The Metropolitan Water District of Southern California

Agenda

The mission of the Metropolitan Water District of Southern California is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

EOT Committee
D. Erdman, Chair
M. Camacho, Vice Chair
D. Alvarez
G. Bryant
J. Crawford
B. Dennstedt
S. Faessel
L. Fong-Sakai
R. Lefevre
J. McMillan
C. Miller
J. Morris
M. Petersen
K. Seckel
T. Smith

Engineering, Operations, and Technology Committee - Final - Revised 2

Meeting with Board of Directors *

October 7, 2024

9:00 a.m.

Monday, October 7, 2024 Meeting Schedule
09:00 a.m. EOT
11:15 a.m. Break
11:45 a.m. LEG
12:45 p.m. LEGAL
01:45 p.m. EIA
03:30 p.m. OWS

Agendas, live streaming, meeting schedules, and other board materials are available here: https://mwdh2o.legistar.com/Calendar.aspx. Written public comments received by 5:00 p.m. the business days before the meeting is scheduled will be posted under the Submitted Items and Responses tab available here: https://mwdh2o.legistar.com/Legislation.aspx.

If you have technical difficulties with the live streaming page, a listen-only phone line is available at 1-877-853-5257; enter meeting ID: 862 4397 5848.

Members of the public may present their comments to the Board on matters within their jurisdiction as listed on the agenda via in-person or teleconference. To participate via teleconference 1-833-548-0276 and enter meeting ID: 815 2066 4276 or to join by computer click here.

MWD Headquarters Building • 700 N. Alameda Street • Los Angeles, CA 90012
Teleconference Locations:
Marriott Center City • 124 St. Charles Avenue • New Orleans, LA 70130
525 Via La Selva • Redondo Beach, CA 90277
Sheraton New Orleans Hotel • 500 Canal Street • New Orleans LA 70130
Boulevard Green • 1412 Lower Green Circle • Columbus OH 43212
Cedars-Sinai Imaging Medical Group • 8700 Beverly Boulevard • Los Angeles, CA 90048
3008 W. 82nd Place • Inglewood, CA 90305

---

* The Metropolitan Water District's meeting of this Committee is noticed as a joint committee meeting with the Board of Directors for the purpose of compliance with the Brown Act. Members of the Board who are not assigned to this Committee may participate as members of the Board, whether or not a quorum of the Board is present. In order to preserve the function of the committee as advisory to the Board, members of the Board who are not assigned to this Committee will not vote on matters before this Committee.

US2-456

1. Opportunity for members of the public to address the committee on matters within the committee's jurisdiction (As required by Gov. Code Section 54954.3(a))

**** CONSENT CALENDAR ITEMS -- ACTION ****

2. CONSENT CALENDAR OTHER ITEMS - ACTION

A. Approval of the Minutes of the Engineering, Operations, and Technology Committee for September 9, 2024 (Copies have been submitted to each Director, any additions, corrections, or omissions) **21-3847**

Attachments: 10072024 EOT 2A (09092024) Minutes

3. CONSENT CALENDAR ITEMS - ACTION

7-1 Award a $589,957 procurement contract to Vogt Valves for one sleeve valve to be installed at the Red Mountain Pressure Control Structure in the Skinner service area; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-3859**

Attachments: 10082024 EOT 7-1 B-L
10072024 EOT 7-1 Presentation

7-2 Award a $1,833,650 construction contract to Power Engineering Construction Company for San Diego Canal Concrete Liner Rehabilitation; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA **21-3860**

Attachments: 10082024 EOT 7-2 B-L
10072024 EOT 7-2 Presentation

7-3 Award a $448,000 contract to Heed Engineering to provide construction materials to support the construction of the helicopter hydrant facility at the Robert B. Diemer Water Treatment Plant; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-3862**

Attachments: 10082024 EOT 7-3 B-L
10072024 EOT 7-3 Presentation

**** END OF CONSENT CALENDAR ITEMS ****

4. OTHER BOARD ITEMS - ACTION

8-1 Recommend project funding in an amount not to exceed $35 million over the next two years (Fiscal Years 2024/2025 and 2025/2026), to support the zero-emission vehicle transition at Metropolitan and partially mitigate high operational risk. Subject to Finance & Asset Management Committee approval and authorization of specific terms of debt issuance; the General Manager has determined that the proposed actions are exempt or otherwise not subject to CEQA. [REVISED SUBJECT 9/30/2024] [ITEM DEFERRED 10/4/2024] **21-3863**

8-2 Authorize on-call agreements with Black & Veatch Corporation, Burns & McDonnell Western Enterprises Inc., HDR Inc., and Stantec Consulting Services Inc., in amounts not to exceed $3 million each, for a maximum of three years, for engineering services to support zero-emission vehicle infrastructure upgrades at Metropolitan facilities; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA **21-3861**

Attachments: 10082024 EOT 8-2 B-L
10072024 EOT 8-2 Presentation

5. BOARD INFORMATION ITEMS

NONE

6. COMMITTEE ITEMS

a. Update on District Housing and Property Improvements Program **21-3874**

Attachments: 10072024 EOT 6a C-L
10072024 EOT 6a Presentation

b. Construction and Shop Services to Ensure Metropolitan's Readiness and Resilience **21-3875**

Attachments: 10072024 EOT 6b Presentation

7. MANAGEMENT ANNOUNCEMENTS AND HIGHLIGHTS

a. Engineering Services activities **21-3848**
Information Technology activities
Water System Operations activities

Attachments: 10072024 EOT 7a Engineering Services Activities
10072024 EOT 7a Information Technology Activities
10072024 EOT 7a Presentation
10072024 EOT 7a Water System Operations Activities

8. SUBCOMMITTEE REPORTS AND DISCUSSION

a. Discuss and provide direction to Subcommittee on Pure Water Southern California and Regional Conveyance **21-3849**

9. FOLLOW-UP ITEMS

NONE

10. FUTURE AGENDA ITEMS

11. ADJOURNMENT

NOTE: This committee reviews items and makes a recommendation for final action to the full Board of Directors. Final action will be taken by the Board of Directors. Committee agendas may be obtained on Metropolitan's Web site https://mwdh2o.legistar.com/Calendar.aspx. This committee will not take any final action that is binding on the Board, even when a quorum of the Board is present.

Writings relating to open session agenda items distributed to Directors less than 72 hours prior to a regular meeting are available for public inspection at Metropolitan's Headquarters Building and on Metropolitan's Web site https://mwdh2o.legistar.com/Calendar.aspx.

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Board Executive Secretary in advance of the meeting to ensure availability of the requested service or accommodation.

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

MINUTES

ENGINEERING, OPERATIONS & TECHNOLOGY COMMITTEE

September 9, 2024

Chair Erdman called the meeting to order at 9:00 a.m.

Members present: Directors Alvarez, Bryant, Dennstedt (teleconference posted location), Erdman, Faessel, Fong-Sakai, Lefevre (teleconference posted location), McMillan (teleconference posted location), Miller (entered after rollcall), Morris, Seckel, and Smith (AB 2449 "just cause").

Director Smith stated he is participating under AB 2449 "just cause" due to having a contagious illness. He stated that he was alone in the room.

Members absent: Directors Camacho, Crawford, and Petersen.

Other Board Members present: Directors Ackerman (AB 2449 "just cause"), Armstrong, Goldberg, Gray (teleconference posted location), Lewitt, McCoy, and Ortega.

Committee staff present: Arakelian, Chapman, Upadhyay, Parsons, Bednarski, and Wheeler.

1. OPPORTUNITY FOR MEMBERS OF THE PUBLIC TO ADDRESS THE COMMITTEE ON MATTERS WITHIN THE COMMITTEE'S JURISDICTION (As required by Gov. Code Section 54954.3(a))

None

CONSENT CALENDAR ITEMS – ACTION

2. CONSENT CALENDAR OTHER ITEMS – ACTION

A. Approval of the Minutes of the Engineering, Operations, and Technology Committee for August 19, 2024.

3. CONSENT CALENDAR ITEMS – ACTION

Chair Erdman stated that Director Miller had requested that Item 7-3 be pulled from the consent calendar.

7-1 Subject: Authorize an agreement with IDS Group Inc. in an amount not to exceed $400,000 for design services to rehabilitate the heating, ventilation, and air conditioning system at Metropolitan Headquarters Building; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA.

Presented by: No Presentation

Motion: Authorize an agreement with IDS Group Inc. in an amount not to exceed $400,000 for preliminary design to rehabilitate the HVAC system at Metropolitan Headquarters Building.

7-2 Subject: Adopt the Mitigated Negative Declaration for the West Valley Feeder No. 1 Stage 3 Improvements Project and take related CEQA actions.

Presented by: No Presentation

Motion: Adopt the Mitigated Negative Declaration for the West Valley Feeder No. 1 Stage 3 Improvements Project and take related CEQA actions.

The following Directors provided comments or asked questions.

1. Smith

Staff responded to Directors' questions and comments.

Director Morris made a motion seconded by Director Seckel to approve Items 2A, 7-1, and 7-2.

The vote was:

Ayes:	Directors Alvarez, Bryant, Dennstedt, Erdman, Faessel, Fong-Sakai, Lefevre, McMillan, Morris, Seckel and Smith.
Noes:	None
Abstentions:	None
Not Voting:	None
Absent:	Directors Camacho, Crawford, Miller, and Petersen.

The motion for Items 2A, 7-1, and 7-2 passed by a vote of 11 ayes, 0 noes, 0 abstention, 0 not voting, and 4 absent.

Director Smith stated that he was alone in the room whilst casting his vote.

Director Miller entered the meeting room.

7-3 Subject: Award a $1,285,000 contract to Resource Environmental Incorporated for abatement and roof replacement of houses at four Colorado River Aqueduct Pumping Plant villages; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA.

Presented by: Victor Ramirez, Interim Facilities and Fleet Management Section Manager, Integrated Operations, Planning, and Support Services Group responded to director questions.

Motion: Award a $1,285,000 contract to Resource Environmental Incorporated for abatement and roof replacement on houses at four Colorado River Aqueduct Pumping Plant villages.

The following Directors provided comments or asked questions.

1. Miller

Staff responded to Directors' questions and comments.

Director Miller made a motion seconded by Director Morris to approve Item 7-3.

The vote was:

Ayes:	Directors Alvarez, Bryant, Dennstedt, Erdman, Faessel, Fong-Sakai, Lefevre, McMillan, Miller, Morris, Seckel, and Smith.
Noes:	None
Abstentions:	None
Not Voting:	None
Absent:	Directors Camacho, Crawford, and Petersen.

The motion for Item 7-3 passed by a vote of 12 ayes, 0 noes, 0 abstention, 0 not voting, and 3 absent.

Director Smith stated that he was alone in the room whilst casting his vote.

**** END OF CONSENT CALENDAR ITEMS ****

4. OTHER BOARD ITEMS – ACTION

8-1 Subject: Authorize a $40 million increase to an existing agreement with J.F. Shea Construction Inc. to purchase long-lead equipment for the Sepulveda Feeder Pump Stations Project, for a new not-to-exceed amount of $50.4 million; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA (This action is part of a series of projects that are being undertaken to improve the supply reliability for State Water Project-dependent areas.)

Presented by: Jeannie Chu, Engineer, Engineering Services Group

Motion: Authorize a $40 million increase to an existing design-build services agreement with J.F. Shea Construction Inc. to purchase long-lead equipment for the Sepulveda Feeder Pump Stations Project for a new not-to-exceed amount of $50.4 million.

The following director provided comments or asked questions:

1. Erdman

Staff responded to the directors' questions and comments.

Director Morris made a motion seconded by Director Faessel to approve item 8-1.

The vote was:

Ayes:	Directors Alvarez, Bryant, Dennstedt, Erdman, Faessel, Fong-Sakai, Lefevre, McMillan, Miller, Morris, Seckel and Smith.
Noes:	None
Abstentions:	None
Not Voting:	None
Absent:	Directors Camacho, Crawford, and Petersen.

The motion for Item 8-1 passed by a vote of 12 ayes, 0 noes, 0 abstention, 0 not voting, and 3 absent.

Director Smith stated that he was alone in the room whilst casting his vote.

8-2 Subject: Authorize an amended and restated agreement with the Los Angeles County Sanitation District for shared implementation of the advanced water purification facility for Pure Water Southern California; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA.

Presented by: Bruce Chalmers, Pure Water Southern California Program Manager, Engineering Services Group

Motion: Authorize an amended and restated agreement with County Sanitation District No. 2 of Los Angeles County for shared implementation of Pure Water Southern California.

Director Fong-Sakai recused herself for Item 8-2 and she left the meeting room for the duration of the discussion and vote on this item.

The following directors provided comments or asked questions:

1. Morris
2. Faessel
3. Armstrong
4. Smith
5. Ortega
6. Erdman
7. Alvarez
8. Miller

Staff responded to the Directors' questions and comments.

Director Morris made a motion seconded by Director Faessel to approve item 8-2.

The vote was:

Ayes:	Directors Alvarez, Bryant, Dennstedt, Erdman, Faessel, Lefevre, McMillan, Miller, Morris, Seckel and Smith.
Noes:	None
Abstentions:	None
Not Voting:	Director Fong-Sakai
Absent:	Directors Camacho, Crawford, and Petersen.

The motion for Item 7-3 passed by a vote of 11 ayes, 0 noes, 0 abstention, 1 not voting, and 3 absent.

Director Smith stated that he was alone in the room whilst casting his vote.

5. BOARD INFORMATION ITEMS

None

6. COMMITTEE ITEMS

a. Subject: Capital Investment Plan quarterly report for period ending June 2024.

Presented by: Jeff Nikolas, Senior Engineer, Engineering Services Group

Mr. Nikolas reported on the following:

- Capital Investment Plan during fiscal years 2022/23 and 2023/24.
- Summary of key actions and accomplishments detailed in the report provided in the board packet.

The following Directors provided comments or asked questions.

1. Erdman
2. Bryant

Staff responded to the Directors' questions and comments.

b. Subject: Quarterly Cybersecurity Update [Conference with Metropolitan 21-3731 Director of Info Tech Services, Information Technology, Jacob Margolis, or designated agents on threats to public services or facilities; to be heard in closed session pursuant to Gov. Code Section 54957(a)].

Presented by: Closed Session Presentation

c. Subject: Emergency Management Program Update

Presented by: Ian Whyte, Emergency Management Program Manager, Office of Safety, Security & Protection.

Mr. Whyte reported on the following:

- Emergency Management Program's response, preparedness and planning, and recovery structure.
- Overview of real-world responses.
- Future program development.

The following Directors provided comments or asked questions.

1. Erdman
2. Seckel
3. Fong-Sakai
4. Dennstedt

Staff responded to the Directors' questions and comments.

7. MANAGEMENT ANNOUNCEMENTS AND HIGHLIGHTS

a. Subject: Engineering Services
Information Technology
Water System Operations Activities

Presented by: John Bednarksi, Interim Executive Officer/Assistant General Manager, Water and Technical Resources
Shane Chapman, Assistant General Manager, Operations

Mr. Bednarski reported on the following:

- MetWorks event in Orange County.

Mr. Chapman reported on the following:

- Full-scale regional emergency preparedness lab exercise to practice hands-on laboratory response procedures and communication.

8. SUBCOMMITTEE REPORTS AND DISCUSSION

a. Discuss and provide direction to Subcommittee on Pure Water Southern California and Regional Conveyance.

Director Smith requested an information item for the next Pure Water Southern California subcommittee meeting for a treated water augmentation sub-alternative that could provide DPR to the Second Lower Feeder, local agencies, and industries, along with a brief description of sizing, cost, and necessary steps to incorporate this alternative into the current environmental process.

9. FOLLOW-UP ITEMS

Chair Ortega expressed interest in marking the completion of the Heli-Hydrant at Diemer plant with an event, in partnership with Yorba Linda Water District.

10. FUTURE AGENDA ITEMS

None

11. ADJOURNMENT

The next meeting will be on October 7, 2024.

Meeting adjourned at 11:13 a.m.

Dennis Erdman
Chair

- **Board of Directors**
  Engineering, Operations, and Technology Committee

10/8/2024 Board Meeting

7-1

Subject

Award a $589,957 procurement contract to Vogt Valves for one sleeve valve to be installed at the Red Mountain Pressure Control Structure in the Skinner service area; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

The Red Mountain Pressure Control Structure (PCS) contains two 42-inch diameter sleeve valves, which are used to control the flow and pressure in San Diego Pipeline No. 5 (SDPL5) when the adjacent power plant is offline. The existing valves have been in continuous service for over 40 years. One of the two valves was refurbished by Metropolitan staff in 2022. During a recent inspection, it was determined that the second valve has deteriorated to the point that it cannot be refurbished and consequently needs to be replaced.

This action awards a $589,957 procurement contract to Vogt Valves for furnishing one 42-inch diameter sleeve valve to be installed at Red Mountain PCS by Metropolitan staff. See **Attachment 1** for the allocation of funds, **Attachment 2** for the Abstract of Bids, and **Attachment 3** for the Location Map.

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1

Option #1

Award a $589,957 procurement contract to Vogt Valves to furnish one 42-inch diameter stainless steel sleeve valve for the Red Mountain Pressure Control Structure.

Fiscal Impact: Expenditure of $800,000 in capital funds. All costs will be incurred in the current biennium and have been previously authorized.
Business Analysis: This option will enhance the operational reliability of water deliveries in the Skinner service area.

Option #2

Do not proceed with the project at this time.
Fiscal Impact: None
Business Analysis: This option would forego enhancing the reliability of service in the Skinner service area.

Alternatives Considered

Staff considered refurbishing the existing 42-inch diameter sleeve valve in a similar fashion to the first valve that was successfully refurbished. However, upon inspection, it was determined that the valve had deteriorated to the point that refurbishment was no longer a cost-effective alternative. The observed deterioration to the valve consisted of cracks to the valve cover, inner and outer valve body, severely worn bearings, and misalignment of the operator stem housing. The selected option to procure and install a new valve will improve operational flexibility within the Skinner service area.

Applicable Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Related Board Action(s)/Future Action(s)

By Minute Item 53598, dated April 8, 2024, the Board appropriated a total of $636.48 million for projects identified in the Capital Investment Plan for Fiscal Years 2024/2025 and 2025/2026.

By Minute Item 53278, dated June 13, 2023, the Board authorized the upgrades to the Auld Valley and Red Mountain Control Structures.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

On June 13, 2023, the Board approved upgrades to the Red Mountain Control Structure, and the General Manager determined the project to be exempt from CEQA pursuant to Sections 15301, 15302, and 15306 of the State CEQA Guidelines. The current board action does not result in any substantial change to the project. Accordingly, no further CEQA determinations or documentation are necessary.

CEQA determination for Option #2:

None required

Details and Background

Background

SDPL5 begins at Lake Skinner and extends approximately 18 miles south to the delivery point in San Diego County. The pipeline is 96 inches in diameter with both prestressed concrete and welded steel pipe sections. It supplies up to 500 cfs of untreated water to the San Diego County Water Authority.

Flows in SDPL5 are regulated at the Red Mountain PCS or the adjacent hydroelectric power plant. The power plant may be taken offline if the pipeline flow is higher or lower than the turbine's operating range, for routine maintenance, or due to a power utility outage. In these cases, flow is regulated at the Red Mountain PCS. The Red Mountain PCS was constructed in 1981 and includes two 66-inch diameter pipes, which are each fitted with 42-inch diameter sleeve valves. These valves are used to reduce pressure and regulate flows within the pipelines.

An inspection of the PCS found that the two sleeve valves have extensive wear and tear and require rehabilitation. The first sleeve valve at the Red Mountain PCS was refurbished under the Minor Capital Program in 2022. The second valve was discovered to be structurally compromised. Staff attempted to repair the valve, but the deterioration was beyond repair. Since the PCS does not include isolation valves on either side of the sleeve valves, isolation bulkheads were installed so that the operation of the Red Mountain PCS could resume. When a valve is removed and the bulkheads are installed, the PCS can only operate at reduced flow rates. Currently, the Red Mountain PCS is only able to operate at one-half capacity until the new valve is installed.

In June 2023, Metropolitan's Board amended the Capital Investment Plan for Fiscal Years 2022/2023 and 2023/2024 to include replacement of the severely deteriorated valve with a new valve at the Red Mountain PCS. Specifications for the fabrication of the sleeve valve have been completed, and staff recommends the award of a procurement contract at this time.

Red Mountain Pressure Control Structure Upgrades – Procurement and Installation

The scope of the procurement contract includes furnishing one 42-inch diameter sleeve valve, its actuator, associated fittings, and accessories. Metropolitan forces will receive, offload, and place the valve in storage at Metropolitan's Lake Skinner Yard.

A total of $800,000 is required to perform this work. In addition to the amount of the procurement contract described below, the allocated funds for Metropolitan staff include $69,300 for factory fabrication inspection and functional testing; $45,000 for submittals review and responding to manufacturer requests for information; $67,000 for contract administration and project management; and $28,743 for remaining budget. **Attachment 1** provides the allocation of the required funds.

Award of Procurement Contract

Specifications No. 2098 for furnishing one stainless steel sleeve valve for the Red Mountain PCS was advertised for bids on April 30, 2024. As shown in **Attachment 2**, three bids were received and opened on July 11, 2024. The bid from Vogt Valves in the amount of $589,957 complies with the requirements of the specifications. This amount includes all sales and use taxes imposed by the state of California. The budgetary estimate for this material, based on a survey of vendors, ranged from $570,000 to $700,000.

This action awards a $589,957 procurement contract to Vogt Valves to furnish one stainless sleeve valve for Red Mountain PCS. As a procurement contract, there are no subcontracting opportunities, and no Small Business Enterprise participation level was established for this contract.

Project Milestone

June 2025 – Delivery of 42-inch diameter sleeve valve

9/17/2024
Mai M. Hattar *Date*
Interim Chief Engineer
Engineering Services

9/18/2024
Deven Upadhyay *Date*
Interim General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Abstract of Bids

Attachment 3 – Location Map

Ref# es12696031

Allocation of Funds for Red Mountain Pressure Control Structure Upgrades

	Current Board Action (Oct 2024)
Labor	
Studies & Investigations	$ -
Final Design	-
Owner Costs	67,000
Submittals Review & Record Drwgs.	45,000
Construction Inspection & Support	69,300
Metropolitan Force Construction	
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Right-of-Way	-
Equipment Use	-
Contracts	-
Vogt Valves	589,957
Remaining Budget	28,743
Total	**$ 800,000**

The total amount expended to date for the Red Mountain Pressure Control Structure Upgrades is approximately $120,000. The total estimated cost to complete the work, including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is anticipated to range from $1 million to 1.25 million.

The Metropolitan Water District of Southern California

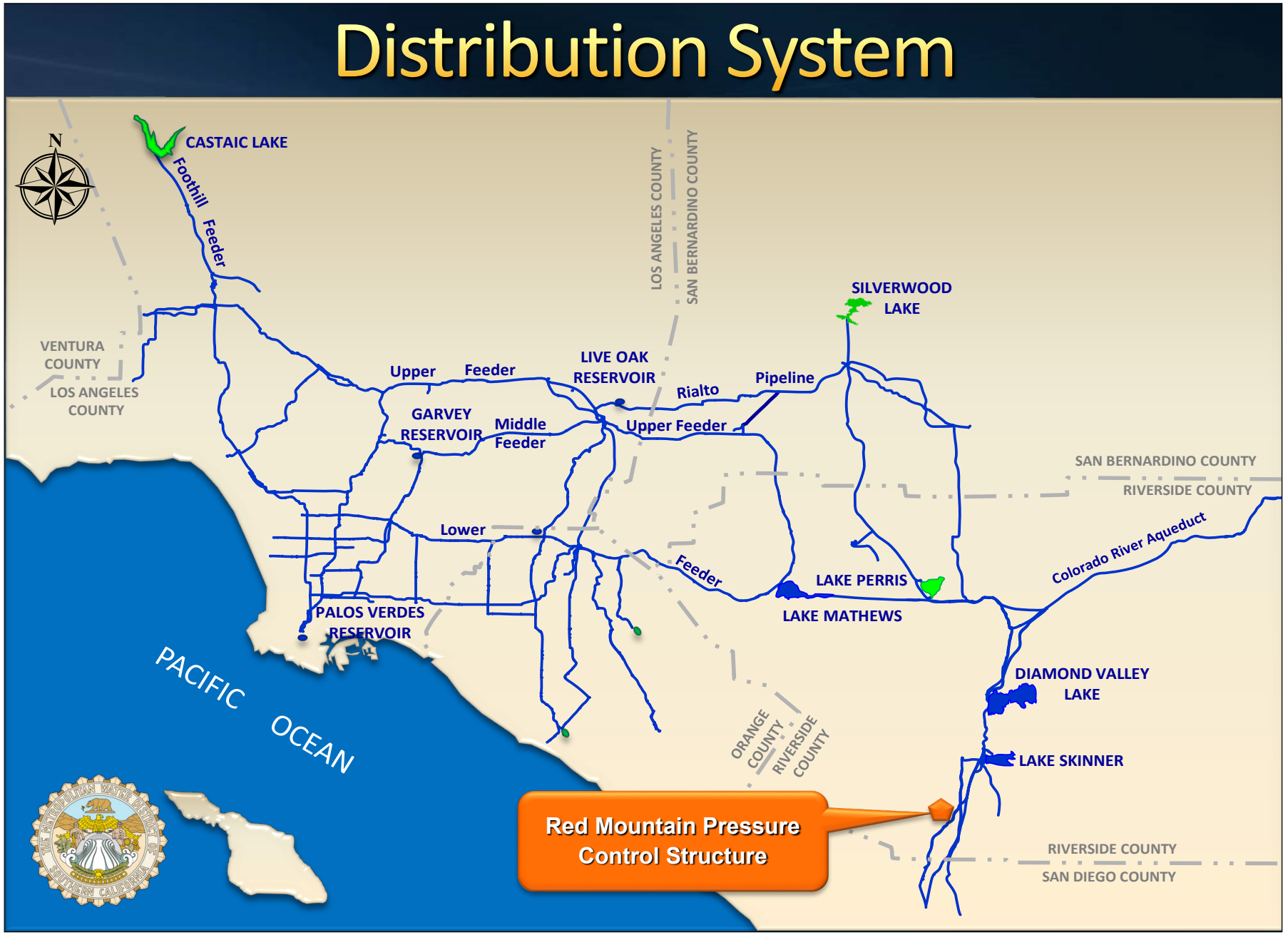
Abstract of Bids Received on July 11, 2024, at 2:00 P.M.

Specifications No. 2098
Furnishing 42-inch Sleeve Valve for Red Mountain Pressure Control Structure

The work includes furnishing and delivery of a 42-inch sleeve valve and actuator for the Red Mountain Pressure Control Structure.

Bidder and Location	Base Bid Price Total[1,2]
Vogt Valves **Stafford, TX**	**$589,957**
Sojitz Machinery Corporation of America Farmington, Hills	$727,792
B&K Valves & Equipment Inc. Carlsbad, CA	$3,344,948

[1] As a procurement contract, there are no subcontracting opportunities.
[2] Includes sales and use taxes of 7.75 percent imposed by the state of California


Distribution System
N
CASTAIC LAKE
Foothill Feeder
VENTURA COUNTY
LOS ANGELES COUNTY
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SILVERWOOD LAKE
Upper Feeder
LIVE OAK RESERVOIR
Rialto Pipeline
GARVEY RESERVOIR
Middle Feeder
Upper Feeder
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Lower Feeder
Colorado River Aqueduct
LAKE PERRIS
LAKE MATHEWS
PALOS VERDES RESERVOIR
PACIFIC OCEAN
DIAMOND VALLEY LAKE
ORANGE COUNTY
RIVERSIDE COUNTY
LAKE SKINNER
Red Mountain Pressure Control Structure
RIVERSIDE COUNTY
SAN DIEGO COUNTY

Engineering, Operations, & Technology Committee

Red Mountain Pressure Control Structure Sleeve Valve Procurement

Item 7-1

October 7, 2024

Item 7-1
Red Mountain PCS Sleeve Valve Procurement

Subject

Award a $589,957 procurement contract to Vogt Valves for one sleeve valve to be installed at the Red Mountain Pressure Control Structure (PCS) in the Skinner service area

Purpose

Improves operational reliability

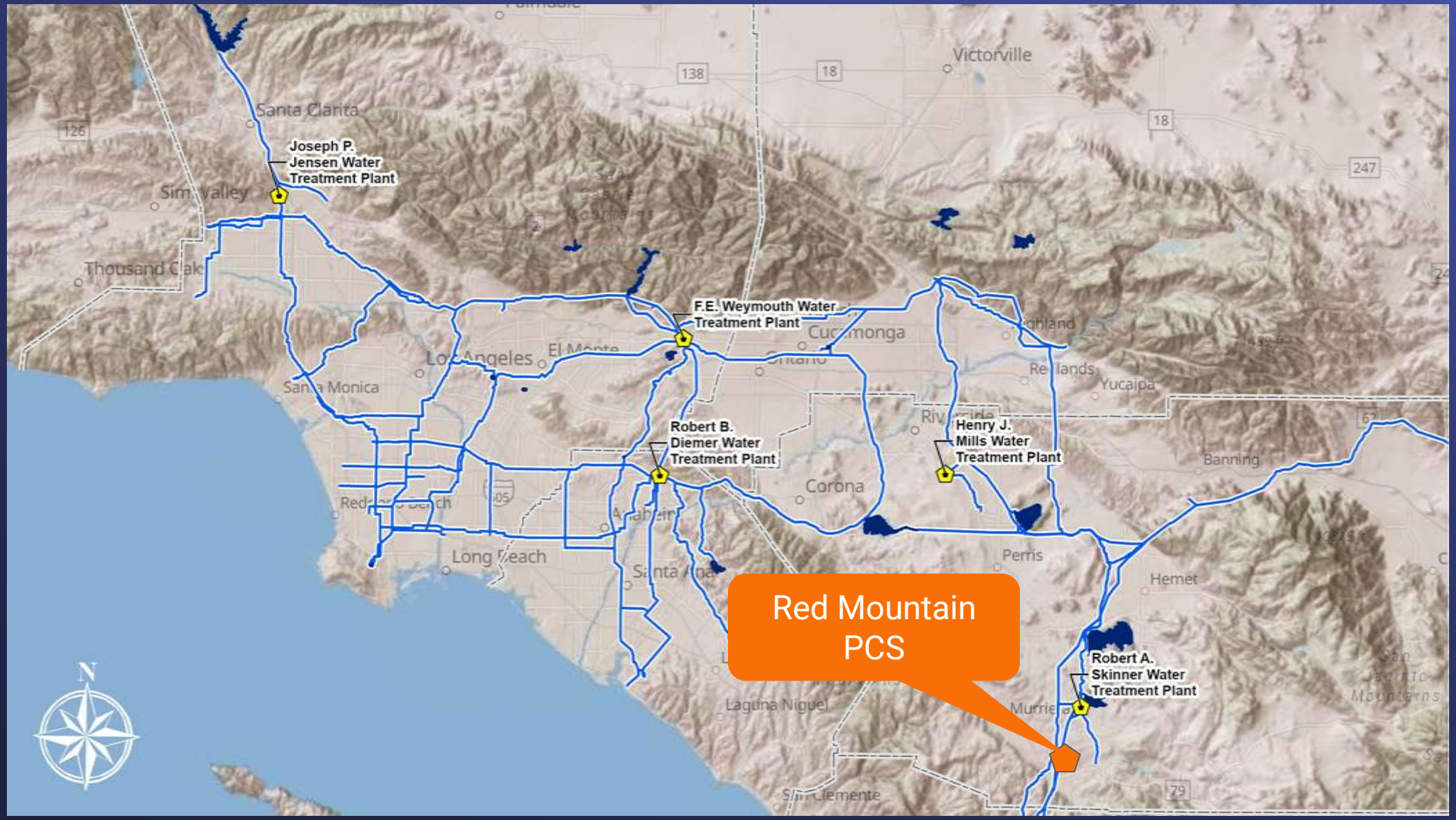
Recommendation and Fiscal Impact

Award a procurement contract for a large-diameter valve

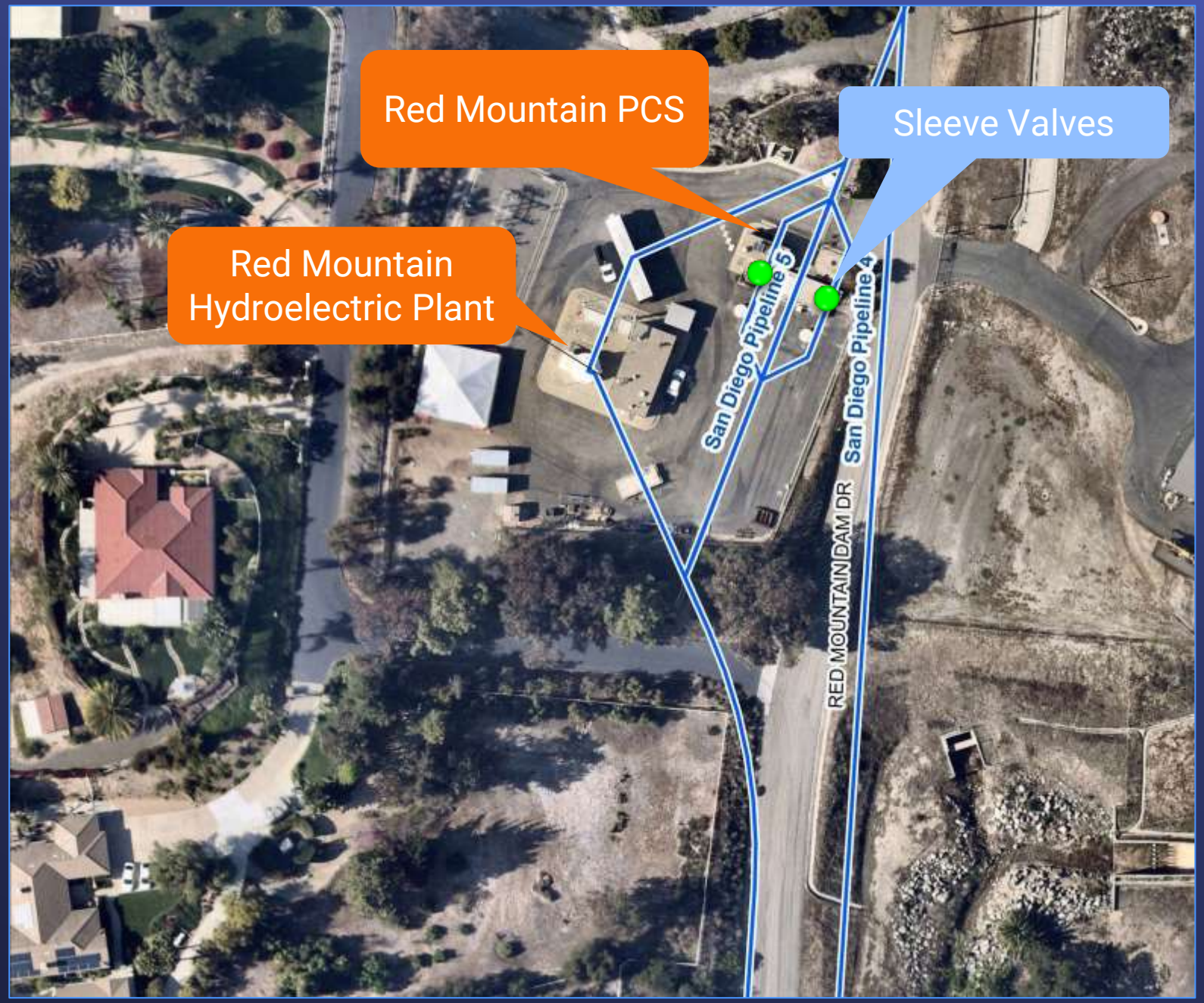
Fiscal Impact – $800,000

Budgeted

Location Map



Vicinity Map



Red Mountain PCS Sleeve Valve Procurement

Sleeve valve assembly w/ actuator

Background

- Red Mountain PCS
  - Includes two 66-inch diameter pipes with 42-inch diameter sleeve valves
    - Valves used to regulate pressure & flows in San Diego Pipeline No. 5 (SDPL5)
    - SDPL 5 supplies up to 500 cfs of untreated water to San Diego County Water Authority

Inspection

- Two sleeve valves with extensive wear & tear
  - First rehabilitated in 2022
  - Second structurally compromised
- Currently only one valve installed
  - No isolation valves
  - Bulkhead installed in place of damaged valve
  - Limits operation to about half capacity

Crack on the valve body

Liquid penetrant testing on valve body

Red Mountain PCS Sleeve Valve Procurement

Scope of Work

- Vendor
  - Fabricate & deliver 42-inch diameter sleeve valve & actuator, associated fittings & accessories
- Metropolitan
  - Factory fabrication inspection & functional testing
  - Submittals review
  - Off-load & store valve
  - Contract administration & project management

Red Mountain
PCS Sleeve
Valve
Procurement

Alternatives Considered

- Valve Refurbishment
  - Extensive damage to valve body
  - Repair not cost-effective
  - Life span less than 5 years
- Selected Alternative – New sleeve valve
  - Ensures a longer useful life
  - Improves reliability

Bid Results
Specifications No. 2098

Bids Received	July 11, 2024
No. of Bidders	3
Lowest Responsible Bidder	Vogt Valves
Low Bid*	$589,957
Range of Other Bids*	$727,792 to $3,344,948

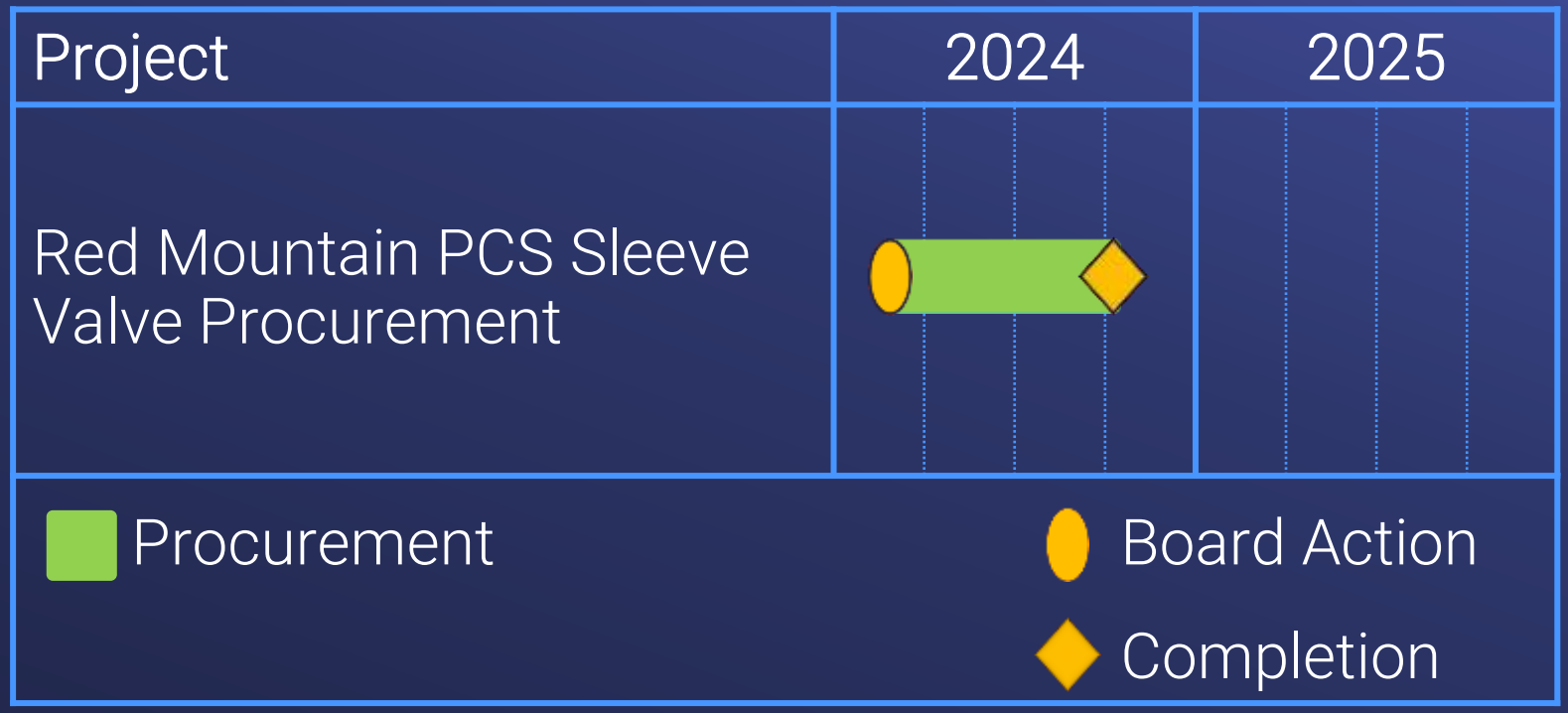
*No SBE (Small Business Enterprise) participation level set for procurement contract
Note: Includes sales & use taxes of 7.75 percent imposed by the state of California

Allocation of Funds

Red Mountain PCS Rehabilitation

Metropolitan Labor	
Owner Costs (Proj. Mgmt., Contract Admin.)	$ 67,000
Submittals Review, Tech. Support, Record Dwgs.	45,000
Fabrication Inspection & Support	69,300
Contract	
Vogt Valves	589,957
Remaining Budget	28,743
Total	$ 800,000

Project Schedule



Note: Valve to be installed during future shutdown

Board Options

- Option #1
  Award a $589,957 procurement contract to Vogt Valves to furnish one 42-inch diameter stainless steel sleeve valve for the Red Mountain Pressure Control Structure.
- Option #2
  Do not proceed with the project at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

- **Board of Directors**
  Engineering, Operations, and Technology Committee

10/8/2024 Board Meeting

7-2

Subject

Award a $1,833,650 construction contract to Power Engineering Construction Company for San Diego Canal Concrete Liner Rehabilitation; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

The San Diego Canal conveys untreated water to Lake Skinner and the Robert A. Skinner Water Treatment Plant (Skinner plant). During an inspection in early 2024, an area of the canal was observed to be in need of rehabilitation. The concrete liner has deteriorated and cracked at this location, and further deterioration could impact water deliveries to the Skinner plant and member agencies in Riverside and San Diego Counties. This action authorizes a $1,833,650 construction contract to Power Engineering Construction Company to rehabilitate approximately 11,000 square feet of San Diego Canal concrete liner during a planned 2024/2025 shutdown. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the Abstract of Bids, **Attachment 3** for the List of Subcontractors, and **Attachment 4** for the Location Map.

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1

Option #1

Award a $1,833,650 contract to Power Engineering Construction Company to rehabilitate the San Diego Canal at one location.

Fiscal Impact: Expenditure of $2,660,000 in capital funds. All costs will be incurred in the current biennium and have been previously authorized.
Business Analysis: This option will improve the operational reliability of the San Diego Canal and mitigate against the risk of unplanned outages.

Option #2

Do not proceed with the project at this time.
Fiscal Impact: None
Business Analysis: This option would forego the opportunity to increase the operational reliability of the San Diego Canal.

Alternatives Considered

An alternative to awarding this construction contract is to have Metropolitan forces complete the construction of the project. Although Metropolitan forces have completed this type of work before, this alternative is not recommended because the work will be conducted simultaneously with the annual Colorado River Aqueduct (CRA) shutdown. During the CRA shutdown, Metropolitan forces are focused on maintenance work, which must be planned prior to the shutdown and executed during the shutdown. The selected option will utilize a contractor

to perform the rehabilitation work at the canal to allow Metropolitan staff to focus on maintenance activities planned for the annual CRA shutdown.

Applicable Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Related Board Action(s)/Future Action(s)

By Minute Item 53598, dated April 9, 2024, the Board appropriated a total of $636.5 million for projects identified in the CIP for Fiscal Years 2024/2025 and 2025/2026.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is exempt from CEQA because the action consists of the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features involving negligible or no expansion of existing or former use and no possibility of significantly impacting the physical environment. In addition, the proposed action consists of construction and location of limited numbers of new, small facilities or structures; installation of small new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure. Finally, the proposed action consists of minor public or private alterations in the condition of land, water, and/or vegetation, which do not involve removal of healthy, mature, scenic trees except for forestry or agricultural purposes. (State CEQA Guidelines Sections 15301, 15303, and 15304).

CEQA determination for Option #2:

None required

Details and Background

The San Diego Canal is a concrete-lined open channel with a trapezoidal cross-section that conveys Colorado River water from the Casa Loma Canal or State Water Project supplies from the Lakeview pipeline to Lake Skinner. The San Diego Canal was constructed in the 1950s and is approximately 15 feet deep, 50 feet wide, and 16 miles long. The canal has a concrete lining made up of individual concrete panels that are approximately 12 feet by 11 feet and vary from four to eight inches in thickness.

The San Diego Canal is routinely shut down and inspected for signs of deterioration and to perform needed repairs. Replacement of deteriorated concrete panels typically occurs in upcoming shutdown seasons following the inspection. If more work is identified than can be completed during the shutdown, the work is prioritized and completed in consecutive years. Inspections in 2019 and 2021 identified degraded portions of the concrete liner, and staff prioritized locations for rehabilitation. Construction at three locations was completed in March 2024.

A degraded portion of the concrete liner has been identified approximately 200 feet downstream of the interconnection between the San Diego Canal and the Casa Loma Canal. At this site, a section of the canal approximately 145 feet in length was identified to have visible cracking along the invert and side panels, groundwater intrusion, panel bulging, and uplift. The rehabilitation work consists of demolition of the damaged liner panels, over-excavation of the subgrade and backfill with aggregate base, and installation of new concrete liner panels. Additionally, weep holes will be installed on invert panels to relieve pore pressure that pushes up on the bottom of the concrete liner when the canal is dewatered due to saturated subgrade soils.

The final design for rehabilitation is complete. Staff recommends proceeding with construction of the liner rehabilitation at this time to improve the reliability of the San Diego Canal and protect against liner failures, which could cause a disruption in service to the Skinner plant and member agencies.

San Diego Canal Concrete Liner Rehabilitation – Construction

The scope of the contract includes the removal and replacement of concrete panels totaling approximately 11,000 square feet on the San Diego Canal and the installation of 24 total weep holes in the invert of the canal. The existing subgrade soil at this location will be over-excavated to a depth of 18 inches and backfilled with aggregate base material. Steel reinforcing will be added to the new concrete panels. Metropolitan forces will perform shutdown work on the canal, including dewatering of the canal in preparation for the contractor's work. The work will be performed during a planned shutdown, which is scheduled to start in February 2025.

A total of $2,660,000 is required for this work. In addition to the amount of the construction contract described below, allocated funds for Metropolitan staff include $177,000 for submittal review and preparation of record drawings; $95,000 for Metropolitan force work, as described above; $229,000 for construction management and inspection; $228,000 for contract administration, environmental support, and project management; and $97,350 for the remaining budget. **Attachment 1** provides the allocation of the required funds. The total cost to complete the canal concrete liner rehabilitation, including the amount appropriated to date, and funds allocated for the work described in this action, is approximately $3 million.

Award of Construction Contract (Power Engineering Construction Company)

Specifications No. 2119 for San Diego Canal Concrete Liner Rehabilitation was advertised for bids on August 6, 2024. As shown in **Attachment 2**, seven bids were received and opened on September 10, 2024. The low bid from Power Engineering Construction Company, in the amount of $1,833,650, complies with the requirements of the specifications. The other bids ranged from $2,100,444 to $4,000,000, while the engineer's estimate for this project was $5,090,000. Staff investigated the cost difference between the engineer's estimate and the low bid and attributed the difference to a conservative engineer's estimate based on the short shutdown window and unknown groundwater levels. The contractor's competitive bid reflects a familiarity with the type of work required, as well as their ability to quickly mobilize and complete work expeditiously since they are currently working with Metropolitan on a contract at Diamond Valley Lake. For this contract, Metropolitan established a Small Business Enterprise participation level of at least 25 percent of the contract amount. Power Engineering Construction Company has agreed to meet this level of participation. The subcontractors for this contract are listed in **Attachment 3**.

Metropolitan staff will perform construction management and inspection. Engineering Services' performance metric target range for construction management and inspection of projects with construction greater than $3 million is 9 to 12 percent. For this project, the performance metric goal for inspection is 11.9 percent of the total construction cost. The total cost of construction for this project is $1,928,650, which includes the cost of the contract ($1,833,650) and Metropolitan force work ($95,000).

Project Milestone

April 2025 – Completion of construction

9/18/2024
Mai Hattar *Date*
Interim Chief Engineer
Engineering Services

9/23/2024
Deven Upadhyay *Date*
Interim General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Abstract of Bids

Attachment 3 – Subcontractors for Low Bidder

Attachment 4 – Location Map

Ref# Es12696256

Allocation of Funds for San Diego Canal Liner Rehabilitation

	Current Board Action (Oct. 2024)
Labor	
Studies & Investigations	$ -
Final Design	-
Owner Costs (Program mgmt., envir. monitoring)	228,000
Submittals Review & Record Drwgs.	177,000
Construction Inspection & Support	229,000
Metropolitan Force Construction	95,000
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Right-of-Way	-
Equipment Use	-
Contracts	
Power Engineering Construction Co.	1,833,650
Remaining Budget	97,350
Total	**$ 2,660,000**

The total amount expended to date is approximately $300,000. The total estimated cost to complete rehabilitation of the San Diego Canal, including the amount appropriated to date and funds allocated for the work described in this action, is approximately $3 million.

The Metropolitan Water District of Southern California

Abstract of Bids Received on September 10, 2024, at 2:00 P.M.

Specifications No. 2119
San Diego Canal Liner Rehabilitation

The work includes rehabilitation of approximately 11,000 square feet of concrete liner in the San Diego Canal.

Engineer's estimate: $5,090,000

Bidder and Location	Total	SBE $	SBE %	Met SBE[1]
Power Engineering Construction Company Alameda, CA	**$1,833,650**	**$459,457**	**25%**	**Yes**
Bosco Constructors Inc. Chatsworth, CA	$2,100,444	-	-	-
Houalla Enterprises Ltd. Newport Beach, CA	$2,339,749	-	-	-
Myers and Sons Construction LLC Sacramento, CA	$2,410,430	-	-	-
Leonida Builders Inc. Santa Clarita, CA	$2,488,500	-	-	-
Lucas Builder Inc. La Habra, CA	$2,768,853	-	-	-
J&L Constructors Inc. Huntington Beach, CA	$4,000,000	-	-	-

[1] Small Business Enterprise (SBE) participation level established at 25 percent for this contract.

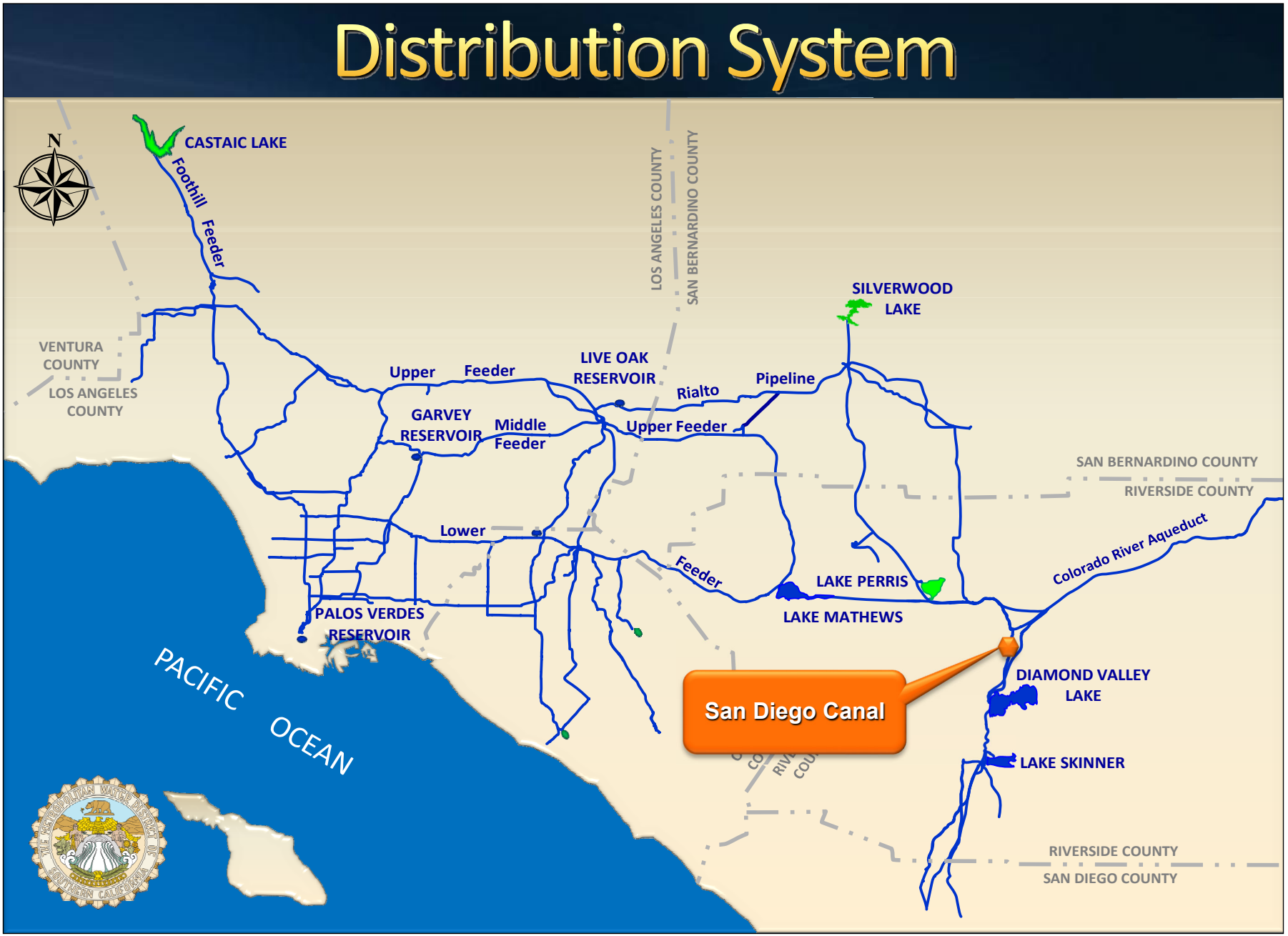
The Metropolitan Water District of Southern California

Subcontractors for Low Bidder

Specifications No. 2119
San Diego Canal Liner Rehabilitation

Low bidder: Power Engineering Construction Company

Subcontractor	Service Category; Specialty
GGG Demolition Inc. Orange, CA	Abatement of hazardous materials and demolition
Morning Star Concrete Menifee, CA	Concrete
Quality Rebar Inc. San Jacinto, CA	Furnish, fabricate and place reinforcing bars and welded wire mesh
Trinity Equipment Colton, CA	Equipment rental
Dirty Deedz Dumping Los Angeles, CA	Trucking
Genesis Dispatch Inc. Los Angeles, CA	Trucking


Distribution System
N
CASTAIC LAKE
Foothill Feeder
VENTURA COUNTY
LOS ANGELES COUNTY
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SILVERWOOD LAKE
Upper Feeder
LIVE OAK RESERVOIR
Rialto Pipeline
GARVEY RESERVOIR
Middle Feeder
Upper Feeder
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Lower Feeder
Colorado River Aqueduct
LAKE PERRIS
LAKE MATHEWS
PALOS VERDES RESERVOIR
PACIFIC OCEAN
San Diego Canal
DIAMOND VALLEY LAKE
LAKE SKINNER
RIVERSIDE COUNTY
SAN DIEGO COUNTY

Engineering, Operations, & Technology Committee

San Diego Canal Concrete Rehabilitation

Item 7-2

October 7, 2024

Item 7-2
San Diego Canal Concrete Rehabilitation

Subject

Award a $1,833,650 construction contract to Power Engineering Construction Company for San Diego Canal Concrete Liner Rehabilitation at one location

Purpose

Improves the operational reliability of the canal and mitigates against the risk of unplanned outages

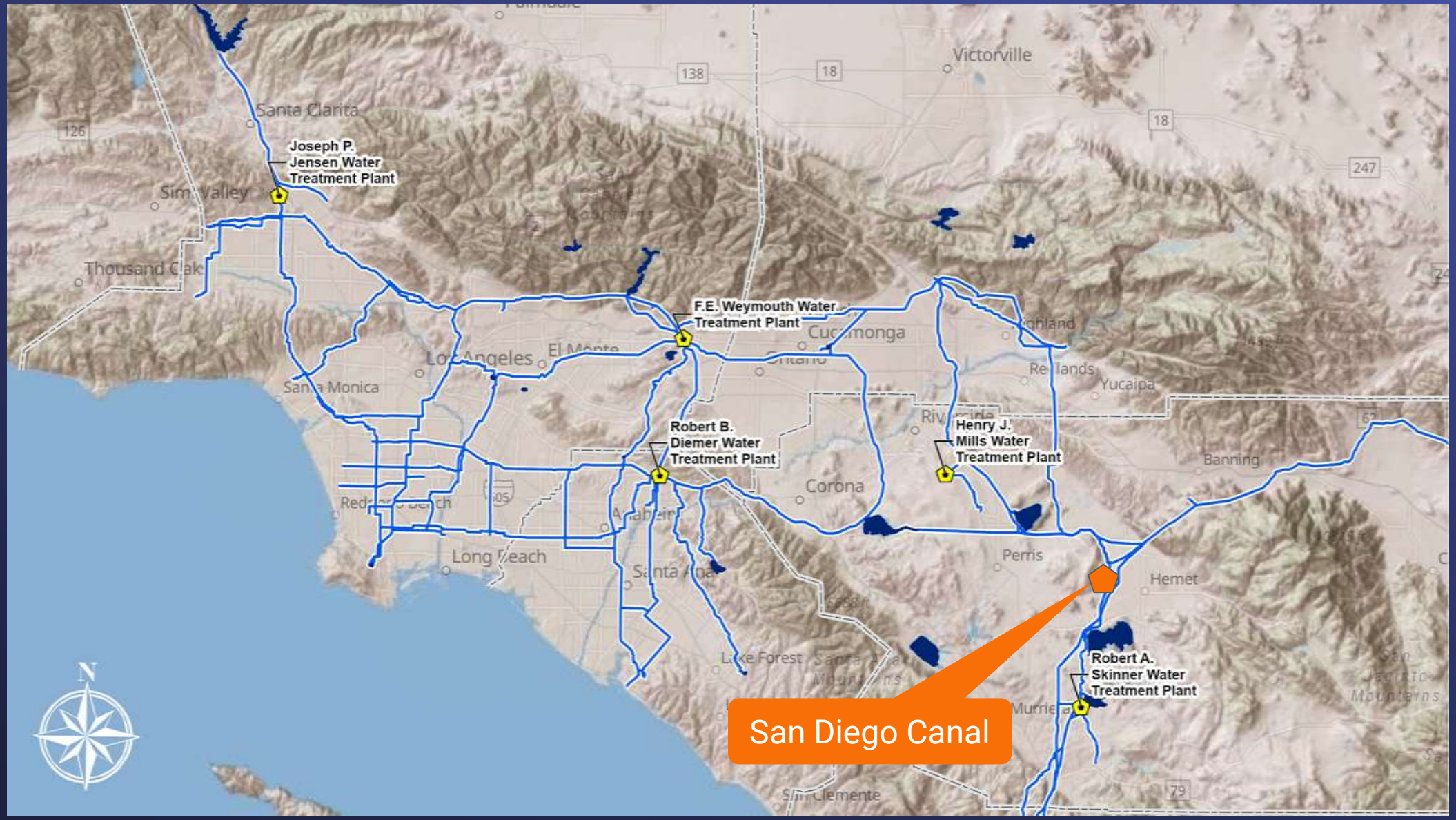
Recommendation and Fiscal Impact

Award a construction contract

Fiscal Impact – $2,660,000

Budgeted

Location Map



Background

- San Diego Canal constructed in 1950s
  - Trapezoidal cross section
    - 15 feet deep, 50 feet wide, & 16 miles long
  - Concrete lining with individual panels
    - 12 feet by 11 feet
    - 4 to 8 inches thick

San Diego Canal

Background

- Inspections identify & prioritize rehabilitation locations
- 2024 inspection identified site requiring rehabilitation
  - Approx. 200 feet downstream of Casa Loma Canal interconnection
  - Visible cracking, groundwater intrusion, panel bulging & uplift

Damaged concrete liner

Alternatives Considered

- Identified Alternative - Construction by Metropolitan forces
  - CRA shutdown occurs simultaneously with San Diego Canal shutdown
  - Metropolitan forces not available due to CRA maintenance activities
- Selected Alternative – Contractor to complete construction
  - Allows Metropolitan staff to focus on CRA shutdown work

March 2024 Construction

Scope of Work

- Contractor
  - Demolition of damaged liner panels
  - Over-excavation & aggregate base backfill
  - Installation of new reinforced concrete liner panels totaling approximately 11,000 sf
- Metropolitan
  - Canal dewatering
  - Construction management
  - Contract admin., technical support, & project management

March 2024 Construction

Bid Results
Specifications No. 2119

Bids Received	September 10, 2024
No. of Bidders	7
Lowest Responsible Bidder	Power Engineering Construction Company
Low Bid	$1,833,650
Range of Other Bids	$2,100,444 to $4,000,000
Engineer's Estimate	$5,090,000
SBE Participation*	25%

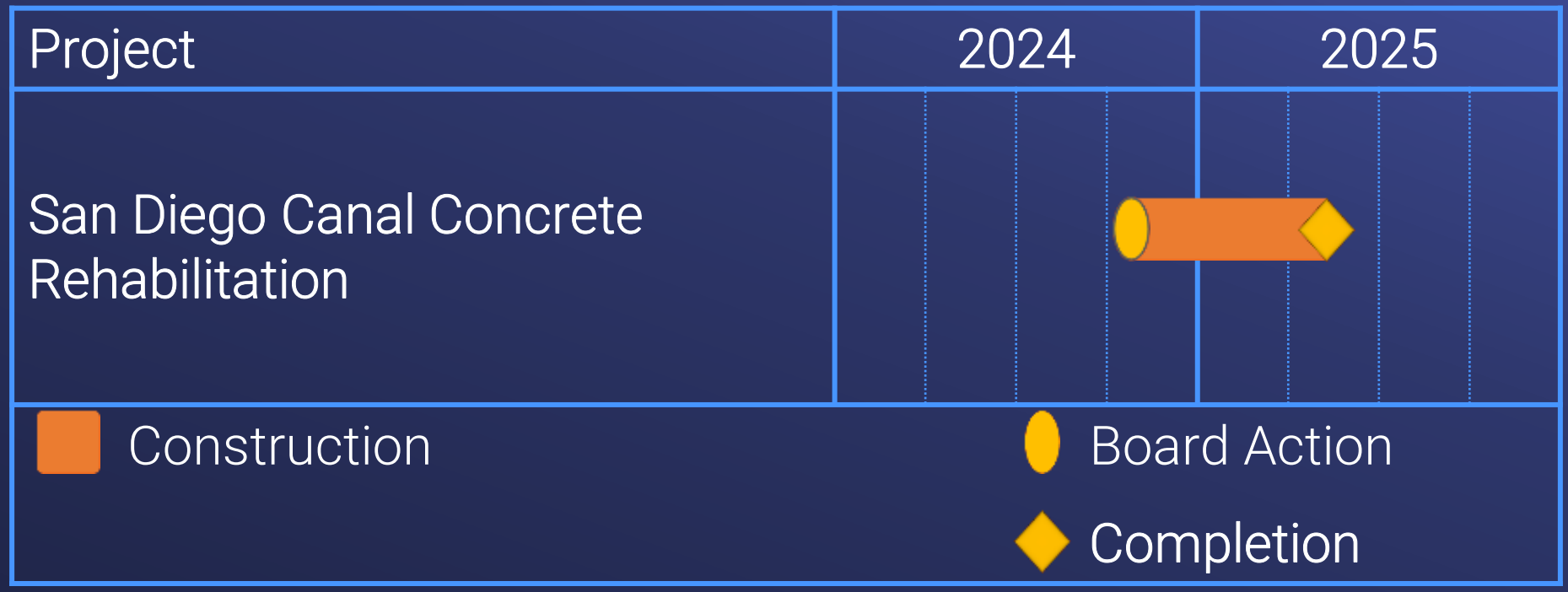
*SBE (Small Business Enterprise) participation level set at 25%

Allocation of Funds

San Diego Canal Concrete Rehabilitation

Metropolitan Labor		
Owner Costs (Proj. Mgmt., Contract Admin., Envir. Support)	$	228,000
Construction Inspection & Support		229,000
Force Construction		95,000
Submittals Review, Tech. Support, Record Dwgs.		177,000
Contracts		
Power Engineering Construction Company		1,833,650
Remaining Budget		97,350
Total	$	2,660,000

Project Schedule



Board Options

- Option #1

  Award a $1,833,650 contract to Power Engineering Construction Company to rehabilitate the San Diego Canal at one location.
- Option #2

  Do not proceed with the project at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Board Action

- **Board of Directors**
  Engineering, Operations, and Technology Committee

10/8/2024 Board Meeting

7-3

Subject

Award a $448,000 contract to Heed Engineering to provide construction materials to support the construction of the helicopter hydrant facility at the Robert B. Diemer Water Treatment Plant; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

In November 2023, Metropolitan and the Yorba Linda Water District (YLWD) signed a memorandum of understanding (MOU) outlining the commitment to jointly fund and construct a helicopter hydrant facility at the Robert B. Diemer Water Treatment Plant (Diemer plant). The project will be partially funded by a $500,000 grant previously awarded by the United States Forest Service (USFS) to YLWD to construct the facility. Metropolitan is now a subrecipient of the grant and the grant funds will be used to defray Metropolitan's cost for the project.

A helicopter hydrant facility consists of an open-top tank and support infrastructure that allows helicopters to quickly collect water to fight nearby fires. In accordance with the MOU, Metropolitan will perform the design, procurement, and construction activities related to the facility. To date, design has been completed, and fabrication of the helicopter hydrant tank is underway; the tank is scheduled to be delivered in January 2025. Staff recommends proceeding with a contract to furnish construction materials and install reinforcing steel to expedite site preparation for the tank foundation and the helicopter pad.

This action awards a $448,000 contract to Heed Engineering to provide construction materials and install reinforcing steel to support construction of the helicopter hydrant facility at the Diemer plant. See **Attachment 1** for the allocation of funds, **Attachment 2** for the Abstract of Bids, and **Attachment 3** for the Location Map.

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1

Option #1

Award a $448,000 contract to Heed Engineering to provide construction materials and install reinforcing steel to support the construction of the helicopter hydrant facility at the Diemer plant.

Fiscal Impact: Expenditure of $500,000 in capital funds. All costs will be incurred in the current biennium and have been previously authorized.

Business Analysis: This option will expedite construction of the Diemer helicopter hydrant facility.

Option #2

Do not award the contract at this time.

Fiscal Impact: Unknown

Business Analysis: Under this option, staff would not procure construction materials and instead prepare a construction contract for the entire project. This option would delay the construction of the hydrant facility

beyond the timeline to qualify for the use of grant funds and implementation of a critical fire protection facility.

Alternatives Considered

During design, staff considered the feasibility of completing all the construction work for the Diemer helicopter hydrant facility under a construction contract. In accordance with the terms of the MOU, the project will be partially funded by a $500,000 grant previously awarded by the USFS to YLWD to construct a new helicopter hydrant in the area. The timeframe for preparation of construction documents, bidding, and performing the work by a contractor would extend the project completion beyond the allowable time of the USFS grant, whose finish date is March 31, 2025. The current approach is to proceed with site preparation while the tank is being fabricated. Then Metropolitan forces will install the tank. This allows staff to complete the project within the timeline established by the USFS to access the grant funding and expedites the construction of an important fire protection facility.

Applicable Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Related Board Action(s)/Future Action(s)

By Minute Item 53248, dated May 9, 2023, the Board amended the Capital Investment Plan for Fiscal Years 2022/23 and 2023/24 to include the Diemer Helicopter Hydrant Facility project.

