

Water Facilities Master Plan (WFMP)
(Prioritization Results- As of January 2010)

Rank	Title	Description
1	Scripps Miramar Pump Station Upgrade	Background and justification: • Rapid growth in the Scripps Miramar PS service area, lack of redundancy, and maintenance needs require immediate replacement of this PS • This facility is the only source of supply for Scripps Ranch 1020, therefore any failure will result in water shortages to the entire Scripps Ranch service area Recommendation: • Build a new 20-mgd PS at the corner of Scripps Lake Drive and Scripps Ranch Blvd to replace the existing 15.2-mgd PS located adjacent to the Miramar Clearwells
2	Miramar Clearwells Replacement	• Demolish two existing clearwells and construct two or three new clearwells • Increase clearwell storage at Miramar WTP (due to plant capacity increase from 140 to 215 mgd)
3	Cast-Iron Replacement Group Jobs (10 mile replacements)	Background and justification: • Cast-iron mains in the City are decades old and present significant integrity issues Proposed Project: • Replace the mains to comply with regulatory and City council mandates
4	54-inch Mid-City Pipeline Phase II (Trojan Pipeline Backup)	Background and justification: • This project will provide a backup supply for the aging 54” Trojan Pipeline that currently supplies the Mid-City Pipeline west of the 63rd Street inter-tie • Provides a second supply line to the largest region of the Alvarado WTP service area, provides backup service, and allows the Trojan Pipeline to be removed from service for inspection • Provides connections for a new 69th and Mohawk PS to become the lead supply to the Redwood Village (645) zone Proposed Project: • New 54” Pipeline (6,505 LF) to connect the Alvarado clearwells to the existing 48” Mid-City Pipeline
5	69th and Mohawk Pump Station / Montezuma Pipeline	Background and justification: • Current facility is out of service and disconnected from the system • Existing aging Montezuma PS is the only capable supply source to the Redwood Village 645 Zone, which will require a pumping capacity of 5.66 mgd and serve a population of 54,112 in 2030 • An outage here would leave SDSU and the college area without water • This project will replace the Montezuma PS as the lead supply to the zone, and add reliability and redundancy to the system • Cast-iron line replacement lowers the risk of a main break Proposed Project: • Replace existing 69th and Mohawk PS with a new 25-mgd VFD PS to provide reliable backup to the Montezuma PS • Suction from a side outlet from the 54” Mid-City Pipeline Phase II (phased with this project) and discharge to 30” line that splits into 16” and 24” lines within a short distance from the PS • Replace existing 6,181 lf of 16” cast-iron College Heights Reservoir Pipeline with 2,231 lf of new 16” pipeline from 69th and Mohawk east to 72nd and Saranac Street • Add 2,742 lf of new 24” line: Montezuma Pipeline from 69th and Mohawk west to Montezuma and Catoctin Drive • Abandon 322 lf of 16” CI line from 72nd and Saranac to the old College Heights Reservoir property
6	Catalina Standpipe Replacement and Expansion	Currently in 10% design as a replacement, including the following: • Seismic improvements • Review capacity, operational, and hydraulic analysis to determine volume based on demand of Catalina 462 and Point Loma 260 zones
7	Climax Pump Station Replacement	• Replace and relocate PS based on the following observations: - o PS condition shows signs of deterioration (not hydraulic deficiencies) - o Site poses maintenance constraints - o Control valves require a detailed evaluation, building design is inadequate - o A makeshift HVAC system was installed to cool down the electrical panel of Pump 4, and to maintain adequate station temperature - o 12” suction header leaks constantly, causing the sump pump to continuously discharge water to the curb, resulting in a constant stream of water that runs four blocks until it reaches a storm drain inlet; residents complain that the City is wasting water - o The suction header is located in an easement, adjacent to a single residential family home, and gaining access would be difficult to repair the leak • Relocation considerations for new PS: - o Find location more suitable for operation and maintenance - o Conceptual level study recommends combining three small pump pressure zones within the San Carlos Focus Area of the Alvarado WTP Service Area Master Plan (Climax 910, Country Casual 925, and Eagle Ridge 940) into one large zone served by a single PS (if possible) - o Potential location on Barker Way (on City of San Diego property) adjacent to Mission Trails Regional Park • Design summary for planned PS: - o Design capacity to meet year 2030 max-day, and fire demand of ~5.25 mgd serving a population of 3,903 residents (max-day of 0.93 mgd and fire flow of 4.32 mgd)
8	El Monte Parallel Pipeline #2	Background and Justification: •Existing El Monte 68-inch pipeline that runs from the Lakeside Pump Station and terminates at the Lake Murray outlet structure is reinforced concrete with no steel core. •This type of material is intended for low-pressure gravity flow applications (trunk sewers) and is not suitable for significant pressure flow. •The existing pipeline is vented to atmosphere east of the SR-125 crossing (north of Grossmont Center) and includes many air valves that limit internal pressure. With reliance on these mechanical control points, the pipeline has potential to experience high internal pressure leading to failure. Proposed Project: •The project will line the existing 53,081 LF of Reinforced Concrete Pipe (RCP) with a steel liner. •A pipeline condition assessment study is proposed to further refine the project scope. - o A previous alternative recommended to build a second pipeline (El Monte 2 Pipeline) parallel to the existing pipeline. Paralleling the existing pipe alignment would be infeasible. The existing alignment is entirely outside of city boundaries and crosses mostly private property running under or near commercial and residential structures, under the Gillespie Field runway, and along the shoulder of SR-67. At minimum, a new pipeline alignment would have to be established to include major new right-of-way acquisition. The feasibility and cost of any pipeline replacement/relocation proposal make this option highly unlikely. Lining the existing pipe may be the only feasible option. Benefits: •Lining of the pipeline will make it a reliable supply link between San Vicente/El Capitan reservoirs to the Alvarado WTP at Lake Murray • It will also raise the pipeline capacity by as much as 100% (from approximately 60 mgd to 115+ mgd) due to a higher allowable pressure gradient from the Lakeside Pump Station to Lake Murray. •This improvement, in turn, would allow for increased dependence on the local storage capacity at the El Capitan and San Vicente reservoirs as a supply route to Lake Murray for attenuating seasonal raw water peaking, and maximizing use of local runoff as available.
