

## 11.0 CAPITAL IMPROVEMENT PROGRAM

The recommended CIP is based on improvements resulting from the hydraulic model analysis and the condition assessment. The CIP identifies the proposed improvement projects, provides the estimated costs of these facilities, and develops an estimate timetable or prioritization for implementing these improvements over the next 10 years. The CIP establishes a comprehensive picture of the improvements based on system hydraulic needs and condition of aging infrastructure.

### 11.1 COST ESTIMATES

Cost estimates are based on current, 2021 dollars. Total project cost estimates include estimated construction, engineering, legal, administration, construction management, and contingency cost components. Costs for engineering, legal, administration, and construction management and project contingencies are assumed to be 35 percent of the estimated construction cost. A project contingency was included to account for other unknown conditions when preparing general planning level cost estimates versus detailed design costs where the project components are very well defined.

#### 11.1.1 Unit Costs

The cost estimates in this section are based on general planning level cost estimates for construction and do not include future operations and maintenance costs. The appropriate use of this estimate is for planning and long-range budgeting and may not be an actual representation of actual construction costs. Estimates were prepared using a combination of parametric estimating factors, local experience in delivering projects similar to those in the CIP, and recent City bid prices on actual projects.

Table 11-1 shows a summary of the unit construction costs for water mains used to generate distribution and transmission system improvements. All improvements are assumed to take place in public rights-of-way under asphalt roads with average depth of cover of 4 to 5 feet. The 8- and 12-inch diameter pipelines are assumed to be PVC. Pipe diameters greater than 12-inch up to 24-inch diameter are assumed to be ductile iron pipe, with steel CML&C pipes assumed for diameters greater than 24 inches. Costs are intended to all-inclusive based on recent bid information provided by the City and include items such as traffic control, pavement repair and restoration incorporating concrete overlay construction, service and lateral reconnections, water pollution control plans, striping, testing and disinfection, and other appurtenant work related to pipeline construction.

Due to fluctuations in market material prices, local variations in the construction bidding climate, and actual project implementation timelines, these unit cost values are meant to be conservative and to be used for planning and budgeting purposes. More rigorous estimates should be prepared during detailed design. Unit costs shown in 2021 dollars and based on an ENR index of 12848 for Los Angeles, California.

**Table 11-1 – Pipeline Unit Costs**

<b>Pipe Diameter (inches)</b>	<b>Construction Cost (\$/Linear Feet)</b>
6	\$ 400
8	\$ 550
10	\$ 650
12	\$ 800
16	\$ 1,200
20	\$ 1,350
24	\$ 1,510

Note: Unit costs are based on ENR index of 12848 for Los Angeles, California for year 2021.

## **11.2 PROJECT PRIORITIES**

For development of a prioritized capital improvement program, the proposed improvement projects have been grouped into three main planning horizons covering a 10-year program to year 2030: Immediate, Near Term (5-Year), and Future (10-Year). Projects that are considered for each planning horizon, or priority level, have been categorized according to the following criteria.

### **11.2.1 Pipeline Improvements**

Pipeline improvements are prioritized according to the type or reason for the improvement or deficiency and severity of the deficiency. To develop a prioritized list of pipelines, the type of the pipeline deficiency is considered, such as either required for fire flow, system operational improvements, water quality, and aging infrastructure.

If asbestos cement pipe repair is required, the operations staff are to be trained for working with asbestos cement pipe, a pipe handling policy/plan should be in place by the water department, and repair work will need to meet OSHA regulations and conducted according to AWWA procedures. A lengthy discussion of the detailed regulations and requirements is not provided herein as these should be referenced. However, the OSHA and AWWA requirements should be referred to prior to implementation of such work. Typical requirements include keeping the pipe wet during construction and may require workers to wear personal protective equipment such as Tyvek® suits, respirators, and gloves; debris is wrapped in plastic covering, and hauled to a dumpster dedicated for AC pipe and later disposed in a hazardous waste landfill.

#### Fire Flow Improvements Priority Criteria

- Immediate – Year 2021 through 2024– Residual pressure for required flow less than 50 percent of criteria. These pipelines are prioritized annually based on existing age, material of cast iron or asbestos, and service to critical facilities such as schools and hospitals.
- Near-Term - 5-Year – Year 2025 – Residual pressure for required flow between 50-75 percent of criteria
- Future - 10-Year – Year 2030 - Residual pressure for required flow between 75-100 percent of criteria

Approximately 58,524 total linear feet of pipeline improvements are recommended. Completing this fire flow improvement project in the 10-year CIP will require approximately an average budget of \$3.83 million

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annually. However, based on the priority levels described above, the Immediate and 5-Year improvement projects add up to approximately 54,070 linear feet, with a total CIP budget of \$34.8 million.

### Facility Improvements

Priority for the Block 35 Facility improvements was based on the condition assessment and recommendations as described in Chapter 10.

- Immediate – Year 2021 through Year 2024 – Annual improvements for each year related to meeting latest Occupational Safety and Health Administration safety requirements, seismic evaluations, improvements related to corrosion and mechanical functionality of the system.
- Near-Term - 5-Year – Year 2025 – Improvements related to improving water quality and system looping for reliability, treatment systems, electrical upgrades, and other minor improvements recommended.
- Future - 10-Year – Year 2030 – Improvements related to system operations, reliability, and overall improvement to system flexibility and performance.

The total 10-year CIP budget for Facility Improvements is approximately \$16.6 million. Based on the priority levels described above, approximately \$1.4 is estimated for the Immediate timeframe, \$9.8 million for the 5-Year period, and \$5.4 million for the 10-Year period. If the total CIP were to be budgeted on an annual basis, approximately \$1.66 million is required annually over the 10-Year CIP.

### Pipeline Replacement Program

For this Master Plan, the pipelines included in the Pipeline Replacement Program do not include fire flow improvements. Separating the fire flow improvements allows those improvements to be budgeted and completed as a separate priority. The Pipeline Replacement Program consists of the additional pipeline improvements to be replaced annually due to age, material of cast iron or asbestos, pipe standards, cause of low pressure, velocity concerns, pipe break/maintenance history, proximity to essential facilities, schools or commercial areas or where damage to property may be significantly higher. These pipelines were identified through the latest GIS information provided by City as well as modeling results. Pipelines considered and included for this list of projects are 4-inch diameter and contained an installation date prior to 1970, or 50 years and older and of cast iron pipe material. The total length of pipeline is approximately 19,974 linear feet. Assuming an annual Pipeline Replacement Program budget of approximately \$1.4 million and assuming an average unit cost of \$520/linear foot, the total length of pipeline replacement is approximately 1,997 linear feet per year.

## 11.3 CAPITAL IMPROVEMENT PROJECTS

Annual summary of all CIP projects are provided in Table 11-2, with a total of approximately \$57,180,000. All recommended CIP projects are listed in Table 11-3. Projects are grouped by Improvements in three categories: Facility Improvements, Fire Flow Improvements, and Pipeline Replacement Program. Brief descriptions of the Facility Improvement Projects are described in the next section.

To help the City with the implementation of the CIP, annual implementation of the CIP and corresponding costs are provided in Table 11-4. The proposed Facility and Fire Flow Improvements are shown on Figure 11-1 and the Pipeline Replacement Program projects are illustrated in Figure 11-2.

