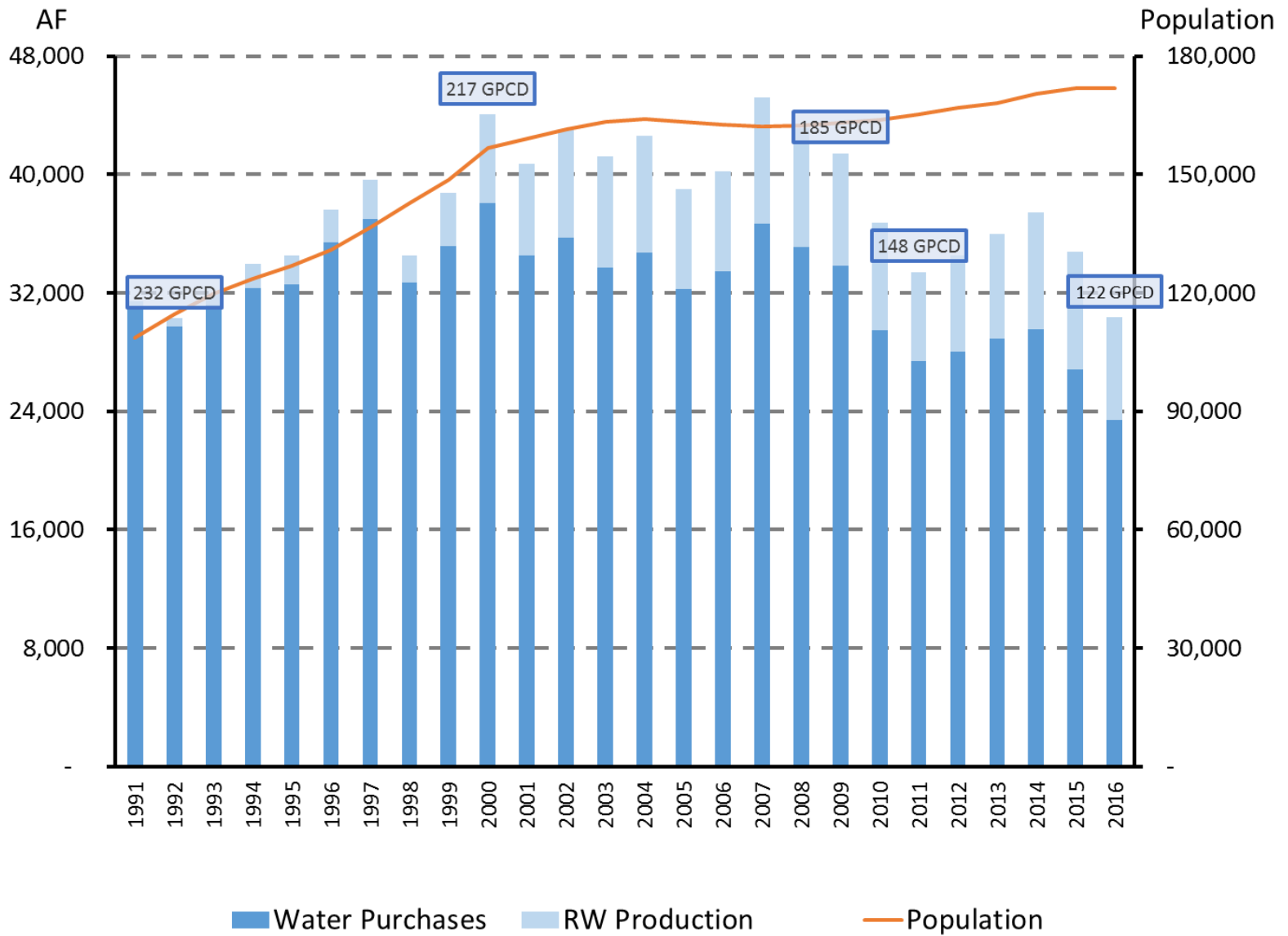




moulton niguel water district

Recycled Water Master Plan Summary

March 27, 2017



No. of Connections

AFY

1,600

10,000

1,200

7,500

800

5,000

400

2,500

FY 1990-91
FY 1991-92
FY 1992-93
FY 1993-94
FY 1994-95
FY 1995-96
FY 1996-97
FY 1997-98
FY 1998-99
FY 1999-00
FY 2000-01
FY 2001-02
FY 2002-03
FY 2003-04
FY 2004-05
FY 2005-06
FY 2006-07
FY 2007-08
FY 2008-09
FY 2009-10
FY 2010-11
FY 2011-12
FY 2012-13
FY 2013-14
FY 2014-15
FY 2015-16