9	La Jolla Country Club Reservoir Seismic (Circular tank and PS) Upgrade, La Jolla Soledad West (925) Zone pressure reduction Study and Brodiaea Way 925 Zone Extension	Background and justification: • The old facility is deteriorated, there is need for increased storage volume and backup supply to the 925 Zone • Reservoir has seismic structural deficiencies, dilapidated roof, deteriorated pipes and appurtenances, historic leakage, poor reservoir site drainage, and under drainage that threatens neighboring residential property • The site is difficult to access Proposed Project: • Add 800 feet of 8” pipe and alter the border of the La Jolla Soledad West 925 zone • The replacement and expansion of the Country Club Reservoir to add 0.5 MG of storage will meet the storage requirements within the Soledad Muirlands 725 Zone and 725-supplied Zones • Replacement or rehab of the Country Club Reservoir is likely to require removal of the Country Club PS because of the proximity of the facilities, and to provide construction accessibility • Replace the Country Club PS with a new and more reliable VFD station. • As part of a supply improvement design, the high operating pressures throughout most of the La Jolla Soledad West (925) Zone should be lowered and the zone should be further studied to find a potential rezoning solution • Extend the La Jolla Soledad West 925 zone to cover portions of Encelia Dr and Brodiaea Way • Additional information for this project can be found in Appendix F of the Miramar Service Area Water Master Plan; the pressure on Brodiaea Way is less than 40 psi and does not meet the minimum pressure and fire flow requirements based on the City of San Diego Guidelines and Standards, Book 2
10	Tierrasanta (Via Dominique) Pump Station Upgrade	• Construct new above-ground pump station (PS) facility based on the following observations and recommendations: - o Existing underground PS presents hazardous condition for staff and facility, and requires significant renewal - o Deficient motors, starters, and HVAC system warrant new PS - o Above-ground facility will increase maintenance efficiency and provide adequate fire flow requirements for the zone - o Existing PS does not meet multifamily fireflow requirements for this zone • Revise hydraulic analysis to accommodate proposed operational changes, including suction pressure reduction caused by CWA Aqueduct source water traveling via Pomerado pipeline to the Miramar WTP
11	Harbor Drive Pipeline	• Replace approximately 23,340 ft of remaining portions of 16” cast iron water main, located along Harbor Drive, from Point Loma to San Diego Bay Benefits: • Improves reliability, water quality, and safety
12	Lindberg Field 16-inch Cast Iron Pipe Replacement	• Relocate water main from beneath the tarmac (landing strip) at Lindbergh Field to a location that provides greater accessibility for operation and maintenance • This project will install approximately 9000 ft of 16” and 5000 ft of 12” pipe Benefits: • Improves reliability, water quality, and safety

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13	Torrey Pines Rd./La Jolla Blvd. - Phase 3	Background and justification: • The La Jolla Shores Drive 16” cast-iron Water Main Replacement Project (CIP No.709534) is the third phase of the Torrey Pines Blvd Pipeline • Project was shelved 2.5yrs back when it was in the 90% design phase • ± 4,410 linear ft of 16” cast iron water main between Avenue de La Playa and Ruelle Monte Carlo along La Jolla Shores Dr in the La Jolla Area • Includes cast iron main replacement of the La Jolla Shore Dr. S/O Ruelle Monte Carlo 370/447 PRS—mandated by the Department of Public Health
14	El Capitan Pipeline Potable Segment Rehab and Normal Heights Pressure Zone Development.	Background and justification: • Installed in 1926, the El Capitan Pipeline is an old steel pipeline that requires condition assessment • Based on condition assessment results, the recommendation may be to use it as-is, or rehab/replace the pipe • The Normal Heights/Kensington Low Pressure Area suffers from substandard service pressure in the low 40 psi range but drops below 40 psi at times; most of the area has inadequate fire flow, particularly where there is commercial or multi-family zoning requiring higher fire flow rates, or where there is no nearby backbone distribution main • The Normal Heights Zone was originally planned to become 560 HGL under the Mid-City PL project but was never converted after the Mid-City PL was taken off the aqueduct and operated on 536
15	University Ave. Pipeline Cast-Iron Replacement	Proposed Project: • Replace 13,463 lf of existing cast-iron University Avenue Pipeline with new 16” distribution line on the entire alignment of the pipeline • Connect crossing distribution lines at all intersections, and re-connect all services • Include lining or sleeving of freeway crossings where necessary
16	Upas Street Pipeline Cast-Iron Replacement	Proposed Project: • Replace 11,598 lf of existing cast-iron Upas Street Pipeline with new 16” line from 30th and Upas to Upas and Front Street • Abandon 2,546 lf of existing cast-iron Upas Street Pipeline from Upas and Front to West Upas and Ibis Street • Replace 246 lf cast-iron Upas Street Pipeline with new 8” line from West Upas and Ibis to West Upas and Jackdaw Street • Abandon 1,902 lf of Upas Street Pipeline from West Upas and Jackdaw to the west side of California Street • Replace 249 lf cast-iron Upas Street Pipeline with new 16” line from the Pacific Beach Pipeline west of California Street to the 12” connection west of Pacific Highway
17	College Ranch Hydro Pump Station Upgrade	Background and justification: • Current pump firm capacity is insufficient because the PS only has only a single pump and no fire flow pumps • PS components have been in service for more than forty years, therefore the pump and motor are old and worn • Pump is protected by a small concrete enclosure and wooden cover • Hydro tank that works with the PS is not in service and a makeshift pressure relief valve has been installed to provide adequate pressure for the pump • Planned PS should have a design capacity sufficient to meet year 2030 max-day, plus fire demand of ~3 mgd Proposed Project: • Current plans include replacing the PS with a new larger station (~3 mgd capacity) due to PS condition • A conceptual level study was conducted based on combining three small pump pressure zones within the San Carlos Focus Area of the Alvarado WTP Service Area Master Plan (Climax 910, Country Casual 925, and Eagle Ridge 940) into one large zone served by a single PS (if possible)
18	Pacific Beach Pipeline Replacement	Background and justification: - This project is needed to replace cast-iron pipe, provide supply reliability to Pacific Beach, improve water quality, reduce energy waste at the Miramar CWA Pumpback facility, reduce peaking problems in the Miramar WTP service area, and to provide supply flexibility (Alvarado vs. Miramar) - The project is also a key part of a larger plan to improve transmission reliability to the coastal Pacific Beach/La Jolla Zones by replacing the aging Kearny Mesa Pipeline as the lead supply, and adding a second transmission route to the coastal zones Proposed Project: - Replace 7,148 LF of existing CI/Steel 16-inch pipeline on Ingraham St from Sea World Dr & W. Mission Bay Drive to Crown Point. Pipe is hung from two bridges along the route crossing Mission Bay to Vacation Island, and crossing Fisherman’s Channel to Crown Point. This pipeline will be a 536 HGL with pressure reduction at distribution tees. - Add parallel 16-inch line 7,148 LF on Ingraham St from Sea World Dr & W Mission Bay Drive to Crown Point and also hung from the two bridges as above. This pipeline will be at 536 HGL with pressure reduction at any distribution tees. - Replace existing 16-inch CI Pacific Beach Pipeline with 16-inch PVC line approximately 7,920 LF on Buena Vista St and Haines St from the proposed Crown Point Pressure Reducing Station (PRS) at Ingraham St and Crown Point Dr to Haines St and Felspar St. - Add approximately 4,480 LF of new 16-inch PVC line from Haines and Felspar east on Felspar to Ingraham, then north on Ingraham and Foothill to the proposed replaced Foothill and Tourmaline PRS at Foothill and Tourmaline. - Replace existing 11,664 LF of 10-inch CI, AC, and 12-inch PVC with a continuous new 16-inch PVC main on Ingraham St from the proposed Crown Point PRS at Ingraham and Crown Point Dr to the proposed replaced Foothill and Tourmaline PRS at Foothill and Tourmaline. This will result in dual 16-inch lines on Ingraham and Foothill between Felspar and Tourmaline. - Replace existing Foothill and Tourmaline PRS single 12-inch PRV with new station to include dual 16-inch PRV’s. - Build new Crown Point Pressure Reducing Station at Ingraham and Crown Point Dr including new station with dual 16-inch PRV’s. - Replace approximately 1,401 LF of existing 16-inch CI with 8-inch PVC on Haines St between Diamond and Wilbur. - Abandon 16-inch CI pipe and pipeline easements where the pipe crosses the grounds of Pacific Beach Middle School, and where it runs between residential homes between Wilbur Ave and Foothill Blvd.