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Table 11-2 – Annual Costs of Capital Improvement Projects

CIP Planning Horizon	Year	CIP ID	PIPELINE QUANTITY (lf)	CONSTRUCTION COST \$2021	ENG./ADMIN/CONTINGENCY COST	TOTAL PROJECT COST \$2021
Immediate (2021-2024)	2021	Facility Improvements	-	\$75,000	\$26,250	\$101,250
		Fire Flow Improvements	1,152	\$881,807	\$308,633	\$1,190,440
		Pipe Replacement Program	2,084	\$1,062,622	\$371,918	\$1,434,540
		<b>Subtotal 2021 Implementation</b>		<b>\$2,019,430</b>	<b>\$706,800</b>	<b>\$2,726,230</b>
	2022	Facility Improvements	-	\$60,000	\$21,000	\$81,000
		Fire Flow Improvements	1,309	\$986,651	\$345,328	\$1,331,979
		Pipe Replacement Program	1,613	\$970,125	\$339,544	\$1,309,669
		<b>Subtotal 2022 Implementation</b>		<b>\$2,016,777</b>	<b>\$705,872</b>	<b>\$2,722,649</b>
	2023	Facility Improvements	-	\$125,000	\$43,750	\$168,750
		Fire Flow Improvements	4,071	\$2,175,246	\$761,336	\$2,936,582
		Pipe Replacement Program	1,845	\$1,051,888	\$368,161	\$1,420,048
		<b>Subtotal 2023 Implementation</b>		<b>\$3,352,133</b>	<b>\$1,173,247</b>	<b>\$4,525,380</b>
	2024	Facility Improvements	-	\$250,000	\$87,500	\$337,500
		Fire Flow Improvements	4,168	\$3,130,105	\$1,095,537	\$4,225,642
		Pipe Replacement Program	2,167	\$1,105,410	\$386,893	\$1,492,303
		<b>Subtotal 2024 Implementation</b>		<b>\$4,485,515</b>	<b>\$1,569,930</b>	<b>\$6,055,445</b>
Near-Term (2025-2029)	2025	Facility Improvements	-	\$250,000	\$87,500	\$337,500
		Fire Flow Improvements	20,088	\$13,591,832	\$4,757,141	\$18,348,973
		Pipe Replacement Program	10,202	\$5,203,102	\$1,821,086	\$7,024,188
		<b>Subtotal 2025 Implementation</b>		<b>\$19,044,934</b>	<b>\$6,665,727</b>	<b>\$25,710,661</b>
Future (2030 to Ultimate)	2030	Facility Improvements	-	\$6,905,000	\$2,416,750	\$9,321,750
		Fire Flow Improvements	4,995	\$3,479,510	\$1,217,828	\$4,697,338
		Pipe Replacement Program	2,063	\$1,052,220	\$368,277	\$1,420,497
		<b>Subtotal 2030 Implementation</b>		<b>\$11,436,730</b>	<b>\$4,002,855</b>	<b>\$15,439,585</b>
		<b>Grand Total CIP</b>	<b>55,757</b>	<b>\$42,355,518</b>	<b>\$14,824,431</b>	<b>\$57,179,950</b>

### 11.3.1 Facility Improvement Projects

#### **IMP-1 Block 35 Ground Storage Tank Valve Vault**

An underground valve vault placed in the open pit is fenced off with chain link fence. The piping and valves are in good condition with minor corrosion and coating peeling. However, there is not sufficient room to work around the piping in the vault and OSHA safety are a concern. Improvements are recommended to bring this facility up to current OSHA safety standards.

#### **IMP-2 Block 35 Pump Station Miscellaneous Electrical Improvements**

The existing GE Spectra Series switchboards (SWBD) located in the pump station building has a rating NEMA 1 with 600A, 480/277VAC, 3PH, 4-wire and available short circuit current of 30KAIC. The existing SWBD services the pump station. The SWBD is in good condition. There were some visible signs of corrosion on the electrical distribution panels and pumps. The SWBD was last tested in 2007. The ATS was tested in August 2019. The emergency generator is maintained on a monthly basis. The MSB and SWBD require arc-flash labels per NFPA 70E. No emergency light or existing signs installed in the building and are required to be installed. Additional lighting in the building is also needed and recommended. Minor corrosion on the control panels was noted during the field observation and replacement of the panels is recommended. The level transmitter is exposed to the sun and showing signs of UV damage.

#### **IMP-3 Block 35 Pump Station Miscellaneous Mechanical Improvements**

The Block 35 pump station was found to be in fair condition. The pump station is well-maintained and operated, operates with no capacity concerns. Based on field observations there was corrosion on the base plates, which are recommended to be replaced. Coatings around piping and equipment should be sandblasted and recoated. According to the Operations staff, the two rolling gates do not have sufficient soundproofing to minimize noise from the operating pumps. This causes disturbances to the neighbors during off-peak hours. Improvements to mitigate the noise from the rolling gates are recommended.

#### **IMP-4 Block 35 Ground Storage Tank Seismic Evaluation**

The ground storage tank is a pre-stressed concrete tank located at the center of Block 35. It is a well-maintained site located near the residential neighborhood and operated by the City staff. In addition to some minor cracks, dampness along the wall crack and continuous horizontal cracks with efflorescence were noted during the field observation. There was no visible settlement. The tank appears to be approximately 70 years old and does not meet the current seismic code requirements. It is recommended that a detailed seismic evaluation, including retrofit requirements, be performed in accordance with ASCE 7-41.

#### **IMP-5 Block 35 Elevated Tank**

The elevated tank is a steel tank and is well maintained and operated by City staff. However, several signs of corrosion and rust were noted on the exterior wall of the tank and steel frame supports and legs. Further structural evaluation is recommended for integrity of the materials, seismic analysis and retrofit potential.

### **IMP-6 New 12-inch Transmission Main in Rosecrans Avenue to Crest Drive**

The northwest corner of the service area along Rosecrans Avenue and north of 33rd Street to 45th Street was found to contain several fire hydrants that could not meet the fire flow requirements due to the existing piping system. Additionally, according to operations staff and verified by analyses herein this same area has concerns for water quality due to its location and lack of water circulation. Based on the hydraulic analyses the proposed 12-inch transmission main in Rosecrans Avenue to Crest Drive will mean that several individual fire flow improvement pipeline projects to improve fire flow capacity will not be necessary and it will improve water quality in the area. Approximately 9,000 lf of 12-inch pipeline in Rosecrans Avenue, Highland Avenue, 38th Street, and Crest Drive is recommended to replace the existing pipelines in these streets.

This project is anticipated to be constructed in phases. The first phase will mitigate the fire flow deficiencies in the area but provide only slightly better water aging to improve water quality. The first phase will be the pipeline in Rosecrans Avenue from Laurel Avenue to Highland Avenue, approximately 4,461 lf. Phase 2 will be to construct the 12-inch pipeline in 38th Street from Highland Avenue to Crest Drive, and in Crest Drive to 45th Street, approximately 2,008 lf. Phase 3, approximately 2,532 lf, will be the 12-inch pipeline in Rosecrans Avenue from Sepulveda Boulevard to Laurel Avenue. Since Phase 2 will be required for Year 2030, both Phase 2 and Phase 3 are included in the CIP for Year 2030.

### **IMP-7 Block 35 Groundwater Treatment System**

Currently groundwater is required to be blended with imported water at the Block 35 Facility for proper water quality prior to the distribution system. To provide equivalent operations at each facility and flexibility between the Peck and Block 35 facilities, it is recommended that a similar treatment process at constructed at Peck be constructed at Block 35. The new water treatment facilities are assumed to include horizontal filtration tanks, a protected chlorine and ammonia chemical storage building and a vertical steel backwash tank. The capacity of the treatment system is assumed to be 3,000 gpm.