By Minute Item 53598, dated April 8, 2024, the Board appropriated a total of $630 million for projects identified in the Capital Investment Plan for Fiscal Years 2024/25 and 2025/26.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is exempt from CEQA because it involves the operation and minor alteration of existing public facilities and topographical features, involving negligible or no expansion of existing or former use and no possibility of significantly impacting the physical environment. (State CEQA Guidelines Section 15301.) Additionally, the proposed action is exempt from CEQA because it consists of construction and location of limited numbers of new, small facilities or structures; installation of small new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure. (State CEQA Guidelines Section 15303.)

CEQA determination for Option #2:

None required

Details and Background

Background

The Diemer plant was placed into service in 1963 with an initial capacity of 200 million gallons per day (mgd) and was expanded in 1969 to its present capacity of 520 mgd. It delivers a blend of waters from the Colorado River Aqueduct and State Water Project to Metropolitan's Central Pool and to an exclusive service area in Orange County. The Diemer plant is located within the City of Yorba Linda, and is immediately adjacent to the Chino Hills Start Park, which features a hilly, steep terrain populated by dense trees and vegetation.

In November 2008, the Freeway Complex fire burned westward from Corona past the Diemer plant. Slopes on the east, north, and west sides of the plant were burned, which prompted the Orange County Fire Authority (OCFA) to classify the Diemer site as a high fire hazard risk area. Following this event, Metropolitan retrofitted the Diemer plant's control room with new fire protection measures, including the addition of an independent high-

efficiency heating, ventilating, and air conditioning system to enhance smoke control in the event of a local fire occurrence. The new system allowed staff to continue plant operations during the October 2020 wildfires, which occurred within one mile of the Diemer site.

In recent years, Metropolitan staff continued to assess potential initiatives to enhance safety and reduce the risk of damage or disruption to plant operations in the event of a fire. In May 2023, Metropolitan's Board authorized the implementation of a helicopter hydrant facility at the Diemer plant site, which includes an engineered water tank system to allow helicopters to quickly collect water to fight nearby fires.

In November 2023, Metropolitan and YLWD signed an MOU to jointly fund, design, and construct the Diemer helicopter hydrant facility. In accordance with the terms of the MOU, Metropolitan will perform the design, procurement, and construction activities, and YLWD will provide up to $500,000 in grant funding previously granted by the USFS to construct a new helicopter hydrant in the area. YLWD will also provide support during design and construction and coordination with the California Department of Forestry and Fire Protection and OCFA to ensure design and operational conditions are acceptable to both agencies. Metropolitan will own and operate the facility after construction is completed. In March 2024, the USFS officially included Metropolitan as a subrecipient of the grant.

To date, the design of the Diemer helicopter hydrant facility has been completed and the procurement contract for the helicopter hydrant tank was awarded under the General Manager's authority. The tank has been custom designed based on its planned operating conditions and control requirements. Manufacture of the tank is underway and is anticipated to be completed in January 2025. Staff recommends moving forward with a contract to furnish materials and install steel reinforcement so that site preparation work, including trenching, grading, and construction of the tank foundation and the helicopter landing pad, can be completed in anticipation of the planned delivery of the tank.

Diemer Helicopter Hydrant Facility Project – Procurement

Planned work by Metropolitan forces for the helicopter hydrant includes the addition of a new 15-foot by 8-foot open-top water holding tank, including piping connections to source water, valves, an auxiliary hydrant, electric power, and data connections; integration into the SCADA control system; trenching for utilities; equipment concrete platform and a concrete helicopter landing pad.

The scope of the procurement contract consists of furnishing sand, ballast rock, aggregate base, slurry, ready-mix concrete, and reinforcing steel, and installing the reinforcing steel. Metropolitan will perform site preparation for placement of reinforcing steel by the vendor, and placement of vendor-furnished aggregate materials.

A total of $500,000 is required for this work. In addition to the amount of the contract subject of this action, allocated funds include $15,000 for construction inspection of the steel reinforcement installation; $25,000 for submittal review, contract administration and project management; and $12,000 for remaining budget. **Attachment 1** provides the allocation of the required funds.

Award of Procurement Contract (Heed Engineering)

Specifications No. 2142 for furnishing aggregate base materials and ready-mix concrete and furnishing and installing reinforcing steel for the Diemer plant's helicopter hydrant facility was advertised for bids on August 15, 2024. As shown in **Attachment 2**, four bids were received and opened on August 29, 2024. The apparent low bid was deemed to be non-responsive due to the submittal of an incomplete bid and lack of the required California contractor's license. The lowest responsive bid from Heed Engineering in the amount of $448,000 complies with the requirements of the specification. The other two bids were $543,400 and $1,137,000, while the engineer's estimate was $610,000. For this contract, Metropolitan established a Small Business Enterprise (SBE) participation level of at least 25 percent of the bid amount. Heed Engineering is a certified SBE firm and thus achieves 100 percent SBE participation.

This action awards a $448,000 contract to Heed Engineering to provide construction materials and install reinforcing steel to support construction of a helicopter hydrant facility at the Diemer plant.

Project Milestone

November 2024 – Delivery of construction materials

9/19/2024
Mai M. Hattar *Date*
Interim Chief Engineer
Engineering Services

9/23/2024
Deven Upadhyay *Date*
Interim General Manager

Attachment 1 – Allocation of Funds

Attachment 2 – Abstract of Bids

Attachment 3 – Location Map

Ref# es12701163

Allocation of Funds for Diemer Helicopter Hydrant Facility

	Current Board Action (Oct. 2024)
Labor	
Studies & Investigations	$ -
Final Design	-
Owner Costs (Program mgmt., envir. monitoring)	25,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	15,000
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
Right-of-Way	-
Equipment Use	-
Contracts	-
Heed Engineering	448,000
Remaining Budget	12,000
Total	**$ 500,000**

The total amount expended to date for the Diemer plant's helicopter hydrant facility is approximately $530,000. The total estimated cost to complete the project, including the amount appropriated to date, and funds allocated for the work described in this action is $1.5 million, which includes $500,000 in USFS grant funds.

The Metropolitan Water District of Southern California

Abstract of Bids Received on August 29, 2024, at 2:00 P.M.

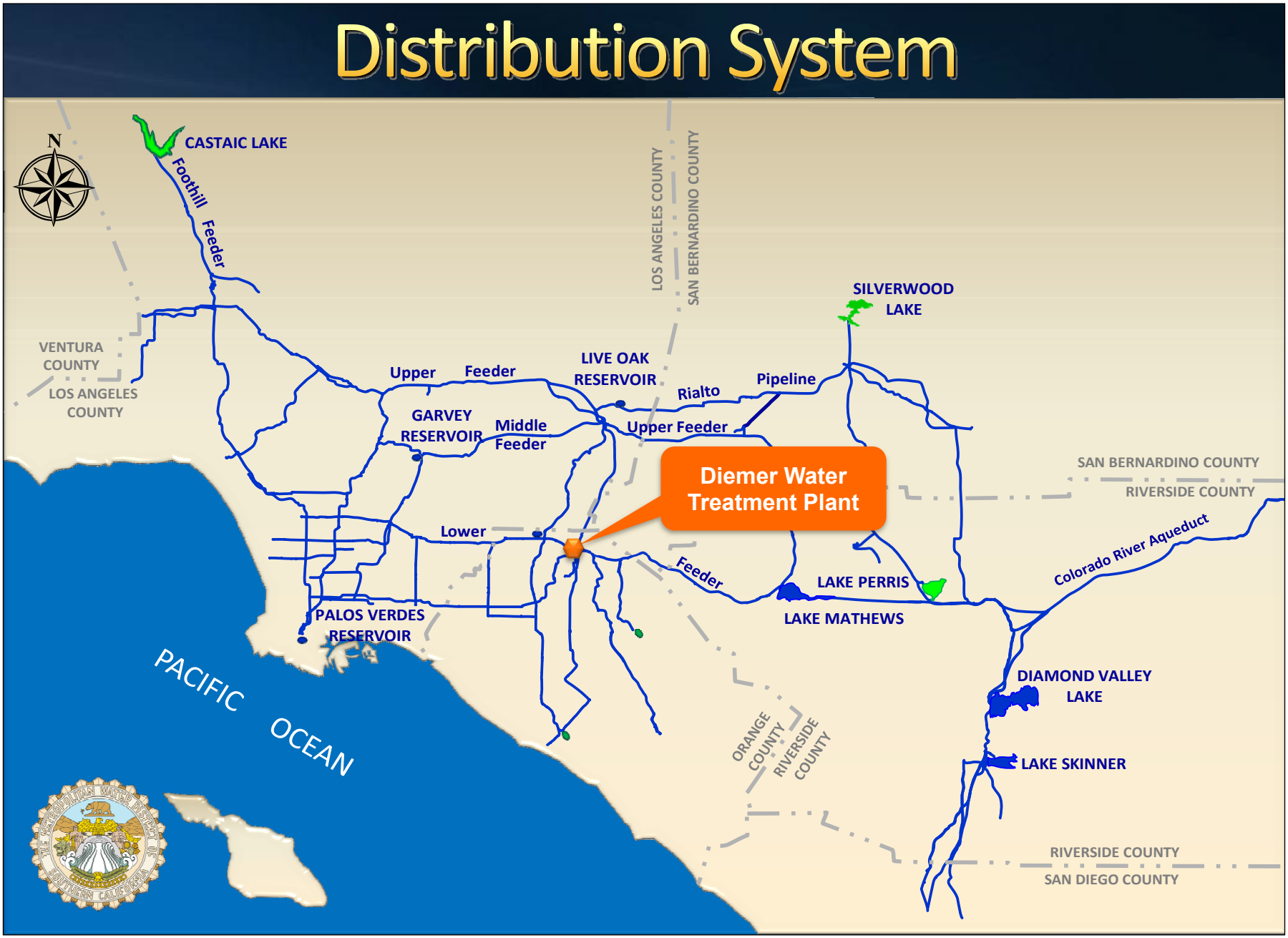
Specifications No. 2142
Diemer Helicopter Hydrant Construction Materials and Rebar Installation

The work includes furnishing aggregate base materials, ready-mix concrete, and reinforcing steel; and installing reinforcing steel at the Robert B. Diemer Water Treatment Plant.

Engineer's estimate: $610,000

Bidder and Location	Total	SBE $	SBE %	Met SBE[1]
Co Brothers LLC[2] Riverside, CA	$398,000	-	-	-
Heed Engineering Foothill Ranch, CA	**$448,000**	**$448,000**	**100%**	**Yes**
Penta Inc. San Dimas, CA	$543,400	-	-	-
Minako America Corporation Gardena, CA	$1,137,000	-	-	-

[1] Small Business Enterprise (SBE) participation level established at 25% for this contract.
[2] Contract bid was incomplete and contractor did not have the required California contractor's license


Distribution System
N
CASTAIC LAKE
Foothill Feeder
VENTURA COUNTY
LOS ANGELES COUNTY
LOS ANGELES COUNTY
SAN BERNARDINO COUNTY
SILVERWOOD LAKE
Upper Feeder
LIVE OAK RESERVOIR
Rialto Pipeline
GARVEY RESERVOIR
Middle Feeder
Upper Feeder
Diemer Water Treatment Plant
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
Lower Feeder
Colorado River Aqueduct
LAKE PERRIS
LAKE MATHEWS
PALOS VERDES RESERVOIR
PACIFIC OCEAN
DIAMOND VALLEY LAKE
ORANGE COUNTY
RIVERSIDE COUNTY
LAKE SKINNER
RIVERSIDE COUNTY
SAN DIEGO COUNTY

Engineering, Operations, & Technology Committee

Diemer Helicopter Hydrant Facility

Item 7-3

October 7, 2024

Item 7-3
Diemer Helicopter Hydrant Facility

Subject

Award a $448,000 contract to Heed Engineering to provide construction materials to support the construction of the helicopter hydrant facility at the Robert B. Diemer Water Treatment Plant

Purpose

Expedites site preparation for Diemer helicopter hydrant facility

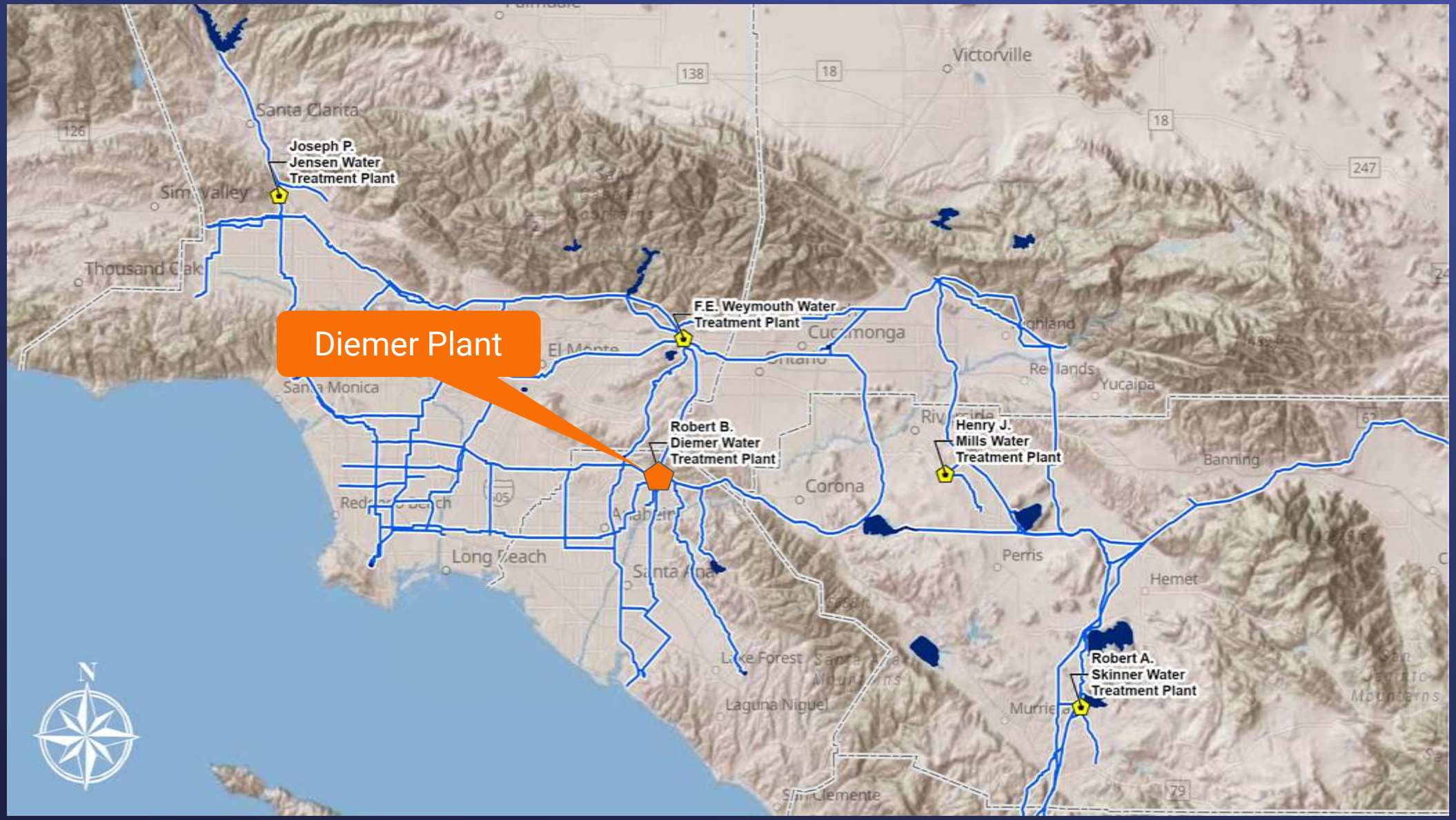
Recommendation

Award a contract

Budgeted

Partially funded by a $500,000 grant from U.S. Forest Service

Location Map



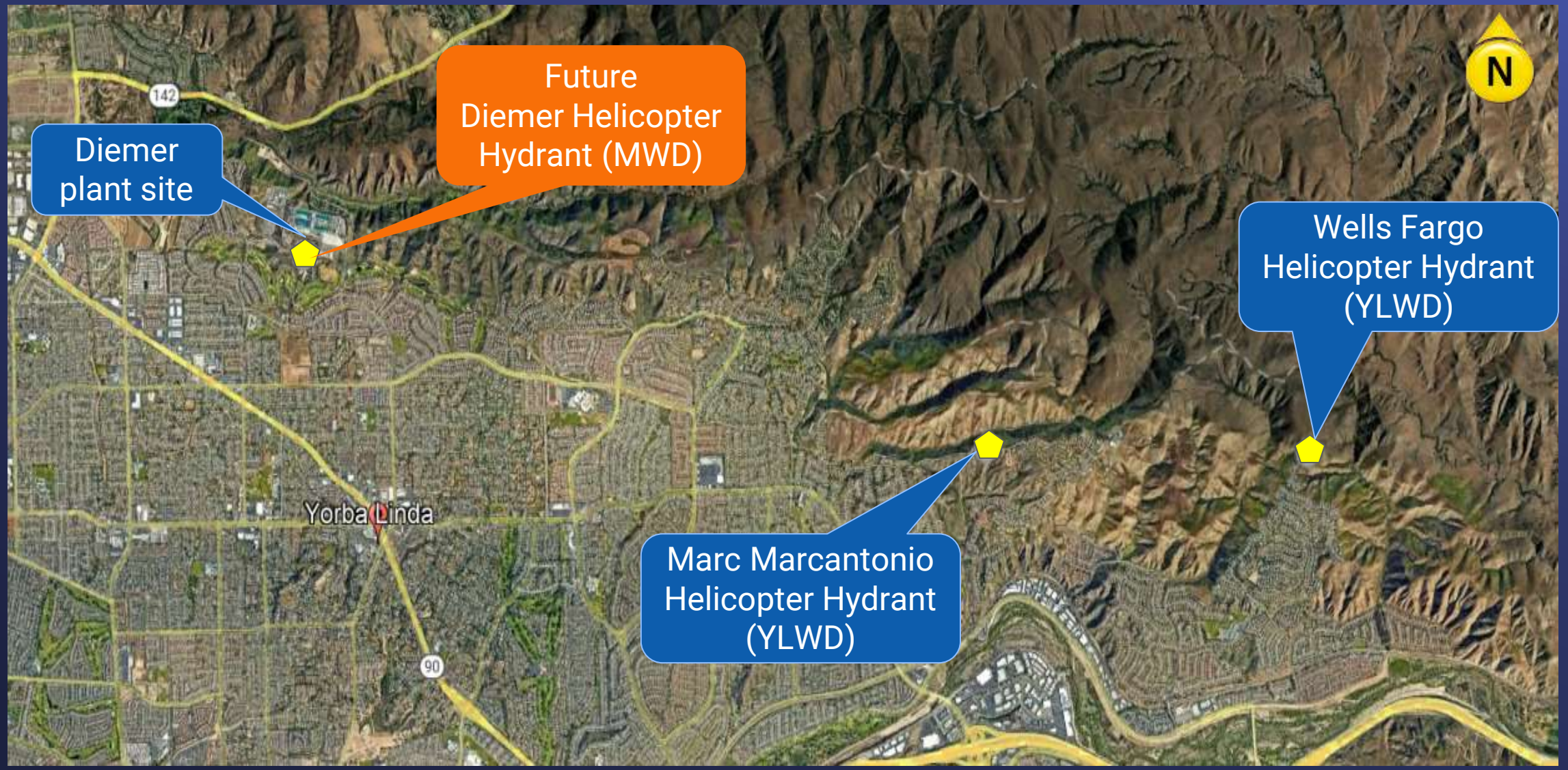
Background – Wildfire History

- 2008 Freeway Complex Fire burned near the east, north & west side slopes of the plant
  - Diemer classified as high fire risk area by Orange County Fire Department
  - Metropolitan's response:
    - Retrofitted Diemer plant's control room
    - Enhanced coordination with local first-responders & Orange County Emergency Management agencies
    - Assessed new initiatives to enhance safety & fire control
- Yorba Linda Water District (YLWD) constructed two helicopter hydrants in fire-prone locations

2008 Freeway Complex Fire

2022 Diemer Full-Scale Exercise

Background – Helicopter Hydrant Locations



Diemer Helicopter Hydrant Facility

Open-Top Water Tank During Operation

Background

- Sept 2022 – U.S. Forest Service (USFS) awarded a $500K grant to YLWD for construction of a new helicopter hydrant
- May 2023 – Board action authorized the Diemer helicopter hydrant facility project
- Nov 2023 – YLWD & Metropolitan signed MOU to jointly fund & construct a helicopter hydrant within the Diemer plant site
- March 2024 – MWD subrecipient of USFS grant

Diemer Helicopter Hydrant Facility

Alternatives Considered

- Complete all construction work for the entire helicopter hydrant facility under a single construction contract
  - Extends schedule beyond USFS grant deadline
- Selected Alternative – Award a contract to provide construction materials
  - Metropolitan forces complete construction
  - Expedites construction
  - Utilizes USFS grant funding within current deadlines

Diemer Helicopter Hydrant Facility

Project Scope of Work

- Contractor
  - Furnish aggregate base materials & concrete
  - Furnish & install reinforcing steel
- Metropolitan
  - Prepare site & place concrete foundation for hydrant tank
  - Procure remaining construction materials
  - Install helicopter hydrant tank
- YLWD
  - Provide grant funding to Metropolitan
  - Coordinate with USFS, Cal Fire & OCFA

Bid Results
Specifications No. 2142

Bids Received	August 29, 2024
No. of Bidders	4
Lowest Responsible Bidder	Heed Engineering
Lowest Qualified Bid	$448,000
Range of Other Bids	$543,400 to $1,137,000
Engineer's Estimate	$610,000
SBE Participation*	100%

*SBE (Small Business Enterprise) participation level set at 25%

Allocation of Funds

Diemer Helicopter Hydrant Facility

Metropolitan Labor		
Owner Costs	$	25,000
Construction Inspection & Support		15,000
Contracts		
Heed Engineering		448,000
Remaining Budget		12,000
Total	$	500,000

Project Schedule

Board Options

- Option #1

  Award a $448,000 contract to Heed Engineering to provide construction materials and install reinforcing steel to support the construction of the helicopter hydrant facility at the Diemer plant.

- Option #2

  Do not award the contract at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

- **Board of Directors**
  Engineering, Operations, and Technology Committee

10/8/2024 Board Meeting

8-2

Subject

Authorize on-call agreements with Black & Veatch Corporation, Burns & McDonnell Western Enterprises Inc., HDR Inc., and Stantec Consulting Services Inc., in amounts not to exceed $3 million each, for a maximum of three years, for engineering services to support zero-emission vehicle infrastructure upgrades at Metropolitan facilities; the General Manager has determined that the proposed action is exempt or otherwise not subject to CEQA

Executive Summary

In May 2022, Metropolitan adopted a Climate Action Plan (CAP) to reduce Metropolitan's carbon footprint in the face of climate change and to offset greenhouse gas (GHG) emissions from future Metropolitan projects. Consistent with the CAP, Metropolitan has begun transitioning its vehicle fleet to a zero-emissions vehicle (ZEV) fleet to reduce carbon emissions. Recent regulations adopted by the California Air Resource Board's (CARB) Advanced Clean Fleets (ACF) requires that 50 percent of Metropolitan's new medium and heavy-duty vehicle purchases be ZEV after January 1, 2024, accelerating the need to procure and install infrastructure that supports the deployment of the ZEV fleet.

This action authorizes three-year on-call professional services agreements with Black & Veatch Corporation, Burns & McDonnell Western Enterprises Inc., HDR Inc., and Stantec Consulting Services Inc., in an amount not to exceed $3 million each for the design and support services for ZEV-related infrastructure upgrades at various Metropolitan field sites. See **Attachment 1** for the List of Subconsultants.

Proposed Action(s)/Recommendation(s) and Options

Staff Recommendation: Option #1

Option #1

Authorize on-call agreements with Black & Veatch Corporation, Burns & McDonnell Western Enterprises Inc., HDR Inc., and Stantec Consulting Services Inc., in an amount not to exceed $3 million each, for a maximum period of three years, to provide design and support services related to the ZEV infrastructure upgrades at Metropolitan facilities.

Fiscal Impact: Expenditure of $12 million in capital funds. Approximately $6 million will be incurred in the current biennium and has been previously authorized. The remaining funds from this action will be accounted for and appropriated under the next biennial budget.

Business Analysis: Contracting with multiple firms provides flexibility and efficient means to complete design of the required infrastructure upgrades for ZEV in a timely manner, meet Metropolitan's CAP goals, and comply with all local, state, and federal regulations.

Option #2

Do not authorize the consulting agreements at this time.

Fiscal Impact: None

Business Analysis: Under this option, staff will continue design efforts for the infrastructure upgrades required for ZEV without support of specialized consultants, which will substantially delay the implementation of the upgrades, fleet transition, and compliance with state mandates.

Alternatives Considered

Metropolitan's staffing strategy for utilizing consultants and in-house Metropolitan staff has been: (1) to assess current work assignments for in-house staff to determine the potential availability of staff to conduct this work; and (2) utilize consultants for long-term rehabilitation projects when resource needs exceed available in-house staffing or require specialized technical expertise.

After assessing the current workload for in-house staff, required expertise, and the relative priority of this project, staff has determined that insufficient electrical engineering staff is available to ensure completion of the work by state-mandated timelines. Staff recommends utilizing a hybrid effort of consultants and Metropolitan staff for performance of this work. The consultants will perform the majority of the design work while Metropolitan staff will provide needed site support and perform control system design, project reviews, and oversight. This approach will allow for the completion of not only the ZEV infrastructure upgrades at various field sites simultaneously, but also other budgeted capital projects within their current schedules and ensure the work is conducted efficiently. Under these agreements, work assignments will be issued to consultants through task orders on a facility-by-facility basis.

Applicable Policy

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Related Board Action(s)/Future Action(s)

By Minute Item 52823, dated May 10, 2022, the Board adopted the CAP.

By Minute Item 53598, dated April 9, 2024, the Board appropriated a total of $636.5 million for projects identified in the Capital Investment Plan for Fiscal Years 2024/25 and 2025/26.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is not defined as a project under CEQA because it will not result in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. (State CEQA Guidelines Section 15378(a)).

CEQA determination for Option #2:

Not applicable

Details and Background

Background

Metropolitan owns and operates pump stations along the Colorado River Aqueduct, five regional water treatment plants, and a conveyance and distribution system that delivers water throughout Southern California. To operate these facilities and continue providing water to its customers, Metropolitan currently operates a fossil-fuel-based fleet of vehicles utilized by operators, technicians, and other Metropolitan staff for operations and maintenance activities. The fleet includes passenger; light-, medium- and heavy-duty on-road vehicles; off-road construction vehicles/equipment; forklifts; and rideshare vehicles.

In May 2022, Metropolitan adopted a CAP, which identifies ZEV fleet transition as a key measure to reduce GHG emissions. The ACF regulation adopted by the CARB, which became effective on January 1, 2024, has accelerated Metropolitan's ZEV transition. The ACF regulation mandates that 50 percent of all new fleet purchases of medium and heavy-duty vehicles, defined as vehicles weighing more than 8,500 pounds, occurring after January 1, 2024, be ZEVs. However, after January 1, 2027, the regulations require 100 percent of new on-road medium- and heavy-duty fleet vehicle purchases to be ZEVs.

Installing charging infrastructure is a key component of Metropolitan's ZEV transition and is required to support the ZEV fleet. Over 18 transportation hubs within the Metropolitan's facilities have been identified as potential charging locations, including water treatment plants and other field sites within Metropolitan's conveyance and distribution system. The fleet assets at these locations include approximately 380 light-duty vehicles, 350 medium-duty vehicles, 180 heavy-duty vehicles, and 70 construction vehicles. The provision of ZEV infrastructure upgrades at Metropolitan facilities will require engineering services beyond what can be supported by in-house staff or current engineering services on-call agreements over the next several fiscal years to meet the regulation timeline.

Four specialized on-call engineering service agreements are recommended for authorization to support the design of the ZEV infrastructure upgrades. On-call agreements are multi-year with not-to-exceed amounts and provide a high degree of flexibility to respond to schedule or scope adjustments, allow quicker delivery times, and lower administrative costs for both Metropolitan and the consultants. For these types of agreements, consultants are assigned work only after specific tasks are identified by staff, up to the not-to-exceed amounts of the contracts.

Zero Emission Vehicle Infrastructure Upgrades – Design

Planned upgrades include the procurement and installation of multiple new substations, addition of underground infrastructure to distribute power to the charging stations, and implementation of backup generation systems and utility service improvements to support zero-emission fleet vehicles.

Planned activities for the design of the ZEV infrastructure upgrades include: (1) detailed field inspections; (2) evaluation of industry standards and characteristics of recommended assemblies and equipment; (3) development of design criteria; (4) conceptual, preliminary, and final design activities and (5) development of construction cost estimates and schedules for the upgraded infrastructure at each site. These activities will be performed by four specialized on-call engineering service agreements, as discussed below. Metropolitan staff will perform overall project management, conduct surveys, compile record drawings, provide technical oversight, and review the consultant's work.

The total cost of districtwide ZEV infrastructure upgrades at Metropolitan facilities will be evaluated during the performance of the activities described above.

Engineering Support for ZEV Infrastructure Upgrades (Black & Veatch Corporation, Burns & McDonnell Western Enterprises Inc., HDR Inc., and Stantec Consulting Services Inc.) – New Agreements

Request for Qualifications (RFQ) 1368 was issued in March 2024 to establish a pool of qualified firms to provide engineering services related to the zero-emission vehicle infrastructure upgrades at Metropolitan's facilities. The RFQ covered services in three categories: ZEV infrastructure assessment and improvements, hydrogen fueling systems, and enterprise visualization analytics. The consultants submitted Statements of Qualifications (SOQs) for one or more of these three categories. Five firms submitted SOQs, which were then evaluated based on the expertise of the firm's staff, technical approach, proposed methodology, and capability for the planned work. Due to the large number of Metropolitan facilities and systems that would require ZEV infrastructure upgrades and to ensure that the work is completed in a timely manner, four firms are recommended to perform the work.

Black & Veatch Corporation, Burns & McDonnell Western Enterprises Inc., HDR Inc., and Stantec Consulting Services, Inc. are recommended for the engineering services detailed below based on their extensive expertise in ZEV infrastructure upgrades. In addition, their all-around experience will facilitate the assessment and analysis of Metropolitan's complex electrical systems, coordination with the utilities, and permitting with the cities.

Planned engineering services to be provided under the resulting agreements were identified in the RFQ and include conceptual, preliminary, and final design support for new facilities and rehabilitation of existing facilities; field investigations; utility and hazardous materials survey; planning studies; specialized technical analyses and reviews; cost estimating; engineering support during bidding; and other project support tasks such as permitting and providing relevant content to support grant/incentive applications and subsequent compliance reporting.

This action authorizes four specialized on-call agreements, each for a not-to-exceed total of $3 million, for ZEV infrastructure upgrades at various Metropolitan field sites. For these agreements, Metropolitan has established a Small Business Enterprise participation level of 25 percent.

Project Milestone

November 2027 – Completion of design activities for ZEV infrastructure upgrades

9/23/2024

Mai M. Hattar *Date*
Interim Chief Engineer
Engineering Services

9/25/2024

Deven Upadhyay *Date*
Interim General Manager

Attachment 1 – List of Subconsultants

Ref# es12697330

The Metropolitan Water District of Southern California

Subconsultants for Agreement with Black & Veatch Coporation

Subconsultant and Location	Service Category; Specialty
Ninyo & Moore Geotechnical & Environmental Sciences Consultants Los Angeles, CA	Geotechnical & Environmental Services
Converse Consultants Monrovia, CA	Geotechnical Services
Helix Environmental Planning Irvine, CA	Environmental Services
Aurora Industrial Hygiene South Pasadena, CA	Certified Asbestos Consultant Services
DRP Engineering Inc. Monterey Park, CA	Drafting/General Civil
MWA Architects Los Angeles, CA	Architectural

The Metropolitan Water District of Southern California

Subconsultants for Agreement with Burns & McDonnell Western Enterprises Inc.

Subconsultant and Location	Service Category; Specialty
Aurora Industrial Hygiene South Pasadena, CA	Certified Asbestos Consultant Services

The Metropolitan Water District of Southern California

Subconsultants for Agreement with HDR Inc.

Subconsultant and Location	Service Category; Specialty
Budlong & Associates Glendale, CA	Electrical / I&C
TJC & Associates (TJCAA) Oakland, CA	Electrical / I&C
DRP Engineering (DRP) Monterey Park, CA	Drafting
Guida, Inc. Irvine, CA	Subsurface Utility Locating
Diaz Yourman & Associates Santa Ana, CA	Geotechnical
Gregg Drilling LLC Signal Hill, CA	Geotechnical
Jacobus & Yuang Inc. Los Angeles, CA	Cost Estimating
J. Stanley Consulting Inc. Oakland, CA	Certified Asbestos Inspection

The Metropolitan Water District of Southern California

Subconsultants for Agreement with Stantec Consulting Services Inc.

Subconsultant and Location	Service Category; Specialty
Power Systems Testing Co. Santa Ana, CA	Electrical
MWA Architects Los Angeles, CA	Architectural
Converse Consultants Monrovia, CA	Geotechnical
DRP Engineering Inc. Monterey Park, CA	Engineering Design & Drafting
Project Line Technical Services Inc. Rancho Palos Verdes, CA	Engineering Design & Drafting
T2 Utility Engineering Huntington Beach, CA	Utility Locating
Towill Inc. Orange, CA	Surveying

Engineering, Operations, & Technology Committee

Professional Services Agreements for Zero-Emission Vehicles Infrastructure Upgrades

Item 8-2

October 7, 2024

Item 8-2
Professional Services Agreements for ZEV Infrastructure Upgrades

Subject

Authorize on-call agreements in amounts not to exceed $3 million each, for engineering services to support zero-emission vehicle (ZEV) infrastructure upgrades

- Black & Veatch Corp.
- Burns & McDonnell Western Enterprise Inc.
- HDR Inc.
- Stantec Consulting Services Inc.

Purpose

Contracting with multiple firms provides flexibility & an efficient means for Metropolitan to develop designs for ZEV infrastructure upgrades

Recommendation and Fiscal Impact

Authorize agreements

Fiscal Impact – None

Budgeted

Metropolitan Fleet Service Area & Transportation Hubs

- 1,200+ fleet assets
- 5,200 square mile service area & desert regions
- Across five counties
- Over 5,300 structures
- Over 300 miles of patrol roads

Professional Services Agreements

ZEV Infrastructure Upgrades

Background

- Metropolitan's Climate Action Plan
  - Reduce carbon footprint
  - Offset greenhouse gas emissions
- Advanced Clean Fleets (ACF) regulates purchases of medium & heavy-duty, on-road fleet vehicles
  - 50% or more ZEV after Jan. 1, 2024
  - 100% or more ZEV after 2027
- Installing charging infrastructure is a key component of Metropolitan's Zero Emission Vehicle (ZEV) transition

Professional Services Agreements

ZEV Infrastructure Upgrades

Zero-Emission Vehicle Infrastructure Upgrades

- Initial
  - Testing networked stations
  - Equip. ownership
- Goals
  - Learn about challenges
  - Bridge the gap until full build-out is complete

Pilot Charger

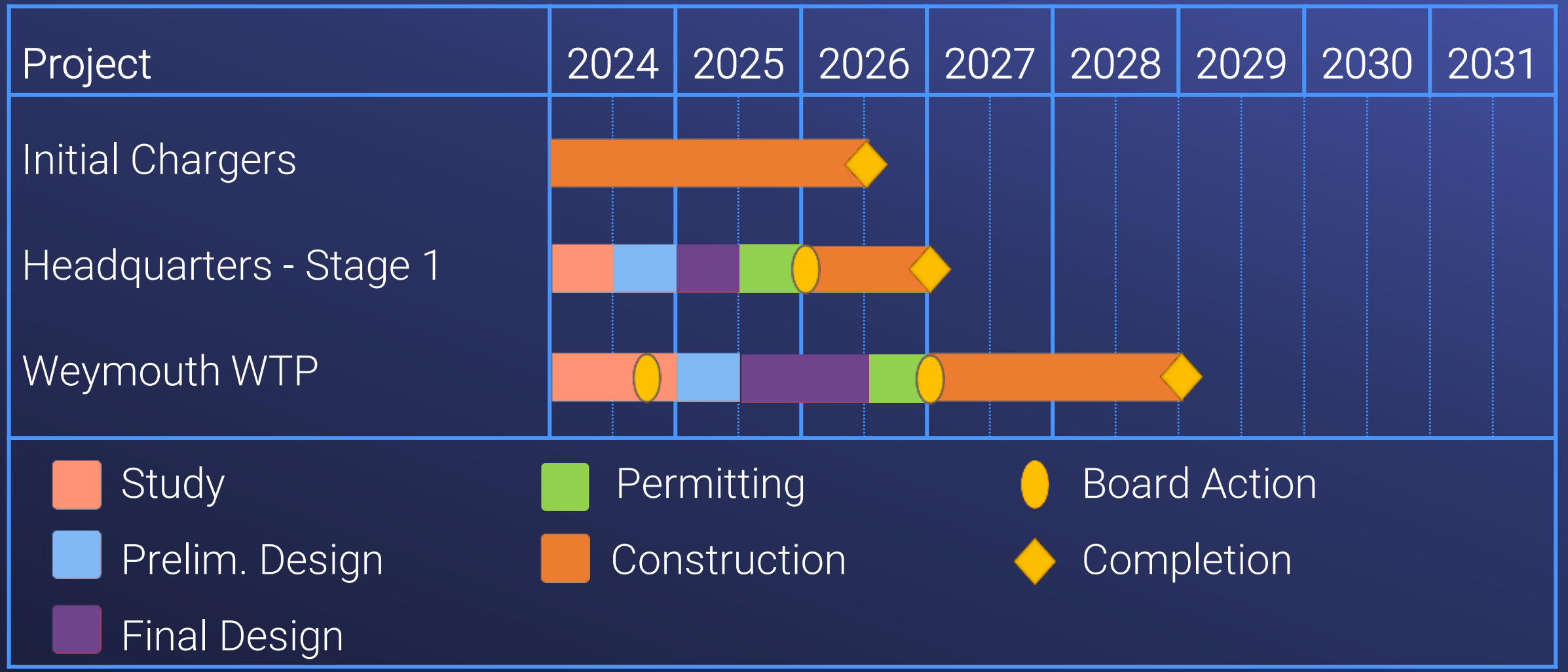
Professional Services Agreements

ZEV Infrastructure Upgrades

Zero-Emission Vehicle Infrastructure Upgrades

- Activities for full build-out
  - Transmission & distribution analysis
  - Planning & partnering with utilities
  - Investigation of codes & regulations
  - Development of contract documents
- Pursue incentives
- Coordinate infrastructure with vehicle procurement

Schedule - Phase 1 Typical



Professional Services Agreements

ZEV Infrastructure Upgrades

Request for Qualification (RFQ) 1368

- Issued March 2024 to establish a pool of qualified firms
- Covered services in three categories:
  1. ZEV infrastructure improvements
  2. Hydrogen fueling systems
  3. Enterprise visualization analytics

Professional Services Agreements

ZEV Infrastructure Upgrades

Request for Qualification (RFQ) 1368

- Services to be provided include:
  - Perform field inspection
  - Evaluate standards & recommend equip.
  - Develop design criteria & coord. w/ utilities
  - Prepare conceptual, prelim. & final design documents
  - Provide permitting, grant application & compliance reporting support
  - Develop construction cost estimates & provide bid support
- SBE participation level – 25%

Professional Services Agreements

ZEV Infrastructure Upgrades

Alternatives Considered

- Utilize Metropolitan staff
  - Staff concentrating on core work
- Selected Alternative – Hybrid approach
  - Utilize several consulting firms to support design
  - Metropolitan staff provides facility information & technical oversight

Board Options

- Option #1

  Authorize on-call agreements with Black & Veatch Corporation, Burns & McDonnell Western Enterprises Inc., HDR Inc., and Stantec Consulting Services Inc., in an amount not to exceed $3 million each, for a maximum period of three years, to provide design and support services related to the ZEV infrastructure upgrades at Metropolitan facilities.

- Option #2

  Do not authorize the consulting agreements at this time.

Staff Recommendation

- Option #1


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Committee Item
INFORMATION

Engineering, Operations, and Technology Committee

10/7/2024 Committee Meeting

6a

Subject

Update on District Housing and Property Improvements Program

Executive Summary

Metropolitan maintains employee housing, kitchens, and short-term lodging facilities at the Colorado River Aqueduct (CRA) pumping plants due to their remote locations. After decades of use, these facilities show signs of deterioration and require replacement. In Spring 2023, a community planning effort was undertaken to identify options and recommend an approach for employee housing at the pumping plant villages. In April 2024, staff provided an update to the Engineering, Operations and Technology (EOT) Committee regarding the ongoing community planning efforts. In July 2024, the Community Planning Report was transmitted to the Board through a Board Report update. See **Attachment 1** for the Community Planning Study report. The community planning effort is now complete, and staff recommends implementing the new CRA housing strategy in four stages. A November 2024 board action is planned to authorize an agreement amendment to design the initial effort for the District Housing and Property Improvements Program.

Applicable Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

Related Board Action(s)/Future Action(s)

By Minute Item 52381, dated May 11, 2021, the Board authorized two new agreements for environmental documentation and geotechnical services in support of the District Housing and Property Improvements.

By Minute Item 52448, dated July 13, 2021, the Board authorized an increase to an agreement with Roesling Nakamura Terada Architects (RNT Architects) for preliminary design and architectural services in support of the District Housing and Property Improvements.

By Minute Item 52980, dated September 13, 2022, the Board authorized an increase to an agreement with RNT Architects for final design and architectural services in support of the District Housing and Property Improvements.

Board action planned for November 2024 to amend an agreement with RNT Architects to provide design and architectural services in support of implementing Stage 1 of the District Housing and Property Improvements Program.

Details and Background

Background

Since the CRA's inception, Metropolitan has provided lodging or housing to employees involved in constructing, operating, and maintaining the aqueduct system. Due to the remoteness of the pumping plants, housing ensures that staff can respond to emergency events promptly.

Houses, kitchens, and short-term lodging were initially constructed at the CRA pumping plants in the early 1940s. The expansion of the CRA's capacity in the 1950s led to the construction of additional houses. Metropolitan has performed routine maintenance on these facilities since they were built. After decades of continuous use and exposure to the harsh desert environment, the houses have deteriorated and require replacement.

In 2019, Metropolitan initiated a housing program to replace the CRA houses in-kind while incorporating additional amenities. In Spring 2023, it was decided to pause design and engage in a community vision plan to explore the best long-term workforce housing strategy in the context of a changing workforce, advancements in technology, and expansion of some adjacent desert communities. The community planning process included in-person site visits to each village, meetings with residents to hear their perspectives regarding current housing and future housing plans, and meetings with Metropolitan's Executive and Desert management and labor leadership to review alternative housing strategies.

In April 2024, staff provided a summary update to the EOT Committee regarding the community planning vision and strategy, including steps taken during the planning process. The recommended community vision plan strategy: (1) maintains current housing for the existing employees; (2) consolidates Hinds and Eagle villages to create a single, larger village with combined resources; (3) provides short-term housing at Hinds pumping plant for staff that are on standby to comply with the 15-minute response time; (4) tests a new townhome housing model which provides townhome housing for employees only; and (5) provides recreation amenities at Eagle Mountain and Iron Mountain villages. This fourth item is a philosophical shift from Metropolitan's current practice of houses for families in these villages. In July 2024, the Community Planning Report was transmitted to the Board through a Board Report update. See **Attachment 1** for the Community Planning Study report. The community planning effort is complete, and staff recommends implementing the program in a manner consistent with the report recommendations using a staged approach.

In November 2024, staff will recommend beginning the first stage of the employee housing plan. Stage 1 of the program will: (1) construct eight new 750-square foot townhomes comprised of 1-bedroom and 1-bath at each of the three villages for a total of 24 townhomes; (2) replace the existing kitchens and lodges at Eagle Mountain and Iron Mountain; (3) construct a second guest lodge at Gene pumping plant; (4) construct four 350-square foot rooms at Hinds village for staff working on standby shifts; and (5) provide amenity packages at Eagle Mountain and Iron Mountain villages. The first stage will test the new townhome model over five years at the Eagle Mountain, Iron Mountain, and Gene pumping plants. The anticipated construction cost for stage one is approximately $82 million.

Following a successful test of the new housing model, three subsequent stages would then be implemented over multiple years to replace all the current single-family residences with townhomes at Eagle Mountain, Iron Mountain, and Gene pumping plants. Stage 2 of the program would construct 24 townhomes; Stage 3 would construct 39 townhomes; and Stage 4 would build 18 townhomes. The total anticipated construction cost of Stages 2 through 4 is approximately $68 million. This does not include the costs required to upgrade all utilities, water treatment systems, and site preparation. The staged approach ensures a smooth transition for employees to the new housing model and amortizes the capital cost over multiple years.

Staff is currently performing additional studies to evaluate whether housing will be provided at the Intake pumping plant. The Intake plant presents unique challenges due to space restrictions and shallow groundwater conditions that impact the upgrade of utilities. Moreover, for the foreseeable future, available housing space is expected to be needed to support contractor laydown areas for large projects, including the replacement of the transformers and rehabilitation of the main pumps. Staff will return to the Board at a later date to present its findings for the Intake site.

In September 2022, the Board authorized an increase to an agreement with RNT Architects for final design to replace 96 CRA houses, village enhancements, and kitchen and lodging improvements. Staff plans to return to the Board in November 2024 to amend the agreement with RNT Architects to provide design and architectural services for Stage 1 of the District Housing and Property Improvements Program. No additional funding authorization is anticipated with this agreement amendment.

9/20/2024

Gonzalo Barriga *Date*
Interim Chief Safety, Security & Protection Officer

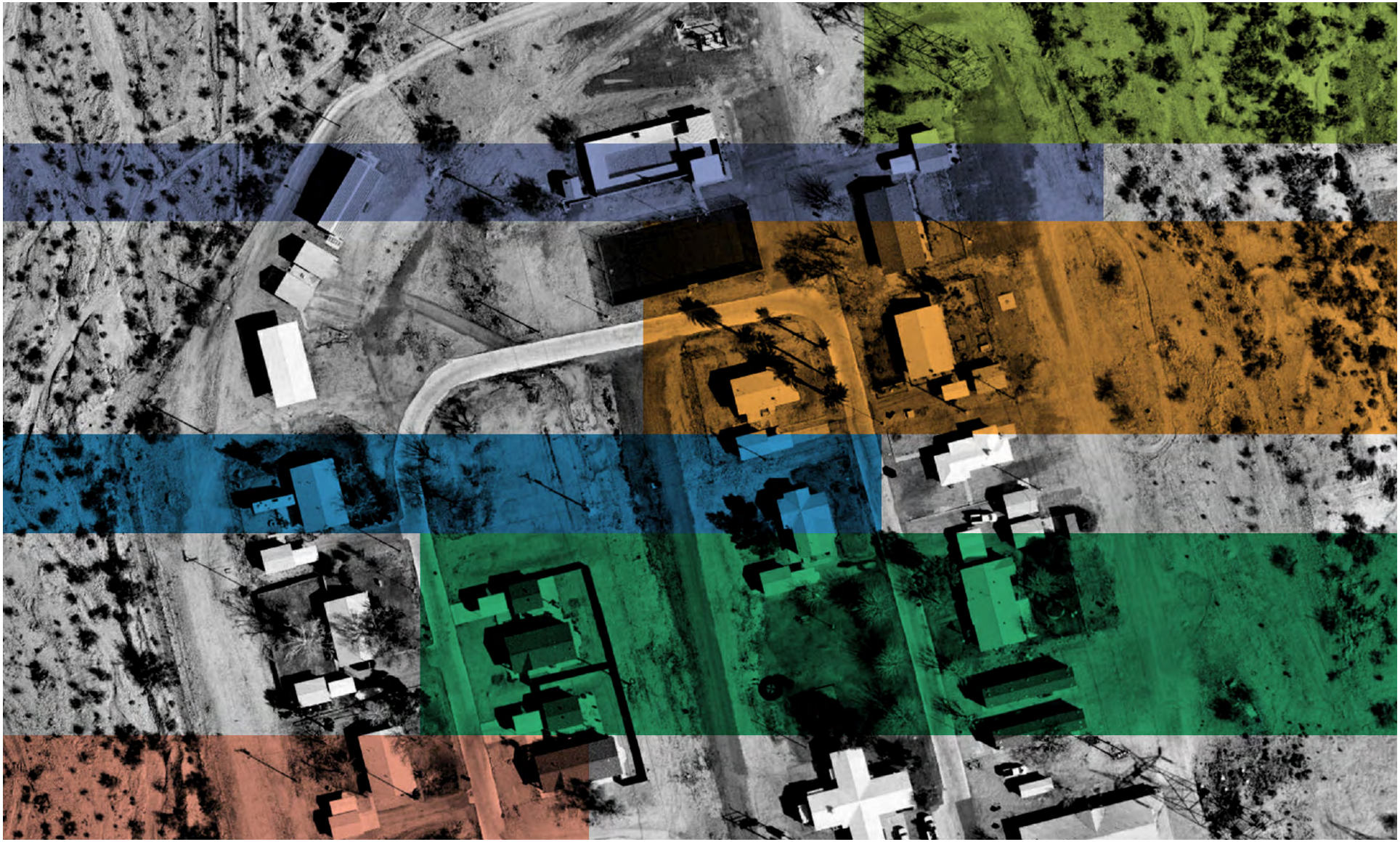
9/23/2024

Deven Upadhyay *Date*
Interim General Manager

Attachment 1 – Community Planning Study Report

Ref# es12696832

June 6, 2024



COMMUNITY PLANNING STUDY

MWD Housing & Property Improvements Program At The Desert Facilities

CIVITAS

EXECUTIVE SUMMARY

PURPOSE OF STUDY

Metropolitan Water District (MWD) has initiated a long-term housing program to evaluate the current and future needs of the Desert workforce housing. The study analyzes how best to support a remote workforce at Metropolitan's five Desert pumping plants at Hinds, Eagle Mountain, Iron Mountain, Gene, and Intake. Primary themes that were considered include the best way to support employee well-being through better work-life balance, whether villages should continue to support families, as well as Metropolitan's mission to deliver water in a fiscally responsible manner. As MWD considers how to attract and retain the current and future generation of desert employees, this study explores what the next 75 years of living and working in the remote villages and pumping plants will be. The outcome of this process is a recommended philosophical shift regarding Metropolitan's approach to workforce housing and employee support at these remote facilities.

BACKGROUND

Metropolitan owns five pumping plants located along the Colorado River Aqueduct at Intake, Gene, Iron Mountain, Eagle Mountain, and Hinds. Due to the sparse availability of community resources in the desert region and long commute times from the nearest cities at the time the pumping plants were built, Metropolitan developed employee villages adjacent to each pumping plant. The original housing is aging and needs to be either rehabilitated or replaced in the near future. A 2022 study was performed to determine the costs to replace all housing at the pumping plants. That study estimated the cost to replace all housing with new three-bedroom, two-bath housing, new kitchen and lodge facilities at two pumping plants and an amenities package at four facilities (Hinds, Eagle Mtn., Iron Mtn., and Gene) at $190 million dollars. In the spring of 2023, Executive Management decided to pause the construction and engage in a community vision plan to explore the best long-term work-force housing strategy in the context of changing workforce, advancements in technology, and expansion of some adjacent Desert communities.

PROCESS

In the summer of 2023, Civitas and RNT Architects were selected to explore a long-term strategy for the Desert villages. The consultant team led an extensive outreach process that included visiting each village to listen and learn from current employees and having exploratory conversations with Executive and Desert Management regarding future housing and operations at the five pumping plants. The consultant team developed a series of village strategies that were vetted with leadership and the desert communities through an iterative process. Feedback from the communities was received through a second round of in-person discussions and an anonymous online survey. This report summarizes the outreach, understanding, and recommendations that came out of this process.

KEY COMMUNITY TAKEAWAYS

- Compensation and benefits were the most significant factor in new employee recruitment and retention.
- Housing plays an important role in decision to work at Metropolitan.
- A significant portion of the current workforce likes their single family homes as it allows the option for families to live there or visit during extended work shifts (holidays, covering vacation, on-call).
- The sense of community and ability to have family present in villages is valued for personal mental health.
- Future generations may be accepting of alternative housing types, including townhomes, if combined with other benefits.
- Employees understand the need and logic behind consolidating villages but are also strong advocates for future generations of desert employees.

GUIDING PRINCIPLES

- Support the long-term operation of the Colorado River Aqueduct (CRA) system.
- Create a financially resilient and socially sustainable 75-year housing strategy.
- Provide standard of living that supports employee recruitment, retention, and satisfaction.
- Create safe and healthy villages that contribute to the mental well-being for current and future workforce.
- Introduce new housing strategies, but remain flexible to ever changing market conditions.
- Maintain current housing for all current employees.

PREFERRED VILLAGE STRATEGY

The consultant team tested and vetted over a dozen different Desert village strategies with Executive Management, Desert Management, Labor leadership and Desert employees. The proposed strategy anticipates striking a balance between providing a housing strategy and village environment that will continue to attract and retain talent necessary to run the pumping plants, while also being fiscally responsible both near- and long-term.

A Pilot Program has been identified as part of a phased approach to implementation, that will allow MWD to test the new housing strategy and make informed decisions at each subsequent implementation phase through the program's completion.

The preferred desert housing strategy 1) maintains current housing for existing employees at all current plants and villages; 2) consolidates villages to increase amenity offerings while decreasing overall costs; 3) initiates a pilot program to introduce and test new housing models; 4) provides commercial kitchens, hotel lodges, and upgraded amenity packages during the first phase; 5) provides a phased approach that is trigger based, relying on regular review and assessment over a 15-year build-out timeline that allows flexibility to adapt to changing market conditions.

The recommended strategy is to focus resources on the two most remote villages, Eagle Mountain and Iron Mountain as well as Gene pumping plant during the first five years. After year 5, there is flexibility to either maintain or scale-back Gene as a remote desert village after the Phase 1 pilot project. This philosophy extends from the following critical observations:

- Gene and Hinds are no longer 'remote desert villages' as Lake Havasu, Parker, and Indio have grown into fully operational communities over the past 75 years, and are anticipated to continue to grow. These towns are within reasonable commuting distances from Gene and Hinds pumping plants.
- Eagle Mtn. and Iron Mtn. are the most isolated and include the Pump Maintenance Team and O&M Team, respectfully, in addition to the Pumping Plant, that would be costly and inefficient to relocate.
- Hinds should be combined with Eagle Mtn. to consolidate amenities, resources, and create a critical mass for a sense of community at Eagle Mtn. Hinds will operate as a 'satellite pumping plant' that includes hotel style housing and minimal amenities to support employees who are on stand-by. Employees will commute to Hinds from Eagle Mtn. daily.

In addition, Intake pumping plant is uniquely positioned to provide staff amenities due to its location on Lake Havasu and its significance as the beginning of the CRA. Currently, on-call response at Intake relies on a two-lane road that serves employees commuting from Gene. Therefore, program to be considered for Intake includes short term housing, vacation rental homes, and a conference room. This program is flexible and will be refined in subsequent phases based on MWD priorities and constraints of this site.

CONCLUSION

Executive Management's decision, in the spring of 2023, to pause construction and engage in a community vision plan to explore the best long-term work-force housing strategy resulted in a cost benefit. The recommended housing and amenity packages aim to foster a better work-life balance for future employees, while providing a good value to Metropolitan, its employees, and ratepayers, due to the increased efficiency of Desert workforce housing, a focus on amenities that matter to employees, and its adaptability to future conditions. This preferred approach for Desert workforce housing outlined in this report is $145.6 million (2024 dollars) and offers a cost savings in comparison to the 2022 approach which was estimated at $190 million (in 2022 dollars).

Depending on the eventual mix of townhomes and single-family housing at each pumping plant (Eagle Mtn., Iron Mtn., and Gene), the anticipated project cost ranges from $145.6 million (all townhomes) to $249 million (all single-family homes) in 2024 dollars; not including site prep, site improvements, mechanical and electrical utilities, survey, and escalation.

MWD should use a phased approach, based upon triggers, that will allow MWD to move towards a fully supported townhome village model at Eagle Mtn., Iron Mtn., and Gene. The phased approach is envisioned as four phases over a period of 15 years, which will allow MWD to test the acceptance of a townhome housing model* with new employees while allowing for the decommissioning of single-family housing coinciding with retirement of current workforce. Phase 1 investments are spread over a 5-year period and include upgraded amenity packages and strategically located one-bedroom townhome pilot projects at Eagle Mtn., Iron Mtn., and Gene. The range of amenities and investments identified for each village represent long-term usable investments regardless of which village build-out strategy is ultimately chosen. The opinion of probable cost, across all villages, for Phase 1 is approximately $82 million dollars (2024 dollars). This opinion of probable cost does not include site prep, site improvements, mechanical and electrical utilities, survey, and escalation which is estimated at about $21 million (2024 dollars) across all villages. Site improvement estimates are variable depending on coordination with on-going infrastructure updates.

Opinion of Probable Costs of Preferred Strategy

- Phase 1 81.9M
- Phase 2 24.7M
- Phase 3 28.2 M
- Phase 4 10.8M
- Total: 145.6M

Phase 1 Includes the following:

- Construction of twenty-four, one-bedroom townhomes distributed among Eagle Mtn., Iron Mtn., and Gene pump plants.
- Construction of 56 short-term hotels for temporary workers distributed among Eagle Mtn., Iron Mtn., and Gene pump plants.
- Short-term hotel at Hinds to support 'stand-by' plant team members.
- New or upgraded kitchens at Eagle Mtn., Iron Mtn., and Gene.
- Upgrade village amenity package at Eagle Mtn., and Iron Mtn.

NEXT STEPS

- Provide staff recommendation to the Board.
- Proceed with preliminary design for Phase I which includes space allocation and phasing strategy

LONG TERM PLANNING

1. Determine if consolidating villages is appropriate based on the pilot results.
2. Confirm recommended long-term phasing and investment strategy.
3. Create a review committee to assess the success of the Townhome Pilot Program (Phase I). The committee to include union and employee participation.
4. Evaluate current capital improvement program against preferred village strategy.
5. Develop transition plan to relocate Hinds employees to Eagle Mountain.

** The townhome housing model is a cluster of one-bedroom apartments located on a single lot with shared walls. Each unit is dedicated to one employee and has a front door to the outside.*

SUMMARY	COST	MODEL
THREE DESERT VILLAGES: 100% EXTENDED-STAY TOWNHOMES Preferred Scenario		
105 extended-stay townhomes 12 vacation rentals 64 guest hotels 3 upgraded amenity packages 2 guest amenity packages 3 kitchens	**$145M**	
THREE DESERT VILLAGES: 50% EXTENDED-STAY TOWNHOMES/50% SINGLE FAMILY HOMES		
54 single family homes 53 extended-stay townhomes 9 vacation rentals 64 guest hotels 3 upgraded amenity packages 2 guest amenity packages 3 kitchens	**$189M**	
THREE DESERT VILLAGES: 100% SINGLE FAMILY HOMES		
105 single family homes 24 extended-stay townhomes 64 guest hotels 3 upgraded amenity packages 2 guest amenity packages 3 kitchens 9 vacation rentals	**$249M**	

Notes:

1. Intake will include a 800 sq. ft. conference room estimated at +/-$750,000.
2. Includes 10% housing increase across all villages and scenarios
3. These cost estimates do not include the estimated site improvement costs, which is about $21 million across all villages for complete build out. Final site improvements cost is variable depending on coordination with on-going infrastructure updates.

Community Planning Study

Appendix

1 PROJECT PURPOSE

For over 75 years, the Metropolitan Water District of Southern California (MWD) has been bringing water to the greater parts of Southern California. The most critical components of this process are the pumping plants along the Colorado River Aqueduct (CRA) and their respective employees that have been housed on-site in villages for generations. In days past, these sites were thriving communities that were the permanent homes for employees and their families. These remote communities were places that employees wanted to live and create a life.

However, over the years, the way people work and where they choose to live has evolved. Desert communities of Indio, Parker, and Lake Havasu have grown in population and provide all lifestyle amenities (schools, grocery stores, medical facilities, and entertainment) that once had to be provided by the MWD Pumping Plant Villages. As the communities have shifted, more employees choose to maintain permanent residences in these adjacent communities or elsewhere. As such, the sense of community and quality of lifestyle at the pumping plants has changed, and the residential and amenity facilities have aged and become less desirable to employees and their families. In response, MWD is considering a new approach to housing and facilities at these plants and villages. As MWD prioritizes the development of quality communities for the next generation of employees, management is looking beyond near-term repairs and is considering the next 75 years of employment in the remote pumping plants of the Desert. While salary and benefits packages are an important factor, today's employees are making decisions more holistically, considering the quality of work-life balance.

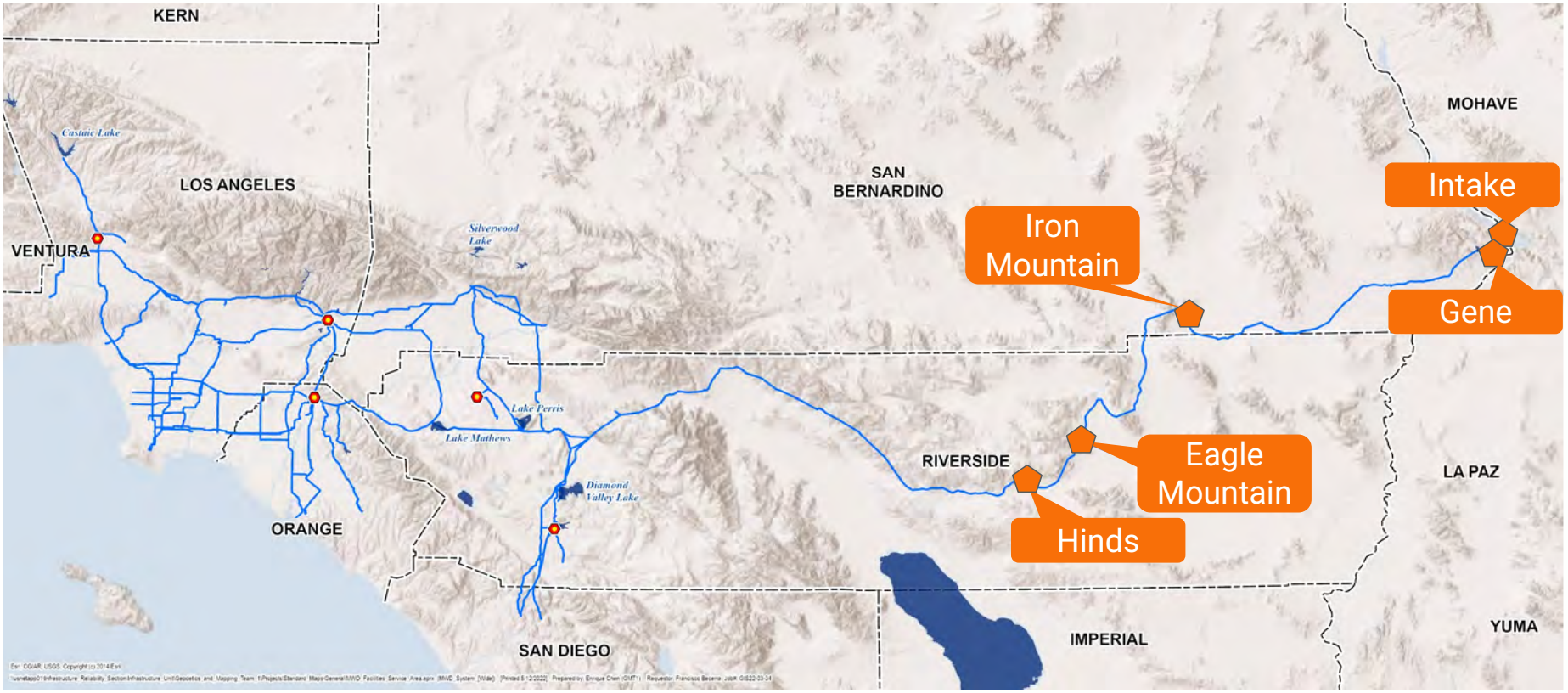
Key considerations include:

- The right housing and amenity package that will attract the next generation of employees at these remote desert sites
- Whether the next generation of employees want to live and work at these facilities
- The type of environment and housing model that will enable employees to thrive during work shifts and enjoy life outside of work hours
- Validation of previous work and discovering areas requiring refinement, or establishing a new direction for future desert workforce housing
- The long term environmental, social, and fiscal resiliency of Desert villages

"So to all who have helped in its building,
In places if great or if small;
There is more than the wage collected;
There's glory for each and for all.

And may millions partaking of blessings
To their lives the Aqueduct brings,
Give sometimes a thought to its builders
And a toast, as onward Time swings!

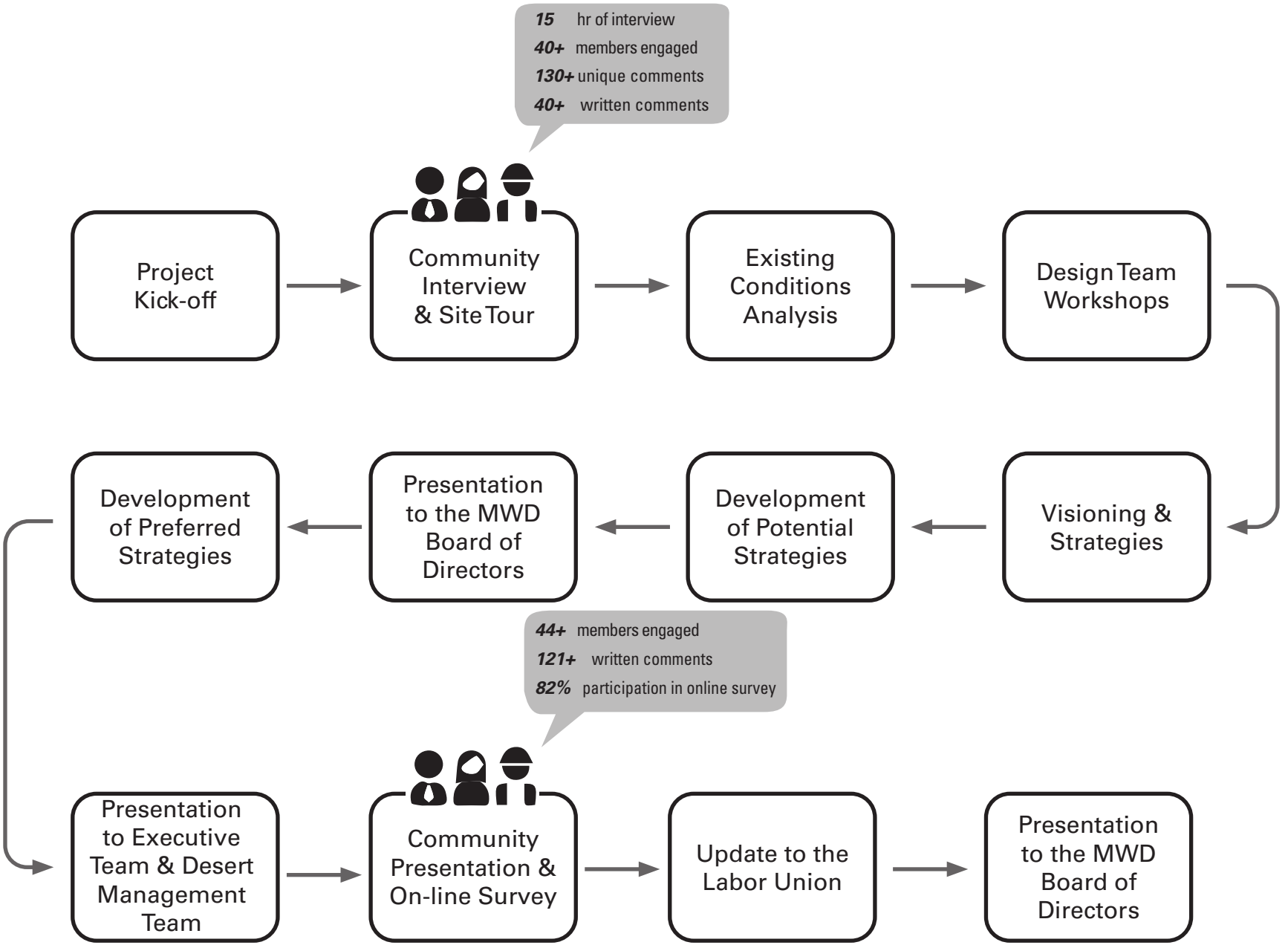
"The Honor Roll"
The Aqueduct: Tunnel, Camp, and Trail
by Charles F. Thomas, Jr.