19	Alvarado 2nd Extension Pipeline and Morena Blvd Cast-Iron Replacement	Background and justification: • Replace cast-iron pipe; provide redundant transmission to the coastal zones of La Jolla and Pacific Beach for supply reliability; improve water quality; reduce energy waste at the Miramar CWA Pumpback facility; reduce peaking problems in the Miramar WTP service area; and provide supply flexibility (Alvarado vs. Miramar) • Part of a larger plan to improve transmission reliability to the coastal Pacific Beach/La Jolla Zones by replacing the aging Kearny Mesa Pipeline as the lead supply, and adding a second transmission route to the coastal zones Proposed Project: • Build 22,504 lf of new 48” Alvarado 2nd Extension Pipeline from the western terminus of the existing 48” Alvarado 2nd Pipeline (at I-805 and Friars Road to Morena Boulevard and Napa Street) • Use existing surface streets in Mission Valley to avoid tunneling under the SR-163 freeway, and other bridge crossings • The Alvarado 2nd Pipeline is only used as a second supply to the high side of the Texas Street Regulators and has a low flow rate relative to its capacity • Replace the aging Kearny Mesa Pipeline transmission route with a new transmission route that uses the Alvarado 2nd Pipeline • Replace 17,032 lf of existing 20”/16” cast-Iron Morena Boulevard Pipeline with new 36” Morena Boulevard Pipeline; this 36” line will run from the end of the 48” Alvarado 2nd Extension Pipeline and connect to the Kearny Mesa Pipeline at the north end, operating at a 536 HGL • Replace 15,598 lf of parallel 16” distribution line from Friars Road and Morena to Morena and Balboa Avenue; new 16” line will operate at 390 HGL connected to the existing 16” line on Friars Road and terminating at Morena and Bunker Hill Street
20	La Jolla View-Exchange PL Reservoir Consolidation	Proposed Project: • Phase the abandonment of the Exchange Place Reservoir and PS until after completion of the proposed La Jolla View Reservoir • Replace the reservoir with a new 2 MG tank at a higher elevation (overflow elevation is 570 feet), and increase the diameter of the inflow pipeline in Country Club Drive from the existing 16” cast iron main to 30”
21	Otay 1st/2nd Pipeline Consolidation- West of Highland Avenue	Background and justification: • The cast-Iron Otay 1st and 2nd Pipelines were built in 1915 and 1930, respectively • Develop a replacement and/or abandonment plan to remove the existing cast-iron segments of pipeline west of Highland Avenue • Cast iron reaches of the Otay 1st and 2nd Pipelines are neither safe nor reliable facilities, and may contribute to poor water quality • An active approach is recommended because of high risks and consequences of pipe failure • The Otay 1st Pipeline (West of Highland and Polk to the University Heights Reservoir) is paralleled by both the Otay 2nd Pipeline and the El Capitan Pipeline; three parallel lines are unnecessary for this area, and the Otay 1st Pipeline is the oldest and most under-utilized of the three parallel pipelines Proposed Project: • Replace Otay 1st and 2nd Pipeline (west of Highland Ave, along existing Otay 2nd alignment) • Replace 14,572 lf of existing cast-iron Otay 2st Pipeline with new 42” Wightman St Pipeline line, primarily along existing Otay 2nd alignment from Highland Ave & Polk Ave to the University Heights Reservoir at Howard Ave & Idaho St • The reach on Highland Ave includes replacement of 1,328 LF of the existing CI Otay 1st Pipeline • Replace 10,896 lf of the CI Otay 1st Pipeline from Highland and Polk to the University Heights Reservoir with 16” distribution line
22	Del Mar Heights Replacement (East Segment)	Background and Justification: •The Del Mar Heights Pipeline is in the North City 610 zone and starts at Rancho Bernardo PS where it is fed by the Del Mar Heights at Rancho Bernardo PS pressure reducing station (fed by Miramar 712 zone), and runs west to the City of Del Mar.This pipeline is the major transmission line feeding the northern portion of the North City 610 zone and forms a loop with the Green Valley Pipeline. •This pipeline was built in 1961 and has experienced leaks.It is in poor condition and has no corrosion protection. •The original pipe was 30 inches in diameter SCRW.This size is too small to meet projected demand increases in the area. •Portions of the pipeline are being replaced by developers as housing and roads are built in carmel Valley.As the roads are built,the pipeline is being moved into the roads and is being upsized to 36 inch diameter •Inspection of the Del Mar Pipeline (East and West segments) will have to be completed before this project proceeds Proposed Project: •This project will finish installing 2,800-ft of 36-inch pipe portions not being built by developers along the east end of the pipeline and install 3,668-ft of parallel pipeline between Mona Lane and Lopiella Meadows Place for redundancy

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23	Otay 1st/2nd Pipeline Abandonment-East of Highland Avenue	Background and justification: • The cast-iron Otay 1st and 2nd Pipelines were built in 1915 and 1930, respectively • Develop a replacement and/or abandonment plan to remove the existing cast-iron segments of pipeline east of Highland Avenue • Cast iron reaches of the Otay 1st and 2nd Pipelines are neither safe nor reliable facilities, and may contribute to poor water quality • An active approach is recommended because of high risks and consequences of pipe failure • The Otay 2nd Pipeline segment from Highland Avenue and Wightman Street to 54th Street and Chollas Station Road has been paralleled by the new 54th Street Pipeline to be completed in 2009 and will no longer serves a critical transmission function Proposed Project: • Abandon 7,146 lf of 36” Otay 2nd Pipeline from Highland and Wightman east to 54th St and Chollas Station Rd • Reconnect all services to existing distribution mains • Remove all exposed sections of the line • Abandon 6,585 lf of 30” and 36” Otay 1st Pipeline from Highland and Landis east to 54th Street and Chollas Station Rd • Build 2,874 lf of new 16” distribution line from 12” line at University Ave and Winona Ave to Altadena Ave south of Sterling Ct (current 16” connection to Otay 2nd PL) via Winona, Wightman St, and Altadena Ave
24	San Pasqual Groundwater Desalting Facility (formerly San Pasqual Brackish Groundwater Desalination Facility)	Background and justification: • The brackish groundwater desalination project would extract (5,800 AFY) and desalinate native groundwater via reverse osmosis (RO) treatment at an existing facility, and would be located in northern San Diego at the western end of the San Pasqual Groundwater basin • The process could produce approximately 5,000 AFY of groundwater (estimated 85% recovery) • Desalinated water would be conveyed directly to the City’s potable water system Proposed Project: • Design and Construction components include extraction wells, conveyance system, treatment train process, potable/raw connections, and brine line • The San Pasqual Groundwater Desalting Facility project is referenced in the reports below: - o San Pasqual Groundwater Management Plan, MWH Americas, November 2007 - o Water Resources Implementation Plan, CDM, March 2005 - o Draft Feasibility Report for Conjunctive Use & Brackish Groundwater Desalination Project in San Pasqual, CDM, December 2003
25	12-inch Cast-Iron mains Consolidation and replacement on Catalina Blvd.	Background and justification: • Replace cast-iron pipe, provide supply reliability to the Catalina PS service area, and improve water quality Proposed Project: • Replace 13,963 LF of 12” and 16” cast-iron mains on Catalina Blvd with 16” lines • The 16” line will consolidate the 12” cast-iron line with the parallel 4” and 6” small distribution mains north of Garden Lane, and consolidate the dual 12” cast-iron lines south of Garden lane • The new pipeline will run parallel to the existing 12” pipeline
26	30th Street Pipeline Cast-Iron Replacement	Background and justification: • Because the pipeline has been paralleled by the newer 28th Street Pipeline south of Thorn Street and no longer serves an important transmission route to the University Heights 390 zone, this project will replace the cast-iron pipe, provide supply reliability to the south end of the 390 Zone, and improve water quality Proposed Project: • Replace all cast-iron sections of the 30th Street Pipeline south of Thorn Street in the University Heights (390) Zone with 16,397 lf of new 16” distribution line, and reconnect all services to the new line • Abandon all parallel cast-iron distribution lines and reconnect all services to the new 16” line
27	Morena Reservoir Outlet Tower Upgrades	Refer to 90% design completed by Richard Brady & Associates (RBA) for Morena and Barrett Outlet Tower Improvements. Only Barrett Outlet Tower Improvements have been completed to date. Recommended improvements to the Outlet Tower include: • Seismic improvements • Replace lower, highly-deteriorated portion of metal external ladder • Replace highly corroded external trashrack for the upper gate (only gate visible) • Based on preliminary inspections, replace coupling sections of gate operators due to extensive corrosion; further detailed inspections may determine whether joint strength has been compromised by corrosion or not, and may change replacement needs • Make safety improvements, including replacing ladders and safety cages, safety rails around the access hatches, internal platforms, and an internal tower ventilation system • Based on 10% design report (Dec 2000): - o Replace tower piping and all interior and exterior valves - o Automate all valves with electric actuators, enclose the top operating floor to protect the electrical/control equipment - o Add a 100-foot long, six-foot wide pedestrian bridge from the dam to the outlet tower
