely corroded. The addition of a second screen is recommended for redundancy.

The grit chamber was not operational during our site inspection. The mechanical paddle was not operating and there is significant corrosion inside the primer pump control panel. The addition of a water scour to fluidize settled grit prior to turning on the grit pumps would improve the current situation. Staff noted that grit is bypassing the headworks and is possibly impacting the treatment plant.

Basic deficiencies observed at the headworks are summarized below:

1. Severe corrosion of equipment.
2. Odor Control Blower is not operational.
3. Fine Screen Operator Interface Screen Panel is not operational.
4. The cleaning brush at the top of the Fine Screen is missing.
5. Grit Chamber paddle is not operational.
6. There is heavy corrosion at the grit chamber pump priming panel.
7. Fine Screen grinder was removed.
8. Mechanical screen motor needs to be rehabilitated or spares ordered. Motors are severely corroded.
9. Incorporate flow metering (strap on mag type meter) to measure influent flow to meet new TCEQ rules.

4.1.6.3 Plant 1: Oxidation Ditch No. 1

Oxidation Ditch No. 1 was constructed in 1986. It has a basin volume of 1.5 MG, two 2-speed, 125 HP surface aerators and is rated for 2.25 MGD. While older than Oxidation Ditch No. 2, it is in better structural condition. The structure appears sound and there is no major visible cracking. The FRP splash cover panels near the aerators are in poor condition and should be repaired or replaced.

The low-speed aerators (motors and gearboxes) have been rebuilt several times. Now over 30 years old, they are approaching the end of their reliable lives and cost-effective operation.

The power is supplied via the MCC which is located at the base of the ditch structure. The MCC was found to be in satisfactory condition.

The downward-opening weir gates of Oxidation Ditch No. 1 were recently replaced and equipped with motor-operated actuators and dissolved oxygen (DO) sensors. This modification allows the weir gate levels to vary, and can be used to maintain the DO within a target range and reduce aerator power consumption. During our visit, the DO control system was not in use. Gate 1 was 42% open and Gate 2 was 35% open.

The two 60-ft diameter Secondary Clarifiers (Nos. 1 and 2) for Train 1 were refitted in 2015 and 2017 and are in good condition. No deficiencies were identified.

The return activated sludge (RAS) pump station has three 15-HP Gorman-Rupp and two (2) 5-HP Gorman-Rupp waste activated sludge (WAS) pumps. These pumps appear to be operating satisfactorily. Staff did not indicate any problems with the RAS pumps. The station appears to be working well.

Neither the RAS nor WAS flow meters were operational. We recommend that flow meters be installed to properly manage RAS and WAS operations. Strap-on ultrasonic type meters are more cost-effective when compared to inline magnetic type meters. However, we have taken note that the ultrasonic meters at this facility have not performed well. None of the ultrasonic meters were operational during our last site visit. Recommend that the source of the problem be researched or the City should simply avoid using the ultrasonic strap-on type meters.

Basic deficiencies are summarized below:

1. The aerator on the south side of Oxidation Ditch No. 1 was noisy and should be checked.
2. The FRP Splash Panels are loosely fixed or missing, and need to be repaired or replaced.
3. New RAS and WAS flow meters should be provided to assist in plant operation and control.
4. The Oxidation Ditch MCC are also very old and not properly protected. The MCCs for the ditches should be replaced.

4.1.6.4 Plant 2: Oxidation Ditch No. 2

Oxidation Ditch No. 2 was constructed in 1998. It has a basin volume of 2.3 MG, two 2-speed, 125 HP surface aerators and is currently rated for 2.75 MGD.

Oxidation Ditch No. 2 (Plant 2) is structurally in poor condition, with significant cracks developing at the western end (farthest from Veteran's Boulevard) and north side. The mastic compound within construction joints is separating and rebar is exposed. The joint shows signs of leakage.

It is recommended that the City determine the cause of this structural failure and evaluate options to rehabilitate this structure. A comprehensive structural evaluation of the condition of the structure is beyond the scope of this project. However, based on the original construction drawings (Turner Collie & Braden), this structure has a raft foundation (no pile supports). The foundation at the western end of the structure may be subsiding. A structural engineer should examine this structure and prepare a report on the causes of the cracking, remedial options and an estimate of the time needed for repair.

The surface aerators are over 20 years old and are nearing their expected operating life. They have been re-built on multiple occasions. The aerators are 2-speed, but staff noted that only one aerator can operate at both speeds.

Clarifiers No. 3 and 4 are in reasonable condition and there is no immediate need to rehabilitate the sludge collection equipment. GIC recommends that the City dewater the clarifiers every few years to inspect this equipment. Based on visual inspections, the priority for replacing clarifier internal equipment in the CIP can be elevated if the condition of the clarifier equipment rapidly worsens.

The sludge collector drive units at both clarifiers should be sandblasted and painted. The landing at the at the top of the stairs needs to be replaced.

RAS Pump Station 2 has three (3) 15-HP centrifugal pumps and two (2) 5-HP WAS pumps. Staff did not indicate any problems with these pumps. The station appears to be working well.

As with other process pump stations, the flow meters for the RAS and WAS pumps are not working and need to be replaced.

4.1.6.5 Plant 3: BNR System

Two bioreactors, in a folded, plug-flow Modified Ludzack-Ettinger (MLE) configuration provide 3.0-mgd treatment capacity. Each bioreactor has a volume of 0.64-MG and is designed to reduce both ammonia and nitrate (NO_3-N) concentrations. A third bioreactor can be built in the future to increase plant capacity to 10 MGD. Figure 4-1 depicts the process flow diagram and shows the future third biological treatment train.

Screened wastewater flows from the headworks to the MLE splitter box where it is mixed with return activated sludge (RAS) and distributed to the bioreactors. The influent/RAS mixture then mixes with recirculated mixed liquor in the anoxic zone. Mixed liquor suspended solids (MLSS) remain suspended due to submersible mixers.

MLSS flows over a weir into an aerobic zone, where nitrification occurs. At the end of the aerobic zone, a propeller wall pump recirculates nitrate-rich mixed liquor (NRML) back to the anoxic zone. The nitrates are denitrified in the anoxic zone, reducing the total nitrogen concentration, the aeration power requirement and good settling sludge characteristics are promoted.

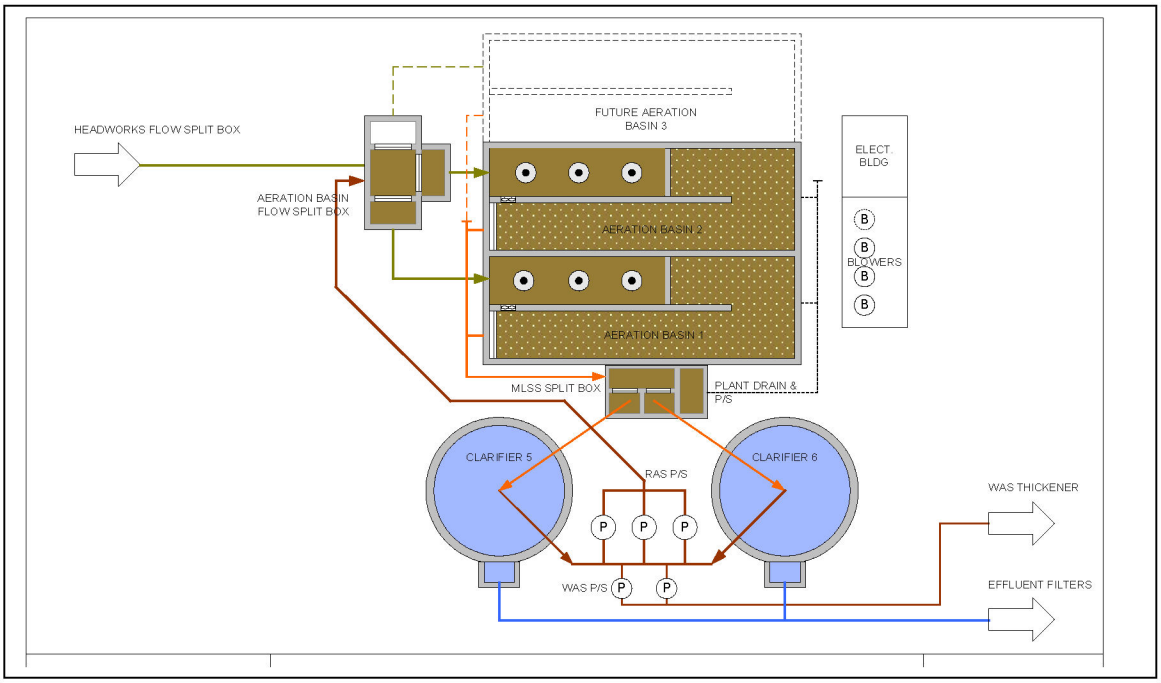
The aerobic zones of the bioreactors use fine-bubble diffusers to distribute air supplied by multi-stage centrifugal blowers. These systems appear to be working satisfactorily.

The BNR aeration basins and equipment are in good condition. No major deficiencies were identified. Mixers and pumps need to continue to be monitored and replaced/repaired as needed under the City's O&M Budget. GIC will include replacement costs for this equipment in the CIP.

Secondary Clarifiers 5 and 6 are 80-ft diameter units with a side water depth of 15 feet. Clarifiers are center feed units, with internal weirs, full-width scum troughs and spiral sludge removal mechanisms. The concrete structures and most of the equipment in these clarifiers are in good condition.

The scum pump system is not working reliably. GIC recommends that it be replaced. The City may consider using a Wemco Pre-rotation Type Basin which is designed to create a rotation motion of fluid in the basin prior to entering the pumps. This system could be considered as part of a future improvement project.

Figure 4-1
Biological Treatment Process Flow Diagram
City of Pharr 2018 Wastewater Master Plan



The three (3) existing RAS pumps are operating well. One (1) of the original Penn Valley WAS pumps was replaced with a Gorman-Rupp Pump. It is our understanding that the second Penn Valley Pump is not operational. No other major deficiencies were identified.

No RAS/WAS flow meters (strap-on) for the RAS & WAS pump stations are operational. The existing flow measurement systems should be upgraded.

New HMI screens are needed and should be housed inside exterior panels to protect them from UV degradation.

4.1.6.6 Effluent Filter

Effluent filters achieve a high-quality plant effluent that is consistently less than the 10 mg/L effluent total suspended solids concentration (TSS) limit. The filters have sufficient capacity to treat all wastewater flows in the foreseeable future.

The filters are in good condition. The four 12-disk cloth filter units are designed to treat and average 10 MGD flow, and a peak flow of 24 MGD. Filter media is typically replaced every 7 to 10-Years. It is our understanding that the media has been replaced once. A second replacement would therefore not be necessary for another 7 to 10-Years.

Filter HMI screens need to be replaced and housed inside the exterior panels. No other problems identified with filters.

A walkway was installed by staff to facilitate movement between the effluent filter and UV Basin. This walkway does not meet safety codes and consideration should be given to replacing it with a properly designed walkway or eliminating it completely. It is our opinion that the City seal it off and not allow use for safety issues.

4.1.6.7 UV Disinfection

The UV disinfection facility has two channels, and each channel has two banks of UV modules. The disinfection system is designed for an average flow of 10 MGD, and peak flow of 24 MGD.

A downward-acting weir gate at each end of the new UV channels maintains the water level in the disinfection basin at a specified depth above the UV lamps, and ensures proper disinfection of all flow. The influent weir gate is normally open when the channel is in use. It should be raised, or closed, when the channel is offline. These weir gates have electric actuators and modulate to achieve the constant water level in the channel.

Each channel has a level element and instrumentation to determine the weir gate position so that effluent flow can be calculated, and the correct UV dose determined and applied.

The lamps are automatically cleaned to maintain disinfection efficiency. The cleaning wipers are powered by a single, hydraulic system.

The HMI Control Panel screens need to be replaced. No other problems identified with UV Disinfection.

4.1.6.8 Solids Handling Overview

The Sludge Management System consists of the following treatment components:

Waste Activated Sludge (WAS) Storage Tank & Blowers
Gravity Belt Thickener Feed Pumps
Gravity Belt Thickener (GBT)
TWAS Transfer Pumps
Aerobic Digesters and Associated Blowers
Digested Sludge BFP Feed Pumps
Belt Filter Presses
Dewatered Sludge Cake Transfer Pumps

The sludge management system is designed to produce biosolids that meet Class B Sludge Requirements.

Proof of pathogen reduction is accomplished by fecal coliform testing and VAR requirements. The new sludge management system is expected to produce aerobically digested sludge SOUR rates equal to or less than 1.5 mg/g/hr.

Figure 4-2 shows the process flow diagram of the upgraded sludge management system. These processes are discussed in more detail in the following sections.

Table 4-6 shows the expected WAS flows and loads at the design monthly maximum average day conditions. These values are based on an assumed solids retention time (SRT) of 10 days.