52.39 AF/Conn.

33.28 AF/Conn.

8.76 AF/Conn.

7.4 AF/Conn.

6.47 AF/Conn.

4.92 AF/Conn.

Total Recycled Water Demand

Total Recycled Water Connections

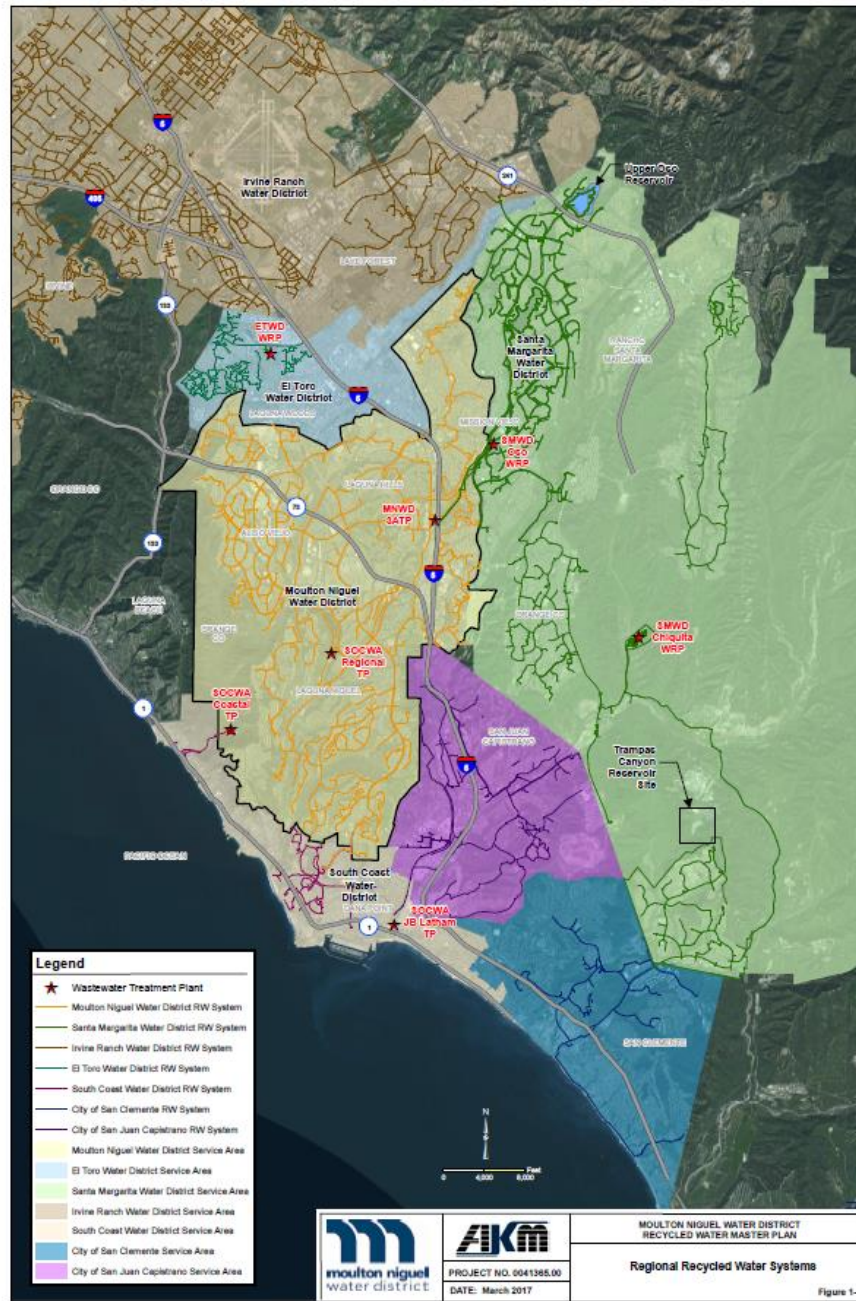


Background

- Groundwater and surface water in South OC
- Diversification of water supply = reliability
- RW offers reliable water supply source to customers
- Currently about 25% of Total Water Usage in District
- About 2.7 billion gallons potable water saved annually
- Additional Water Reliability Sought
 - Recycled Water Master Plan
 - AKM Consulting Engineers, August 2015



Regional Systems



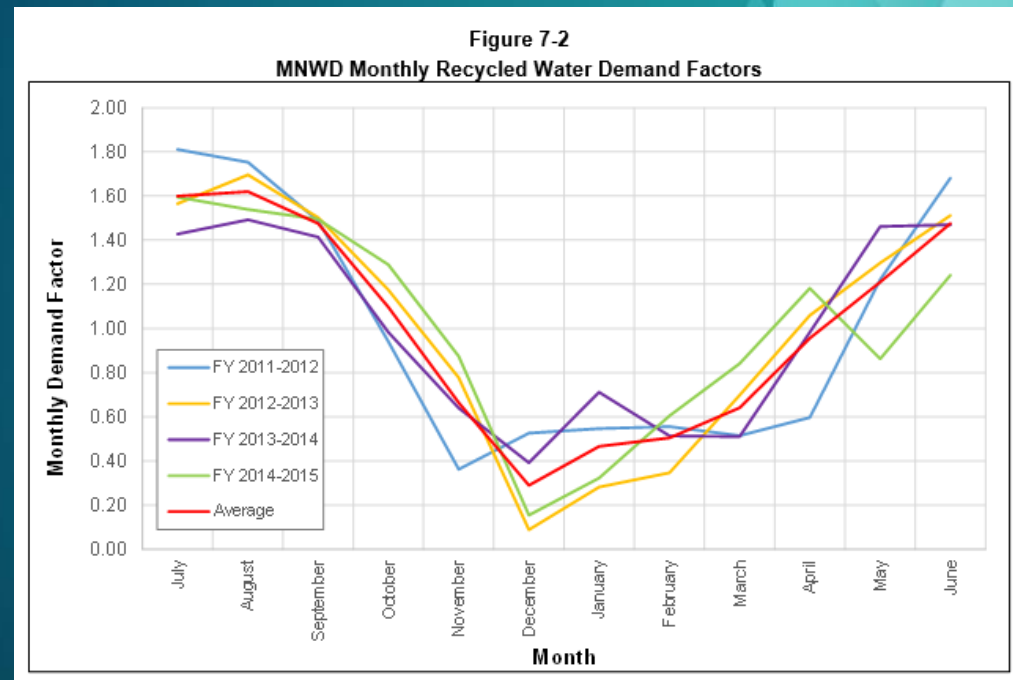
Recycled Water Supply

- MNWD's Tertiary Treatment Capacities:
 - 3A Treatment Plant – 2.4 MGD (2,690 AFY)
 - Joint Regional Treatment Plant – 9.0 MGD (10,088 AFY)
- Current Treatment Plant Influent Flows
 - 3A Treatment Plant – 1.8 MGD average (2,018 AFY)
 - Regional Treatment Plant – 8.0 MGD average (8,967 AFY)
- Declining overall trend in wastewater flow
- Ways to increase supply
- Water conservation sensitivity analysis