28	La Jolla Scenic Drive Proposed 16-inch Main	Background and justification: • Current distribution grid has insufficient capacity to not only meet fire flow requirements, but is a bottleneck that leads to two isolated portions of the 725 zone • If either of the pump/reservoir tandems that feed the zone go out of service, feed from the other tandem could not effectively be moved across the zone Proposed Project: • Replace 6” , 8”, and 12” pipelines with 15,635 lf of 16” line the from the Soledad Reservoir that travels south along La Jolla Scenic Drive South; continues onto La Jolla Rancho Road, La Jolla Mesa Drive, Muirlands Drive, and El Camino Del Teatro; rejoins Muirlands Drive and Nautilus Street; and finally ends at Fairway Road and the Muirlands PS • Connect the Muirlands PS to the south Soledad Muirlands (725) zone to provide backup supply to the 725 Zone, and to solve fire flow deficiency and maintain peak pressures
29	Pilot Production Wells	Background and justification: • This project provides a step in developing new local water supplies by making use of the City’s groundwater resources, and will help diversify the City’s water supply portfolio and reduce dependence on imported water • This project could potentially directly yield 2,000 AFY of water once CEQA demands are met depending on testing outcomes • This project has already received grant funding from CWA Proposed Project: • The pilot project will reduce risk associated with full-scale well-field implementation by allowing the City to obtain necessary data on groundwater aquifer properties for construction of full-scale well-fields near each pilot production well location
30	San Diego Formation Groundwater Production Project (Diamond Business Improvement district Well Field and Disinfection Facility and Balboa Park Well Field, Demineralization, and Disinfection Facility)	Background and justification: • This project develops a local water source both within the region and within the distribution system • This local water source would reduce the City’s dependence on imported water, and provide the City with an additional water supply in the event of a disruption of the inflow of imported water (whether the result of a catastrophe or a regulatory shutdown) • This project was previously identified in the City of San Diego’s Long Range Water Resources Plan as adopted by the City Council Proposed Project: • This project has two sublets: (1) Diamond Business Improvement District Well Field and Disinfection Facility (2,400 AFY) and (2) Balboa Park Well Field, Demineralization, and Disinfection Facility (2,400 AFY) • Includes all well-head equipment, treatment, pumping, and infrastructure necessary to deliver groundwater for beneficial use • The Diamond BID Well Field will extract fresh water from a confined aquifer system within the San Diego Formation • Untreated groundwater will be conveyed to Mt. Hope Cemetery for non-potable irrigation at approximately 200 AFY and deliver disinfected ground water to the potable distribution system at approximately 2,200 AFY, in accordance with the Groundwater Rule • The Balboa Park Well Field will extract and demineralize brackish groundwater from a confined aquifer system below the San Diego Formation • Demineralized groundwater will be conveyed to Balboa Park for non-potable irrigation at approximately 600 AFY and deliver demineralized and disinfected groundwater to the potable distribution system at approximately 1,800 AFY, in accordance with the Groundwater Rule
31	750,000 gal Southbay IBWC Steel Tank	• Change tank drainage from storm drain to sewer system
32	3 mg Black Mountain Ranch Recycled Water Steel Tank	• Change tank drainage from storm drain to sewer system
33	9 mg Miramar Recycled Water Tank	• Change tank drainage from storm drain to sewer system
34	San Pasqual Conjunctive Use	Background and justification: • Planning efforts are underway to determine the feasibility of storing and recovering up to 10,000 AF of raw water in the upper (eastern) basin • The conjunctive use project would operate by recharging up to 10,000 AF of imported water to the aquifer during periods of higher availability for recovery during peak delivery periods of imported water or emergency conditions • Imported water will be conveyed from the First San Diego Aqueduct to the basin and recharged by means of percolation basins; stored water would be recovered by extraction wells and conveyed back to the First San Diego Aqueduct to be used throughout the region Proposed Project: • Design and construction components include recharge (infiltration) basins, conveyance system, extraction wells,hydroelectric power generation station and CWA connections • This project is referenced in the reports below: - o San Pasqual Groundwater Management Plan, MWH Americas, November 2007 - o Water Resources Implementation Plan, CDM, March 2005 - o Draft Feasibility Report for Conjunctive Use & Brackish Groundwater Desalination Project in San Pasqual, CDM, December 2003

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35	Cielo and Woodman Pump Station Upgrade & 536 suction line replacement	Background and justification: • Replace a deteriorating PS facility and cast-iron mains that lead to the station • Cast-iron and 536 Alvarado WTP treated water would provide adequate suction pressure to the new station and supply most of the eastern portions of the Southern Tier 610 zone with adequate pressure during peak-demand periods without having to rely on CWA treated water connection • According to year 2030 demands, the Otay WTP will not be able to supply enough suction head to the PS, thus the PS would need to be supplied from the Alvarado WTP Proposed Project: • Replace the Cielo and Woodman PS with a new PS (~12 mgd capacity) to improve efficiency and reliability, and allow for substitution of 536 Alvarado City water for CWA treated water (now provided via the CWA #19 Paradise Mesa Crosstie) • Replace 12”/16” cast-iron distribution main on Imperial and Woodman St • Install a dedicated Alvarado 536 line from the intersection of Imperial Ave and Woodman St to the new upgraded Cielo and Woodman PS • Replace 12/16” cast-iron distribution main on Skyline Drive to the Cielo Dr and Woodman St intersection • All cast-iron in this project is not replaced within a planned Group Job
36	Mission Valley Basin Groundwater Production Project	Background and justification: • This project develops a local water source both within the region and within the distribution system • This local water source would reduce the City’s dependence on imported water, and provide the City with an additional water supply in the event of a disruption of the inflow of imported water (whether the result of a catastrophe or a regulatory shutdown) • This project was previously identified in the City of San Diego’s Long Range Water Resources Plan as adopted by the City Council Proposed Project: • This project has one sublet: Mission Valley Well Field and Water Treatment Facility (2,000 AFY) • Includes all well-head equipment, treatment, pumping, and infrastructure necessary to deliver ground water for beneficial use • The Mission Valley Well field will extract and demineralize brackish water from confined and unconfined aquifers from the Mission Valley Basin • Demineralized groundwater will be treated, disinfected, and conveyed to the potable distribution system at approximately 2,000 AFY, in accordance with the Surface Water Treatment Rule
37	Tierrasanta Temporary PS upgrade	Background and justification: • The Tierrasanta Temporary PS has four constant-speed pumps (two are 20 HP rated at 132 gpm; two are 40 HP rated at 850 gpm), and pumps from the Kearny Mesa 600 zone to the Tierrasanta 752 zone • This PS is located at 11100 Clairemont Mesa Blvd, San Diego CA 92124 and is the backup source for the Tierrasanta 752 zone, which is normally supplied by CWA #11 • This station is only used during scheduled winter CWA shutdown • The Tierrasanta Temporary PS is in bad condition and has been in service since 1974 • Space constraints cause safety concerns, the PS needs permanent housing structure, and storage should be analyzed for the zone • This PS does not have adequate capacity to supply the Tierrasanta 752 zone if there is a CWA #11 shutdown during the high summer demand period, which would cause pressure in a large portion of the zone to drop below 20 psi Proposed Project: • New PS is proposed