Figure 4-2
Sludge Management Process Flow Diagram
City of Pharr 2018 Wastewater Master Plan

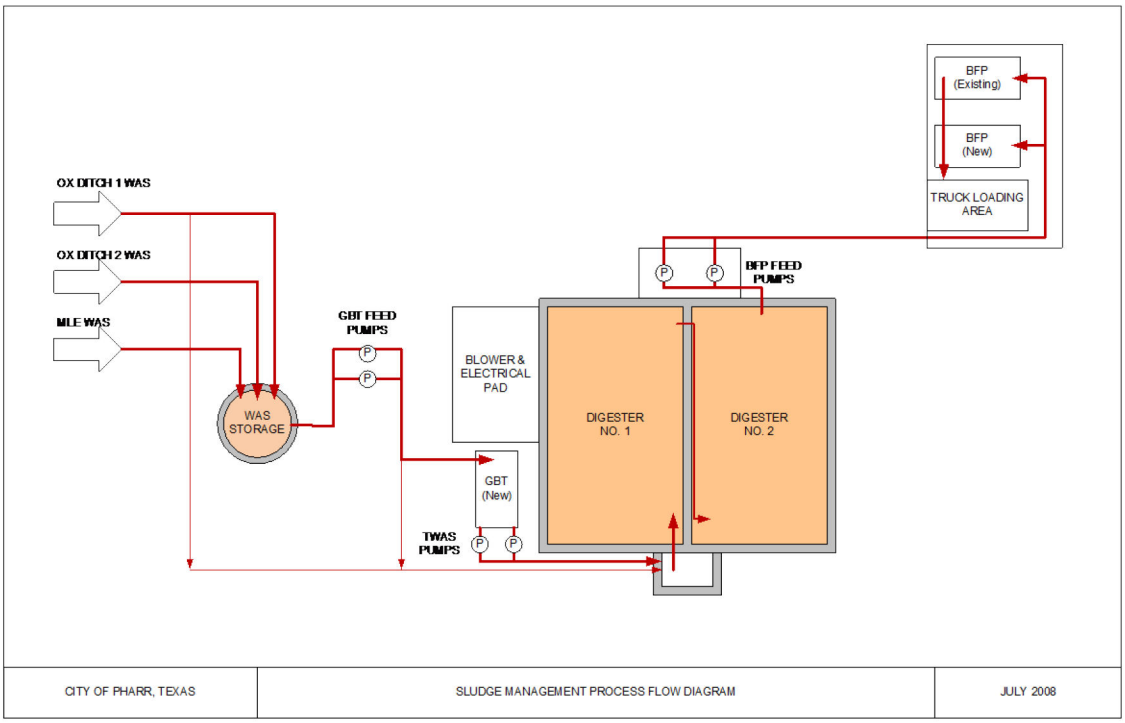


Table 4-6
Design Waste Activated Sludge Flows and Loads[a]
City of Pharr 2018 Wastewater Master Plan

Flow Condition MGD	WAS Load lb SS/day	WAS Flow gpd
5.0	5,900	81,800
8.0	10,050	139,000
10.0	12,120	168,000

Notes: [a]Based on a 10-day SRT

4.1.6.9 WAS Thickening

The former gravity thickener is available to store WAS upstream of the thickening process. The GBT can process up to 490-gpm, which far exceeds the WAS pump capability.

Therefore, storage is available to accumulate WAS and allow the GBT to operate for extended run times independent of wasting operations.

A coarse bubble aeration system and blowers provide air to keep the WAS mixed and aerobic. Pumps (GBT Feed Pumps) transfer WAS from the storage tank to the gravity belt thickener (GBT) when thickening is needed, or directly to the digesters. After thickening, two TWAS pumps transfer TWAS from the GBT to the aerobic digesters.

The WAS operation can be used to blend TWAS and WAS to achieve approximately 3 to 4 % dry solids (% DS) in the digesters. The GBT thickens WAS using a minimum polymer dose for solids separation. A portion (typically 10 to 15 percent) of the WAS can bypass the GBT to dilute the TWAS and optimize the solids concentrations in the digesters.

4.1.6.10 WAS and TWAS Systems

The sludge holding tank is not currently being used. This non-usage is not an issue if adequate digestion can be achieved without thickening sludge. All equipment should be operated periodically to ensure future operation.

The GBT Feed and TWAS Transfer Pumps are not being used, as WAS is being pumped directly to the digesters by the WAS pumps. The GBT and TWAS pumps need to be exercised regularly, and should also be sandblasted and painted.

Blowers for the sludge storage tanks should also be periodically exercised to ensure future operation.

The Gravity Belt Thickener is operational and no major problems were noted.

The Belt Filter Press Feed Pumps need to be sandblasted and painted. During our visit we observed that one of the BFP Feed pumps is relatively new and a second new pump is stored in the old BFP Building awaiting installation.

4.1.6.11 Aerobic Digestion

The two existing 0.58 MG aerobic digesters are aerated by three 125-HP multistage centrifugal blowers.

TWAS can be pumped to Digester 1 and aerated. TWAS will overflow into Digester 2, and after further digestion, is pumped to the belt filter presses (BFP) for dewatering. The use of a two-stage digestion process improves coliform destruction and volatile solids reduction.

Alternatively, WAS/TWAS can be pumped to one digester until it is full, and then to the other. Digested sludge will be pumped from the digester not being filled.

The digester structure appears to be in satisfactory structural condition. Any future work at the WWTP should include an assessment of this facility.

The digester blowers are in poor condition. The digester blowers are in poor shape and should be replaced as part of a CIP or O&M Program. One of the three blowers was not

operational during our site visit. These blowers were installed as part of Phase 2, 1997 and approximately over 20-Years old. This equipment is due to be replaced.

The MCC for the blowers is in extremely poor condition. The MCCs need to be replaced as soon as possible. We recommend housing MCC in a new Electrical Building.

4.1.6.12 Dewatering Facility

The screens on the various control panel screens are blinded/burned out. These screens need to be replaced and some sort of protective covers provided to protect screens. Covers for the screens should be provided at all panels across the entire plant.

The older belt filter press needs to either be replaced or refurbished. Staff indicated some difficulties with this older press. This press was first installed in 1997.

One of the polymer feed systems appeared inoperable. This system should be replaced.

Cake pumps are working well. The pump stator for one of the pumps was out and a replacement stator was pending. Consider providing water jetting inside the sludge transfer piping to lubricate the sludge and reduce wear and tear on the cake pumps and associated stators.

4.1.7 Electrical, Instrumentation and Control

Plant 3 was designed to be SCADA ready. All of the conduits from the various treatment components were installed but wires will need to be pulled and terminated at the existing Administration Building. Software/programming, hardware, and wiring is required to incorporate new SCADA System for Plant 3. Plant 3 includes the BNR Basin, Secondary Clarifier 5 and 6, Effluent Filters, and UV Disinfection System. The SCADA will allow the Staff to optimize the operation of the BNR Basin and it may allow reduction in power consumption.

4.1.8 General Plant Condition

The plant generally is operating well and meeting all effluent discharge limits. We noticed multiple examples of equipment and process piping corrosion that need to be sandblasted to near white finish and epoxy coated. We strongly recommend the City consider adding maintenance personnel. Plant operators are currently responsible for both operations and maintenance. Maintenance personnel would be strictly dedicated to maintenance activities (keeping the plant clean, painting, lubricating equipment, equipment repair, etc.). Additional resources/staff/subcontractors are also needed to support instrumentation and control (I&C) and future SCADA systems.

4.2 Recommended Plant Improvements

The plant is currently operating at approximately 65% capacity. Once the plant reaches 6-mgd, it will trigger the TCEQ 75% rule and the City will need to start planning the next plant expansion.

While capital investment for new facilities that provide additional treatment capacity is not needed immediately, the overall condition of the plant has deteriorated significantly over the past 5 years. Additional funding is needed to improve maintenance, replace aging equipment and upgrade instrumentation and plant controls. These issues should be a high priority over the next few years. Refer to **Appendix E** for drawings that show the location of the various recommended repairs. A summary narrative outlining the recommended repairs/improvements throughout the plant is provided below.

4.2.1 Influent Lift Station

The Influent Lift Station needs to be upgraded or replaced. The new or upgraded Lift Station should be designed to ultimately convey an average flow of 12 MGD and peak flow of 30 MGD.

The existing wet well volume is too small. The lift station pumps cannot respond quickly enough to the uncoordinated peak flows coming from collection lift stations. This results in periodic flooding of raw sewage at the Headworks.

Two possible concepts for replacing the existing facility are:

1. Build a completely new Lift Station structure, most likely to the north of the existing lift station. This would require some logistically difficult influent sewer pipe changes.

2. Build a second wet well adjacent to the existing wet well (on the north side) and connect it to the existing wet well to create a larger, split-wet well.

The new lift station should have sufficient volume to provide some flow equalization. Designers should evaluate the use of collection system lift station instrumentation and controls, connected via a new plant SCADA system, to actively manage and coordinate the collection lift station operations and minimize simultaneous pumping of peak flows to the plant.

The Electrical Building installed during the last expansion includes space for new pump starters and VFDs.

Corrosion due to sewer gases is extensive at the lift station and headworks. High quality, corrosion-resistance materials should be specified and selected for the new facility. Concrete in the wet well should be lined to prevent corrosion by acidic gases.

A comprehensive approach to contain and treat sewer off-gas needs to be included in the new design to protect equipment, minimize maintenance and extend the operating life of the new pumping facility.

Adjacent to the new lift station, a new receiving facility for septic haulers should be built. When siting the new station, consideration should be given to plant traffic and accessibility to the treatment plant for maintenances purposes.

Due to the flooding issues, the priority to upgrade the Main Lift Station is high.

A budget estimate for a new Lift Station is $2.5M.

4.2.2 Headworks

The headworks need to be upgraded or replaced to provide new screening and grit removal facilities. The new facility could be located on the north side of the existing headworks. Minimum design requirements are outlined in TAC Title 30, Part 1, Chapter 217 Subchapter E.

The existing grit removal system is not operational and could may be demolished, allowing a new facility to be constructed adjacent to the existing structure and potentially retain the existing flow splitter structure. This would minimize changes to several large buried pipes.

The new facility should include, at minimum, two mechanical screens with maximum 5-mm diameter perforated plates, and associated screenings conveyance, washer/compactor equipment. There should be a grit removal system designed to remove 95% of grit (specific gravity of 2.65) larger than 100 microns at peak flows. Grit should be well washed, dewatered and conveyed into a dumpster.

Channels should be covered to contain odorous and corrosive gases. Gases should be extracted to an odor control system. Concrete channels should be lined to provide long-term protection to the structure.

The need to upgrade the headworks is high. Parts of the existing screen system (grinder, cleaning brush, HMI screen) do not function or are missing. Corrosion of electrical control systems is severe.

A second mechanical screen, with associated screenings washer and compactor, is needed to reduce the load on the existing screen and for redundancy.

A budget estimate for a new headworks is $5M.

4.2.3 Biological Treatment

Oxidation Ditch No. 1 is structurally in better condition than Oxidation Ditch No. 2. The condition of Oxidation Ditch No. 2 is concerning and the City should commission an engineering assessment of the cracking within the next 12 months and prepare remedial options.

Oxidation Ditch No. 2 is the largest single treatment unit at Pharr (2.75 MGD). As such, the ability to maintain adequate treatment capacity needs to considered when such a large part of overall capacity is unavailable for whatever reason.

A third BNR basin could be constructed and provide an additional 1.5 MGD capacity.

The aerators for both ditch systems are old and need to be upgraded. A 2013 study evaluated the capital and operating costs to upgrade the two oxidation ditch systems at the Pharr WWTP. This study evaluated three alternatives to upgrade the existing aerators:

Alternative 1: Replace the 125 HP surface aerators with new, two-speed surface aerators.
Alternative 2: Replace the existing aerators with dual-impeller surface aerators and VFD motor control.
Alternative 3: Replace surface aerators with independent mixers and fine bubble diffusers.

The study concluded that converting the existing ditch systems to diffused aeration with horizontal mechanical mixers is the most cost-effective alternative, with capital costs being recovered by energy savings within 5 to 6 years.

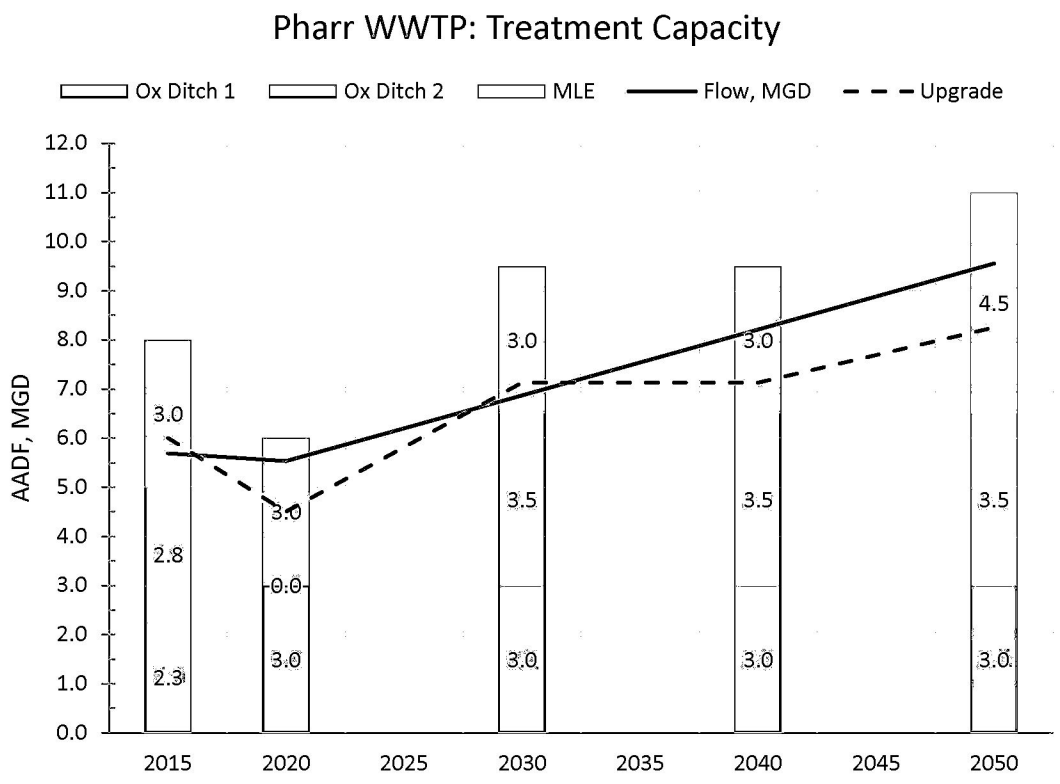
In addition to the energy savings, the potential treatment capacity of the ditches would be increased. The capacity of Oxidation Ditch No. 2, for example, could be comfortably increased from 2.75 MGD to 4 MGD using typical wastewater characteristics and operating at a 10-day solid residence time (SRT).

Considering the imminent need to upgrade the ditches mechanical aeration systems. The City may consider increasing treatment capacity by incorporating a fine bubble diffused aeration system. This modification eliminates the need to build new structures. This approach coupled with the long-term energy savings the City would achieve, is in our opinion, the most prudent and cost-effective approach while flows can still be managed with either of the ditches out of service.

Oxidation Ditch No. 1 can be converted first to realize the treatment capacity gain, before Oxidation Ditch No. 2 is taken offline for a similar conversion and remedial work on the structure, if needed.

The construction of the third BNR basin can then be postponed for the foreseeable future. This sequence is illustrated in **Figure 4-3** below, which shows the projected flows and on-line treatment capacity of an upgraded Oxidation Ditch No. 1 and offline Oxidation Ditch No. 2 in 2020.