Existing Recycled Water Use

- RW used for irrigation customers only
- RW use varies widely based on weather, precipitation
 - Total average RW sales = 7,000 AFY
 - Average use in December = 171 AF
 - Average use in August = 946 AF



Recycled Water Market & Demand Assessment

- Assessment of Potential Customers for Conversion to RW
- Current imported potable water cost = \$1,100 per acre-foot
- Future imported potable water cost ~ \$1,500 per acre-foot
- Potential conversion projects classified
 - Tier 1 – Project cost < \$1,100 per acre-foot *
 - Tier 2 – Project cost is \$1,100 - \$1,500 per acre-foot *
 - Tier 3 – Project cost is > \$1,500 per acre-foot *
- Tier 1 and 2 projects considered feasible
- Tier 3 projects not considered at this time
- 465 meters and 1,695 AFY demand identified in Tier 1 & 2

* Note: These are the costs of the conversions only

Operational Storage Analysis

- Overall system has surplus of storage
- Minor zonal storage deficiencies identified
- Additional operational storage not feasible
- Operational adjustments to counteract deficiencies
 - Use potable make-up water during high demands
 - Ensure adequate pumping capacities and supplies
- If expand system, will need to address westerly reservoirs (Moulton Peak and Southridge Reservoirs)



Seasonal Storage Analysis

- Current 1,000 AF Capacity in SMWD's Upper Oso Reservoir
 - RW pumped to Upper Oso in winter
 - RW pulled from Upper Oso in summer
- Seasonal storage is currently sufficient
 - Able to add 500 AFY additional demand
 - Able to add 1,300 AFY additional demand with increase in recycled water production
- Would need 300 AF additional storage to add Tiers 1 and 2 recycled water customers



Existing System Improvements

- Results from Hydraulic Model
 - Various pipelines with velocities exceeding standards
- Pump stations, lift stations, and reservoirs replacements and refurbishments (0-15 year timeframe)
- Incorporated appropriate portion into CIP



Additional Improvements for Expansion

- Recycled Water Conversions
- Infrastructure to Capture Additional Wastewater
 - New LS near Camino Capistrano LS
 - New Force main to Plant 3A
- MNWD Facility Improvements
 - Pipeline Upsizing
 - Pump or Booster Station Upgrades
- Shared Facility Improvements
 - Pipeline Upsizing
 - Booster Station Upgrades
- Seasonal Storage Capacity Acquisition

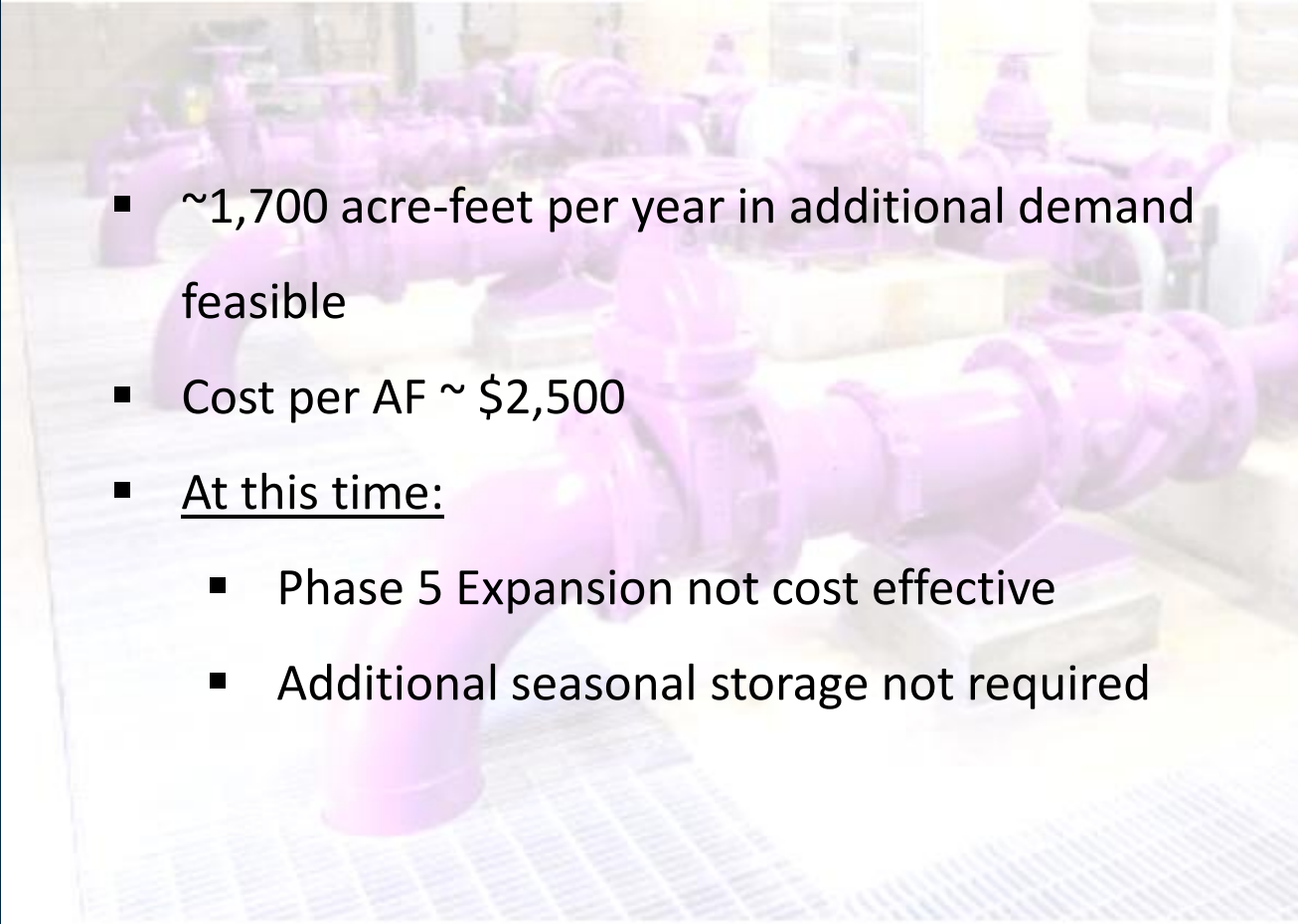


Approximate Costs Associated with Expansion

- \$26.5M in improvements to existing RW system over 15 years
- Additional \$105M in improvements for ~1,700 AF/year
 - \$23M – Pipeline & Pump Station Improvements
 - \$9M - Infrastructure to Capture Additional Wastewater
 - \$39M – RW Conversion Projects
 - \$28M - Shared Facility Improvements
 - \$6M - Seasonal Storage Capacity Acquisition