38	Soledad Pump Station Upgrade	Background and justification: • The Soledad PS is currently the only reliable supply to the La Jolla Soledad West (925) zone, and the Country Club PS serves as a backup to meet ultimate max-day demand plus fire flow conditions Proposed Project: • Upgrade PS to meet capacity requirements and replace aging components • This PS is the primary supply to the La Jolla Soledad West (925) zone; therefore, this project should be started only after the upgrades are complete to the Country Club PS • This project should also be done concurrently with the La Jolla Soledad West (925) Pressure Reduction study
39	Lake Hodges Dam Modifications	Background and justification: • Previous geotechnical study of the dam foundation (study and report conducted by URS between 2001 and 2008) determined that dam overtopping flows could potentially erode the left abutment and central section of the dam during a Probable Maximum Flood event, compromising dam stability • The top of the spillway guide wall is severely deteriorated and reinforcing bars are exposed; appears to be on the verge of significant spalling This project is subject to oversight by the State's Division of Safety of Dams Recommendation: • Construct a parapet wall on top of the Hodges dam to protect the dam and mitigate possible overtopping • Repair guide wall
40	Montezuma PS upgrade	Background and justification: • The Redwood Village (645) zone is supplied entirely by the Montezuma PS under normal conditions • In service since 1975, the aging Montezuma PS is a variable frequency drive (VFD) PS that has poor efficiency and experiences some equipment reliability problems • The design capacity of the PS is approximately 10,000 gpm, but the current station capacity as tested in June 2005 is 8,886 gpm due to pump inefficiency Proposed Project: • The aging PS will be upgraded (condition and reliable backup) as part of Mid-City Pipeline Phase II with 69th and Mohawk PS project • Abandon redwood village standpipe
41	Otay Water Treatment Plant Upgrade Phase 3	• Rehabilitate two existing flocculation and sedimentation basins by adding plate settlers, launders, and a new sludge collection system • Construct seismic improvements identified in the Seismic Vulnerability Assessment • Add coatings for the filter effluent channels and the filters 9-16 influent channel, based on the OWTP Upgrades Inspection and Repairs Report (1/24/2009) • Recommendations from the WFMP workshop: - o Replace influent and waste backwash drain valves on filters 1-16 - o Install raw water meter, throttling valve, and overflow exclusionary structure on SDCWA 48-inch raw water line - o Upgrade remaining chemical tanks and feed systems - o Provide controls for flow pacing
42	Otay 2nd Pipeline Cathodic Protection	Complete pipeline replacement is unnecessary based on corrosion investigations. The following upgrades are recommended to prolong pipeline service life: • Install cathodic protection system on approximately five to six miles of the nine miles of pipeline between 54th Street and the OWTP • Replace the rectifier and groundbed attached to 2,000 feet (ft) of buried pipe in the Otay Ranch area (approximate cost of \$50-70,000) • Provide protection of cast-iron pipeline segments
43	Barrett Flume Pipeline Replacement	Background and justification: • 12-mile open channel section of the Barrett Flume is an excessive maintenance burden to remove soil, sediment, and sunlight-caused algae build-up • Golden eagles, deer, and other wildlife drown in the open channel section Project includes: • Covering the open flume sections or replacing with a pipeline to preempt fines and sanctions from resource agencies Benefits: - o Maintain water quality - o Reduce maintenance and down time
44	Bernardo Heights Pump Station	Background and justification: • The Bernardo Heights PS has four pumps (all four are 100 HP rated at 1645 gpm); two pumps are VFD and two are constant speed pumps controlled by the discharge pressure via regulating valves • The PS pumps from the Pomerado Park Reservoir in the Pomerado park 920 zone to the Bernardo Heights 1020 zone, and is located at 16126 Avenida Venusto, San Diego, CA 92128 • PS provides the primary supply for the Bernardo Heights 1020 zone; backup supply is the Carmel Mountain Industrial PS, which takes suction from the Rancho Bernardo 793 zone • This PS is in poor condition and has been in service since 1982 • Pumps are in the normal operating efficiency range (42-57% based on a 2006 pump test; however, they do not meet the current fire flow requirements of 6000 gpm for the industrial zoning in the area Proposed Project: •Recommendation: Upgrade PS to meet projected fire flow demand
45	Muirlands Pump Station Replacement and Upgrade	Proposed Project: • Replace the Muirlands PS with a new enclosed PS of 375 HP including standby capacity, housed in a new building, including new yard piping • Replace the pumps, valves, and motor control center • Standby power is recommended
46	Paradise Mesa Standpipe Replacement/Rehabilitation	Background and justification: • The 120-foot tall, 60-feet dia. Paradise Mesa Standpipe was erected in 1979, has a capacity of 2.5 million gallons, and services the Paradise Mesa 610 pressure zone Proposed Project: • Current seismic standards require that the standpipe either be retrofitted at the foundation to reduce the changes of failure in the event of an earthquake, or reconstructed • Lead-containing primer coating must be encapsulated to avoid potential health risks • Interior coal-tar enamel coating must be removed and replaced with a suitable epoxy coating • Other work will include upgrades to the access road and appurtenances • This is a sub-project under 732770-AA Standpipes and Reservoirs and has been deferred until funds become available •This project cannot be taken offline without the upgrade of Paradise Mesa No.2 Pump Station

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47	Camino Del Sur Recycled Water P/L Conversion- North of SR56	Background and Justification: •Phase II of the recycled water distribution system expansion, as defined in the 2000 Recycled Water Master Plan, was approved by City Council 8 yrs ago conditioning new development in this area (along Hwy 56) to install recycled water irrigation systems in preparation for future connections •Phase II system expansion included several pipeline projects that would bring the recycled water from Los Penasquitos west, along the I-56 corridor, to Carmel Valley •The first two pipeline segments, Los Pensquitos and Rhoades Development/Camino Del Sur (south of 56), have been delayed due to environmental litigations.Pipeline segments further west have been completed or are planned for completion in the next 18 months •An alternative route needs to be considered in order to charge the pipelines farther west with recycled water. The Camino Del Sur Recycled Water Pipeline Conversion is that alternative Proposed Project: • Planning study will address the recycled water fragmentation issues from Carmel Valley Road/Camino Del Sur intersection to the section of pipeline parallel south of Highway 56.Planning Study and Preliminary Environmental Assessment are complete Goals include the following: - o Convert the 12" pipeline on Camino Del Sur from Torrey Meadows Dr to Torrey Santa Fe Dr from potable water to recycled water - o Interconnect a 10' gap inside the vault located on Carmel valley Dr and Camino Del Sur to make sure the potable water and the recycled water do not mix - o Install 900' of 24" recycled pipeline between Torrey Santa Fe Rd and 24" pipeline parallel to Route 56 - o Install 2,600' of 16" potable pipeline in Camino Del Sur between Torrey Meadows Dr and Torrey Santa Fe Rd Benefits: • An estimated 1000 AFY of potable water will be saved once the Phase II pipelines can be charged with recycled water • A financial benefit to the City is the \$450/AF in incentive credits that the Public Utilities department receives for every acre-foot of recycled water sold •The incentive credit agreements with water wholesalers expires in 2023
48	Morena Dam Grotto	Background and justification: • The grotto was formed before the Morena Dam was constructed in 1912, however the presence of the grotto was not known to City Operations staff until 1992 when the grotto was discovered by members of the San Diego Grotto, National Speleological Society (grotto society) • Division of Safety of Dams is concerned that grotto impacts dam stability Recommendation: • Fill the portion of the grotto underneath the dam with concrete, • Include a grouting program to ensure that concrete is sealed to the rock
49	El Monte/Santee Basin Groundwater Production Project (Phase 1 - El Capitan Well Field ; Phase 2 - San Vicente Well Field)	Background and justification: • This project develops a local water source both within the region, and within the distribution system that would reduce the City's dependence on imported water, and provide the City with an additional water supply in the event of a disruption of the inflow of imported water (whether the result of a catastrophe or a regulatory shutdown) Proposed Project: • This project has two sublets: (1) El Capitan Well Field (1,000 AFY) and (2) San Vicente Well Field (2,400 AFY) • Extract and deliver groundwater to existing raw-water transmission pipelines, and provide treatment at the Alvarado WTP • Includes all well-head equipment and infrastructure to convey the water to the raw water pipelines