Figure 4-3
Treatment Capacity Graph
City of Pharr 2018 Wastewater Master Plan



4.2.3.1 Secondary Clarifiers 1, 2, 3 and 4.

Secondary Clarifier Nos. 1 and 2 which are associated with Oxidation Ditch No. 1 were recently rehabilitated. All mechanical and electrical components were fully replaced. Secondary Clarifiers Nos. 3 and 4 which are associated with Oxidation Ditch No. 2, have not been rehabilitated. These clarifiers are in reasonable condition but have some localized areas of corrosion. They should be upgraded within the next 10 years.

4.2.3.2 Secondary Clarifiers 5 and 6.

The secondary clarifiers are in good condition and do not need upgrading. They were designed to accommodate flow from three MLE basins.

The scum pumps need to be upgraded.

Flow meters need to be added to properly control return activated sludge (RAS) and waste activated sludge (WAS) flows. A new WAS pump is needed.

4.2.4 Effluent Filters

The existing effluent filters have been designed for an average flow of 10 MGD and a peak flow of 24.0 MGD. No additional filtration capacity is needed over the next 10 years.

Replacement of the control panels are needed.

Provide safe walkway between the Filters and UV disinfection.

4.2.5 UV Disinfection

No UV disinfection capacity increases are needed in the foreseeable future.

Continued maintenance on the modulating gates and replacement of the HMI control panels are needed.

4.2.6 Post Aeration

The existing post-aeration system is adequate for the expected future flows and does not need to be expanded.

4.2.7 Solids Handling

The digester structure appears to be in reasonable condition.

The digester blowers are over 20 years old and in poor condition and should be replaced. A budget cost to replace the digester blowers is $300,000.

The digester blower motor control center (MCC) is in very poor condition. The electrical cabinet bases have extensive corrosion. Replacement of this electrical equipment should be a high priority. A budget cost to replace the digester MCC is $730,000.

There are two belt filter presses (BFP) at the plant. One new BFP was added in the 2012 upgrade while the original unit was refurbished. The City should plan on replacing the refurbished unit within the next 5 years. A budget cost to replace one belt filter press is $288,000.

One BFP polymer system is inoperable and should be replaced immediately. A budget cost for a new polymer feed system is $35,000.

It is recommended that the City consider adding water glands to reduce the friction and stress on the sludge cake pumps. This improvement may reduce the wear and tear on the sludge cake pumps. Other improvement to consider is replacing the HVAC system in the electrical room. A budget cost for improvements to the biosolids cake conveyance system is $75,000.

4.3 Capital Improvement Plan

This section of the report provides a schedule and corresponding cost for improvements identified in the master plan report to meet capacity, regulatory, and/or maintenance requirements at the wastewater treatment plant. Refer to **Table 4-7** for a breakdown of recommended improvements at the WWTP. Refer to **Appendix E** which shows location of recommended miscellaneous plant improvements.

Table 4-7
Wastewater Treatment Plant CIP
City of Pharr 2018 Wastewater Master Plan

Item No.	Description Summary	*Critical Rating (1 to 10)	Timeframe		Expenditures	
			Design	Construction	Engr/SDC/Admin	Construction
1	Influent Lift Station Replacement	7	2019	2020	$ 384,000.00	$ 2,560,000.00
2	Headworks Replacement	7	2019	2020	$ 412,500.00	$ 2,750,000.00
3	Oxidation Ditch No. 2 Repairs	9	2019	2020	$ 27,000.00	$ 180,000.00
4	Oxidation Ditch Modification/Diffused Air	7	2020	2021	$ 315,000.00	$ 2,100,000.00
5	BNR Basin (SCADA Upgrade)	5	2025	2026	$ 225,000.00	$ 1,500,000.00
6	Clarifier No. 3 and 4 Replacement	4	2025	2026	$ 225,000.00	$ 1,500,000.00
7						
8	RAS/WAS PS No. 2- Add Flow Meters	4	2019	2020	$ 2,700.00	$ 18,000.00
9	Effluent Filter Control Panel Repairs	7	2019	2020	$ 2,775.00	$ 18,500.00
10	Solids Handling System Improvements	7	2019	2020	$ 104,700.00	$ 698,000.00
11	Digester Blower Electrical (MCC) Improvements	9	2019	2020	$ 109,500.00	$ 730,000.00

*Critical rating is based on a scale of 1 to 10. Ten (10) being the most critical/urgent.

Section 5.0

Wastewater Collection System

5.1 Evaluation Objective and Scope

This plan is prepared to assist the City develop a Capital Improvement Plan (CIP) to define wastewater collection system improvement to meet current and future flows through the year 2040. As with any master plan, it is crucial to understand the limitation of this plan as a planning tool. Staging of particular projects may need to be adjusted to conform to regional factors such as planned roadway improvements, changes in development patterns, sewer condition, and/or right of way considerations.

The City's Sewer System Service Area is roughly bounded to the north by Owassa Road, west by Jackson Road, east by Veterans Road and South by the Rio Grande River. The study area also includes the region recently annexed by the City of Pharr. The Certificate of Convenience and Necessity (CCN) for this region is currently held by the Military Highway Water Supply Corporation. Refer to Exhibit No. 5.1 which shows the service area boundary.

The City continues to struggle with the operation and maintenance of thirty-three (33) lift stations. One of the primary goals of this study is to eliminate existing lift stations to reduce operational cost. This would be accomplished by combining existing lift stations or constructing new deeper sewer mains. GIC conducted an assessment of each lift station to help in the decision process to either eliminate or rehabilitate facilities that were found in poor conditions.

The main elements of our study are summarized below:

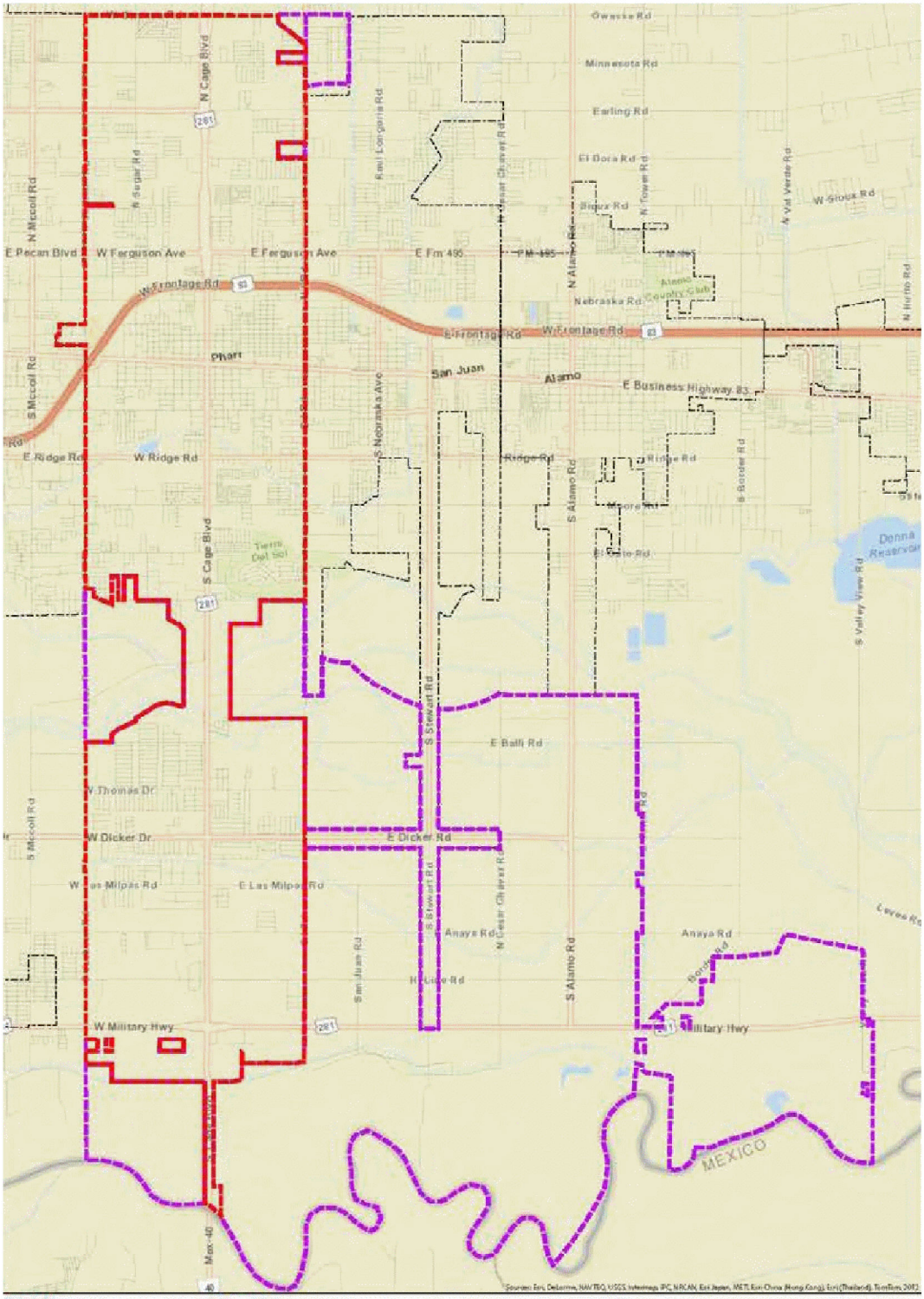
1. Define sewer sheds for each of the City's 33 Lift Stations.
2. Utilize the City's Comprehensive Plan and Texas Water Development Board (TWDB) Population Projections to determine future flows. The population and corresponding flow projections were presented in Section 2.0 and 3.0.
3. Hydraulic analysis to identify system deficiencies and future needs.
4. Lift station condition assessment. Refer to Appendix F.
5. Develop a prioritized Capital Improvement Plan (CIP) to address system deficiencies and handle projected flows.

5.2 Description of Existing Collection System Facilities

The City's Collection System includes the following components:

1. Thirty-three (33) Lift Stations.
2. One (1) Wastewater Treatment Plant (WWTP). The WWTP includes an on-site plant lift station. The WWTP Influent lift station is covered in Section 4.0.
3. Organized Sanitary Sewer System consisting of 6, 8, 10, 12, 14, 15, 18, 21, 24, 30, and 36-inch lines.

Refer to Exhibit 5.2, 5.3, and 5.4 for maps that show the existing sewer collection system highlighting major trunk mains and all lift stations.



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CITY OF PHARR MASTER PLAN

CITY OF PHARR

EXHIBIT NO. 5.1 WASTEWATER SERVICE AREA BOUNDARY

PHARR, TEXAS

SCALE: N.T.S.

OWASA ROAD
OWASA ROAD
LS #27
8" SS
LS #23
8" SS
8" SS
6" FM
10" SS
MINNESOTA ROAD
12" SS
10" SS
6" FM
8" FM
12" SS
SUGAR ROAD
12" SS
10" SS
15" SS
6" FM
U.S. HIGWAY (U.S. 281)
LS #25
12" SS
15" SS
10" SS
6" FM
NOLANA LOOP
6" FM
NOLANA ROAD
LS #31
6" FM
LS #29
8" SS
RAIDERS AVENUE
12" SS
VETERANS BLVD. (I. ROAD)
N. JACKSON ROAD (F.M. 2061)
10" SS
LS #33
8" SS
6" FM
ELDORA ROAD
16" FM
8" SS
15" SS
SIOUX RD.
30" SS
SIOUX RD.
30" SS
15" SS
30" SS
30" SS
U.S. HIGHWAY (U.S. 281)
SUGAR ROAD
LS #7
24" SS
16" FM
FM.495 (FERGUSON ROAD)
FM.495 (FERGUSON ROAD)
12" SS
12" SS
N. JACKSON ROAD (F.M. 2061)
U.S. EXPRESSWAY 83
LS #15
POLK AVENUE
LS #3
FM

LEGEND

- SANITARY SEWER TRUNK
- FORCE MAIN
- LIFT STATION
- CITY LIMITS
- REGION LIMITS
- LAND (UNDEVELOPED)
- LAND (DEVELOPED)
- HIDALGO COUNTY DRAINAGE DISTRICT

City of Pharr
2018 Master Plan
North Lift Stations

Lift Station #	Name
7	Bagwell
23	Texas Trails
25	High School
29	Presidents
31	Rudy's
33	Crystal Estates

NORTH
CENTRAL
SOUTH
KEY MAP

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CITY OF PHARR
MASTER PLAN

CITY OF PHARR

EXHIBIT 5.2
NORTH REGION

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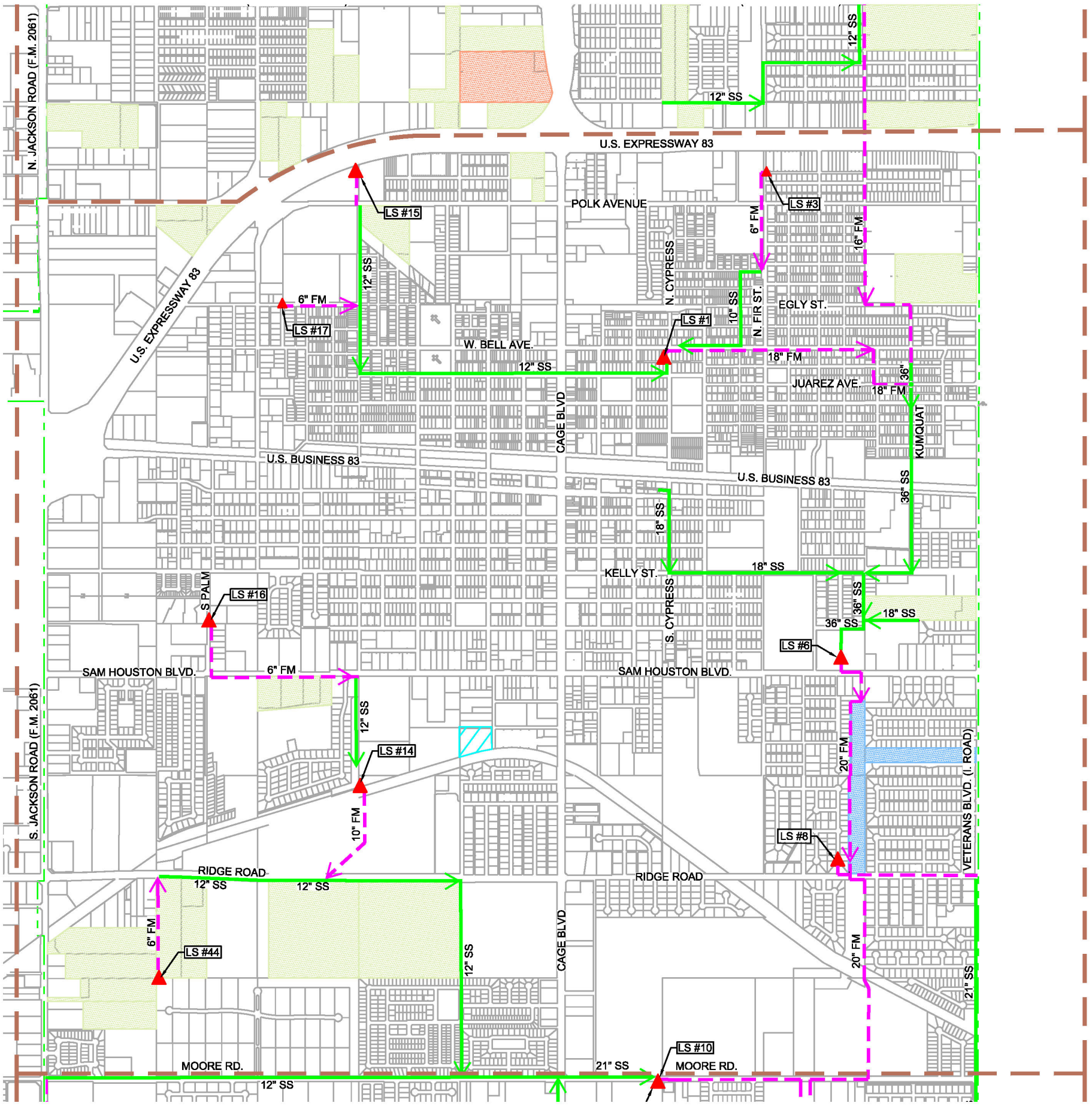
SCALE: 1"=1500'