### **11.3.2 Fire Flow Improvement Projects**

The fire flow improvement projects are recommended based on the analysis to evaluate if the system can provide minimum residual pressure (20 psi) and not to exceed maximum velocity (10 fps) during MDD and fire flow conditions to meet City's fire flow requirements. The proposed fire flow improvements have been prioritized as described in section 11.2 in this chapter. The most severe deficient locations serving important facilities and customers are considered the highest priority to be constructed within the next 5 years.

### **11.3.3 Pipeline Replacement Program**

The total length of pipeline is approximately 19,974 linear feet of various pipe diameter to be replaced for the planning horizon to 2030. Assuming an annual Pipeline Replacement Program budget of \$1.4 million and assuming an average unit cost of \$520/linear foot, the total length of pipeline replacement is approximately 1,997 linear feet per year. Since the distribution system contains a significant amount of 4-inch diameter pipe or less that are also aged and cast-iron material, these pipelines are included for the Pipeline Replacement Program.



Table 11-3 – Proposed Capital Improvement Projects

NEW CIP ID	FACILITY DESCRIPTION	EXIST. SIZE	PROP. SIZE	QUANTITY	RECOMMENDED PROJECT DESCRIPTION	JUSTIFICATION	Pressure Zone	CIP Planning Horizon	CIP Year	Unit Cost \$2021	CONST. COST \$2021	ENG./ADMIN/CONTING. COST	TOTAL PROJECT COST \$2021
<b>FACILITY IMPROVEMENT PROJECTS</b>													
IMP-1	Ground Storage Tank Valve Vault	-	-	1 LS	Upgrade existing valve vault to meet OSHA safety requirements	Condition Assessment (Civil/Mechanical)	Main	Immediate	2021		\$ 75,000	\$ 26,250	\$ 101,250
IMP-2	Block 35 Pump Station Misc Electrical Improvements	-	-	1 LS	Replace PLC panel; Install arc-flash labels per NFPA 70E on all electrical equipment; Install lighting fixture per the IES Lighting Handbook	Condition Assessment (Electrical/Instrumentation)	Main	Immediate	2022		\$ 60,000	\$ 21,000	\$ 81,000
IMP-3	Block 35 Pump Station Misc Mechanical Improvements	-	-	1 LS	Replace rusted base plate; Sandblast and recoat corroded/rusted equipment; Improve soundproofing of the existing rolling gates	Condition Assessment (Civil/Mechanical)	Main	Immediate	2023		\$ 125,000	\$ 43,750	\$ 168,750
IMP-4	Block 35 Ground Storage Tank	-	-	1 LS	Recommend seismic evaluation and further structural evaluation of entire structure	Condition Assessment (Structural)	Main	Immediate	2024		\$ 250,000	\$ 87,500	\$ 337,500
IMP-5	Block 35 Elevated Tank	-	-	1 LS	Recommend seismic evaluation/retrofit and further structural evaluation	Condition Assessment (Structural)	Main	Near-Term	2025		\$ 250,000	\$ 87,500	\$ 337,500
IMP-6	Phase 2 & 3 - New 12-inch Transmission Main in Rosecrans to Crest Dr	-	12"	4540 LF	Construct a 12-inch water main connecting 45th St/Crest Dr and Rosecrans Ave/PCH	Water Quality and Fire protection	Main	Future	2030	\$ 750	\$ 3,405,000	\$ 1,191,750	\$ 4,596,750
IMP-7	Block 35 Groundwater Treatment System	-	-	1 LS	New groundwater treatment system	Water Quality and Operations	Main	Future	2030		\$ 3,500,000	\$ 1,225,000	\$ 4,725,000
<b>TOTAL FACILITY IMPROVEMENT PROJECTS</b>											<b>\$ 7,665,000</b>	<b>\$ 2,682,750</b>	<b>\$ 10,347,750</b>
<b>FIRE FLOW IMPROVEMENT PROJECTS</b>													
FF-001	Ritter Rd bw Grandview Ave and Bell Ave	6"	10"	595 LF	Replace existing 6-inch pipe with 10-inch	Fire Flow	Main	Immediate	2021	\$ 850	\$ 506,044	\$ 177,116	\$ 683,160
FF-002	Near Magnolia Wy bw 33rd St and Santa Cruz Ct	6"	10"	271 LF	Replace existing 6-inch pipe with 10-inch	Fire Flow	Main	Immediate	2021	\$ 850	\$ 229,959	\$ 80,486	\$ 310,445
FF-003	Harkness St bw Manhattan Beach Blvd and 11th St	2"	6"	286 LF	Replace existing 2-inch pipe with 6-inch	Fire Flow	Main	Immediate	2021	\$ 510	\$ 145,804	\$ 51,031	\$ 196,835
FF-004	Lateral off Cedar Wy bw Carlotta Wy and 33rd St	6"	8"	106 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Immediate	2022	\$ 680	\$ 72,356	\$ 25,325	\$ 97,680
FF-005	15th St near Roswell Ave and 17th St	6"	8"	634 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Immediate	2022	\$ 680	\$ 431,399	\$ 150,990	\$ 582,388
FF-006	Mira Costa HS near Ruhland Ave bw Meadows Ave and Peck Ave	8"	10"	398 LF	Replace existing 8-inch pipe with 10-inch	Fire Flow	Main	Immediate	2022	\$ 850	\$ 338,397	\$ 118,439	\$ 456,836
FF-007	Bell Ave bw Rosecrans Ave and 33rd St	6"	10"	170 LF	Replace existing 6-inch pipe with 10-inch	Fire Flow	Main	Immediate	2022	\$ 850	\$ 144,500	\$ 50,575	\$ 195,075
FF-008	17th St bw Pacific Ave and Poinsettia Ave	4"	6"	892 LF	Replace existing 4-inch pipe with 6-inch	Fire Flow	Main	Immediate	2023	\$ 510	\$ 454,764	\$ 159,167	\$ 613,931
FF-009	Valley Dr bw Marine Ave & Blanche Rd, 21st St bw Blanche Rd & Mandor Dr	4"	6"	1,974 LF	Replace existing 4-inch pipe with 6-inch	Fire Flow	Main	Immediate	2023	\$ 510	\$ 1,006,562	\$ 352,297	\$ 1,358,858
FF-010	Mira Costa HS near Ruhland Ave bw Meadows Ave and Peck Ave	6"	10"	291 LF	Replace existing 6-inch pipe with 10-inch	Fire Flow	Main	Immediate	2023	\$ 850	\$ 247,639	\$ 86,673	\$ 334,312
FF-011	Mira Costa HS near Meadows Ave between Keats St and Artesia Blvd	4"	6"	914 LF	Replace existing 4-inch pipe with 6-inch	Fire Flow	Main	Immediate	2023	\$ 510	\$ 466,281	\$ 163,198	\$ 629,480
FF-012	Artesia Blvd bw Peck Ave and Aviation Blvd	6"	10"	1,739 LF	Replace existing 6-inch pipe with 10-inch	Fire Flow	Main	Immediate	2024	\$ 850	\$ 1,478,338	\$ 517,418	\$ 1,995,756
FF-013	Wendy Wy bw Marine Ave and 12th St	6"	8"	2,429 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Immediate	2024	\$ 680	\$ 1,651,768	\$ 578,119	\$ 2,229,886
FF-014	15th St bw Highland Ave and Valley Dr	6"	8"	511 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Near-Term	2026	\$ 680	\$ 347,169	\$ 121,509	\$ 468,678
FF-015	Duncan Ave bw Ardmore Ave and Dianthus St	4"	6"	1,016 LF	Replace existing 4-inch pipe with 6-inch	Fire Flow	Main	Near-Term	2026	\$ 510	\$ 518,048	\$ 181,317	\$ 699,365
FF-016	Duncan Ave bw Dianthus St and Sepulveda Blvd	4"	8"	393 LF	Replace existing 4-inch pipe with 8-inch	Fire Flow	Hill	Near-Term	2026	\$ 680	\$ 267,451	\$ 93,608	\$ 361,059
FF-017	Boundary Pl bw Dianthus St & Sepulveda Blvd and bw Boundary & Duncan	6"	10"	825 LF	Replace existing 6-inch pipe with 10-inch	Fire Flow	Hill	Near-Term	2026	\$ 850	\$ 701,037	\$ 245,363	\$ 946,401
FF-018	John St bw 3rd St and 2nd St	6"	8"	335 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Near-Term	2026	\$ 680	\$ 227,657	\$ 79,680	\$ 307,337
FF-019	3rd St bw Ardmore Ave and Poinsettia Ave	4"	8"	654 LF	Replace existing 4-inch pipe with 8-inch	Fire Flow	Main	Near-Term	2026	\$ 680	\$ 444,547	\$ 155,591	\$ 600,138
FF-020	Poinsettia Ave bw 9th St and 8th St	6"	8"	21 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Hill	Near-Term	2027	\$ 680	\$ 14,307	\$ 5,008	\$ 19,315
FF-021	17th St bw (west of) Magnolia Ave and Chestnut Ave	6"	8"	262 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Near-Term	2027	\$ 680	\$ 178,221	\$ 62,377	\$ 240,599
FF-022	8th St bw Rowell Ave and Peck Ave	4"	6"	744 LF	Replace existing 4-inch pipe with 6-inch	Fire Flow	Main	Near-Term	2027	\$ 510	\$ 379,438	\$ 132,803	\$ 512,241
FF-023	Ronda Rd, Longfellow Dr, Kuhn Dr	6"	8"	2,507 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Hill	Near-Term	2027	\$ 680	\$ 1,704,676	\$ 596,637	\$ 2,301,313
FF-024	Chabela Dr bw Keats St and Tennyson St	6"	8"	464 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Hill	Near-Term	2027	\$ 680	\$ 315,195	\$ 110,318	\$ 425,513