50	Flow meters on Raw water Pipelines	Background and justification: system balance is currently calculated based on downstream control data and assumptions • Provide new, replaced, or refurbished flow meters in the raw water system as needed Benefits include the following: - o Reliable flow data for increased efficiency in managing raw water system - o More accurate and reliable information for reconciling and creating hydrography reports, based on updated flow data transmitted to SCADA system - o Immediate operational changes based on updated SCADA data - o Improved tracking of water sales to other water agencies
51	Pomerado Park Reservoir Upgrade	Pomerado Park Reservoir capacity is 5.2 gallons, constructed in 1969 • Project includes safety, sanitation, appurtenance, exterior and interior surface restoration, seismic cathodic protection, and structural improvements
52	Lower Otay Outlet Tower Seismic Retrofit	Background and justification: • The outlet tower was placed into service in 1919 with upgrades to the outlet pipe and valves in 1986 • Seismic analysis prepared for the 30% Design Report (RBA) concluded: - o Both the tower and the tower foundation have an overturning problem - o Tower concrete has an overstress in flexural tension Recommendations: • Implement seismic upgrades using a guy wire system as the preferred retrofit option based on simplicity and preferred physical implementation • Conduct further investigations to determine if settlement of the anchor blocks is occurring due to silt at the outlet tower base
53	Otay Mesa Pipeline Replacement	Background and justification: • Otay Mesa Pipeline is a major transmission line necessary for feeding the Otay Mesa 680 zone from the Otay Mesa PS • The 680 HGL pipeline begins at the Otay Mesa PS, runs south and west to Oceanview Hills Parkway, and connects to the Oceanview Hills Pipeline; portions of the pipeline are in the SR-905 right-of-way • Built in 1962, this pipeline is in poor condition and has experienced leaks and main breaks • Proposed project is the most economical way to feed the zone (due to the relatively short distance from the South San Diego Reservoir) which reduces headloss in the South San Diego Pipelines, increases pressures in the South San Diego Reservoir 490 zone, and reduces the required pumping head Proposed project: • Replace the existing 15,669-foot, 24" SCRW pipeline with a new 24" pipeline
54	Otay Mesa 680 Zone 24-inch Loop Pipeline	Background and justification: • This new pipeline will provide additional redundancy in the Otay Mesa 680 zone (based on recommendations by the original Wilson Engineering Otay Mesa Planning Study, currently being used as a development guide for the area) Proposed project: • Build a new 24" dia. pipeline in the Otay Mesa 680 zone that will complete a loop from the Princess Park PS to the Otay Mesa PS, allowing the Princess Park PS to supply the Otay Mesa 680 zone • Proposed pipeline is 2,387 ft long, begins at Otay Mesa Rd and Hawken Dr, and ends at Otay Mesa Rd & Crescent Bay Dr • It is envisioned that this will be a developer-funded project that will be completed when Otay Mesa Rd is extended in the area
55	Pacific Beach Reservoir Removal	Proposed Project: • Abandon the out-of-service (since late 1970s) 3 MG Pacific Beach Reservoir by cutting and plugging all pipeline connections at the edge of the right-of-way and removing/abandoning the facilities on site • The 20" Electric Avenue Pipeline that runs through the site will remain in service, but will need to be relocated onto City streets, or an easement will be necessary for the pipeline where it crosses the site • The 16" CI Pacific Beach Pipeline that runs from the reservoir to the intersection of Foothill and Tourmaline Streets via easements through residential property should be cut, plugged, and abandoned • The five-acre site would have no further use for water facilities and should be evaluated for sale
56	The Miramar Del Mar Extension (Soledad Valley, Sorrento Valley, and Del Mar Heights Pipelines)	Background and justification: • Built in 1957-1961, the Soledad Valley Pipeline is in poor condition and has experienced leaks in the Torrey Pines area • Miramar Extension, Soledad Valley, Sorrento Valley, and Del Mar Heights Pipelines are located in the North City 610 zone; begin west of Eastgate Mall where they are fed by the Eastgate Court and Eastgate Mall Pressure Reducing Stations (fed by the Miramar 712 zone through the 712 zone portion of the Miramar Extension Pipeline); and run west to Torrey Pines and north to the City of Del Mar • These pipelines comprise the major transmission lines that feed the northern portion of the North City 610 zone, and form a loop with the Green Valley Pipeline • Pipelines are too small to meet projected demand increases in the area; size increase or parallel pipeline capacity is needed to maintain service pressure under peak hour conditions and provide backup in case of a main break in the Del Mar Heights Pipeline • Inspection of the Del Mar Pipeline (East and West segments) will have to be completed before this project proceeds Proposed project: • Add 24,000 ft of parallel 16 and 24" pipe to the existing 24" Soledad Valley Pipeline, 36" Sorrento Valley Pipeline, and 24" Del Mar Heights Pipeline • Add 8,000 ft of parallel 36" pipe to the existing 36" Miramar Extension Pipeline • Replace 10,000 ft of the existing 24" Soledad Valley Pipeline with 36" pipe
57	Otay Water Treatment Plant Expansion Phase 4	• Increase the treatment plant's capacity by 20 MGD to comply with water quality regulations • Construct four new filters
58	Scripps Woods Pump Station	Background and justification: • The Scripps Woods PS has four constant speed pumps that are controlled by the discharge pressure via regulating valves pumps (one is 15 HP rated at 266 gpm; three are 40 HP rated at 1000 gpm); it pumps from Scipps Ranch 1020 zone to the Scripps Hills 1200 zone, and also feeds the Sycamore Hills 1050 zone via regulators from the Scripps Hills 1200 zone • This PS is located at 12404 Semillon Blvd., San Diego CA,92131 and is the only source of supply for the Scripps Hills 1200 and Sycamore Hills 1050 zones • This PS is in poor condition and has been in service since 1981 • Pumps are inefficient (35-42% based on a 2005 pump test), and the PS does not meet the current fire flow requirements of 2000 gpm for the single family residential housing in the area Proposed Project: •Recommendation: Upgrade PS to meet projected fire flow demand
59	Lake Murray Dam Outlet Tower Seismic Retrofit	Background and justification: • Structure age suggests that the tower was constructed with limited seismic design criteria and most likely lacks sufficient reinforcement to withstand a large seismic event • The free-standing nature of the tower contributes to the expected high loading under seismic events as the unrestrained, cantilevered upper portion is free to sway • Greatest structural deficiency is the inability to resist large seismic forces
60	Otay Water Treatment Plant Building Improvements	Based on a workshop conducted as part of the WFMP, the following improvements to the Otay WTP are recommended: • Improve security of the chlorine building • Security guard shack improvements • Expand the operations building to provide sufficient foot-print for adequate storage, lab & office space, repair the roof, and upgrade the HVAC system • Install new fire control and PA systems

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61	Penasquitos Interconnect Pipeline	Background and justification: • Caltrans bridge construction across the I-15 at Carmel Mountain Road provides an opportunity to connect the Penasquitos–920 and Carmel Mall–920 pressure zones to provide redundancy, and limit use of the Los Penasquitos PS Proposed project: • Add 2,600 ft of 16” pipe crossing I-15 at Carmel Mountain Road
62	Paradise Mesa No. 2 Pump Station Upgrade	Background and Justification: • An above ground facility will allow for pumping of Otay WTP water to the overlay/crossover zones when excess capacity is available at the Otay WTP. •According to Otay Master Plan there is not enough supply to transmit water from the Otay WTP to the overlay zones during max-day conditions so upgrade to this pump station will be phased after the upgrade to the Cielo and Woodman PS, since this is a secondary backup to the Paradise Mesa 610 zone. •The Paradise Mesa No. 2 Pump Station was built in 1973 located in a underground vault and the condition of station also warrants an upgrade to the station based on recent site inspection by consulting team in 2009. Proposed Project: •Upgrade Paradise Mesa No. 2 Pump Station
63	Carmel Industrial Pump Station	Background and justification: • The Carmel Industrial PS has six pumps (two are 30 HP rated at 250 gpm; four are 150 HP rated at 1600 gpm), and pumps from the Rancho Bernardo 793 zone to the Bernardo Heights 1020 zone • These are constant speed pumps controlled by the discharge pressure via regulating valves; Pumps #3 and #4 have been out of service for more than 9 years • This PS is located at 1403 Rancho Carmel Rd San Diego, CA 92128, and is the backup supply for the Bernardo Heights 1020 zone • Primary supply is the Bernardo Heights PS, which takes suction from the Pomerado Park 920 zone • The Carmel Industrial PS is in good condition and has been in service since 1983, and the pumps are in the normal operating efficiency range (46-66% based on a 2006 pump test); however, this PS does not meet the current fire flow requirements of 6000 gpm for the industrial zoning in the area Proposed Project: • Recommendation: Upgrade PS to meet projected fire flow demand