LEGEND

- SANITARY SEWER TRUNK
- FORCE MAIN
- LIFT STATION
- CITY LIMITS
- REGION LIMITS
- LAND (UNDEVELOPED)
- LAND (DEVELOPED)
- HIDALGO COUNTY DRAINAGE DISTRICT

2018 Master Plan
Central Lift Stations

Lift Station #	Name
1	Main
3	DeLeon
6	PUB
8	Ridge
14	Canal
15	RGV
16	Civic
17	Beto Espinoza
44	Encanto Ridge

KEY MAP

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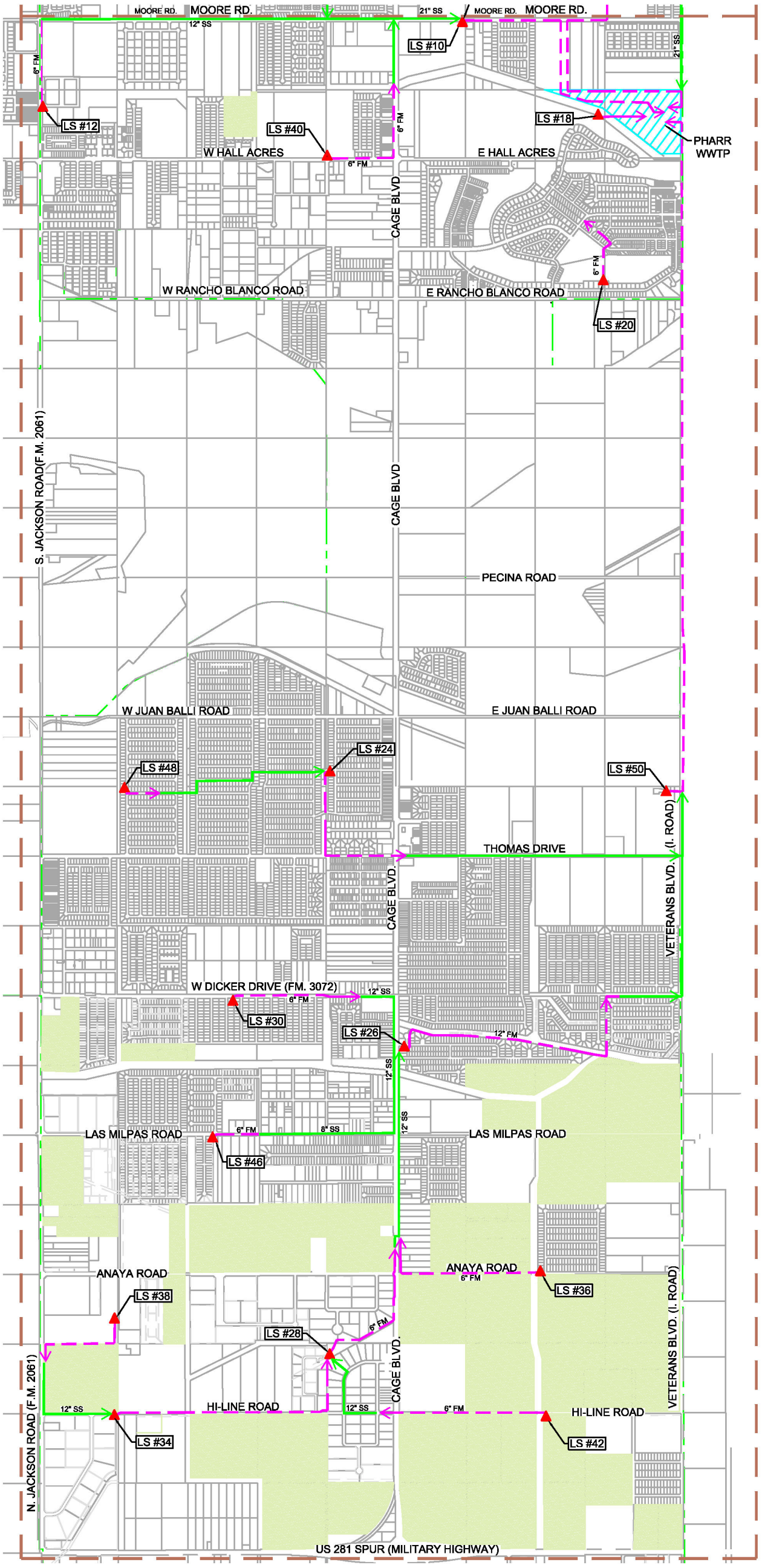
CITY OF PHARR
MASTER PLAN

CITY OF PHARR

EXHIBIT 5.3
CENTRAL REGION

file:Exh-SWR_SYS-01.dwg



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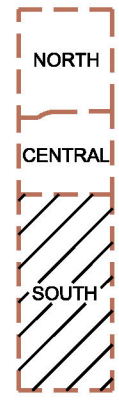
LEGEND

- SANITARY SEWER TRUNK
- FORCE MAIN
- LIFT STATION
- CITY LIMITS
- REGION LIMITS
- LAND (UNDEVELOPED)
- LAND (DEVELOPED)
- HIDALGO COUNTY DRAINAGE DISTRICT

City of Pharr
2018 Master Plan
South Lift Stations

Lift Station #	Name
10	Moore
12	Dunlyn
18	N. Plantation
20	S. Plantation
24	La Qunita
26	Anaya
28	Industrial
30	W. 3072 (Dicker)
34	W. Hi-Line
36	Los Ebanos
38	Valley View
40	Hall Acres
42	E. Hi-Line
46	Las Palmas
48	San Gabriel
50	Veterans



KEY MAP

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CITY OF PHARR
MASTER PLAN

CITY OF PHARR

EXHIBIT 5.4
SOUTH REGION

file:Exh-SWR_SYS-01.dwg

An evaluation of each lift station was conducted, refer to Appendix F. The evaluation is based on site visits, staff interviews, and field measurements. It includes a condition assessment as well as recommended repairs and improvements. Technical information such as pump horsepower (Hp), wet well size, and inventory of station equipment was summarized and included in this same appendix.

The City's Organized Sewer Collection System includes a series of lift station and trunk sewers that convey flow to the City's single WWTP. GIC subdivided the collection system into three regions, North, Central, and South to simplify our analysis. The annexed area was included as well. Exhibit 5.5 graphically depicts the connectivity between the various lift stations and final discharge at the WWTP.

North Region (North of US 83)

The north region is one of the fastest growing regions in the City. The collection system in this region is well organized. GIC is recommending a few system improvements to address undersized sewers which also happen to be in poor conditions. Furthermore, several lift stations in this region have reached their intended design life and need to replaced. The most critical project in the region is finding a solution to decommission LS 29 and associated force main. The force main, which operates under pressure, is located under several homes. If this force main ruptures it could damage private property.

Flow north of US 83 is collected at LS 7. LS 31 collects flow from the northwest quadrant and LS 25 from the northeast quadrant. LS 31 transfers flow a short distance across US 281 to a 15-inch Sanitary Sewer which ultimately outfalls at LS 25. LS 25 Force Main discharges into the 30-inch gravity main on Sioux Road.

LS 7 receives flow from the 30-inch on Sioux Road as well as a 24-inch Sewer Main from the south. This station then pumps flow south to a 36-inch gravity main near the intersection of Kumquat and E. Lucas Ave. This 36-inch discharges into LS 6 which then pumps flow directly to the WWTP Headworks influent channel bypassing the plant influent lift station. LS 6 is also one of the primary lift stations collecting flow from the Central Region.

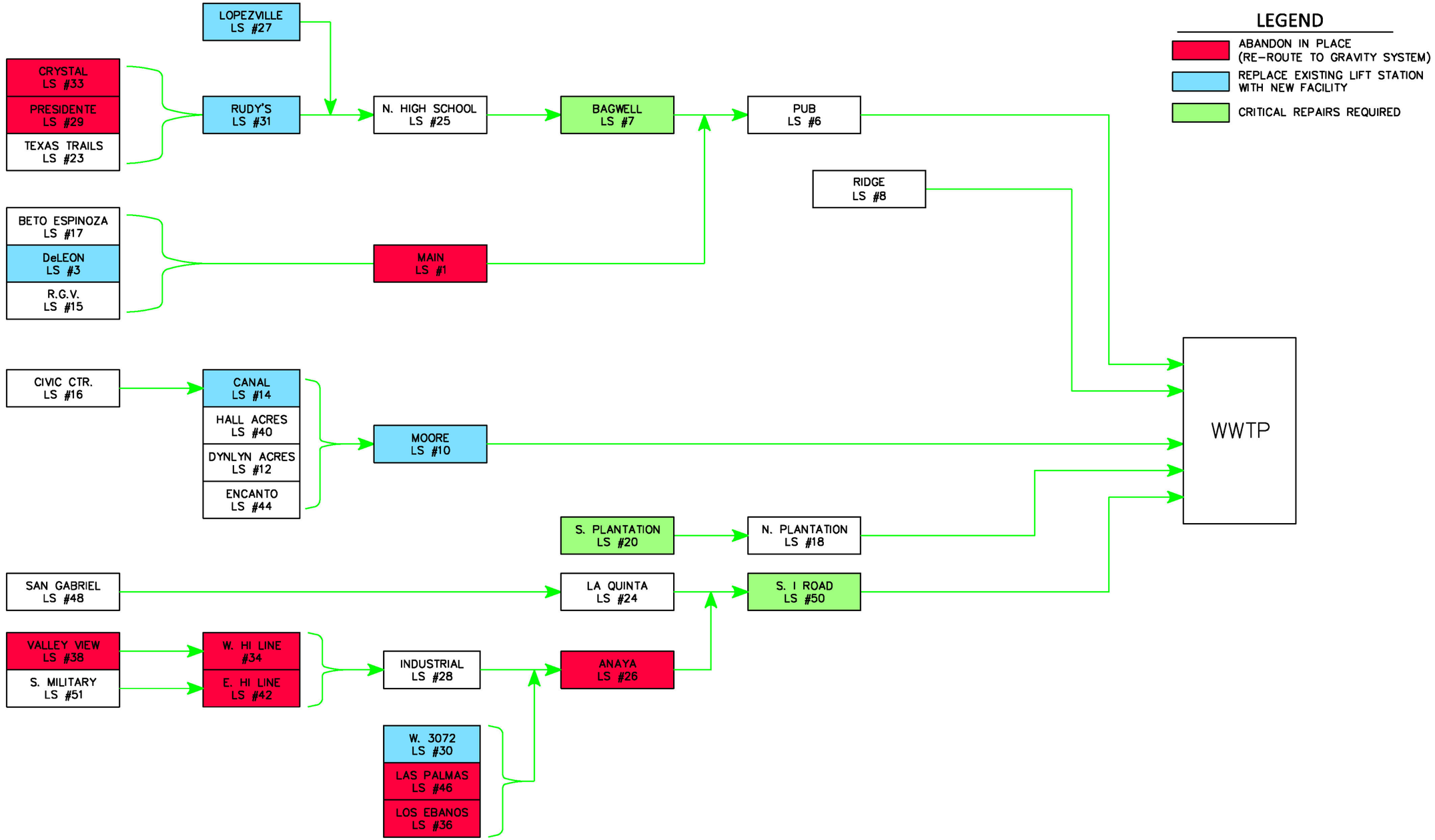
Refer to Exhibit 5.2.

Central Region (north of Moore Road and south of US 83)

The Central Region represent the oldest part of the City and the collection system is generally adequate to handle existing and future flows. The challenge in this region is replacing mains that have reached their intended design life. No major capacity improvements were identified. The most urgent issue is addressing downstream deficiencies from LS 1. The City is unable to operate this facility at full capacity during wet weather conditions.

Flow in the central region is collected at LS 1, 6, and 10. Multiple sewer mains were constructed in 2010 that improved service in the Central Region. LS 1 collects flow from LS 3, 15, and 17. LS 10 from LS 12, 14, 16, 40, and 44. LS 10 flows directly to the WWTP.

Refer to Exhibit 5.3.



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San Antonio, Texas 78216
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CITY OF PHARR
MASTER PLAN

CITY OF PHARR

EXHIBIT 5.5
WASTEWATER COLLECTION
LIFT STATION FLOW PATH

file:Exh-LS FLOW SCH.dwg

South Region (south of Moore Road)

The South Region represents the largest region. However, a significant area is within the floodway which is not developable. The South Area includes a significant concentration of warehouses, primarily along Military Highway which do not generate a significant volume of wastewater. It includes the largest concentration of lift stations and a large number of these facilities were found to be in very poor conditions.