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NEW CIP ID	FACILITY DESCRIPTION	EXIST. SIZE	PROP. SIZE	QUANTITY	RECOMMENDED PROJECT DESCRIPTION	JUSTIFICATION	Pressure Zone	CIP Planning Horizon	CIP Year	Unit Cost \$2021	CONST. COST \$2021	ENG./ADMIN/CONTING. COST	TOTAL PROJECT COST \$2021
FF-025	Artesia Blvd bw Aviation Blvd and Aviation Wy	6"	8"	480 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Near-Term	2028	\$ 680	\$ 326,223	\$ 114,178	\$ 440,401
FF-026	Mathews Ave bw Redondo Ave and Aviation Wy	4"	8"	914 LF	Replace existing 4-inch pipe with 8-inch	Fire Flow	Main	Near-Term	2028	\$ 680	\$ 621,743	\$ 217,610	\$ 839,352
FF-027	Curtis Ave bw Peck Ave and Redondo Ave	6"	8"	1,325 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Near-Term	2028	\$ 680	\$ 900,795	\$ 315,278	\$ 1,216,074
FF-028	3rd St bw Peck Ave and Redondo Ave	6"	8"	1,335 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Near-Term	2029	\$ 680	\$ 907,841	\$ 317,744	\$ 1,225,585
FF-029	2nd St bw Aviation Blvd and Aviation Pl	6"	8"	589 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Near-Term	2028	\$ 680	\$ 400,642	\$ 140,225	\$ 540,867
FF-030	5th St bw Redondo Ave and Aviation Blvd	4"	6"	1,302 LF	Replace existing 4-inch pipe with 6-inch	Fire Flow	Main	Near-Term	2029	\$ 510	\$ 664,078	\$ 232,427	\$ 896,505
FF-031	12th St bw Manzanita Ln and Harkness St	8"	8"	214 LF	Required for fire flow & aging 8-inch pipe (installed in 1950)	Fire Flow	Main	Near-Term	2029	\$ 680	\$ 145,717	\$ 51,001	\$ 196,718
FF-032	12th St bw Harkness St and Aviation Blvd, Aviation Blvd bw 12th and Manhattan Beach Blvd	6"	8"	629 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Near-Term	2029	\$ 680	\$ 427,999	\$ 149,800	\$ 577,798
FF-033	12th St bw Harkness St and Aviation Blvd, Aviation Blvd bw 12th and Manhattan Beach Blvd	8"	8"	240 LF	Required for fire flow & aging 8-inch pipe (installed in 1950)	Fire Flow	Main	Near-Term	2029	\$ 680	\$ 163,445	\$ 57,206	\$ 220,650
FF-034	Harkness St bw 12th St and Manhattan Beach Blvd, Manhattan Beach Blvd bw Harkness St and Aviation Blvd	6"	8"	629 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Near-Term	2026	\$ 680	\$ 427,992	\$ 149,797	\$ 577,789
FF-035	Harkness St bw 12th St and Manhattan Beach Blvd, Manhattan Beach Blvd bw Harkness St and Aviation Blvd	8"	8"	238 LF	Required for fire flow, replace aging 8-inch pipe (installed in 1950)	Fire Flow	Main	Near-Term	2026	\$ 680	\$ 161,860	\$ 56,651	\$ 218,512
FF-036	Phase 1 - New 12-inch Pipeline in Rosecrans Avenue from Laurel Ave to Highland/38th St	-	12"	4,461 LF	Required for fire flow, proposed new parallel pipe	Fire Flow	Main	Near-Term	2025	\$ 750	\$ 3,345,750	\$ 1,171,013	\$ 4,516,763
FF-037	18th St bw Laurel Ave and Pacific Ave	6"	8"	281 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Future	2030	\$ 680	\$ 191,260	\$ 66,941	\$ 258,201
FF-038	Marine Ave bw Pacific Ave and Palm Ave	6"	8"	594 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Future	2030	\$ 680	\$ 403,589	\$ 141,256	\$ 544,845
FF-039	Village Center Dr bw Malaga Wy and Gateway Dr	8"	10"	230 LF	Replace existing 8-inch pipe with 10-inch	Fire Flow	Main	Future	2030	\$ 850	\$ 195,415	\$ 68,395	\$ 263,810
FF-040	27th Wy bw Cedar Wy and Village Cir	8"	10"	256 LF	Replace existing 8-inch pipe with 10-inch	Fire Flow	Main	Future	2030	\$ 850	\$ 218,016	\$ 76,306	\$ 294,321
FF-041	Mathews Ave bw Peck Ave and Redondo Ave	6"	8"	1,328 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Future	2030	\$ 680	\$ 902,830	\$ 315,991	\$ 1,218,821
FF-042	Aviation Wy bw Ruhland Ave and Artesia Blvd	4"	8"	992 LF	Replace existing 4-inch pipe with 8-inch	Fire Flow	Main	Future	2030	\$ 680	\$ 674,274	\$ 235,996	\$ 910,270
FF-043	Ruhland Ave bw Peck Ave and Redondo Ave	6"	8"	1,315 LF	Replace existing 6-inch pipe with 8-inch	Fire Flow	Main	Future	2030	\$ 680	\$ 894,125	\$ 312,944	\$ 1,207,069
<b>TOTAL</b>				<b>35,783 LF</b>	<b>TOTAL FIRE FLOW IMPROVEMENT PROJECT</b>						<b>\$ 24,245,151</b>	<b>\$ 8,485,803</b>	<b>\$ 32,730,954</b>
<b>PIPE REPLACEMENT PROGRAM PROJECTS</b>													
PR-001	Grandview Ave bw 23rd Pl and Marine Ave	4"	6"	475 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Immediate	2021	\$ 510	\$ 242,313	\$ 84,809	\$ 327,122
PR-002	20th St bw Highland Ave and Grandview Ave	4"	6"	649 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Immediate	2021	\$ 510	\$ 331,061	\$ 115,871	\$ 446,933
PR-003	19th St bw Ocean Dr and Highland Ave	4"	6"	436 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Immediate	2021	\$ 510	\$ 222,467	\$ 77,863	\$ 300,331
PR-004	19th St bw Highland Ave and Valley Dr	4"	6"	523 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Immediate	2021	\$ 510	\$ 266,781	\$ 93,373	\$ 360,154
PR-005	17th St bw Ocean Dr and Highland Ave	4"	8"	439 LF	Replace existing 4-inch pipe with 8-inch	Aged, end of useful life, cast iron	Main	Immediate	2022	\$ 680	\$ 298,642	\$ 104,525	\$ 403,167
PR-006	17th St bw Highland Ave and Valley Dr	4"	6"	457 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Immediate	2022	\$ 510	\$ 233,300	\$ 81,655	\$ 314,954
PR-007	16th St bw Ocean Dr and Highland Ave	4"	8"	429 LF	Replace existing 4-inch pipe with 8-inch	Aged, end of useful life, cast iron	Main	Immediate	2022	\$ 680	\$ 291,441	\$ 102,004	\$ 393,446
PR-008	11th St bw Highland Ave and Morningside Dr	4"	6"	288 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Immediate	2022	\$ 510	\$ 146,742	\$ 51,360	\$ 198,102
PR-009	Ingleside Dr bw Francisco St and Longfellow Dr, Longfellow Dr bw Ingleside Dr and Valley Dr, Valley Dr bw 1st St and Longfellow Dr	4"	6"	1,191 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Immediate	2023	\$ 510	\$ 607,341	\$ 212,569	\$ 819,910
PR-010	3rd St bw Ardmore Ave and Poinsettia Ave	4"	8"	654 LF	Replace existing 4-inch pipe with 8-inch	Aged, end of useful life, cast iron	Main	Immediate	2023	\$ 680	\$ 444,547	\$ 155,591	\$ 600,138
PR-011	Duncan Pl bw Poinsettia Ave and Sepulveda Blvd	4"	6"	1,140 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Hill	Immediate	2024	\$ 510	\$ 581,461	\$ 203,511	\$ 784,973
PR-012	John St bw 8th St and 5th St	4"	6"	618 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Hill	Immediate	2024	\$ 510	\$ 315,154	\$ 110,304	\$ 425,459