64	College Ranch Standpipe	Background and justification: • Mixers were recently installed to address water quality issues. Proposed Project: • Standpipe study is required to determine seismic improvements needed (retrofit or replacement) • If a retrofit is recommended, review hydraulics of existing facility • If a new facility is recommended, review storage needs (1/3 Max day + FF)
65	Water Modeling Flow Meter Installation	• Install ten water flow meters on existing water transmission pipelines to record flow quantities, direction, velocity and pressure • Flow information benefits: o Enable the water modeling group to conduct the detailed water model calibration and post the most accurate information on the On Line Model o Help the Planning Section with water modeling for short-term operational support, long-term planning, 10% design reports, and water system operation optimization
65	Rancho Penasquitos Pump Station - Phase 2	Background and justification: • Located in the Penasquitos residential neighborhood and in service since 1962, the Rancho Bernardo PS was in poor condition • Phase 1 of this upgrade project included rebuilding the PS with a capacity of 32 mgd • The upgraded Rancho Penasquitos PS (originally the Rancho Bernardo PS) pumps from the Miramar 712 zone to the Rancho Bernardo 793 zone and is the only source of supply along this route • Increase capacity at the Rancho Penasquitos PS to allow the Rancho Bernardo 793 zone to be fed by water treated at the Miramar Water Treatment Plant, and reduce costs of purchasing treated water from CWA • The cost of treating the water, pumping it, and increasing the size of the Rancho Bernardo Pipeline is projected to be less over the next 50 years than purchasing treated water at connections CWA #14 and #15 Proposed project: • Phase 2 will add additional pumps to increase the capacity to 50 mgd • The backup for this PS is CWA treated water connections #10, #14, and #15
66	Rancho Penaquitos Pump Station - Phase 2	Background and justification: -Located in the Penasquitos residential neighborhood and in service since 1962, the Rancho Bernardo PS was in poor condition -Phase 1 of this upgrade project included rebuilding the PS with a capacity of 32 mgd -the upgraded Rancho Penasquitos PS (originally the Rancho Bernardo PS) pumps from the Miramar 712 zone to the Rancho 793 zoneand is the only source of supply along this route -Increase capacity at the Rancho PenasquitosPS to allow the Rancho 793 zone to be fed by water treated at the Miramar Water Treatment Plant, and reduce costs of purchasing treated water from CWA -The cost of treating the water, pumping it, and increasing the size of the Rancho Bernardo pipeline is projected to be less over the next 50 years than purchasing treated water from CWA #14 and #15 Proposed Project: -Phase 2 will add additional pumps to increase the capacity to 50 mgd -The back up for this PS is CWA treated water connections #10, #14, and #15
67	Rancho Bernardo Pipeline Replacement	Background and justification: • The Rancho Bernardo Pipeline is in the Miramar 712 and Rancho Bernardo 793 zones and begins in Mira Mesa; is fed by the 54” Miramar Pipeline (with backup provided by the Black Mountain Road Pipeline); runs north to the Rancho Bernardo/Rancho Penasquitos PS; and continues north east to the Rancho Bernardo Reservoir • This pipeline is the major transmission line feeding the northern portion of the City of San Diego, and also feeds the Del Mar Heights Pipeline through the regulating station at the Rancho Bernardo/Rancho Penasquitos PS • Built in 1962, this pipeline is in poor condition, and is too small to meet projected demand increases in the area to maintain service pressure under peak hour conditions • Increase the diameter of the entire pipeline from 36 to 48” to allow the Rancho Bernardo area to be fed entirely from the Miramar Water Treatment Plant instead of purchasing treated water from CWA at connections #14 and #15 in Rancho (current practice) Proposed project: • Replace the existing 36” pipeline with either 48” pipe, or a combination of 36 and 42” dia. pipe
68	Mercy Mira Mesa Pump Station	Background and justification: • The Mercy Mira Mesa PS has four constant-speed pumps (two are 5 HP rated at 114 gpm; two are 40 HP rated at 1,300 gpm), and pumps from the Miramar 712 zone to the Mercy High 750 zone • Pumps controlled by the discharge pressure via two hydro-pneumatic tanks • The PS is located at 9525 Babauta Road, San Diego, CA, 92129, and is the only source of supply for the Mercy High 750 zone. • This PS is in poor condition and has been in service since 1990; pumps are inefficient (29-57% based on a 2008 pump test); and PS does not meet the current fire flow requirements of 2000 gpm for the single family residential housing in the area Proposed Project: • Recommendation:Upgrade PS to meet projected fire flow demand
69	Santa Luz Interconnect pipeline	Background and justification: • This pipeline will allow Santa Luz to be fed from either the Black Mountain Reservoir outlet pipeline or the Rancho Bernardo Pipeline, will allow operational flexibility, increase demand on the Black Mountain Reservoir, improve water quality, and reduce maintenance costs Proposed project: • Add 3,000 ft of new 30” pipe in Black Mountain Road connecting the outlet of the Black Mountain Reservoir to the Santa Luz development
70	Recycled Water Flow Meter Installation	• Install 20 flow and pressure SCADA points for daily system operation and model calibration
71	Penasquitos Canyon New Pipeline Tunneling	Background and justification: • SCADA flow meters on the PRVs feeding the North City 610 zone were put into service July 2008, and a peak hour factor of 2.9 was measured • Field measurements (conducted during the summer of 2008) need to be completed to confirm the peak hour factor.Peak hour pressures will be recalculated with the new value to determine adequacy of the proposed facilities • The Penasquitos Canyon tunnel crossing pipeline is not needed if the peak hour factor is 1.37 (the value used in the Genetic Algorithm runs), but may be required if the peak hour factor increases to 2.9 • The most efficient pipeline route crosses Penasquitos Canyon and will minimize transmission losses by reducing the distance water must travel from Mira Mesa Boulevard to Carmel Valley by a factor of 9 • This new pipeline will provide additional transmission capacity in the North City 610 zone required to meet projected demand increases, and maintain zone pressures under peak demand conditions Proposed project: • Build new 30” dia. pipeline (Penasquitos Canyon Pipeline) in the North City 610 zone that will cross Penasquitos Canyon, and connect the 24” Carmel Valley Pipeline with the 30” Green Valley Pipeline
72	Carmel Mtn. High Pump station	Background and justification: • The Carmel Mountain High PS has five pumps (two are 40 HP rated at 340 gpm; three are 75 HP rated at 680 gpm), and pumps from the Carmel Mall 920 zone to the Golf Course 1130 zones • Pump #1 has a VFD Magna-Drive (currently out of service), and the other four pumps are constant speed pumps controlled by the discharge pressure via regulating valves • This PS is located at 11600 Shoal Creek, San Diego, CA 92128, and provides the only source of supply for the Golf Course 1130 zones • This PS is in good condition, has been in service since 1991, and the pumps are in the normal operating efficiency range (43-71% based on a 2004 pump test); however the PS does not meet the current fire flow requirements of 2000 gpm for the single family residential housing in the area. • Extra pumps are currently operated in this area to boost the pressure and excess water is discharged into the Carmel Mountain Ranch Reservoir (approximately 1.5 mgd) Proposed Project: •Recommendation: Upgrade PS to meet projected fire flow demand

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73	Stonebridge 1250 Pump Station	Background and justification: • The Stonebridge 1250 PS has four pumps (two are 25 HP rated at 455 gpm; two are 100 HP rated at 2000 gpm), and pumps from the Stonebridge 1135 zone to the Sycamore Estates 1250 zone • The two small pumps are VFD Magna-Drive pumps, and the two 2000 gpm fire pumps are constant speed; and a 2588 gal surge tank is located on the discharge pipeline • This PS is located at 14800 Stonebridge Parkway and is the only source of supply for the Sycamore Estates 1250 zone • The Stonebridge 1250 PS is relatively new and has been in service since 2006, and meets the current fire flow requirements of 2000 gpm for the single family residential housing in the area; however, the peak hour demands are already approaching the capacity of the two small pumps due to high irrigation demands Proposed Project: • By 2030 a higher VFD pump capacity if projected to be required