In addition to evaluating the possibility of eliminating lift stations by constructing new sewer mains, GIC also considered combining some of the aging lift stations. This has the dual benefit of addressing aging infrastructure and reducing the number of lift stations as well. A project was included to eliminate multiple lift stations, mostly in the City's far South Region (Las Milpas and Military Highway).

LS 50 is the primary facility collecting flow south of the floodway. LS 12 and LS 40 convey flow to the gravity main along Moore Rd that eventually flows into LS 10. LS 10 and LS 18 flow directly into the WWTP.

The South Region includes an area annexed that increases the geographical area of the City of Pharr from 23.7-sq miles to 51.5- sq. miles. The area is southeast of Pharr, south of the floodway, and just south of the cities of San Juan and Alamo. The area is predominately undeveloped and offers great potential for growth. However, the certificate of convenience and necessity (CCN) for this region resides with the Military Highway Water Supply Corporation (MHWSC). It is difficult to predict if MHWSC will relinquish these rights. Regardless, the sewer system on Veterans Road and LS 50 can be used as a potential collection point for this area.

Refer to Exhibit 5.0 and Exhibit 5.4

5.3 System Evaluation

An analysis was performed to evaluate the sewer capacity versus peak flows for both existing and future system conditions. This evaluation formed the basis of the recommended project improvements.

5.3.1 Description of Hydraulic Analysis

A hydraulic analysis was developed for each sewershed and combined to incorporate the City's complete collection system. Flow from each respective sewershed collected at each lift station and corresponding gravity mains was computed to help identify deficiencies. Undeveloped areas were taken into account to help assess the capacity of the various sewer mains and lift stations. The following assumptions were made in our analysis:

- Full pipe flow was assumed.
- Infiltration and inflow was taken into consideration.

Existing flows from residential customers were estimated using the City's Geographical Information System (GIS), Google Maps, and incorporating the most recent Land Use Map included in the City's Comprehensive Plan. Flows from the various categories were estimated based on historical flows for single family residential and actual residential connections. Flow

from non-residential sources (schools, municipal parks, hospitals, community centers, etc.) were estimated using standard literature and TCEQ Values.

Refer to Appendix G for a summary of our analysis, as well as unit flow rates used for existing lots and future development.

5.3.2 Capacity Analysis of Existing Sewer System

5.3.2.1 Lift Stations

One of the main objectives was to inspect and assess the City's Lift Stations. Refer to Appendix F for a detailed report regarding each lift station. GIC has identified a total of eleven (11) lift stations to eliminate which reduces the number to twenty-two (22). Furthermore, we are also recommending replacing four (4) other lift stations that are beyond repair. The master plan also includes a list of repairs at a majority of the remaining lift stations.

All the lift station related improvement projects are summarized in Section 5.4.

5.3.2.2 Sewer System

The City's collection system is aging. In addition to the sewer collection system projects identified in Section 5.4, we also recommend the City track repairs or problems within the collection system to begin the systematic replacement of sewer mains that are beyond repair.

5.4 Recommended Collection System Improvements

GIC has identified multiple projects to be included as part of the Capital Improvements Program. These projects are briefly summarized below and subdivided per region (North, Central, and South). Certain complex projects were evaluated in greater detail to better define work required and highlight urgency and challenges.

5.4.1 North Region Projects

Project No. 1- Replace Lift Station 23 (Texas Trails)

Lift Station 23, Texas Trails was recently rehabbed as part of the new residential development North of the intersection of Sugar Road and Minnesota Road. This facility has accessibility constraints. The station is behind a commercial building. There is no room for a vector truck, space to bring in temporary pumps in an emergency situation, or parking. It is recommended that a new site be acquired and the station be relocated. The new station can be upgraded to incorporate better standards and accessibility. The new station would be designed to accept flow from the undeveloped tracts to the northwest.

Project No. 2- Replace Lift Station 27 (Lopezville)

Lift Station 27 (Lopezville) is in very poor conditions and, in our opinion, beyond repair. During our site visit only one pump was operational. The wet well was pitted and suction pipe could fail at any moment. There is sufficient space to build a new station and keep the existing facility in service.

Project No. 3- Lift Station 25 Odor Control

Lift Station 25 is a new facility that was installed without an odor control system. The lift station is located adjacent to a residential neighborhood and future commercial tract. We recommend adding an odor control system to mitigate odors as well as minimize corrosion.

Project No. 4- Northeast Interceptor

Refer to Appendix H which includes a detailed description of this project.

Project No. 5- Northwest Interceptor (Eliminates LS 29 and 33)

Refer to Appendix H which includes a detailed description of this project.

Project No. 6- Replace LS No. 31 (Rudy's)

Lift Station 31 (Rudy's) is in very poor conditions and, in our opinion, beyond repair. The piping, pumps, building, etc. is severely corroded. This station is one of the City's primary facilities, effectively handling flow from the City's entire northwest region. If the Northwest Interceptor Project is constructed first, it will reduce the volume of flow to this lift station.

LS 31 has accessibility constraints. The station has no all access weather road nor access easement. Currently, staff has to cross private property to maintain this lift station. It is possible that property could deny access to the City in the future.

Project No. 7- Citrus Bay Subdivision

This area includes sewers that were found to be in poor conditions. It is recommended that all sewer in this area be videoed and inspected. Trenchless technology options such as, Cured-in-Place Pipe (CIPP) or pipe bursting, should be considered to address these deficiencies. Conservatively, GIC is estimating full removal and replacement of all pipes, plus mill and overlay, of the entire street section in all this subdivision.

Refer to Exhibit 5-6.

5.4.2 Central Region

Project No. 8- Replace Lift Station 3 (DeLeon)

Lift Station 3 (DeLeon) is in very poor conditions and, in our opinion, beyond repair. The piping, pumps, building, etc. are severely corroded. The wet well is pitted.

Project No. 9- Main Lift Station No. 1 Interceptor (Eliminates LS 1)

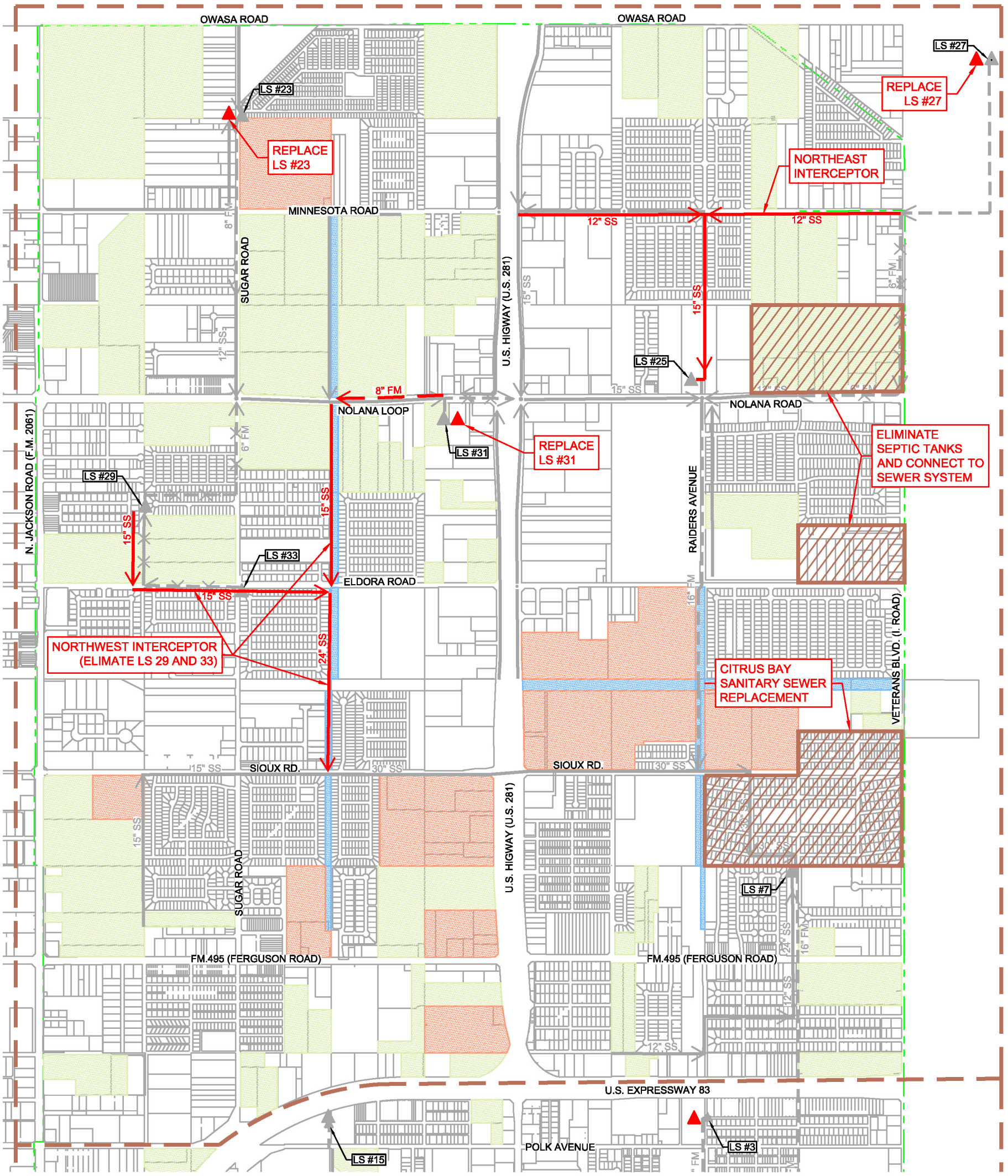
Refer to Appendix H which includes a detailed description of this project.

Project No. 10- Replace Lift Station 14 (Canal)

Lift Station 14 (Canal) is in very poor conditions and, in our opinion, beyond repair. The pumps are constantly being repaired. The structure shows very severe corrosion, exposed electrical wires, and piping is deteriorated.

Refer to Exhibit 5-7.

SCALE: N.T.S.



LEGEND

- SANITARY SEWER IMPROVEMENTS
- SANITARY SEWER TRUNK
- FORCE MAIN
- LIFT STATION
- CITY LIMITS
- REGION LIMITS
- LAND (UNDEVELOPED)
- LAND (DEVELOPED)
- HIDALGO COUNTY DRAINAGE DISTRICT
- LS REPLACEMENT
- FM TO BE ABANDONED
- SAN SWR TO BE ABANDONED

City of Pharr
2018 Master Plan
North Lift Stations

Lift Station #	Name
7	Bagwell
23	Texas Trails
25	High School
29	Presidents
31	Rudy's
33	Crystal Estates

KEY MAP

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Texas Firm No. 17794

CITY OF PHARR

EXHIBIT 5.6
NORTH REGION IMPROVEMENTS

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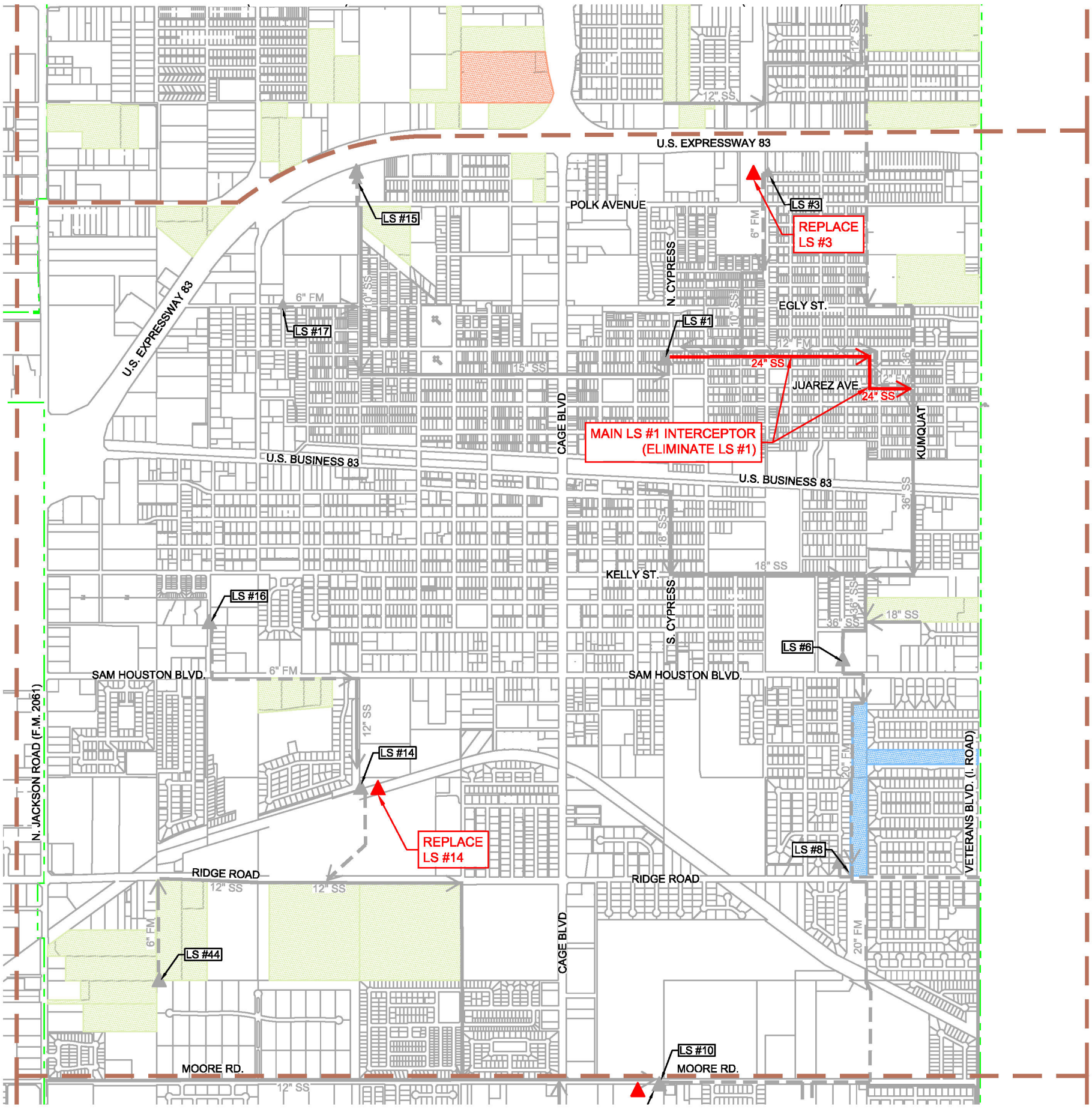
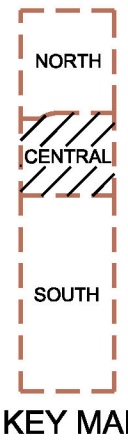


LEGEND

- SANITARY SEWER IMPROVEMENTS
- SANITARY SEWER TRUNK
- FORCE MAIN
- LIFT STATION
- CITY LIMITS
- REGION LIMITS
- LAND (UNDEVELOPED)
- LAND (DEVELOPED)
- HIDALGO COUNTY DRAINAGE DISTRICT
- LS REPLACEMENT
- FM TO BE ABANDONED
- SAN SWR TO BE ABANDONED

2018 Master Plan
Central Lift Stations

Lift Station #	Name
1	Main
3	DeLeon
6	PUB
8	Ridge
14	Canal
15	RGV
16	Civic
17	Beto Espinoza
44	Encanto Ridge



KEY MAP

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Texas Firm No. 17794

CITY OF PHARR
EXHIBIT 5.7
CENTRAL REGION IMPROVEMENTS

file:Exh-SWR_SYS-02.dwg

5.4.3 South Region

Project No. 11-Replace Lift Station 10 (Moore)

Lift Station 10 (Moore) is in very poor conditions and, in our opinion, beyond repair. In addition, this station receives a large volume of flow. Five (5) lift stations are located immediately upstream of this station and flow is collected at LS 10. LS 10 Pumps typically stay on all the time. This station is a critical station in the collection system and immediate attention is required.