KERN
MOHAVE
Castaic Lake
LOS ANGELES
SAN BERNARDINO
Intake
Iron Mountain
VENTURA
Silverwood Lake
Gene
Lake Perris
Lake Mathews
RIVERSIDE
Eagle Mountain
LA PAZ
Diamond Valley Lake
ORANGE
Hinds
IMPERIAL
YUMA
SAN DIEGO

2 METHODOLOGY

The consultant team engaged in a robust community and management outreach process that included multiple site visits, hours of community listening sessions, and analysis of the physical attributes of each pumping plant village. Through numerous, in-depth conversations with employees and Desert Management, the consultant team was able to garner a sound understanding of how pumping plant teams and support teams operate in the Desert villages; what's working and what's not working; the hopes, concerns, and desires from the perspectives of various stakeholder groups (employees, Labor management, Desert Management, and Executive Management). This insight allowed Civitas and RNT to conceptualize a range of potential Desert village and housing strategies that were debated and refined through an iterative process with the stakeholder groups.

This has led to the development of a preferred framework for how Desert villages may evolve over a fifteen year period allowing MWD to provide high quality employment, communities, and housing for the future generations of Desert employees. A conceptual phasing strategy has been created that will allow MWD to make fiscally responsible capital investments of new housing types and in long term villages over the course of 15 years. Strategic decisions points at years 5, 8, and 11 will allow MWD to evaluate progress and employee acceptance of a new desert housing typology and village organization strategy. Housing types for subsequent phases of construction will depend on which housing types have been most successful at attracting and retaining the skilled employees that MWD relies on for operating its desert pumping plants.


15 hr of interview
40+ members engaged
130+ unique comments
40+ written comments
Project Kick-off
Community Interview & Site Tour
Existing Conditions Analysis
Design Team Workshops
Visioning & Strategies
Development of Potential Strategies
Presentation to the MWD Board of Directors
Development of Preferred Strategies
44+ members engaged
121+ written comments
82% participation in online survey
Presentation to Executive Team & Desert Management Team
Community Presentation & On-line Survey
Update to the Labor Union
Presentation to the MWD Board of Directors

WHAT WE HEARD

MANAGEMENT PERSPECTIVE

The consultant team had multiple conversations and touchpoints with Executive Management, Desert Management, and Labor throughout the process. We identified common themes from these conversations that influenced our thinking about Desert villages strategies:

Lifestyle and Culture

Management recognizes that living and working in the desert environment is a challenging lifestyle and that the village strategy for the next 75 years needs to provide appropriate housing and amenity packages to support MWD employees and people who live there by providing a safe and healthy environment and creating opportunity for work-life balance.

Recruitment and Retention

Supporting the mission and function of the CRA is the critical role of MWD. To that end, recruiting and retaining talent will always be necessary. Management acknowledges the current employees' preference for single-family housing in the villages, but believe that employee-only housing with additional compensation is a strategy that may prove just as attractive to many potential employees. Management's goal to balance 1) near term construction costs; 2) long-term management and maintenance costs of operating four remote, family-centric villages; 3) navigate a cultural shift towards more work-life balance, has led to a workforce housing strategy and amenity package designed to support pumping plant operators and support crews while they are living on-site during work shift.

All current employee housing arrangements are grandfathered in and will remain as is. All current employees will not be required to move into the new townhome housing model; however, there may be an opportunity for current employees to opt into a new housing/compensation package.

Housing

Management team would like a resilient village strategy that is is adaptable to future workforce housing and lifestyle needs. There is recognition that future generations may not all want three-bedroom single family homes but would prefer smaller dwelling units (with less maintenance and yard responsibility) and a better amenity package. There is also a strong desire for MWD to move away from being the owner and manager of a single-family gated community. Migrating the villages to a townhome housing model focused on supporting the 'on-shift' workforce, rather than full-time families, will reduce the amount of time and money allocated to managing the community, thus allowing MWD to focus their efforts on their mission and strengths – operating the CRA.

VILLAGE RESIDENTS' PERSPECTIVE

Through extensive community conversations, discussions with union leaders, site visits and an anonymous survey, we identified common themes shared by village residents that has influenced our thinking about housing typologies and amenity packages:

Lifestyle and Culture

Many residents appreciate the small-town culture, safety and sense of community offered by the villages. The sense of community pride and camaraderie is strongest in Hinds, Eagle Mtn. and Iron Mtn. due to the remote lifestyle. A higher percentage of employees are full-time residents and have therefore created a stronger community network. This is visually evident in the upkeep of homes and yards, shared public spaces as well as the informal community events, and neighborly favors (maintaining yards, group dinners, bringing supplies from town, etc.). This exists less so at Gene because most employees have a primary residence outside of Gene camp.

Housing

There is a strong preference for single-family detached housing across all communities. A common theme is to have their 'own front door' and ability to 'go home' at the end of the work shift with emphasis placed on work/life balance and the need for personal space/physical separation from co-workers/managers when they are not working. There are mixed opinions about the maintenance and upkeep of homes. Some employees appreciate the back yards and personal space, while others lament the fact that they must maintain the property, the latter of which becomes an eyesore and issue of contention between employees who maintain the property and those who do not. There are also mixed opinions of having to furnish the home, while many employees are steadfast about continuing to be provided 3 bed/2 bath homes, there is a contingent who do not want to have to furnish the homes. The conversation about switching to a townhome model (i.e individual 1 bed/1 bath dwelling units with shared walls and individual front doors), was initially met with some resistance, but some residents warmed to the idea if this model was combined with upgraded amenities and compensation packages.

Shade for outdoor patio space and for parked vehicles is also a high priority and should be included in any housing scenario.

There is also much desire for physical separation between housing and pumping plant operations (pumping plant, electric yard, lay down area, fuel station, maintenance facilities, truck access, etc.). The physical design and programmatic organization of villages should be considered in the future to help create a physical separation between living areas and pumping plant operations.

Amenities

A common theme among the villages is that they would like the existing amenities upgraded (increased pool hours, separate dining hall and business meeting/training space, independent game room/community room, increased shade at outdoor spaces, separate work-out rooms for residents and outsiders, and upgraded air conditioning). The longer-term desires include providing more shade and beautification throughout the community along streets, creating more usable public spaces with shade and amenities, providing shade at pools for use during day and heated pools that allow use during evening hours after work shift, and providing consistent lighting on basketball and tennis courts. The idea of creating an indoor, climate-controlled field house that included large flexible turf area and/or gymnasium space was highly favored. This could be combined with locker room, weight room, community room and access to outdoor pool. Reliable Wi-Fi connectivity is also a highly requested amenity as bandwidth is not adequate in evening hours to support the villages.

Community Safety

Public safety is a primary concern at Hinds, Eagle Mtn., and Iron Mtn. All residents appreciate the sense of safety living in a secured community, but the remoteness and limited access to EMS/Fire/health care is a concern.

KEY TAKEAWAYS

- Enhanced villages are critical to attract and retain staffing at each facility (most if not all plants are currently understaffed due to difficulty in attracting qualified employees).
- Emphasize the need to create a welcoming environment and community spaces through shade trees and landscape at key locations to enhance employee comfort and mental health.
- Openness to modifying the current approach to shifts and staffing to facilitate alternative housing/village strategies.

3 GUIDING PRINCIPLES

SUPPORT THE LONG-TERM OPERATION OF THE CRITICAL CRA INFRASTRUCTURE

- Balance near-term investment with long-term economic resiliency, operational needs, maintenance requirements, and employee on-boarding costs.
- Consider anticipated changes and long-term needs for pump plant staff and operations.
- Design for adaptability and flexibility for the next 75 years of desert communities.

CREATE A FINANCIALLY RESILIENT AND SOCIALLY SUSTAINABLE 75-YEAR STRATEGY

- Create village design tailored to remote desert location and climate.
- Utilize appropriate building technologies to support MWD's commitment to resiliency and sustainability.
- Develop a phased village build-out strategy that allows MWD to strategically invest in each village in a manner that has flexibility to adapt to future unknown needs.

PROVIDE STANDARD OF LIVING THAT SUPPORTS EMPLOYEE RECRUITMENT, RETENTION, AND SATISFACTION.

- Design villages to support the health and safety for employees and residents at each villages for the next generation.
- Offer a package of housing, amenities, services, and/or other benefits that will attract and retain high-quality employees.
- Create a community and sense of place that provides where employees unwind after a long day of work.
- Provide the right mix of amenities and flexibility for amenities to evolve with the interests of future generations

CREATE SAFE AND HEALTHY VILLAGES THAT CONTRIBUTE TO THE MENTAL WELL-BEING FOR CURRENT AND FUTURE WORKFORCE.

- Provide privacy for residents and separation between housing and pump plant operations.
- Provide opportunity for residents to build social connections and a sense of community.
- Enhance access to EMS/fire/safety resources to support remote living.
- Enable active living, stress reduction activities, and safe recreation opportunities.

INTRODUCE NEW HOUSING STRATEGIES, BUT REMAIN FLEXIBLE TO EVER CHANGING MARKET CONDITIONS.

- Housing typologies tailored to the needs of current and future full-time residents.
- Consider critical mass of residents necessary to create meaningful sense of community.
- Develop amenity packages are tailored to the number of residents in each village.

MAINTAIN CURRENT HOUSING FOR ALL CURRENT EMPLOYEES.

- Current residents to remain in their current home until they retire or voluntarily move into a different housing package.
- Create a strategic phasing plan that decommissions/demolishes oldest, unoccupied homes first.

LEGEND

The following legend introduces the icons used throughout the report and appendixes. This visual language is used to describe the different housing and amenities explored throughout the design process.

STAND-BY SATELLITE CAMP
SHIFT HOUSING
(1-2 WEEKS)

EXTENDED STAY CAMP
WORKFORCE HOUSING
(182 DAYS)

Primary Amenity Icons

The icons will represent conceptual housing and amenities throughout the report.

Descriptive Amenity Icons

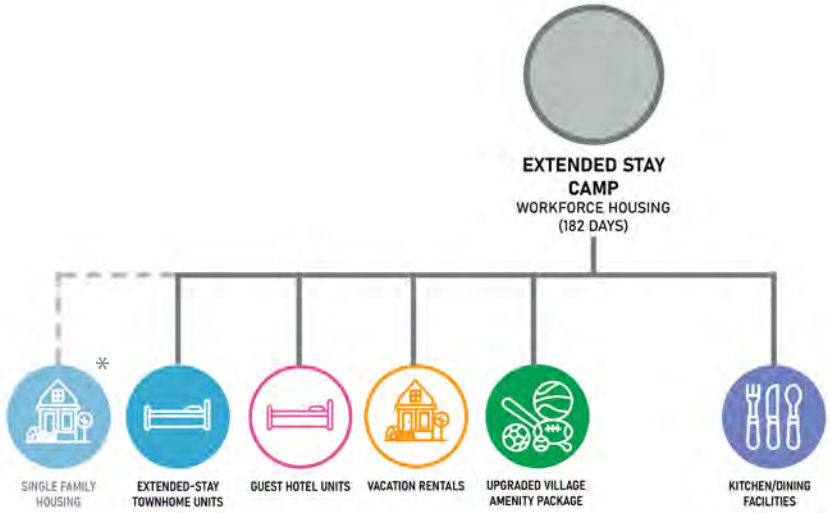
Each primary amenity icon represents a variety of potential elements. See Appendix pg. 137 for full description of program elements.

VILLAGE FRAMEWORKS

Extended-stay camp framework

Each desert employee will be provided their own personal living unit in the form of an extended-stay townhome which will be co-located with a robust amenity package at Eagle Mtn., Iron Mtn., or Gene.

The townhomes are intended to provide housing to MWD employees during their work shift.

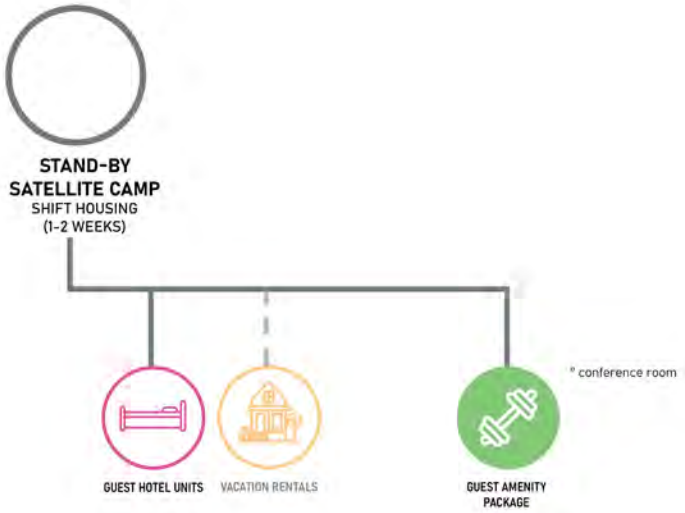


*Single family housing could be reincorporated should extended-stay townhomes not be desirable by employees

Standby satellite camp framework

Hinds and Intake pumping plants will operate as satellite camps where employees will temporarily stay on-site during stand-by. Extended-stay housing will be provided at adjacent consolidated village while employees are on-shift.

Intake will also include vacation rentals and a conference room in order to enjoy the proximity to Lake Havasu. Sewer system upgrades should be studied to understand feasibility.



HOUSING TYPOLOGIES

SINGLE FAMILY HOUSING

SINGLE FAMILY DETACHED WITH 2 CAR GARAGE

+/- 1,350 sq. ft.

EXTENDED-STAY TOWNHOME

MULTI-FAMILY HOUSING WITH INDIVIDUAL FRONT DOOR, 1BD W/ KITCHEN SUITE

+/- 750 sq. ft.

GUEST HOTEL

MOTEL ROOM

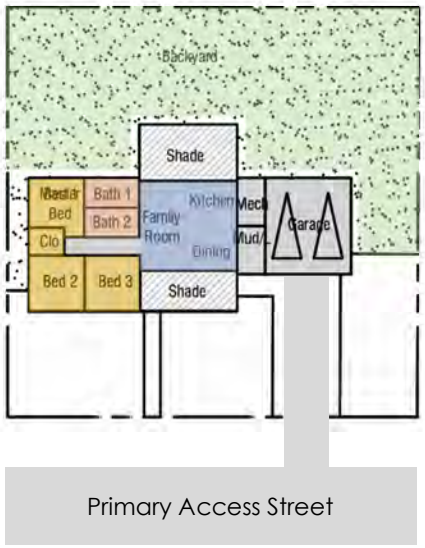
+/- 350 sq. ft.

ALTERNATIVE EXTENDED-STAY HOUSING TYPES:

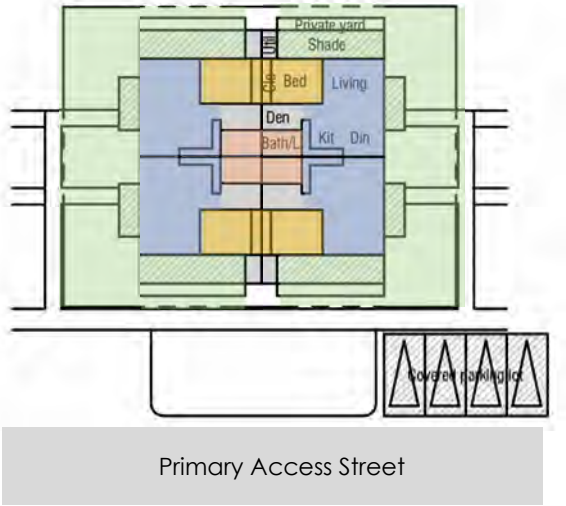
CASITA

RV SITES W/HOOKUPS
USE OF PERSONAL RV'S FOR HOUSING

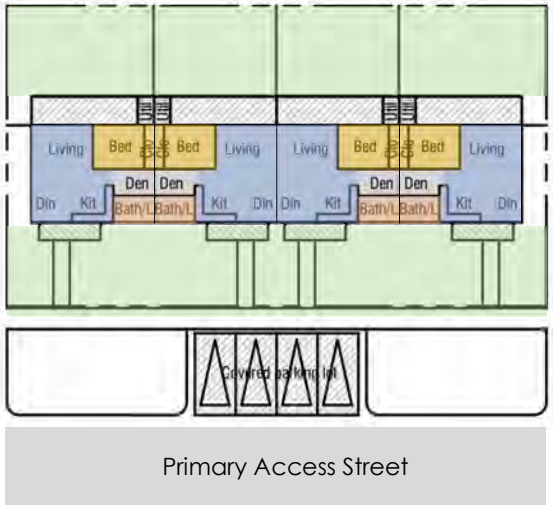
Single-family Homes



Extended-stay Townhome / Hotel (Pin-wheel type)



Extended-stay Townhome / Hotel (Linear type)



The extended-stay townhomes and hotels can be clustered with four units together in either a 'pin-wheel' or 'linear' manner. This can be done to fit future townhome products onto existing single family home lots.

PHASING PHILOSOPHY

Utilizing a phased investment approach will allow MWD to move towards the goal of a fully supported townhome village model at Eagle Mtn., Iron Mtn, and Gene.

The phased approach is envisioned as four phases over 15 years, with each subsequent phase of housing development based upon analysis of the prior phase. It is recommended that reassessment will occur after each phase, allowing MWD to make informed decisions as to whether they should continue to build townhomes or implement some mix of townhomes, casitas, and single-family homes based upon employee feedback. This phased approach will also provide a staggered expenditure plan to Metropolitan's budget, thus, meeting its fiduciary responsibility to renovate villages in a financially responsible manner.

A conceptual phasing strategy has been developed that can be applied simultaneously to Eagle Mtn., Iron Mtn, and Gene. The strategy allows for a Pilot townhome housing typology to be constructed in each of the villages during year one and evaluated over the first five years. This will allow MWD to test and evaluate acceptance of the townhome housing type with new employees while simultaneously allowing for the decommission of single-family housing coinciding with retirement of current workforce. Phase 1 will also include necessary guest hotels, village amenities, new/upgraded commercial kitchens and vacation rental housing. All capital investments identified for Phase 1 represent long-term, permanent investments in each village regardless of the ultimate determination of housing product mix.

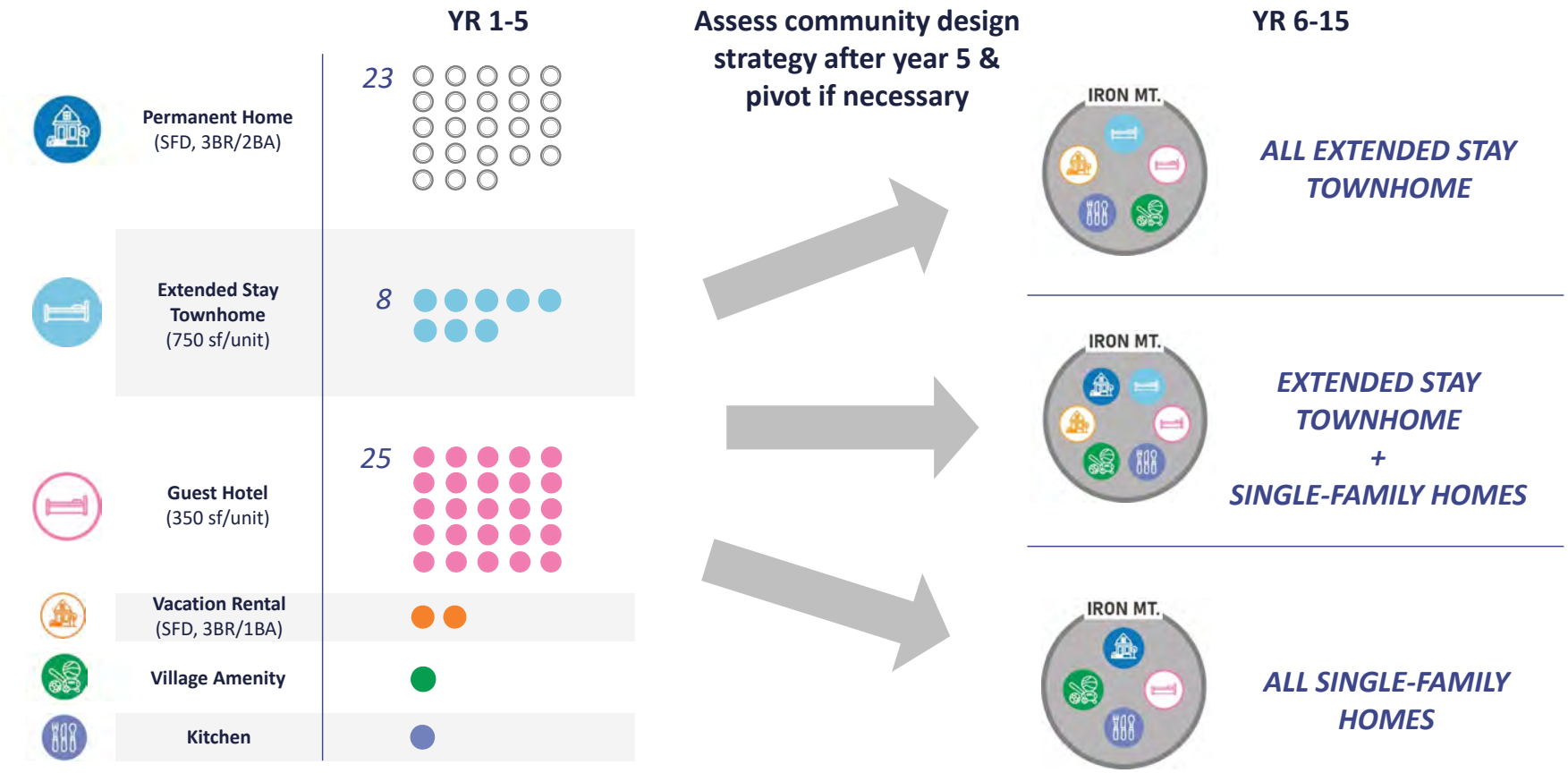
Figure 1 represents a hypothetical phased approach at Iron Mountain to convey how a phased strategy can be applied to each village. It is anticipated that all current employees will remain in their current housing with currently scheduled upgrades. New facilities will include: eight extended stay townhomes, twenty-five guest hotel rooms, two vacation rentals, one village amenity and new commercial kitchen. After year five, MWD will assess the community design strategy and acceptance of townhome housing model. At this point in time MWD can modify the number and type of housing constructed in later phases based upon employee and management feedback, pivoting in the build-out strategy to either 1) Continue build-out to all extended stay townhomes; 2) introduce a mix of single family/casita/townhome housing units to better align with employee recruiting/retention needs; 3) If the townhome model is deemed unsuccessful, MWD can revert back to build-out of all single-family homes. In this scenario, the initial townhomes built in Phase 1 will be converted to short-term guest hotels to meet future hotel needs. A conceptual phased approach is outline below with the goal of completing each village build-out within 15 years.

PHASE 1 (YEAR 1-5) :
Pilot Program, assess and evaluate annually, modify plan in Phase 2

PHASE 2 (YEAR 6-9):
Assess and evaluate at year 9, modify housing program as necessary in Phase 3

PHASE 3 (YEAR 10-12):
Assess and evaluate at year 12, modify housing program as necessary in Phase 4.

PHASE 4 (YEAR 13-15):
Complete Build-Out



Phase 1 includes the following:

- Pilot program to test 1-bedroom townhomes at Eagle Mtn., Iron Mtn., and Gene.
- Short-term hotels for temporary workers at Eagle Mtn, Iron Mtn., and Gene Village.
- Short-term hotel at Hinds and Intake to support 'stand-by' plant team members.
- New or upgraded kitchens at Eagle Mtn., Iron Mtn., and Gene.
- Upgrade village amenity package at Eagle Mtn. and Iron Mtn.

FIGURE 1

See appendix pg. 100 for a detailed phasing strategy that demonstrates how each village could be phased to accommodate a range of options from all extended-stay townhomes to all single family homes.

RECOMMENDED STRATEGY

The recommended strategy for the next 75 years at Metropolitan Water District is to provide three fully supported villages at Eagle Mtn., Iron Mtn., and Gene utilizing the extended-stay townhome housing typology for future employee housing.

The intent of these villages is for employees to live on-site during their work shift in their own personal housing unit with an upgraded amenity package. Meal plans and housekeeping may be considered as added benefits for recruiting and retaining future employees living in smaller housing units. Three-bedroom/2-bathroom homes will be provided as vacation rentals at each village to allow for families of employees to temporarily stay in the village while employees need to be on-site for extended periods of time and/or are on-shift during holiday hours.

Eagle Mtn. and Iron Mtn., which include the Pump Maintenance Team and the O&M Team, are the most remote villages and have the greatest difficulty with recruitment and retention of employees. Therefore, MWD should focus resources and energy on these villages to create highly amenitized 'oases' for employees while on shift. In order to create a critical mass of people living on-site and co-locate employees with significant investment in upgraded amenity packages, Hinds Pump plant employee housing will be relocated to Eagle Mtn. village with employees commuting to Hinds Pump plants on a daily basis.

Hinds and Intake will function as 'standby satellite camps' providing a limited number of studio hotel units and a scaled back amenity package intended to support only those employees staying on-site temporarily to fullfill the 'stand-by' requirement of 15-minute response time. Intake will also include vacation rentals and a conference room in order to take advantage of its proximity to Lake Havasu as an amenity.

The diagram to the right depicts all future housing and program amenities at each of pump plant.

Note: Gene is included in this strategy as a fully operational village since it has historically operated as the 'main desert village'. However, in the past 75 years, Lake Havasu City and Parker have evolved into fully functioning towns offering all the services desired by families. In addition, many Gene/Intake employees rarely live at Gene village unless fulfilling 'stand-by' requirements. Therefore, there may be a scenario where Gene is no longer considered a village offering full-time housing and upgraded amenity package, which would lead to additional cost savings.

THREE DESERT VILLAGES

100% EXTENDED-STAY
TOWNHOMES
105 HOUSING UNITS

TOTAL COST	COST PER VILLAGE				
$ 145.6M	**$2.4M**	**$44.6M**	**$45.4M**	**$45.3M**	**$7.9M**
SUMMARY OF HOUSING AND AMENITIES					
Single Family Homes **0**	–	–	–	–	–
Extended Stay Townhomes 750 sq. ft. **105**	–	35	33	37	–
Vacation Rental **12**	–	3	3	3	3
Guest Hotel 350 sq. ft. **64**	3	17	25	15	4
Upagraded Amenities **3**	–	1	1	1	–
Guest Amenity **2**	1	–	–	–	1°
Kitchen **3**	–	1	1	1	–

° Intake will include a 800 sq. ft. conference room estimated at +/-$750,000.
*10% housing increase across all villages and scenarios
** These cost estimates do not include the estimated site improvement costs, which is about $21 million across all villages for complete build out. Final site improvements cost is variable depending on coordination with on-going infrastructure updates.
*** New facilities at Intake requires further technical study to understand feasibility of required infrastructure.

RECOMMENDED PHASING

One-bedroom extended-stay townhomes should be implemented in year one for all new employees and be assessed over a period of five years to gauge ability to recruit and retain employees with the new housing type.

Total capital improvements at all pump plants (three western villages and two satellite camps) will begin with an initial investment in the following:

- 64 studio style hotel rooms.
- 24 one-bedroom extended-stay townhomes.
- 3 new commercial kitchens at Eagle Mtn., Iron Mtn., and Gene.
- 2 upgraded village amenities at Eagle Mtn. and Iron Mtn.
- 2 guest amenities at Hinds and Intake
- 1 conference room at Intake
- 9 single family homes at to be used as temporary rental units for visitors.

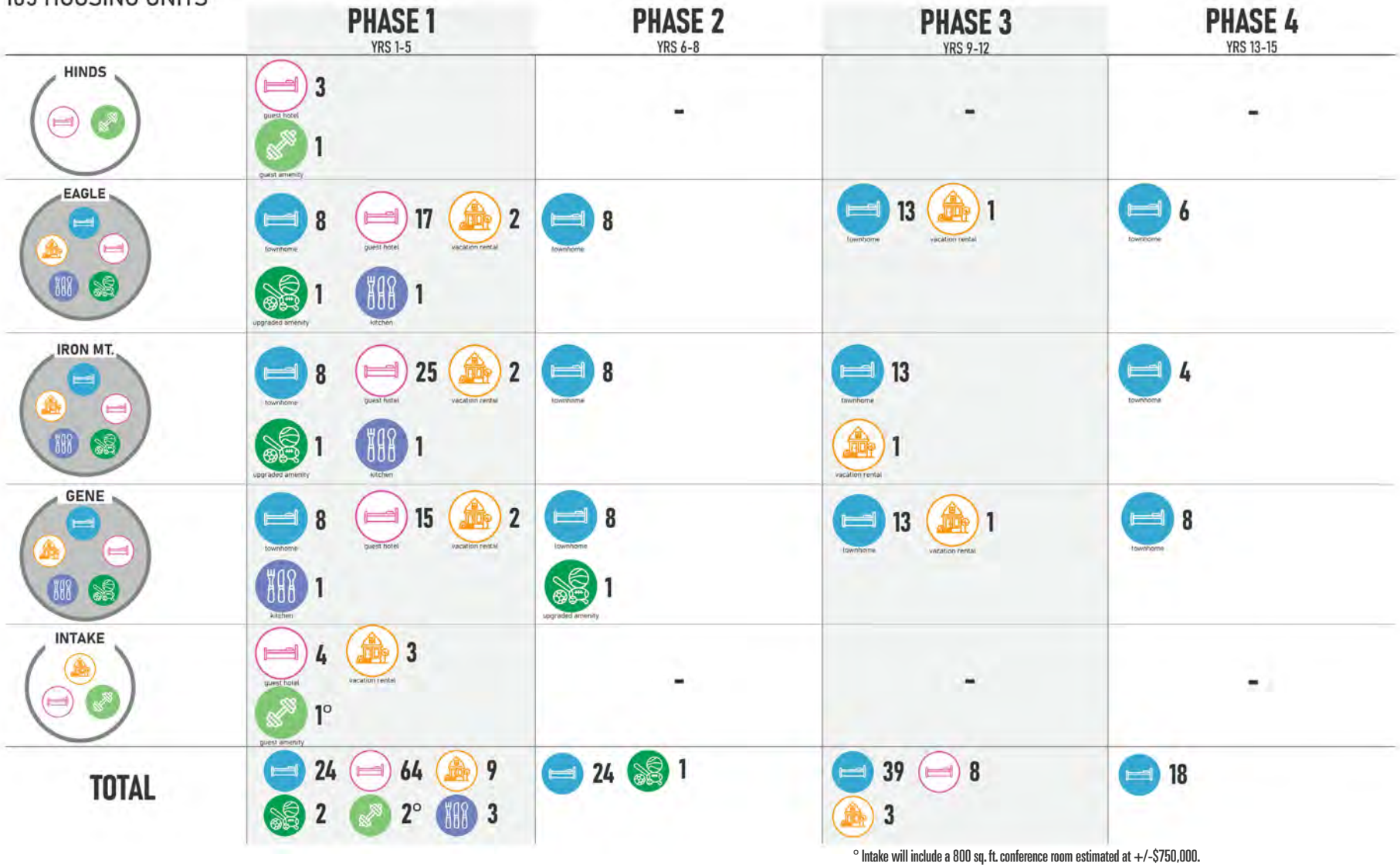
The opinion of probable cost, across all villages, for Phase 1 is approximately $82 million dollars (2024 dollars; not including soft costs, sitewide infrastructure costs, or escalation).

If the model is successful, MWD should continue a phased approach introducing new townhome units and decommissioning single-family homes over subsequent phases, assessing employee satisfaction at the end of each phase. The phasing strategy on page 26 and 27 demonstrates how the villages can be built-out in three successive, three-year phases in terms of program allocation and capital costs.

If the townhomes are less successful, housing typology can adjust during phases 2-4 in order provide a more balanced mix of single-family housing, casita, and townhome units to reflect MWD strategy for recruiting and retaining future workforce. Refer to page 27 for potential cost differences depending on the housing mix pursued by MWD.

THREE DESERT VILLAGES 100% EXTENDED-STAY TOWNHOMES

105 HOUSING UNITS



° Intake will include a 800 sq. ft. conference room estimated at +/-$750,000.

THREE DESERT VILLAGES 100% EXTENDED-STAY TOWNHOMES

105 HOUSING UNITS

	VILLAGE TOTAL	PHASE 1 YRS 1-5	PHASE 2 YRS 6-8	PHASE 3 YRS 9-12	PHASE 4 YRS 13-15
HINDS	$2.4M	$2.4M 3 GUEST HOTEL 1 GUEST AMENITY	-	-	-
EAGLE	$44.6M	$26.8M 8 EXTENDED STAY TOWNHOMES 2 VACATION RENTALS 17 GUEST HOTEL 1 UPGRADED AMENITY 1 KITCHEN	$4.8M 8 EXTENDED STAY TOWNHOMES	$9.4M 13 EXTENDED STAY TOWNHOMES 1 VACATION RENTAL	$3.6M 6 EXTENDED STAY TOWMHOMES
IRON MT.	$45.4M	$28.8M 8 EXTENDED STAY TOWNHOMES 2 VACATION RENTALS 25 GUEST HOTEL 1 UPGRADED AMENITY 1 KITCHEN	$4.8M 8 EXTENDED STAY TOWNHOMES	$9.4M 13 EXTENDED STAY TOWNHOMES 1 VACATION RENTAL	$2.4M 4 EXTENDED STAY TOWNHOMES
GENE	$45.3M	$16M 8 EXTENDED STAY TOWNHOMES 2 VACATION RENTALS 15 GUEST HOTEL 1 KITCHEN	$15.1M 8 EXTENDED STAY TOWNHOMES 1 UPGRADED AMENITY	$9.4M 13 EXTENDED STAY TOWNHOMES 1 VACATION RENTAL	$4.8M 8 EXTENDED STAY TOWNHOMES
INTAKE	$7.9M	$7.9M 4 GUEST HOTEL 1 GUEST AMENITY + CONFERENCE ROOM 3 VACATION RENTALS	-	-	-
TOTAL $145.6M		$81.9M	$24.7M	$28.2M	$10.8M

° Intake will include a 800 sq. ft. conference room estimated at +/-$750,000.

*10% housing increase across all villages and scenarios

** These cost estimates do not include the estimated site improvement costs, which is about $21 million across all villages for complete build out. Final site improvements cost is variable depending on coordination with on-going infrastructure updates.

*** New facilities at Intake requires further technical study to understand feasibility of required infrastructure.

ALTERNATIVE HOUSING MIXES

SUMMARY	COST	MODEL
THREE DESERT VILLAGES: 100% EXTENDED-STAY TOWNHOMES — Preferred Scenario		
105 extended-stay townhomes 12 vacation rentals 64 guest hotels 3 upgraded amenity packages 2 guest amenity packages 3 kitchens	**$145M**	
THREE DESERT VILLAGES: 50% EXTENDED-STAY TOWNHOMES/50% SINGLE FAMILY HOMES		
54 single family homes 53 extended-stay townhomes 9 vacation rentals 64 guest hotels 3 upgraded amenity packages 2 guest amenity packages 3 kitchens	**$189M**	
THREE DESERT VILLAGES: 100% SINGLE FAMILY HOMES		
105 single family homes 24 extended-stay townhomes 64 guest hotels 3 upgraded amenity packages 2 guest amenity packages 3 kitchens 9 vacation rentals	**$249M**	

° Intake will include a 800 sq. ft. conference room estimated at +/-$750,000.
*10% housing increase across all villages and scenarios
** These cost estimates do not include the estimated site improvement costs, which is about $21 million across all villages for complete build out. Final site improvements cost is variable depending on coordination with on-going infrastructure updates.
*** New facilities at Intake requires further technical study to understand feasibility of required infrastructure.

The preferred strategy is for 100% townhomes at Eagle Mtn., Iron Mtn., and Gene with satellite camps at Hinds and Intake.

Should Phase 1 prove unsuccessful as indicated by a future assessment of the Townhome Pilot Program, MWD could change course and implement an alternative housing program that best suits the needs of the future desert workforce. The adjacent page demonstrates two other potential village strategies; 1) 50% townhomes / 50% single family homes at each village and 2) 100% single family homes at each village.

NEXT STEPS

DECISIONS

The following decisions will guide the design and implementation phase.

1. Confirm consolidated village strategy as outlined in this report is the preferred direction.
2. Confirm recommended phasing and investment strategy outlined in this report is the preferred direction.
3. Initiate individual village concept design and phasing strategy.
4. Evaluate current capital improvement program against preferred village strategy for potential future cost savings.
5. Develop transition plan to relocate Hinds employees to Eagle Mountain
6. Create an assessment strategy and review committee for Townhome Pilot Program that includes union and employee participation.

DESIGN AND IMPLEMENTATION

Site Specific Design

Continue to develop:

- Village by Village test fits
- Refined Phasing Strategy

Preliminary Design

Begin design on new project components:

- Site plan and phasing strategy for each village
- Townhomes/Casita layout
- Amenity Package
- Validate Component Design from Previous Work
- Village Placemaking
- Hotel layout
- Single Family Homes
- Commercial Kitchens

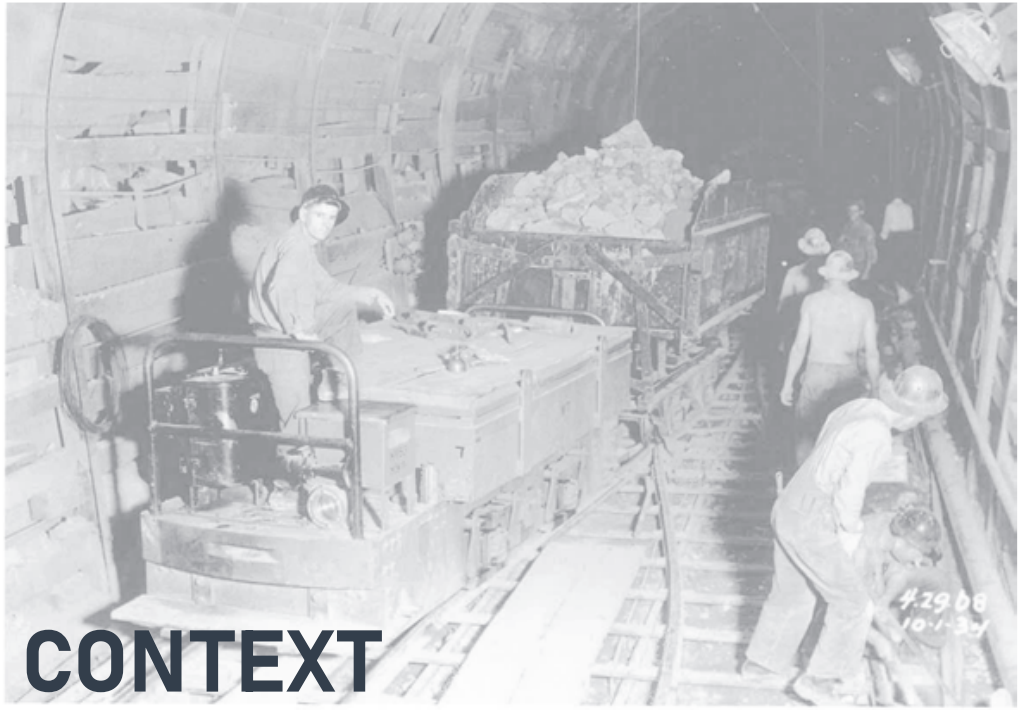
Cost Estimates

Prepare refined cost estimates for:

- Each village as design progresses
- The decommissioning of villages as phasing strategy and village test fits progress.

Appendix

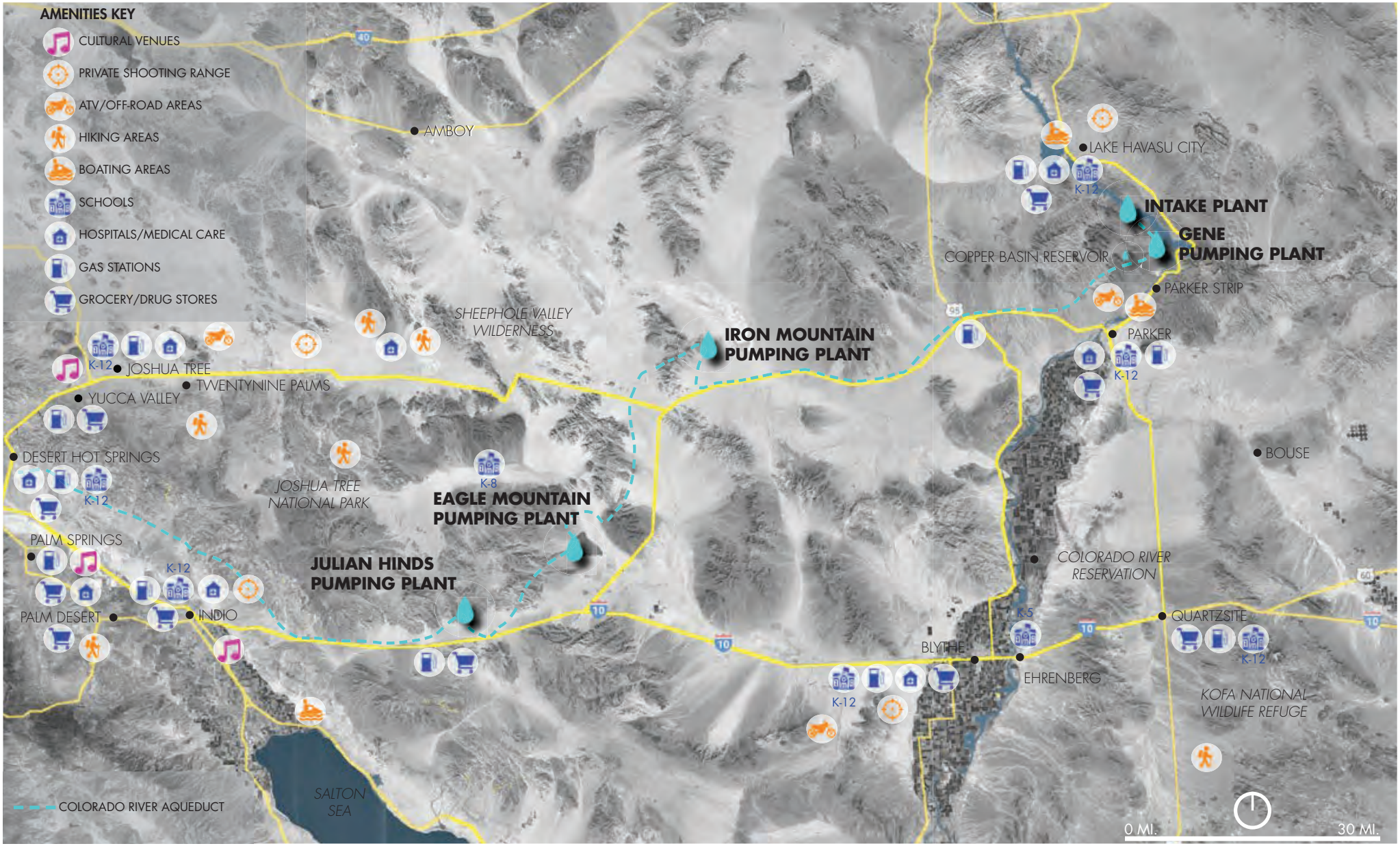
VILLAGE ANALYSIS AND UNDERSTANDING

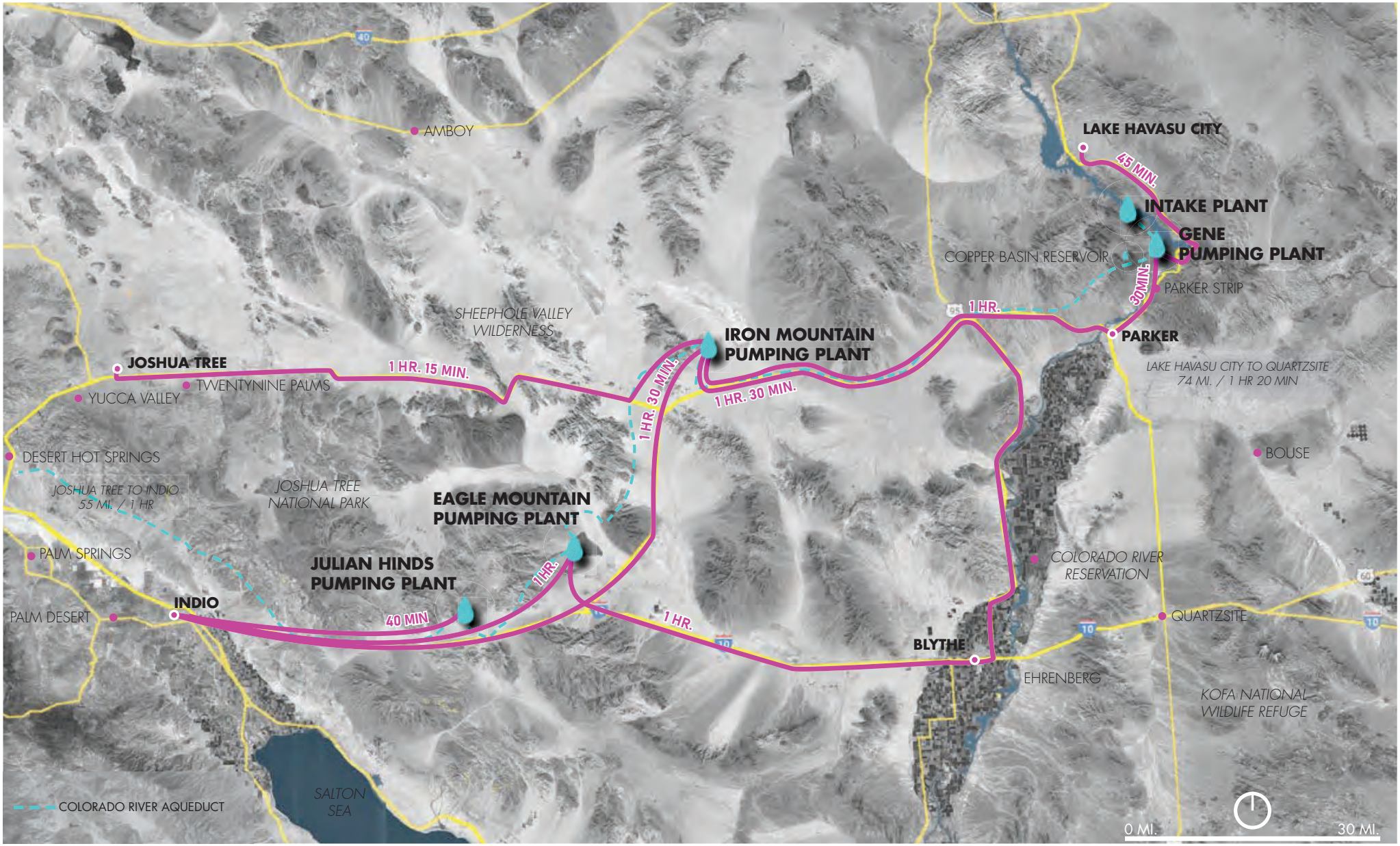


REGIONAL CONTEXT

ANALYSIS AND UNDERSTANDING| POPULATION OF ADJACENT CITIES / TOWNS

COMMUNITY PLANNING CONCEPTUAL DESIGN
9/22/2023


AMENITIES KEY
CULTURAL VENUES
PRIVATE SHOOTING RANGE
ATV/OFF-ROAD AREAS
HIKING AREAS
BOATING AREAS
SCHOOLS
HOSPITALS/MEDICAL CARE
GAS STATIONS
GROCERY/DRUG STORES
AMBOY
LAKE HAVASU CITY
K-12
INTAKE PLANT
GENE PUMPING PLANT
COPPER BASIN RESERVOIR
PARKER STRIP
PARKER
SHEEPHOLE VALLEY WILDERNESS
IRON MOUNTAIN PUMPING PLANT
JOSHUA TREE
TWENTYNINE PALMS
YUCCA VALLEY
DESERT HOT SPRINGS
BOUSE
JOSHUA TREE NATIONAL PARK
K-8
EAGLE MOUNTAIN PUMPING PLANT
PALM SPRINGS
JULIAN HINDS PUMPING PLANT
COLORADO RIVER RESERVATION
PALM DESERT
INDIO
K-5
QUARTZSITE
BLYTHE
EHRENBERG
KOFA NATIONAL WILDLIFE REFUGE
SALTON SEA
COLORADO RIVER AQUEDUCT
0 MI.
30 MI.

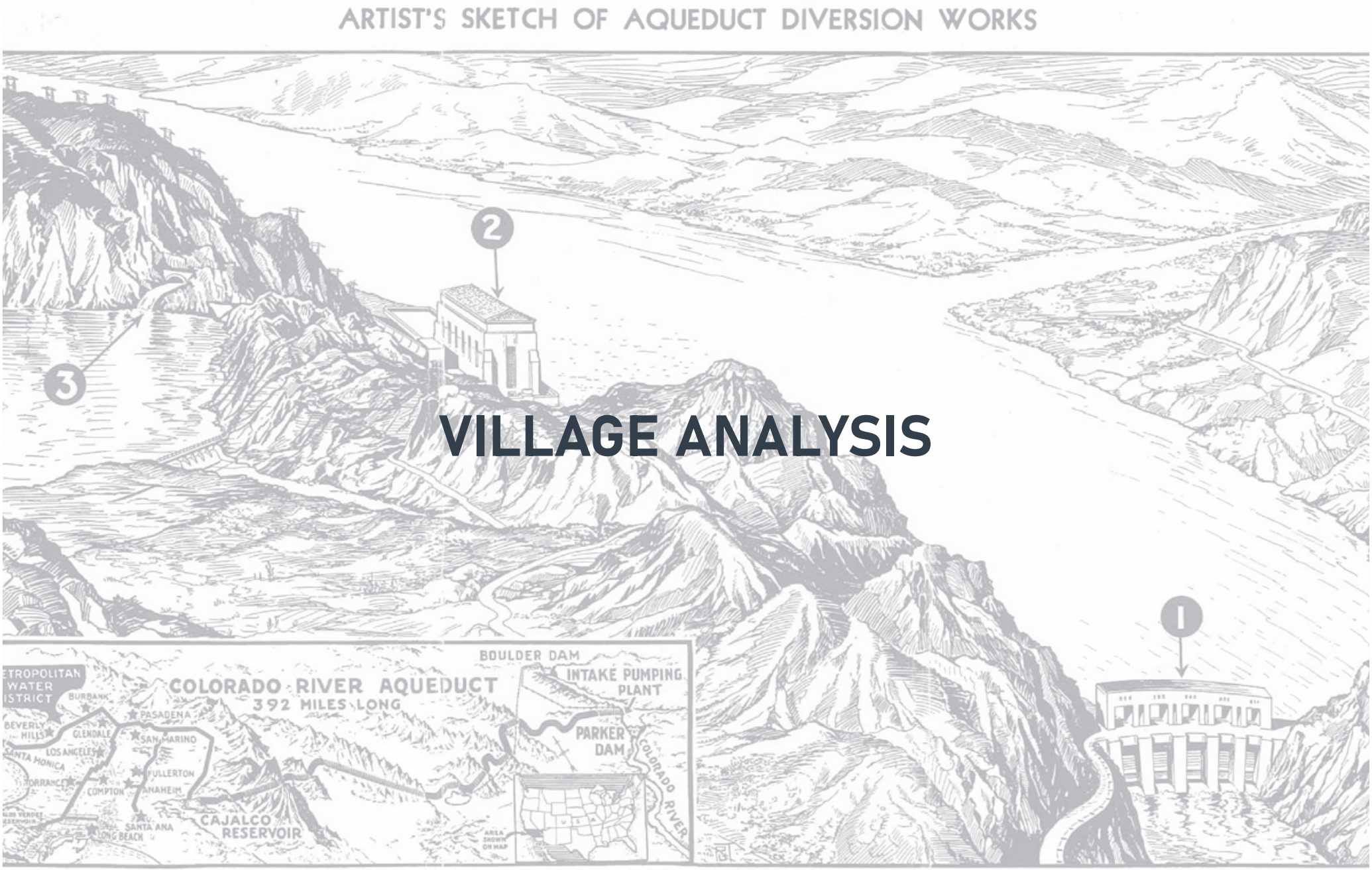


ANALYSIS AND UNDERSTANDING| **DRIVE TIMES TO ADJACENT CITIES/TOWNS**

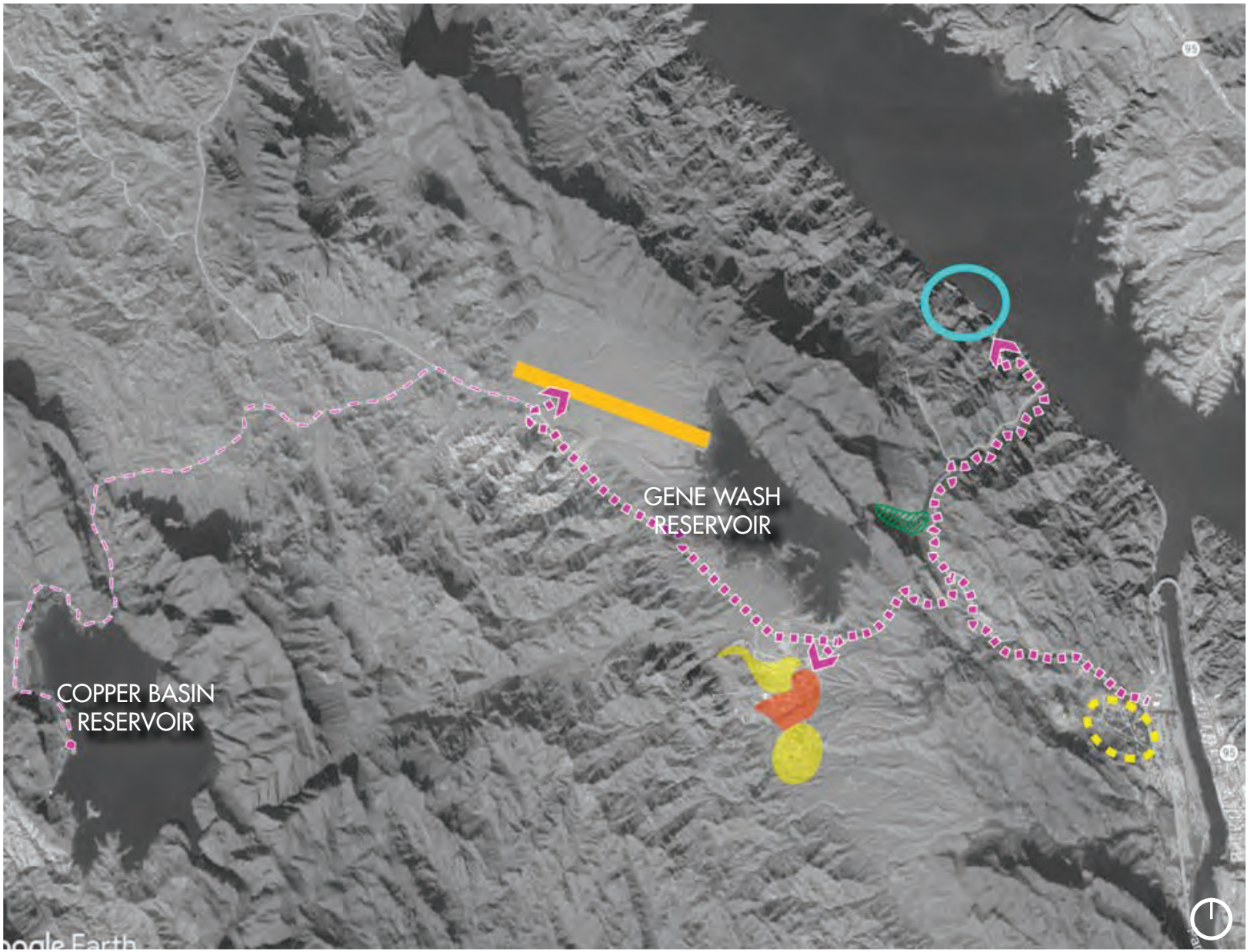
COMMUNITY PLANNING CONCEPTUAL DESIGN
9/22/2023

CIVITAS

ANALYSIS AND UNDERSTANDING| **DRIVE TIME BETWEEN PUMP PLANTS**



VILLAGE ANALYSIS

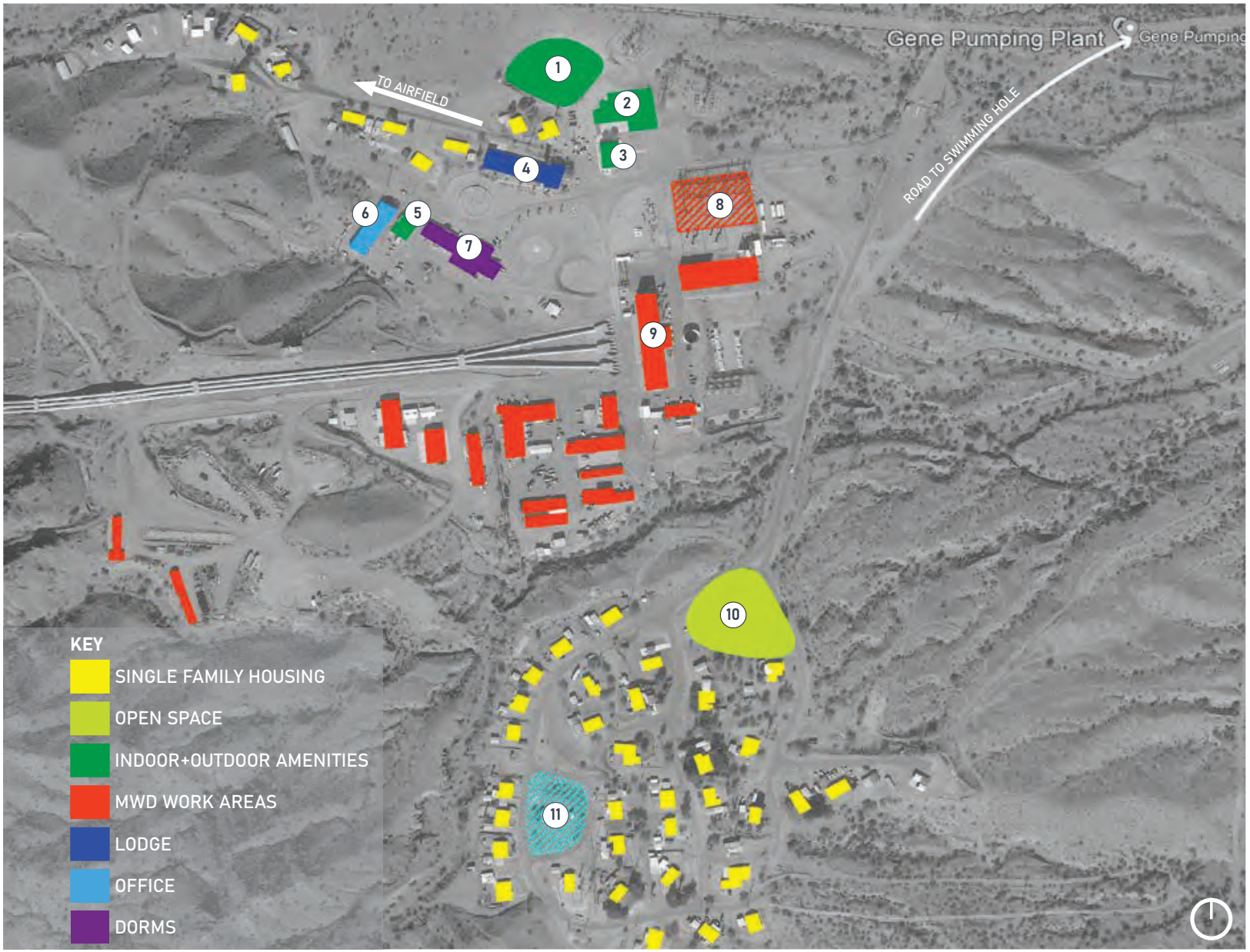


KEY OBSERVATIONS

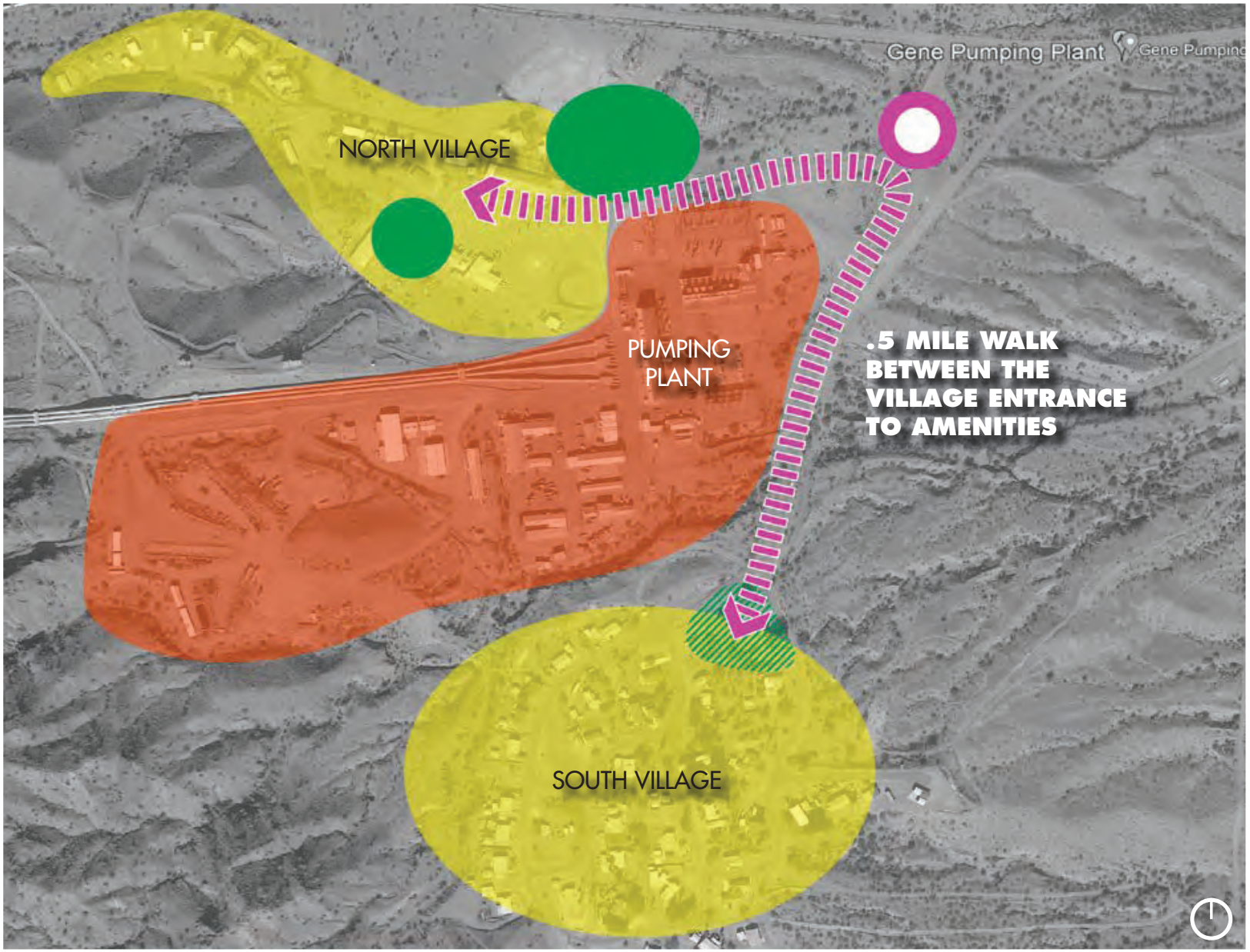
- Intake pump plant is about 3.2 miles away from Gene and staff in Intake lives in Gene Village during shift.
- Boating dock in Intake and Swimming Hole is a great asset as a recreational destination for residents.

KEY

- VILLAGE
- FORMER LOWER VILLAGE
- SWIMMING HOLE
- PUMP PLANT OPERATIONS
- INTAKE PLANT
- AIRPORT LANDING STRIP
- MAIN CIRCULATION
- ROUTE TO COPPER BASIN HOME



1 BASEBALL FIELD
2 POOL+TENNIS COURT
3 GYM+MUSEUM
4 LODGE+COMMUNITY ROOM
5 DINING HALL
6 OFFICES
7 DORMS
8 ELECTRIC SUB-STATION
9 PUMP PLANT
10 VILLAGE PARK
11 PARKING LOT/INFORMAL STORAGE



KEY OBSERVATIONS

- The two villages are separated by pump plant operations.
- All amenities are located in the northern village away from the majority of residents.
- The village park (#10) is located at the edge of the neighborhood and is surrounded by roads.
- Vacant land is informally used as storage of personal vehicles creating an eyesore for adjacent residences.
- Truck traffic is generally separated from villages.
- Temp trailers for transient workers are clustered in the north village.

KEY

- VILLAGE
- AMENITY
- OPEN SPACE
- PUMP PLANT OPERATIONS
- SECURITY CHECK POINT
- MAIN CIRCULATION

POPULATION

29 TOTAL EMPLOYEES

- 4 ON-CALL STAFF
- # PUMP PLANT OPERATORS
- # O&M
- # ADMIN
- # KITCHEN & HOSPITALITY
- # AVERAGE CONTRACT WORKERS

10 PERMANENT HOUSEHOLDS

- # YOUNG SCHOOL AGE CHILDREN
- # HIGH SCHOOL AGE CHILDREN

30 SHIFT RESIDENTS

HOUSING

42 TOTAL HOMES

- 27 OCCUPIED HOMES
- 2 STANDBY HOMES
- # TEMPORARY TRAILERS
- # DORM FACILITIES
- # LODGE FACILITIES
- 28 HOMES TO BE RENOVATED
- 5 HOMES TO BE DEMOLISHED
- 2 HOMES RECENTLY BUILT

AMENITIES

7 AMENITIES PROVIDED BY MWD

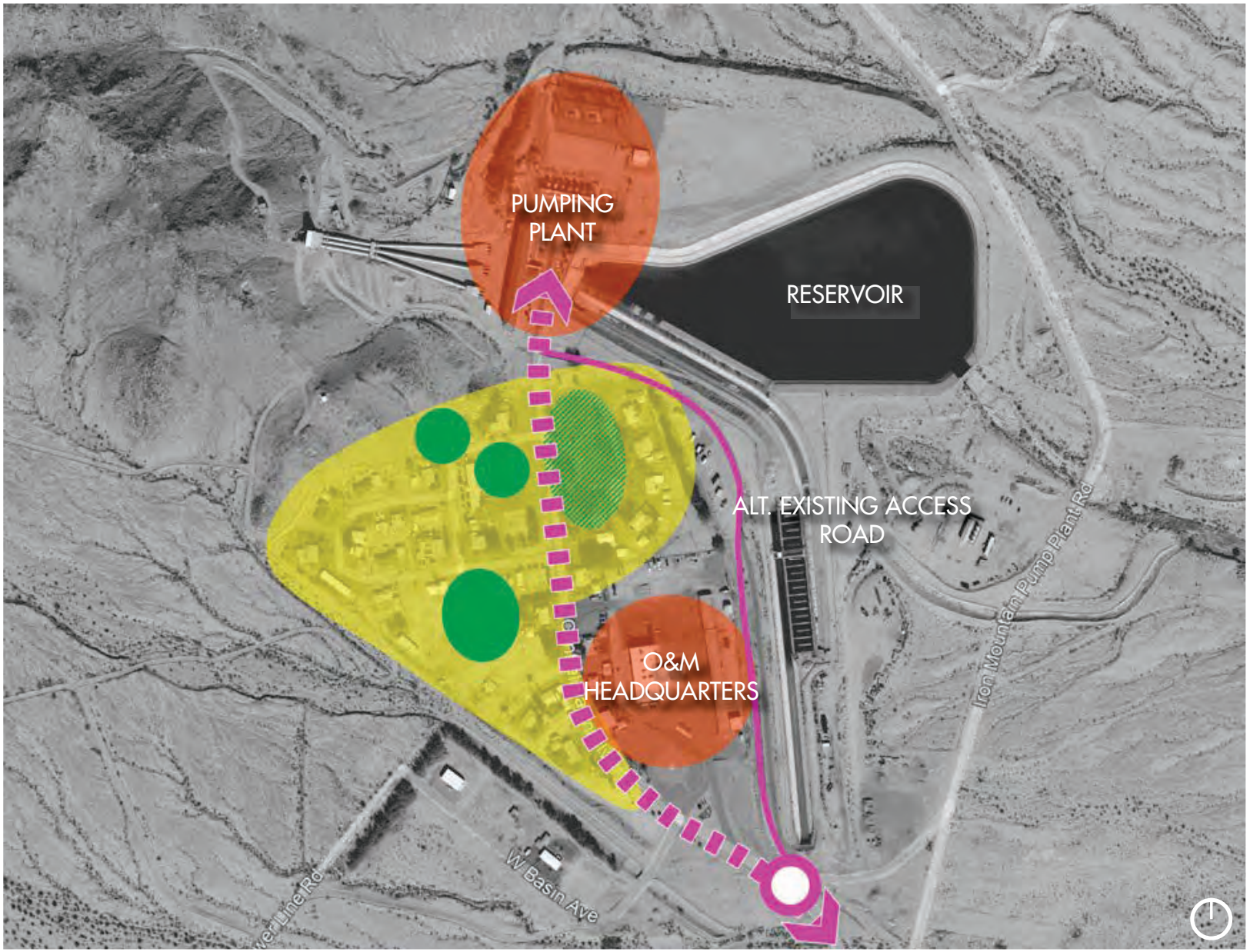
- REC ROOM
- POOL
- BASEBALL FIELD
- SWIMMING HOLE
- TENNIS COURT
- COMMUNITY ROOM
- DINING HALL

Note: all #'s represent unknown quantities that are to be provided and/or verified by MWD.