WATER MASTER PLAN UPDATE 2021

NEW CIP ID	FACILITY DESCRIPTION	EXIST. SIZE	PROP. SIZE	QUANTITY	RECOMMENDED PROJECT DESCRIPTION	JUSTIFICATION	Pressure Zone	CIP Planning Horizon	CIP Year	Unit Cost \$2021	CONST. COST \$2021	ENG./ADMIN/CONTING. COST	TOTAL PROJECT COST \$2021	
PR-013	Flournoy Rd bw Ardmore Ave and 19th St	4"	6"	409 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Immediate	2024	\$ 510	\$ 208,794	\$ 73,078	\$ 281,872	
PR-014	Gull St bw Highland Ave and Crest Dr	4"	6"	191 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2025	\$ 510	\$ 97,277	\$ 34,047	\$ 131,324	
PR-015	43rd St bw The Strand and Ocean Dr	4"	6"	126 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2025	\$ 510	\$ 64,025	\$ 22,409	\$ 86,434	
PR-016	Kelp St bw Ocean Dr and Highland Ave	4"	6"	156 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2025	\$ 510	\$ 79,558	\$ 27,845	\$ 107,403	
PR-017	Moonstone St bw Highland Ave and Crest Dr	4"	6"	137 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2025	\$ 510	\$ 69,666	\$ 24,383	\$ 94,049	
PR-018	Rosecrans Pl bw Highland Ave and Alma Ave	4"	6"	269 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2025	\$ 510	\$ 136,950	\$ 47,933	\$ 184,883	
PR-019	35th St bw Highland Ave and Alma Ave	4"	6"	261 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2025	\$ 510	\$ 133,292	\$ 46,652	\$ 179,944	
PR-020	29th St bw Highland Ave and Alma Ave	4"	6"	270 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2025	\$ 510	\$ 137,460	\$ 48,111	\$ 185,571	
PR-021	26th St bw Highland Ave and Vista Dr	4"	6"	396 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2025	\$ 510	\$ 201,928	\$ 70,675	\$ 272,602	
PR-022	Blanche Rd bw Marine Ave and Valley Dr	4"	6"	277 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2026	\$ 510	\$ 141,487	\$ 49,521	\$ 191,008	
PR-023	Laurel Ave bw 19th St and 17th St	4"	6"	720 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2026	\$ 510	\$ 367,118	\$ 128,491	\$ 495,610	
PR-024	John St bw Marine Ave and 18th St	4"	6"	1,205 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2026	\$ 510	\$ 614,775	\$ 215,171	\$ 829,946	
PR-025	Palm Ave bw Ardmore Ave and 18th St	4"	6"	1,397 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2027	\$ 510	\$ 712,377	\$ 249,332	\$ 961,708	
PR-026	31st St bw Bell Ave and Blanche Rd	4"	6"	396 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2027	\$ 510	\$ 202,106	\$ 70,737	\$ 272,843	
PR-027	30th St bw Bell Ave and Branche Rd	4"	6"	657 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2027	\$ 510	\$ 335,111	\$ 117,289	\$ 452,400	
PR-028	30th St bw Agnes Rd and Laurel Ave	4"	6"	465 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2028	\$ 510	\$ 237,053	\$ 82,969	\$ 320,022	
PR-029	31st St bw Agnes Rd and Laurel Ave	4"	6"	447 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2028	\$ 510	\$ 227,745	\$ 79,711	\$ 307,456	
PR-030	Maple Ave bw 30st St and Valley Rd	4"	6"	779 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2028	\$ 510	\$ 397,494	\$ 139,123	\$ 536,617	
PR-031	35th St bw Laurel Ave and Pacific Ave	4"	6"	225 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2028	\$ 510	\$ 114,871	\$ 40,205	\$ 155,076	
PR-032	Maple Ave bw Rosecrans Ave and 35th St	4"	6"	630 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2029	\$ 510	\$ 321,095	\$ 112,383	\$ 433,478	
PR-033	21st St bw Chestnut Ave and Meadows Ave	4"	6"	228 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2029	\$ 510	\$ 116,382	\$ 40,734	\$ 157,116	
PR-034	Rowell Ave bw Manhattan Beach Blvd and 9th St	4"	6"	971 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Near-Term	2029	\$ 510	\$ 495,331	\$ 173,366	\$ 668,697	
PR-035	Peck Ave bw Manhattan Beach Blvd and 11th St	4"	6"	209 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Future	2030	\$ 510	\$ 106,554	\$ 37,294	\$ 143,848	
PR-036	6th St bw Rowell Ave and Peck Ave	4"	6"	584 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Future	2030	\$ 510	\$ 297,942	\$ 104,280	\$ 402,222	
PR-037	Johnson St bw 6th St and 5th St	2"	6"	317 LF	Replace existing 2-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Future	2030	\$ 510	\$ 161,425	\$ 56,499	\$ 217,924	
PR-038	5th St bw Johnson St and Camino Cardinell	4"	6"	259 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Future	2030	\$ 510	\$ 131,940	\$ 46,179	\$ 178,120	
PR-039	Harkness St bw 6th St and 5th St	4"	6"	355 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Future	2030	\$ 510	\$ 180,958	\$ 63,335	\$ 244,294	
PR-040	Harkness St bw 10th St and 9th St	4"	6"	340 LF	Replace existing 4-inch pipe with 6-inch	Aged, end of useful life, cast iron	Main	Future	2030	\$ 510	\$ 173,400	\$ 60,690	\$ 234,090	
				<b>TOTAL</b>	<b>19,974 LF</b>	<b>TOTAL PIPE REPLACEMENT PROGRAM PROJECT</b>					<b>\$ 10,445,367</b>	<b>\$ 3,655,878</b>	<b>\$ 14,101,245</b>	
											<b>TOTAL CIP</b>	<b>\$ 42,355,518</b>	<b>\$ 14,824,431</b>	<b>\$ 57,179,950</b>