Conclusions

- 
- ~1,700 acre-feet per year in additional demand feasible
 - Cost per AF ~ \$2,500
 - At this time:
 - Phase 5 Expansion not cost effective
 - Additional seasonal storage not required

Next Steps

- Finalize Report
- Continued Development of CIP
- Optimization of reduced sized cost effective expansion
- Assess Interagency Impacts
- Evaluate Other RW Reliability Opportunities
- Submit LRP Application to MET

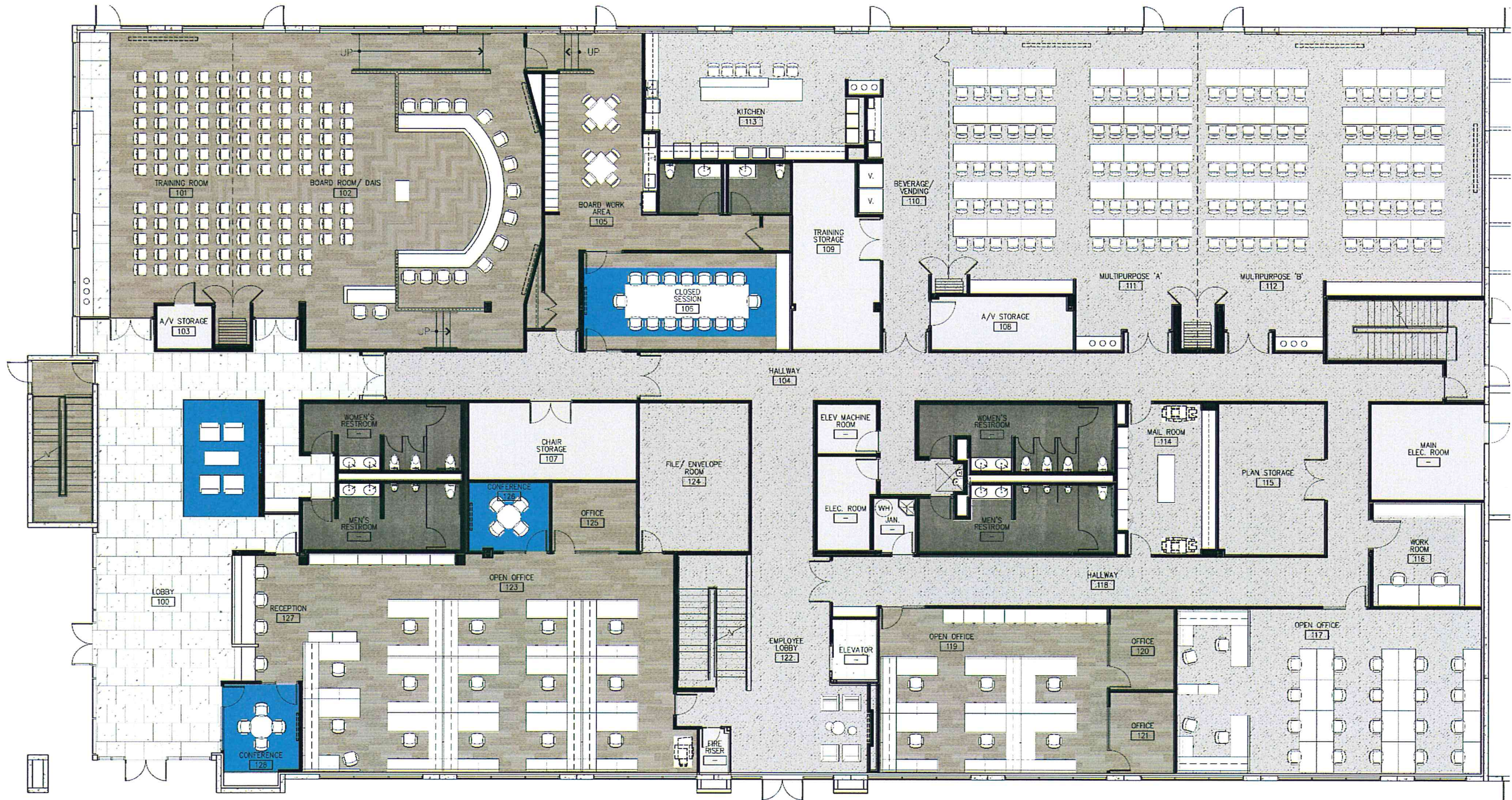


Moulton Niguel Water District

26161 GORDON ROAD
LAGUNA HILLS, CA
IRV14-0198-03
BOARD PRESENTATION
04.17.2017

WARE MALCOMB

architecture | planning | interiors | branding | civil



Finish Legend:

- | | | | | | | | |
|---|--------------------------------------|---|-------------------------|---|---|---|-------------------------------------|
|  | Porcelain Tile |  | Sealed Concrete |  | Field Carpet Tile
Herringbone Pattern |  | Field Carpet Tile
Ashlar Pattern |
|  | Aggregate Grind
Polished Concrete |  | Restroom Porcelain Tile |  | Accent Carpet Tile
Herringbone Pattern | | |