74	Paradise Mesa No. 1 Pump Station Demo	Background and justification: • A previously proposed project recommended replacing the PS in its current location with the new Parklands PS, but did not account for growth within the Otay WTP Service Area which, by the year 2030, will deplete the treated water transmission north to a new PS through the Otay 2nd Pipeline; therefore, the suction pressure would much less than what is currently felt at the Paradise Mesa No. 1 PS • Recent condition assessment revealed the following: - o Piping appears to have settled due to standing water; piping and metal supports are corroded; pumps and motors are old and seals leak; base plates on pumps are corroded; electrical panels are old and not secure; circuit breakers could pose a safety hazard; and telephone line SCADA system Proposed Project: • Demolish a deteriorated and run-down PS, and replace it with the upgraded Cielo and Woodman PS and upgraded Paradise Mesa No. 2 PS; the Paradise PS will serve no purpose when replaced with these new, upgraded station
75	El Capitan Reservoir Improvements	• Upgrade 2.5 miles of existing access road to the El Capitan reservoir, from the base of the dam and counterclockwise around the reservoir to the southern tip of the Lake • Repair and road widening improvements include: - o Blast and excavate road, and slope embankments - o Replace and improve storm drain and appurtenances - o Install guardrail - o Include overlay paving and other landscaping and tree pruning details
76	Wholesale and Large Customer SCADA Point Installation	• Install 25 flow and pressure SCADA points on meters for wholesale and large customers including the City of Del Mar, CALAM, US Navy, and UCSD to help with system operation and model calibration
77	Otay Second Pipeline - Isolate Service Sweetwater	• Transfer 33 residential services for the Otay 2nd pipeline to the Sweetwater Authority • Construct a small PS to boost pressure from Sweetwater Authority
78	South San Diego #2 Pipeline, Parallel Pipelines	Background and justification: • The South San Diego Pipelines #1 & #2 are the two major transmission lines feeding the Otay Service area; are located in the South San Diego Reservoir 490 zone; begin at the South San Diego Reservoir, and run west to I-805 • Built in 1960, the pipeline is in good condition and has not experienced leaks • Original pipe is 33” dia. of RCSC (steel cylinder reinforced concrete, cement coated) • Original size is too small to meet projected demand increases in the area Proposed Project: • As houses and roads are built in the area, developers have replaced portions of the pipeline by moving it into roads, and upsizing it to 42” dia. west of Otay Mesa PS • Either install 12,830 ft of new 20” pipe between the South San Diego Reservoir and the Otay Mesa PS, or replace the 33” South San Diego Pipeline #1 (between the South San Diego Reservoir and the Otay Mesa PS) with a new 48” pipe for redundancy
79	South San Diego Reservoir Rehabilitation and Altitude Valve Upgrades	Background and justification: • This 15 MG rectangular concrete reservoir in the South San Diego Reservoir 490 zone provides operational, fire, and emergency storage for the Otay Mesa area, in combination with the Otay Water Treatment Plant Clearwells (12.9 MG total) • Built in 1970, reservoir is in fair to poor condition and has a failing aluminum roof • The 24” altitude valves are currently operated by hydraulic pressure, and function improperly because the pressure is too low for full control • The reservoir has a separate inlet and outlet, but the water does not mix well because of piping configurations • Optimization illustrated that raising the reservoir by 6 ft eliminates the need for inflow altitude valve controls • Reservoir downsizing from 15 MG to 5 MG will also result in much greater storage turnover Proposed Project: • Replace the South San Diego Reservoir with smaller elevated storage as long as total operating storage criteria for the system is still met • Rehabilitate reservoir and altitude valves that control reservoir levels • Remove existing lead-based interior coating from the columns, column baseplates, column caps, tie rods, fasteners and turnbuckles, and replace coating with a high solids epoxy system • Make minor repairs to columns, replace tie rods, and install a concrete dividing wall • Add additional storage to facility • Obtain structural and geotechnical studies to verify adequacy of the structure and surrounding slope
80	Kensington PRV Station	Background and justification: • Built in the late 1960s, the Kensington Park Villas and are fed by the Normal Heights 536 HGL zone which results in good pressure at higher elevations, but high pressure in the lower regions • Implement the Kensington Pressure Reducing Station project based on over-pressurization of the distribution system at the Villas (part of Central City Focus Area located south of Interstate 8 freeway and west of Fairmount Avenue) Benefit: • Pressure Regulating Stations (PRS) will provide more consistent water pressure throughout the community, and will prevent pipe ruptures or other problems caused by over-pressurization
81	Miramar Water Treatment Plant Improvements	Based on a workshop conducted as part of the WFMP, the following improvements to the Miramar WTP are recommended: • Provide emergency power from the main plant's emergency generator to the Raw Water Pump Station (RWPS) • Building and site operations improvements include construction of new maintenance building, and a new retaining wall
82	Alvarado Water Treatment Plant Improvements	Based on a workshop conducted as part of the WFMP, the following improvements to the Alvarado WTP are recommended: • Add a building to cover Lake Murray raw water PS equipment • Add flexible connections and supports to reservoir inlet and outlet piping • Rehabilitate and expand training room
83	Addition of Drain Alarm System on all Recycled Water PRV Stations (14 Vaults)	• Install an alarm system inside the vaults to notify O&M staff of a leak or break inside the vault
84	Balboa Ave Parallel Pipelines	Background and justification: • Built in 1956, pipeline is in fair-to-good condition • Balboa Avenue Pipeline is located in the NW Mesa 559 zone; begins west of I-805 at Balboa Avenue where it is fed by the Balboa & I-805 Regulator, and runs west to Clairemont Drive where it connects to the Kearny Mesa Pipeline • This pipeline one of the major transmission lines feeding the NW Mesa 559 zone and the Kearny Mesa Pipeline • Pipeline size increase and/or parallel capacity is needed to maintain service pressure with a main break on the Kearny Mesa Pipeline east of Clairemont Drive Proposed project: • Includes additional 8,000 ft of parallel 12” pipe to existing 24” Balboa Avenue Pipeline west of Genesee Ave.
85	Penasquitos Bluffs Parallel Pipeline	Background and justification: • Pipeline provides main backup to the Rancho Bernardo Pipeline that feeds the Rancho Bernardo 793 zone north of the Rancho Penasquitos/Rancho Bernardo PS • Pipeline is too small to meet projected demand increases in the area • Increased size and/or parallel pipeline capacity is needed to maintain service pressure under peak hour conditions, and reduce the cost of purchasing treated water from the County Water Authority (CWA) to boost pressures in the northern Rancho Bernardo area Proposed project: • Add 4,381 ft of parallel 30” pipe to the existing 30 and 24” Penasquitos Pipeline just east of the Rancho Penasquitos PS
86	Mercy Road Parallel Pipelines	Background and justification: • Built in 1983, pipeline is in good condition • Mercy Road Pipeline is located in the Miramar 712 zone, begins west of I-15 at Black Mountain Road where it is fed by the Black Mountain Road Pipeline, and runs west to Scripps Poway Parkway • This pipeline is a major transmission line feeding the eastern portion of the Miramar 712 zone north of Lake Miramar and Sabre Springs • Pipeline is too small to meet projected demand increases in the area; size increase or parallel pipeline capacity is needed to maintain service pressure under peak hour conditions Proposed project: • Add 8,000 ft of parallel 24” pipe to existing 20” Mercy Road Pipeline, and add 900 ft of parallel 12 or 20” pipe to the existing 20” pipe east of the Scripps Poway Parkway PS
87	Semillon Blvd and Scripps Trails Parallel Pipeline	Background and justification: • Pipeline is the major transmission line feeding Scripps Ranch Reservoir and the Stonebridge development east of Lake Miramar • Increased size and/or parallel pipeline capacity is needed to maintain service pressure and refill the Scripps Ranch Reservoir under peak hour conditions Proposed project: • Add 3,000 ft of parallel 16” pipe and 400 ft of parallel 24” pipe adjacent to the existing 20” pipe in Scripps Trails and Semillon Blvds
88	Outlet Tower Silt removal and Management	Background and justification: some reservoir capacities are significantly reduced since original construction; for example, sedimentation and siltation has reduced Hodges Reservoir from a constructed capacity of 37,520 to approximately 30,250 acre ft • Restore the original capacity of Hodges and other reservoirs and increase reservoir yield potential Project benefits: - o Minimize future sedimentation and siltation while enhancing water quality - o Replenish sand along the beaches and other areas