Table 11-4 – Annual Implementation of Proposed Capital Improvement Projects

NEW CIP ID	FACILITY DESCRIPTION	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	FY 28/29	FY 29/30	FY 30/31
<b>FACILITY IMPROVEMENT PROJECTS</b>											
IMP-1	Ground Storage Tank Valve Vault	\$ 101,250									
IMP-2	Block 35 Pump Station Misc Electrical Improvements		\$ 81,000								
IMP-3	Block 35 Pump Station Misc Mechanical Improvements			\$ 168,750							
IMP-4	Block 35 Ground Storage Tank				\$ 337,500						
IMP-5	Block 35 Elevated Tank					\$ 337,500					
IMP-6	Phase 2 & 3 - New 12-inch Transmission Main in Rosecrans to Crest Dr										\$ 4,596,750
IMP-7	Block 35 Groundwater Treatment System										\$ 4,725,000
	<b>Subtotal</b>	<b>\$ 101,250</b>	<b>\$ 81,000</b>	<b>\$ 168,750</b>	<b>\$ 337,500</b>	<b>\$ 337,500</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 9,321,750</b>
<b>FIRE FLOW IMPROVEMENT PROJECTS</b>											
FF-001	Ritter Rd bw Grandview Ave and Bell Ave	\$ 683,160									
FF-002	Near Magnolia Wy bw 33rd St and Santa Cruz Ct	\$ 310,445									
FF-003	Harkness St bw Manhattan Beach Blvd and 11th St	\$ 196,835									
FF-004	Lateral off Cedar Wy bw Carlotta Wy and 33rd St		\$ 97,680								
FF-005	15th St near Roswell Ave and 17th St		\$ 582,388								
FF-006	Mira Costa HS near Ruhland Ave bw Meadows Ave and Peck Ave		\$ 456,836								
FF-007	Bell Ave bw Rosecrans Ave and 33rd St		\$ 195,075								
FF-008	17th St bw Pacific Ave and Poinsettia Ave			\$ 613,931							
FF-009	Valley Dr bw Marine Ave & Blanche Rd, 21st St bw Blanche Rd & Mandor Dr			\$ 1,358,858							
FF-010	Mira Costa HS near Ruhland Ave bw Meadows Ave and Peck Ave			\$ 334,312							
FF-011	Mira Costa HS near Meadows Ave between Keats St and Artesia Blvd			\$ 629,480							
FF-012	Artesia Blvd bw Peck Ave and Aviation Blvd				\$ 1,995,756						
FF-013	Wendy Wy bw Marine Ave and 12th St				\$ 2,229,886						
FF-014	15th St bw Highland Ave and Valley Dr						\$ 468,678				
FF-015	Duncan Ave bw Ardmore Ave and Dianthus St						\$ 699,365				
FF-016	Duncan Ave bw Dianthus St and Sepulveda Blvd						\$ 361,059				
FF-017	Boundary Pl bw Dianthus St & Sepulveda Blvd and bw Boundary & Duncan						\$ 946,401				
FF-018	John St bw 3rd St and 2nd St						\$ 307,337				
FF-019	3rd St bw Ardmore Ave and Poinsettia Ave						\$ 600,138				
FF-020	Poinsettia Ave bw 9th St and 8th St							\$ 19,315			
FF-021	17th St bw (west of) Magnolia Ave and Chestnut Ave							\$ 240,599			
FF-022	8th St bw Rowell Ave and Peck Ave							\$ 512,241			
FF-023	Ronda Rd, Longfellow Dr, Kuhn Dr							\$ 2,301,313			
FF-024	Chabela Dr bw Keats St and Tennyson St							\$ 425,513			
FF-025	Artesia Blvd bw Aviation Blvd and Aviation Wy								\$ 440,401		
FF-026	Mathews Ave bw Redondo Ave and Aviation Wy								\$ 839,352		
FF-027	Curtis Ave bw Peck Ave and Redondo Ave								\$ 1,216,074		
FF-028	3rd St bw Peck Ave and Redondo Ave									\$ 1,225,585	
FF-029	2nd St bw Aviation Blvd and Aviation Pl								\$ 540,867		
FF-030	5th St bw Redondo Ave and Aviation Blvd									\$ 896,505	