Floor Plan Rendering First Floor

MOULTON NIGUEL WATER DISTRICT
26161 GORDON ROAD, LAGUNA HILLS, CA

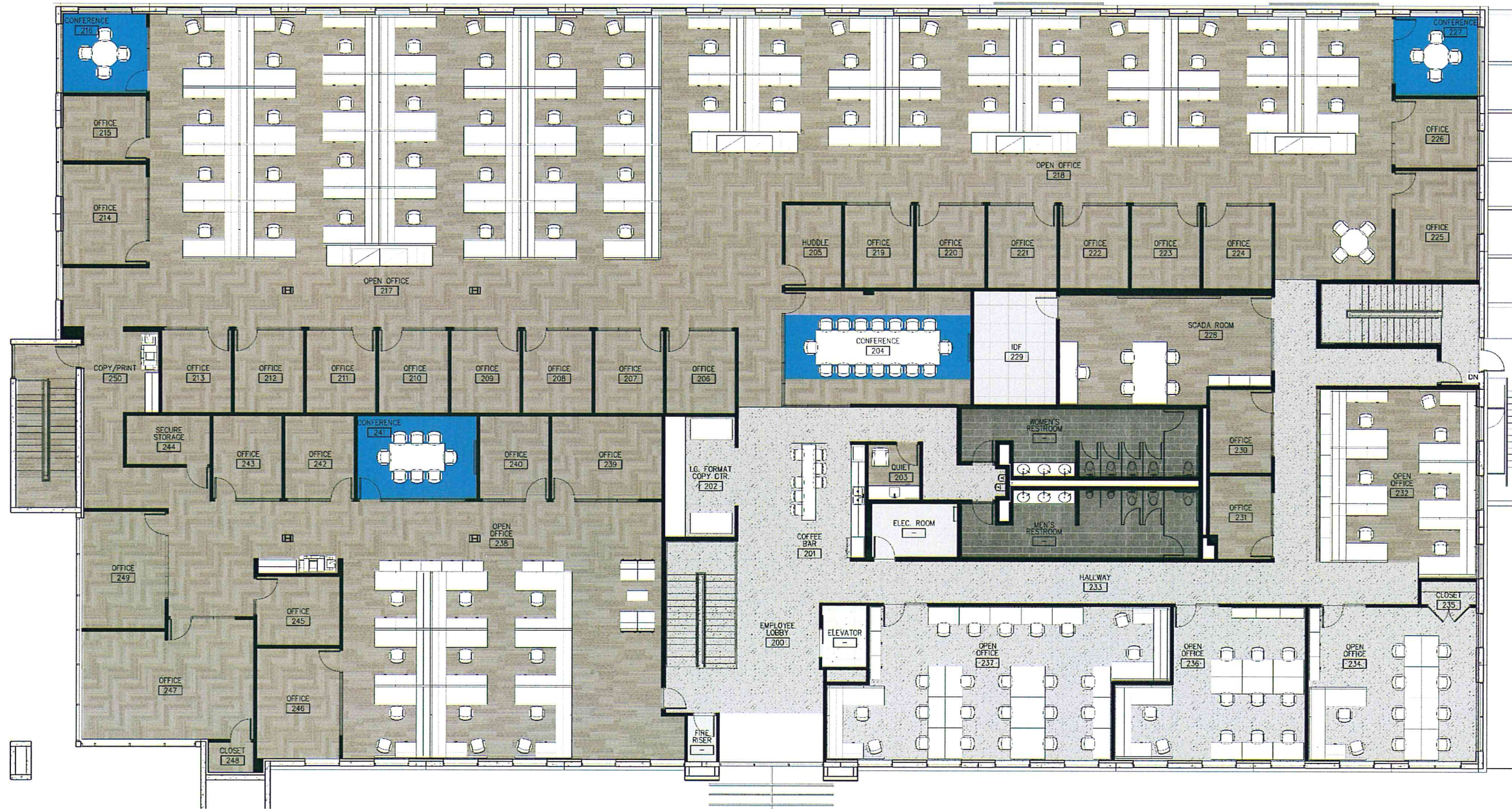
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IRV14-0198-03
04.17.2017

SHEET
2

This conceptual design is based upon a preliminary review of entitlement requirements and on identified and publicly available site and/or building information and is intended merely to assist in exploring the project to be developed.





Finish Legend:

- | | | | | | | | |
|--|--------------------------------------|--|-------------------------|--|---|--|-------------------------------------|
| | Porcelain Tile | | Sealed Concrete | | Field Carpet Tile
Herringbone Pattern | | Field Carpet Tile
Ashlar Pattern |
| | Aggregate Grind
Polished Concrete | | Restroom Porcelain Tile | | Accent Carpet Tile
Herringbone Pattern | | |

Floor Plan Rendering Second Floor

MOULTON NIGUEL WATER DISTRICT
26161 GORDON ROAD, LAGUNA HILLS, CA

WARE MALCOMB

IRV14-0198-03
04.17.2017

SHEET
3

This conceptual floor plan is based upon a preliminary review of entitlement requirements and an unperfected and possibly incomplete site and/or building information, and is intended merely to illustrate the general layout of the project and is not to be used for any other purpose.





Lobby

MOULTON NIGUEL WATER DISTRICT
26161 GORDON ROAD, LAGUNA HILLS, CA

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IRV14-0198-03
04.17.2017

SHEET
4

This conceptual design is based upon a 20-minute review of preliminary requirements and is not intended to be used for construction or building information and is intended merely to assist in preparing the project budget.