GIC considered abandoning this station by extending a new gravity main east to Veterans Road or to the WWTP. However, based on survey data collected, there is insufficient fall between LS 10 and sewer main on Veterans Road or to the WWTP to eliminate this lift station.

Project No. 12-Septic Tank Elimination

A small area roughly bounded to the north by Juan Balli Road, south by Thomas Drive, west by S. Jackson Rd. and east by S. Valdivia St is not currently served by the City's Organized Sewer Collection System. These lots, which are predominately commercial, are on septic tanks.

It is recommended that the City consider providing sewer service to these lots. This may be accomplished by extending a new sewer along S. Jackson Road and connecting to Lift Station No. 48 (San Gabriel). A second option is to secure an easement and extend a gravity sewer main along the east side of the property parallel to the existing drainage channel.

Project No. 13-South Interceptor

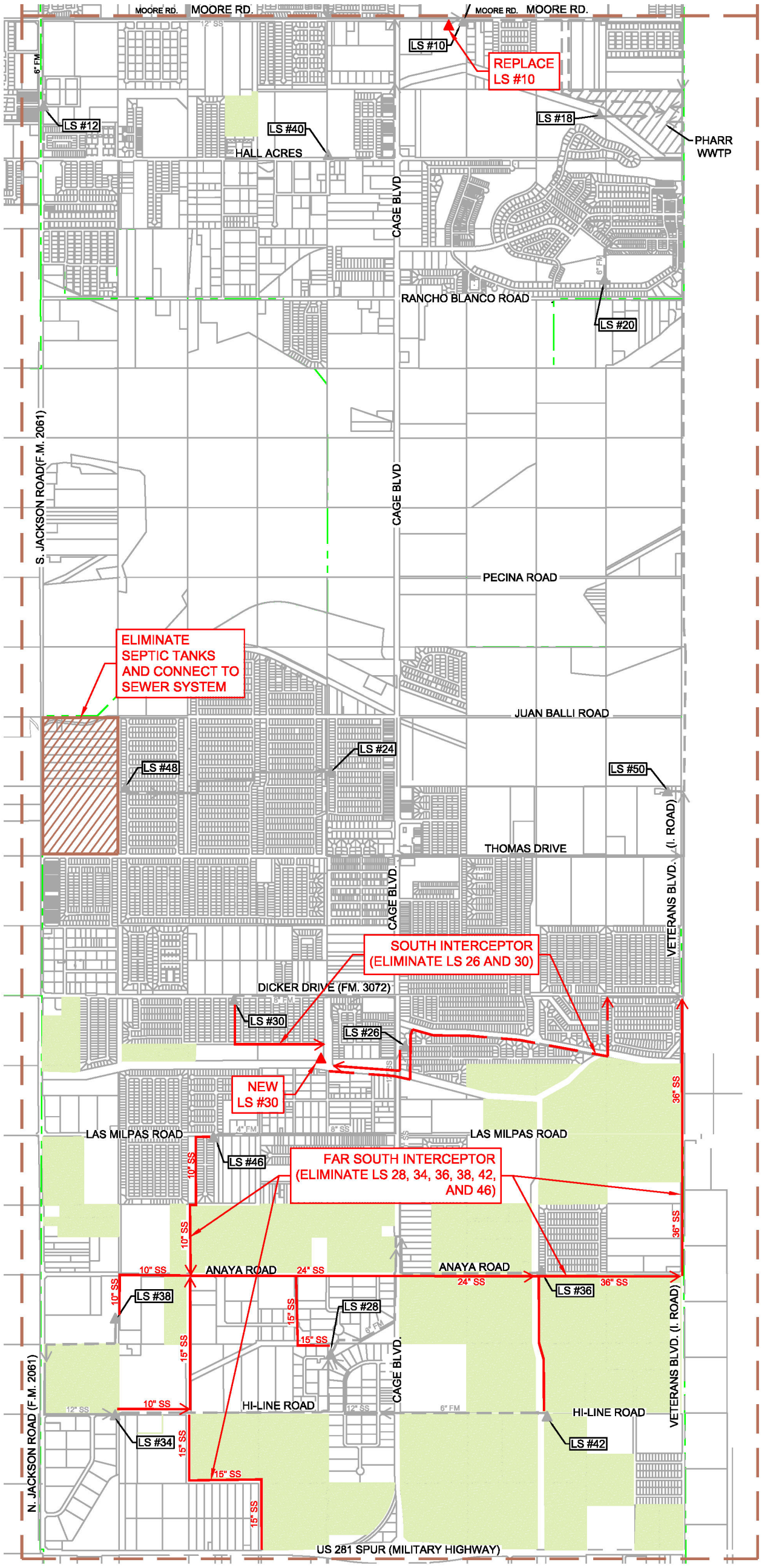
This project was conceptualized and developed to address issues at LS 30 and LS 26. These two (2) facilities are beyond repair and have reached their intended design life. Our concept consists of combining both stations into a single larger station. This solution addresses the need to replace LS 26 and LS 30 while also reducing the number of lift stations the City is required to maintain.

Project No. 14-Far South Interceptor

This project is an artifact from the City 's 2010 Collection System Improvement Project. The design for this project was shelved due to budget constraints. GIC recommends adding to the CIP as it will greatly reduce the number of lift stations in this area. It eliminates six (6) lift stations. Extending a sewer from LS 46 to eliminate this lift station can be either left in this project or incorporated into Project No. 13.

The City may consider combining flow from the various far south lift stations into a single centralized lift station and eliminate the need to build the deep 36-inch gravity main to Veterans Road (10,500-lf). This would be replaced with the new centralized lift station and associated force main. GIC estimates a potential cost savings of approximately $6-million. It also eliminates potential issues of installing a deep sewer main in the south side of town where poor soil conditions are common and high-water table. This should be evaluated more thoroughly during the design.

Refer to **Exhibit 5-8.**



SCALE: N.T.S.

City of Pharr
2018 Master Plan
South Lift Stations

Lift Station #	Name
10	Moore
12	Dunlyn
18	N. Plantation
20	S. Plantation
24	La Qunita
26	Anaya
28	Industrial
30	W. 3072 (Dicker)
34	W. Hi-Line
36	Los Ebanos
38	Valley View
40	Hall Acres
42	E. Hi-Line
46	Las Palmas
48	San Gabriel
50	Veterans

LEGEND

- SANITARY SEWER IMPROVEMENTS
- FORCE MAIN IMPROVEMENTS
- SANITARY SEWER TRUNK
- FORCE MAIN
- LIFT STATION
- CITY LIMITS
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- LAND (UNDEVELOPED)
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- HIDALGO COUNTY DRAINAGE DISTRICT
- LS REPLACEMENT
- FM TO BE ABANDONED
- SAN SWR TO BE ABANDONED

NORTH
CENTRAL
SOUTH

KEY MAP

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CITY OF PHARR

EXHIBIT 5.8
SOUTH REGION
IMPROVEMENTS

file:Exh-SWR_SYS-02.dwg

5.4.4 System Wide Improvement Projects

Project No. 15-Lift Station Rehabilitation/Repairs

A number of lift stations require minor repairs that may be either developed as a single project or combined with other improvement projects. GIC has decided to group all this work into a single CIP Project to capture investment in this master plan.

The City may decide later if this work can be handled by staff, included in some of the projects previously identified, or grouped into a single project as presented in our report

Project No. 16-Manhole Repair/Replacement

As previously mentioned, the City's aging infrastructure will need to be addressed systematically. A major component that should be addressed is repairing or replacing manholes.

We recommend that the City budget a nominal amount every year to replace brick manholes or other manholes that are found to be in unsatisfactory conditions.

Project No. 17-Lift Station SCADA System

The City has expressed an interest in monitoring all major lift stations via SCADA at a Central Control Location. This monitoring would include Lift Stations 1, 6, 7, 25, 31, 50, and the Anaya Lift Station. The SCADA will allow the City staff to monitor operating conditions at remote pumping stations and coordinate the transfer of flow to the WWTP.

The installation of this monitoring and control equipment will allow the City to more quickly respond to problems in the collection system. The City staff would also be alerted to abnormal operating conditions at each lift station, which could be corrected before they become critical. The system would reduce the number of trips/visits made by City staff to inspect and acquire data from these pumping stations.

As a minimum, key abnormal conditions that would be monitored from each lift station, including the WWTP Lift Station, are as follows:

1. high level alarm
2. Loss of communication
3. Loss of power
4. Alarms – High Wet Well Level, Pump Fail to Run, plus other miscellaneous alarms.
5. Pump Run Time
6. Station totalized flow. Flow monitoring devices will need to be added.
7. Number of pumps in operation]

Remote Lift Station control capabilities should include:

1. Starting and stopping pumps
2. Switching from permanent power to temporary (generator), if temporary power is available.
3. Changing Pump on/off levels if the station is equipped with a water level transducer.

4. Odor Control Adjustments. These adjustments may include switching fans on/off, etc.

Several manufacturers offer a control panel that is versatile and can be linked to a computer via a cellular modem. It can monitor pump wear, impeller wear, flow, automatically resets tripped pumps, reverse pump rotation to unclog a pump, etc. If the City is interested in incorporating a SCADA System for major lift stations; incorporating a newer more advanced control panel should be considered. This control panel can be linked to a central computer to monitor, record, and operate designated lift stations.

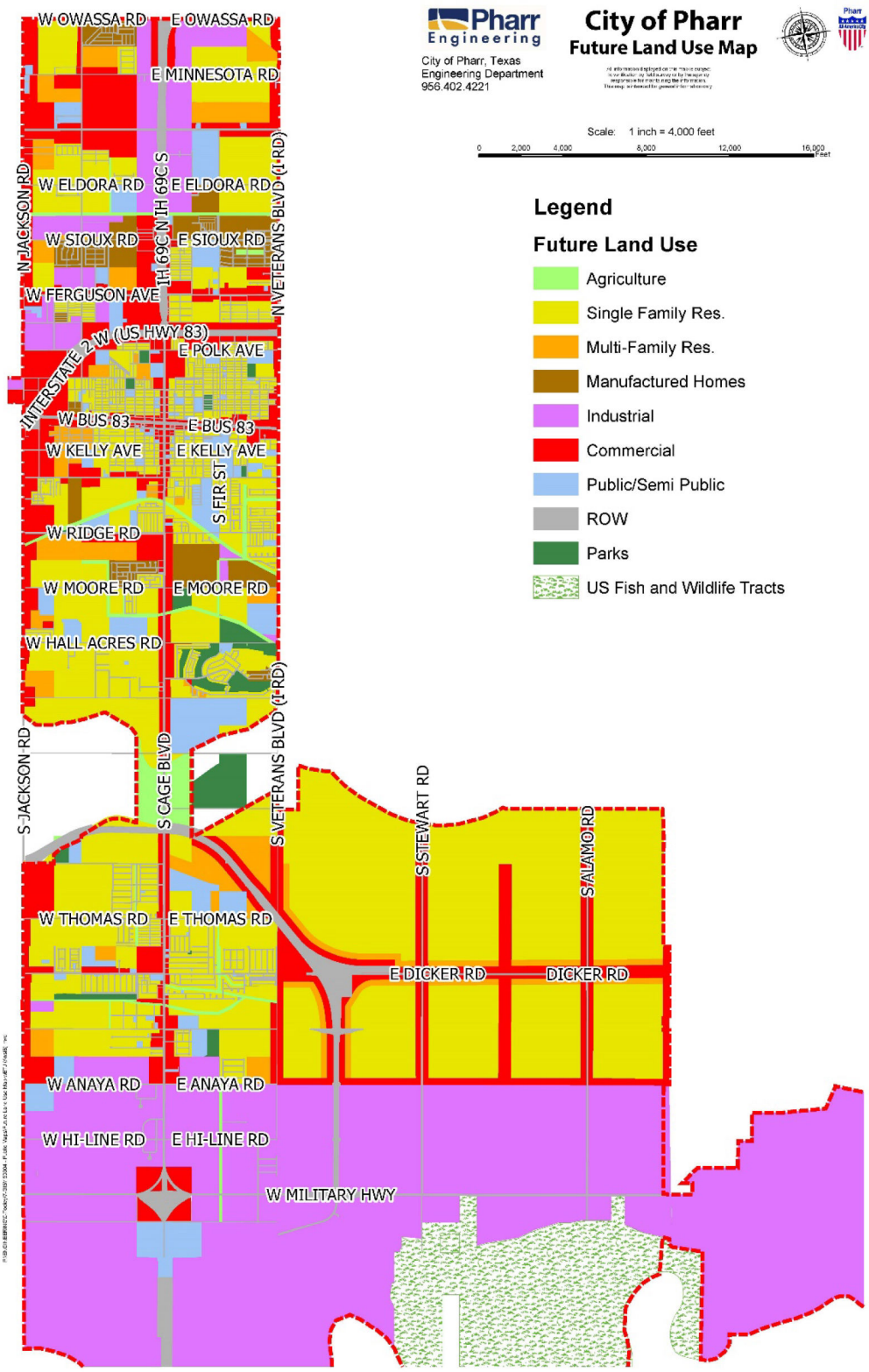
5.5 Capital Improvement Plan

This section of the report provides a schedule and corresponding cost for improvements identified in the master plan report to eliminated lift stations, address system deficiencies, and meet future flow requirements. Refer to **Appendix I** for a breakdown of recommended improvements at the WWTP and associated costs. Refer to **Exhibits 5-6, 5-7,** and **5-8** as well as **Appendix I** which show recommended improvements.