1 GYM
2 DINING HALL/ GAME ROOM
3 LODGE
4 ELECTRIC SUB-STATION
5 PUMP PLANT
6 CENTRAL LAWN
7 POOL
8 TENNIS COURT
9 RC TRACK - NO LONGER IN USE
10 O&M SHOP
11 MAIN GATE
12 MAINTENANCE OFFICE



KEY OBSERVATIONS

- O&M headquarters and maintenance facility is located next to the village causing lots of heavy service traffic and noise.
- Central basin blvd. is the main plant access and bisects residential areas.
- Amenities are clustered central to residences.
- Housing is dispersed in an unplanned fashion.
- There is some separation of residences from pump plant facilities.

KEY

- VILLAGE
- AMENITY
- OPEN SPACE
- PUMP PLANT OPERATIONS
- SECURITY CHECK POINT
- MAIN CIRCULATION

POPULATION

25 TOTAL EMPLOYEES

- 2 ON-CALL STAFF
- # PUMP PLANT OPERATORS
- # O&M - HEADQUARTERS
- # ADMIN
- # KITCHEN & HOSPITALITY
- # AVERAGE CONTRACT WORKERS

5 PERMANENT HOUSEHOLDS

- 2 YOUNG SCHOOL AGE CHILDREN
- 1 HIGH SCHOOL AGE CHILDREN

20 SHIFT RESIDENTS

HOUSING

27 TOTAL HOMES

- 20 OCCUPIED HOMES
- 2 STANDBY HOMES
- 2 TEMPORARY TRAILERS
- 15 DORM FACILITIES
- # LODGE FACILITIES
- 16 HOMES TO BE RENOVATED
- 7 HOMES TO BE DEMOLISHED
- 4 HOMES RECENTLY BUILT

AMENITIES

8 AMENITIES PROVIDED BY MWD

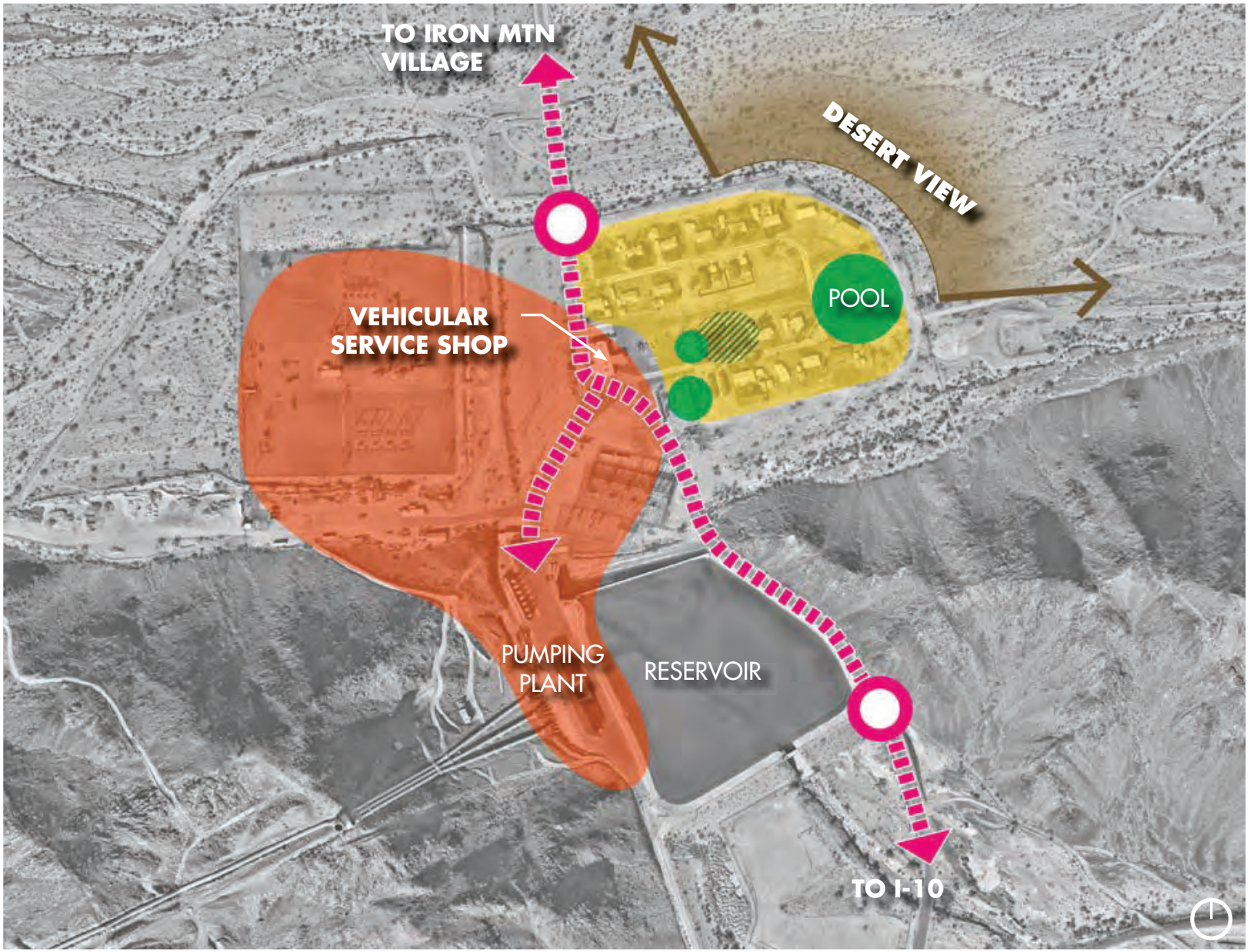
- GYM
- POOL
- CENTRAL LAWN
- FRISBEE GOLF
- PLAYGROUND
- TENNIS COURT
- GAME ROOM
- DINING HALL

Note: all #'s represent unknown quantities that are to be provided and/or verified by MWD.






1 ELECTRIC SUB-STATION
2 PUMP PLANT
3 UNDERGROUND AQUEDUCT
4 SHOP MAINTENANCE
5 DORMS
6 REC HALL+LODGE
7 CENTRAL LAWN+PLAYGROUND
8 TENNIS COURT
9 POOL
10 CIM OFFICE



KEY OBSERVATIONS

- The village and amenities are separated from pump plant and work area.
- Village has two secure entry locations.
- Housing layout lends itself to creating a stronger community feeling and should be considered for all future village layouts.
- The pool is located at the edge of the village creating an opportunity to celebrate desert views.
- Large asphalt area at maintenance area increases heat island effect.
- Distinct lack of trees in the village.
- CIM office location brings traffic and outsiders through village

KEY

- VILLAGE
- AMENITY
- OPEN SPACE
- PUMP PLANT OPERATIONS
- SECURITY CHECK POINT
- MAIN CIRCULATION

POPULATION

12 TOTAL EMPLOYEES

- 2 ON-CALL STAFF
- # PUMP PLANT OPERATORS - HQ
- # O&M
- # ADMIN
- # KITCHEN & HOSPITALITY
- # AVERAGE CONTRACT WORKERS

6 PERMANENT HOUSEHOLDS

- # YOUNG SCHOOL AGE CHILDREN
- # HIGH SCHOOL AGE CHILDREN

6 SHIFT RESIDENTS

HOUSING

17 TOTAL HOMES

- 12 OCCUPIED HOMES
- # STANDBY HOMES
- 0 TEMPORARY TRAILERS
- 10 DORM FACILITIES
- 0 LODGE FACILITIES
- 11 HOMES TO BE RENOVATED
- 1 HOMES TO BE DEMOLISHED
- 2 HOMES RECENTLY BUILT

AMENITIES

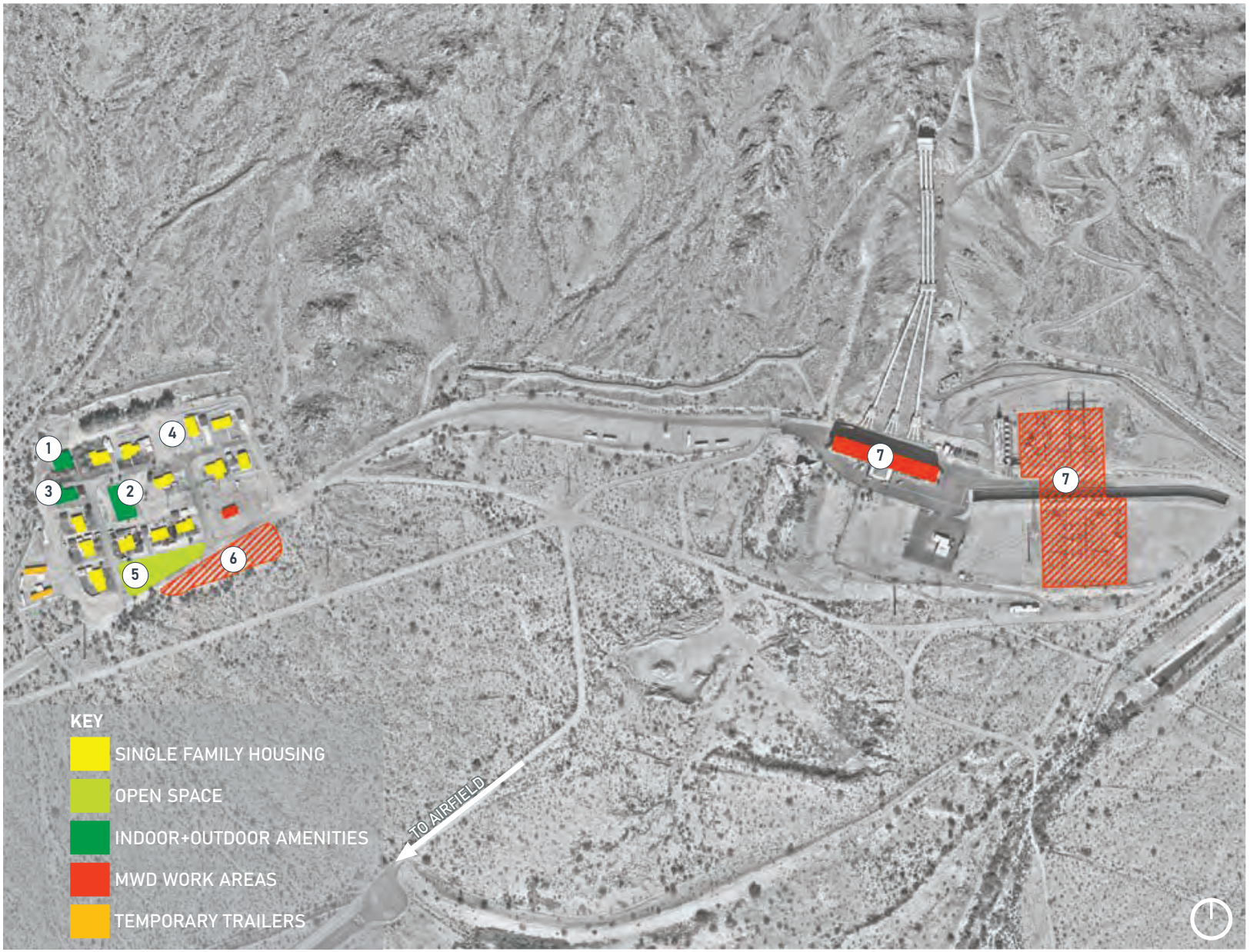
5 AMENITIES PROVIDED BY MWD

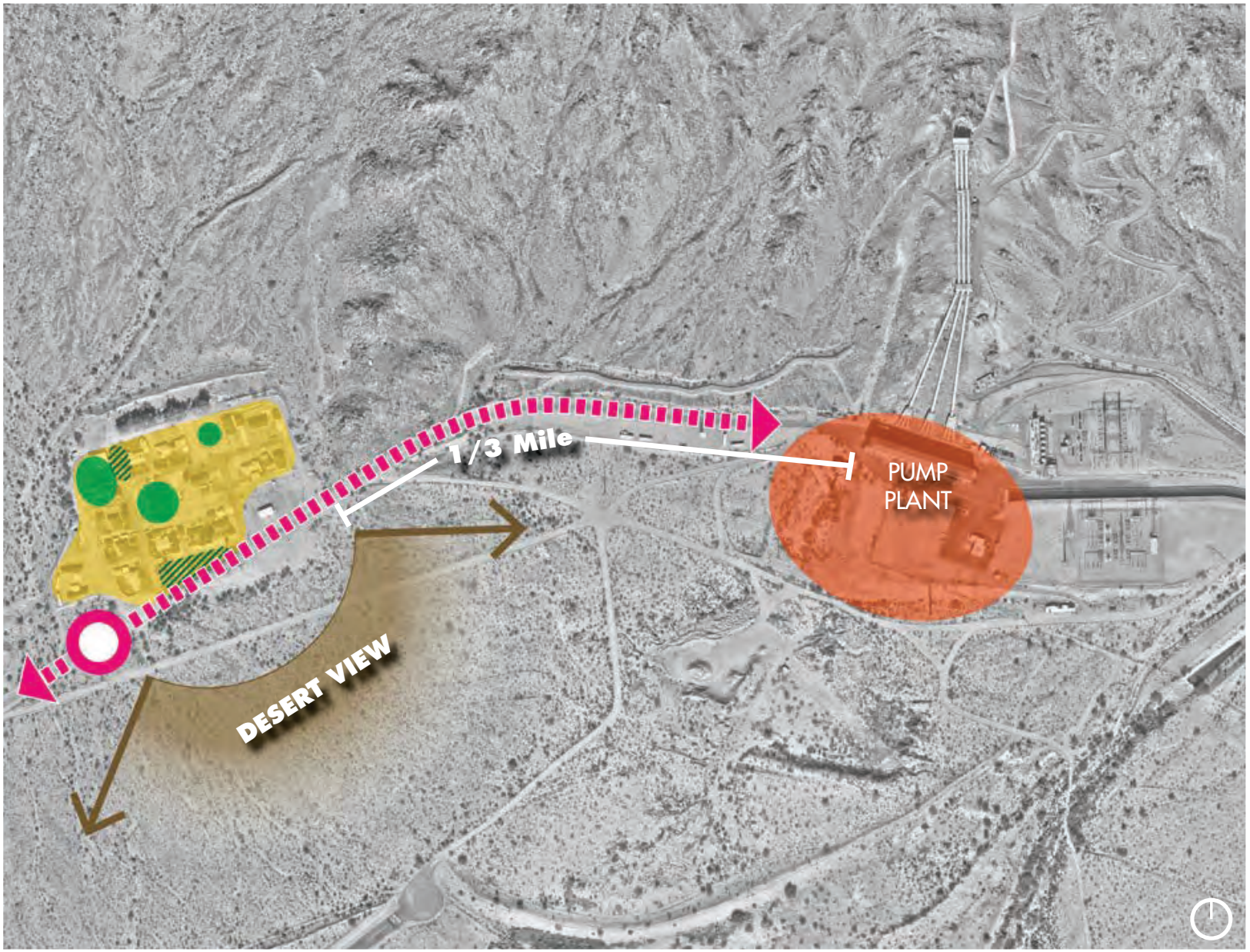
- DINING HALL
- POOL
- CENTRAL LAWN
- TENNIS COURT
- PLAYGROUND

Note: all #'s represent unknown quantities that are to be provided and/or verified by MWD.







KEY
SINGLE FAMILY HOUSING
OPEN SPACE
INDOOR+OUTDOOR AMENITIES
MWD WORK AREAS
TEMPORARY TRAILERS
TO AIRFIELD
1 REC HALL
2 TENNIS COURT
3 POOL
4 PLAYGROUND
5 CENTRAL LAWN
6 CONSTRUCTION LAYDOWN AREA
7 PUMP PLANT
8 ELECTRIC SUB-STATION



KEY OBSERVATIONS

- The village and amenities are separated from pumping plant and work area, creating a sense of home.
- The village and houses have a desert view sitting at a higher elevation than the main service access road.
- There are existing trees located at the north side of the village. They are situated at the toe of the mountain slope, presumably planted as a wind block. Measures should be taken to preserve these and plant more for future generations.
- Open space is located at the edge of the village, offering views but is not central to all residences.
- Lack of non-resident facilities at or near the plant creates scheduling and use conflicts for the recreational amenities, and between permanent and temporary workers.
- Although the main access road runs adjacent to the village, residents privacy isn't disturbed by service vehicular traffic. This is likely because there are no other operational facilities located on site.

KEY

- VILLAGE
- AMENITY
- OPEN SPACE
- PUMP PLANT OPERATIONS
- SECURITY CHECK POINT
- MAIN CIRCULATION

POPULATION

12 TOTAL EMPLOYEES

- 2 ON-CALL STAFF
- # PUMP PLANT OPERATORS - HQ
- # O&M
- # ADMIN
- # KITCHEN & HOSPITALITY
- # AVERAGE CONTRACT WORKERS

5 PERMANENT HOUSEHOLDS

- 6 YOUNG SCHOOL AGE CHILDREN
- 0 HIGH SCHOOL AGE CHILDREN

7 SHIFT RESIDENTS

HOUSING

13 TOTAL HOMES

- 12 OCCUPIED HOMES
- # STANDBY HOMES
- 4 TEMPORARY TRAILERS
- 0 DORM FACILITIES
- 0 LODGE FACILITIES
- 8 HOMES TO BE RENOVATED
- 0 HOMES TO BE DEMOLISHED
- 3 HOMES RECENTLY BUILT

AMENITIES

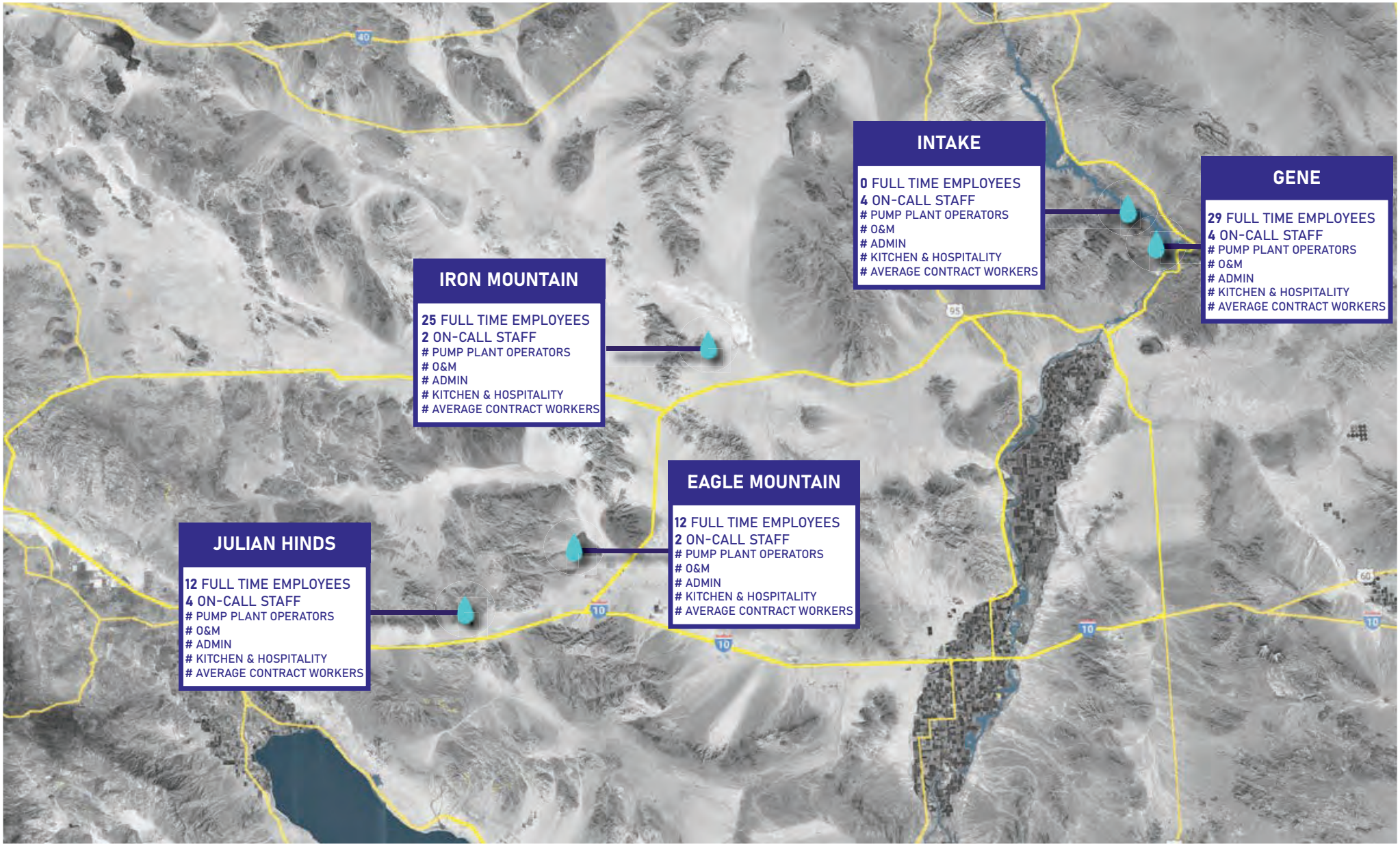
5 AMENITIES PROVIDED BY MWD

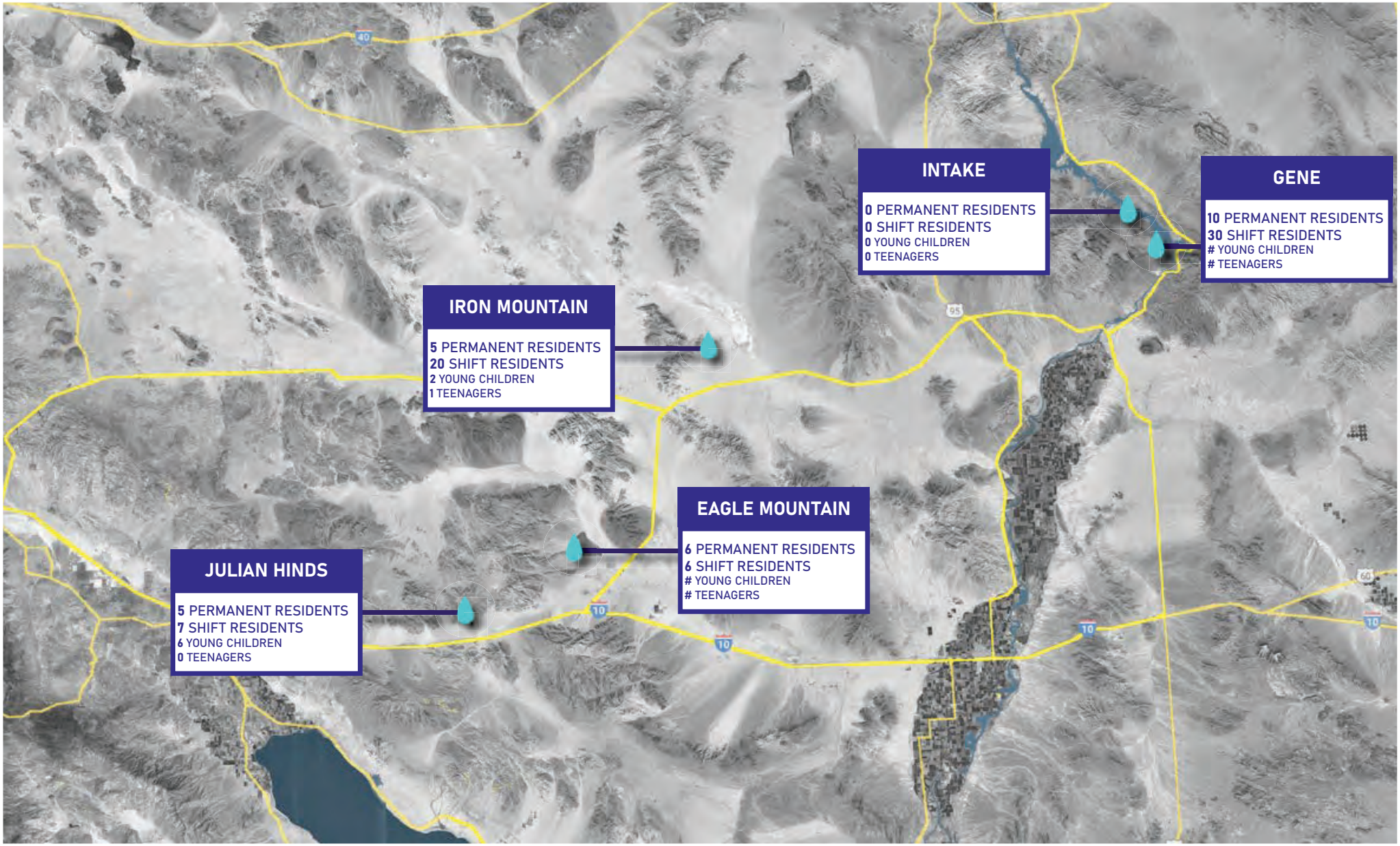
- REC HALL
- POOL
- CENTRAL LAWN
- TENNIS COURT
- PLAYGROUND

Note: all #'s represent unknown quantities that are to be provided and/or verified by MWD.

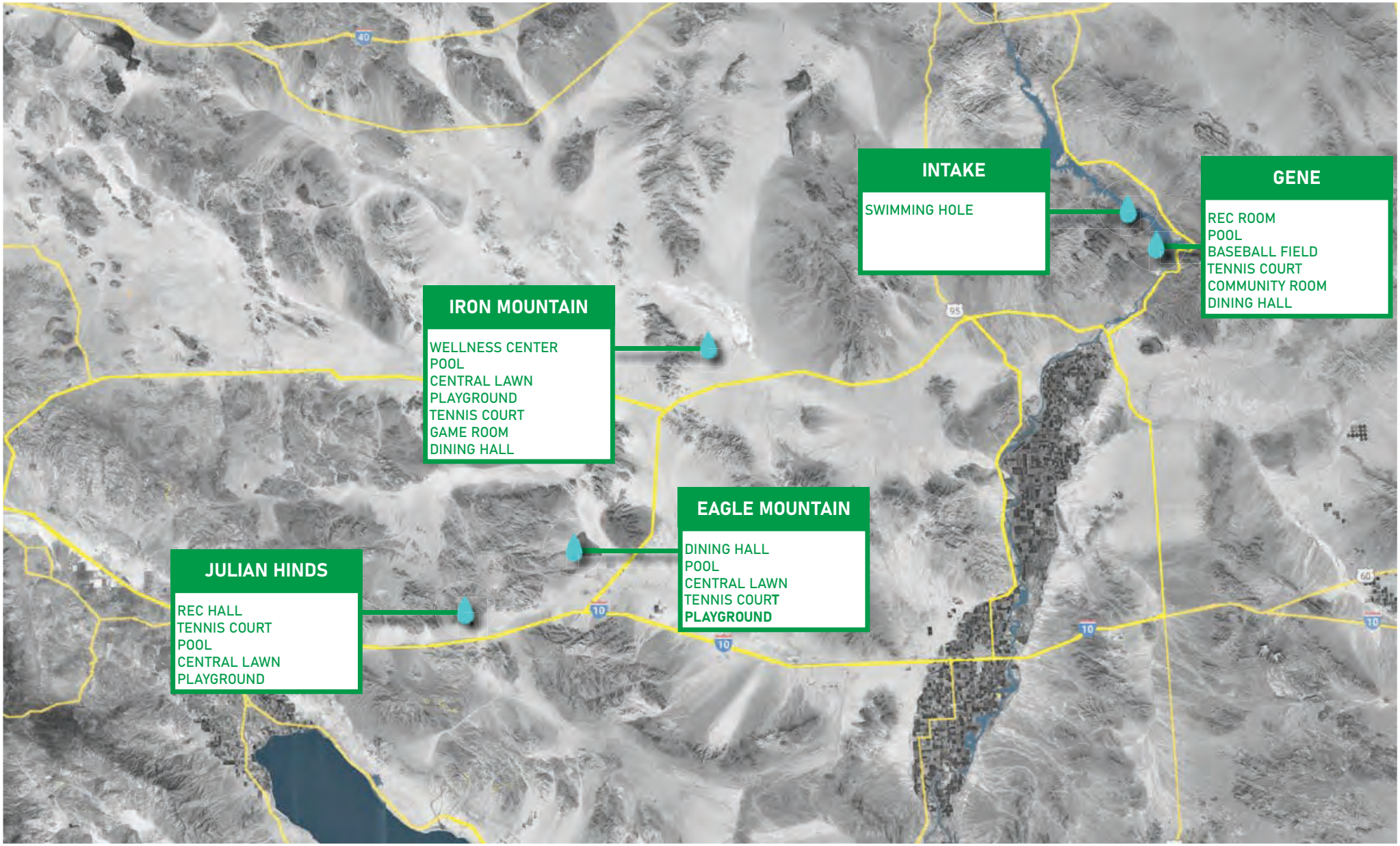


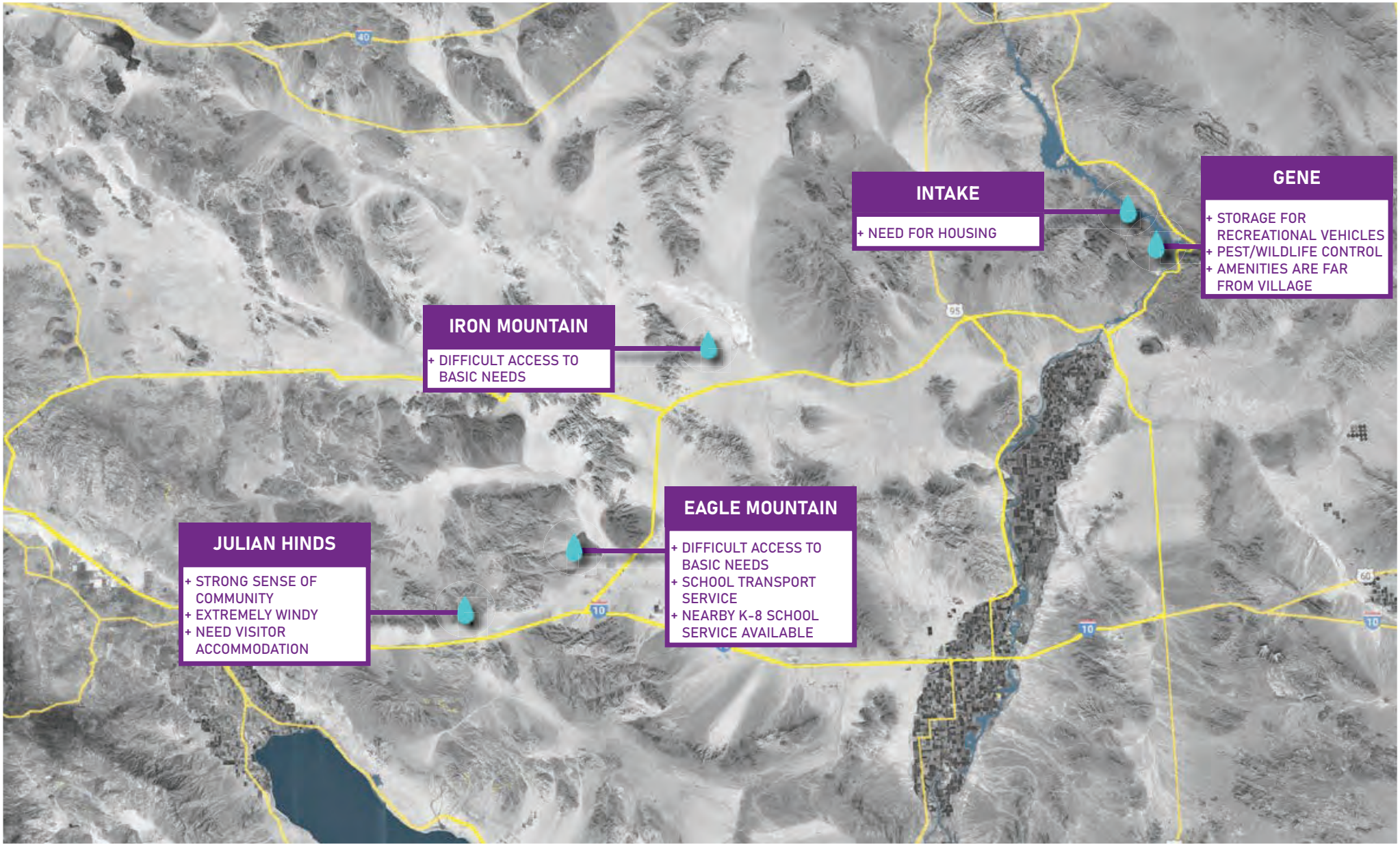




INTAKE
0 FULL TIME EMPLOYEES
4 ON-CALL STAFF
PUMP PLANT OPERATORS
O&M
ADMIN
KITCHEN & HOSPITALITY
AVERAGE CONTRACT WORKERS
GENE
29 FULL TIME EMPLOYEES
4 ON-CALL STAFF
PUMP PLANT OPERATORS
O&M
ADMIN
KITCHEN & HOSPITALITY
AVERAGE CONTRACT WORKERS
IRON MOUNTAIN
25 FULL TIME EMPLOYEES
2 ON-CALL STAFF
PUMP PLANT OPERATORS
O&M
ADMIN
KITCHEN & HOSPITALITY
AVERAGE CONTRACT WORKERS
EAGLE MOUNTAIN
12 FULL TIME EMPLOYEES
2 ON-CALL STAFF
PUMP PLANT OPERATORS
O&M
ADMIN
KITCHEN & HOSPITALITY
AVERAGE CONTRACT WORKERS
JULIAN HINDS
12 FULL TIME EMPLOYEES
4 ON-CALL STAFF
PUMP PLANT OPERATORS
O&M
ADMIN
KITCHEN & HOSPITALITY
AVERAGE CONTRACT WORKERS


INTAKE
0 PERMANENT RESIDENTS
0 SHIFT RESIDENTS
0 YOUNG CHILDREN
0 TEENAGERS
GENE
10 PERMANENT RESIDENTS
30 SHIFT RESIDENTS
YOUNG CHILDREN
TEENAGERS
IRON MOUNTAIN
5 PERMANENT RESIDENTS
20 SHIFT RESIDENTS
2 YOUNG CHILDREN
1 TEENAGERS
EAGLE MOUNTAIN
6 PERMANENT RESIDENTS
6 SHIFT RESIDENTS
YOUNG CHILDREN
TEENAGERS
JULIAN HINDS
5 PERMANENT RESIDENTS
7 SHIFT RESIDENTS
6 YOUNG CHILDREN
0 TEENAGERS


INTAKE
5 UNINHABITABLE HOMES
GENE
42 TOTAL HOMES
27 OCCUPIED HOMES
2 STANDBY HOMES
TEMPORARY TRAILERS
DORMS
LODGE
IRON MOUNTAIN
27 TOTAL HOMES
20 OCCUPIED HOMES
2 STANDBY HOMES
2 TEMPORARY TRAILERS
15 DORM
LODGE
EAGLE MOUNTAIN
17 TOTAL HOMES
12 OCCUPIED HOMES
STANDBY HOMES
0 TEMPORARY TRAILERS
10 DORMS
LODGE
JULIAN HINDS
13 TOTAL HOMES
12 OCCUPIED HOMES
0 STANDBY HOMES
4 TEMPORARY TRAILERS
DORMS
LODGE


INTAKE
SWIMMING HOLE
GENE
REC ROOM
POOL
BASEBALL FIELD
TENNIS COURT
COMMUNITY ROOM
DINING HALL
IRON MOUNTAIN
WELLNESS CENTER
POOL
CENTRAL LAWN
PLAYGROUND
TENNIS COURT
GAME ROOM
DINING HALL
EAGLE MOUNTAIN
DINING HALL
POOL
CENTRAL LAWN
TENNIS COURT
PLAYGROUND
JULIAN HINDS
REC HALL
TENNIS COURT
POOL
CENTRAL LAWN
PLAYGROUND


INTAKE
+ NEED FOR HOUSING
GENE
+ STORAGE FOR RECREATIONAL VEHICLES
+ PEST/WILDLIFE CONTROL
+ AMENITIES ARE FAR FROM VILLAGE
IRON MOUNTAIN
+ DIFFICULT ACCESS TO BASIC NEEDS
EAGLE MOUNTAIN
+ DIFFICULT ACCESS TO BASIC NEEDS
+ SCHOOL TRANSPORT SERVICE
+ NEARBY K-8 SCHOOL SERVICE AVAILABLE
JULIAN HINDS
+ STRONG SENSE OF COMMUNITY
+ EXTREMELY WINDY
+ NEED VISITOR ACCOMMODATION

VILLAGE GREEN IN IRON MOUNTAIN VILLAGE

After a series of interviews with Metropolitan Water District staff, leadership, current residents and employees, and union representatives, we developed a greater level of understanding about the lifestyles of employees, as well as cultural aspects of working and living in the High Desert of Southern California. Community engagement and management feedback informed the following observations:

1. Due to its irregular layout and poor site conditions, the southern village of Gene offers the least sense of community and has the lowest percentage of permanent residents. This may also be due to its proximity to larger towns, such as Parker and Lake Havasu City.
2. Housing must be provided at the intake plant in order to meet the 15-minute response requirement.
3. In general, villages should be distanced from the plant and service facility in order to create a sense of separation and "going home" after a work shift.
4. The main access road should be separate from the villages so that service traffic does not disrupt the community.
5. New residential neighborhood typologies should be considered. These typologies may organize residences around common community amenities and open spaces, separates heavy equipment and visitor traffic from the residences, and provides separate resident and visitor amenities.
6. Multi-use indoor sports field is an option to create a multi-purpose, climate controlled amenity.
7. Condominiums with front doors, or even personal RV use would be considered, but needs to be coupled with salary, shift adjustment and amenity packages.
8. Planting trees with proper irrigation systems provide shade and overall beautification of village.
9. Optional landscape contracts for front yard and private spaces need to be provided. This might help to address the vacant homes that need to be maintained while residents are not living there.
10. Iron Mountain and Eagle Mountain villages have a stronger sense of community given their remoteness.
11. Many residents in the Iron Mountain, Eagle Mountain, and Julian Hinds villages acknowledge their choice to live in remote location for pay and benefits, but there is a strong desire for basic improvements expected for human habitation in a desert (working ac, proper gym, shade, landscape, work/life balance and separation).

The Metropolitan Water District villages along the Colorado River Aqueduct were established at a time when there were less options for living in the High Desert. The villages were more remote and access and personal transportation was less sophisticated. In the last 75 years, surrounding cities have developed, more amenities have become available in nearby towns, paved highways were built, and personal vehicles have become the norm. By analyzing community needs and issues, our observations listed above help to establish guiding principles but also raises significant questions about the role of MWD villages moving forward:

- Are we creating villages intended to support permanent residents or are we creating 'Shift' accommodations?
- Is compensation part of the equation when considering housing typologies? Should we consider moving away from 'Equal housing' and towards appropriate tied to lifestyle and compensation package?
- Should we consider creating a consolidated western village with elevated amenities and employees are then expected to commute to pump plants? (Pump plants would have limited on-call accommodations)?
- Should we consider transitioning away from Gene as a permanent village given proximity to Lake Havasu and Parker?
- Would MWD consider partnering with a developer to build a future village?

COMMUNITY OUTREACH

ENGAGEMENT AT A GLANCE

15+ HOURS OF COMMUNITY INTERVIEWS

130+ UNIQUE COMMENTS

10+ WRITTEN COMMENTS

4 COMMUNITY MEETINGS

40+

EMPLOYEES AND RESIDENTS ENGAGED (5 PUMPING PLANTS)

5 SITE WALKS


INTAKE
GENE
IRON MOUNTAIN
EAGLE
HINDS
EXISTING CONDITIONS
MANAGEMENT /PLANT OPERATIONS
VILLAGE WIDE
LIFE STYLE /CULTURE
HOUSING
AMENITIES
PUBLIC SAFETY
SCHOOLING
Privacy fencing
2 car garage
Dog Park
Local library
KEY
FACTS
THEMES THROUGHOUT VILLAGE
THEMES SPECIFIC TO VILLAGE

COMMON THEMES AMONG ALL VILLAGES

LIFESTYLE/CULTURE

- LIVE/WORK IN THE VILLAGE
- GREAT OPPORTUNITY FOR OUTDOOR ACTIVITIES
- QUIET SMALL TOWN FEELING
- HAVING THEIR OWN FRONT DOOR TO GO HOME TO AT THE END OF THE DAY IS IMPORTANT
- COMARADERIE AMONGST PUMP PLANT EMPLOYEES AND SENSE OF PRIDE AND OWNERSHIP OVER PUMP PLANT
- THE SENSE OF SECURITY LIVING IN A 'GATED' COMMUNITY IS HIGHLY VALUED

HOUSING

- 3 BD/2 BA SINGLE FAMILY DETACHED HOME IS MOST DESIRED
- REAR YARD WITH PRIVACY FENCING
- WIDE DRIVEWAY WITH SHADE STRUCTURE FOR RV PARKING AND LARGE TRUCKS
- COVERED PATIO SPACE IN OUTDOOR LIVING AREA
- PRIVACY FENCING
- LARGER GARAGES AND GREATER STORAGE SPACE

AMENITIES

- UPGRADE POOL AND LARGE SHADE STRUCTURE
- MULTI-PURPOSE RECREATIONAL FACILITY (SPORTS FIELD, BASKETBALL COURT, GYM, GAME ROOM, MEETING ROOM, ETC.)
- CENTRAL GATHERING PLACE
- SHADE TREES WITH OWN IRRIGATION SYSTEM
- BETTER WI-FI/INTERNET SERVICE
- RESIDENTS WOULD LIKE SEPARATION FROM OUTSIDERS IN ORDER TO HAVE GREATER OWNERSHIP OVER AMENITIES
- PRIORITIZE INDOOR AMENITIES DUE TO EXTREME CONDITIONS

PUBLIC SAFETY

- LIMITED EMERGENCY RESPONDER AND EMS TRAINING
- LIMITED OR NO MEDICAL SERVICES NEARBY

EDUCATION

- LIMITED ACCESS TO PRIMARY EDUCATION AND CHILDREN'S PROGRAMING MAKES IT DIFFICULT FOR FAMILIES TO LIVE REMOTE.
- BUSSING SERVICES HAVE BEEN LIMITED.

UNIQUE THEMES

INTAKE

- NEED HOUSING FOR REQUIRED ON-CALL STAFF TO RESPOND WITHIN 15 MINUTES
- OPPORTUNITY FOR A RECREATION DESTINATION, SWIMMING HOLE, HAVASU LAKE, ETC.

GENE

- AMENITIES ARE SEPARATED FROM THE MAIN VILLAGE
- GYM FACILITY NEEDS TO BE MAINTAINED AND UPGRADED
- WILD ANIMALS AND INSECTS ARE AN ISSUE
- THE SWIMMING HOLE IS A BELOVED AMENITY. USING IT AS A CONSTRUCTION STAGING GROUND DIMINISHES IT'S SENSE OF PLACE AND MAKES EMPLOYEES FEEL LIKE THEY ARE STILL 'AT WORK'
- MANY FOLKS CONSIDER THIS VILLAGE SHIFT HOUSING/VACATION HOUSING
- EXISTING SOUTHERN VILLAGE HOUSING LAYOUT FEELS DISJOINTED

IRON MOUNTAIN

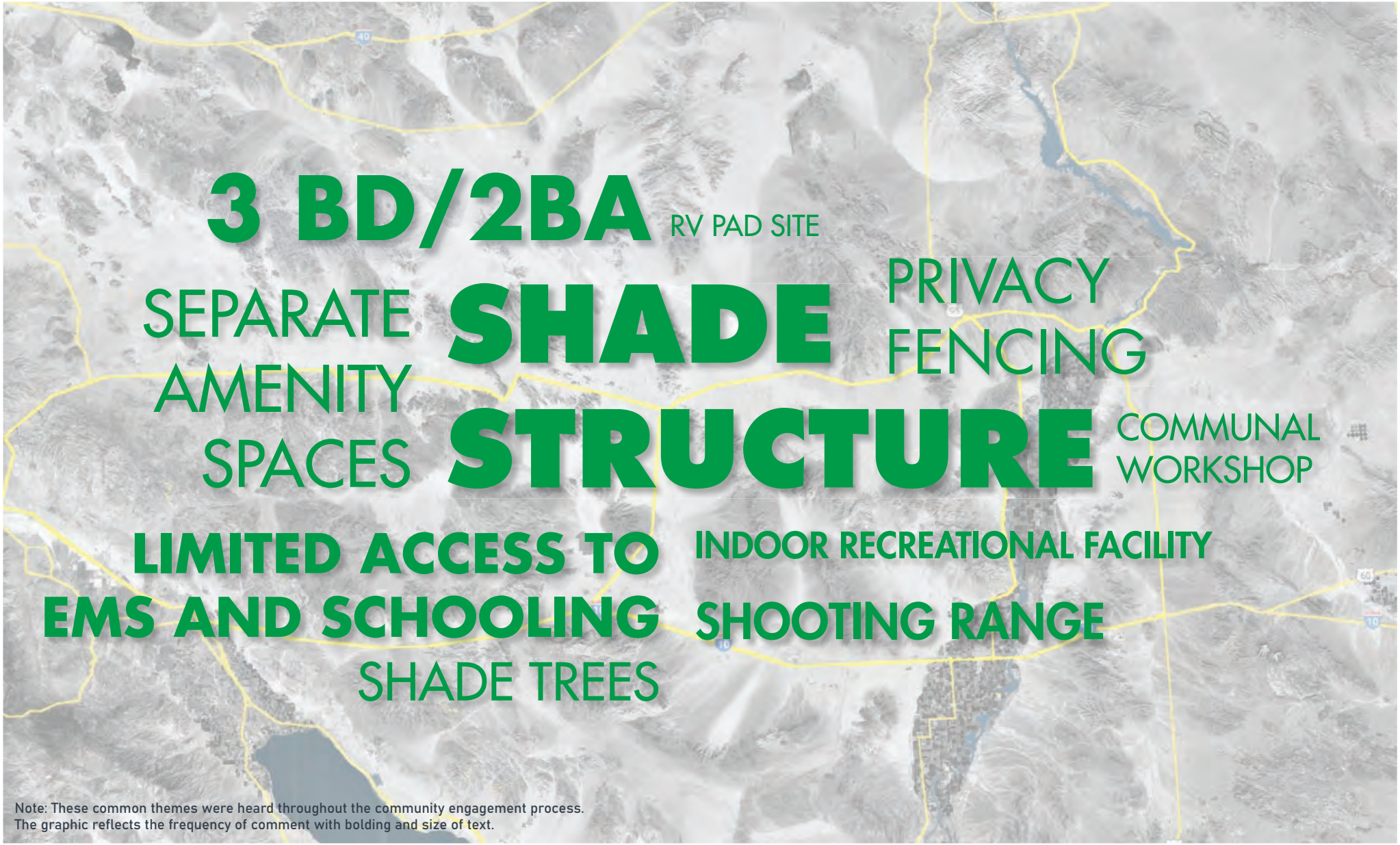
- THE MOST REMOTE VILLAGE
- LOGISTICS OF TRANSPORTING FOOD IS DIFFICULT, REQUIRES LARGE COOLERS AND ADDITIONAL TIME ON WAY TO WORK
- CREATE ABILITY FOR EMPLOYEES TO PURCHASE FUEL ON-SITE
- LONG COMMUTING TIMES FOR WORK AND SCHOOL
- STAFFING SHORTAGE
- THE GUN RANGE WAS THE CENTER OF THE SOCIAL COMMUNITY (IT'S THEIR BOWLING ALLEY)
- POTENTIAL TO CREATE AN AMENITY LIKE THE SWIMMING HOLE AT GENE WITH WATER DUMPED INTO THE DESERT WHEN THEY FLUSH THE SAND TRAPS EACH WEEK.
- EXTEND KITCHEN SERVICES DURING THE WEEKENDS

EAGLE MOUNTAIN

- THERE ARE 2 SECURITY GATES, NORTH FROM IRON MOUNTAIN AND SOUTH FROM HINDS
- ON-GOING ISSUES WITH WATER PRESSURE AND OTHER MAINTENANCE ISSUES
- RESUME KITCHEN SERVICE PROTECT THE CAMP BOUNDARY WITH LANDSCAPING AND TREES
- SCHOOLING IS AVAILABLE WITHIN 10 MINUTES WITH A TRANSPORTATION SERVICE FOR K-8 STUDENTS

JULIAN HINDS

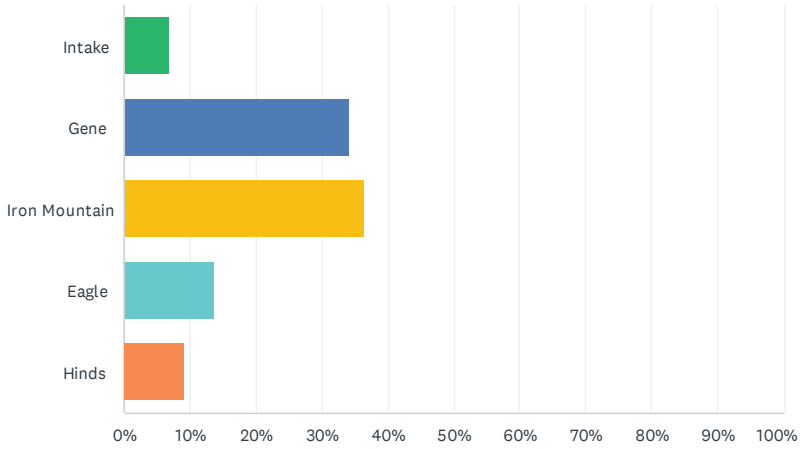
- STRONG SENSE OF COMMUNITY
- EXTREMELY WINDY IN WINTER SEASON
- NEED FOR AN ACCOMMODATION FACILITY FOR GUEST AND VISITORS



Note: These common themes were heard throughout the community engagement process.
The graphic reflects the frequency of comment with bolding and size of text.

Q1 Which village do you currently work/reside?

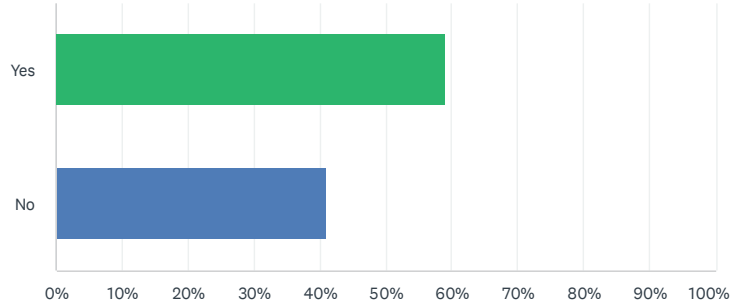
Answered: 44 Skipped: 3



ANSWER CHOICES	RESPONSES	
Intake	6.82%	3
Gene	34.09%	15
Iron Mountain	36.36%	16
Eagle	13.64%	6
Hinds	9.09%	4
TOTAL		44

Q2 Do you consider your current MWD provided housing as your primary residence? (You live on-site full-time year round)

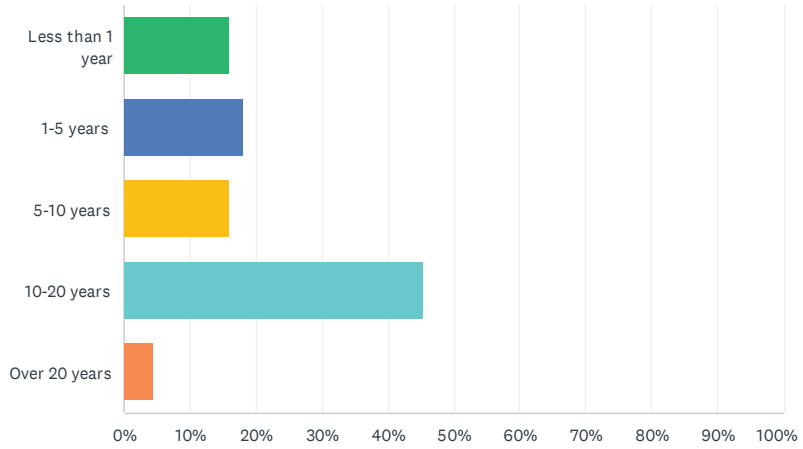
Answered: 44 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	59.09%	26
No	40.91%	18
Total Respondents: 44		

Q3 How long have you worked for MWD at a desert village

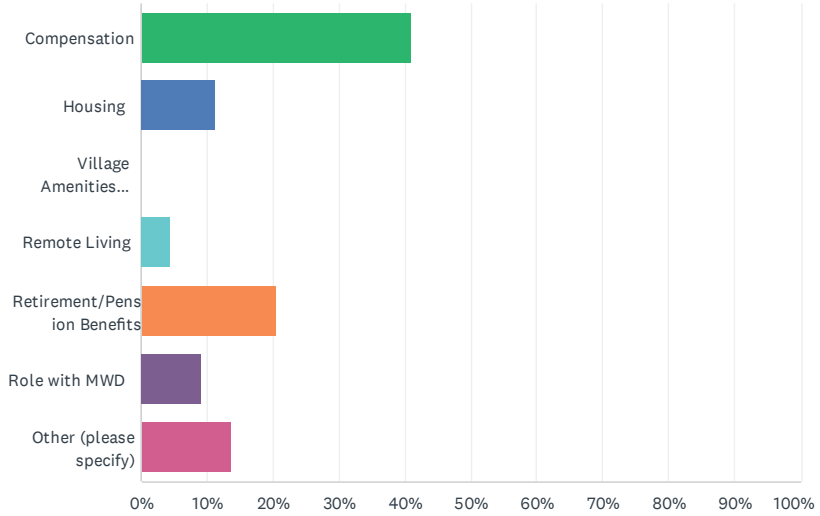
Answered: 44 Skipped: 3



ANSWER CHOICES	RESPONSES	
Less than 1 year	15.91%	7
1-5 years	18.18%	8
5-10 years	15.91%	7
10-20 years	45.45%	20
Over 20 years	4.55%	2
TOTAL		44

Q4 When you began working for MWD, what benefit was the biggest factor in you accepting the position?

Answered: 44 Skipped: 3



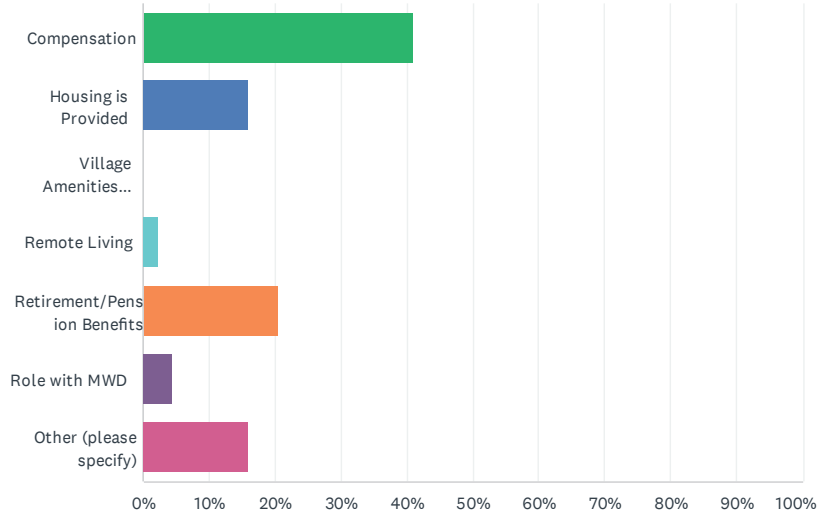
ANSWER CHOICES	RESPONSES	
Compensation	40.91%	18
Housing	11.36%	5
Village Amenities (Pool, fitness center, etc)	0.00%	0
Remote Living	4.55%	2
Retirement/Pension Benefits	20.45%	9
Role with MWD	9.09%	4
Other (please specify)	13.64%	6
TOTAL		44

#	OTHER (PLEASE SPECIFY)	DATE
1	Everything but remote living	1/24/2024 2:17 PM
2	compensation was good but housing and being able to bring my family was the deciding factor, otherwise I would not have chosen this location	1/24/2024 8:58 AM
3	Compensation was the biggest factor, but housing, amenities and retirement were biggies.	1/24/2024 7:48 AM
4	Apprenticeship program, housing was a bonus and unknow at the time I was hired.	1/24/2024 6:50 AM
5	Honestly the only thing i knew where the retirement, pension, and medical benefits. Honestly i didnt even know there was a career opportunity for me here since i have a culinary degree with	1/23/2024 1:22 PM

	15+ years restaurant and casino experience.	
6	Compensation and schedule	1/18/2024 5:21 AM

Q5 What do you think is the most important factor in attracting future employees to MWD?

Answered: 44 Skipped: 3



ANSWER CHOICES	RESPONSES	
Compensation	40.91%	18
Housing is Provided	15.91%	7
Village Amenities (Pool, fitness center, etc)	0.00%	0
Remote Living	2.27%	1
Retirement/Pension Benefits	20.45%	9
Role with MWD	4.55%	2
Other (please specify)	15.91%	7
TOTAL		44

#	OTHER (PLEASE SPECIFY)	DATE
1	Everything but remote living/it is harsh in the desert etc	1/24/2024 2:17 PM
2	Compensation and provided housing	1/24/2024 8:58 AM
3	all the above	1/24/2024 7:48 AM
4	should be able to answer more than 1, compensation/retirement benefits is why I am here	1/24/2024 7:00 AM
5	the biggest expense a family has is there home if an employee with a family or is young could try to use the saving from housing to invest and help is family move up the class ladder.	1/23/2024 1:22 PM

6	Combination of housing, compensation and amenities	1/23/2024 10:14 AM
7	Compensation and housing	1/18/2024 5:21 AM

Questions 6-12 refer to the strategy of having villages at Iron and Eagle only

Q6 The proposed housing strategy will attract and retain employees.

Answered: 43 Skipped: 4

2.4★
average rating

	STRONGLY DISAGREE	(NO LABEL)	NEUTRAL	(NO LABEL)	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
☆	46.51% 20	11.63% 5	18.60% 8	2.33% 1	20.93% 9	43	2.40

Q7 The proposed layout will support a strong sense of community amongst employees.

Answered: 43 Skipped: 4

2.7★
average rating

	LEAST SENSE OF COMMUNITY	(NO LABEL)	(NO LABEL)	(NO LABEL)	STRONGEST SENSE OF COMMUNITY	TOTAL	WEIGHTED AVERAGE
☆	34.88% 15	18.60% 8	16.28% 7	4.65% 2	25.58% 11	43	2.67

Q8 The proposed strategy will support the long-term operations of the plants

Answered: 43 Skipped: 4

2.6★
average rating

	STRONGLY DISAGREE	(NO LABEL)	NEUTRAL	(NO LABEL)	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
☆	39.53% 17	9.30% 4	23.26% 10	4.65% 2	23.26% 10	43	2.63

The follostion refer to the strategy of having villages at Iron and Eagle only

Q9 How acceptable is commuting to Hinds and Gene when not on a 15 minute stand-by?

Answered: 43 Skipped: 4

2.6★
average rating

	NOT ACCEPTABLE	(NO LABEL)	NEUTRAL	(NO LABEL)	ACCEPTABLE	TOTAL	WEIGHTED AVERAGE
☆	39.53% 17	6.98% 3	23.26% 10	11.63% 5	18.60% 8	43	2.63

Q10 The proposed villages will support a safe and healthy live/work environment

Answered: 43 Skipped: 4

2.7★
average rating

	STRONGLY DISAGREE	(NO LABEL)	NEUTRAL	(NO LABEL)	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
☆	39.53% 17	6.98% 3	20.93% 9	6.98% 3	25.58% 11	43	2.72

Q11 How acceptable is the proposed housing strategy to you as a current employee?

Answered: 43 Skipped: 4

2.4★
average rating

	LEAST ACCEPTABLE	(NO LABEL)	NEUTRAL	(NO LABEL)	MOST ACCEPTABLE	TOTAL	WEIGHTED AVERAGE
☆	46.51% 20	16.28% 7	11.63% 5	2.33% 1	23.26% 10	43	2.40

Q12 Please share any other comments about this option you have below:

Answered: 40 Skipped: 7

#	RESPONSES	DATE
1	z	1/25/2024 11:15 AM
2	.	1/24/2024 2:21 PM
3	I reside at Iron. This would not change my housing situation.	1/24/2024 12:32 PM
4	NA	1/24/2024 9:26 AM
5	.	1/24/2024 9:03 AM
6	I enjoy my house at Gene. I have very few issues with it. My primary residence is in Kingman AZ. I would not be in favor short term housing at Gene for standby only. If there was short term housing for all of my days on shift that would be more appealing.	1/24/2024 7:56 AM
7	I personally would not want to have to leave Eagle to travel to Hinds every day. Furthermore, I would absolutely not want to have to go to Hinds to an apartment or whatever when on standby and then go back to my regular house when standby is over. That's too much back and forth for me.	1/24/2024 7:56 AM
8	combining Hinds and eagle would work they are close enough together for it to work.	1/24/2024 7:44 AM
9	The requirement to force every one to commute is less safe, especially on rice road. I get to choose how I utilize my district house, in this scenario I have no choice.	1/24/2024 7:03 AM
10	good job	1/24/2024 6:54 AM
11	This option will make it even harder to staff the desert facilities	1/24/2024 6:38 AM
12	0	1/24/2024 6:32 AM
13	none	1/23/2024 3:07 PM
14	MWD has tried this approach before and failed.	1/23/2024 2:38 PM
15	I would not want to work at Eagle or Iron just to get a house.	1/23/2024 2:36 PM
16	na	1/23/2024 2:33 PM
17	Desert employees were much happier with the villages years ago, with a true trades team and maintenance staff.	1/23/2024 2:29 PM
18	this is the best suggestion since the 2 remote villages are the most difficult to recruit for and it fixes those issues since it is very remote.	1/23/2024 1:26 PM
19	THE COMMUTE FROM INDIO, CA TO HINDS IS THE SAME AS LAKE HAVASU CITY, AZ TO GENE(NOT INCLUDING THE RESTRICTED HOURS OF PARKER DAM)...WHY ARE THEY TREATED DIFFERENTLY?	1/23/2024 1:07 PM
20	I BELIEVE THAT THE VILLAGES THAT ARE MOST SECULED FROM CIVALIZATION SHOULD GET THE MOST FUNDING	1/23/2024 12:47 PM
21	No comment	1/23/2024 12:26 PM
22	Just bring current housing back to acceptable standards and compensate employees appropriately. Everyone has different needs and desires for village enhancements, we will never please everyone.	1/23/2024 12:20 PM
23	This is a bad move. There needs to be a village at each location. The housing does not need to be extravagant nor does MWD need to reinvent the wheel in doing so. Simple modular homes like the several that have been already installed at all locations would more than suffice. This a very reasonable and cost-effective option. Look at what has already been done	1/23/2024 12:18 PM

	and expand on it. Employees have a sense of pride of ownership of these Desert Pump Plants, and you will destroy that mentality if we can't live where we work in these remote jobs. The village is an extension of the pump plant, and the same pride of ownership applies.	
24	Recruitment is the single biggest issue facing the Desert today. Private, single family homes are the largest recruitment magnets we currently possess. I understand they are expensive, but speaking for myself only, I would not have been able, or willing to relocate my family to the Desert without the availability of a private residence. Supply shortages in Lake Havasu City have dramatically increased the cost of housing over the last few years. It is more expensive with fewer amenities than many California cities.	1/23/2024 12:17 PM
25	Bad Idea to combine these villages	1/23/2024 12:09 PM
26	Commuting to and from Gene from iron would be time consuming. It's approximately 1.5 hours each way. Might be a good idea to provide temp housing (dorms, condos, etc.) for employees commuting to and from Gene from iron.	1/23/2024 10:17 AM
27	sdfds	1/23/2024 7:50 AM
28	Hinds instead of eagle due to closer proximity to town, decreased travel to groceries, shopping, medical facilities, etc.	1/18/2024 11:46 AM
29	No	1/18/2024 8:24 AM
30	Na	1/18/2024 7:46 AM
31	Na	1/18/2024 7:42 AM
32	Na	1/18/2024 7:39 AM
33	I believe the desert should have priority to fund allocation	1/18/2024 7:19 AM
34	Employees do not want to live in a hotel room, away from their families.	1/18/2024 6:43 AM
35	Just remodel the current houses and get rid of real property group	1/18/2024 5:25 AM
36	The money being spent on the this continued "survey" coupled with the continued "dragging of the feet" to "redeveloped" is only wasting money. NOTHING EVER gets cheaper, i.e. building material cost, labor etc.	1/18/2024 5:21 AM
37	Combining hinds and eagle isn't a terrible idea, but keep iron n gene village. Standby quarters at gene wouldn't work for me as I live to far away from gene. Not feasible to commute. Although I don't consider gene house as my primary resident. I am in the village while I am on shift. Even when I am on standby. Also I live at higher altitude, so when it's cold I will stay in the village when not on shift in the winter	1/17/2024 2:52 PM
38	People are not upset with their current housing, they are upset by the incompetence of current property management. If we had competent property management we would not be in the current situation we are in. Unfortunately until that changes everything will remain the way it is out here. Metropolitan is great at supplying water to 19 million people but cannot figure out how to manage housing for a hundred or so, it really is shameful. I realize that you are being paid to come up with a solution and have no concern for incompetent property management internally, so let's just keep trying the same thing and expecting different results.	1/12/2024 8:28 AM
39	test	1/9/2024 5:05 PM
40	ffgd	1/8/2024 12:32 PM

Questions 13-19 relate to the option of having a single village at Gene with standby housing at others

Q13 The proposed housing strategy will attract and retain employees.

Answered: 39 Skipped: 8

2.0★

average rating

	STRONGLY DISAGREE	(NO LABEL)	NEUTRAL	(NO LABEL)	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
☆	61.54% 24	2.56% 1	17.95% 7	7.69% 3	10.26% 4	39	2.03

Q14 The proposed layout will support a strong sense of community amongst employees.