Board Room / Dais

MOULTON NIGUEL WATER DISTRICT
 26161 GORDON ROAD, LAGUNA HILLS, CA

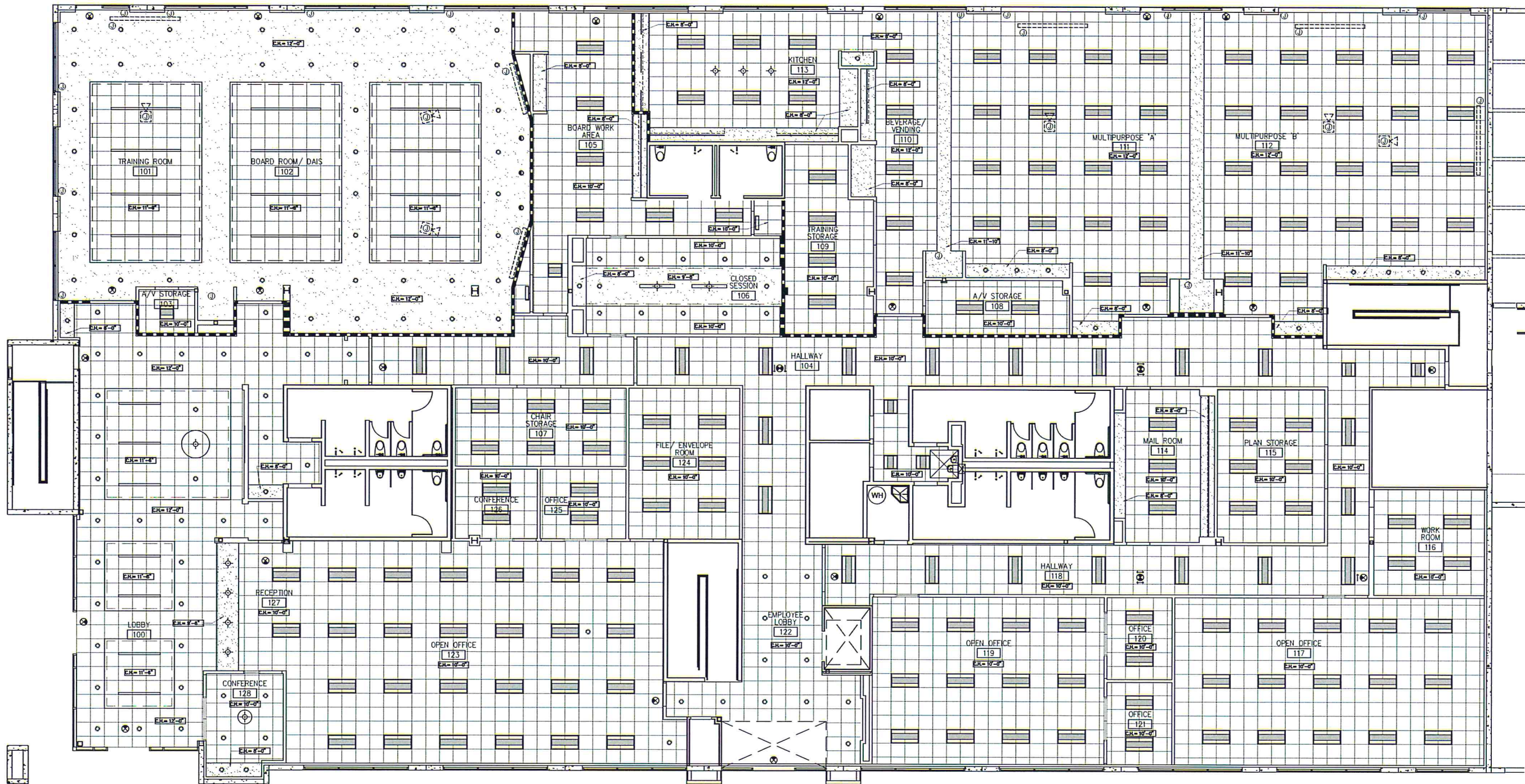
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IRV14-0198-03
 04.17.2017

SHEET
 5

This conceptual design is based upon a preliminary review of program requirements and an identified and possibly indicative site and is intended to provide a general impression of the proposed project. It is not intended to be used for construction purposes.