Appendix A

Comprehensive Plan Land Use Map

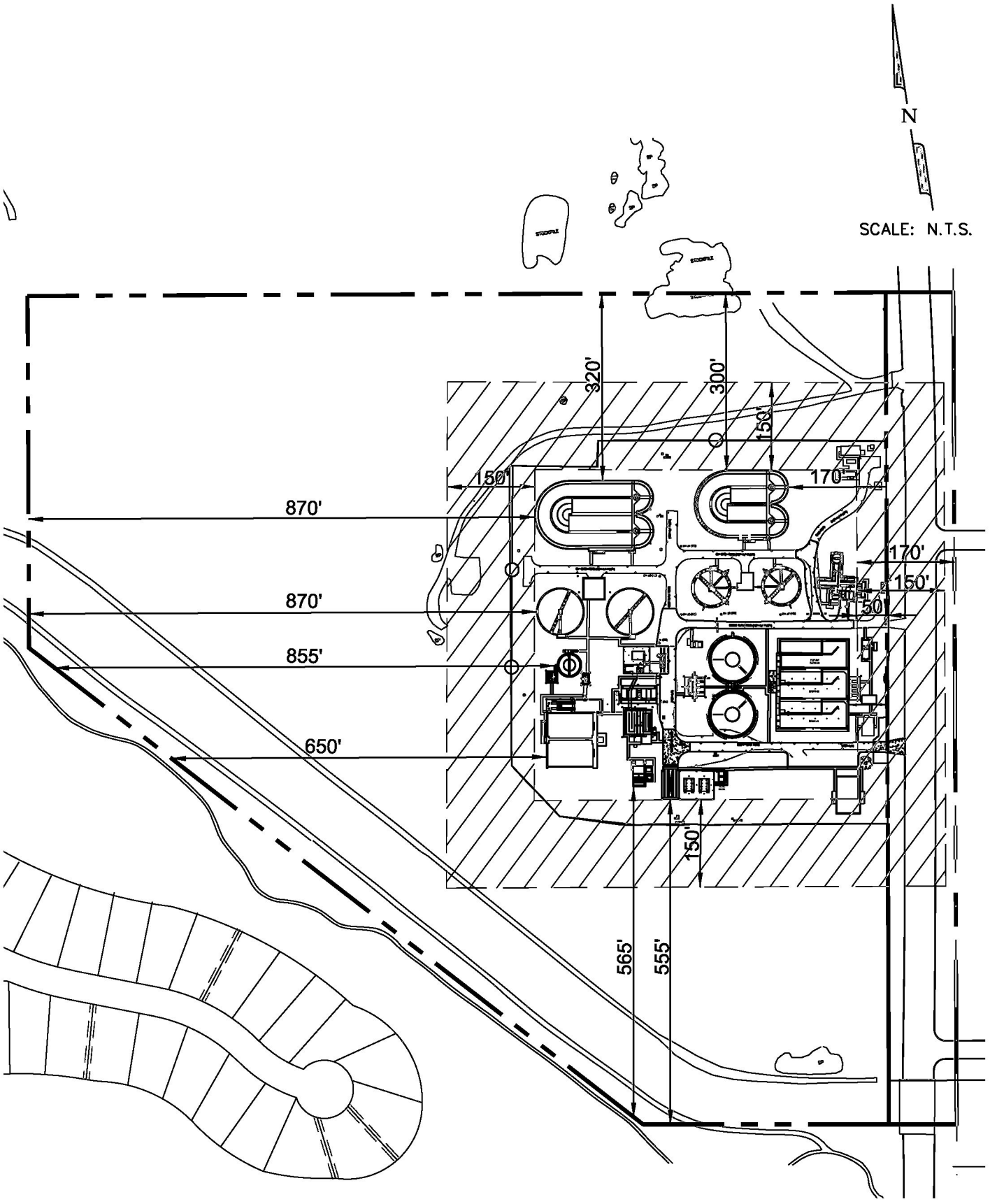
Figure 9: Future Land Use Map, Pharr 2015



Source: City of Pharr Engineering Department
A comprehensive plan shall not constitute zoning regulations or establish zoning district boundaries.

Appendix B

WWTP Buffer Zone Map/Site Map



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San Antonio, Texas 78216
Ph. (210) 437-0323

CITY OF PHARR
MASTER PLAN

CITY OF PHARR

APPENDIX B
BUFFER ZONE MAP

PHARR, TEXAS

Appendix C

TCEQ Discharge Permit

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 20, 2018

Hilda Pedraza
City of Pharr
P.O. Box 1729
Pharr, Texas 78577

RE: City of Pharr
Permit No. WQ0010596001

This letter is your notice that the Texas Commission on Environmental Quality (TCEQ) executive director (ED) has acted on the above-named application. According to 30 Texas Administrative Code (TAC) Section 50.135 the ED's action became effective on the date the ED signed the permit or other action. A copy of the final action is enclosed and cites the effective date.

For certain matters, a **motion to overturn**, which is a request that the commission review the executive director's action on an application, may be filed with the chief clerk. Whether a motion to overturn is procedurally available for a specific matter is determined by Title 30 of the Texas Administrative Code Chapter 50. According to 30 TAC Section 50.139, an action by the ED is not affected by a motion to overturn filed under this section unless expressly ordered by the commission.

If a motion to overturn is filed, the motion must be received by the chief clerk within 23 days after the date of this letter. An original and 7 copies of a motion must be filed with the chief clerk in person or by mail. The Chief Clerk's mailing address is Office of the Chief Clerk (MC 105), TCEQ, P.O. Box 13087, Austin, Texas 78711-3087. On the same day the motion is transmitted to the chief clerk, please provide copies to Robert Martinez, Environmental Law Division Director (MC 173), and Vic McWherter, Public Interest Counsel (MC 103), both at the same TCEQ address listed above. If a motion is not acted on by the commission within 45 days after the date of this letter, then the motion shall be deemed overruled.

You may also request **judicial review** of the ED's action. The procedure and timelines for seeking judicial review of a commission or ED action are governed by Texas Water Code Section 5.351.

Individual members of the public may seek further information by calling the TCEQ Public Education Program, toll free, at 1-800-687-4040.

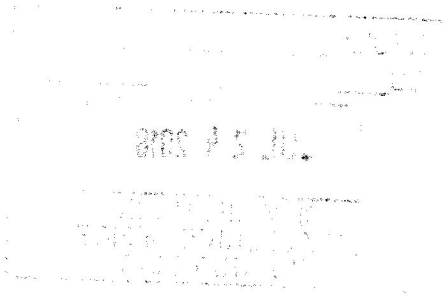
Sincerely,

Bridget C. Bohac

Bridget C. Bohac
Chief Clerk

BCB/tm

cc: Vic McWherter, TCEQ Public Interest Counsel (MC 103)



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 20, 2018

Ms. Hilda Pedraza
City of Pharr
P.O. Box 1729
Pharr, Texas 78577

Re: City of Pharr, TPDES Permit No. WQ0010596001
(CN600245898; RN102928041)

Dear Ms. Pedraza:

Enclosed is a copy of the above referenced water quality permit issued on behalf of the Executive Director pursuant to Chapter 26 of the Texas Water Code.

Self-reporting or Discharge Monitoring Forms and instructions will be forwarded to you from the Water Quality Management Information Systems Team so that you may comply with monitoring requirements. For existing facilities, revised forms will be forwarded if monitoring requirements have changed.

Enclosed is a "Notification of Completion of Wastewater Treatment Facilities" form. Use this form (if needed) when the facility begins to operate or goes into a new phase. The form notifies the agency when the proposed facility is completed or when it is placed in operation. This notification complies with the special provision incorporated into the permit, as applicable.

Should you have any questions, please contact Ms. Sonia Bhuiya of the Texas Commission on Environmental Quality's (TCEQ) Wastewater Permitting Section at (512) 239-4671 or if by correspondence, include MC 148 in the letterhead address below.

Sincerely,

David W. Galindo, Director
Water Quality Division

DWG/SB/rs

ccs: TCEQ, Region 15
Mr. Ambrosio Hernandez, Mayor, City of Pharr, P.O. Box 1729, Pharr, Texas 78577
Mr. Jose Villescas, Utilities Director, City of Pharr, P.O. Box 1729, Pharr, Texas 78577

NetDMR: Online Reporting of Discharge Monitoring Data

What is NetDMR?

NetDMR is a Web-based tool that allows you as a Texas Pollutant Discharge Elimination System (TPDES) permittee to electronically sign and submit your discharge monitoring reports (DMRs) to the Texas Commission on Environmental Quality. The data is then automatically submitted to the EPA's Integrated Compliance Information System (ICIS)-NPDES database.

NetDMR benefits for permittees:

- Offers an alternative to paper submissions, reducing your paperwork burden.
- Improves your data quality by automatically error checking and validating data prior to your submission to the TCEQ.
- Aids in the timeliness of your DMR data submissions.
- You can import DMR data for multiple outfalls at the same time.
- You can sign your DMRs electronically.
- You receive confirmation of your submission.
- You can access up to five years of electronic copies.
- You can submit attachments such as lab data, photographs, or other documentation relevant to the DMR.

There are several types of NetDMR users, and each user can be assigned one or more roles.

NetDMR Users

- **Permittee User**—you work for an organization that is required to submit DMRs under a TPDES permit.
- **Data Provider (e.g., analytical laboratory, consultant)**—you support an organization that is required to submit DMRs as part of a TPDES permit.

NetDMR Roles

- **Permittee Read-only:** able to view DMRs associated with the permit, but not allowed to update or modify DMR data.
- **Edit Access:** able to view and modify DMRs and DMR data.
- **Signatory:** has authority to sign and submit DMRs on behalf of your organization. A request for the signatory role requires submission of a subscriber agreement to the TCEQ.
- **Permit Administrator:** able to approve all DMR read-only and edit requests for a permit.

If you as a permittee so choose, one person can fulfill all the necessary roles in NetDMR—meaning, one person can both enter the data and have signatory authority to submit the data. In that case, that person would need to have the role of signatory.

Who can report?

TPDES permittees required to submit DMRs may use NetDMR after requesting and receiving permission from the TCEQ. After the TCEQ has approved your request, the NetDMR tool enables you to complete your DMRs via a secure Internet connection.

DMR data can be submitted electronically through NetDMR for the following TPDES permits:

- Industrial wastewater discharge individual permit
- Domestic wastewater discharge individual permit
- Authorizations under the TPDES Wastewater General Permit for discharges from concrete production facilities (TXG110000)
- Authorizations under the TPDES Wastewater General Permit for discharges of wastewater from concentrated aquatic-animal production facilities and certain related activities (TXG130000)
- Authorizations under the TPDES Wastewater General Permit for discharges contaminated with petroleum fuel or petroleum substances (TXG830000)
- Authorizations under the TPDES Wastewater General Permit for discharges of wastewater and contact storm water from petroleum bulk stations and terminals (TXG340000)

What reports cannot be submitted through NetDMR?

- **Monthly Effluent Reports**—If you are required to submit MERs, you must continue submitting paper forms to the TCEQ. MER data cannot be submitted through the NetDMR system.
- **Concentrated Animal Feeding Operation General Permit Reports**—Annual reports required by authorizations under the TPDES CAFO General Permit must continue to be submitted by paper.

GI-398 (4/09) printed on recycled paper

- **Other required reports**—Individual and general permits with reporting requirements that you must continue to submit in paper form by mail include:
  - ❒ pretreatment semiannual and annual reports required in a permit or pretreatment program
  - ❒ biomonitoring quarterly, semiannual, and annual reports required in a permit
  - ❒ sludge beneficial-land-use quarterly and annual reports (domestic permits and sludge disposal)
  - ❒ multi-sector general permit benchmark testing
  - ❒ groundwater reports required in a permit
  - ❒ other reports that relate to compliance activities specified in your permit (for example, a construction schedule)
  - ❒ notices of noncompliance

Is NetDMR secure?

Yes. Communications with NetDMR are secured by your password, responses to security questions, and use of the Secure Sockets Layer protocol commonly used by online banking sites.

For more information:

Visit the NetDMR Web page at <**www.tceq.state.tx.us/goto/NetDMR**>.
Submit e-mails to <**NetDMR@tceq.state.tx.us**>.
Call **512-239-eDMR**.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
NOTIFICATION OF COMPLETION/PHASE OF WASTEWATER TREATMENT FACILITY

If you have questions about completing this form please contact the Applications Review and Processing Team at 512-239-4671.

Current Permit Information

What is the TCEQ Water Quality Permit Number?

What is the EPA I.D. Number? TX

Current Name on Permit:

Notification

Indicate the phase the facility will be operating.

- ☐ Interim Phase I Flow
- ☐ Interim Phase II Flow
- ☐ Interim Phase III Flow
- ☐ Final Phase Flow

Indicate the date that the operation began or will begin operating under the selected phase:
Month/Day/Year:

Comments:

Certification and Signature

Responsible Official Name (Print or Type):

Responsible Official Title:

Responsible Official Email:

I certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature (use blue ink): _____ Date: _____

Email completed form to: **WQ-ARPTeam@tceq.texas.gov**
or

Fax completed form to: **512-239-0884**
or mail completed form to: Texas Commission on Environmental Quality
Applications Review and Processing Team (MC-148)
P.O. Box 13087
Austin TX 78711-3087

Instructions for Notification of Completion/Phase Of Wastewater Treatment Facility

Current Permit Information

Provide your Permit Number. This number will start with WQ followed by 10 digits. The number can be found on the top right-hand corner of your issued permit.