Answered: 39 Skipped: 8

2.0★
average rating

	LEAST SENSE OF COMMUNITY	(NO LABEL)	(NO LABEL)	(NO LABEL)	STRONGEST SENSE OF COMMUNITY	TOTAL	WEIGHTED AVERAGE
☆	61.54% 24	5.13% 2	15.38% 6	5.13% 2	12.82% 5	39	2.03

Q15 The proposed strategy will support the long-term operations of the plants

Answered: 39 Skipped: 8

2.0★
average rating

	STRONGLY DISAGREE	(NO LABEL)	NEUTRAL	(NO LABEL)	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
☆	56.41% 22	7.69% 3	23.08% 9	2.56% 1	10.26% 4	39	2.03

Q16 How acceptable is commuting to Hines, Eagle, and Iron Mountain?

Answered: 39 Skipped: 8

1.9★
average rating

	NOT ACCEPTABLE	(NO LABEL)	NEUTRAL	(NO LABEL)	ACCEPTABLE	TOTAL	WEIGHTED AVERAGE
☆	64.10% 25	12.82% 5	10.26% 4	0.00% 0	12.82% 5	39	1.85

Q17 The proposed villages will support a safe and healthy live/work environment

Answered: 39 Skipped: 8

2.1★
average rating

	STRONGLY DISAGREE	(NO LABEL)	NEUTRAL	(NO LABEL)	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
☆	58.97% 23	0.00% 0	23.08% 9	5.13% 2	12.82% 5	39	2.13

Q18 How acceptable is the proposed housing strategy to you as a current employee?

Answered: 39 Skipped: 8

2.0★
average rating

	LEAST ACCEPTABLE	(NO LABEL)	NEUTRAL	(NO LABEL)	MOST ACCEPTABLE	TOTAL	WEIGHTED AVERAGE
☆	64.10% 25	5.13% 2	15.38% 6	2.56% 1	12.82% 5	39	1.95

Q19 Please share any other comments about this option you have below:

Answered: 36 Skipped: 11

#	RESPONSES	DATE
1	z	1/25/2024 11:16 AM
2	.	1/24/2024 2:22 PM
3	Commuting is a large waste of time and money.	1/24/2024 12:35 PM
4	na	1/24/2024 9:27 AM
5	keep it the way it is please	1/24/2024 9:05 AM
6	I would absolutely put in for a transfer out of the desert asap if this were to happen. I live in the Inland Empire and uprooting my family is not an option. My wife has her own career. My son likes his school and friends. They like to visit me when I'm on shift at Eagle...but that's about it. Thanks but no thanks.	1/24/2024 8:01 AM
7	This option will work out far better for me	1/24/2024 7:56 AM
8	In a perfect world, where management held employees accountable for their work performance, it would be great. Moving employees around sounds great for operations but moving from plant to plant will not work with this company. Plus you lose sense of ownership when you work at one plant.	1/24/2024 7:47 AM
9	Non of these solution will solve anything. The few people that live in camp, will live in camp. I see most people going to where ever there home is outside work just like current. This still forces employees to live out of hotel like rooms during the work shift. I've done it at other plants and it is not desirable.	1/24/2024 7:24 AM
10	good job	1/24/2024 6:42 AM
11	This option will also make it even harder to staff the desert facilities	1/24/2024 6:39 AM
12	0	1/24/2024 6:33 AM
13	none	1/23/2024 3:08 PM
14	I hope you can still have a house at Gene if you work at Intake because it doesn't show an arrow between them.	1/23/2024 2:41 PM
15	MWD has tried this approach before and failed.	1/23/2024 2:38 PM
16	no work will get done	1/23/2024 2:34 PM
17	To much commuting.	1/23/2024 2:29 PM
18	EVERYONE WILL WANT A SINGLE FAMILY HOME WHETHER OR NOT THEY HAVE ANOTHER RESIDENCE. THEY ARE LYING IF THEY SAY OTHERWISE. PEOPLE WILL WANT WHAT EVERYONE ELSE GETS INCLUDING MYSELF. USING SOMEONES PERSONAL ADDRESS TO ASSIGN HOUSING IS DISCRIMINATION. GET OUT OF PEOPLES PERSONAL LIVES.	1/23/2024 1:36 PM
19	This plan might pose an issue simply due to the unknow weather conditions. What would happen if the roads get shut due to the rain or an accident. and there is an emergency in any of the plants.	1/23/2024 1:30 PM
20	YOU WOULD HAVE TO PAY THE PEOPLE THAT ARE BEING SENT TO COMMUTE TO THE DESERT A LOT OF MONEY FOR THIS TO WORK	1/23/2024 12:48 PM
21	These plants need ample (i.e. Daily) maintenance and care taking, to continue its storied reliability with all of its aging assets, losing 4 hours a day to drive time seems awfully inefficient for maintenance and unfair to the rate payers as they are paying for us to travel several hours everyday to respond to scheduled or worst unscheduled emergencies. The	1/23/2024 12:38 PM

	current villages offer some flexibility with this as some employees can be called into action with very little down time provided they are in the village. Many of our families reside in California so this idea takes us even farther away from them. And what does "Hotel Style" actually mean? This seems like it could negatively affect budgeting as hotel infers housekeeping, entertainment, laundry, and food service options. All of which bring with them labor needs and and additional skillsets and assets; Refrigeration, commissary, inventory controls, menu management etc. Items that we fall short on as it is with our small hospitality sector.	
22	This is challenging to answer because it is so dependent on the dynamics of the individual employee and their families. Some families are okay with a parent being away two weeks per month. Others are not (still others are single). Speaking only for myself, my wife and children would find this unacceptable as a long-term option and we would be searching for a job away from the Desert (though hopefully still with MWD). If commute time was 'on the clock' it would make the commutes more palatable but would also be a continual business cost.	1/23/2024 12:28 PM
23	This is a bad move. There needs to be a village at each location. The housing does not need to be extravagant nor does MWD need to reinvent the wheel in doing so. Simple modular homes like the several that have been already installed at all locations would more than suffice. This a very reasonable and cost-effective option. Look at what has already been done and expand on it. Employees have a sense of pride of ownership of these Desert Pump Plants, and you will destroy that mentality if we can't live where we work in these remote jobs. The village is an extension of the pump plant, and the same pride of ownership applies.	1/23/2024 12:18 PM
24	Bad Idea	1/23/2024 12:09 PM
25	Travel time from Gene would be too much in my opinion. Centralized villages make more sense	1/23/2024 10:19 AM
26	dsfds	1/23/2024 7:51 AM
27	Does nothing to help with employee retention down line of Gene pump plant	1/18/2024 11:47 AM
28	Na	1/18/2024 7:47 AM
29	Na	1/18/2024 7:40 AM
30	You would have to heavily compensate employees that work at desert plants for this to work.	1/18/2024 7:20 AM
31	This will create chaos at the plants. Recruitment will be even more difficult.	1/18/2024 6:46 AM
32	Abc	1/18/2024 5:22 AM
33	In a perfect world where all employees do their part. It may work. Just think you lose your sense of ownership to the plant you work at. Don’t think it will work.	1/17/2024 2:54 PM
34	Not everyone wants to live at Gene or Havasu, myself included and if the goal is employee retention this seems off the mark.	1/12/2024 8:42 AM
35	test	1/9/2024 5:03 PM
36	sdfadsaf	1/8/2024 12:32 PM

Q20 The proposed housing strategy will attract and retain employees.

Answered: 35 Skipped: 12

1.9★

average rating

	STRONGLY DISAGREE	(NO LABEL)	NEUTRAL	(NO LABEL)	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
☆	62.86% 22	8.57% 3	11.43% 4	5.71% 2	11.43% 4	35	1.94

Questions 21-26 relate to the option of extended stay only at all plants.

Q21 The proposed layout will support a strong sense of community amongst employees.

Answered: 35 Skipped: 12

1.6★
average rating

	LEAST SENSE OF COMMUNITY	(NO LABEL)	(NO LABEL)	(NO LABEL)	STRONGEST SENSE OF COMMUNITY	TOTAL	WEIGHTED AVERAGE
☆	71.43% 25	8.57% 3	11.43% 4	2.86% 1	5.71% 2	35	1.63

Q22 The proposed strategy will support the long-term operations of the plants

Answered: 35 Skipped: 12

1.9★
average rating

	STRONGLY DISAGREE	(NO LABEL)	NEUTRAL	(NO LABEL)	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
☆	62.86% 22	8.57% 3	11.43% 4	5.71% 2	11.43% 4	35	1.94

Q23 How acceptable is commuting to all camps?

Answered: 35 Skipped: 12

1.8★
average rating

	NOT ACCEPTABLE	(NO LABEL)	NEUTRAL	(NO LABEL)	ACCEPTABLE	TOTAL	WEIGHTED AVERAGE
☆	65.71% 23	8.57% 3	11.43% 4	5.71% 2	8.57% 3	35	1.83

Q24 The proposed villages will support a safe and healthy live/work environment

Answered: 35 Skipped: 12

1.9★
average rating

	STRONGLY DISAGREE	(NO LABEL)	NEUTRAL	(NO LABEL)	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
☆	62.86% 22	5.71% 2	17.14% 6	5.71% 2	8.57% 3	35	1.91

Q25 How acceptable is the proposed housing strategy to you as a current employee?

Answered: 35 Skipped: 12

1.8★
average rating

	LEAST ACCEPTABLE	(NO LABEL)	NEUTRAL	(NO LABEL)	MOST ACCEPTABLE	TOTAL	WEIGHTED AVERAGE
☆	71.43% 25	2.86% 1	8.57% 3	8.57% 3	8.57% 3	35	1.80

Q26 Please share any other comments about this option you have below:

Answered: 32 Skipped: 15

#	RESPONSES	DATE
1	.	1/24/2024 2:23 PM
2	.	1/24/2024 12:37 PM
3	na	1/24/2024 9:30 AM
4	Separating families will make people want to leave more than what we are facing, There is a decent trade off right now. If I was not offered a position with a house were I was able to bring my family, I would not have accepted the position.	1/24/2024 9:13 AM
5	I could get by with a two bedroom home but don't like the condo idea. There's no room for my family when they come out during their vacations.	1/24/2024 8:04 AM
6	Eh do i need to explain. this may work for some people. The ones that don't want to spend time with their families.	1/24/2024 7:49 AM
7	One bedroom units so I cant even bring my kids? I also have to live out of a hotel room. Just fix the existing housing, its not that hard, and maybe don't defer maintenance for 30 years resulting in the problems we are dealing with now.	1/24/2024 7:30 AM
8	good job	1/24/2024 6:42 AM
9	Seriously....	1/24/2024 6:40 AM
10	0	1/24/2024 6:34 AM
11	none	1/23/2024 3:08 PM
12	I need my family with me.	1/23/2024 2:43 PM
13	Not a viable solution. No thought to employee. Will hurt recruitment.	1/23/2024 2:39 PM
14	na	1/23/2024 2:34 PM
15	One must be able to separate work/life with a feeling of ownership stimulating the sense of value and pride in your place.	1/23/2024 2:32 PM
16	IF YOU PAY SOMEONE ENOUGH, THEY WILL TRAVEL 2 HOURS TO AND FROM EVERY DAY. THIS SURVEY IS A JOKE. WHY DON'T YOU ASK WHAT CAN BE DONE IN 75 DAYS??	1/23/2024 1:46 PM
17	This one could work, issue is if an employee is family oriented and need to be near or close to their family.	1/23/2024 1:33 PM
18	This option would make it very challenging for employees who wish to live with their families. Would these units be temporarily assigned? Rotated through staff? Would they require additional maintenance staff to clean and maintain?	1/23/2024 12:51 PM
19	YOU WOULD HAVE TO PAY PEOPLE A LOT OF MONEY FOR THIS TO WORK	1/23/2024 12:49 PM
20	If you want employees who are invested in the success of the plants and the CRA as a whole it behooves the company to understand the current challenges and mitigate them, not compound them. Working and living remote is already a challenge so why increase the isolation?	1/23/2024 12:38 PM
21	This is a bad move. There needs to be a village at each location. The housing does not need to be extravagant nor does MWD need to reinvent the wheel in doing so. Simple modular homes like the several that have been already installed at all locations would more than suffice. This a very reasonable and cost-effective option. Look at what has already been done and expand on it. Employees have a sense of pride of ownership of these Desert Pump	1/23/2024 12:19 PM

	Plants, and you will destroy that mentality if we can't live where we work in these remote jobs. The village is an extension of the pump plant, and the same pride of ownership applies.	
22	The as an apartment terrible idea. I lived in apartment building all my life and they are not ideal with very little privacy.	1/23/2024 12:11 PM
23	Won't be popular with current employees but I think this is the best option going forward.	1/23/2024 10:21 AM
24	What demographic is MWD seeking, and will these employees stay here long term ? Highly doubt	1/18/2024 11:49 AM
25	Na	1/18/2024 7:48 AM
26	Na	1/18/2024 7:42 AM
27	I would rather get a new job then do this.	1/18/2024 7:21 AM
28	This will only be an attractive design to people without families. Most people don't want to be away from family for eight days at a time, twice per month or more.	1/18/2024 6:50 AM
29	Abc	1/18/2024 5:22 AM
30	If you didn't have a hard time finding competent employees this would work	1/17/2024 2:56 PM
31	This might be a good fit for people who just want to come and work a shift and leave, however it might not appeal to all. I lived in extended stay hotels on the road working for 8 years and a house is more appealing than a hotel room.	1/12/2024 8:44 AM
32	test	1/9/2024 4:59 PM

PROJECT PARAMETERS

PROJECT PARAMETERS

PROJECT PARAMETERS HAS BEEN ESTABLISHED BASED UPON OBSERVATIONS OF COMMUNITY NEEDS AFTER THE SITE VISITS AND COMMUNITY INTERVIEWS.

PARAMETERS GUIDE TO DEVELOPMENT OF GUIDING PRINCIPLES AND PROGRAMS THAT COULD CONCEPTUALLY WORK FOR COMMUNITY.

POTENTIAL HOUSING TYPOLOGIES

ACCORDING TO COMMUNITY FEEDBACK

SINGLE FAMILY HOUSING

SINGLE FAMILY DETACHED WITH 2 CAR GARAGE

+/- 1,350 sq. ft.

EXTENDED-STAY TOWNHOME

MULTI-FAMILY HOUSING WITH INDIVIDUAL FRONT DOOR, 1BD W/ KITCHEN SUITE

+/- 750 sq. ft.

GUEST HOTEL

MOTEL ROOM

+/- 350 sq. ft.

ALTERNATIVE EXTENDED-STAY HOUSING TYPES:

CASITA

RV SITES W/HOOKUPS
USE OF PERSONAL RV'S FOR HOUSING

POTENTIAL AMENITY TYPOLOGIES

ACCORDING TO COMMUNITY FEEDBACK

SWIMMING POOL
SHADED AND SCREENED

SHADED MODERN EQUIPMENT PLAYGROUND

ARCHERY RANGE

RESIDENT GAME ROOM
SEPARATE FROM DINING HALL

COMMUNITY MEETING ROOM

MULTI PURPOSE INDOOR RECREATIONAL FACILITY
BASKETBALL / SPORTS FIELDS / TRACK
FITNESS ROOM / ENTERTAINMENT ROOM, ETC.

RESIDENT FITNESS CENTER

GUEST GYM
WEIGHTS AND CARDIO

IMPROVED STREETSCAPE AND BEAUTIFICATION
TREES (PROVIDE SHADE FOR YARDS AND HOMES)
WALKING PATHS
COMMUNITY OPEN SPACES

AUTOMOTIVE STORAGE
CAR PORTS AT HOUSES
COMMON COVERED VEHICLE STORAGE FACILITY
LARGE GARAGES (TO FIT TRUCKS)
TWO CAR GARAGE

COMMERCIAL KITCHEN / DINING FACILITY

SHARED COMMUNITY WORKSHOP
SHARED AUTOMOTIVE REPAIR GARAGE
WOODWORKING

POTENTIAL PROGRAMMATIC TYPOLOGIES

ACCORDING TO COMMUNITY FEEDBACK

ONE VILLAGE CONTRACT FOR COMMON SPACE AND PRIVATE YARD MAINTENANCE

- INCLUDE BACKYARD IN MAINTENANCE PROGRAM
- MAINTAIN VACANT HOMES OR YARDS WHEN PEOPLE ARE OFF SHIFT

STREETSCAPE AND PUBLIC SPACE BEAUTIFICATION

- REALIGNMENT OF STREETS TO SEPARATE NEIGHBORHOOD FROM CONTRACTOR/WORK TRAFFIC
- VIEWS TO DESERT LANDSCAPE PREFERRED

VILLAGE STORE WITH PERISHABLE STAPLES FOR PURCHASE (MILK, EGGS, BREAD, ETC.)

- CAN BE COMBINED WITH KITCHEN ORDERS AND SIMILAR PRODUCTS

KITCHEN OPEN ON WEEKENDS

STARLINK TECHNOLOGY / BETTER INTERNET SERVICE

HOUSING TYPOLOGIES EXPLORED PRIOR TO PLANNING EFFORT (THROUGH JUNE 2023)

HOUSING TYPE		SINGLE FAMILY DETACHED				SINGLE FAMILY ATTACHED			REMODEL EXISTING HOUSES		TEMPORARY ACCOMMODATION
		Current Design	Lower Cost Single	Courtyard Design	Manufactured Home	2-story Duplex	Duplex	Triplex/Quadplex	Full Remodel and Additions	Partial Remodel	Lodge/Hotel
EXAMPLE											
PRINCIPLE BUILDING	Living Area	± 1,350 sq.ft.	± 1,350 sq.ft.	± 1,350 sq.ft.	± 1,400 sq.ft.	± 1,350 sq.ft.	± 1,350 sq.ft.	± 1,350 sq.ft.	± 1,000 - 1,400 sq.ft.	± 1,000 - 1,400 sq.ft.	350-450 sq.ft. per room
	Number of Bedroom/ Bathroom	3 bd / 2 ba	3 bd / 2 ba	3 bd / 2 ba	3 bd / 2 ba	3 bd / 2 ba	3 bd / 2 ba	3 bd / 2 ba	3 bd / 2 ba 2 bd / 2 ba	3 bd / 2 ba 2 bd / 2 ba	1 bd / 1 ba
VEHICLE STORAGE	Type	Attached	Attached	Detached 2-Car	Detached 2-Car	Attached	Attached	Attached	Attached / Detached	Attached / Detached	Detached Parking Lot
	Occupiable space	± 420 sq.ft. (19'x22')	± 420 sq.ft. (19'x22')	± 420 sq.ft. (19'x22')	± 50 sq.ft. (20'x25')	± 420 sq.ft. (19'x22')	± 420 sq.ft. (19'x22')	± 420 sq.ft. (19'x22')	± 300 (14'x22') - 440 (20'x22') sq.ft.	± 300 (14'x22') - 440 (20'x22') sq.ft.	-
	Number of vehicles	2	2	2	2	2	2	2	2	2	1 parking stall
COST PER UNIT		$1,050,000	$635,000	$712,000	$510,000 plus assumed $35,000 foundation	$621,000	$609,000	not priced	$740,000 to 800,000	$350,000 to 380,000	$670,000
COST OPINION DATE		April 2022	Dec 2020	Dec 2020	2018	Dec 2020	Dec 2020	Nov 2020	Dec 2019	Dec 2019	June 2023
COST MULTIPLIER (DGS CONSTRUCTION COST INDEX)		9654/8903	9654/6995	9654/6995	9654/6598	9654/6995	9654/6995	-	9654/6684	9654/6684	9654/9508
CURRENT COST PER UNIT (OCT 2023)		$1,140,000	$880,000	$980,000	$790,000	$860,000	$840,000	-	$1,070,000 to 1,160,000	$510,000 to $550,000	$680,000
CONSTRUCTION TYPE		Traditional stick frame or modular	Traditional stick frame	Traditional stick frame	Manufactured home	Traditional stick frame	Traditional stick frame	Traditional stick frame	Traditional stick frame or masonry	Traditional stick frame or masonry	Traditional stick frame
NOTES		• costs are average among villages and account for remote locations • assumes prevailing wage requirements and public bid • cost is for building only, does not include sitework / landscaping / infrastructure	• Includes garage A/C, mudroom with shower and laundry, metal roof, covered patios, HVAC for 120F design temp			• Cost per MWD, based on units installed in 2018. Foundation work was performed by MWD personnel.		• Eliminated from consideration prior to cost estimation effort, as such a large building fit poorly on available lots in existing villages	• Incl. items listed for Partial Remodel, plus: • Add Covered Patio (200 SF instead of 120 SF) • Structural Retrofit • Garage Expansion and A/C • Carport	• Add Covered Patio (120 SF) • Add bathroom • Remodel interior; upgrade HVAC/ electrical • Replace Roofing • Add sun control • Exterior refinishing	• Pricing includes Dining facility, Fitness room, and Community Room, and assumes 60 rooms share the cost of these amenities
PROS		• Maintains current housing strategy • Privacy • Comfort	• Maintains current housing strategy • Privacy	• Maintains current housing strategy • Privacy	• Maintains current housing strategy • Privacy • Lower initial cost	• Some cost savings due to more compact development	• Some cost savings due to more compact development	• Some cost savings due to more compact development	• Maintains current housing strategy • Privacy	• Maintains current housing strategy • Privacy	• Minimal cost for housing accomodations
CONS		• Initial Cost	• Maintenance of shingle roof	• Maintenance of shingle roof	• Very high maintenance cost (reports of early failure of interior and exterior finishes and cabinetry) • Less comfortable (inferior insulation, no backyard access, small porch)	• Shared wall • Maintenance of shingle roof	• Shared wall • Maintenance of shingle roof	• Shared walls with multiple neighbors • Does not fit well on available lots, especially when phasing is considered	• Poor value - new houses can be constructed for the cost of renovating existing • Lack of standardization and equity among existing residences	• Lack of standardization and equity among existing residences	• Regular cleaning and maintenance • Potentially long and difficult staffing transition from employees who rend houses to those who will stay in lodging

AMENITY TYPOLOGIES EXPLORED PRIOR TO PLANNING EFFORT (THROUGH JUNE 2023)

AMENITY TYPE	CLUBHOUSES		KITCHENS		LODGES		SITE AMENITIES AND SITEWORK			
	Large	Small	Large	Small	Large	Small	Hinds	Eagle	Iron	Gene
EXAMPLE										
AREA	± 2,400 sq.ft.	± 1,900 sq.ft.	± 4,900 sq.ft.	± 4,300 sq.ft.	± 9,800 sq.ft.	± 7,000 sq.ft.	± 370,000 sq.ft.	± 780,000 sq.ft.	± 770,000 sq.ft.	± 960,000 sq.ft.
COST	$1,830,000	$1,460,000	$4,770,000	$4,230,000	$6,990,000	$5,210,000	$9,840,000	$13,730,000	$17,530,000	$19,630,000
COST OPINION DATE	April 2022									
COST MULTIPLIER (DGS CONSTRUCTION COST INDEX)	9654/8903									
CURRENT COST (OCT 2023)	$1,980,000	$1,580,000	$5,170,000	$4,590,000	$7,580,000	$5,650,000	$10,670,000	$14,890,000	$19,010,000	$21,290,000
COST PER SF	$825	$830	$1,055	$1,070	$775	$810	$29	$19	$25	$22
CONSTRUCTION TYPE	Traditional wood frame or modular	Traditional wood frame or modular	PEMB canopy with wood frame infill beneath	PEMB canopy with wood frame infill beneath	PEMB canopy with wood frame infill beneath	PEMB canopy with wood frame infill beneath	Steel framed and CMU site structures			
NOTES • costs account for remote locations • assumes prevailing wage requirements and public bid • building costs are for building only, does not include sitework / landscaping / infrastructure	• Planned to serve the residents of 10-20 houses • Common room 1,000 SF • Fitness room 700 SF • Misc office, storage, and utility rooms • Large attached exterior shade canopy	• Planned to serve the residents of 30-35 houses • Common room 800 SF • Fitness room 550 SF • Misc office, storage, and utility rooms • Large attached exterior shade canopy	• Dining room 1,200 SF to accommodate 40 people and meeting room use (30 SF each) • Kitchen 1,200 SF to accommodate production of boxed lunches as well as dining hall capacity • Kitchen storage 700 SF (refrigerated, frozen, and dry) to accommodate one deliver per week • Grab and go area for boxed lunches, ice, and drinks • Misc office, storage, and utility rooms	• Dining room 1,400 SF to accommodate 50-60 people and meeting room use (30 SF each) • Kitchen 800 SF to accommodate production of boxed lunches as well as dining hall capacity • Kitchen storage 700 SF (refrigerated, frozen, and dry) to accommodate one deliver per week • Grab and go area for boxed lunches, ice, and drinks • Misc office, storage, and utility rooms	• 25 guest rooms (studio configuration, no kitchenette) • Common area Lounge and Kitchenette 1,000 SF • Small guest laundry • On-site linen laundry	• 15 guest rooms (studio configuration, no kitchenette) • Common area Lounge and Kitchenette 1,000 SF • Small guest laundry • On-site linen laundry	• Represents a complete overhaul of all exterior areas, including common areas and residence yards • Road repaving • Walking paths • Playground • Landscaping (village common areas and minimal landscaping at residence yards) • Trash enclosures • Parking lot PV shade structures • Tennis/basketball sport court • Renovation of existing pool, and new shade structure at pool • New sitewide pedestrian lighting • Community dog run • Does NOT include replacement of existing sitewide utilities			

Construction Types Research (preliminary / draft)

11/27/23 RNT Architects

Building Type:	Traditional (site-built)	Modular	3D Printed	Manufactured
Code Requirements	California Building Standards code and local codes, last updated 2022			HUD Code (US Dep't of Housing and Urban Development Code,) last updated 1994
Energy Efficiency and Comfort	Meets California Title 24 standards (approx R-21 wall insulation and R-38 attic insulation)			Meets HUD standards. If constructed to Energy Star ("upgraded") standards, it would have R-11 wall insulation and R-30 attic insulation, which is still far less robust than homes built to meet California Title 24.
Water Efficiency	Meets California water efficient fixture requirements			Less stringent water efficiency requirements.
Customization	Custom design can respond to climate and user needs			Choose from stock plans with limited customization
Durability	Expected to last over 50 years. Similar risks for site-built and modular housing are reflected in similar insurance policy premiums and market appreciation.		Highest durability; expected to last 100 years and at least one company offers a 50 year warranty. One company cites potential insurance savings. Exterior walls are concrete, which is very durable and fire resistant.	Expected to last 30-55 years per HUD. Higher risks of damage from burst pipes and wind are reflected in higher insurance policy premiums.
Occupant Health	Must comply with California code requirements for low emissions of toxic VOCs (volatile organic compounds) such as formaldehyde.		Must comply with California code requirements for low emissions of toxic VOCs (volatile organic compounds) such as formaldehyde. Additionally, construction is very resistant to mold and termites.	No limits on VOCs such as formaldehyde, which are commonly used in building materials
Occupant Safety	Basic safety considerations such as smoke detectors, fire sprinklers, and emergency egress windows are required. Engineered to withstand weather and earthquake events.			
Construction Site Safety	Higher risks of heat-related illness.	Controlled environment minimizes heat-related illness and accidents during factory construction. Risks related to crane placement of modules on-site.	Few workers required for construction of building shell, thereby minimizing heat-related illness and accidents.	Controlled environment minimizes heat-related illness and accidents during factory construction. Risks related to crane placement of modules on-site.
Predictability of Process	Risks of delay and decreased productivity due to rain days, heat index days, high winds, and challenges related to site remoteness and environmental conditions.	Risks reduced due to majority of construction accomplished under controlled conditions. Less reliance on subcontractor availability, as modular construction is typically accomplished in-house by full-time employees.	Potential time delay and financial risks of pioneering the permitting process for a construction method that may be new to the local jurisdictions (first permitted 3d printed homes were completed in California this year.) Companies in this space are startups and have only been around for a few years. 3D printing can be challenging in hot or cold weather and therefore may be subject to delays. MEP trades still must travel to the site for most 3d printed methods. However, this is a rapidly-evolving field, and at least one company is producing pre-printed modular panels that are being assembled on-site in Desert Hot Springs (expected to be completed 2023.)	Risks reduced due to majority of construction accomplished under controlled conditions. Less reliance on subcontractor availability, as modular construction is typically accomplished in-house by full-time employees.
Delivery Method	Design-bid-build or design-build (most flexible)	Design-build would be preferred, but bid can be accommodated.	Design-build is likely preferred, although conversations with manufacturers are needed for verification. It appears that 3d printing companies have their own in-house engineers and proprietary material properties.	Design-build would be preferred, but bid can be accommodated.
Speed and Disruption	Each phase of housing will likely take 6 to 8 months to complete, accounting for restrictions on work hours due to weather and proximity of occupied houses.	Off-site construction of the house can proceed simultaneously with on-site construction of the foundation, cutting total construction time (and related tenant disruption) by 20% or more.	House is typically constructed on-site, but is significantly less disruptive (less framing noise, fewer workers) than traditional construction. Speed is faster than site-built construction.	Off-site construction of the house can proceed simultaneously with on-site construction of the foundation, cutting total construction time (and related tenant disruption) by 20% or more.
Cost	Assumed baseline	Approx 3% savings	Unclear; manufacturers claim savings but do not specify a range	Potentially 10% savings but construction not comparable

VILLAGE ORGANIZATION STRATEGIES

INITIAL VILLAGE STRATEGIES

Purpose

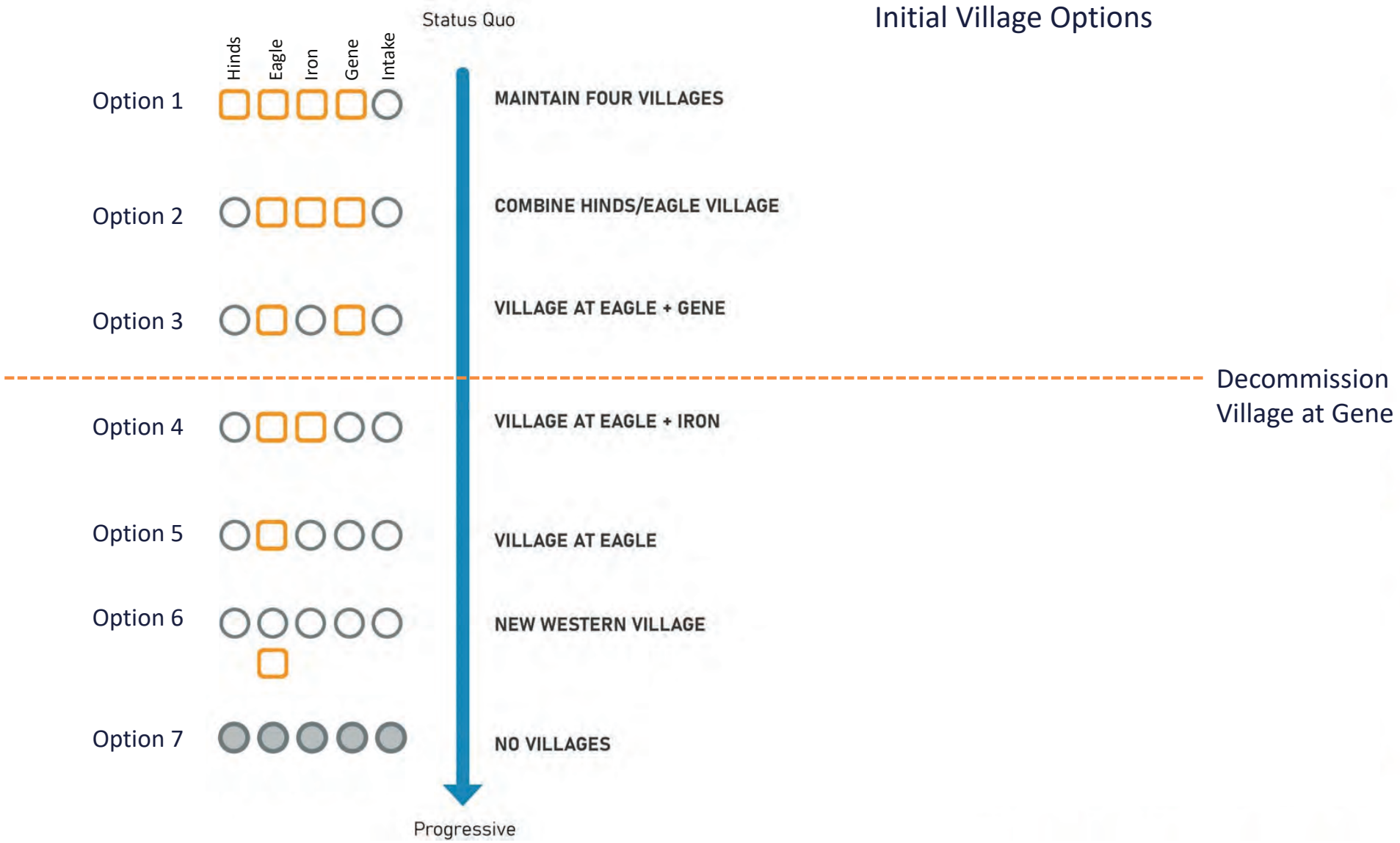
This effort explores what the next 75 years of living & working will be in the remote villages and pumping plants, as Metropolitan considers a strategy to attract & retain current & future generations of Desert employees.

- Validate previous work, discover areas requiring refinement, or set a new direction for future desert villages
- Consider long term sustainability & resiliency of Desert villages

Guiding Principles

- Support the **long-term operation** of the critical CRA infrastructure
- Create **a financially resilient and socially sustainable 75-year** desert village strategy.
- Provide standard of living that **supports employee recruitment, retention, and satisfaction**.
- Create **safe and healthy** villages
- Provide a mix of housing types and amenities.

Initial Village Options

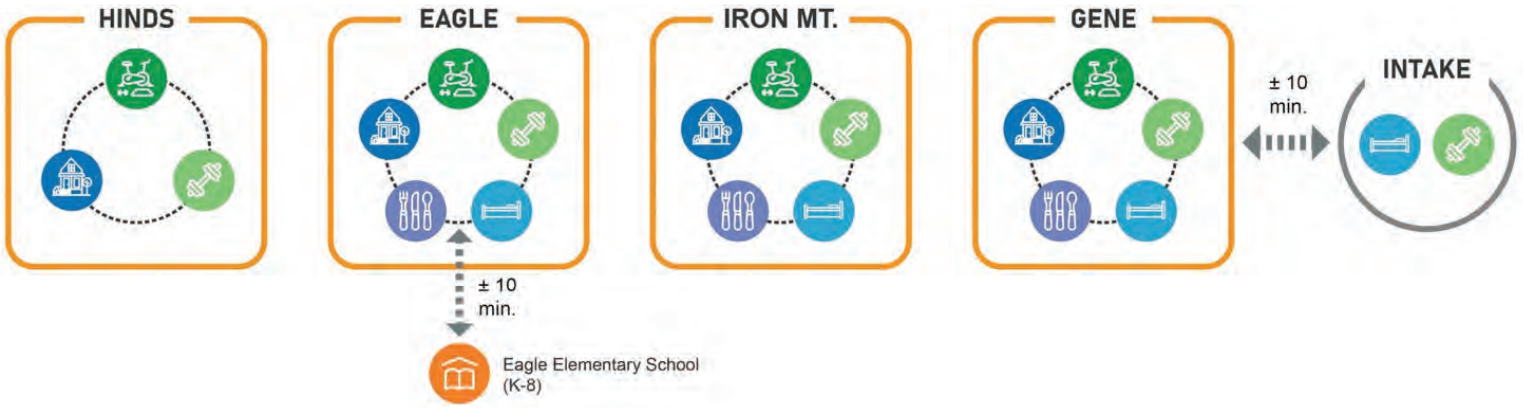


Scenario	Description	Relative Cost[1]	
Scenario 1	Upgrade 4 Villages	Base	
Scenario 2	Three Villages	Base	plus 3%
Scenario 3	Two Villages	Base	plus 3%
Scenario 4	Two Western Villages / Decommission Gene	Base	less 22%
Scenario 5	One Western Village / Decommission Gene	Base	less 21%
Scenario 6	One NEW Western Village	Base	less 14%
Scenario 7	No Villages (hotel model)	Base	less 24%

Note:
1. The components included in these scenarios have evolved, as these numbers don't match the final estimates.

SCENARIO 1: FOUR VILLAGES

UPGRADE EXISTING VILLAGES

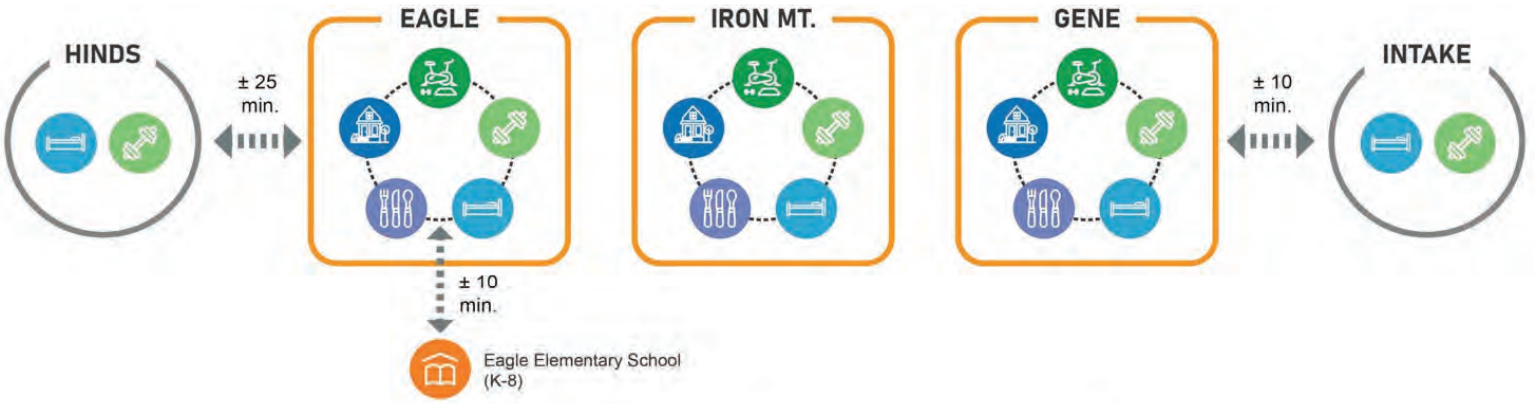


HINDS	EAGLE	IRON MT.	GENE
15 PERMANENT HOUSING	20 PERMANENT HOUSING	33 PERMANENT HOUSING	37 PERMANENT HOUSING

Main Villages	Satellite Camps	Permanent housing Units	Temporary/On-Call/ Guest Lodging	Kitchen/Dining	Village Amenity	Guest Amenity	Overall Relative Cost	Community Benifit
4	1	105	4 +/- 50 units	3	4	5	Base	3.5

SCENARIO 2: THREE VILLAGES

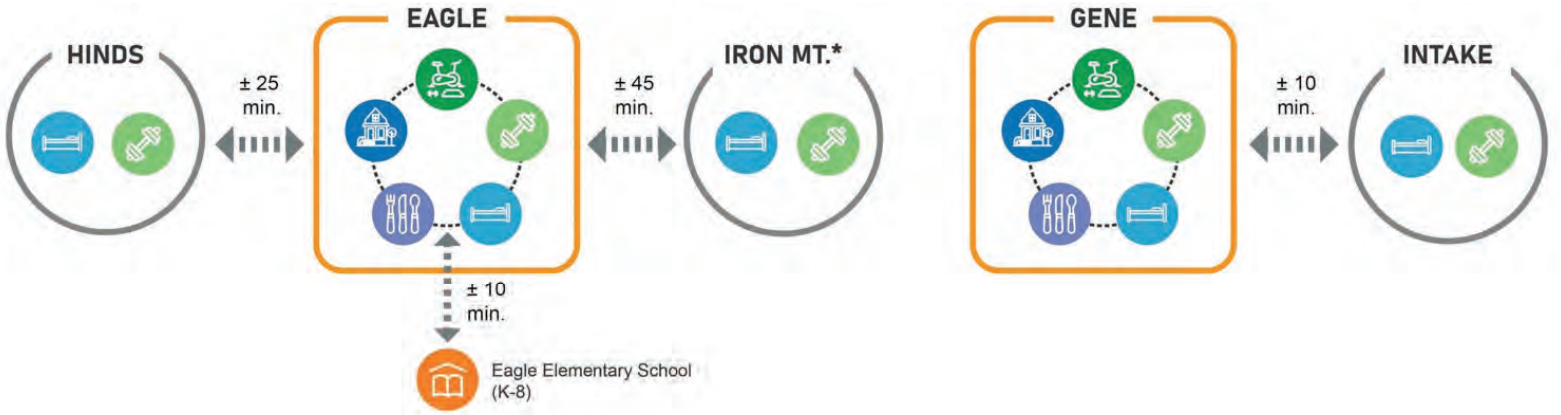
UPGRADE EXISTING VILLAGES (GENE AND IRON MT.) AND CONSOLIDATE HINDS AND EAGLE MT. INTO A SINGLE VILLAGE



Main Villages	Satellite Camps	Permanent housing Units	Temporary/On-Call/ Guest Lodging	Kitchen/Dining	Village Amenity	Guest Amenity	Overall Relative Cost	Community Benifit
3	2	105	5 +/- 52 units	3	3	5	Base +3%	3.2

SCENARIO 3: TWO VILLAGES

WEST VILLAGE AT EAGLE MT. AND EAST VILLAGE AT GENE



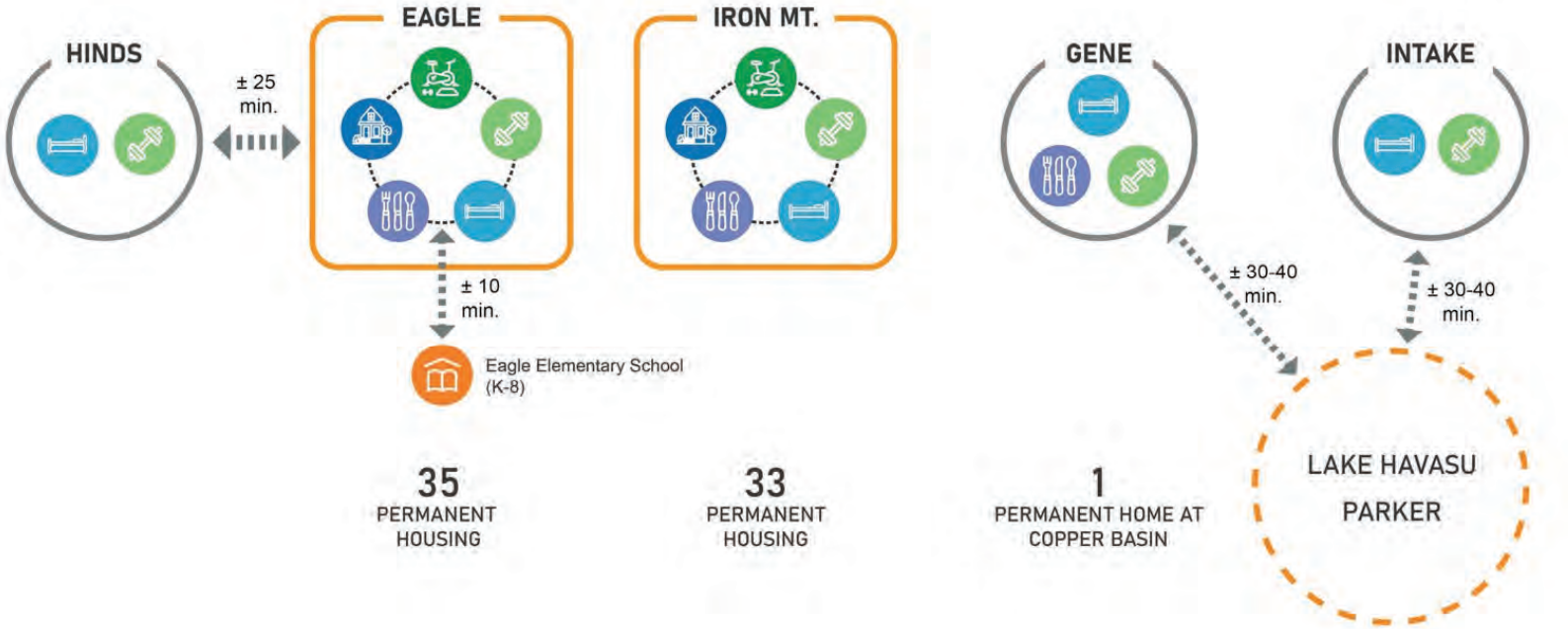
68 PERMANENT HOUSING

37 PERMANENT HOUSING

Main Villages	Satellite Camps	Permanent housing Units	Temporary/On-Call/ Guest Lodging	Kitchen/Dining	Village Amenity	Guest Amenity	Overall Relative Cost	Community Benifit
2	3	105	5 +/- 54 units	2	2	5	Base +3%	3.1

SCENARIO 4: TWO DESERT VILLAGES & DE-COMMISSION GENE VILLAGE

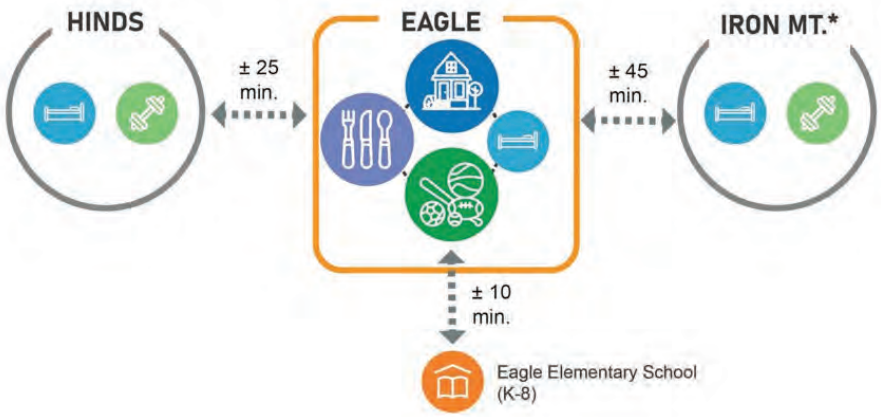
UPGRADE IRON MT. VILLAGE, CONSOLIDATE HINDS AND EAGLE MT., AND ELIMINATE PERMANENT HOUSING AT GENE

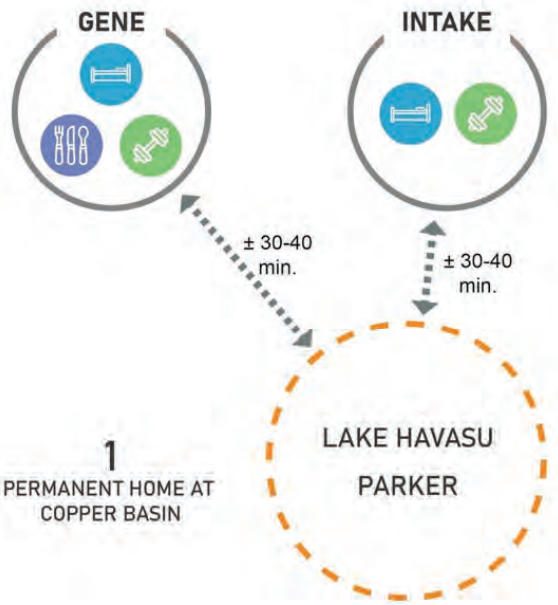


Main Villages	Satellite Camps	Permanent housing Units	Temporary/On-Call/ Guest Lodging	Kitchen/Dining	Village Amenity	Guest Amenity	Overall Relative Cost	Community Benifit
2	3	69	45 +/- 54 units	3	2	5	Base -22%	3.4

SCENARIO 5: ONE WESTERN VILLAGE

WEST DESERT VILLAGE AT EAGLE MT. AND ELIMINATE PERMANENT HOUSING AT ALL OTHER VILLAGES

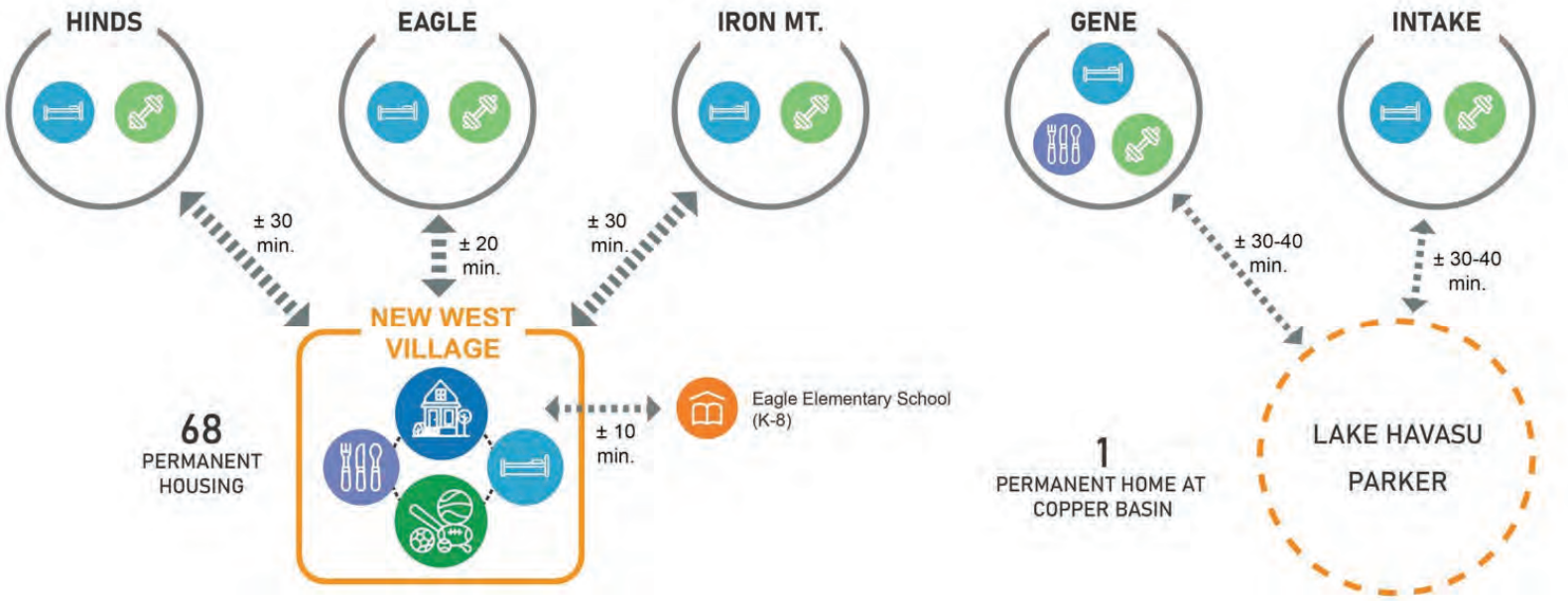




Main Villages	Satellite Camps	Permanent housing Units	Temporary/On-Call/ Guest Lodging	Kitchen/Dining	Upgraded Village Amenity	Guest Amenity	Overall Relative Cost	Community Benifit
1	4	69	5 +/- 56 units	2	1	4	Base -21%	3.5

SCENARIO 6: ONE NEW WESTERN VILLAGE

NEW WEST DESERT VILLAGE WITH CONSOLIDATED FOOD SERVICE AND ELIMINATE PERMANENT HOUSING AT GENE



Main Villages	Satellite Camps	Permanent housing Units	Temporary/On-Call/ Guest Lodging	Kitchen/Dining	Upgraded Village Amenity	Guest Amenity	Overall Relative Cost	Community Benifit
1	5	69	6 +/- 58 units	2	1	5	Base -14%	3.6

SCENARIO 7: NO VILLAGES

DISCONTINUE PERMANENT HOUSING AT DESERT VILLAGES

Main Villages	Satellite Camps	Permanent housing Units	Temporary/On-Call/ Guest Lodging	Kitchen/Dining	Village Amenity	Guest Amenity	Overall Relative Cost	Community Benifit
0	5	0	5 +/- 155 units	4	4	1	Base -24%	2.0

	SCENARIO 1 FOUR VILLAGES	SCENARIO 2 THREE VILLAGES	SCENARIO 3 TWO VILLAGES	SCENARIO 4 TWO DESERT VILLAGES & DE-COMMISSION GENE VILLAGE	SCENARIO 5 ONE WESTERN VILLAGE	SCENARIO 6 ONE NEW WESTERN VILLAGE	SCENARIO 7 NO VILLAGES
PERMANENT HOUSING	105	105	105	69	69	69	0
TEMPORARY/ON-CALL /GUEST LODGES	4 Lodges with ± 50 units	5 Lodges with ± 52 units	5 Lodges with ± 54 units	5 Lodges with ± 54 units	5 Lodges with ± 56 units	6 Lodges with ± 58 units	5 Lodges with ± 155 units
KITCHEN/DINING FACILITIES	3	3	2	3	2	2	4
VILLAGE AMENITY PACKAGES	4	3	2	2	1	1	4
GUEST AMENITY PACKAGES	5	5	5	5	4	5	1
NEW INFRASTRUCTURE PACKAGE	0	1	2	1	2	2	0
OVERALL RELATIVE COST	Base	Base +3%	Base +3%	Base -22%	Base –21%	Base -14%	Base -24%


Main Village
Satellite Camps
Hinds
Iron
Intake
SCENARIO 1
FOUR VILLAGES
SCENARIO 2
THREE VILLAGES
SCENARIO 3
TWO VILLAGES
SCENARIO 4
TWO DESERT VILLAGES & DE-COMMISSION GENE VILLAGE
SCENARIO 5
ONE WESTERN VILLAGE
SCENARIO 6
ONE NEW WESTERN VILLAGE
SCENARIO 7
NO VILLAGES
CREATE COMMUNITY
CURRENT EMPLOYEE ACCEPTANCE
LONG-TERM RESILIENCY & SUSTAINABILITY
MINIMUM COMMUTING TIME
SAFETY AND HEALTHY
OVERALL
3.5
3.2
3.1
3.4
3.5
3.6
2.0

What is the right level of housing and community amenities that will attract and retain future workforce in remote desert locations?

Does the growth of Lake Havasu and Parker change our perspective of Gene as a remote desert camp?

Which scenarios most align with your vision for the future of Desert Villages?

Which scenarios should be considered for further study?

Civitas and RNT are available for more detailed follow-up conversations. Please contact Soon.

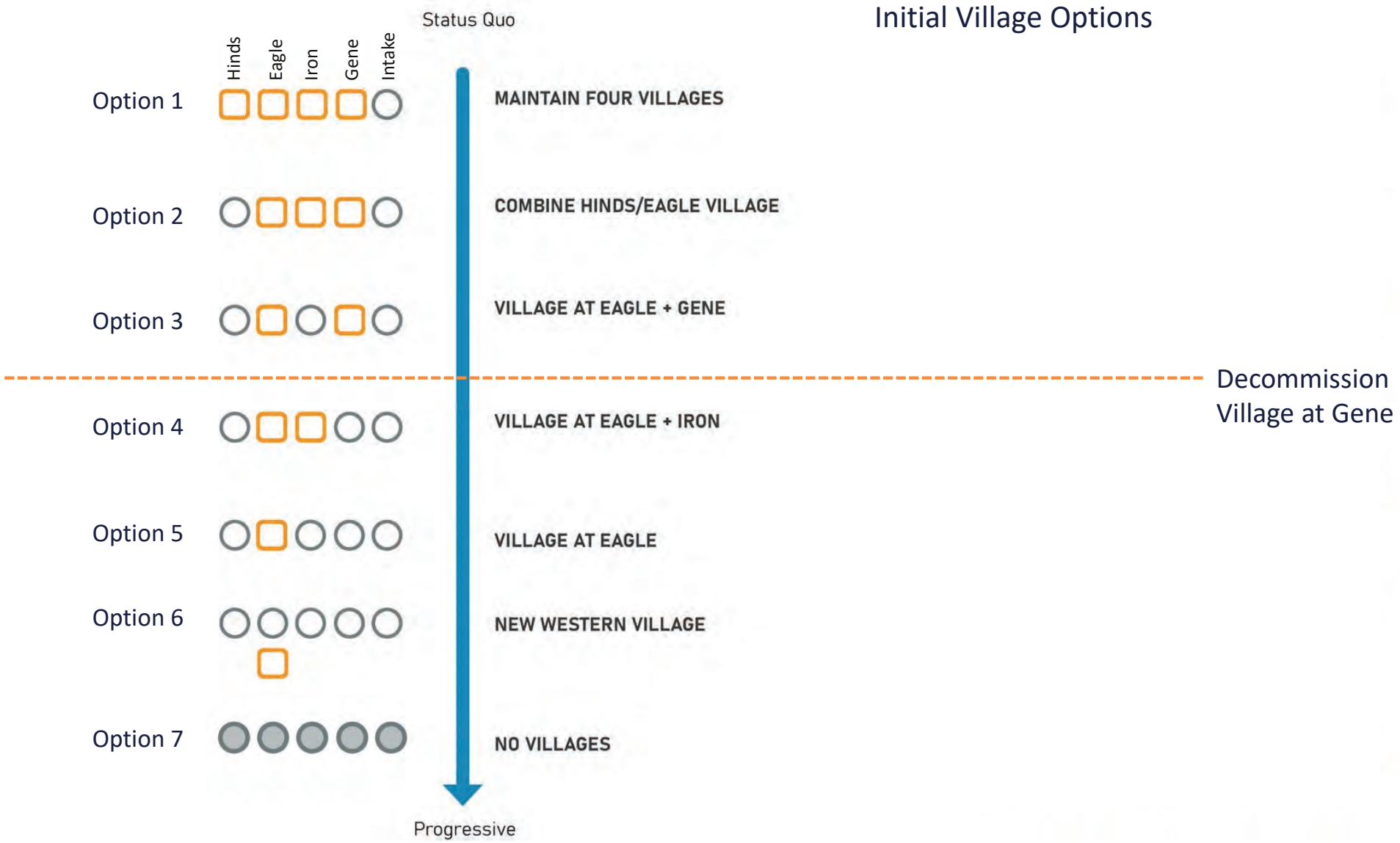
schoi@civitasinc.com

REFINED VILLAGE STRATEGIES

The options on the following slides conceptualize how the five MWD desert communities could be organized over the next 75 years.

Current employee housing and living situations are not impacted by these scenarios.

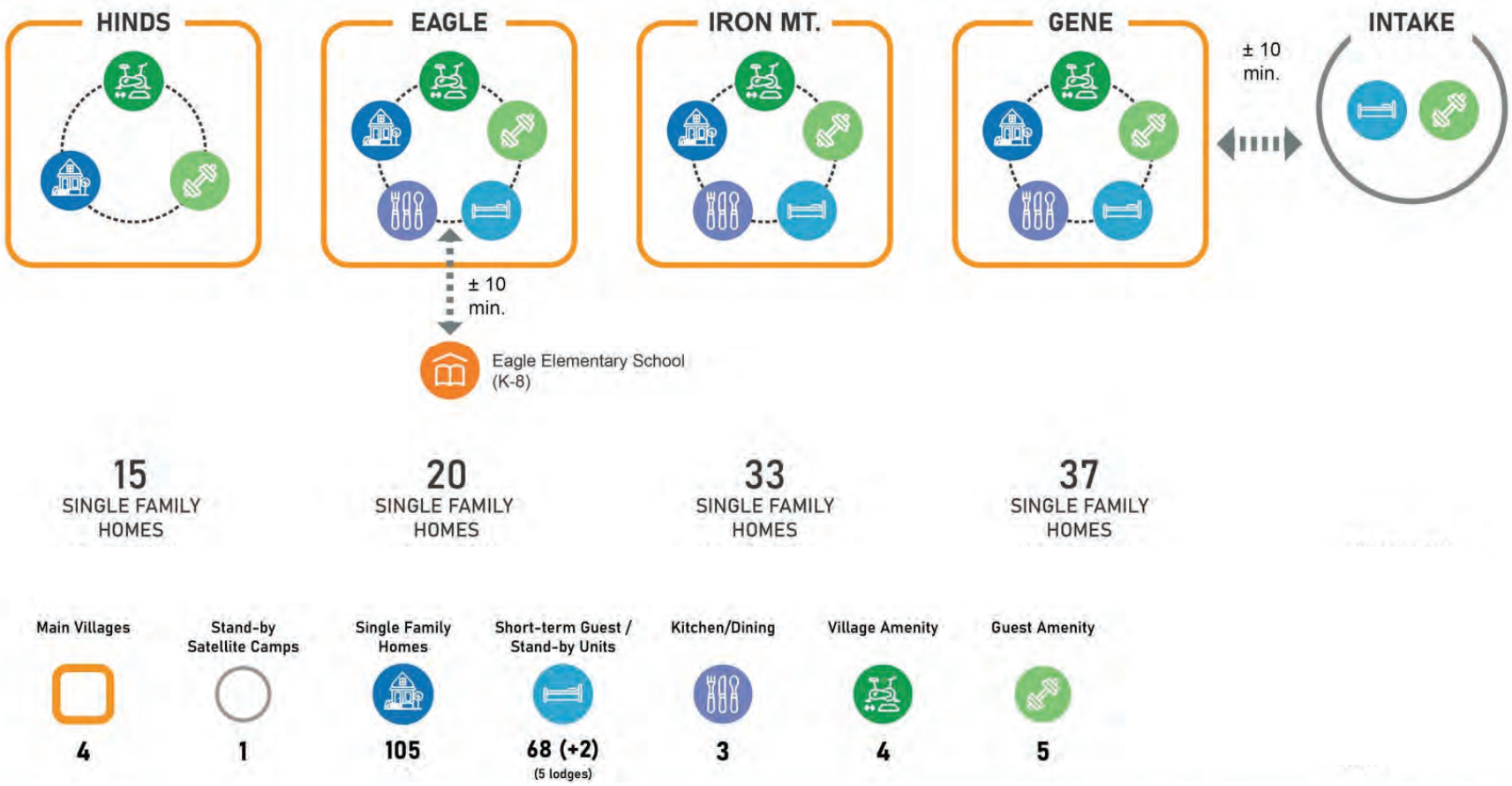
Initial Village Options



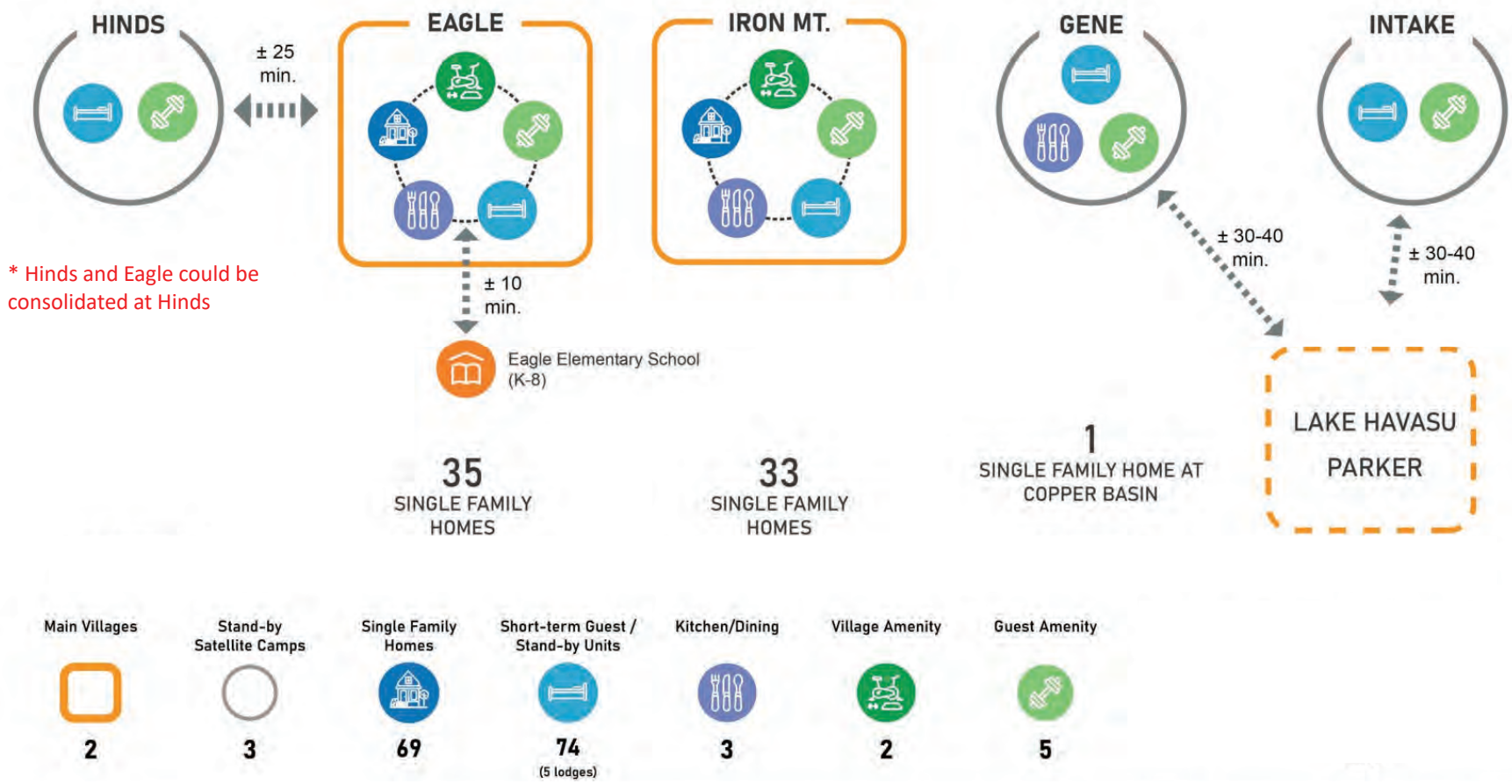
Preferred Village Options

After the MWD Executive Committee meeting in January 2024, 3 village options were selected for further studies. While option 4 is a recommended option from consultant, option 7 is also considered as a goal for the MWD.