Reflected Ceiling Plan First Floor

MOULTON NIGUEL WATER DISTRICT
 26161 GORDON ROAD, LAGUNA HILLS, CA

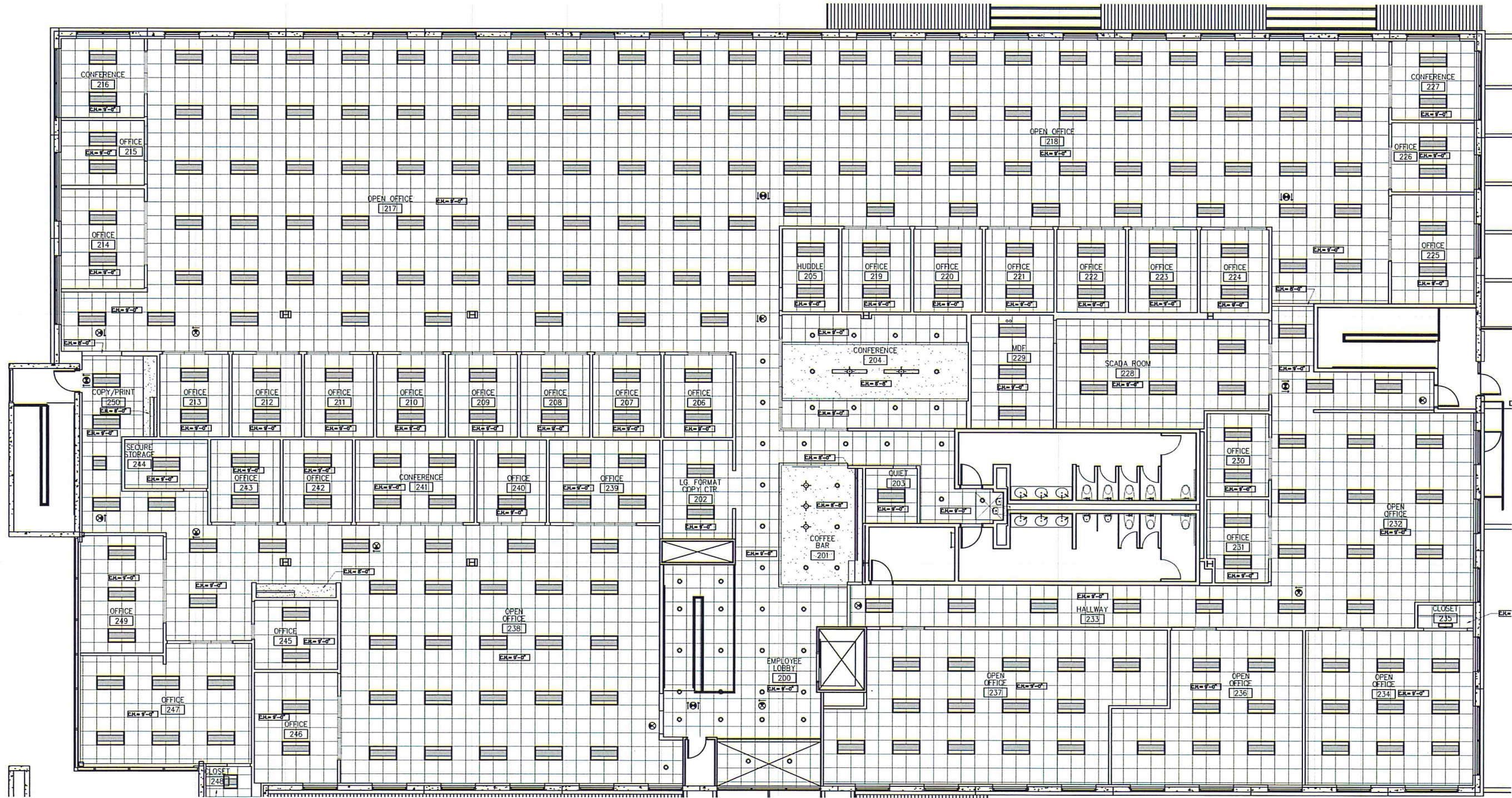
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IRV14-0198-03
 04.17.2017

SHEET
 6

This contract design is based upon a preliminary review of entitlement requirements, and an unverified and possibly incomplete site and/or building information, and is intended merely to assist in making the project more developable.





Reflected Ceiling Plan Second Floor

MOULTON NIGUEL WATER DISTRICT
 26161 GORDON ROAD, LAGUNA HILLS, CA

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IRV14-0198-03
 04.17.2017

SHEET
 7

This conceptual design is based upon a preliminary review of entitlement requirements, and is provided as a guide only. It is not intended to be a final design and is subject to change without notice. The client is responsible for obtaining all necessary permits and approvals from the appropriate authorities.





Proposed Design Conditions



Existing Conditions

Rendering Views

MOULTON NIGUEL WATER DISTRICT
26161 GORDON ROAD, LAGUNA HILLS, CA

WARE MALCOMB

IRV14-0198-03
02.06.2017

SHEET
1

This conceptual design is based upon a preliminary review of preliminary requirements, and is intended to provide conceptual site plan information, and is intended merely to assist in evaluating how the project may be developed.





Proposed Design Conditions



Existing Conditions

Rendering Views

MOULTON NIGUEL WATER DISTRICT
26161 GORDON ROAD, LAGUNA HILLS, CA

WARE MALCOMB

IRV14-0198-03
02.06.2017

SHEET
2

This conceptual design is based upon a preliminary review of available information. It is intended to provide conceptual site and/or building information, and is intended merely to assist in planning how the project might be developed.





Proposed Design Conditions



Existing Conditions

Rendering Views

MOULTON NIGUEL WATER DISTRICT
26161 GORDON ROAD, LAGUNA HILLS, CA

WARE MALCOMB

IRV14-0198-03
02.06.2017

SHEET
3

This conceptual design is based upon a preliminary review of site conditions and is not intended to provide complete site and building information, and is intended merely to assist in exploring how the project might be developed.





moulton niguel water district

MISSION HOSPITAL
750-ZONE SERVICE



MISSION HOSPITAL

PROPOSED PRESSURE REDUCING STATION FOR MISSION HOSPITAL

PROPOSED PIPELINE FROM EXISTING 750-ZONE IN MARGUERITE PARKWAY

PROPOSED SITE PLAN



APPROXIMATE LOCATION OF
PRESSURE REDUCING STATION



EXAMPLE OF SIMILAR
PRESSURE REDUCING STATION

ANTICIPATED SCHEDULE

- **June 2017** – Complete Construction Documents
- **August 2017** – Construction Contract and Reimbursement Agreement Presented to Board for Approval
- **November 2017** – Start Construction

PRELIMINARY COST ESTIMATE

- **MNWD Share** (water main and pressure reducing station)
 - Approximately \$850,000
- **Hospital Share** (backflow devices and on-site piping)
 - Approximately \$180,000
- All work managed by MNWD.
- Hospital Share of Cost Reimbursed by Agreement.

Questions?



moulton niguel water district



moulton niguel water district

STAFF REPORT

TO: Board of Directors **MEETING DATE:** April 17, 2017
FROM: Todd Novacek, Assistant Director of Operations
SUBJECT: Quarterly Operations Report
DIVISION: District-wide

SUMMARY:

Issue: District staff is responsible operating and maintaining the potable water, recycled water and wastewater collections systems. This quarterly report is for December, January and February of Fiscal Year (FY) 2016-17.

Recommendation: Information item only.

Fiscal Impact: Funds for the activities identified in the quarterly operations report are included in the FY 2016-17 Operating Budget.