**WATER MASTER PLAN UPDATE 2021**

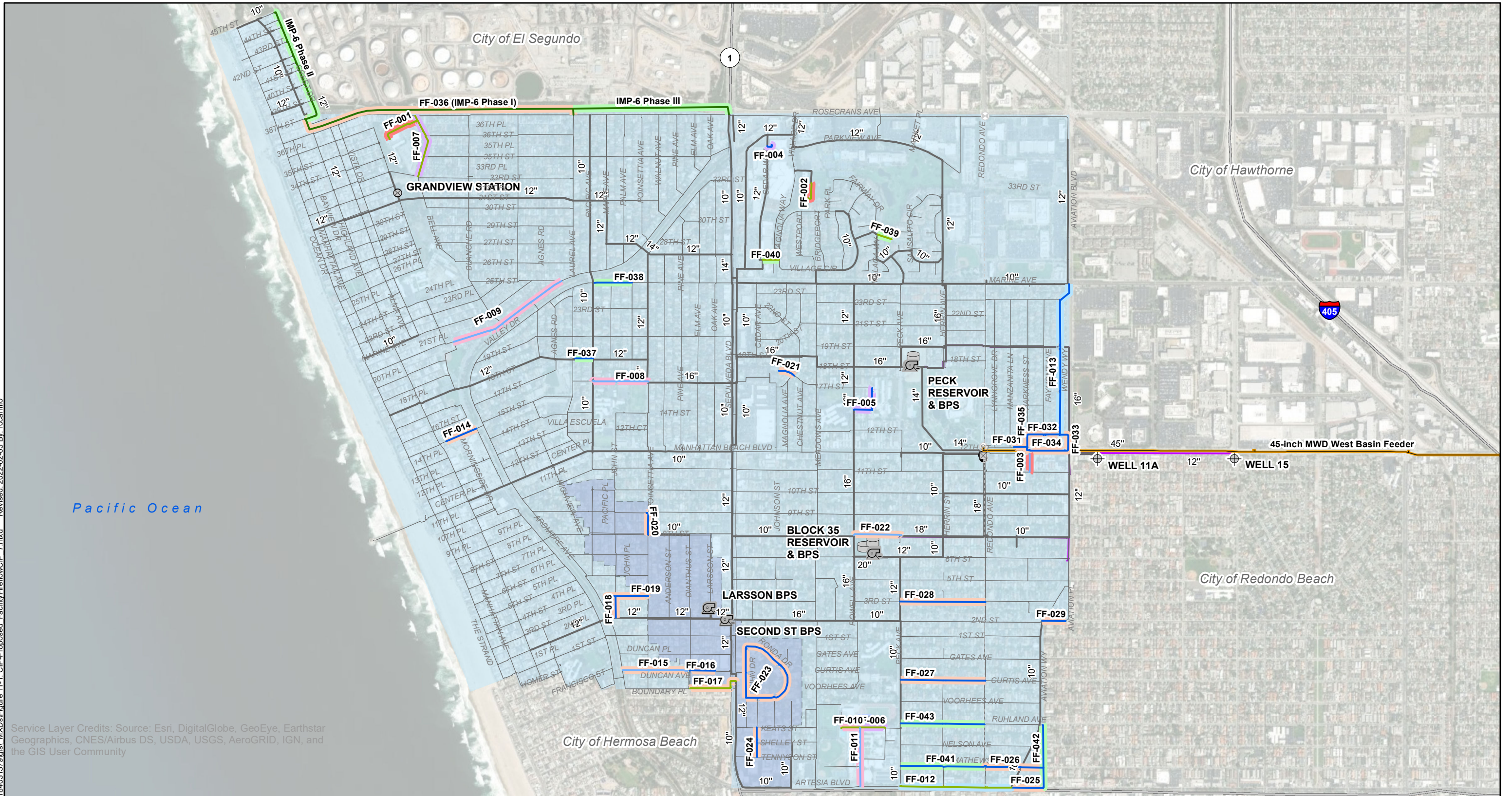
NEW CIP ID	FACILITY DESCRIPTION	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	FY 28/29	FY 29/30	FY 30/31
FF-031	12th St bw Manzanita Ln and Harkness St									\$ 196,718	
FF-032	12th St bw Harkness St and Aviation Blvd, Aviation Blvd bw 12th and Manhattan Beach Blvd									\$ 577,798	
FF-033	12th St bw Harkness St and Aviation Blvd, Aviation Blvd bw 12th and Manhattan Beach Blvd									\$ 220,650	
FF-034	Harkness St bw 12th St and Manhattan Beach Blvd, Manhattan Beach Blvd bw Harkness St and Aviation Blvd						\$ 577,789				
FF-035	Harkness St bw 12th St and Manhattan Beach Blvd, Manhattan Beach Blvd bw Harkness St and Aviation Blvd						\$ 218,512				
FF-036	Phase 1 - New 12-inch Pipeline in Rosecrans Avenue from Laurel Ave to Highland/38th St					\$ 4,516,763					
FF-037	18th St bw Laurel Ave and Pacific Ave										\$ 258,201
FF-038	Marine Ave bw Pacific Ave and Palm Ave										\$ 544,845
FF-039	Village Center Dr bw Malaga Wy and Gateway Dr										\$ 263,810
FF-040	27th Wy bw Cedar Wy and Village Cir										\$ 294,321
FF-041	Mathews Ave bw Peck Ave and Redondo Ave										\$ 1,218,821
FF-042	Aviation Wy bw Ruhland Ave and Artesia Blvd										\$ 910,270
FF-043	Ruhland Ave bw Peck Ave and Redondo Ave										\$ 1,207,069
<b>Subtotal</b>		<b>\$ 1,190,440</b>	<b>\$ 1,331,979</b>	<b>\$ 2,936,582</b>	<b>\$ 4,225,642</b>	<b>\$ 4,516,763</b>	<b>\$ 4,179,278</b>	<b>\$ 3,498,980</b>	<b>\$ 3,036,695</b>	<b>\$ 3,117,257</b>	<b>\$ 4,697,338</b>
<b>PIPE REPLACEMENT PROGRAM PROJECTS</b>											
PR-001	Grandview Ave bw 23rd Pl and Marine Ave	\$ 327,122									
PR-002	20th St bw Highland Ave and Grandview Ave	\$ 446,933									
PR-003	19th St bw Ocean Dr and Highland Ave	\$ 300,331									
PR-004	19th St bw Highland Ave and Valley Dr	\$ 360,154									
PR-005	17th St bw Ocean Dr and Highland Ave		\$ 403,167								
PR-006	17th St bw Highland Ave and Valley Dr		\$ 314,954								
PR-007	16th St bw Ocean Dr and Highland Ave		\$ 393,446								
PR-008	11th St bw Highland Ave and Morningside Dr		\$ 198,102								
PR-009	Ingleside Dr bw Francisco St and Longfellow Dr, Longfellow Dr bw Ingleside Dr and Valley Dr, Valley Dr bw 1st St and Longfellow Dr			\$ 819,910							
PR-010	3rd St bw Ardmore Ave and Poinsettia Ave			\$ 600,138							
PR-011	Duncan Pl bw Poinsettia Ave and Sepulveda Blvd				\$ 784,973						
PR-012	John St bw 8th St and 5th St				\$ 425,459						
PR-013	Flournoy Rd bw Ardmore Ave and 19th St				\$ 281,872						
PR-014	Gull St bw Highland Ave and Crest Dr					\$ 131,324					
PR-015	43rd St bw The Strand and Ocean Dr					\$ 86,434					
PR-016	Kelp St bw Ocean Dr and Highland Ave					\$ 107,403					
PR-017	Moonstone St bw Highland Ave and Crest Dr					\$ 94,049					
PR-018	Rosecrans Pl bw Highland Ave and Alma Ave					\$ 184,883					
PR-019	35th St bw Highland Ave and Alma Ave					\$ 179,944					
PR-020	29th St bw Highland Ave and Alma Ave					\$ 185,571					
PR-021	26th St bw Highland Ave and Vista Dr					\$ 272,602					
PR-022	Blanche Rd bw Marine Ave and Valley Dr						\$ 191,008				
PR-023	Laurel Ave bw 19th St and 17th St						\$ 495,610				
PR-024	John St bw Marine Ave and 18th St						\$ 829,946				

**WATER MASTER PLAN UPDATE 2021**

NEW CIP ID	FACILITY DESCRIPTION	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	FY 28/29	FY 29/30	FY 30/31
PR-025	Palm Ave bw Ardmore Ave and 18th St							\$ 961,708			
PR-026	31st St bw Bell Ave and Blanche Rd							\$ 272,843			
PR-027	30th St bw Bell Ave and Branche Rd							\$ 452,400			
PR-028	30th St bw Agnes Rd and Laurel Ave								\$ 320,022		
PR-029	31st St bw Agnes Rd and Laurel Ave								\$ 307,456		
PR-030	Maple Ave bw 30st St and Valley Rd								\$ 536,617		
PR-031	35th St bw Laurel Ave and Pacific Ave								\$ 155,076		
PR-032	Maple Ave bw Rosecrans Ave and 35th St									\$ 433,478	
PR-033	21st St bw Chestnut Ave and Meadows Ave									\$ 157,116	
PR-034	Rowell Ave bw Manhattan Beach Blvd and 9th St									\$ 668,697	
PR-035	Peck Ave bw Manhattan Beach Blvd and 11th St										\$ 143,848
PR-036	6th St bw Rowell Ave and Peck Ave										\$ 402,222
PR-037	Johnson St bw 6th St and 5th St										\$ 217,924
PR-038	5th St bw Johnson St and Camino Cardinell										\$ 178,120
PR-039	Harkness St bw 6th St and 5th St										\$ 244,294
PR-040	Harkness St bw 10th St and 9th St										\$ 234,090
	<b>Subtotal</b>	<b>\$ 1,434,540</b>	<b>\$ 1,309,669</b>	<b>\$ 1,420,048</b>	<b>\$ 1,492,303</b>	<b>\$ 1,242,212</b>	<b>\$ 1,516,563</b>	<b>\$ 1,686,951</b>	<b>\$ 1,319,171</b>	<b>\$ 1,259,290</b>	<b>\$ 1,420,497</b>
	<b>Total</b>	<b>\$ 2,726,230</b>	<b>\$ 2,722,649</b>	<b>\$ 4,525,380</b>	<b>\$ 6,055,445</b>	<b>\$ 6,096,475</b>	<b>\$ 5,695,841</b>	<b>\$ 5,185,932</b>	<b>\$ 4,355,866</b>	<b>\$ 4,376,548</b>	<b>\$ 15,439,585</b>