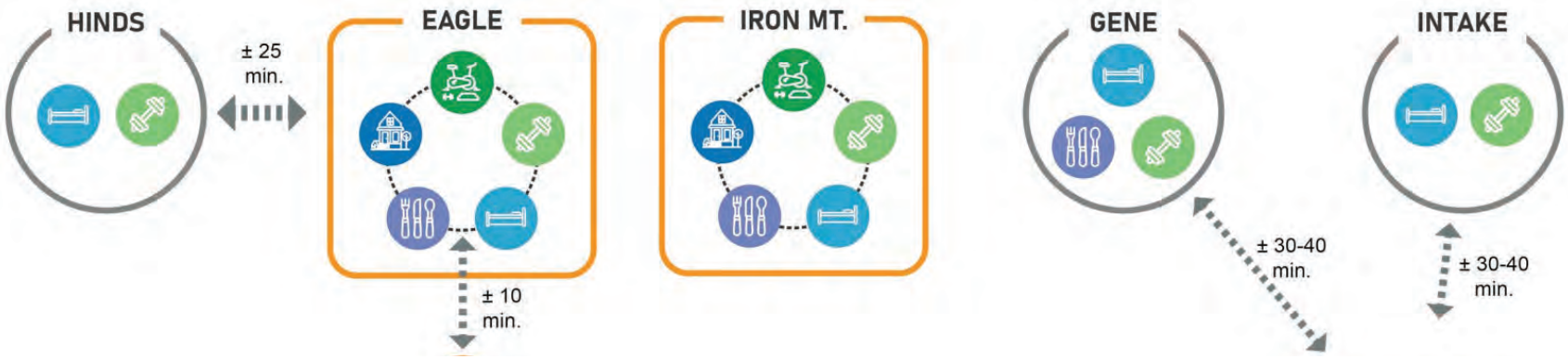
BASELINE CONDITION
(existing conditions, plus stand-by lodge at intake)



OPTION 4: TWO WEST VILLAGES @ EAGLE + IRON



OPTION 4: TWO WEST VILLAGES @ EAGLE + IRON



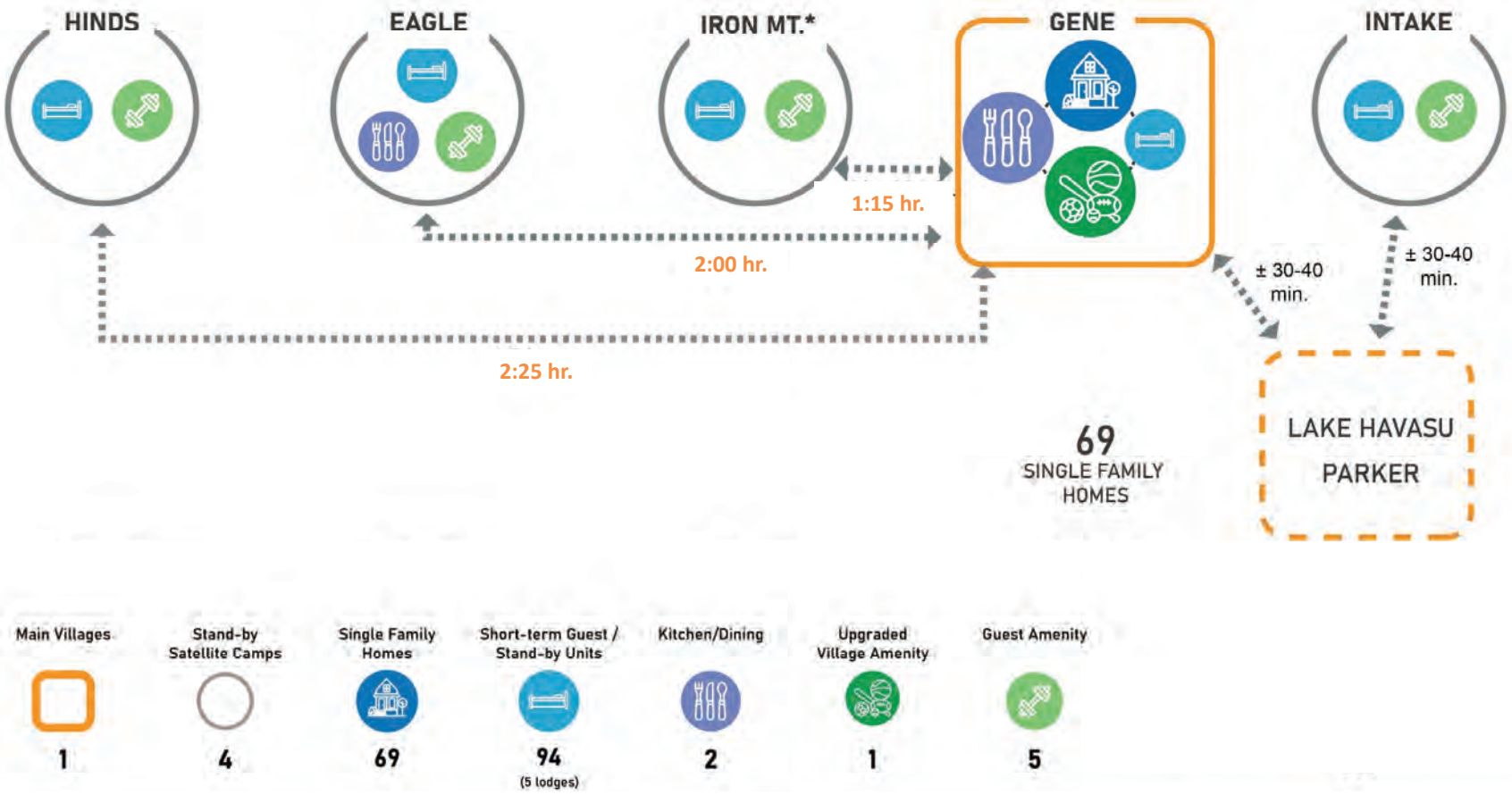
PROS

- Focus resources on two expanded amenity packages
- Economy of scale for construction and long-term maintenance
- Larger villages creates greater sense of community and safety
- O&M and Pump Maintenance employees remain at Iron and Eagle

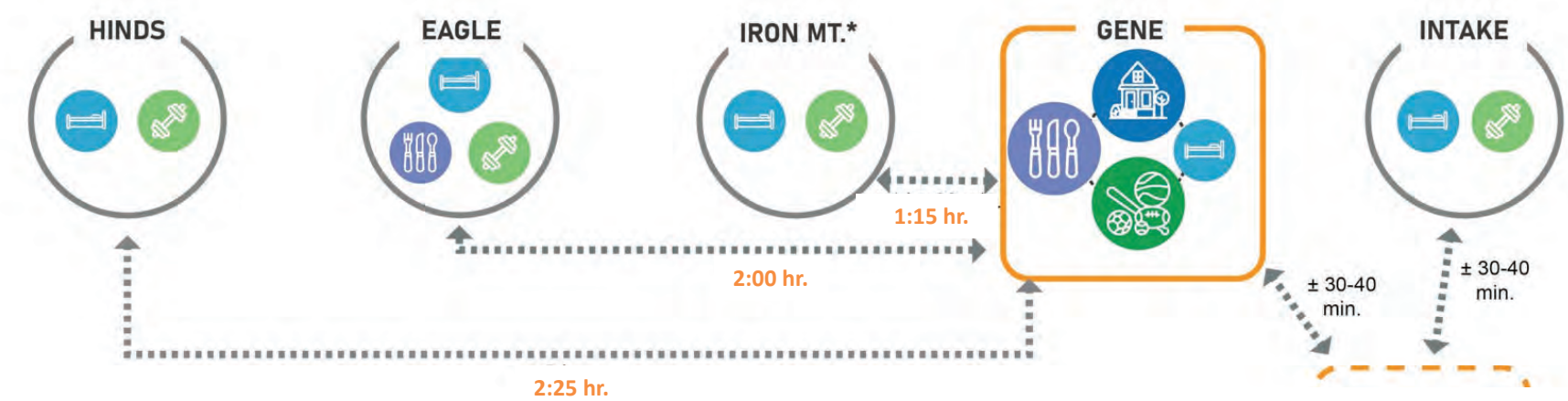
Cons

- Commute to Hinds and Gene pump plants.
- Families are still remote from services (schools, doctors, amenities)
- Acceptance if Gene no longer considered 'remote', employees live in nearby towns.

OPTION 5B: ONE EAST VILLAGE @ GENE



OPTION 5B: ONE EAST VILLAGE @ GENE



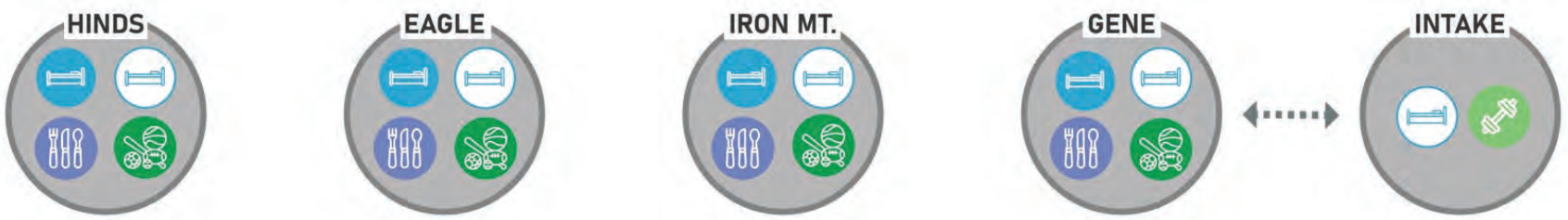
PROS

- Hired at Gene community, dispatched to remote sites for work shift.
- Focus resources on one upgraded amenity packages
- Economy of scale for construction and long-term maintenance
- Larger village creates greater sense of community and safety
- Families are closer to community services in Lake Havasu/Parker (grocery, schools, doctors, amenities)
- Consider modifying shifts to work with this model.
- RV sites could also be offered at camps.

Cons

- Requires long commute times between Gene and remote villages
- Requires duplicative housing units at remote desert villages (permanent house Gene, plus hotel unit at camps)

OPTION 7: FIVE EXTENDED STAY CAMPS



3 homes for rent

3 homes for rent

15 EXTENDED-STAY UNITS

20 EXTENDED-STAY UNITS 12

33 EXTENDED-STAY UNITS

37 EXTENDED-STAY UNITS

6 SHORT-TERM UNITS

Main Villages	Extended Stay Camps	Extended Stay Employee Units	Short-term Guest / Stand-by Units	Kitchen/Dining	Upgraded Village Amenity	Guest Amenity
0	5	105	68 (5 lodges)	4	4	1

OPTION 7: FIVE EXTENDED STAY CAMPS

PROS

- Focus time and resources on MWD core mission
  - *MWD no longer operating as property manager of gated communities*
- One multifamily building typology could be replicated across all camps.
- Existing employees will be allowed to "opt-in" to new housing/compensation package
- Extended stay camps have upgraded amenity packages.
- Employee gets "extended stay housing" *(one bedroom condos, RV sites, or casita)*
- Concentrate landscape and placemaking budget in consolidated area
- Requires less property management
- Future generations are generally more accepting of smaller units that require less maintenance and upkeep.

Cons

- Unknown impact recruitment and retention strategy
- Likely will require full kitchen, dining facilities, and hospitality staff at all sites
- Requires strategic transition strategy to align with infrastructure capacity
- Could be less attractive to young employees with families just starting out

Main Village
Stand-by Satellite Camps
Extended Stay Camp

	BASELINE FOUR VILLAGES Hinds Iron Intake	OPTION 4: TWO WEST VILLAGES EAGLE MT. AND IRON MT.	OPTION 5B: ONE EAST VILLAGE GENE	OPTION 7: FIVE EXTENDED STAY CAMPS
SINGLE FAMILY HOUSING	105	69	69	0
STAND-BY/GUEST UNITS	± 68 (+2) units	± 74 units	± 94 units	± 68 units
EXTENDED STAY UNITS	0	0	0	± 105 units
KITCHEN/DINING FACILITIES	3	3	2	4
VILLAGE AMENITY PACKAGES	4	2	1	4
GUEST AMENITY PACKAGES	5	5	4	1

FINAL VILLAGE STRATEGIES

SUMMARY

	TOTAL COST	PHASING			
		YRS 1-5	YRS 6-8	YRS 9-12	YRS 13-15
THREE DESERT VILLAGES: 100% extended-stay townhomes					
 105 extended-stay townhomes 12 vacation rentals 64 guest hotels 3 upgraded amenity packages 2 guest amenity packages 3 kitchens	$145M	$81.9M	$24.7M	$28.2M	$10.8M
THREE DESERT VILLAGES: 50% Extended-stay townhomes/50% Single family homes					
 54 single family homes 53 extended-stay townhomes 9 vacation rentals 64 guest hotels 3 upgraded amenity packages 2 guest amenity packages 3 kitchens	$189M	$81.9M	$39.3M	$35.2M	$33M
THREE DESERT VILLAGES: 100% Single family homes					
 105 single family homes 24 extended-stay townhomes 64 guest hotels 3 upgraded amenity packages 2 guest amenity packages 3 kitchens 9 vacation rentals	$249M	$81.9M	$58.2M	$51M	$58.4M

* 10% housing increase across all villages and scenarios

THREE DESERT VILLAGES

100% EXTENDED-STAY TOWNHOMES
105 HOUSING UNITS

TOTAL COST	COST PER VILLAGE				
$ 145.6M	**$2.4M**	**$44.6M**	**$45.4M**	**$45.3M**	**$7.9M**
SUMMARY OF HOUSING AND AMENITIES					
Single Family Homes	**0**	–	–	–	–	–
Extended Stay Townhomes 750 sq. ft.	**105**	–	35	33	37	–
Vacation Rental	**12**	–	3	3	3	3
Guest Hotel 350 sq. ft.	**64**	3	17	25	15	4
Upagraded Amenities	**3**	–	1	1	1	–
Guest Amenity	**2**	1	–	–	–	1°
Kitchen	**3**	–	1	1	1	–

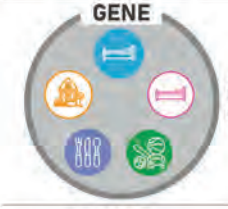
THREE DESERT VILLAGES 100% EXTENDED-STAY TOWNHOMES

105 HOUSING UNITS

	PHASE 1 YRS 1-5	PHASE 2 YRS 6-8	PHASE 3 YRS 9-12	PHASE 4 YRS 13-15
HINDS	3 guest hotel 1 guest amenity	-	-	-
EAGLE	8 townhome 17 guest hotel 2 vacation rental 1 upgraded amenity 1 kitchen	8 townhome	13 townhome 1 vacation rental	6 townhome
IRON MT.	8 townhome 25 guest hotel 2 vacation rental 1 upgraded amenity 1 kitchen	8 townhome	13 townhome 1 vacation rental	4 townhome
GENE	8 townhome 15 guest hotel 2 vacation rental 1 kitchen	8 townhome 1 upgraded amenity	13 townhome 1 vacation rental	8 townhome
INTAKE	4 guest hotel 3 vacation rental 1° guest amenity	-	-	-
TOTAL	24 64 9 2 2° 3	24 1	39 8 3	18

THREE DESERT VILLAGES 100% EXTENDED-STAY TOWNHOMES

105 HOUSING UNITS

	VILLAGE TOTAL	PHASE 1 YRS 1-5	PHASE 2 YRS 6-8	PHASE 3 YRS 9-12	PHASE 4 YRS 13-15
 HINDS	$2.4M	$2.4M 3 GUEST HOTEL 1 GUEST AMENITY	-	-	-
 EAGLE	$44.6M	$26.8M 8 EXTENDED STAY TOWNHOMES 2 VACATION RENTALS 17 GUEST HOTEL 1 UPGRADED AMENITY 1 KITCHEN	$4.8M 8 EXTENDED STAY TOWNHOMES	$9.4M 13 EXTENDED STAY TOWNHOMES 1 VACATION RENTAL	$3.6M 6 EXTENDED STAY TOWMHOMES
 IRON MT.	$45.4M	$28.8M 8 EXTENDED STAY TOWNHOMES 2 VACATION RENTALS 25 GUEST HOTEL 1 UPGRADED AMENITY 1 KITCHEN	$4.8M 8 EXTENDED STAY TOWNHOMES	$9.4M 13 EXTENDED STAY TOWNHOMES 1 VACATION RENTAL	$2.4M 4 EXTENDED STAY TOWNHOMES
 GENE	$45.3M	$16M 8 EXTENDED STAY TOWNHOMES 2 VACATION RENTALS 15 GUEST HOTEL 1 KITCHEN	$15.1M 8 EXTENDED STAY TOWNHOMES 1 UPGRADED AMENITY	$9.4M 13 EXTENDED STAY TOWNHOMES 1 VACATION RENTAL	$4.8M 8 EXTENDED STAY TOWNHOMES
 INTAKE	$7.9M	$7.9M 4 GUEST HOTEL 1 GUEST AMENITY + CONFERENCE ROOM 3 VACATION RENTALS	-	-	-
TOTAL $145.6M		$81.9M	$24.7M	$28.2M	$10.8M

THREE DESERT VILLAGES

50% TOWNHOMES/50% SINGLE FAMILY HOMES
105 HOUSING UNITS

TOTAL COST	COST PER VILLAGE				
$ 189.4M	**$2.4M**	**$59.2M**	**$59.1M**	**$60.8M**	**$7.9M**
SUMMARY OF HOUSING AND AMENITIES					
Single Family Homes	**54**	-	18	17	19	-
Extended Stay Condo 750 sq. ft.	**53**	-	17	16	18	-
Vacation Rental	**9**	-	2	2	2	3
Guest Hotel 350 sq. ft.	**64**	3	17	25	15	4
Upgraded Amenities	**3**	-	1	1	1	-
Guest Amenity	**2**	1	-	-	-	1
Kitchen	**3**	-	1	1	1	-

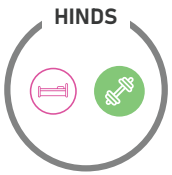
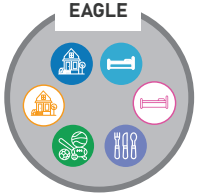
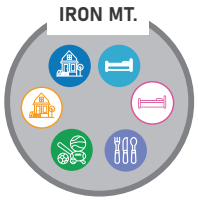
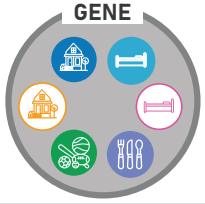
THREE DESERT VILLAGES 50% TOWNHOMES/50% SINGLE FAMILY HOMES

105 HOUSING UNITS

	PHASE 1 YRS 1-5	PHASE 2 YRS 6-8	PHASE 3 YRS 9-12	PHASE 4 YRS 13-15
HINDS	3 guest hotel 1 guest amenity	-	-	-
EAGLE	8 townhome 17 guest hotel 2 vacation rental 1 upgraded amenity 1 kitchen	6 home 9 townhome	6 home	6 home
IRON MT.	8 townhome 25 guest hotel 2 vacation rental 1 upgraded amenity 1 kitchen	5 home 4 townhome	6 home 4 townhome	6 home
GENE	8 townhome 15 guest hotel 2 vacation rental 1 kitchen	8 townhome 1 village amenity	9 home 2 townhome	10 home
INTAKE	4 guest hotel 3 vacation rental 1° guest amenity	-	-	-
TOTAL	24 64 9 2 2° 3	11 21 1	21 6	22

THREE DESERT VILLAGES 50% TOWNHOMES/50% SINGLE FAMILY HOMES

105 HOUSING UNITS

	VILLAGE TOTAL	PHASE 1 YRS 1-5	PHASE 2 YRS 6-8	PHASE 3 YRS 9-12	PHASE 4 YRS 13-15
 HINDS	$2.4M	**$2.4M** 3 GUEST HOTEL 1 GUEST AMENITY	-	-	-
 EAGLE	$59.2M	**$26.8M** 8 EXTENDED STAY TOWNHOMES 2 VACATION RENTALS 17 GUEST HOTEL 1 UPGRADED AMENITY 1 KITCHEN	**$14.4M** 6 SINGLE FAMILY HOMES 9 EXTENDED STAY TOWNHOMES	**$9M** 6 SINGLE FAMILY HOMES	**$9M** 6 SINGLE FAMILY HOMES
 IRON MT.	$59M	**$28.8M** 8 EXTENDED STAY TOWNHOMES 2 VACATION RENTALS 25 GUEST HOTEL 1 UPGRADED AMENITY 1 KITCHEN	**$9.8M** 5 SINGLE FAMILY HOMES 4 EXTENDED STAY TOWNHOMES	**$11.4M** 6 SINGLE FAMILY HOMES 4 EXTENDED STAY TOWNHOMES	**$9M** 6 SINGLE FAMILY HOMES
 GENE	$60.8M	**$16M** 8 EXTENDED STAY TOWNHOMES 2 VACATION RENTALS 15 GUEST HOTEL 1 KITCHEN	**$15.1M** 8 EXTENDED STAY CONDOS 1 UPGRADED AMENITY	**$14.7M** 9 SINGLE FAMILY HOMES 2 EXTENDED STAY TOWNHOMES	**$15M** 10 SINGLE FAMILY HOMES
 INTAKE	$7.9M	**$7.9M** 4 GUEST HOTEL 1 GUEST AMENITY + CONFERENCE ROOM 3 VACATION RENTALS	-	-	-
TOTAL $189.4M		**$81.9M**	**$39.3M**	**$35.2M**	**$33M**

THREE DESERT VILLAGES

100% SINGLE FAMILY HOMES
105 HOUSING UNITS

TOTAL COST	COST PER VILLAGE				
$249.5M	**$2.4M**	**$79.2M**	**$78.3M**	**$81.7M**	**$7.9M**
SUMMARY OF HOUSING AND AMENITIES					
Single Family Homes	**105**	-	35	33	37	-
Extended Stay Condo 750 sq. ft.	**24**	-	8	8	8	-
Vacation Rental	**9**	-	2	2	2	3
Guest Hotel 350 sq. ft.	**64**	3	17	25	15	4
Upgraded Amenities	**3**	-	1	1	1	-
Guest Amenity	**2**	1	-	-	-	1
Kitchen	**3**	-	1	1	1	-

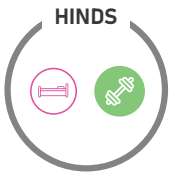
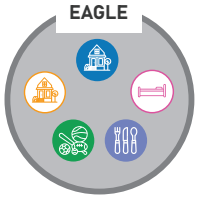
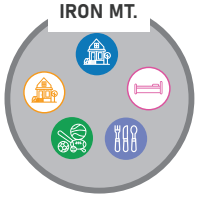
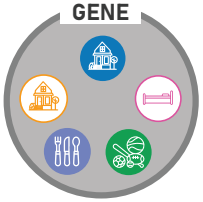
THREE DESERT VILLAGES 100% SINGLE FAMILY HOMES

105 HOUSING UNITS

	PHASE 1 YRS 1-5	PHASE 2 YRS 6-8	PHASE 3 YRS 9-12	PHASE 4 YRS 13-15
HINDS	3 guest hotel 1 guest amenity	-	-	-
EAGLE	8 townhome 17 guest hotel 2 vacation rental 1 upgraded amenity 1 kitchen	10 home	10 home	15 home
IRON MT.	8 townhome 25 guest hotel 2 vacation rental 1 upgraded amenity 1 kitchen	10 home	12 home	11 home
GENE	8 townhome 15 guest hotel 2 vacation rental 1 kitchen	12 home 1 upgraded amenity	12 home	13 home
INTAKE	4 guest hotel 3 vacation rental 1° guest amenity	-	-	-
TOTAL	24 64 9 2 2° 3	32 1	34	39

THREE DESERT VILLAGES 100% SINGLE FAMILY HOMES

105 HOUSING UNITS

	VILLAGE TOTAL	PHASE 1 YRS 1-5	PHASE 2 YRS 6-8	PHASE 3 YRS 9-12	PHASE 4 YRS 13-15
	$2.4M	**$2.4M** 3 GUEST HOTEL 1 GUEST AMENITY	-	-	-
	$79.2M	**$26.8M** 8 EXTENDED STAY TOWNHOMES 2 VACATION RENTALS 17 GUEST HOTEL 1 UPGRADED AMENITY 1 KITCHEN	**$15M** 10 SINGLE FAMILY HOMES	**$15M** 10 SINGLE FAMILY HOMES	**$22.4M** 15 SINGLE FAMILY HOMES
	$78.3M	**$28.8M** 8 EXTENDED STAY TOWNHOMES 2 VACATION RENTALS 25 GUEST HOTEL 1 UPGRADED AMENITY 1 KITCHEN	**$15M** 10 SINGLE FAMILY HOMES	**$18M** 12 SINGLE FAMILY HOMES	**$16.5M** 11 SINGLE FAMILY HOMES
	$81.7M	**$16M** 8 EXTENDED STAY TOWNHOMES 2 VACATION RENTALS 15 GUEST HOTEL 1 KITCHEN	**$28.2M** 12 SINGLE FAMILY HOMES 1 UPGRADED AMENITY	**$18M** 12 SINGLE FAMILY HOMES	**$19.5M** 13 SINGLE FAMILY HOMES
	$7.9M	**$7.9M** 4 GUEST HOTEL 1 GUEST AMENITY + CONFERENCE ROOM 3 VACATION RENTALS	-	-	-
TOTAL $249.5M		**$81.9M**	**$58.2M**	**$51M**	**$58.4M**

DETAILED PHASING STRATEGY FOR EACH VILLAGE

CONCEPTUAL PHASING STRATEGY IRON MOUNTAIN

CONTEXT:

- **Conceptual Phasing Strategy -** Iron Mountain Village
- **Future housing needs: 33 units** (based upon projected staffing = current needs plus 10%)
- **Future hotel needs: 25 units** (replace existing 17 guest hotel units plus an additional 8 units)
- Vacation rental home could be either new housing or existing homes to reuse.

LEGEND:

CURRENT HOMES

NEW CONSTRUCTION

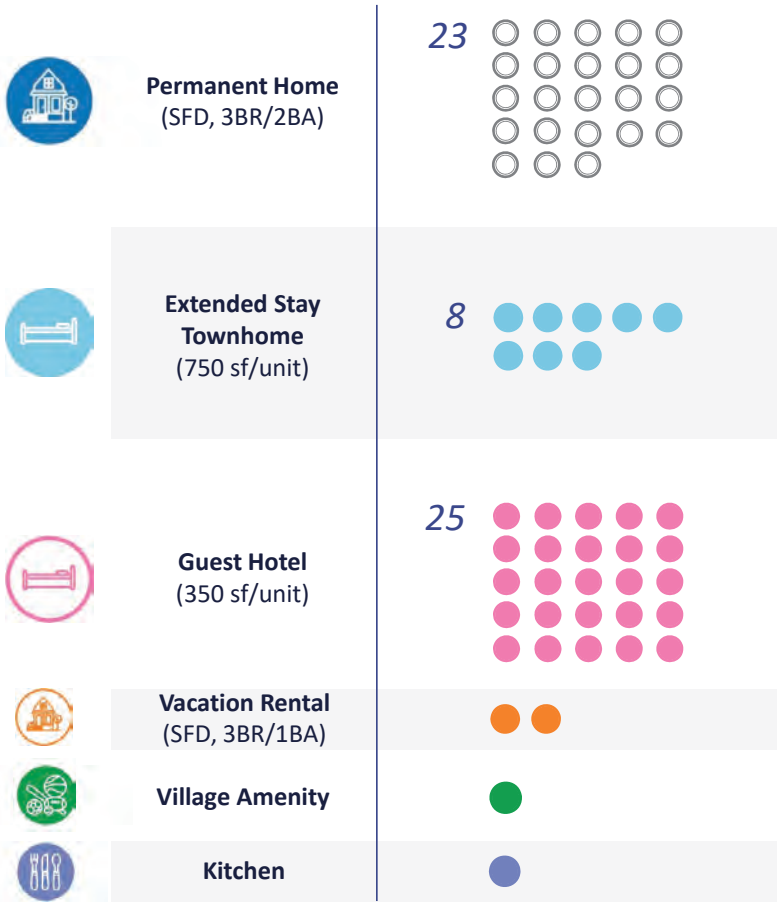
PREVIOUSLY CONSTRUCTED

** The circle colors correspond to program elements on following slides.*

CONCEPTUAL PHASING STRATEGY FOR IRON MOUNTAIN

(As case study, similar logic can be applied to Eagle and Gene camps.)

YR 1-5



Build and Test Extended Stay Condos

Replace existing hotels

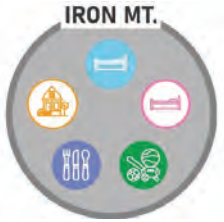
CASE STUDY FOR IRON MOUNTAIN

YR 1-5

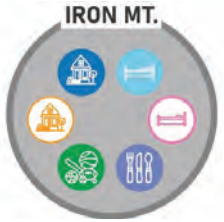
Permanent Home (SFD, 3BR/2BA)	23
Extended Stay Townhome (750 sf/unit)	8
Guest Hotel (350 sf/unit)	25
Vacation Rental (SFD, 3BR/1BA)	
Village Amenity	
Kitchen	

Assess community design strategy after year 5 & pivot if necessary

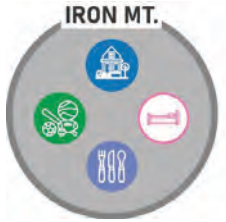
YR 6-15



ALL EXTENDED STAY TOWNHOME

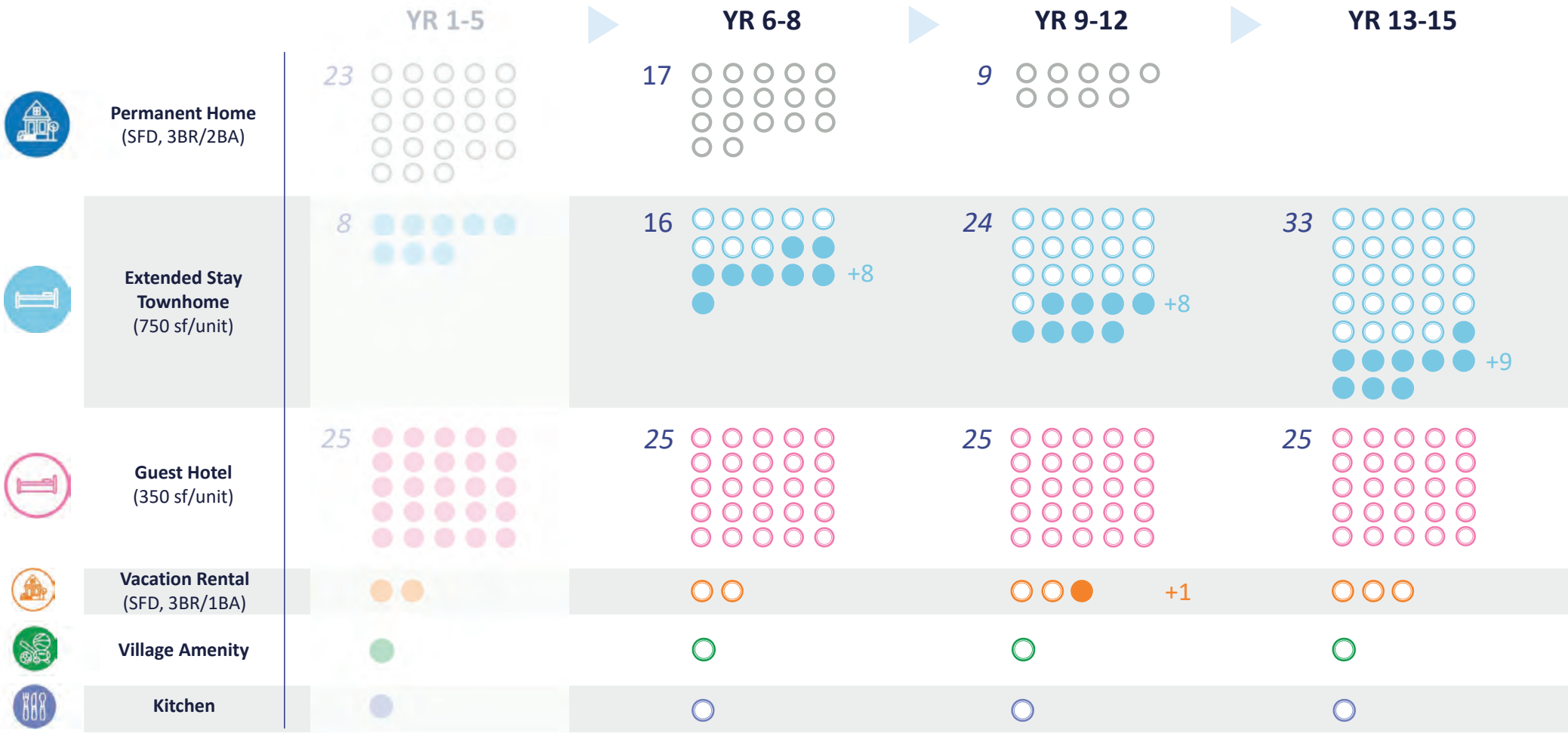


EXTENDED STAY TOWNHOME + SINGLE-FAMILY HOMES

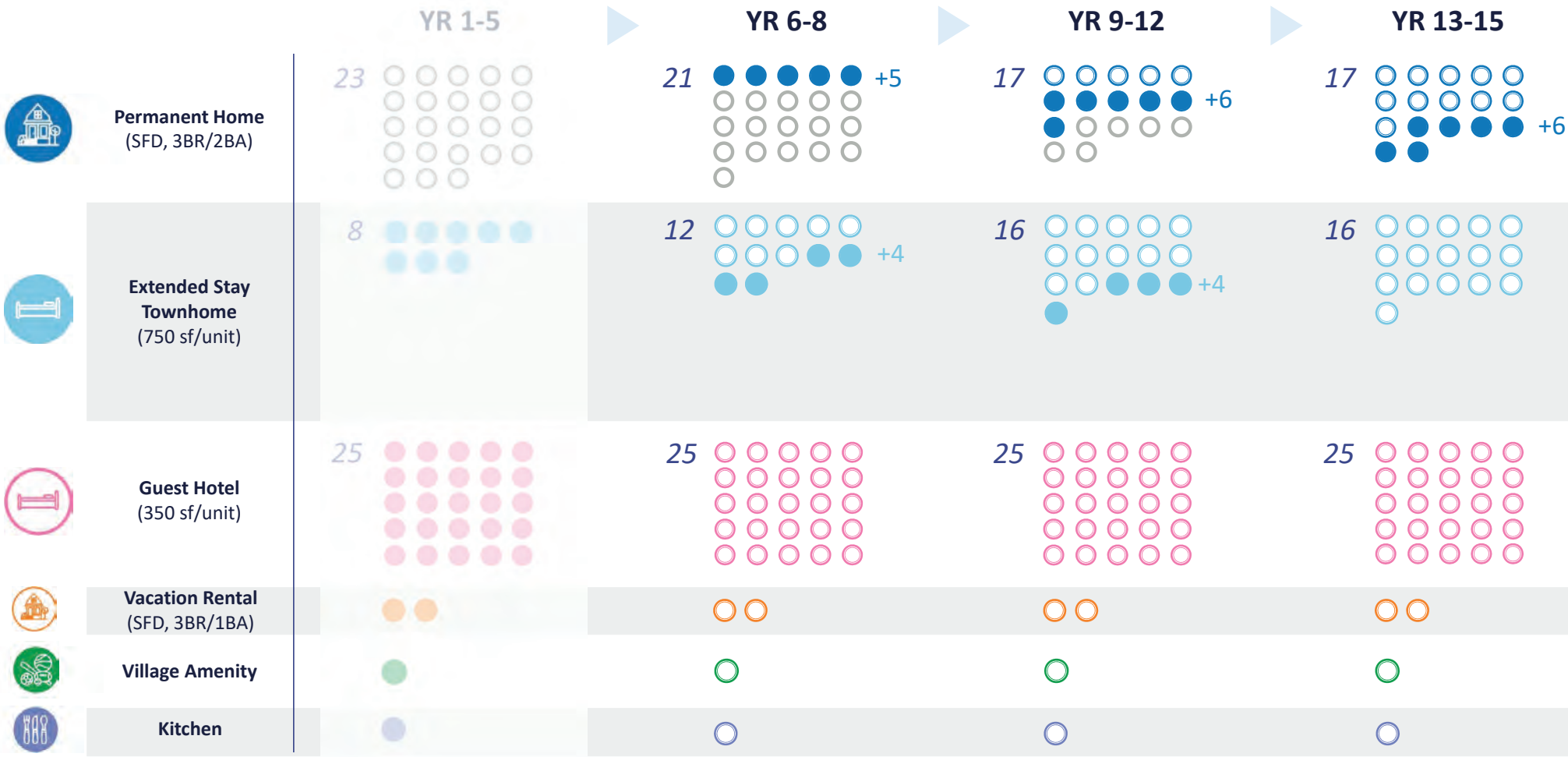


ALL SINGLE-FAMILY HOMES

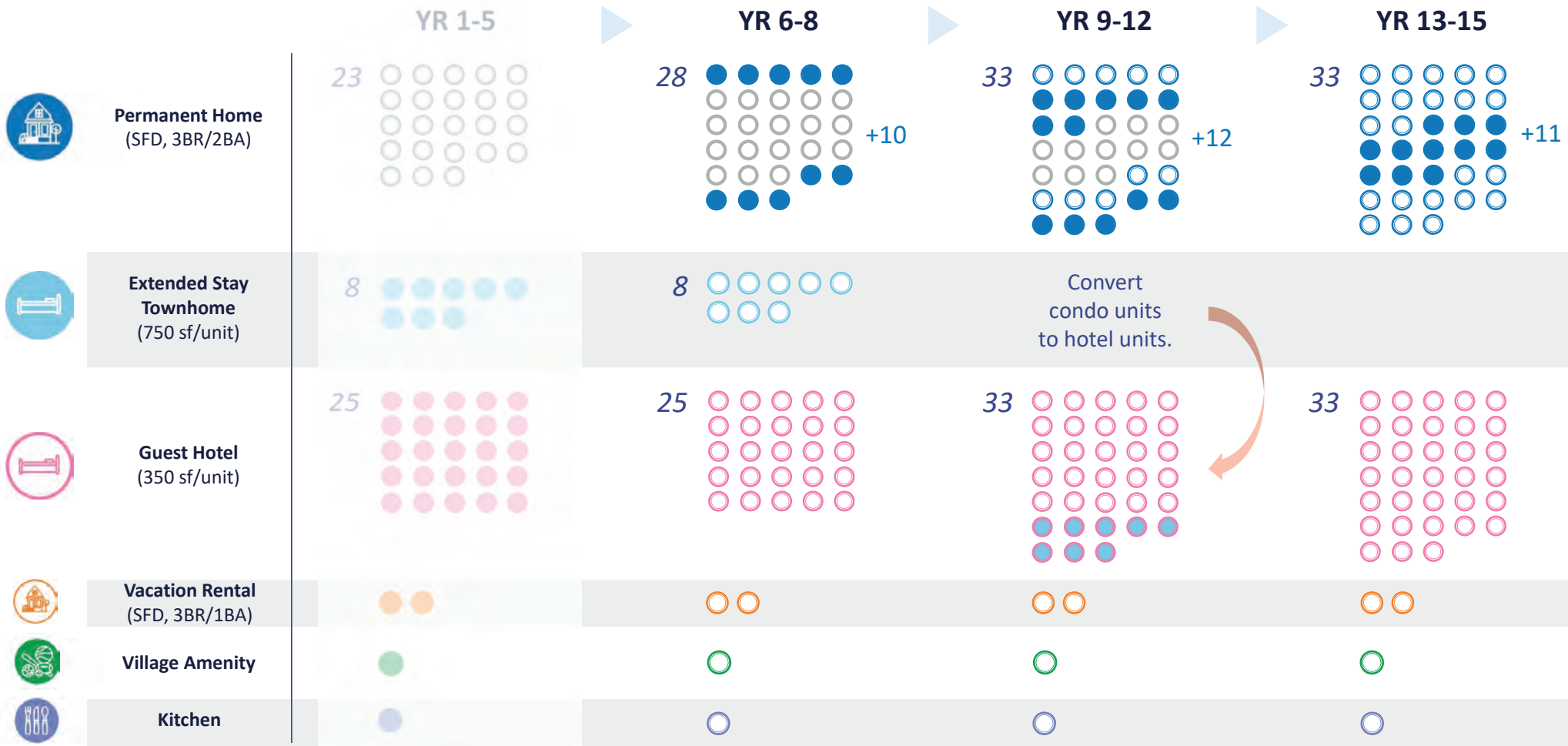
CASE STUDY FOR IRON MOUNTAIN: 100% EXTENDED STAY TOWNHOME



CASE STUDY FOR IRON MOUNTAIN: MIX EXTENDED STAY TOWNHOME (50%) + SINGLE FAMILY HOMES (50%)



CASE STUDY FOR IRON MOUNTAIN: 100% SINGLE FAMILY HOMES



Appendix: DETAILED VILLAGE PHASING STRAEGIES

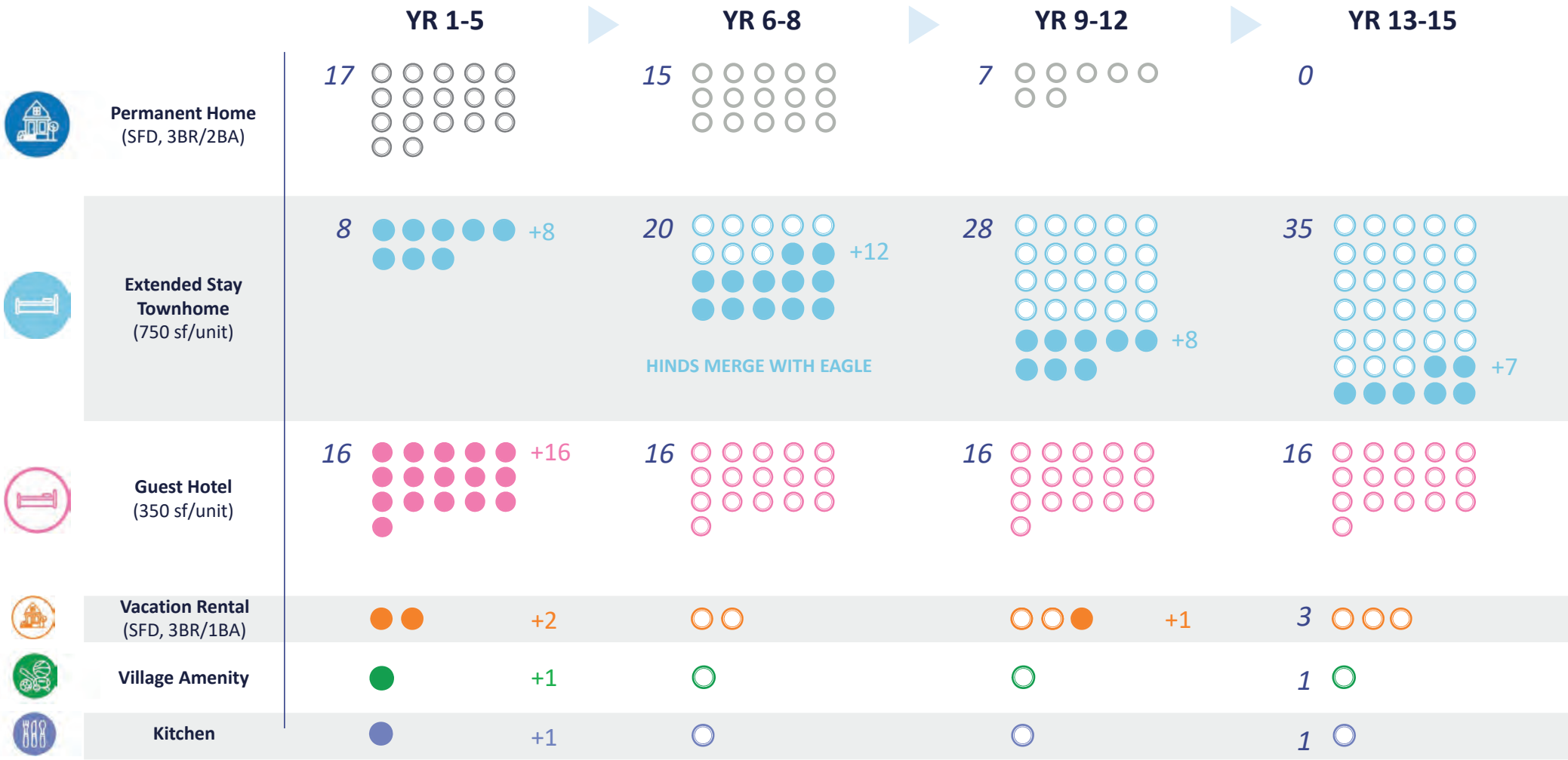
THREE DESERT VILLAGES

THREE DESERT VILLAGES

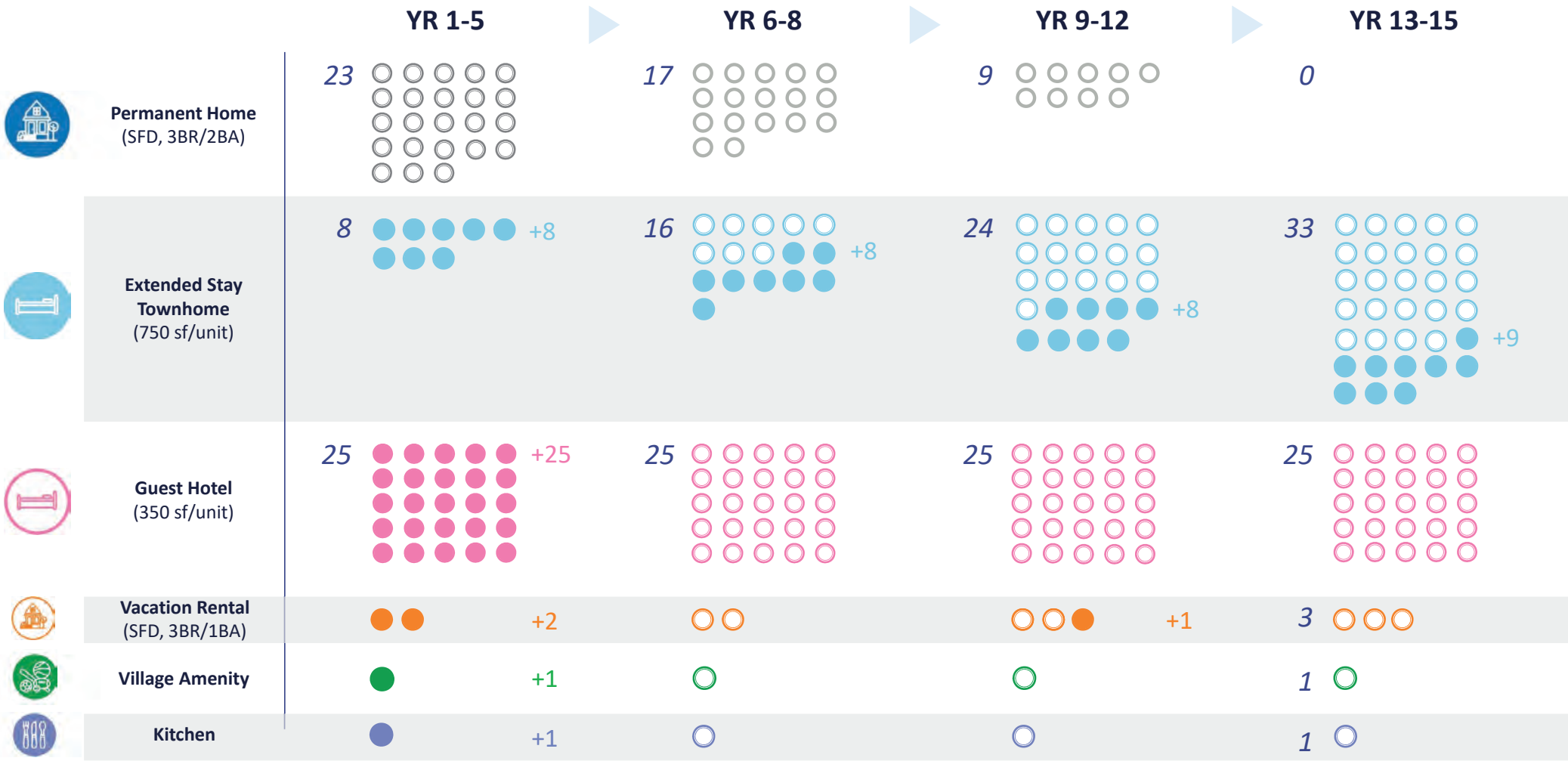
100% EXTENDED-STAY
TOWNHOMES
105 HOUSING UNITS

TOTAL COST	COST PER VILLAGE				
$ 145.6M	**$2.4M**	**$44.6M**	**$45.4M**	**$45.3M**	**$7.9M**
SUMMARY OF HOUSING AND AMENITIES					
Single Family Homes	**0**	–	–	–	–	–
Extended Stay Townhomes 750 sq. ft	**105**	–	35	33	37	–
Vacation Rental	**12**	–	3	3	3	3
Guest Hotel 350 sq. ft	**64**	3	17	25	15	4
Upagraded Amenities	**3**	–	1	1	1	–
Guest Amenity	**2**	1	–	–	–	1*
Kitchen	**3**	–	1	1	1	–

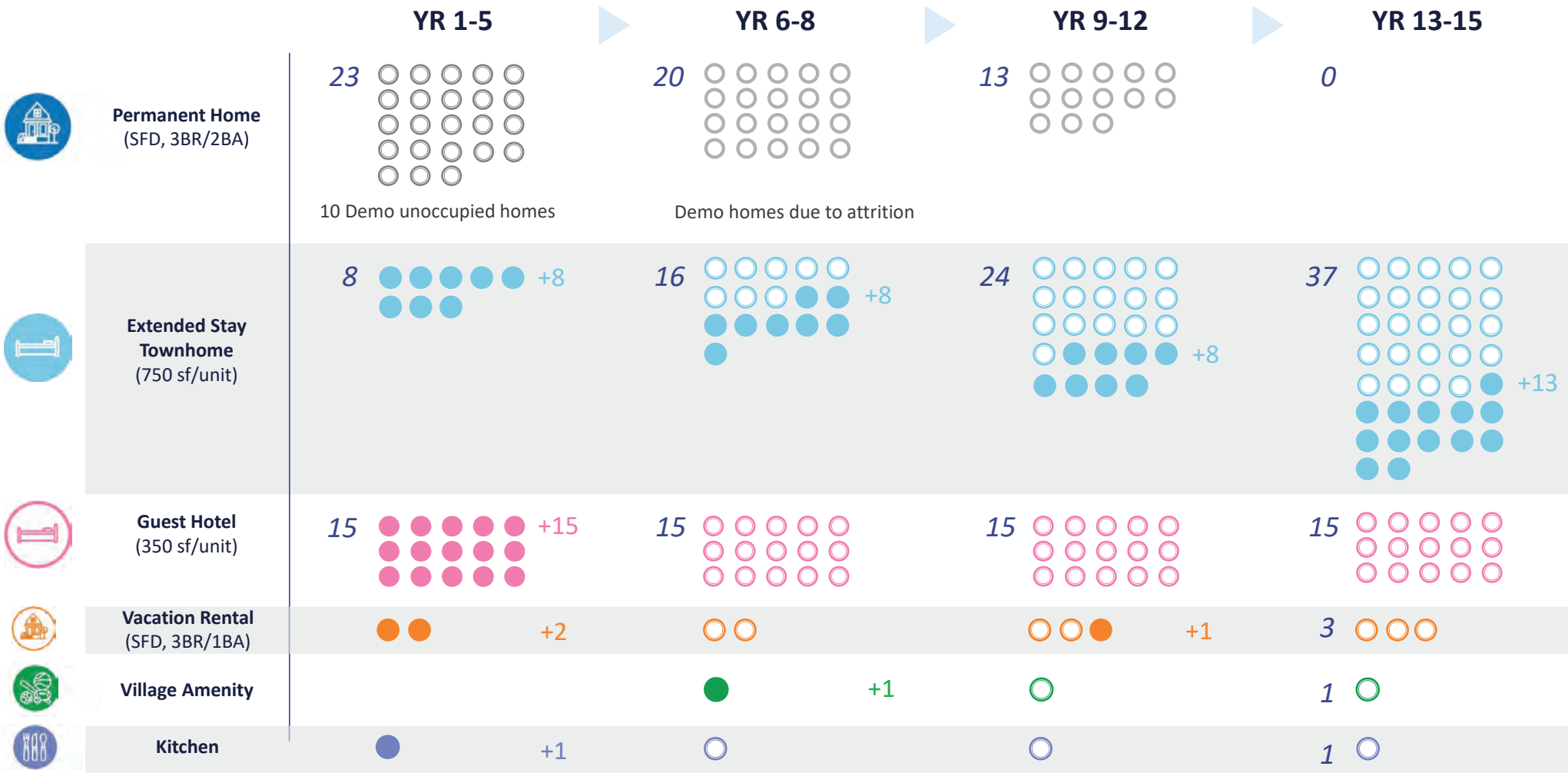
EAGLE MOUNTAIN VILLAGE (+HINDS): 100% EXTENDED STAY TOWNHOMES



IRON MOUNTAIN EXTENDED STAY CAMP: 100% EXTENDED STAY TOWNHOMES



GENE EXTENDED STAY CAMP: *100% EXTENDED STAY TOWNHOMES*

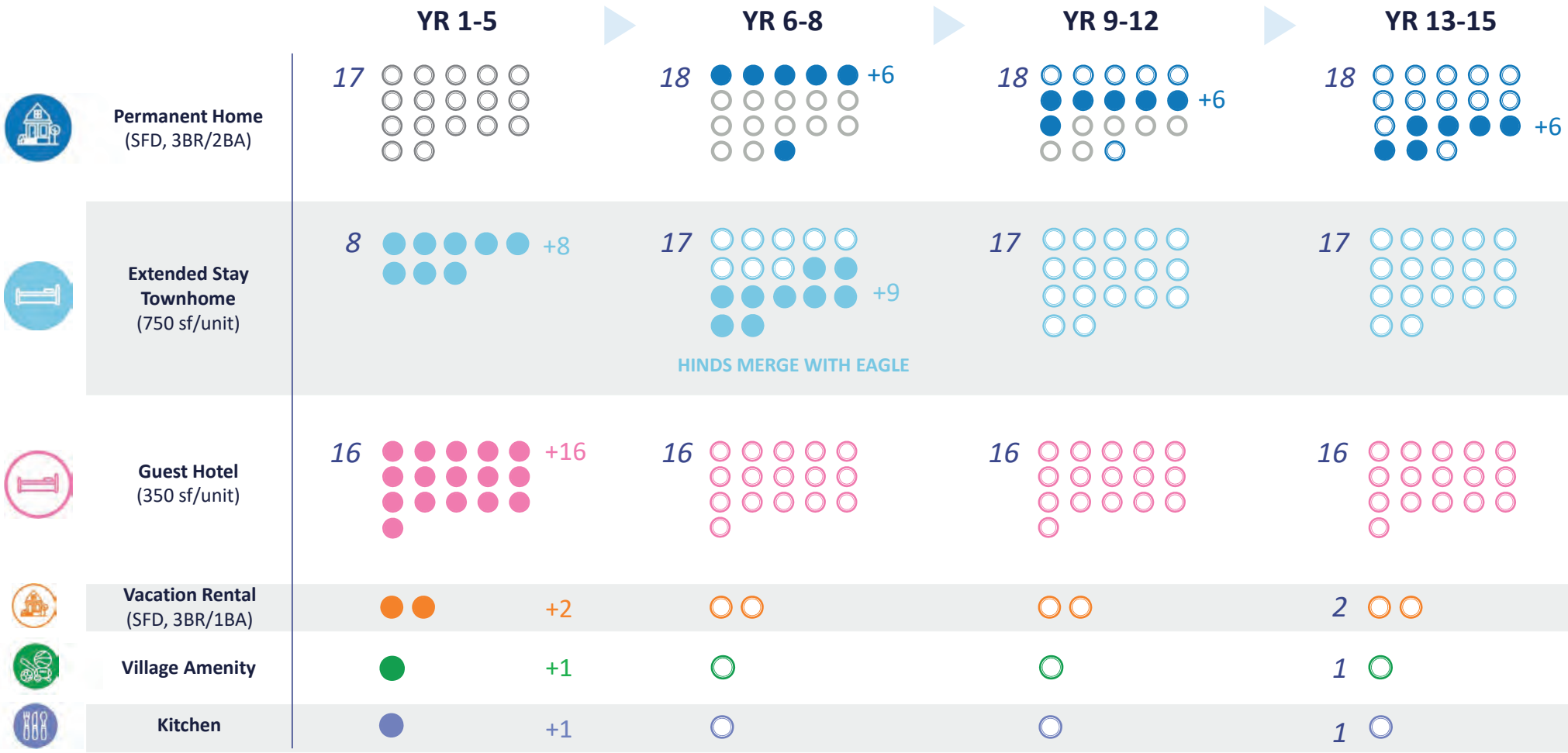


THREE DESERT VILLAGES

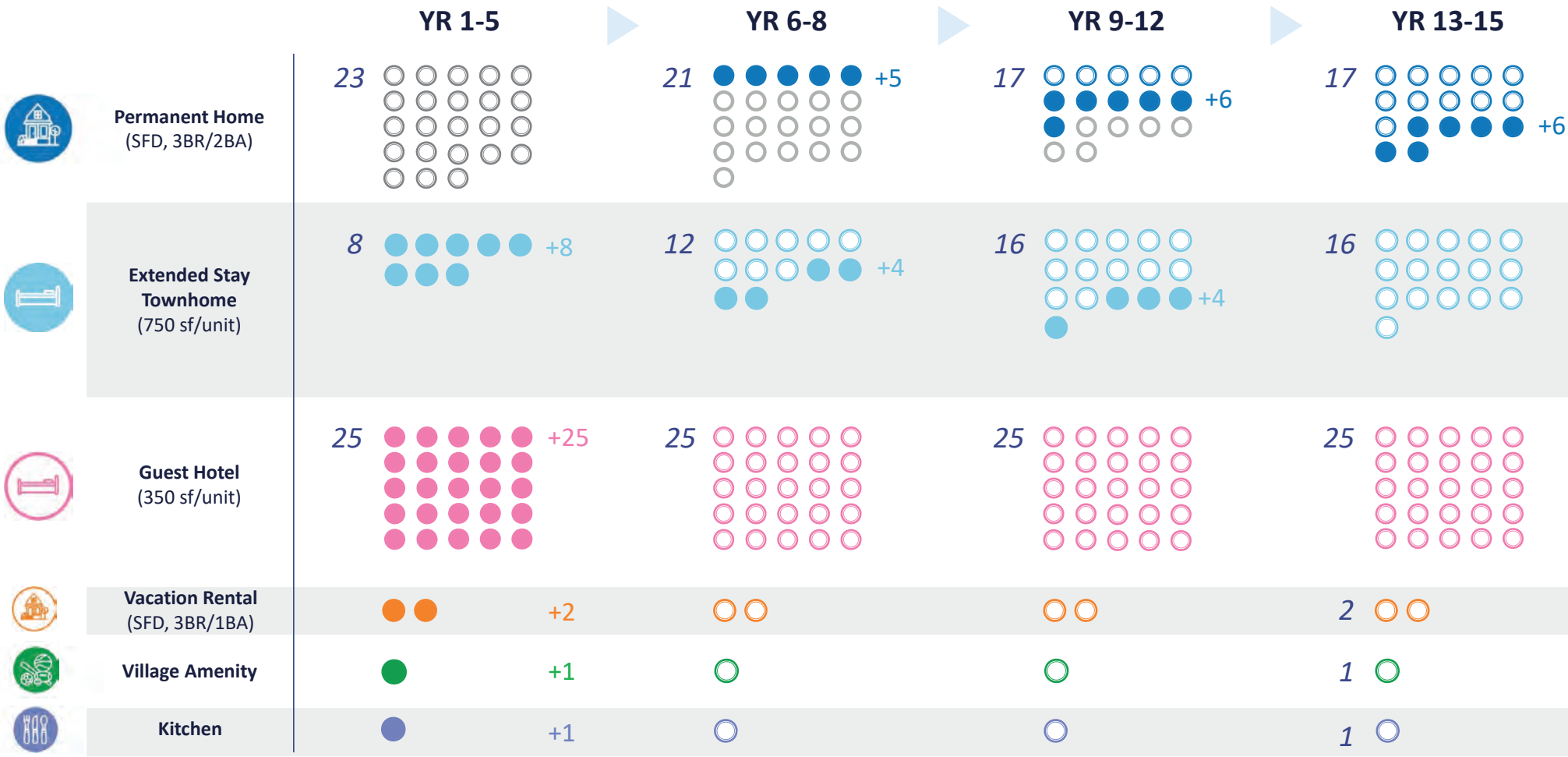
50% TOWNHOMES/50% SINGLE FAMILY HOMES
105 HOUSING UNITS

TOTAL COST	COST PER VILLAGE				
$ 189.4M	**$2.4M**	**$59.2M**	**$59.1M**	**$60.8M**	**$7.9M**
SUMMARY OF HOUSING AND AMENITIES					
Single Family Homes	**54**	–	18	17	19	–
Extended Stay Condo 750 sq. ft.	**53**	–	17	16	18	–
Vacation Rental	**9**	–	2	2	2	3
Guest Hotel 350 sq. ft.	**64**	3	17	25	15	4
Upgraded Amenities	**3**	–	1	1	1	–
Guest Amenity	**2**	1	–	–	–	1
Kitchen	**3**	–	1	1	1	–

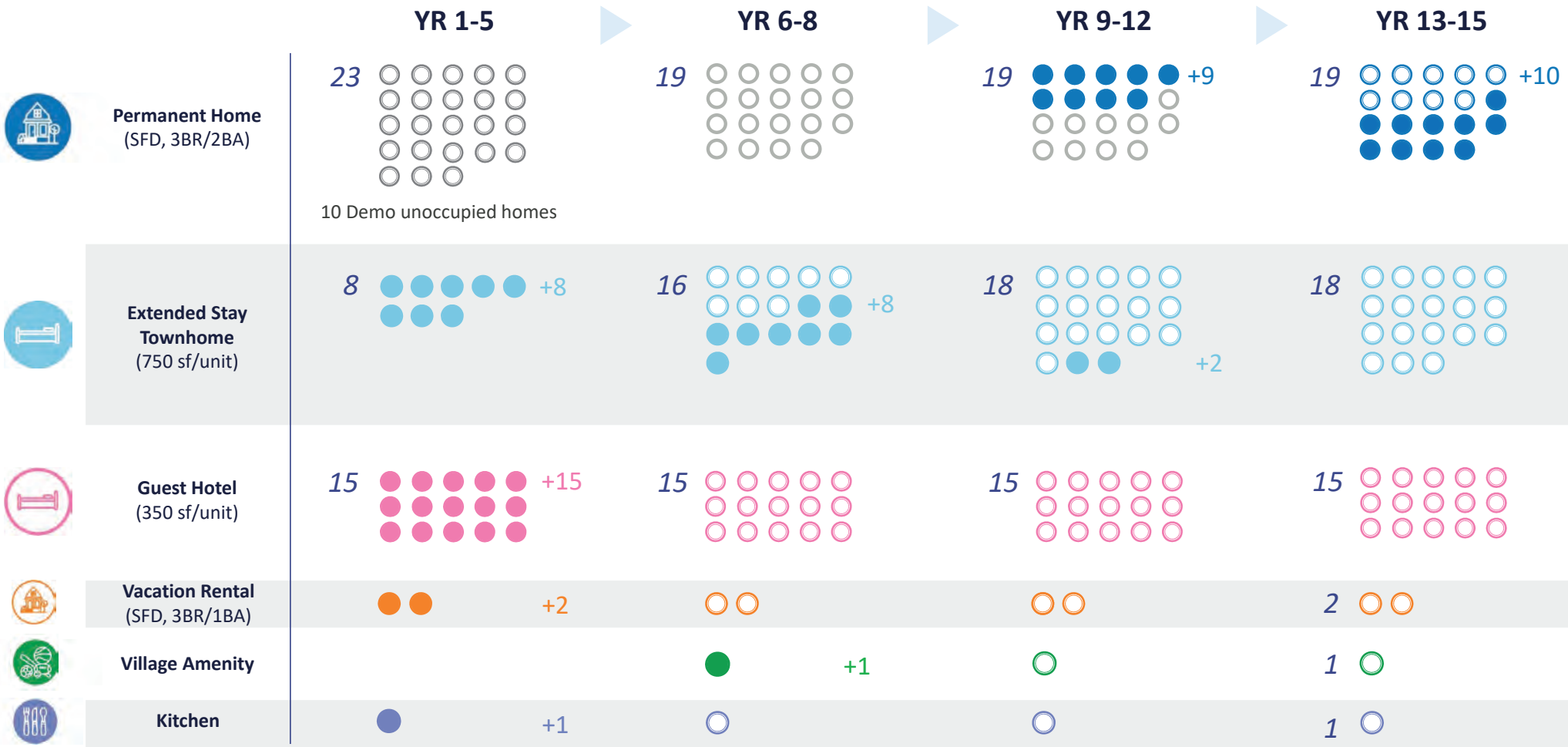
EAGLE MOUNTAIN VILLAGE (+HINDS): *EXTENDED STAY TOWNHOME (50%) + SINGLE FAMILY HOMES (50%)*



IRON MOUNTAIN VILLAGE: *EXTENDED STAY CONDO (50%) + SINGLE FAMILY HOMES (50%)*



GENE EXTENDED STAY CAMP: *EXTENDED STAY CONDO (50%) + SINGLE FAMILY HOMES (50%)*

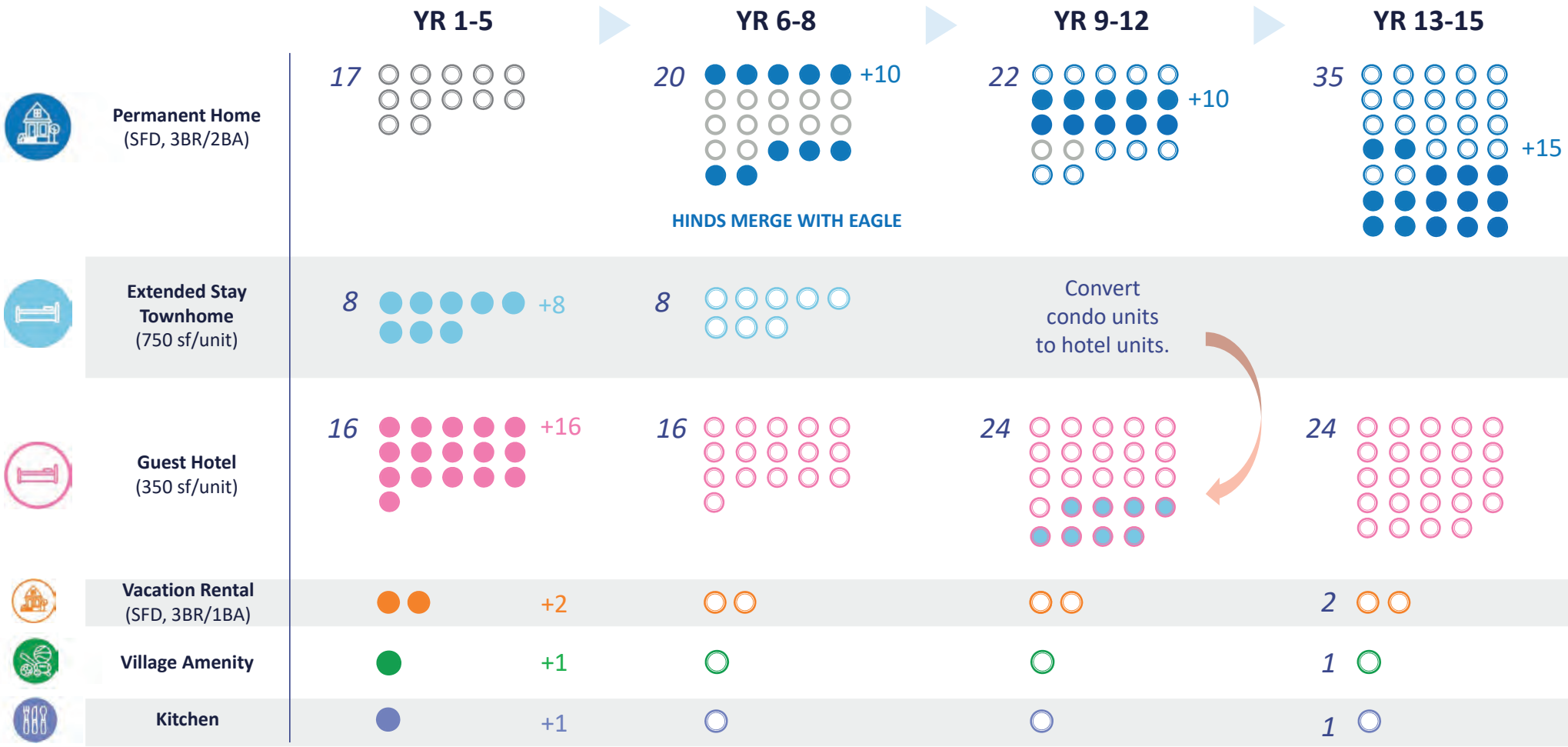


THREE DESERT VILLAGES

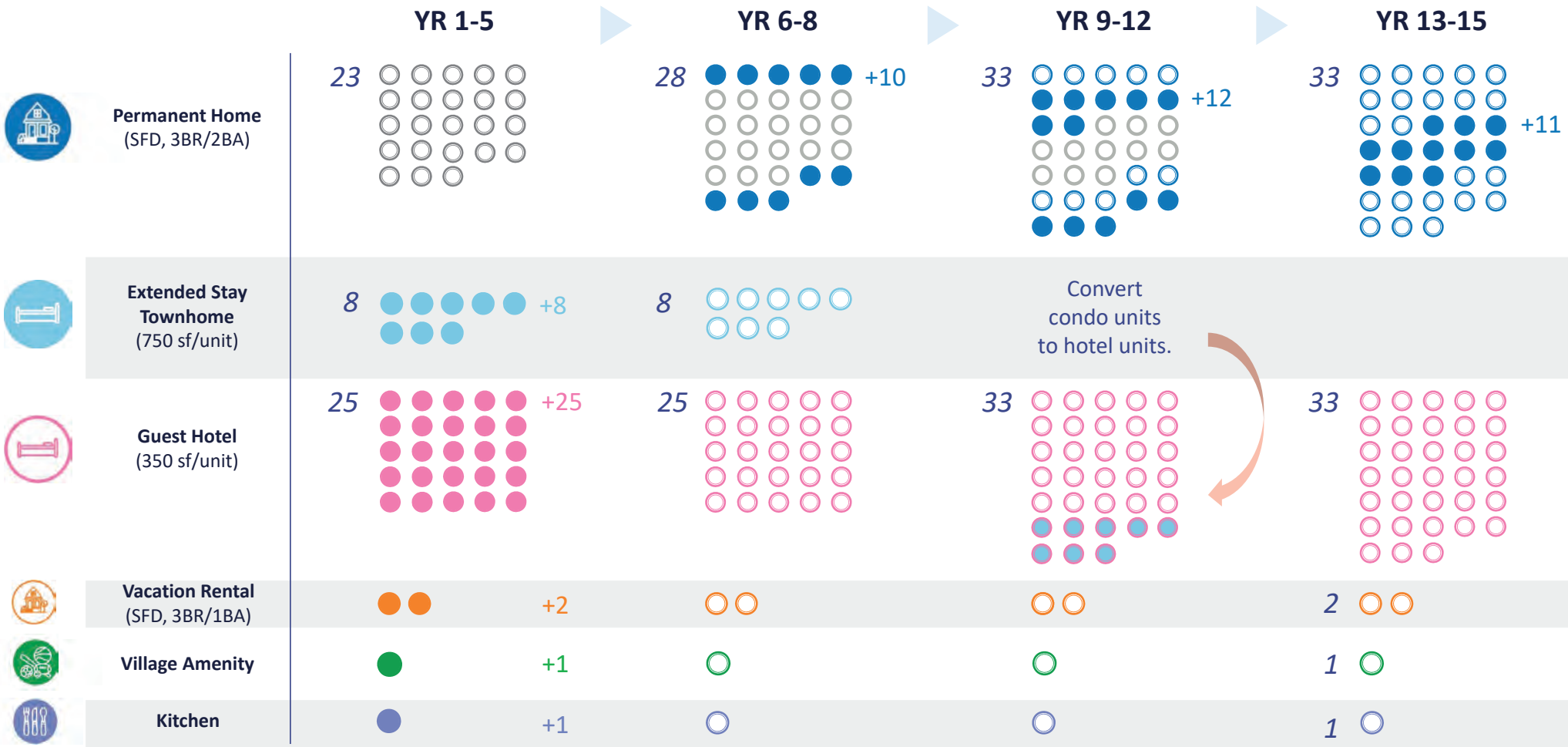
100% SINGLE FAMILY HOMES
105 HOUSING UNITS