DISCUSSION:

The Moulton Niguel Water District (District) Board of Directors approved a FY 2016-17 budget in June 2016 that provided for operation and maintenance activities associated with the District's potable water, recycled water and wastewater collection systems. The District staff executes those maintenance functions across various operational crews, including customer service, facilities maintenance, and wastewater collections. The following is a summary of the progress completed on those maintenance functions during the months of December, January and February of FY 2016-17.

Customer Service:

The customer service department provides a first response to customers in the field to address potential leaks, customer inquiries, turn on/off of meters, among other functions. Additionally, customer service is responsible for reading, testing and replacing water meters to ensure the District is appropriately billing its customers for water used. During this past quarter, customer service staff responded to nearly 100 work orders addressing potential leaks at service lines or fire hydrants. Staff also completed more than 300 meter turn on/off to support customers. As part of the meter replacement/maintenance program, approximately 230 meters were replaced to ensure an accurate reading of District meters.

Collections Department:

In 2010, the District adopted a Sewer System Management Plan (SSMP), which outlined programs in place to ensure appropriate and necessary maintenance of the District's collection system. Among these programs, the District systematically cleans the sewer system to minimize the potential for a sewer blockage. During the past quarter, the District cleaned approximately 530,000 feet of sewer lines. The department remains on pace to clean the entire system in approximately 12 months. This past quarter, staff also completed approximately 63,000 feet of video inspection of the collection system as part of the SSMP.

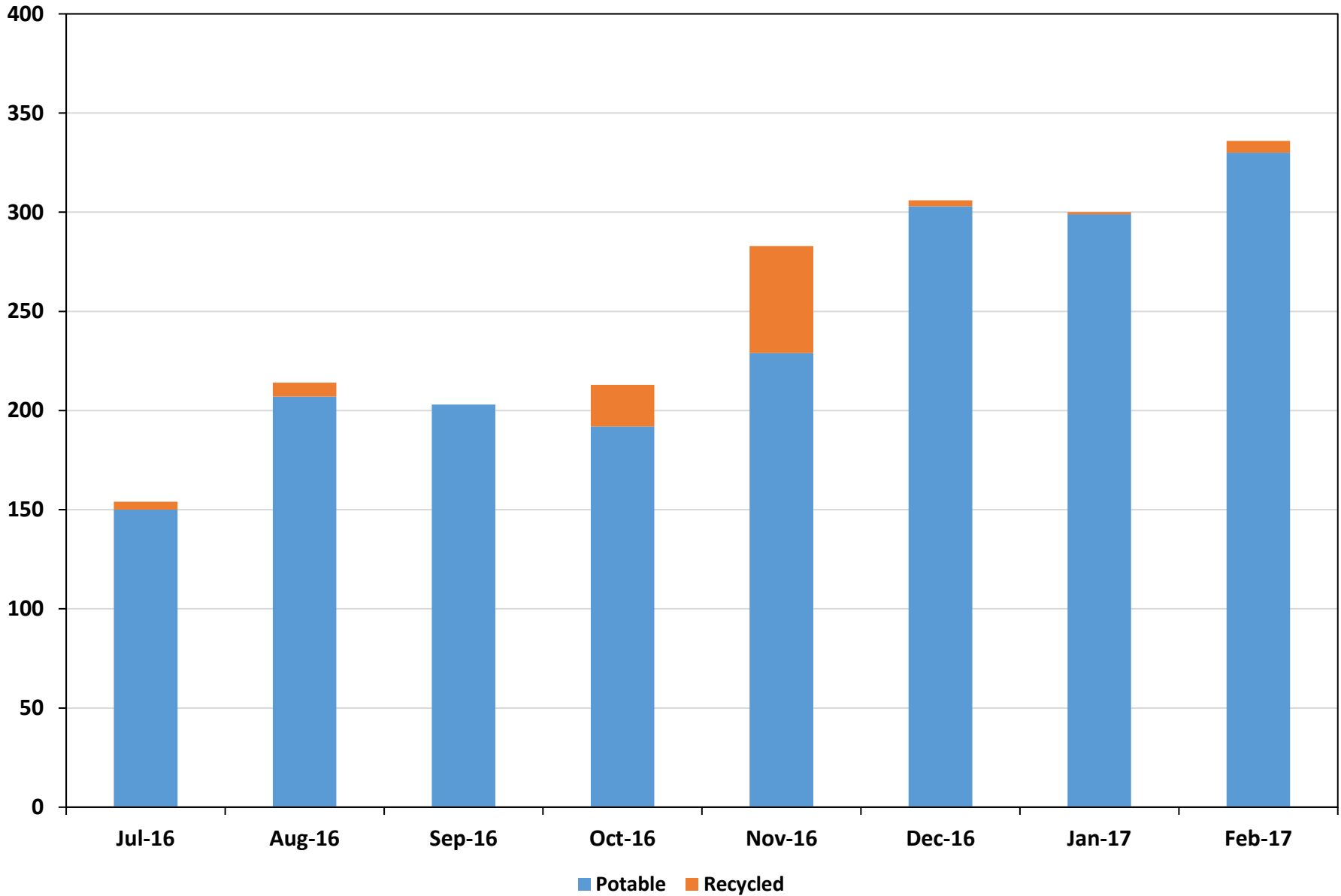
Pipeline Maintenance (Street and Valve Crews):

The District's pipeline maintenance activities include repairs to customer service lines, fire hydrants, and distribution pipelines. The District's staff completed nearly 100 work orders during the past quarter. Approximately 80% of those work orders were replacement of customer service lines. As part of the FY 2016-17 budget, the District's Board of Directors approved additional staffing to support increased maintenance activities on the potable water and recycled water valves. Table 1 identifies the number of valves exercised on a monthly basis since the beginning of the fiscal year. Table 2 identifies the number of valves replaced on a monthly basis, including valves replaced by outside contractors.

Number of Valves Exercised

VALVE CREW - VALVES EXERCISED

Table 1



VALVE CREW - VALVE REPLACED

Table 2

Number of Valves Replaced