\\us0300-pdfs01\workgroup\1840\active\184031379\gis\MXD\DistFigure 11-1-1\_CIP-Proposed Facility FireflowCIP\_7.mxd Revised: 2022-02-03 By: rocarillo



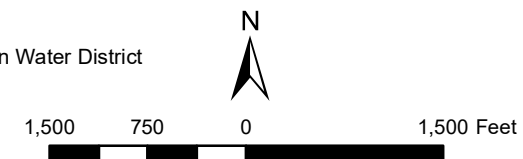
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Reservoir
- Groundwater Well
- Import Water Turnout
- Interagency Connection (Intertie)
- Pressure Monitoring Station
- Flow Control Valve
- Booster Pump Station (BPS)
- Hill Zone
- Main Zone
- City of Manhattan Beach
- Outside Agency Pipeline

- | Existing Pipelines       | Implementation Year |
|--------------------------|---------------------|
| Less than 10" Diameter   | 2021                |
| 10" Diameter and Greater | 2022                |
| MWD Distribution Main    | 2023                |
| Well Transmission Main   | 2024                |
|                          | 2025                |

- | Facility and Fire Flow CIP |
|----------------------------|
| 2030                       |
| 6                          |
| 8                          |
| 10                         |
| 12                         |

Note:  
MWD = Metropolitan Water District



Date: 2/3/2022

**TITLE: Figure 11-1 – Proposed Facility Fire Flow Pipeline CIP**

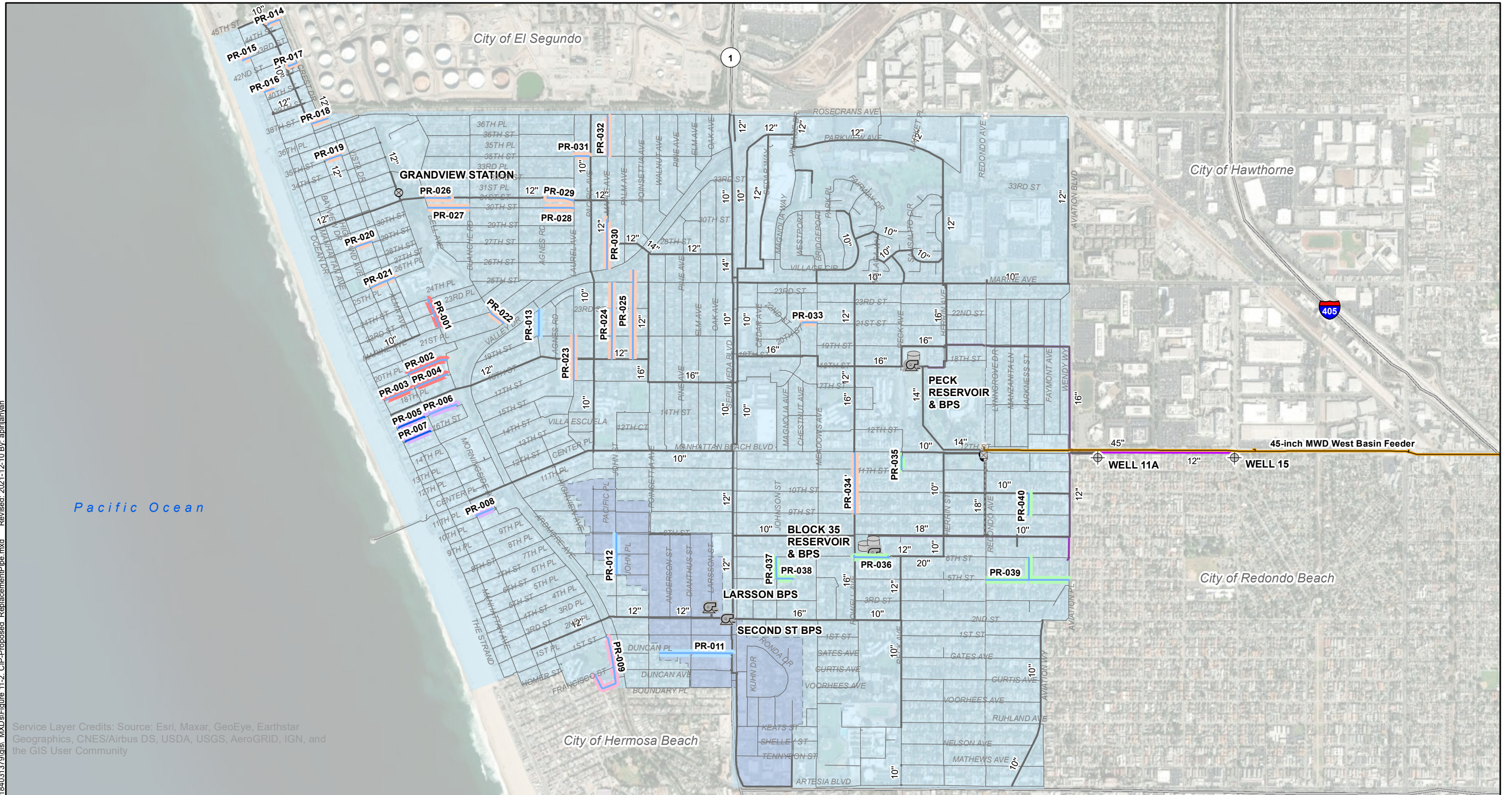
PROJECT: City of Manhattan Beach Water Master Plan

COORDINATE SYSTEM: NAD 1983 StatePlane California V FIPS 0405 Feet





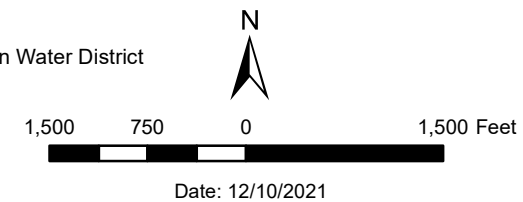
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Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- |                                   |                            |                           |                             |      |
|-----------------------------------|----------------------------|---------------------------|-----------------------------|------|
| Reservoir                         | Flow Control Valve         | <b>Existing Pipelines</b> | <b>Pipe Replacement CIP</b> | 2023 |
| Groundwater Well                  | Booster Pump Station (BPS) | Less than 10" Diameter    | 6                           | 2024 |
| Import Water Turnout              | Hill Zone                  | 10" Diameter and Greater  | 8                           | 2025 |
| Interagency Connection (Intertie) | Main Zone                  | MWD Distribution Main     | <b>Implementation Year</b>  | 2030 |
| Pressure Monitoring Station       | City of Manhattan Beach    | Well Transmission Main    | 2021                        |      |
|                                   | Outside Agency Pipeline    |                           | 2022                        |      |

Note:  
MWD = Metropolitan Water District



**TITLE: Figure 11-2 – Proposed Pipeline Replacement CIP**

PROJECT: City of Manhattan Beach Water Master Plan

COORDINATE SYSTEM: NAD 1983 StatePlane California V FIPS 0405 Feet