TOTAL COST	COST PER VILLAGE				
$249.5M	**$2.4M**	**$79.2M**	**$78.3M**	**$81.7M**	**$7.9M**
SUMMARY OF HOUSING AND AMENITIES					
Single Family Homes **105**	–	35	33	37	–
Extended Stay Condo 750 sq. ft. **24**	–	8	8	8	–
Vacation Rental **9**	–	2	2	2	3
Guest Hotel 350 sq. ft. **64**	3	17	25	15	4
Upgraded Amenities **3**	–	1	1	1	–
Guest Amenity **2**	1	–	–	–	1
Kitchen **3**	–	1	1	1	–

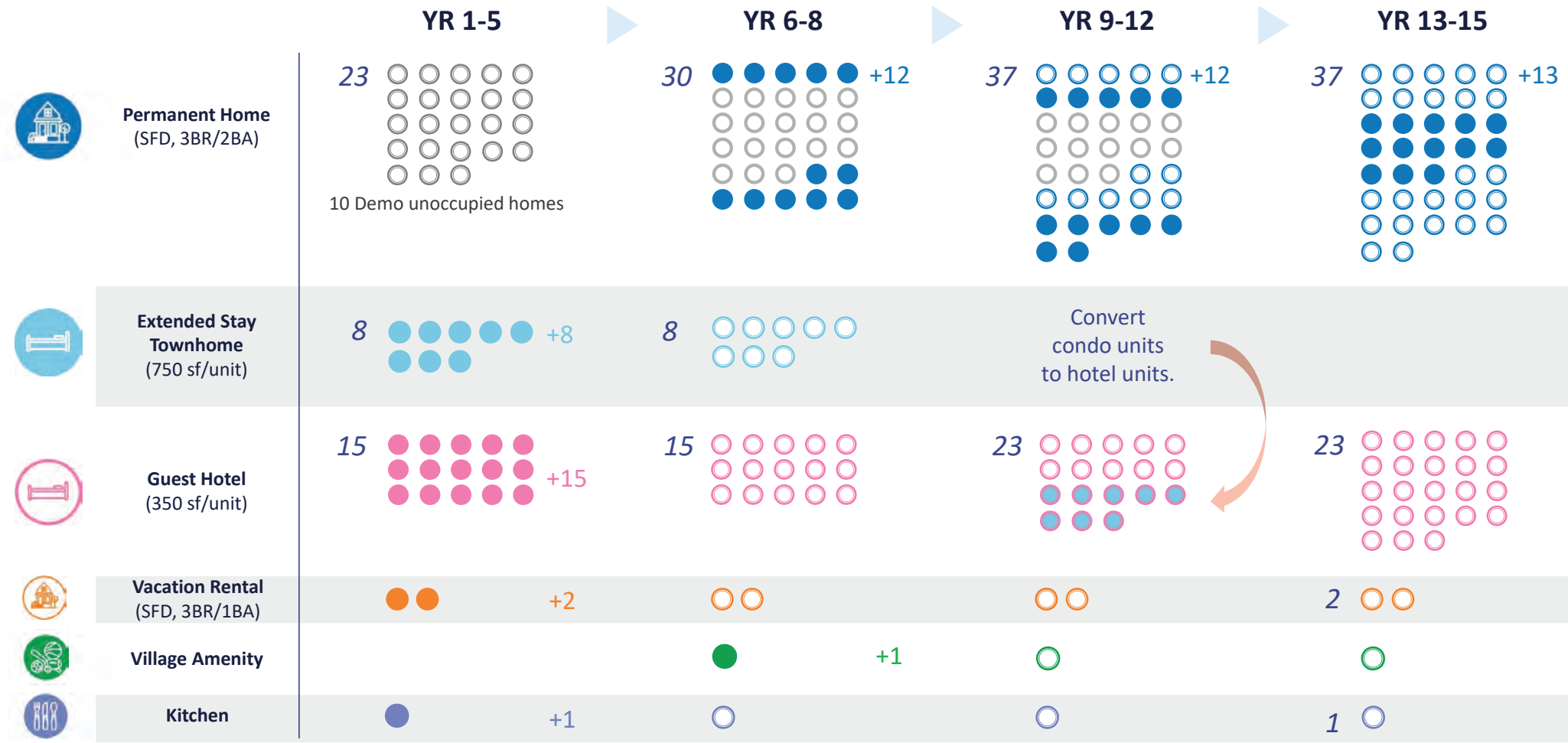
EAGLE MOUNTAIN VILLAGE (+HINDS): *100% SINGLE FAMILY HOMES*



IRON MOUNTAIN VILLAGE: *100% SINGLE FAMILY HOMES*



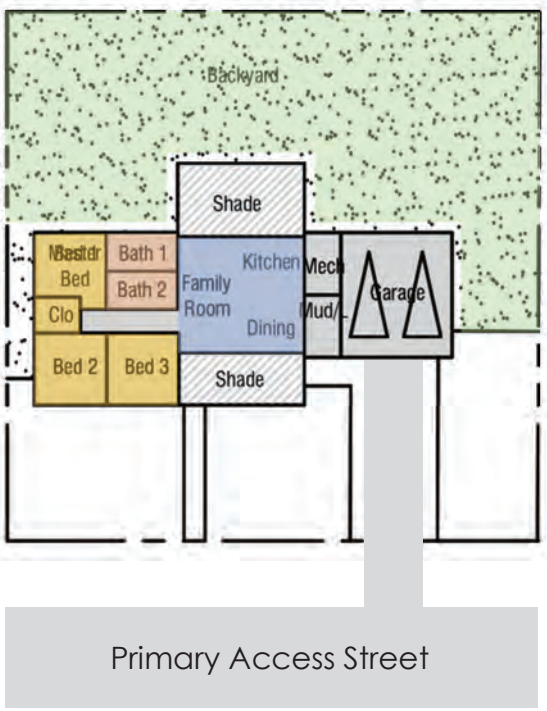
GENE EXTENDED STAY CAMP: *100% SINGLE FAMILY HOMES*



AMENITIES AND COSTS

PERMANENT HOMES

SINGLE-FAMILY DETACHED HOME

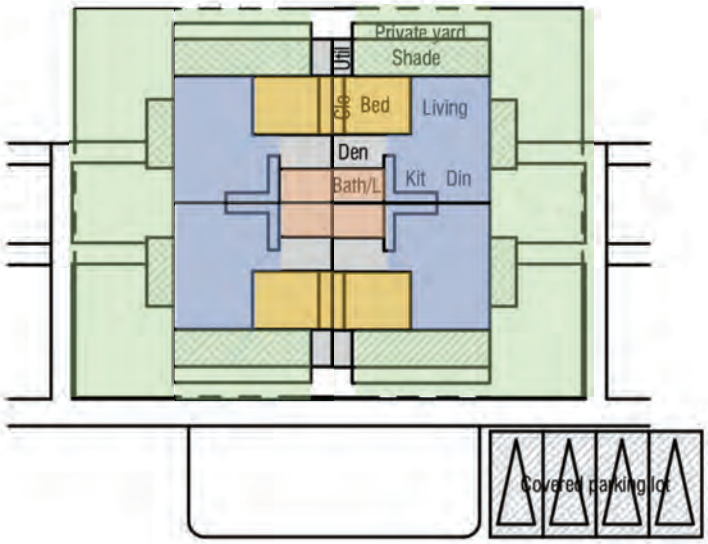


- ± **$ 1.5 M** per unit.
- **3 bd / 2 ba**.
- Attached 2 car garage.
- Covered patio.

- 2022 estimate based upon architectural drawings (1M)
- 2024 cost estimate (1.5M) based upon square footage costs of comparable construction types, landscape and utility runs to the house from the street

EXTENDED STAY TOWNHOME

PINWHEEL TYPE

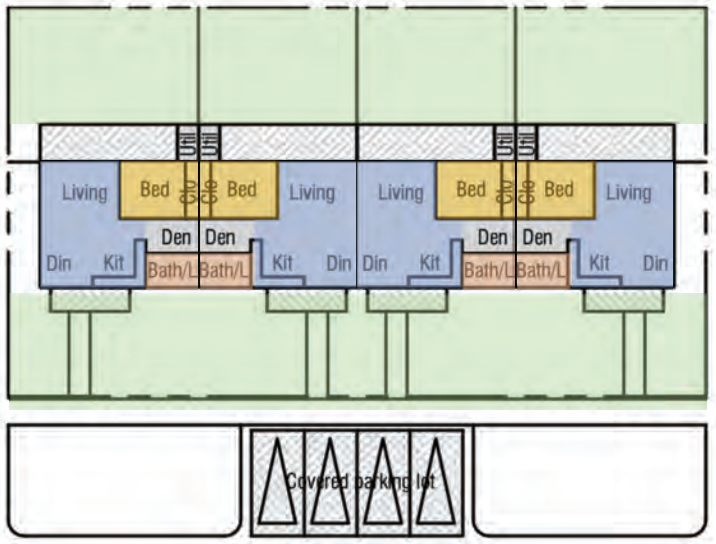


Primary Access Street

± **$538,000** per unit.

- **1 bd / 1 ba.**
- Detached 1 car carport.

LINEAR TYPE

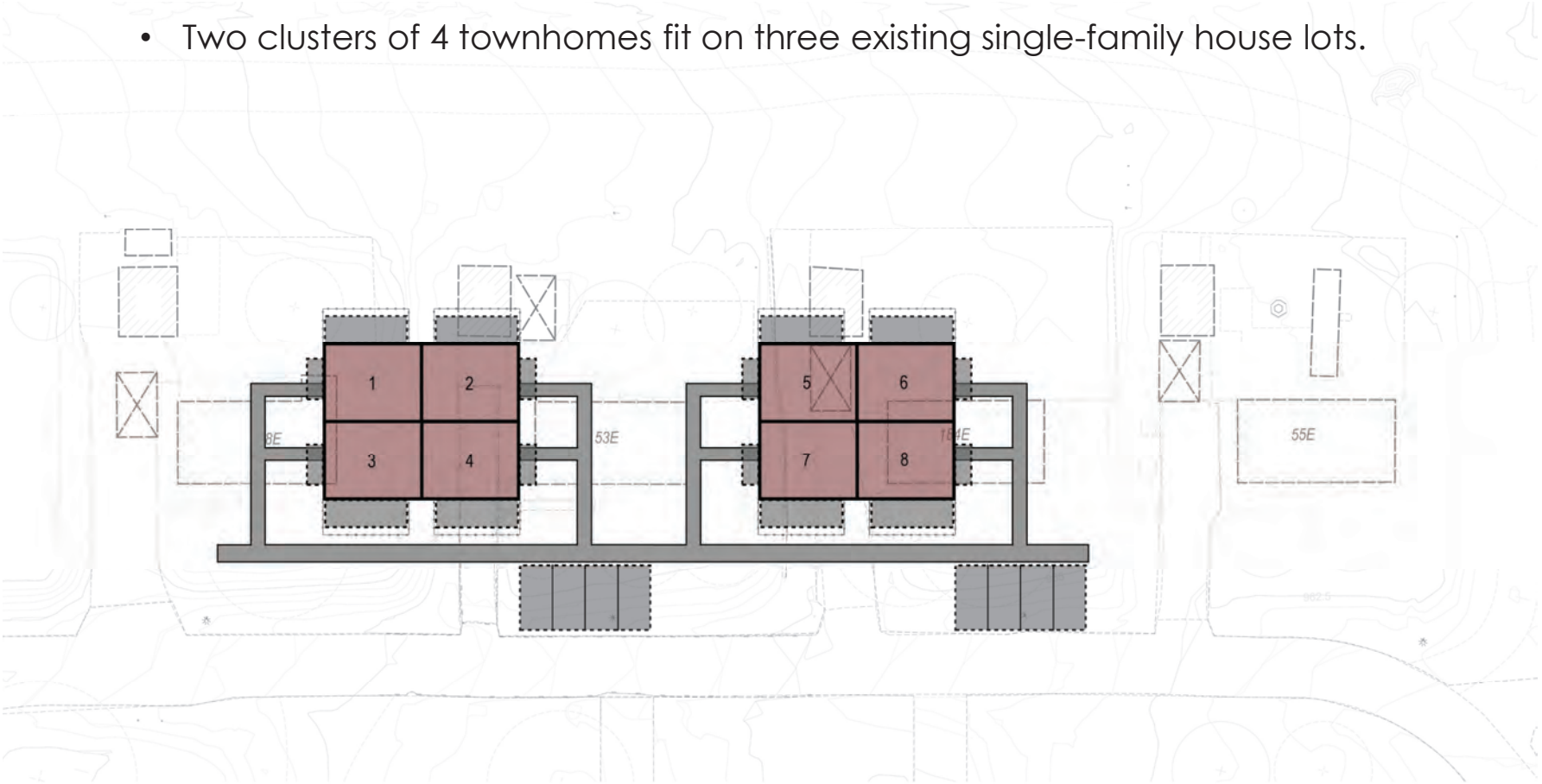


Primary Access Street

- ± **$ 600,000** per unit.
- **1 bd / 1 ba.**
- Detached 1 car carport.

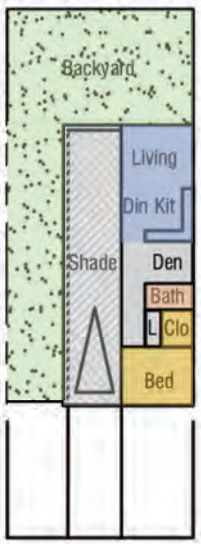
TOWNHOME TEST FIT IN EXISTING LOT

- Two clusters of 4 townhomes fit on three existing single-family house lots.



EXTENDED STAY CONDO

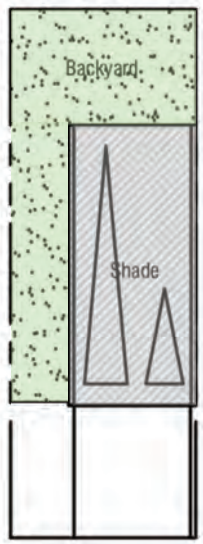
CASITA



Primary Access Street

- ± **$ 633,000** per unit.
- **1 bd / 1 ba.**
- Attached carport

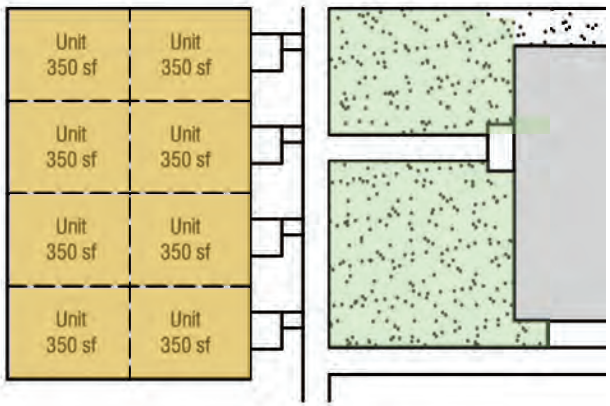
RV PAD



Primary Access Street

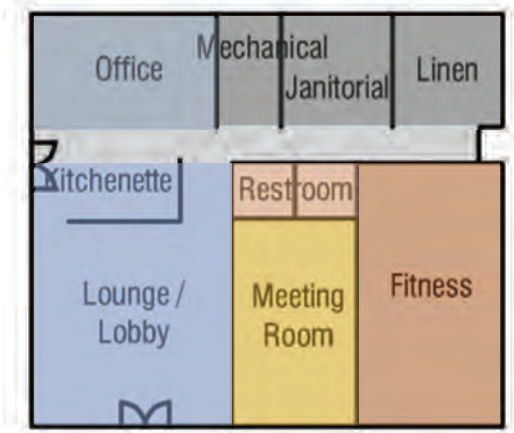
- ± **$ 216,000** per unit.
- ± 2,000 SF RV PAD.
- Full hookups.

GUEST LODGE / HOTEL



- ± **$ 250,000** per unit.
- ± **350 SF** per unit.
- Typical hotel unit layout without kitchenette.

GUEST AMENITY



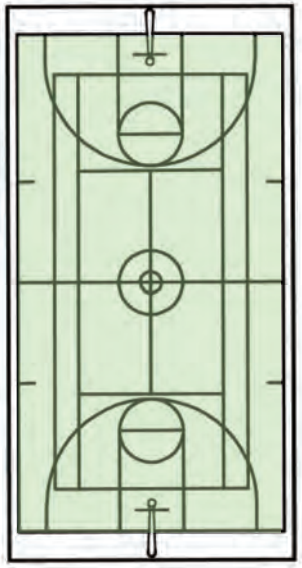
- ± **$ 1.65 M** per facility.
- ± **2,000 SF** of building.
- Kitchenette, laundry, linen, office, small fitness, meeting room, janitorial, utility etc.

VILLAGE AMENITY: TOTAL COST = 4.4M

CLUB HOUSE

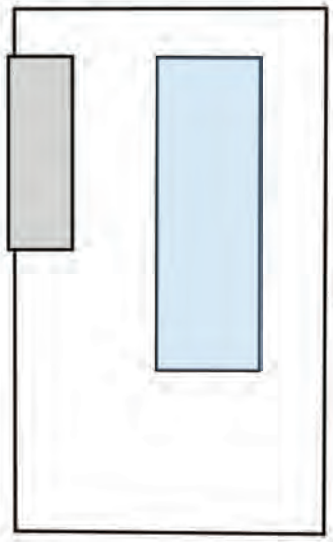
- ± **$ 2.1 M** per facility.
- ± **2,500 SF** of building.
- Fitness, common room, and utility etc.

OUTDOOR FENCED SPORT COURT



- ± **$ 465,000** per facility.
- Basketball and tennis court.

POOL W/ SHADE STRUCTURE



- ± **$ 1.8M** per unit.

UPGRADED VILLAGE AMENITY: TOTAL COST 10.3M

MULTI-PURPOSE FITNESS COMPLEX

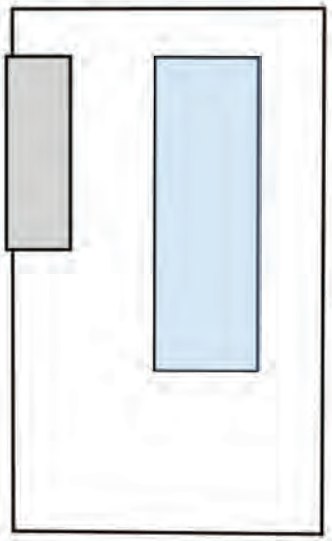
$ 8.5 M per facility.

10,000 SF of building.

ıdoor soccer field, fitness,

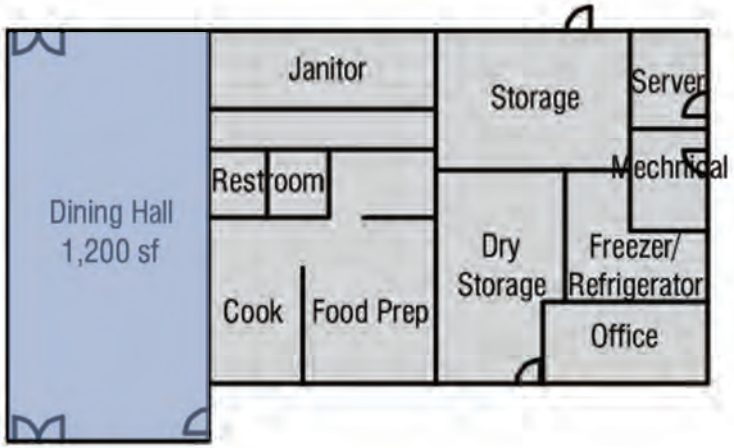
nd community room etc.

POOL W/ SHADE STRUCTURE



- ± **$ 1.8M** per unit.

KITCHEN / DINING



- ± **$ 4.4 M** per facility.
- ± **4,000 SF** of building.

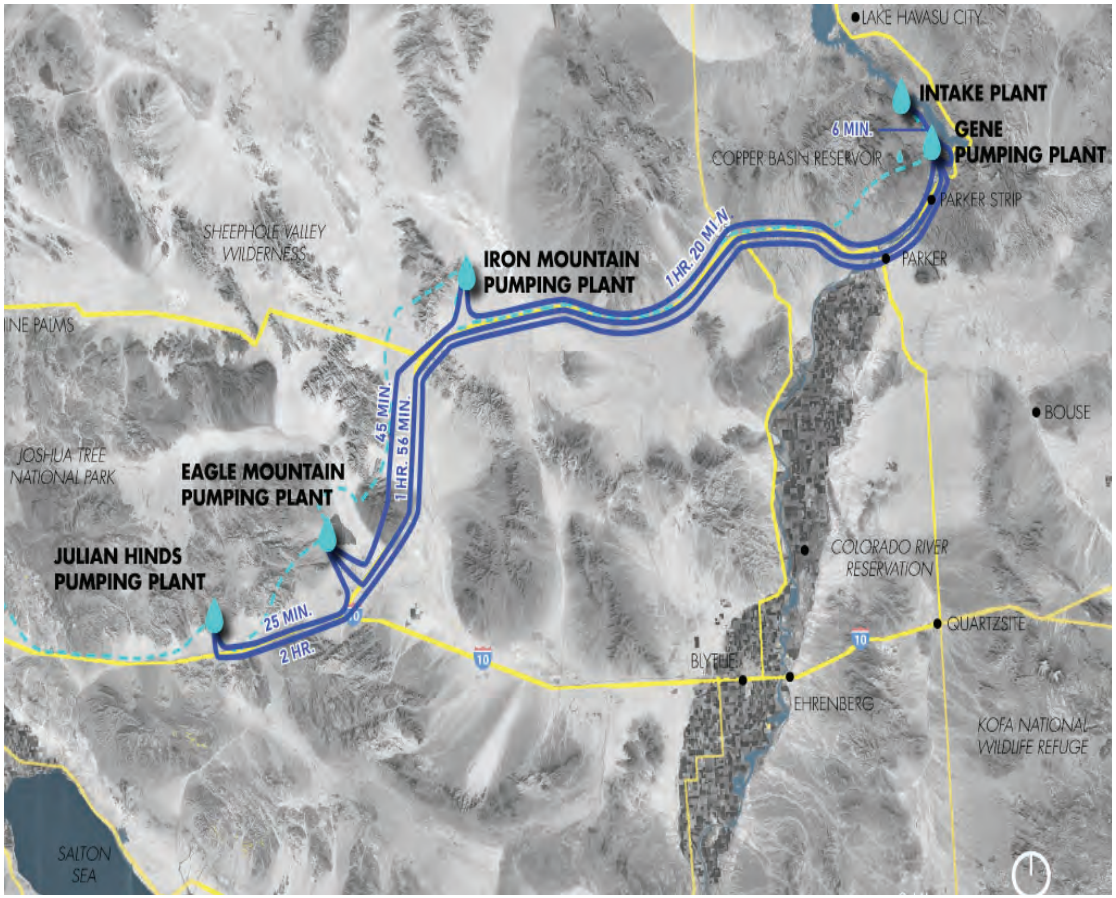
DETAILED ROM COSTS

MWD Community Planning Study

Rough Order of Magnitude (ROM) Statement of Probable Cost - Revision 1

December 28, 2023

23-01134.00



Prepared for RNT Architects

CUMMING

Building Value Through Expertise

CUMMING | San Diego
15010 AVENUE OF SCIENCE, SUITE 100 • SAN DIEGO • CALIFORNIA • 92128
www.ccorpusa.com
PHONE: 858-485-6765 • FAX: 858-673-9263

TABLE OF CONTENTS

INTRODUCTION

Basis of Estimate	This Rough Order of Magnitude Statement of Probable Cost is based on the following information provided by RNT Architects on October 31, 2023 and discussions with the architect, - Village Strategies for MWD housing and property improvements program at five existing desert facilities, based on the studies prepared by Civitas, dated October 26, 2023 - Summary of Village Strategies: Quantitative Measures prepared by Civitas, received on November 2, 2023 - Housing and Amenity cost models prepared by RNT, received on November 1, 2023 - RFI clarifications provided by RNT Architects on November 1, 2023 - Discussions with the design team
Estimate Format	A component cost classification format has been used for the preparation of this estimate. It classifies costs by building system / element.
Construction Schedule	A construction schedule to the above strategies is to be developed.
Method of Procurement	The estimate is based on the owner employing a Construction Manager who will prepare subcontractor bid packages and oversee the project
Bid Conditions	This estimate is based on competitive bid situations (minimum of 4 bidders) for all items of subcontracted work.
Basis For Quantities	Wherever possible, this estimate has been based upon the actual measurement of different items of work. For the remaining items, parametric measurements were used in conjunction with other projects of a similar nature.
Basis for Unit Costs	Unit costs as contained herein are based on current bid prices in Blythe, CA. Sub overheads and profit are included in each line item unit cost. Their overhead and profit covers each sub's cost for labor burden, materials, and equipment, sales taxes, field overhead, home office overhead, and profit. The general contractor's overhead is shown separately on the master summary.
Sources for Pricing	This estimate was prepared by a team of qualified cost consultants experienced in estimating construction costs at all stages of design. These consultants have used pricing data from Cumming's database for construction, updated to reflect current conditions in Blythe, CA.
Key Exclusions	The following items have been excluded from our estimate: - Professional fees, inspections and testing - Plan check fees and building permit fees - Escalation - Land costs - Construction contingency costs - Accommodation and transport for construction crew to complete the job - Off-hours work - Work to the existing infrastructure - Move management / relocation costs - Owner supplied equipment and furniture - Hazardous materials remediation or removal

INTRODUCTION

Items Affecting Cost Estimate

Items which may change the estimated construction cost include, but are not limited to:
- Modifications to the scope of work included in this estimate.
- Unforeseen sub-surface conditions.
- Restrictive technical specifications or excessive contract conditions.
- Any specified item of material or product that cannot be obtained from 3 sources.
- Any other non-competitive bid situations.
- Bids delayed beyond the projected schedule.

Statement of Probable Cost

Cumming has no control over the cost of labor and materials, the general contractor's or any subcontractor's method of determining prices, or competitive bidding and market conditions. This estimate is made on the basis of the experience, qualifications, and best judgement of a professional consultant familiar with the construction industry. Cumming, however, cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from this or subsequent cost estimates.

Cumming's staff of professional cost consultants has prepared this estimate in accordance with generally accepted principles and practices. This staff is available to discuss its contents with any interested party.

Pricing reflects probable construction costs obtainable in the project locality on the target dates specified and is a determination of fair market value for the construction of this project. The estimate is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all sub and general contractors with a range of 3 - 4 bidders for all items of work. Experience and research indicates that a fewer number of bidders may result in higher bids. Conversely, an increased number of bidders may result in more competitive bid day responses.

Recommendations

Cumming recommends that the Owner and the Architect carefully review this entire document to ensure it reflects their design intent. Requests for modifications of any apparent errors or omissions to this document must be made to Cumming within ten days of receipt of this estimate. Otherwise, it will be assumed that its contents have been reviewed and accepted. If the project is over budget or there are unresolved budget issues, alternate systems / schemes should be evaluated before proceeding into further design phases.

It is recommended that there are preparations of further cost estimates throughout design by Cumming to determine overall cost changes since the preparation of this preliminary estimate. These future estimates will have detailed breakdowns indicating materials by type, kind, and size, priced by their respective units of measure.

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

SUMMARY

Element		Total
Scenario 1 - Four Villages	$ $ $	$270,320,000
Scenario 2 - Three Villages	$ $ $ $	$288,517,600
Scenario 3 - Two Villages	$ $ $ $ $	$288,735,600
Scenario 4 - Two Desert Villages & De-Commission Gene Village	$	$237,255,000
Scenario 5 - One Western Village	$ $ $ $ $ $	$289,057,000
Scenario 5B - One Village at Gene	$ $ $ $ $ $ $	$297,977,000
Scenario 6 - One New Western Village	$ $ $ $ $ $ $ $	$328,927,000
Scenario 7 - No Villages	$ $	$254,144,000
Scenario 7B - No Villages	$ $ $ $ $ $ $ $ $	$329,994,000

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

SUMMARY MATRIX

	Scenario 1 - Four Villages	Scenario 2 - Three Villages	Scenario 3 - Two Villages	Scenario 4 - Two Desert Villages & De-Commission Gene Village	Scenario 5 - One Western Village	Scenario 5B - One Village at Gene	Scenario 6 - One New Western Village	Scenario 7 - No Villages	Scenario 7B - No Villages
Element	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**	**Total**
01 Permanent Housing	$136,500,000	$136,500,000	$136,500,000	$58,500,000	$88,400,000	$89,700,000	$88,400,000		
02 Temporary / On-Call / Guest Lodges	$37,100,000	$38,160,000	$39,220,000	$39,220,000	$40,280,000	$49,820,000	$41,340,000	$37,100,000	$111,300,000
03 Kitchen / Dining Facilities	$14,040,000	$14,040,000	$18,480,000	$17,325,000	$18,720,000	$11,550,000	$18,480,000	$23,100,000	$23,400,000
04 Village Amenity Packages	$72,180,000	$59,930,000	$39,340,000	$37,060,000	$25,157,000	$25,157,000	$25,157,000	$72,180,000	$72,180,000
05 Guest Amenity Packages	$10,500,000	$10,800,000	$11,100,000	$11,100,000	$8,850,000	$14,100,000	$11,400,000	$300,000	$600,000
06 Infrastructure Cost		$29,087,600	$44,095,600	$74,050,000	$107,650,000	$107,650,000	$144,150,000	$121,464,000	$122,514,000
Subtotal Cost	**$270,320,000**	**$288,517,600**	**$288,735,600**	**$237,255,000**	**$289,057,000**	**$297,977,000**	**$328,927,000**	**$254,144,000**	**$329,994,000**
	$ $ $	$ $ $ $	$ $ $ $ $	$	$ $ $ $ $ $	$ $ $ $ $ $ $	$ $ $ $ $ $ $ $	$ $	$ $ $ $ $ $ $ $

Scenario 1 - Four Villages

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

SUMMARY - SCENARIO 1 - FOUR VILLAGES

Element		Total
01	Permanent Housing	$136,500,000
02	Temporary / On-Call / Guest Lodges	$37,100,000
03	Kitchen / Dining Facilities	$14,040,000
04	Village Amenity Packages	$72,180,000
05	Guest Amenity Packages	$10,500,000
06	Infrastructure Cost	
TOTAL ESTIMATED CONSTRUCTION COST		**$270,320,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 1 - FOUR VILLAGES

Element	Quantity	Unit	Unit Cost	Total
01 Permanent Housing				
Hinds				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	15	ea	$1,300,000.00	$19,500,000
Eagle Mountain				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	20	ea	$1,300,000.00	$26,000,000
Iron Mountain				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	33	ea	$1,300,000.00	$42,900,000
Gene				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	37	ea	$1,300,000.00	$48,100,000
Total - Permanent Housing				**$136,500,000**
02 Temporary / On-Call / Guest Lodges				
Gene				
Guest lodges @ 350SF each unit, single-story	26	ea	$530,000.00	$13,780,000
Eagle Mountain				
Guest lodges @ 350SF each unit, single-story	17	ea	$530,000.00	$9,010,000
Iron Mountain				
Guest lodges @ 350SF each unit, single-story	25	ea	$530,000.00	$13,250,000
Intake				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
Total - Temporary / On-Call / Guest Lodges				**$37,100,000**
03 Kitchen / Dining Facilities				
Hinds				
Commercial grade kitchen and dining service, small	4,000	sf	$1,170.00	$4,680,000
Eagle Mountain				
Commercial grade kitchen and dining service, small	4,000	sf	$1,170.00	$4,680,000
Iron Mountain				
Commercial grade kitchen and dining service, small	4,000	sf	$1,170.00	$4,680,000
Total - Kitchen / Dining Facilities				**$14,040,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 1 - FOUR VILLAGES

Element	Quantity	Unit	Unit Cost	Total
04 Village Amenity Packages				
Hinds - Area: 370,000 SF	1	ea	$12,250,000.00	$12,250,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		
Shade trees and landscaping	226,775	sf		
Eagle Mountain - Area: 780,000 SF	1	ea	$16,470,000.00	$16,470,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		
Shade trees and landscaping	590,825	sf		
Iron Mountain - Area: 770,000 SF	1	ea	$20,590,000.00	$20,590,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		
Shade trees and landscaping	474,025	sf		
Gene - Area: 960,000 SF	1	ea	$22,870,000.00	$22,870,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		
Shade trees and landscaping	635,675	sf		
Total - Village Amenity Packages				**$72,180,000**
05 Guest Amenity Packages in the lodge				
Eagle Mountain: 17 Guest Lodges	1	ea	$2,550,000.00	$2,550,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Iron Mountain: 25 Guest Lodges	1	ea	$3,750,000.00	$3,750,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 1 - FOUR VILLAGES

Element	Quantity	Unit	Unit Cost	Total
Gene: 26 Guest Lodges	1	ea	$3,900,000.00	$3,900,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Intake: 2 Guest Lodges	1	ea	$300,000.00	$300,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Total - Guest Amenity Packages				**$10,500,000**
06 Infrastructure Cost				
No scope / work anticipated				
Total - Infrastructure Cost				

Scenario 2 - Three Villages

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

SUMMARY - SCENARIO 2 - THREE VILLAGES

Element		Total
01	Permanent Housing	$136,500,000
02	Temporary / On-Call / Guest Lodges	$38,160,000
03	Kitchen / Dining Facilities	$14,040,000
04	Village Amenity Packages	$59,930,000
05	Guest Amenity Packages	$10,800,000
06	Infrastructure Cost	$29,087,600
TOTAL ESTIMATED CONSTRUCTION COST		**$288,517,600**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 2 - THREE VILLAGES

Element	Quantity	Unit	Unit Cost	Total
01 Permanent Housing				
Eagle Mountain				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	35	ea	$1,300,000.00	$45,500,000
Iron Mountain				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	33	ea	$1,300,000.00	$42,900,000
Gene				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	37	ea	$1,300,000.00	$48,100,000
Total - Permanent Housing				**$136,500,000**
02 Temporary / On-Call / Guest Lodges				
Hinds				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
Eagle Mountain				
Guest lodges @ 350SF each unit, single-story	17	ea	$530,000.00	$9,010,000
Iron Mountain				
Guest lodges @ 350SF each unit, single-story	25	ea	$530,000.00	$13,250,000
Gene				
Guest lodges @ 350SF each unit, single-story	26	ea	$530,000.00	$13,780,000
Intake				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
Total - Temporary / On-Call / Guest Lodges				**$38,160,000**
03 Kitchen / Dining Facilities				
Eagle Mountain				
Commercial grade kitchen and dining service, small	4,000	sf	$1,170.00	$4,680,000
Iron Mountain				
Commercial grade kitchen and dining service, small	4,000	sf	$1,170.00	$4,680,000
Gene				
Commercial grade kitchen and dining service, small	4,000	sf	$1,170.00	$4,680,000
Total - Kitchen / Dining Facilities				**$14,040,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 2 - THREE VILLAGES

Element	Quantity	Unit	Unit Cost	Total
04 Village Amenity Packages				
Eagle Mountain - Area: 780,000 SF	1	ea	$16,470,000.00	$16,470,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		
Shade trees and landscaping	470,825	sf		
Iron Mountain - Area: 770,000 SF	1	ea	$20,590,000.00	$20,590,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		
Shade trees and landscaping	477,150	sf		
Gene - Area: 960,000 SF	1	ea	$22,870,000.00	$22,870,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		
Shade trees and landscaping	634,800	sf		
Total - Village Amenity Packages				**$59,930,000**
05 Guest Amenity Packages in the lodge				
Hinds: 2 Guest Lodges	1	ea	$300,000.00	$300,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Eagle Mountain: 17 Guest Lodges	1	ea	$2,550,000.00	$2,550,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Iron Mountain: 25 Guest Lodges	1	ea	$3,750,000.00	$3,750,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 2 - THREE VILLAGES

Element	Quantity	Unit	Unit Cost	Total
Gene: 26 Guest Lodges	1	ea	$3,900,000.00	$3,900,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Intake: 2 Guest Lodges	1	ea	$300,000.00	$300,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Total - Guest Amenity Packages				**$10,800,000**
06 Infrastructure Cost				
Eagle Mountain				
New underground utilities	397,100	sf	$15.00	$5,956,500
New water treatment system including installation	1	ea	$6,850,000.00	$6,850,000
New septic system	397,100	sf	$6.00	$2,382,600
Earthwork, hardscape, landscape and misc. specialties	397,100	sf	$35.00	$13,898,500
Total - Infrastructure Cost				**$29,087,600**

Scenario 3 - Two Villages

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

SUMMARY - SCENARIO 3 - TWO VILLAGES

Element		Total
01	Permanent Housing	$136,500,000
02	Temporary / On-Call / Guest Lodges	$39,220,000
03	Kitchen / Dining Facilities	$18,480,000
04	Village Amenity Packages	$39,340,000
05	Guest Amenity Packages	$11,100,000
06	Infrastructure Cost	$44,095,600
TOTAL ESTIMATED CONSTRUCTION COST		**$288,735,600**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 3 - TWO VILLAGES

Element	Quantity	Unit	Unit Cost	Total
01 Permanent Housing				
Eagle Mountain				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	68	ea	$1,300,000.00	$88,400,000
Gene				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	37	ea	$1,300,000.00	$48,100,000
Total - Permanent Housing				**$136,500,000**
02 Temporary / On-Call / Guest Lodges				
Hinds				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
Eagle Mountain				
Guest lodges @ 350SF each unit, single-story	17	ea	$530,000.00	$9,010,000
Iron Mountain				
Guest lodges @ 350SF each unit, single-story	27	ea	$530,000.00	$14,310,000
Gene				
Guest lodges @ 350SF each unit, single-story	26	ea	$530,000.00	$13,780,000
Intake				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
Total - Temporary / On-Call / Guest Lodges				**$39,220,000**
03 Kitchen / Dining Facilities				
Eagle Mountain				
Commercial grade of kitchen and dining service, large	8,000	sf	$1,155.00	$9,240,000
Gene				
Commercial grade of kitchen and dining service, large	8,000	sf	$1,155.00	$9,240,000
Total - Kitchen / Dining Facilities				**$18,480,000**
04 Village Amenity Packages				
Eagle Mountain - Area: 780,000 SF	1	ea	$16,470,000.00	$16,470,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 3 - TWO VILLAGES

Element	Quantity	Unit	Unit Cost	Total
Shade trees and landscaping	210,825	sf		
Gene - Area: 960,000 SF	1	ea	$22,870,000.00	$22,870,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		
Shade trees and landscaping	627,675	sf		
Total - Village Amenity Packages				**$39,340,000**
05 Guest Amenity Packages in the lodge				
Hinds: 2 Guest Lodges	1	ea	$300,000.00	$300,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Eagle Mountain: 17 Guest Lodges	1	ea	$2,550,000.00	$2,550,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Iron Mountain: 25 Guest Lodges	1	ea	$4,050,000.00	$4,050,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Gene: 26 Guest Lodges	1	ea	$3,900,000.00	$3,900,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Intake: 2 Guest Lodges	1	ea	$300,000.00	$300,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Total - Guest Amenity Packages				**$11,100,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 3 - TWO VILLAGES

Element	Quantity	Unit	Unit Cost	Total
06 Infrastructure Cost				
Eagle Mountain				
New underground utilities	665,100	sf	$15.00	$9,976,500
New water treatment system including installation	1	ea	$6,850,000.00	$6,850,000
New septic system	665,100	sf	$6.00	$3,990,600
Earthwork, hardscape, landscape and misc. specialties	665,100	sf	$35.00	$23,278,500
Total - Infrastructure Cost				**$44,095,600**

Scenario 4 - Two Desert Villages & De-Commission Gene Village

MWD Community Planning Study
San Diego, CA **Project # 23-01134.00**
Rough Order of Magnitude (ROM) SOPC **12/28/23**

SUMMARY - SCENARIO 4 - TWO DESERT VILLAGES & DE-COMMISSION GENE VILLAGE

Element		Total
01	Permanent Housing	$58,500,000
02	Temporary / On-Call / Guest Lodges	$39,220,000
03	Kitchen / Dining Facilities	$17,325,000
04	Village Amenity Packages	$37,060,000
05	Guest Amenity Packages	$11,100,000
06	Infrastructure Cost	$74,050,000
TOTAL ESTIMATED CONSTRUCTION COST		**$237,255,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 4 - TWO DESERT VILLAGES & DE-COMMISSION GENE VILLAGE

Element	Quantity	Unit	Unit Cost	Total
01 Permanent Housing				
Eagle Mountain				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	12	ea	$1,300,000.00	$15,600,000
Iron Mountain				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	33	ea	$1,300,000.00	$42,900,000
Total - Permanent Housing				**$58,500,000**
02 Temporary / On-Call / Guest Lodges				
Hinds				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
Eagle Mountain				
Guest lodges @ 350SF each unit, single-story	17	ea	$530,000.00	$9,010,000
Iron Mountain				
Guest lodges @ 350SF each unit, single-story	25	ea	$530,000.00	$13,250,000
Gene				
Guest lodges @ 350SF each unit, single-story	28	ea	$530,000.00	$14,840,000
Intake				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
Total - Temporary / On-Call / Guest Lodges				**$39,220,000**
03 Kitchen / Dining Facilities				
Eagle Mountain				
Commercial grade of kitchen and dining service, large	5,000	sf	$1,155.00	$5,775,000
Iron Mountain				
Commercial grade of kitchen and dining service, large	5,000	sf	$1,155.00	$5,775,000
Gene				
Commercial grade of kitchen and dining service, large	5,000	sf	$1,155.00	$5,775,000
Total - Kitchen / Dining Facilities				**$17,325,000**
04 Village Amenity Packages				
Eagle Mountain - Area: 780,000 SF	1	ea	$16,470,000.00	$16,470,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 4 - TWO DESERT VILLAGES & DE-COMMISSION GENE VILLAGE

Element	Quantity	Unit	Unit Cost	Total
Basketball / Tennis court	6,600	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		
Shade trees and landscaping	653,825	sf		
Iron Mountain - Area: 770,000 SF	1	ea	$20,590,000.00	$20,590,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		
Shade trees and landscaping	473,025	sf		
Total - Village Amenity Packages				**$37,060,000**
05 Guest Amenity Packages in the lodge				
Hinds: 2 Guest Lodges	1	ea	$300,000.00	$300,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Eagle Mountain: 17 Guest Lodges	1	ea	$2,550,000.00	$2,550,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Iron Mountain: 25 Guest Lodges	1	ea	$3,750,000.00	$3,750,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Gene: 28 Guest Lodges	1	ea	$4,200,000.00	$4,200,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Intake: 2 Guest Lodges	1	ea	$300,000.00	$300,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Total - Guest Amenity Packages				**$11,100,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 4 - TWO DESERT VILLAGES & DE-COMMISSION GENE VILLAGE

Element	Quantity	Unit	Unit Cost	Total
06 Infrastructure Cost				
Eagle Mountain				
New underground utilities	1,200,000	sf	$15.00	$18,000,000
New water treatment system including installation	1	ea	$6,850,000.00	$6,850,000
New septic system	1,200,000	sf	$6.00	$7,200,000
Earthwork, hardscape, landscape and misc. specialties	1,200,000	sf	$35.00	$42,000,000
Total - Infrastructure Cost				**$74,050,000**

Scenario 5 - One Western Village

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

SUMMARY - SCENARIO 5 - ONE WESTERN VILLAGE

Element		Total
01	Permanent Housing	$88,400,000
02	Temporary / On-Call / Guest Lodges	$40,280,000
03	Kitchen / Dining Facilities	$18,720,000
04	Village Amenity Packages	$25,157,000
05	Guest Amenity Packages	$8,850,000
06	Infrastructure Cost	$107,650,000
TOTAL ESTIMATED CONSTRUCTION COST		**$289,057,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 5 - ONE WESTERN VILLAGE

Element	Quantity	Unit	Unit Cost	Total
01 Permanent Housing				
Eagle Mountain				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	68	ea	$1,300,000.00	$88,400,000
Total - Permanent Housing				**$88,400,000**
02 Temporary / On-Call / Guest Lodges				
Hinds				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
Eagle Mountain				
Guest lodges @ 350SF each unit, single-story	17	ea	$530,000.00	$9,010,000
Iron Mountain				
Guest lodges @ 350SF each unit, single-story	27	ea	$530,000.00	$14,310,000
Gene				
Guest lodges @ 350SF each unit, single-story	28	ea	$530,000.00	$14,840,000
Intake				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
Total - Temporary / On-Call / Guest Lodges				**$40,280,000**
03 Kitchen / Dining Facilities				
Eagle Mountain				
Commercial grade of kitchen and dining service, large	8,000	sf	$1,170.00	$9,360,000
Gene				
Commercial grade of kitchen and dining service, large	8,000	sf	$1,170.00	$9,360,000
Total - Kitchen / Dining Facilities				**$18,720,000**
04 Village Amenity Packages				
Eagle Mountain - Area: 780,000 SF	1	ea	$25,157,000.00	$25,157,000
Climate controlled indoor fitness complex	10,000	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		
Shade trees and landscaping	209,550	sf		
Total - Village Amenity Packages				**$25,157,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 5 - ONE WESTERN VILLAGE

Element	Quantity	Unit	Unit Cost	Total
05 Guest Amenity Packages in the lodge				
Hinds: 2 Guest Lodges	1	ea	$300,000.00	$300,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Iron Mountain: 27 Guest Lodges	1	ea	$4,050,000.00	$4,050,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Gene: 28 Guest Lodges	1	ea	$4,200,000.00	$4,200,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Intake: 2 Guest Lodges	1	ea	$300,000.00	$300,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Total - Guest Amenity Packages				**$8,850,000**
06 Infrastructure Cost				
Eagle Mountain				
New underground utilities	1,800,000	sf	$15.00	$27,000,000
New water treatment system including installation	1	ea	$6,850,000.00	$6,850,000
New septic system	1,800,000	sf	$6.00	$10,800,000
Earthwork, hardscape, landscape and misc. specialties	1,800,000	sf	$35.00	$63,000,000
Total - Infrastructure Cost				**$107,650,000**

Scenario 5B - One Village at Gene

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

SUMMARY - SCENARIO 5B - ONE VILLAGE AT GENE

Element		Total
01	Permanent Housing	$89,700,000
02	Temporary / On-Call / Guest Lodges	$49,820,000
03	Kitchen / Dining Facilities	$11,550,000
04	Village Amenity Packages	$25,157,000
05	Guest Amenity Packages	$14,100,000
06	Infrastructure Cost	$107,650,000
TOTAL ESTIMATED CONSTRUCTION COST		**$297,977,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 5B - ONE VILLAGE AT GENE

Element	Quantity	Unit	Unit Cost	Total
01 Permanent Housing				
Gene				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	69	ea	$1,300,000.00	$89,700,000
Total - Permanent Housing				**$89,700,000**
02 Temporary / On-Call / Guest Lodges				
Hinds				
Guest lodges @ 350SF each unit, single-story	8	ea	$530,000.00	$4,240,000
Eagle Mountain				
Guest lodges @ 350SF each unit, single-story	25	ea	$530,000.00	$13,250,000
Iron Mountain				
Guest lodges @ 350SF each unit, single-story	33	ea	$530,000.00	$17,490,000
Gene				
Guest lodges @ 350SF each unit, single-story	26	ea	$530,000.00	$13,780,000
Intake				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
Total - Temporary / On-Call / Guest Lodges				**$49,820,000**
03 Kitchen / Dining Facilities				
Eagle Mountain				
Commercial grade of kitchen and dining service, large	5,000	sf	$1,155.00	$5,775,000
Gene				
Commercial grade of kitchen and dining service, large	5,000	sf	$1,155.00	$5,775,000
Total - Kitchen / Dining Facilities				**$11,550,000**
04 Village Amenity Packages				
Gene - Area: 960,000 SF	1	ea	$25,157,000.00	$25,157,000
Climate controlled indoor fitness complex	10,000	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		
Shade trees and landscaping	378,275	sf		
Total - Village Amenity Packages				**$25,157,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 5B - ONE VILLAGE AT GENE

Element	Quantity	Unit	Unit Cost	Total
05 Guest Amenity Packages in the lodge				
Hinds: 8 Guest Lodges	1	ea	$1,200,000.00	$1,200,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Eagle Mountain: 25 Guest Lodges	1	ea	$3,750,000.00	$3,750,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Iron Mountain: 33 Guest Lodges	1	ea	$4,950,000.00	$4,950,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Gene: 26 Guest Lodges	1	ea	$3,900,000.00	$3,900,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Intake: 2 Guest Lodges	1	ea	$300,000.00	$300,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Total - Guest Amenity Packages				**$14,100,000**
06 Infrastructure Cost				
Gene				
New underground utilities	1,800,000	sf	$15.00	$27,000,000
New water treatment system including installation	1	ea	$6,850,000.00	$6,850,000
New septic system	1,800,000	sf	$6.00	$10,800,000
Earthwork, hardscape, landscape and misc. specialties	1,800,000	sf	$35.00	$63,000,000
Total - Infrastructure Cost				**$107,650,000**

Scenario 6 - One New Western Village

MWD Community Planning Study
San Diego, CA **Project # 23-01134.00**
Rough Order of Magnitude (ROM) SOPC **12/28/23**

SUMMARY - SCENARIO 6 - ONE NEW WESTERN VILLAGE

Element		Total
01	Permanent Housing	$88,400,000
02	Temporary / On-Call / Guest Lodges	$41,340,000
03	Kitchen / Dining Facilities	$18,480,000
04	Village Amenity Packages	$25,157,000
05	Guest Amenity Packages	$11,400,000
06	Infrastructure Cost	$144,150,000
TOTAL ESTIMATED CONSTRUCTION COST		**$328,927,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 6 - ONE NEW WESTERN VILLAGE

Element	Quantity	Unit	Unit Cost	Total
01 Permanent Housing				
New West Village				
3bed/2bath incl. 2 car garage, 1,350SF each unit, single-story	68	ea	$1,300,000.00	$88,400,000
Total - Permanent Housing				**$88,400,000**
02 Temporary / On-Call / Guest Lodges				
Hinds				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
Eagle Mountain				
Guest lodges @ 350SF each unit, single-story	17	ea	$530,000.00	$9,010,000
Iron Mountain				
Guest lodges @ 350SF each unit, single-story	27	ea	$530,000.00	$14,310,000
Gene				
Guest lodges @ 350SF each unit, single-story	28	ea	$530,000.00	$14,840,000
Intake				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
New West Village				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
Total - Temporary / On-Call / Guest Lodges				**$41,340,000**
03 Kitchen / Dining Facilities				
New West Village				
Commercial grade of kitchen and dining service, large	8,000	sf	$1,155.00	$9,240,000
Gene				
Commercial grade of kitchen and dining service, large	8,000	sf	$1,155.00	$9,240,000
Total - Kitchen / Dining Facilities				**$18,480,000**
04 Village Amenity Packages				
New West Village - Area: 1,056,000 SF	1	ea	$25,157,000.00	$25,157,000
Climate controlled indoor fitness complex	10,000	sf		
Outdoor shade structure in common area	1	ea		
Playground	2,500	sf		
Shade trees and landscaping	487,675	sf		
Total - Village Amenity Packages				**$25,157,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 6 - ONE NEW WESTERN VILLAGE

Element	Quantity	Unit	Unit Cost	Total
05 Guest Amenity Packages in the lodge				
Hinds: 2 Guest Lodges	1	ea	$300,000.00	$300,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Eagle Mountain: 17 Guest Lodges	1	ea	$2,550,000.00	$2,550,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Iron Mountain: 27 Guest Lodges	1	ea	$4,050,000.00	$4,050,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Gene: 28 Guest Lodges	1	ea	$4,200,000.00	$4,200,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Intake: 2 Guest Lodges	1	ea	$300,000.00	$300,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Total - Guest Amenity Packages				**$11,400,000**
06 Infrastructure Cost				
New West Village				
New underground utilities	1,800,000	sf	$30.00	$54,000,000
New stormwater management, incl. UG detention	1,800,000	sf	$5.00	$9,000,000
New water treatment system including installation	1	ea	$6,850,000.00	$6,850,000
New septic system	1,800,000	sf	$6.00	$10,800,000
Environmental mitigation	1	ls	$500,000.00	$500,000
Earthwork, hardscape, landscape and misc specialties	1,800,000	sf	$35.00	$63,000,000
Total - Infrastructure Cost				**$144,150,000**

Scenario 7 - No Villages

MWD Community Planning Study
San Diego, CA **Project # 23-01134.00**
Rough Order of Magnitude (ROM) SOPC **12/28/23**

SUMMARY - SCENARIO 7 - NO VILLAGES

Element		Total
01	Permanent Housing	
02	Temporary / On-Call / Guest Lodges	$37,100,000
03	Kitchen / Dining Facilities	$23,100,000
04	Village Amenity Packages	$72,180,000
05	Guest Amenity Packages	$300,000
06	Infrastructure Cost	$121,464,000
TOTAL ESTIMATED CONSTRUCTION COST		**$254,144,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 7 - NO VILLAGES

Element	Quantity	Unit	Unit Cost	Total
01 Permanent Housing				
No scope / work anticipated				
Total - Permanent Housing				
02 Temporary / On-Call / Guest Lodges				
Eagle Mountain				
Guest lodges @ 350SF each unit, single-story	17	ea	$530,000.00	$9,010,000
Iron Mountain				
Guest lodges @ 350SF each unit, single-story	25	ea	$530,000.00	$13,250,000
Gene				
Guest lodges @ 350SF each unit, single-story	26	ea	$530,000.00	$13,780,000
Intake				
Guest lodges @ 350SF each unit, single-story	2	ea	$530,000.00	$1,060,000
Total - Temporary / On-Call / Guest Lodges				**$37,100,000**
03 Kitchen / Dining Facilities				
Hinds				
Commercial grade of kitchen and dining service, large	5,000	sf	$1,155.00	$5,775,000
Eagle Mountain				
Commercial grade of kitchen and dining service, large	5,000	sf	$1,155.00	$5,775,000
Iron Mountain				
Commercial grade of kitchen and dining service, large	5,000	sf	$1,155.00	$5,775,000
Gene				
Commercial grade of kitchen and dining service, large	5,000	sf	$1,155.00	$5,775,000
Total - Kitchen / Dining Facilities				**$23,100,000**
04 Village Amenity Packages				
Hinds - Area: 370,000 SF	1	ea	$12,250,000.00	$12,250,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Shade trees and landscaping	351,400	sf		

DETAIL ELEMENTS - SCENARIO 7 - NO VILLAGES

Element	Quantity	Unit	Unit Cost	Total
Eagle Mountain - Area: 780,000 SF	1	ea	$16,470,000.00	$16,470,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Shade trees and landscaping	755,450	sf		
Iron Mountain - Area: 770,000 SF	1	ea	$20,590,000.00	$20,590,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Shade trees and landscaping	742,650	sf		
Gene - Area: 960,000 SF	1	ea	$22,870,000.00	$22,870,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Shade trees and landscaping	932,300	sf		
Total - Village Amenity Packages				**$72,180,000**
05 Guest Amenity Packages in the lodge				
Intake: 2 Guest Lodges	1	ea	$300,000.00	$300,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Total - Guest Amenity Packages				**$300,000**
06 Infrastructure Cost				
Hinds				
New water treatment system including installation	1	ea	$6,850,000.00	$6,850,000
New septic system	88,000	sf	$6.00	$528,000
Earthwork, hardscape, landscape and misc. specialties, improvements	370,000	sf	$15.00	$5,550,000
Underground utility improvements	370,000	sf	$10.00	$3,700,000
Eagle Mountain				
New water treatment system including installation	1	ea	$6,850,000.00	$6,850,000
New septic system	221,000	sf	$6.00	$1,326,000
Earthwork, hardscape, landscape and misc. specialties, improvements	780,000	sf	$15.00	$11,700,000
Underground utility improvements	780,000	sf	$10.00	$7,800,000
Iron Mountain				
New water treatment system including installation	1	ea	$6,865,000.00	$6,865,000
New septic system	309,000	sf	$6.00	$1,854,000
Earthwork, hardscape, landscape and misc. specialties, improvements	770,000	sf	$15.00	$11,550,000

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 7 - NO VILLAGES

Element	Quantity	Unit	Unit Cost	Total
Underground utility improvements	770,000	sf	$10.00	$7,700,000
Gene				
New water treatment system including installation	1	ea	$6,865,000.00	$6,865,000
New septic system	290,000	sf	$6.00	$1,740,000
Earthwork, hardscape, landscape and misc. specialties, improvements	960,000	sf	$15.00	$14,400,000
Underground utility improvements	960,000	sf	$10.00	$9,600,000
Intake				
New water treatment system including installation	1	ea	$6,850,000.00	$6,850,000
New septic system	81,000	sf	$6.00	$486,000
Earthwork, hardscape, landscape and misc. specialties, improvements	370,000	sf	$15.00	$5,550,000
Underground utility improvements	370,000	sf	$10.00	$3,700,000
Total - Infrastructure Cost				**$121,464,000**

Scenario 7B - No Villages

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

SUMMARY - SCENARIO 7B - NO VILLAGES

Element		Total
01	Permanent Housing	
02	Temporary / On-Call / Guest Lodges	$111,300,000
03	Kitchen / Dining Facilities	$23,400,000
04	Village Amenity Packages	$72,180,000
05	Guest Amenity Packages	$600,000
06	Infrastructure Cost	$122,514,000
TOTAL ESTIMATED CONSTRUCTION COST		**$329,994,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 7B - NO VILLAGES

Element	Quantity	Unit	Unit Cost	Total
01 Permanent Housing				
No scope / work anticipated				
Total - Permanent Housing				
02 Temporary / On-Call / Guest Lodges				
Hinds				
Guest lodges @ 750SF each unit, single-story	20	ea	$1,060,000.00	$21,200,000
Eagle Mountain				
Guest lodges @ 750SF each unit, single-story	33	ea	$1,060,000.00	$34,980,000
Iron Mountain				
Guest lodges @ 750SF each unit, single-story	38	ea	$1,060,000.00	$40,280,000
Gene				
Guest lodges @ 750SF each unit, single-story	10	ea	$1,060,000.00	$10,600,000
Intake				
Guest lodges @ 750SF each unit, single-story	4	ea	$1,060,000.00	$4,240,000
Total - Temporary / On-Call / Guest Lodges				**$111,300,000**
03 Kitchen / Dining Facilities				
Hinds				
Commercial grade of kitchen and dining service, large	5,000	sf	$1,170.00	$5,850,000
Eagle Mountain				
Commercial grade of kitchen and dining service, large	5,000	sf	$1,170.00	$5,850,000
Iron Mountain				
Commercial grade of kitchen and dining service, large	5,000	sf	$1,170.00	$5,850,000
Gene				
Commercial grade of kitchen and dining service, large	5,000	sf	$1,170.00	$5,850,000
Total - Kitchen / Dining Facilities				**$23,400,000**
04 Village Amenity Packages				
Hinds - Area: 370,000 SF	1	ea	$12,250,000.00	$12,250,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		

DETAIL ELEMENTS - SCENARIO 7B - NO VILLAGES

Element	Quantity	Unit	Unit Cost	Total
Shade trees and landscaping	336,400	sf		
Eagle Mountain - Area: 780,000 SF	1	ea	$16,470,000.00	$16,470,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Shade trees and landscaping	736,650	sf		
Iron Mountain - Area: 770,000 SF	1	ea	$20,590,000.00	$20,590,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Shade trees and landscaping	722,900	sf		
Gene - Area: 960,000 SF	1	ea	$22,870,000.00	$22,870,000
Club house (incl. fitness center and game room)	2,000	sf		
Pool	5,000	sf		
Basketball / Tennis court	6,600	sf		
Shade trees and landscaping	933,900	sf		
Total - Village Amenity Packages				**$72,180,000**
05 Guest Amenity Packages in the lodge				
Intake: 4 Guest Lodges	1	ea	$600,000.00	$600,000
Gym with weights and cardio room	1,500	sf		
Common dining area	500	sf		
Entertainment room / lounge	1,000	sf		
Meeting room	125	sf		
Total - Guest Amenity Packages				**$600,000**
06 Infrastructure Cost				
Hinds				
New water treatment system including installation	1	ea	$6,850,000.00	$6,850,000
New septic system	188,000	sf	$6.00	$1,128,000
Earthwork, hardscape, landscape and misc. specialties, improvements	370,000	sf	$15.00	$5,550,000
Underground utility improvements	370,000	sf	$10.00	$3,700,000
Eagle Mountain				
New water treatment system including installation	1	ea	$6,850,000.00	$6,850,000
New septic system	301,000	sf	$6.00	$1,806,000
Earthwork, hardscape, landscape and misc. specialties, improvements	780,000	sf	$15.00	$11,700,000
Underground utility improvements	780,000	sf	$10.00	$7,800,000
Iron Mountain				
New water treatment system including installation	1	ea	$6,865,000.00	$6,865,000

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC

Project # 23-01134.00
12/28/23

DETAIL ELEMENTS - SCENARIO 7B - NO VILLAGES

Element	Quantity	Unit	Unit Cost	Total
New septic system	374,000	sf	$6.00	$2,244,000
Earthwork, hardscape, landscape and misc. specialties, improvements	770,000	sf	$15.00	$11,550,000
Underground utility improvements	770,000	sf	$10.00	$7,700,000
Gene				
New water treatment system including installation	1	ea	$6,865,000.00	$6,865,000
New septic system	210,000	sf	$6.00	$1,260,000
Earthwork, hardscape, landscape and misc. specialties, improvements	960,000	sf	$15.00	$14,400,000
Underground utility improvements	960,000	sf	$10.00	$9,600,000
Intake				
New water treatment system including installation	1	ea	$6,850,000.00	$6,850,000
New septic system	91,000	sf	$6.00	$546,000
Earthwork, hardscape, landscape and misc. specialties, improvements	370,000	sf	$15.00	$5,550,000
Underground utility improvements	370,000	sf	$10.00	$3,700,000
Total - Infrastructure Cost				**$122,514,000**

MWD Community Planning Study

Rough Order of Magnitude (ROM) SOPC - Revision 1

February 29, 2024

CUMMING GROUP

CUMMING GROUP| San Diego
15010 Avenue of Science, Suite 100 • San Diego • California • 92128
cumming-group.com
Phone: 858-485-6765

MWD Community Planning Study
San Diego, CA **Project # 23-01134.00**
Rough Order of Magnitude (ROM) SOPC - Revision 1 **02/29/24**

TABLE OF CONTENTS

INTRODUCTION

Basis of Estimate	This Rough Order of Magnitude Statement of Probable Cost is based on the MWD product typologies exhibit provided by RNT Architects on February 13, 2024 including: - Housing and Amenity cost models prepared by RNT, received on November 1, 2023 - Discussions with the design team
Estimate Format	A component cost classification format has been used for the preparation of this estimate. It classifies costs by building system / element.
Construction Schedule	A construction schedule to the above strategies is to be developed.
Method of Procurement	The estimate is based on the owner employing a Construction Manager who will prepare subcontractor bid packages and oversee the project
Bid Conditions	This estimate is based on competitive bid situations (minimum of 4 bidders) for all items of subcontracted work.
Basis For Quantities	Wherever possible, this estimate has been based upon the actual measurement of different items of work. For the remaining items, parametric measurements were used in conjunction with other projects of a similar nature.
Basis for Unit Costs	Unit costs as contained herein are based on current bid prices in Blythe, CA. Sub overheads and profit are included in each line item unit cost. Their overhead and profit covers each sub's cost for labor burden, materials, and equipment, sales taxes, field overhead, home office overhead, and profit. The general contractor's overhead is shown separately on the master summary.
Sources for Pricing	This estimate was prepared by a team of qualified cost consultants experienced in estimating construction costs at all stages of design. These consultants have used pricing data from Cumming's database for construction, updated to reflect current conditions in Blythe, CA.
Key Exclusions	The following items have been excluded from our estimate: - Professional fees, inspections and testing - Plan check fees and building permit fees - Escalation - Land costs - Construction contingency costs - Accommodation and transport for construction crew to complete the job - Off-hours work - Work to the existing infrastructure - Move management / relocation costs - Owner supplied equipment and furniture - Hazardous materials remediation or removal

INTRODUCTION

Items Affecting Cost Estimate

Items which may change the estimated construction cost include, but are not limited to:
- Modifications to the scope of work included in this estimate.
- Unforeseen sub-surface conditions.
- Restrictive technical specifications or excessive contract conditions.
- Any specified item of material or product that cannot be obtained from 3 sources.
- Any other non-competitive bid situations.
- Bids delayed beyond the projected schedule.

Statement of Probable Cost

Cumming has no control over the cost of labor and materials, the general contractor's or any subcontractor's method of determining prices, or competitive bidding and market conditions. This estimate is made on the basis of the experience, qualifications, and best judgement of a professional consultant familiar with the construction industry. Cumming, however, cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from this or subsequent cost estimates.

Cumming's staff of professional cost consultants has prepared this estimate in accordance with generally accepted principles and practices. This staff is available to discuss its contents with any interested party.

Pricing reflects probable construction costs obtainable in the project locality on the target dates specified and is a determination of fair market value for the construction of this project. The estimate is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all sub and general contractors with a range of 3 - 4 bidders for all items of work. Experience and research indicates that a fewer number of bidders may result in higher bids. Conversely, an increased number of bidders may result in more competitive bid day responses.