For Texas Pollutant Discharge Elimination Permits (TPDES), provide the EPA ID number. This number will start with TX followed by 7 digits. The number can be found on the top right-hand corner of your issued permit.

Provide the current name that is on your permit. This information can be found on the first page of your permit.

Indicate the phase of operation you will be operating under. Provide the date the facility will begin operating in that phase. Date should be provided as month/day/year.

Signature Requirements

In accordance with 30 Texas Administrative Code §305.44 relating to Signatories to Applications, all applications shall be signed as follows:

For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or v ice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or themanager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

TPDES PERMIT NO.
WQ0010596001
[For TCEQ office use only - EPA I.D. No. TX0062219]

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. Box 13087
Austin, Texas 78711-3087

This is a renewal that replaces TPDES Permit No. WQ0010596001 issued on August 14, 2014.

PERMIT TO DISCHARGE WASTES
under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

City of Pharr

whose mailing address is

P.O. Box 1729
Pharr, Texas 78577

is authorized to treat and discharge wastes from the City of Pharr Wastewater Treatment Facility, SIC Code 4952

located at 2400 South Veterans Boulevard, in the City of Pharr, Hidalgo County, Texas 78577

to Hidalgo County Drainage District Ditch No. 1; thence to Main Floodway; thence to the Arroyo Colorado Above Tidal in Segment No. 2202 of the Nueces-Rio Grande Coastal Basin

only according to effluent limitations, monitoring requirements, and other conditions set forth in this permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ), the laws of the State of Texas, and other orders of the TCEQ. The issuance of this permit does not grant to the permittee the right to use private or public property for conveyance of wastewater along the discharge route described in this permit. This includes, but is not limited to, property belonging to any individual, partnership, corporation, or other entity. Neither does this permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This permit shall expire at midnight, **five years from the date of issuance.**

ISSUED DATE: July 12, 2018

Stephanie Bergeron Perdue

For the Commission

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS Outfall Number 001

1. During the period beginning upon the date of issuance and lasting through the date of expiration, the permittee is authorized to discharge subject to the following effluent limitations:

   The annual flow of effluent shall not exceed 8.0 million gallons per day (MGD), nor shall the average discharge during any two-hour period (2-hour peak) exceed 14,583 gallons per minute (gpm).

Effluent Characteristic	Discharge Limitations				Min. Self-Monitoring Requirements	
	Daily Avg	7-day Avg	Daily Max	Single Grab	Report Daily Avg. & Daily Max.	
	mg/l (lbs/day)	mg/l	mg/l	mg/l	Measurement Frequency	Sample Type
Flow, MGD	Report	N/A	Report	N/A	Continuous	Totalizing Meter
Carbonaceous Biochemical Oxygen Demand (5-day)	7 (467)	12	22	32	Five/week	Composite
Total Suspended Solids	15 (1001)	25	40	60	Five/week	Composite
Ammonia Nitrogen	2 (133)	5	10	15	Five/week	Composite
E. coli, colony-forming units or most probable number per 100 ml	126	N/A	399	N/A	Daily	Grab

2. The permittee shall utilize an Ultraviolet Light (UV) system for disinfection purposes. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.

3. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored five times per week by grab sample.

4. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

5. Effluent monitoring samples shall be taken at the following location(s): Following the final treatment unit.

6. The effluent shall contain a minimum dissolved oxygen of 6.0 mg/l and shall be monitored five times per week by grab sample.

7. The annual average flow and maximum 2-hour peak flow shall be reported monthly.

DEFINITIONS AND STANDARD PERMIT CONDITIONS

As required by Title 30 Texas Administrative Code (TAC) Chapter 305, certain regulations appear as standard conditions in waste discharge permits. 30 TAC § 305.121 - 305.129 (relating to Permit Characteristics and Conditions) as promulgated under the Texas Water Code (TWC) §§ 5.103 and 5.105, and the Texas Health and Safety Code (THSC) §§ 361.017 and 361.024(a), establish the characteristics and standards for waste discharge permits, including sewage sludge, and those sections of 40 Code of Federal Regulations (CFR) Part 122 adopted by reference by the Commission. The following text includes these conditions and incorporates them into this permit. All definitions in TWC § 26.001 and 30 TAC Chapter 305 shall apply to this permit and are incorporated by reference. Some specific definitions of words or phrases used in this permit are as follows:

1. Flow Measurements

   a. Annual average flow - the arithmetic average of all daily flow determinations taken within the preceding 12 consecutive calendar months. The annual average flow determination shall consist of daily flow volume determinations made by a totalizing meter, charted on a chart recorder and limited to major domestic wastewater discharge facilities with one million gallons per day or greater permitted flow.

   b. Daily average flow - the arithmetic average of all determinations of the daily flow within a period of one calendar month. The daily average flow determination shall consist of determinations made on at least four separate days. If instantaneous measurements are used to determine the daily flow, the determination shall be the arithmetic average of all instantaneous measurements taken during that month. Daily average flow determination for intermittent discharges shall consist of a minimum of three flow determinations on days of discharge.

   c. Daily maximum flow - the highest total flow for any 24-hour period in a calendar month.

   d. Instantaneous flow - the measured flow during the minimum time required to interpret the flow measuring device.

   e. 2-hour peak flow (domestic wastewater treatment plants) - the maximum flow sustained for a two-hour period during the period of daily discharge. The average of multiple measurements of instantaneous maximum flow within a two-hour period may be used to calculate the 2-hour peak flow.

   f. Maximum 2-hour peak flow (domestic wastewater treatment plants) - the highest 2-hour peak flow for any 24-hour period in a calendar month.

2. Concentration Measurements

   a. Daily average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar month, consisting of at least four separate representative measurements.

      i. For domestic wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values in the previous four consecutive month period consisting of at least four measurements shall be utilized as the daily average concentration.

ii. For all other wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values taken during the month shall be utilized as the daily average concentration.

b. 7-day average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar week, Sunday through Saturday.

c. Daily maximum concentration - the maximum concentration measured on a single day, by the sample type specified in the permit, within a period of one calendar month.

d. Daily discharge - the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in terms of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the sampling day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the sampling day.

The daily discharge determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the daily discharge determination of concentration shall be the arithmetic average (weighted by flow value) of all samples collected during that day.

e. Bacteria concentration (*E. coli* or Enterococci) - Colony Forming Units (CFU) or Most Probable Number (MPN) of bacteria per 100 milliliters effluent. The daily average bacteria concentration is a geometric mean of the values for the effluent samples collected in a calendar month. The geometric mean shall be determined by calculating the nth root of the product of all measurements made in a calendar month, where n equals the number of measurements made; or, computed as the antilogarithm of the arithmetic mean of the logarithms of all measurements made in a calendar month. For any measurement of bacteria equaling zero, a substituted value of one shall be made for input into either computation method. If specified, the 7-day average for bacteria is the geometric mean of the values for all effluent samples collected during a calendar week.

f. Daily average loading (lbs/day) - the arithmetic average of all daily discharge loading calculations during a period of one calendar month. These calculations must be made for each day of the month that a parameter is analyzed. The daily discharge, in terms of mass (lbs/day), is calculated as (Flow, MGD x Concentration, mg/l x 8.34).

g. Daily maximum loading (lbs/day) - the highest daily discharge, in terms of mass (lbs/day), within a period of one calendar month.

3. Sample Type

a. Composite sample - For domestic wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC § 319.9 (a). For industrial wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC § 319.9 (b).

b. Grab sample - an individual sample collected in less than 15 minutes.

4. Treatment Facility (facility) - wastewater facilities used in the conveyance, storage, treatment, recycling, reclamation and/or disposal of domestic sewage, industrial wastes, agricultural wastes, recreational wastes, or other wastes including sludge handling or disposal facilities under the jurisdiction of the Commission.

5. The term "sewage sludge" is defined as solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in 30 TAC Chapter 312. This includes the solids that have not been classified as hazardous waste separated from wastewater by unit processes.

6. Bypass - the intentional diversion of a waste stream from any portion of a treatment facility.

MONITORING AND REPORTING REQUIREMENTS

1. Self-Reporting

Monitoring results shall be provided at the intervals specified in the permit. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall conduct effluent sampling and reporting in accordance with 30 TAC §§ 319.4 - 319.12. Unless otherwise specified, effluent monitoring data shall be submitted each month, to the Enforcement Division (MC 224), by the 20th day of the following month for each discharge which is described by this permit whether or not a discharge is made for that month. Monitoring results must be submitted online using the NetDMR reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver. Monitoring results must be signed and certified as required by Monitoring and Reporting Requirements No. 10.

As provided by state law, the permittee is subject to administrative, civil and criminal penalties, as applicable, for negligently or knowingly violating the Clean Water Act (CWA); TWC §§ 26, 27, and 28; and THSC § 361, including but not limited to knowingly making any false statement, representation, or certification on any report, record, or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, or falsifying, tampering with or knowingly rendering inaccurate any monitoring device or method required by this permit or violating any other requirement imposed by state or federal regulations.

2. Test Procedures

a. Unless otherwise specified in this permit, test procedures for the analysis of pollutants shall comply with procedures specified in 30 TAC §§ 319.11 - 319.12. Measurements, tests, and calculations shall be accurately accomplished in a representative manner.

b. All laboratory tests submitted to demonstrate compliance with this permit must meet the requirements of 30 TAC § 25, Environmental Testing Laboratory Accreditation and Certification.

3. Records of Results

a. Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity.

b. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period

of at least five years (or longer as required by 40 CFR Part 503), monitoring and reporting records, including strip charts and records of calibration and maintenance, copies of all records required by this permit, records of all data used to complete the application for this permit, and the certification required by 40 CFR § 264.73(b)(9) shall be retained at the facility site, or shall be readily available for review by a TCEQ representative for a period of three years from the date of the record or sample, measurement, report, application or certification. This period shall be extended at the request of the Executive Director.

c. Records of monitoring activities shall include the following:

i. date, time and place of sample or measurement;

ii. identity of individual who collected the sample or made the measurement.

iii. date and time of analysis;

iv. identity of the individual and laboratory who performed the analysis;

v. the technique or method of analysis; and

vi. the results of the analysis or measurement and quality assurance/quality control records.

The period during which records are required to be kept shall be automatically extended to the date of the final disposition of any administrative or judicial enforcement action that may be instituted against the permittee.

4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit using approved analytical methods as specified above, all results of such monitoring shall be included in the calculation and reporting of the values submitted on the approved self-report form. Increased frequency of sampling shall be indicated on the self-report form.

5. Calibration of Instruments

All automatic flow measuring or recording devices and all totalizing meters for measuring flows shall be accurately calibrated by a trained person at plant start-up and as often thereafter as necessary to ensure accuracy, but not less often than annually unless authorized by the Executive Director for a longer period. Such person shall verify in writing that the device is operating properly and giving accurate results. Copies of the verification shall be retained at the facility site and/or shall be readily available for review by a TCEQ representative for a period of three years.

6. Compliance Schedule Reports

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date to the Regional Office and the Enforcement Division (MC 224).

7. Noncompliance Notification

a. In accordance with 30 TAC § 305.125(9) any noncompliance which may endanger human health or safety, or the environment shall be reported by the permittee to the TCEQ. Except as allowed by 30 TAC § 305.132, report of such information shall be provided orally or by facsimile transmission (FAX) to the Regional Office within 24 hours of becoming aware of the noncompliance. A written submission of such information shall also be provided by the permittee to the Regional Office and the Enforcement Division (MC 224) within five working days of becoming aware of the noncompliance. For Publicly Owned Treatment Works (POTWs), effective September 1, 2020, the permittee must submit the written report for unauthorized discharges and unanticipated bypasses that exceed any effluent limit in the permit using the online electronic reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver. The written submission shall contain a description of the noncompliance and its cause; the potential danger to human health or safety, or the environment; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effects.

b. The following violations shall be reported under Monitoring and Reporting Requirement 7.a.:

   i. Unauthorized discharges as defined in Permit Condition 2(g).

   ii. Any unanticipated bypass that exceeds any effluent limitation in the permit.

   iii. Violation of a permitted maximum daily discharge limitation for pollutants listed specifically in the Other Requirements section of an Industrial TPDES permit.

c. In addition to the above, any effluent violation which deviates from the permitted effluent limitation by more than 40% shall be reported by the permittee in writing to the Regional Office and the Enforcement Division (MC 224) within 5 working days of becoming aware of the noncompliance.

d. Any noncompliance other than that specified in this section, or any required information not submitted or submitted incorrectly, shall be reported to the Enforcement Division (MC 224) as promptly as possible. For effluent limitation violations, noncompliances shall be reported on the approved self-report form.

8. In accordance with the procedures described in 30 TAC §§ 35.301 - 35.303 (relating to Water Quality Emergency and Temporary Orders) if the permittee knows in advance of the need for a bypass, it shall submit prior notice by applying for such authorization.

9. Changes in Discharges of Toxic Substances

   All existing manufacturing, commercial, mining, and silvicultural permittees shall notify the Regional Office, orally or by facsimile transmission within 24 hours, and both the Regional Office and the Enforcement Division (MC 224) in writing within five (5) working days, after becoming aware of or having reason to believe:

   a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant listed at 40 CFR Part 122, Appendix D, Tables II and III (excluding Total Phenols) which is not limited in the permit, if that

discharge will exceed the highest of the following "notification levels":

i. One hundred micrograms per liter (100 µg/L);

ii. Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;

iii. Five (5) times the maximum concentration value reported for that pollutant in the permit application; or

iv. The level established by the TCEQ.

b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

i. Five hundred micrograms per liter (500 µg/L);

ii. One milligram per liter (1 mg/L) for antimony;

iii. Ten (10) times the maximum concentration value reported for that pollutant in the permit application; or

iv. The level established by the TCEQ.

10. Signatories to Reports

All reports and other information requested by the Executive Director shall be signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).

11. All POTWs must provide adequate notice to the Executive Director of the following:

a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to CWA § 301 or § 306 if it were directly discharging those pollutants;

b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit; and

c. For the purpose of this paragraph, adequate notice shall include information on:

i. The quality and quantity of effluent introduced into the POTW; and

ii. Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

PERMIT CONDITIONS

1. General

a. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in an application or in any report to the