Recommendations

Cumming recommends that the Owner and the Architect carefully review this entire document to ensure it reflects their design intent. Requests for modifications of any apparent errors or omissions to this document must be made to Cumming within ten days of receipt of this estimate. Otherwise, it will be assumed that its contents have been reviewed and accepted. If the project is over budget or there are unresolved budget issues, alternate systems / schemes should be evaluated before proceeding into further design phases.

It is recommended that there are preparations of further cost estimates throughout design by Cumming to determine overall cost changes since the preparation of this preliminary estimate. These future estimates will have detailed breakdowns indicating materials by type, kind, and size, priced by their respective units of measure.

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC - Revision 1

Project # 23-01134.00
02/29/24

SUMMARY

Element	Area	Cost / SF	Total
Single Family Home	1,600	$936.41	$1,498,250
Linear 1B/1B Condo	750	$704.87	$528,650
Pinwheel 1B/1B Condo	750	$643.27	$482,450
Casita 1B/1B	750	$844.20	$633,150
RV Pad	2,000	$108.20	$216,400
Carport	800	$825.00	$80,000
Guest Amenity	2,000	$825.00	$1,650,000
Guest Room	350	$715.00	$250,250
Village Club House	2,500	$830.00	$2,075,000
Kitchen/Dining	4,000	$1,100.00	$4,400,000
Multi-Purpose Fitness Complex	10,000	$850.00	$8,500,000
Outdoor Fenced Sport Court	5,600	$83.07	$465,200
Pool with 200 SF Shade Structure	6,000	$300.00	$1,800,000

Village Product Typology Study

MWD Community Planning Study
San Diego, CA **Project # 23-01134.00**
Rough Order of Magnitude (ROM) SOPC - Revision 1 **02/29/24**

DETAIL ELEMENTS - VILLAGE PRODUCT TYPOLOGY STUDY

Element	Quantity	Unit	Unit Cost	Total
01 - Single Family Home	**1,600**	**sf**		
Base Building				
3bed/2bath incl. 2 car garage, 1,600SF each unit, single-story	1,600	sf	$865.00	$1,384,000
Exterior Improvements				
Covered patio	600	sf	$80.00	$48,000
Concrete driveway	600	sf	$15.00	$9,000
Concrete walkway	100	sf	$15.00	$1,500
Chain-link fence with privacy slats	250	lf	$115.00	$28,750
Utilities				
Wet Utilities				
Domestic water line, incl. trenching and backfill	50	lf	$100.00	$5,000
Sanitary sewer line, incl. trenching and backfill	50	lf	$125.00	$6,250
Storm drain line, incl. trenching and backfill	50	lf	$135.00	$6,750
Dry Utilities				
Electrical service and distribution	50	lf	$180.00	$9,000
Total - Single Family Home	**1,600**	**sf**	**$936.41**	**$1,498,250**
02 - Linear 1B/1B Condo	**750**	**sf**		
Base Building				
Linear 1bed/1bath condo, 750SF each unit, single-story	750	sf	$625.00	$468,750
Exterior Improvements				
Carport	200	sf	$100.00	$20,000
Covered patio	250	sf	$80.00	$20,000
Concrete walkway	250	sf	$15.00	$3,750
Chain-link fence with privacy slats	70	lf	$115.00	$8,050
Utilities				
Wet Utilities				
Domestic water line, incl. trenching and backfill	15	lf	$100.00	$1,500
Sanitary sewer line, incl. trenching and backfill	15	lf	$125.00	$1,875
Storm drain line, incl. trenching and backfill	15	lf	$135.00	$2,025
Dry Utilities				
Electrical service and distribution	15	lf	$180.00	$2,700
Total - Linear 1B/1B Condo	**750**	**sf**	**$704.87**	**$528,650**

MWD Community Planning Study
San Diego, CA **Project # 23-01134.00**
Rough Order of Magnitude (ROM) SOPC - Revision 1 **02/29/24**

DETAIL ELEMENTS - VILLAGE PRODUCT TYPOLOGY STUDY

Element	Quantity	Unit	Unit Cost	Total
03 - Pinwheel 1B/1B Condo	**750**	**sf**		
Base Building				
Pinwheel 1bed/1bath condo, 750SF each unit, single-story	750	sf	$565.00	$423,750
Exterior Improvements				
Carport	200	sf	$100.00	$20,000
Covered patio	250	sf	$80.00	$20,000
Concrete walkway	400	sf	$15.00	$6,000
Chain-link fence with privacy slats	40	lf	$115.00	$4,600
Utilities				
Wet Utilities				
Domestic water line, incl. trenching and backfill	15	lf	$100.00	$1,500
Sanitary sewer line, incl. trenching and backfill	15	lf	$125.00	$1,875
Storm drain line, incl. trenching and backfill	15	lf	$135.00	$2,025
Dry Utilities				
Electrical service and distribution	15	lf	$180.00	$2,700
Total - Pinwheel 1B/1B Condo	**750**	**sf**	**$643.27**	**$482,450**
04 - Casita 1B/1B	**750**	**sf**		
Base Building				
1bed/1bath condo, 750SF, single-story	750	sf	$715.00	$536,250
Exterior Improvements				
Carport	550	sf	$100.00	$55,000
Concrete walkway	250	sf	$15.00	$3,750
Chain-link fence with privacy slats	50	lf	$115.00	$5,750
Utilities				
Wet Utilities				
Domestic water line, incl. trenching and backfill	60	lf	$100.00	$6,000
Sanitary sewer line, incl. trenching and backfill	60	lf	$125.00	$7,500
Storm drain line, incl. trenching and backfill	60	lf	$135.00	$8,100
Dry Utilities				
Electrical service and distribution	60	lf	$180.00	$10,800
Total - Casita 1B/1B	**750**	**sf**	**$844.20**	**$633,150**

MWD Community Planning Study
San Diego, CA **Project # 23-01134.00**
Rough Order of Magnitude (ROM) SOPC - Revision 1 **02/29/24**

DETAIL ELEMENTS - VILLAGE PRODUCT TYPOLOGY STUDY

Element	Quantity	Unit	Unit Cost	Total
05 - RV Pad	**2,000**	**sf**		
RV pad with full hookups	2,000	sf	$20.00	$40,000
Shade structure for RV and/or passenger vehicle, 16' tall	1,300	sf	$100.00	$130,000
Concrete driveway	550	sf	$15.00	$8,250
Chain-link fence with privacy slats	50	lf	$115.00	$5,750
Utilities				
Wet Utilities				
Domestic water line, incl. trenching and backfill	60	lf	$100.00	$6,000
Sanitary sewer line, incl. trenching and backfill	60	lf	$125.00	$7,500
Storm drain line, incl. trenching and backfill	60	lf	$135.00	$8,100
Dry Utilities				
Electrical service and distribution	60	lf	$180.00	$10,800
Total - RV Pad	**2,000**	**sf**	**$108.20**	**$216,400**
06 - Carport	**800**	**sf**		
Steel carport, 20' x 40', for 4 cars with asphalt paving	800	sf	$100.00	$80,000
Total - Carport	**800**	**sf**	**$100.00**	**$80,000**
07 - Guest Amenity	**2,000**	**sf**		
Guest amenities including kitchenette, laundry, linen, janitorial, utility, office, restrooms, small fitness room and a meeting room, single story	2,000	sf	$825.00	$1,650,000
Total - Guest Amenity	**2,000**	**sf**	**$825.00**	**$1,650,000**
08 - Guest Room	**350**	**sf**		
Guest room with 50SF covered patio including bathroom, closet and bedroom, excluding kitchenette, single story	350	sf	$715.00	$250,250
Total - Guest Room	**350**	**sf**	**$715.00**	**$250,250**
09 - Village Club House	**2,500**	**sf**		
Village club house including common room, fitness, janitor, mechanical and restrooms, single story	2,500	sf	$830.00	$2,075,000
Total - Village Club House	**2,500**	**sf**	**$830.00**	**$2,075,000**

MWD Community Planning Study
San Diego, CA
Rough Order of Magnitude (ROM) SOPC - Revision 1

Project # 23-01134.00
02/29/24

DETAIL ELEMENTS - VILLAGE PRODUCT TYPOLOGY STUDY

Element	Quantity	Unit	Unit Cost	Total
10 - Kitchen/Dining	**4,000**	**sf**		
Kitchen including dining, food prep, storage, freezer, server, chef's office, janitor and restrooms, single story	4,000	sf	$1,100.00	$4,400,000
Total - Kitchen/Dining	**4,000**	**sf**	**$1,100.00**	**$4,400,000**
11 - Multi-Purpose Fitness Complex	**10,000**	**sf**		
Multi-purpose fitness complex including multi use court, fitness room, community meeting rooms, lockers, restrooms, storage etc., single story	10,000	sf	$850.00	$8,500,000
Total - Multi-Purpose Fitness Complex	**10,000**	**sf**	**$850.00**	**$8,500,000**
12 - Outdoor Fenced Sport Court	**5,600**	**sf**		
Outdoor sports court (basketball / tennis / volleyball)	5,600	sf	$50.00	$280,000
Chain-link fence & gates, 12' H	312	lf	$225.00	$70,200
Shade structure	200	sf	$125.00	$25,000
Pole lighting	6	ea	$15,000.00	$90,000
Total - Outdoor Fenced Sport Court	**5,600**	**sf**	**$83.07**	**$465,200**
13 - Pool with 200 SF Shade Structure	**6,000**	**sf**		
Pool with 200SF shade structure	6,000	sf	$300.00	$1,800,000
Total - Pool with 20 SF Shade Structure	**6,000**	**sf**	**$300.00**	**$1,800,000**

MWD Village Improvements

RNT Architects	**4/30/2024**			
	PHASE 1	**PHASE 2**	**PHASE 3**	**PHASE 4**
Julian Hinds				
Site Prep	253,932	0	0	0
Site Improvements	2,183,154	0	0	0
Mechanical Utilties	70,860	0	0	0
Electrical Utilties	44,400	0	0	0
Survey	50,000	0	0	0
Julian Hinds Village Total	**2,602,346**	**0**	**0**	**0**
Eagle Mountain				
Site Prep	404,046	151,100	270,350	151,100
Site Improvements	4,459,219	280,620	802,080	260,460
Mechanical Utilties	270,930	69,000	258,000	69,000
Electrical Utilties	333,340	45,840	106,000	45,840
Survey	181,411	6,000	20,000	6,000
Eagle Mountain Village Total	**5,648,946**	**552,560**	**1,456,430**	**532,400**
Iron Mountain				
Site Prep	1,427,821	163,900	291,150	163,900
Site Improvements	5,071,542	246,160	801,800	123,480
Mechanical Utilties	238,730	60,300	229,200	30,150
Electrical Utilties	229,780	38,400	87,400	19,200
Survey	266,509	6,000	20,000	3,000
Iron Mountain Village Total	**7,234,382**	**514,760**	**1,429,550**	**339,730**
Gene				
Site Prep	1,383,701	204,225	295,050	167,800
Site Improvements	2,417,704	435,525	801,800	241,960
Mechanical Utilties	180,730	88,450	60,300	60,300
Electrical Utilties	50,160	50,600	87,400	38,400
Survey	50,000	8,000	20,000	6,000
Gene Village Total	**4,082,295**	**786,800**	**1,264,550**	**514,460**
Intake (incl Gene/Intake vacation rentals)				
Site Prep	145,450	0	0	0
Site Improvements	208,570	0	0	0
Mechanical Utilties	34,450	0	0	0
Electrical Utilties	23,700	0	0	0
Survey	5,000	0	0	0
Intake Village Total	**417,170**	**0**	**0**	**0**
Total (all villages)	19,985,139	1,854,120	4,150,530	1,386,590
Escalation 4/22 - 4/24	1.0882	1.0882	1.0882	1.0882
				TOTAL SITEWORK (2024 dollars)
Grand total	**21,747,279**	**2,017,602**	**4,516,493**	**1,508,849** **29,790,223**

Engineering, Operations, & Technology Committee

Update on District Housing & Property Improvements Program

Item 6a

October 7, 2024

Item 6a
Update on District Housing & Property Improvements Program

Subject

District Housing & Property Improvements Program

Purpose

Provide updates on community planning efforts to create a long-term housing strategy for the next 75 years

District Housing & Property Improvement Program

Agenda

- Background
- Community planning
- Development
- Community vision strategy
- Staged approach
- Cost
- Schedule
- Next steps

Location Map

District Housing & Property Improvement Program

Background

- Housing is provided due to the remoteness & timely response to emergencies
- Houses are aging after decades of use in a harsh desert environment
- 109 total houses in CRA system (69 refurbished)
- Temporary lodging & kitchen facilities provided for short-term assignments
- Preliminary design for replacement of single-family residence (SFR) plans completed September 2022
- Final design of SFR paused in Spring 2023 to establish vision for long-term staff retention
- Community planner engaged in Spring 2023
- Community planning effort complete

District Housing & Property Improvement Program

Community Planning Vision

- What will the next 75 years of living & working in the remote villages & pumping plants look like?
- Metropolitan strategy to attract, recruit & retain current & future generation of Desert employees

Iron Mtn. Kitchen & Lodge

District Housing & Property Improvement Program

Community Planner Site Visits

Development

- Consultant visited each plant, presented analysis & outlined potential strategies
- Feedback received through open discussion & anonymous online survey
- Consultant engaged with executive & desert management & labor leadership
- Vision & report complete

District Housing & Property Improvement Program

Community Vision Strategy

- Maintain housing for current employees
- Consolidate Hinds & Eagle Mtn. villages
- Provide short-term housing at Hinds village
- Test new townhouse model
- Recreation amenities at Eagle & Iron Mtn. villages
- Implement a four-staged approach
  - Use triggers/regular review
- Intake Pumping Plant (PP) study underway
  - Unique challenges due to site constraints

District Housing & Property Improvement Program

Staged Approach

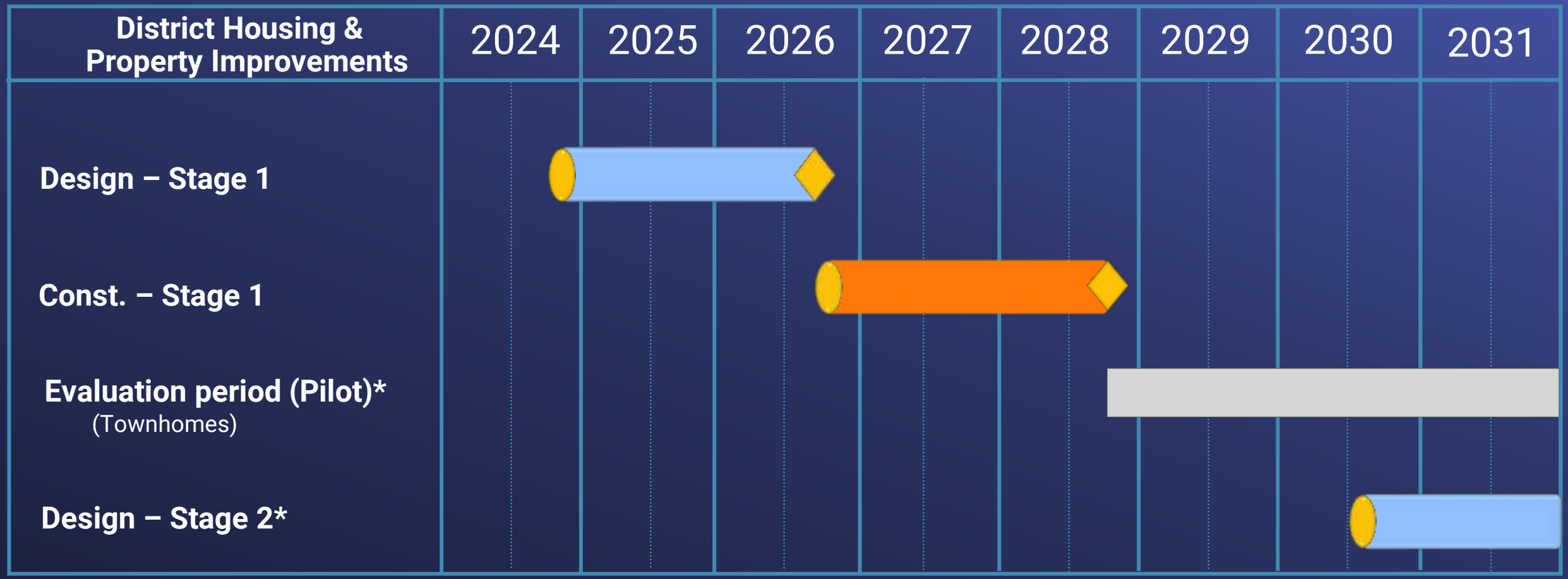
- Stage One
  - Construct eight new 750-sq. ft. (1 bed/1 bath) townhomes at Gene, Iron & Eagle Mtn. PPs each
    - Test townhome model over 5-year period as a pilot
  - Replace existing kitchen & lodges at Eagle & Iron Mtn. PPs
  - Construct second guest lodge at Gene PP
  - Construct four 350-sq. ft. studios at Hinds village
  - Upgrade village amenities at Iron & Eagle Mtn. PPs
  - Construction cost – $82 M
- Proceed with Stage Two based on pilot success

District Housing & Property Improvement Program

Staged Approach (Cont'd)

- Stage Two through Stage Four
  - Construct 81 townhomes (Gene, Iron & Eagle Mtn. PPs)
  - Additional amenities
- Total Construction Cost: $ 68 M

Stage Schedule



District Housing & Property Improvement Program

Next Steps

- November 2024 Board Action to amend consultant design agreement for Stage 1
- Report on Intake village site findings
- Establish an evaluation process to measure success of Stage 1 pilot


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

Engineering, Operations, & Technology Committee

Construction and Shop Services to Ensure Metropolitan's Readiness and Resilience

Item 6b

October 7, 2024

Item 6b

Construction and Shop Services to Ensure Metropolitan's Readiness and Resilience

Subject

Construction Services Unit & Manufacturing Services Unit Overview

Purpose

Overview of the construction and manufacturing services unit in water system operations including ongoing planning and emergency preparedness for responding to two simultaneous pipe breaks (two emergencies).

Emergency Management Program

Program Structure

Response

- Monitors and responds to incidents.
- ICP/EOC activations.
- Resilience

Preparedness & Planning

- Business Continuity Plan
- Employee Safety Plans
- Readiness

Recovery

- FEMA Reimbursement
- Return to Normal Operating conditions.

Emergency Response

Two Break Scenario

MWD Operating Policy A-06

- Metropolitan forces including personnel, material, and equipment will be maintained to repair two major simultaneous pipeline failures. In addition, the ability to rapidly and progressively mobilize additional resources as needed will be maintained and documented.

CSU Mission Statement

Construction Services is committed to building the highest standards of excellence, innovation, and integrity for our customers (WSO, Engineering, and Member Agencies) to ensure that as an organization we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.

CSU Radius of Operations

- Across all of Metropolitan's Service Area
  - O&M and Construction Support
- Reservoirs and Lakes
  - Ground Maintenance
- Hydro-Electric Power Plants
  - O&M and Construction Support
- 320 Miles of the Patrol Roads
  - Annual Maintenance and Storm Damage Repairs
- Earth Constructed Dams
  - Ground and Slope Maintenance
- Member Agency Service Connection
  - Meter Replacement and New Meter Construction

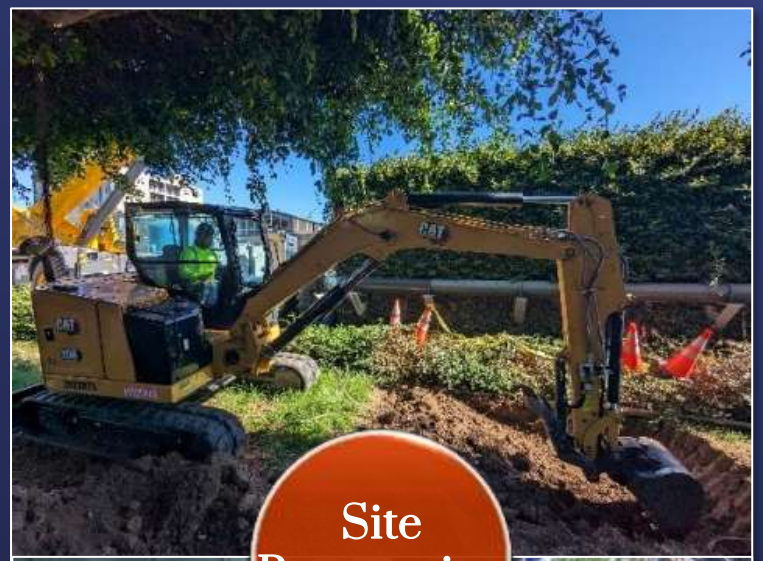
Construction Services Unit (CSU) - Services

Construction Services Unit (CSU) - Services

Construction Services Unit (CSU) - Services

Project Assessment Risk Factors

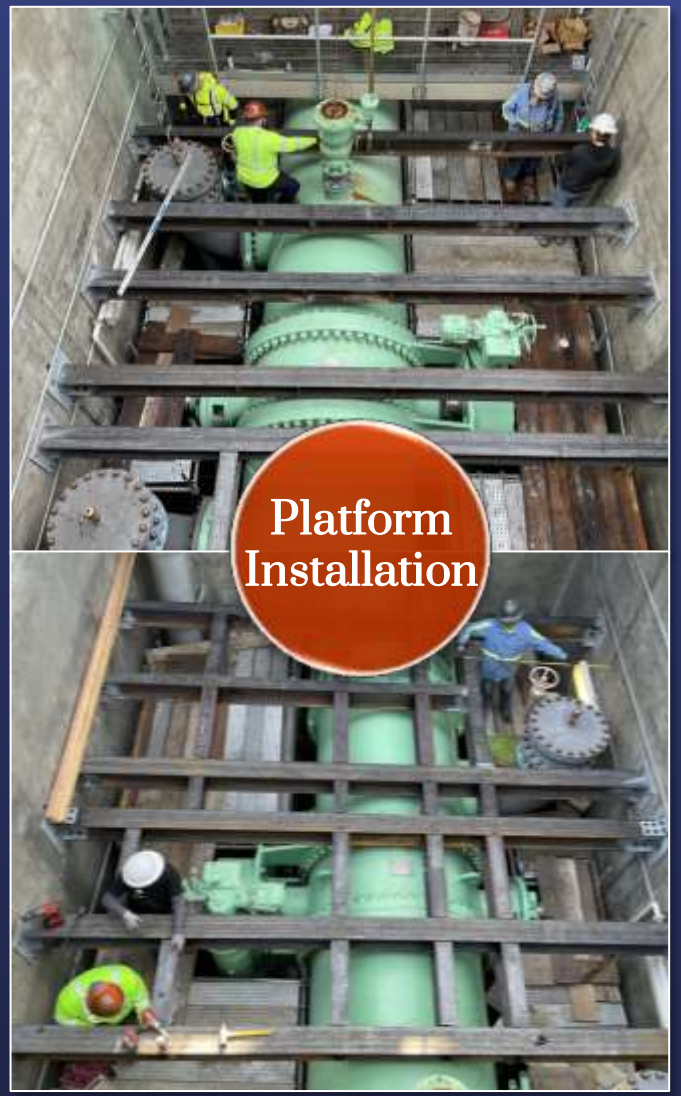
Construction Services Unit (CSU) – SMN-01 Venturi Repair



Site Preparation

Meter Replacement

Construction Services Unit (CSU) – OC-88 Bypass



Construction Services Unit (CSU) – Lake Mathews Gate 12

2020 Shutdown

2023 Shutdown

Construction Services Unit (CSU) – Tropical Storm Hillary

What Does MSU Do?

- Emergency and routine work…
- Manufacture/refurbish critical equipment
- Dive inspections/repairs
- Floating reservoir maintenance/repairs
- Crane maintenance and annual certification
- Facilities maintenance support
- Support Member Agencies, DWR, etc.

MSU Mission

Mission Statement

- To be a one stop solutions provider for emergency, shutdown, regulatory, and routine services
- Internal, member/public agencies

Manufacturing Services Unit Production Planning

Services

- Shop Floor Planning
- Reverse Engineering
- Manufact. Drawings
- Crane Certifications
- Project Management

Manufacturing Services Unit (MSU) – Valve and Dive

Valves & Actuators

Dive Services

Services

- Commercial Diving
- Valve Repair/Refurb
- Actuator Repair/Refurb
- Troubleshooting
- Valve installation
- Cover Maint/Repair

Manufacturing Services Unit (MSU) – Fab and Machine

Pipe Fab

Machining

Welding

Services

- Welding
- Corrosion Repair
- Pipe Manufacture
- Fabricated Structures
- CNC/Conv. Machining
- Inspection
- As Found Assessment

Manufacturing Services Unit (MSU) – Coatings

Blasting

Industrial Coating

Mortar Lining

Services

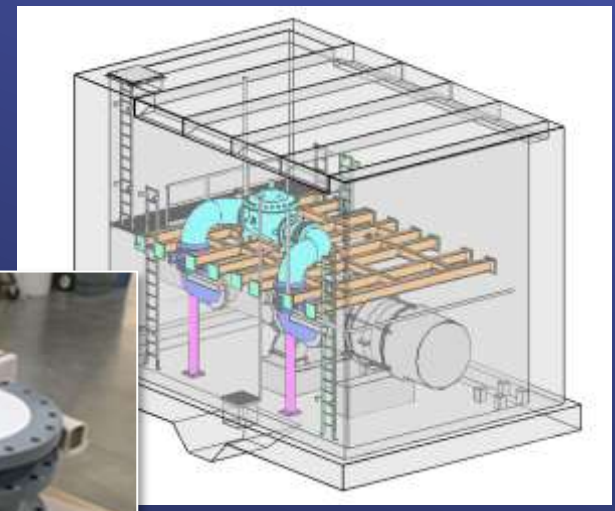
- Abrasive Blasting
- Industrial Coating
- Fiberglas Repair
- Powder Coating
- Mortar Lining
- Concrete Injection

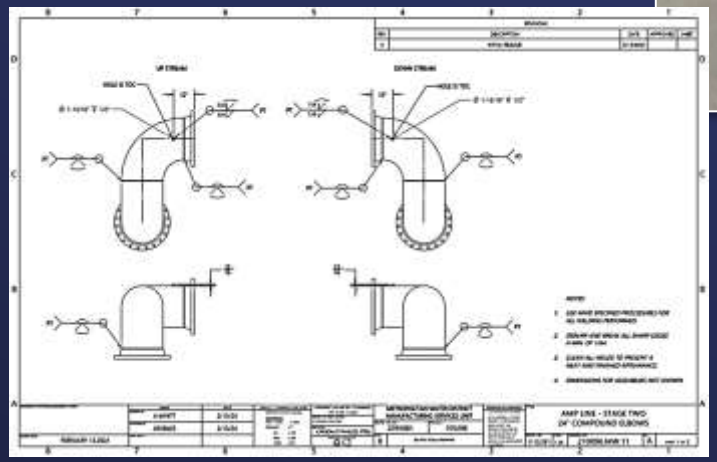
SM-01 Service Connection Leak Repair

Rapid Response

Allen McColloch OC-88 Bypass

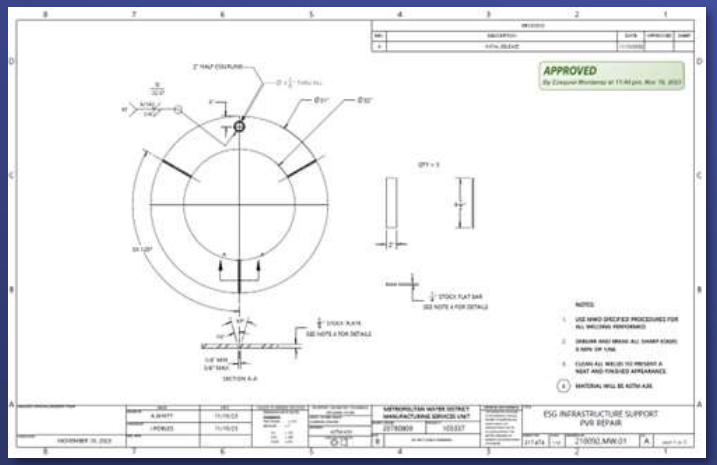
Rapid Response





Palos Verdes Feeder Leak Repair

Rapid Response



Looking Ahead

Ensuring readiness and resilience

- Continued focus on ability to respond to emergencies at a moments notice
- Seek opportunities to grow staff abilities and keep up with industry trends
- Continuing to support ongoing operations and maintenance

Managing Challenges

- Demand for services has remained high for past few years
- Inflationary and contract limits are a challenge
- Managing shift to zero emissions while remaining reliable is a focus area


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Board Report

Engineering Services Group

- **Engineering Services Monthly Activities Report for September 2024**

Summary

This monthly report provides a summary of Engineering Services Group activities for September 2024 in the following key areas:

- Colorado River Aqueduct (CRA) Program
- Dams & Reservoirs Program
- Distribution System Program
- Additional Facilities and Systems Program
- Prestressed Concrete Cylinder Pipe (PCCP) Program
- Water Treatment Plants Program
- Pure Water Southern California
- Drought Mitigation – State Water Project Dependent Areas
- Value Engineering Program
- The Great Builders Series

Purpose

Informational

Attachments

Attachment 1: Detailed Report - Engineering Services Group's Monthly Activities for September 2024

Date of Report: October 7, 2024

Engineering Services Key Activities Report for September 2024

Engineering Services manages and executes projects within the Capital Investment Plan (CIP) to maintain infrastructure resiliency, ensure regulatory compliance, enhance sustainability, and provide flexibility in system operations to address uncertain water supply conditions. In addition, Engineering Services provides technical services to enhance reliable system operation and real property planning, valuation, acquisition, and disposition services to protect Metropolitan's assets. Engineering Services empowers our staff and partners with our business partners and the communities we serve to accomplish Metropolitan's mission.

Recent activities on CIP programs and other key engineering functions are described below.

Protect public health, the regional economy and Metropolitan's assets

Colorado River Aqueduct (CRA) Program

The CRA program is composed of CIP projects to replace or refurbish facilities and components of the CRA system to reliably convey water from the Colorado River to Southern California.

- Gene Communications System Upgrade — This project will construct a new fiber optic cable line from Parker Dam to Gene Pumping Plant. The new line is predominantly located within the Metropolitan property on new power poles with a small underground portion of the alignment within the Bureau of Reclamation's property. The pole installation has been completed. The contractor continues with underground work, fiber installation, and splicing. Construction is approximately 85 percent complete and is scheduled for completion in November 2024.
- Eagle Mountain Utilties — This project will replace the existing potable water, non-potable water, and sewer lines at the Eagle Mountain Pump Plant housing village. Final design is 90 percent complete and is scheduled to be complete in January 2025.
- Hinds Discharge Valve Platform — This project will replace corroded steel members, such as ladders and floor grates at all nine discharge valve pits at the Hinds Pumping Plant. Preliminary design is 90 percent complete and is scheduled to be complete in November 2024.

- Main Pump Access Improvements — This project will construct new platform systems at each pumping plant and implement additional access improvements to enhance the efficiency of maintenance activities on the lower motor guide bearing assemblies. Preliminary design is approximately 10 percent complete and is scheduled to be complete in January 2025.

Gene Communications System Upgrade – Pole #1 Replacement

Dams & Reservoirs Program

The Dams & Reservoirs Program is composed of CIP projects to upgrade or refurbish Metropolitan's dams, reservoirs, and appurtenant facilities to reliably meet water storage needs and regulatory compliance.

- Garvey Reservoir Rehabilitation — This project will replace the aging reservoir floating cover and liner, structurally strengthen the outlet tower, upgrade the on-site water quality laboratory building, rehabilitate the junction structure, and replace the existing standby generator and a portion of the security perimeter fence. Certification of the final Environmental Impact Report (EIR) for this rehabilitation effort will be considered in a November board action. Final design is approximately 42 percent complete and is scheduled to be complete in July 2025.
- Diamond Valley Lake Dam Monitoring System Upgrade – This project will upgrade the aging dam monitoring system with an automated data acquisition system that collects data from over 200 instruments located in and around the dams and the inlet/outlet tower. The new system design was completed in September. The anticipated completion date for system installation, testing and commissioning is June 2025.
- Copper Basin Discharge — This project installs a new 54-inch fixed cone valve and actuator at the base of the dam, refurbishes a slide gate and the existing valve house, and upgrades all associated electrical systems and access ladders at the Copper Basin Reservoir. This project will also include the

replacement of access ladders at the Gene Wash Dam. Final design is complete and the acquisition of environmental permits is in progress.

- Lake Skinner Dam Perimeter Road Drainage Improvements — This project consists of replacing 4,800 linear-feet of concrete channel, grading of the adjacent roadway, and other appurtenant work. Final design is complete and board award of a construction contract is scheduled for January 2025.

Distribution System Program

The Distribution System Program is composed of CIP projects to replace, upgrade, or refurbish existing facilities within Metropolitan's distribution system, including pressure control structures, hydroelectric power plants, and pipelines, to reliably meet water demands.

- Foothill Hydroelectric Plant and Control Building Seismic Upgrade — This project strengthens the Foothill Hydroelectric Plant and Control Building to withstand a major earthquake and retain its functionality as an essential facility. The contractor completed the structural strengthening of the roof, continued setting concrete forms around the existing columns of the building, and began backfilling around the building. Construction is approximately 82 percent complete and is scheduled to be complete in December 2024.
- Service Connection OC -88 Chillers Replacement — This project replaces deteriorated cooling equipment including three chillers and two chilled water pumps that provide cooling for the pump station's pump motors and air conditioning system. The contractor has completed the installation of the first chiller and the stainless-steel chilled water piping, and has begun the demolition of the second chiller. Construction is approximately 70 percent complete and is scheduled to be complete in November 2024.
- Rialto Pipeline Rehabilitation — This project replaces a 35-foot-long, 121.5-inch diameter section of welded steel pipe on the Rialto Pipeline in the city of Upland, where the mortar lining has failed. This project also replaces the deteriorating pipe spool and isolation valve at the CB-11 service connection. The construction contract was awarded July 2024, and the shutdown to do the work is scheduled for February 2025.
- Hollywood Tunnel North Portal Valve Replacement — This project will replace two failing control sleeves and two isolation conical plug valves on the Santa Monica Feeder with two new sleeve and two knife gate valves. On the bypass line, the plug valve will be replaced with a control globe valve and isolation butterfly valves in addition to upgrading the associated instrumentation and electrical equipment in the Pressure Control Structure. Procurement specifications are being completed and will advertise in Fall 2024. Board award of a procurement contract is scheduled for January 2025.

Service Connection OC -88 Chillers Replacement – Chiller Installation

Additional Facilities and Systems Program

The Additional Facilities and Systems Program is composed of CIP projects to refurbish, replace, upgrade, or provide new facilities and systems that support Metropolitan's business and district-wide operations.

- Headquarters Physical Security Upgrades —This project implements comprehensive security upgrades for the Metropolitan Headquarters Building. These upgrades are consistent with federally recommended best practices for government buildings. The work has been prioritized and staged to minimize rework and impacts on day-to-day operations within the building. Stage 1 work is complete and provides enhanced security related to perimeter windows and doors. Stage 2 work is complete and provides security system upgrades inside the building with a focus on the main entry rotunda area, boardroom, executive dining lounge, and security control room. Construction of Stage 3 improvements provide security system upgrades around the perimeter of the building. Construction is complete and Notice of Completion was issued in September 2024.
- Headquarters Building Fire Alarm and Smoke Control System Upgrades – This project upgrades Metropolitan's Union Station Headquarters fire life safety systems, which includes replacement of the fire detection and alarm system and HVAC system improvements for smoke control. The fire alarm and smoke control systems in Metropolitan's Headquarters Building provide detection, notification,

and control of building functions so that occupants and visitors can safely exit in the event of a fire. The contractor continued final testing and sign-off of the fire alarm and smoke control systems by the LAFD and Los Angeles Department of Building and Safety. Construction is 99 percent complete and will be deemed complete upon final certification by these agencies.

- DVL Wave Attenuator —This project adds a second attenuator to the existing wave attenuating system at the East Marina in Diamond Valley Lake. The second attenuator will protect the boats and launch ramp from excessive wave action. As part of the improvements, the existing wave attenuator will be relocated to a new location and the new attenuator will be installed in its place. Additional anchors will be placed on the bottom of reservoir to provide anchorage for the new longer attenuator. The contractor is preparing submittals, and construction is scheduled to be complete by May 2026.

Prestressed Concrete Cylinder Pipe (PCCP) Program

The PCCP Program is composed of CIP projects to refurbish or upgrade Metropolitan's PCCP feeders to maintain water deliveries without unplanned shutdowns.

- Allen-McColloch Pipeline Urgent PCCP Rehabilitation — This project will perform urgent relining of approximately three miles of distressed PCCP segments of the Allen-McColloch Pipeline (AMP) that were discovered during an inspection in 2023. The urgent relining of the AMP is being performed in stages. Stage 1 includes carbon fiber reinforced polymer (CFRP) lining of four segments and steel relining of approximately 4,500 feet of pipeline. Construction of the CFRP and 2,100 feet of steel liner was successfully completed in April 2024. The remaining 2,300 feet of steel liner installation is in progress and is expected to be finished by October 2024. Stage 2 work consists of 12,600 feet of steel liner installation and appurtenant work. The Board awarded the Stage 2 contract in May 2024. The Stage 2 work is approximately 30 percent complete and is expected to be complete by January 2025.
- Sepulveda Feeder PCCP Rehabilitation North Reach — This PCCP rehabilitation project was re-prioritized to support the West Area Water Supply Reliability Improvements. The North Reach project, in conjunction with the Sepulveda Feeder Pump Stations, will allow the reversal of normal flow in the Sepulveda Feeder to augment treated water deliveries to the west service area. The North Reach of the Sepulveda Feeder is approximately 20 miles long and has been broken out into 5 segments for the purposes of contract work packages. Utility potholing and geotechnical boring are ongoing along all 5 segments of the North Reach. Permitting and public outreach processes have been initiated. The North Reach preliminary design is approximately 75 percent complete and is scheduled to be complete in December 2024. Staff anticipates that construction contracts will eventually be awarded in a sequential manner for each of the segments over a series of several years with overall relining completed in the 2031/32 timeframe.
- Sepulveda Feeder PCCP Rehabilitation Reach 9 — Reach 9 is the initial segment of the North Reach and extends approximately 3.8 miles from State Route 118 to just north of the Van Nuys Airport in the City of Los Angeles. This project will reline approximately 19,600 feet of the Sepulveda Feeder with coiled steel liner. This project also includes installation of a large diameter sectionalizing valve, which will enable continued water deliveries to the west service area during future relining of the North Reach. The new steel liner sections will also accommodate pumped flow conditions that will result from the operation of Stage 2 of the Sepulveda Feeder Pump Stations project. Final design is scheduled to kick off in early September and will be complete in September 2025.

Water Treatment Plants Program

The Water Treatment Plants Program comprises CIP projects to replace or refurbish facilities and components at Metropolitan's five water treatment plants and the chemical unloading facility to continue to reliably meet treated water demands.

- Weymouth Basins 5–8 and Filter Building No. 2 Rehabilitation — This project rehabilitates major mechanical and structural components of Basins 5–8 and Filter Building No. 2 at the Weymouth plant, including the flocculation/sedimentation equipment, sludge pumps, baffle boards and walls, launders, inlet gates, and outlet drop gates. Rehabilitation work also includes seismic upgrades of basin walls and inlet channel, hazardous material abatement, and replacement of filter valves and actuators in Filter Building No. 2. The contractor completed all rehabilitation work in Basins 7 and 8, and continued construction activities in Basins 5 and 6 and Filter Building No. 2. Construction is approximately 80 percent complete and is scheduled to be complete in July 2025.
- Weymouth Administration Building Upgrades — This project upgrades the Weymouth Administration Building to withstand a significant earthquake. The planned upgrades include structural strengthening consistent with current seismic standards for essential facilities as well as accessibility and fire/life safety improvements, architectural modifications near the areas of structural upgrades, and improvements associated with the preservation of historic architectural features. The project constructability review workshop was completed in July 2024. Final design is approximately 75 percent complete and is scheduled to be complete in April 2025.
- Diemer Filter Rehabilitation — This project rehabilitates the 48 filters at the Diemer plant to enhance filter performance, minimize filter media loss, and rehabilitate or replace aging components. The project upgrades include replacing filter media, filter valve actuators, and instruments; and modifying the filter upstream influent weir and surface wash laterals. The planned upgrades also include improving the coal grit removal facilities for the east and west side of the plant. Final design is approximately 80 percent complete and is scheduled to be complete in December 2024.
- Diemer Chemical Tank Farm Rehabilitation — This project rehabilitates the fluoride tank farm at the Diemer plant by replacing the two fluoride tanks, associated feed equipment and tank farm's roof. A temporary fluoride feed system and appurtenant equipment will be installed in order to maintain operations during construction. Final design is approximately 85 percent complete and is scheduled to be complete in December 2024.

Weymouth Basins 5–8 and Filter Building No. 2 Rehabilitation – Installing the clarifier column cap at Basin 6, view to the west.

Adapt to changing climate and water resources

Pure Water Southern California

The Pure Water Southern California (PWSC) Program is a large regional recycled water program that will provide a new local source of safe and reliable drinking water for Southern California. PWSC currently focuses on four areas: demonstration testing, environmental planning, technical studies, and preliminary design of

initial pipeline reaches. PWSC will produce up to 150 million gallons per day (mgd) of purified water from the Advanced Water Purification Facility (AWPF) in Carson, for indirect potable reuse (IPR) and direct potable reuse (DPR) applications.

- Demonstration Testing — Demonstration testing began in 2019 with N-only tertiary membrane bioreactor (tMBR) testing completed in 2021 and secondary MBR (sMBR) testing completed in 2023. Modifications for tMBR optimization testing have been completed. The system is online and currently operating in the nitrification/denitrification mode. Modifications to the system are in progress to allow testing of potential DPR processes and to include additional safety features.
- Environmental Planning — The environmental planning phase began in 2020 with the goal of preparing an EIR for approval in 2026. Various technical studies have been prepared to support the effort. The draft EIR is currently scheduled for publication in early 2025, with board certification of the document in early 2026. Biological surveys were completed, and staff continues to prepare and review individual draft technical sections.
- Program Management — PWSC program management efforts lead the planning for the PWSC Program, including project controls, scheduling, budget development, risk management, coordination with program partners and stakeholders, grants and funding, and preparation of various plans and studies.
    - Metropolitan received notice in May 2024 that it was one of the recipients of the U.S. Bureau of Reclamation (USBR) Large-Scale Water Recycling grant (LSWR). The USBR announced that they intend to grant Metropolitan up to $99,199,096 to advance the PWSC planning and design efforts. A second grant application to the LSWR program was prepared and submitted to the USBR in May for up to $26 million dollars, or the difference between the initial grant request of $125 million and the amount awarded. Staff provided an update to the Board in August 2024 on the grant. A November board action is planned to authorize a resolution to accept the USBR grant. Following discussions with USBR on the terms and scope of the agreement, staff plans to return to the Board to authorize the agreement.
    - In September, the Board approved an amended and restated agreement with Los Angeles County Sanitation Districts (LACSD). With this amendment, LACSD assumes responsibility for the pretreatment system, including the MBR, which substantially reduces Metropolitan's overall program cost.
    - Program status, phasing options, and the DPR white paper were presented at the September PWSC/Regional Conveyance Subcommittee meeting.
    - Program governance and program management information systems are currently being developed. Technical studies are underway to support planning of DPR implementation, and EIR analysis on per- and polyfluoroalkyl substances (PFAS) compounds, and development of program phasing options.
- Advanced Water Purification Facility — The AWPF will purify treated wastewater from LACSD's A.K. Warren Water Resource Facility (Warren Facility) using membrane bioreactors (MBRs), reverse osmosis (RO), and ultraviolet/advanced oxidation (UV/AOP). With its expertise in biological wastewater treatment, LACSD will assume the responsibility of implementing the AWPF pretreatment and the MBR facilities.

- A draft conceptual facilities plan has been prepared to document key assumptions of AWPF components. The final draft plan is currently being prepared.
- Southern California Edison (SCE) is performing a Method of Services (MOS) study to identify infrastructure needed to meet AWPF power requirements. The MOS investigation is anticipated to be complete later this year.

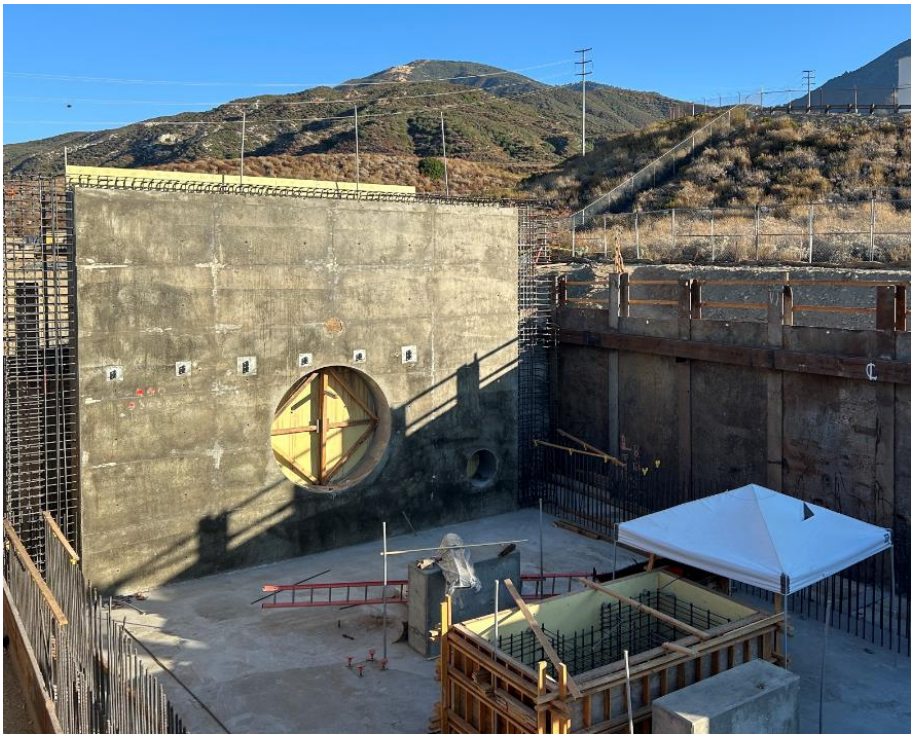
- Direct Potable Reuse (DPR) — The California Division of Drinking Water (DDW) published the final DPR regulations in December 2023. On August 6, 2024, the California Office of Administrative Law approved these DPR regulations, which will take effect on October 1, 2024. Metropolitan has completed bench-scale testing to screen the potential DPR treatment processes that could be used for the program. Planning of pilot-scale testing is in progress. A DPR white paper has been developed to establish Metropolitan's DPR implementation approach and was presented at the September PWSC subcommittee.
- Conveyance Pipeline System — The PWSC conveyance system consists of the backbone pipeline, which extends over 40 miles from the AWPF in the city of Carson to as far north as the city of Azusa; repurposing an existing pipeline owned by the San Gabriel Valley Municipal Water District; and a new DPR pipeline to convey water from the backbone eastward for raw water augmentation at Metropolitan's Weymouth Plant in the city of La Verne. It also includes several pump stations, service connections, isolation valves, and other pipeline appurtenances. As part of the current environmental planning phase efforts, the project team is preparing the Conveyance Facilities Conceptual Design Report to support the environmental studies and permitting processes required by CEQA. The draft report was recently completed, with the final report anticipated by the end of the year. In addition, Metropolitan's Board authorized consulting agreements for preliminary design of the first two pipeline reaches in March 2023.
    - Reach 1 — This reach is approximately 6 miles long and runs through the city of Carson, with service connections for LADWP and West Basin MWD. Current work includes utility field investigation and geotechnical work, incorporating value engineering comments and assessing the need for more tunneling to minimize project risks, as well as the completion of the preliminary design report and associated engineering drawings. Preliminary design is 83 percent complete.
    - Reach 2 — This reach is approximately 8 miles long and runs through the cities of Long Beach and Lakewood, with a service connection for Long Beach Utilities District. Current work includes utility field investigation and geotechnical work, incorporating value engineering comments, as well as coordination with Long Beach Utilities District, Caltrans, and other permitting entities for the major tunnel crossing of the I-710 and Los Angeles River. Preliminary design is 50 percent complete.

Drought Mitigation—State Water Project Dependent Areas

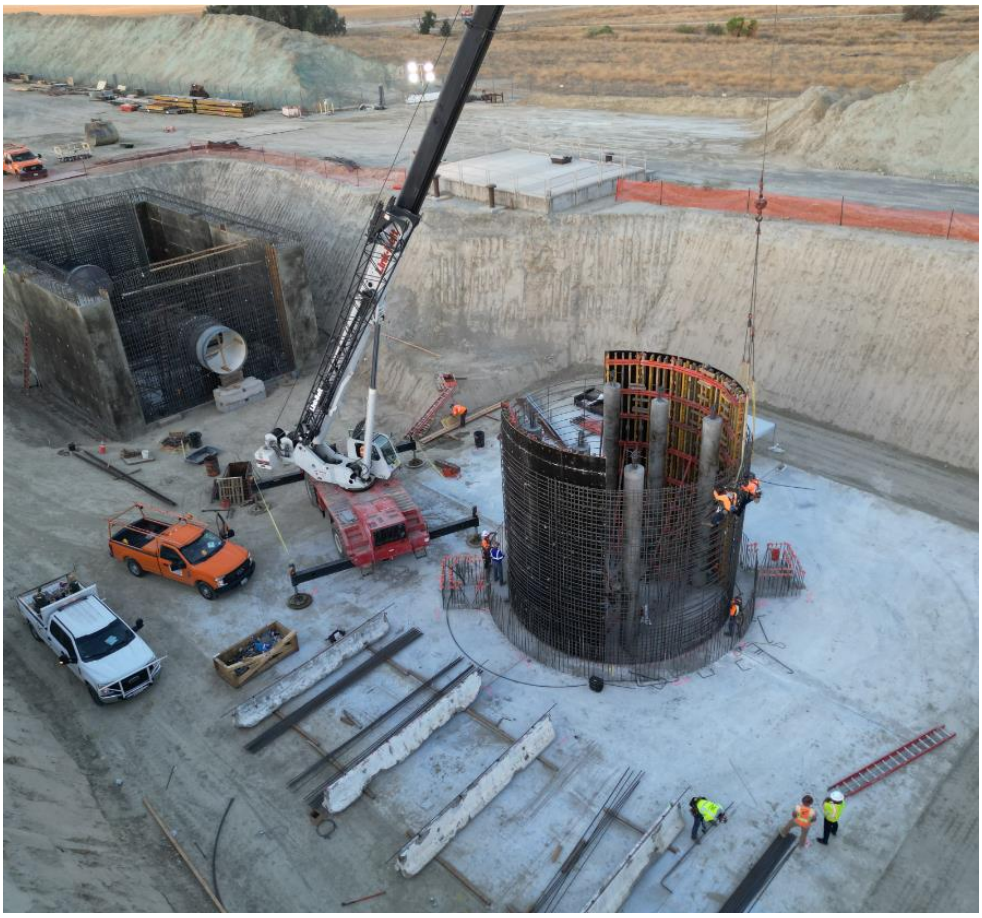
The Drought Mitigation—State Water Project (SWP)-Dependent Areas Program is composed of CIP projects to replace, refurbish, upgrade, or construct new facilities, which are identified to mitigate the vulnerability experienced by specific member agencies that are affected during shortages of State Water Project supplies.

- Wadsworth Pumping Plant Bypass — This project installs a bypass pipeline and an isolation valve to interconnect the Wadsworth Pumping Plant with the Eastside Pipeline. This is one of several projects needed to deliver water from Diamond Valley Lake (DVL) to the Rialto Pipeline. The contractor completed all pipeline tie-in work during a shutdown in April 2024. Remaining work consists mostly of installing long-lead electrical items. Construction is approximately 85 percent complete and is scheduled to be complete in July 2025.
- Inland Feeder-Rialto Pipeline Intertie — This project installs an interconnection pipeline and isolation valve structure between the Inland Feeder and Rialto Pipeline, so that water can be delivered from DVL to the Rialto Pipeline. The contractor has mobilized and is placing concrete for the pipe encasement and valve vault structure. Construction is approximately 20 percent complete and is scheduled to be complete in June 2025.
- Inland Feeder - Badlands Tunnel Surge Protection — This project installs a new open-to-atmosphere surge tank at the south portal of the tunnel, which will protect the Inland Feeder from hydraulic transients when pumping water from DVL to the Rialto Pipeline through the Inland Feeder. The contractor is constructing the valve vault and surge tank foundation. Construction is approximately 25 percent complete and is scheduled to be complete in June 2025.
- Sepulveda Feeder Pump Stations — This project installs new pump stations at the existing Venice and Sepulveda Canyon pressure control facilities, providing the ability to reverse flow in the Sepulveda Feeder and deliver 30 cubic feet per second from the Central Pool to portions of the Jensen plant exclusive area. This project utilizes a progressive design-build (PDB) project delivery method. The Board awarded a Phase 1 PDB agreement in September 2023. Phase 1 includes preliminary design and development of a Guaranteed Maximum Price (GMP) for completion. The contractor is proceeding with the purchase of long lead items including pumps, large valves and electrical switchgear and transformers recently authorized by the Board. Authorization of Phase 2 final design and construction is anticipated in early 2025.

Wadsworth Pumping Plant Bypass – Placing Rebar Wire Mesh for V-ditch



Inland Feeder-Rialto Pipeline Intertie – Valve Vault Wall Complete – Looking West



Inland Feeder - Badlands Tunnel Surge Protection – Installation of Rebar at the Surge Tank Foundation

Sustain Metropolitan's mission with a strengthened business model

Value Engineering Program

Engineering Services conducts a Value Engineering (VE) program to review capital projects and identify opportunities and alternatives to enhance project performance, optimize the use of funding for CIP projects, and demonstrate responsible use of public funds. The objective of the VE program is to improve the overall value of CIP projects by applying an industry-accepted assessment methodology to examine a project's function, design, equipment, material selections, and contracting approach. This comprehensive assessment is conducted at multiple stages in a project's life cycle.

- Jensen Solids Mechanical Dewatering VE Workshop — Engineering conducted a Value Engineering workshop for the Jensen Solids Mechanical Dewatering project in September. This project will construct a new mechanical dewatering facility at the Jensen plant sized to process and meet all solids handling requirements for 500 MGD plant capacity. The project will also remediate a portion of

the plant's property, which was determined to involve a significant liquefaction potential and make other facility improvements to solids pumping and conveyance systems. The workshop examined the scope and benefits of a separate, early site preparation contract, site access for solids removal trucks, potential impacts of other projects, construction sequencing, methods to mitigate impacts to ongoing O&M activities, and risk assessment and mitigation. The workshop team included Metropolitan staff from Engineering, Jensen plant management, Water Quality and Environmental Planning; and Engineering's design consultants, and consultant subject matter experts in geotechnical engineering, process design, and cost estimating.

- La Verne Water Quality Laboratory Building VE Workshop — In September, Engineering completed a Value Engineering workshop for the La Verne Water Quality Laboratory Building Upgrade project. This project includes a 30,000-square-foot expansion of the existing water quality building, structural improvements to improve seismic resiliency, and reconfiguration of the building layout for improved work flow and functional spaces. The workshop examined the project's relocation plan and addressed alternatives to mitigate impacts and ensure continuous operations and water quality testing capacity throughout construction of the project. The VE team included Metropolitan staff from Engineering, Treatment and Water Quality, Integrated Operations, Planning and Support Services, Environmental, IT, and Security.

Main Entrance to Water Quality Laboratory Building

Empower the workforce and promote diversity, equity, and inclusion

The Great Builders Series

Engineering recently hosted "The Great Builders Series" in September with special guest speaker, former Assistant Chief Engineer Dennis Majors, with brown bag hosts Unit Manager Michael Thomas and DE&I Outreach/Engagement Manager Wigs Mendoza. This is one of several brown bag technical series meetings to spotlight the exceptional leaders who transformed blueprints into reality. This series will focus on the world of

mega construction projects and showcase remarkable achievements of builders and project managers. The ESG Brown Bag Technical Series helps to support workforce development in a lunch and learn setting.

Wigs Mendoza, Sepi Shirkhani, Howard Lum, Drew Boronkay, Dennis Majors, Director John Morris, Michael Thomas, John Vrsalovich, Marcia Scully

Wigs Mendoza, Dennis Majors, Michael Thomas

Information Technology Group

- **Information Technology Group Monthly Activities for September 2024**

Summary

This report provides a summary of activities related to the Information Technology Group for September 2024

Purpose

Informational

Attachments

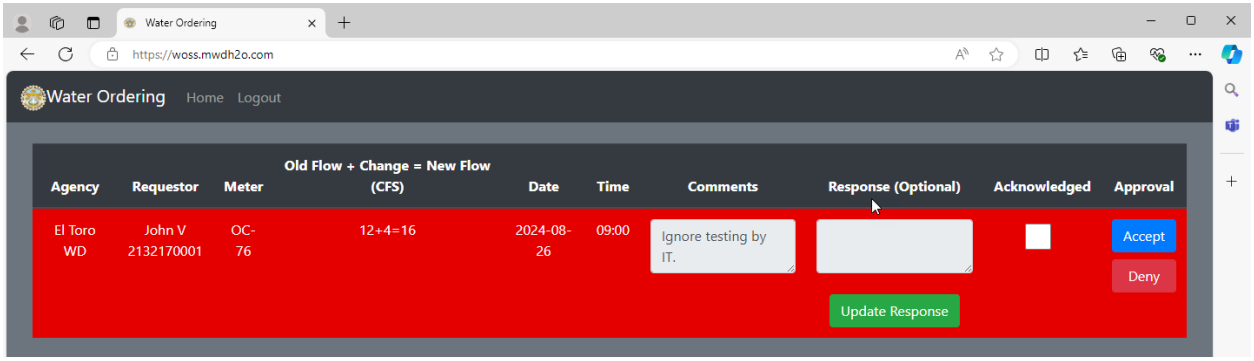
Attachment 1: Example: Water Order Scheduling System self service portal

Detailed Report

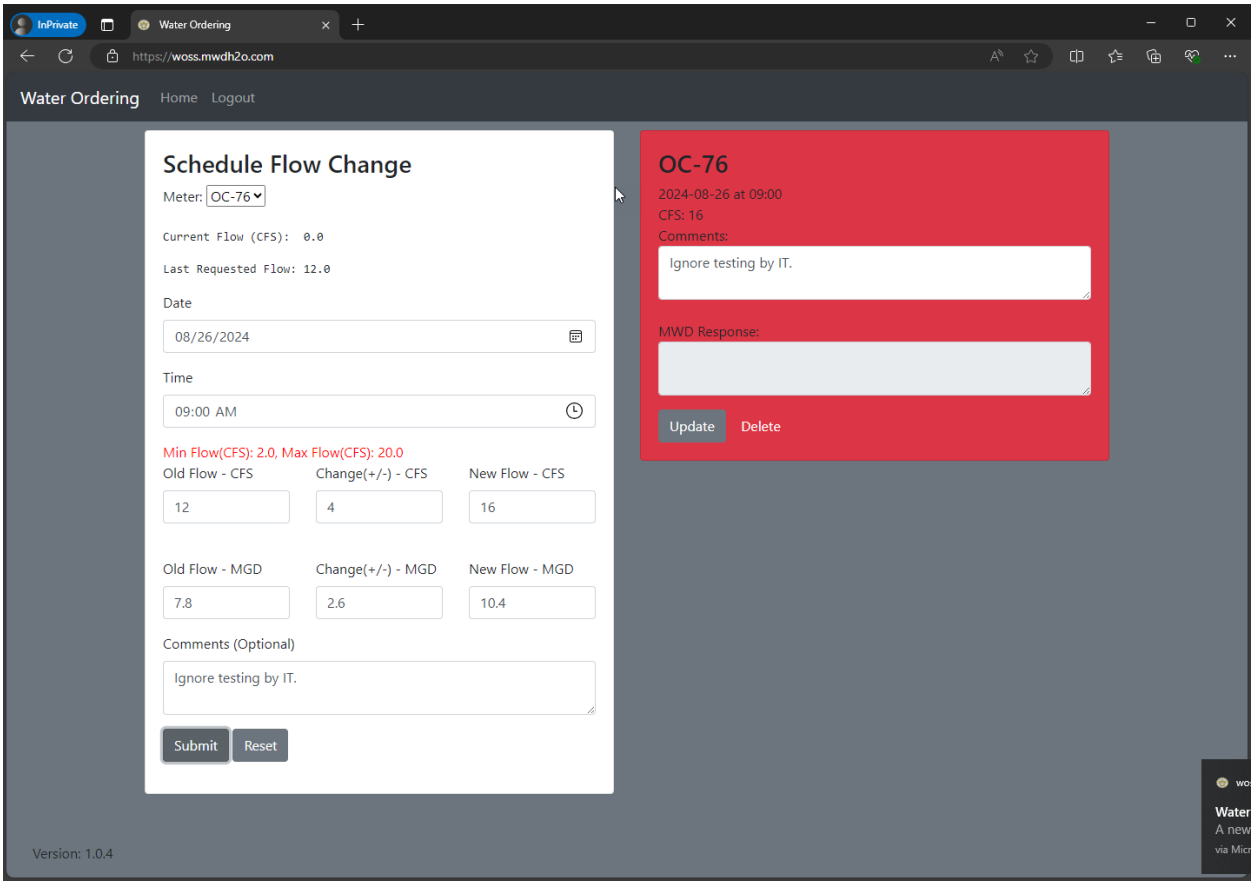
The Information Technology Group recently upgraded the Water Order Scheduling System (WOSS), a web-based application that provides our member agency operators a self-service portal to submit meter flow change requests electronically and permits the operators at our Eagle Rock Control Center to accept requests. Currently, this application serves 24 member agencies and sub-agencies. WOSS has effectively reduced 50 percent of the call volume with the use of the self-service portal and has accurately routed requests to the Electronic System Log. This application was hosted on a runtime environment that was nearing end of life support.

The Information Technology Business Application Services team has successfully upgraded the WOSS runtime environment increasing productivity and efficiency. The team upgraded the application to extend the support and improve performance and security. The upgrade includes configuration setting updates to the latest version and new software library packages. The upgrade implementation had minimal impact to our operators and member agencies.

Date of Report: September 16, 2024



Attachment 1: View of the dashboard that the Operators monitor.



Attachment 2: View of the request form to submit meter flow changes electronically.

Engineering, Operations, & Technology Committee

Management Announcements and Highlights

Item 7a

October 7, 2024

Engineering Services

Engineering Operations & Technology Annual Field Inspection Trip

- Thursday Nov 7, 2024
- Locations to be visited
  - Mills Water Treatment Plant
  - Diamond Valley Lake
  - DWR's Devil Canyon Power Plant
- Focus on drought-resiliency projects
- Please RSVP

2023 EO&T Field Inspection Trip – Lake Mathews

2023 EO&T Field Inspection Trip – La Verne Shops

Singapore Public Utilities Board Water Leaders Program

- Metropolitan hosted Singapore PUB's CEO & approximately 20 PUB leaders
- September 30, 2024
- Topics presented
  - CAMP4W
  - Pure Water Southern California
    - Partnership with LACSD
    - Program plan
    - Roadmap to Direct Potable Reuse

Singapore PUB Visit

Water Collaborative Delivery Association Training

- Metropolitan sponsored two-day training by WCDA –Oct. 1-2, 2024
  - Covered fundamentals of Progressive Design Build and other collaborative project delivery methods
  - Focused on practical water industry applications
  - Over 100 attendees
    - In-person & virtual
    - Including about 40 people from 11 Member Agencies

Water System Operations

Managing State Water Project Supplies

Current Operational Conditions

- 2024 SWP Allocation at 40%
- CRA at 7-pump flow
- Deliveries to DWCV at ~700 cfs
- Deliveries to CUP and Cyclic ongoing
- SWP blend targets are 25% at Weymouth, Diemer, and Skinner
- September 2024 deliveries of 138 TAF were 12 TAF higher than September 2023

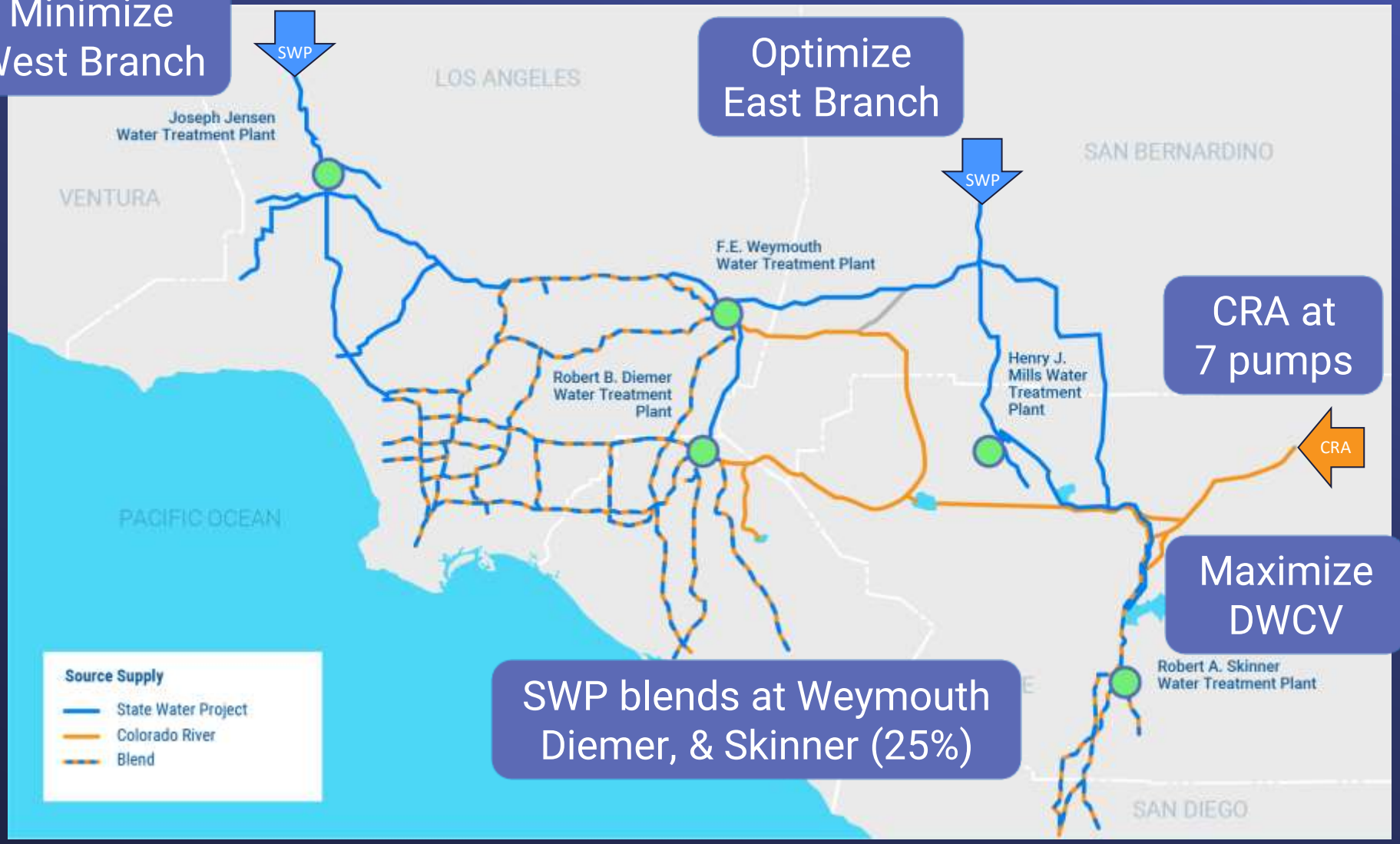
New Trash Rack
East Lake Skinner Bypass

Managing State Water Project Supplies

September 2024 Operations

Manage SWP supplies to meet storage goals

Maintain 25% SWP blends



Ensuring Continued System Reliability

Etiwanda Pipeline
Contractor to perform lining repairs
Underway

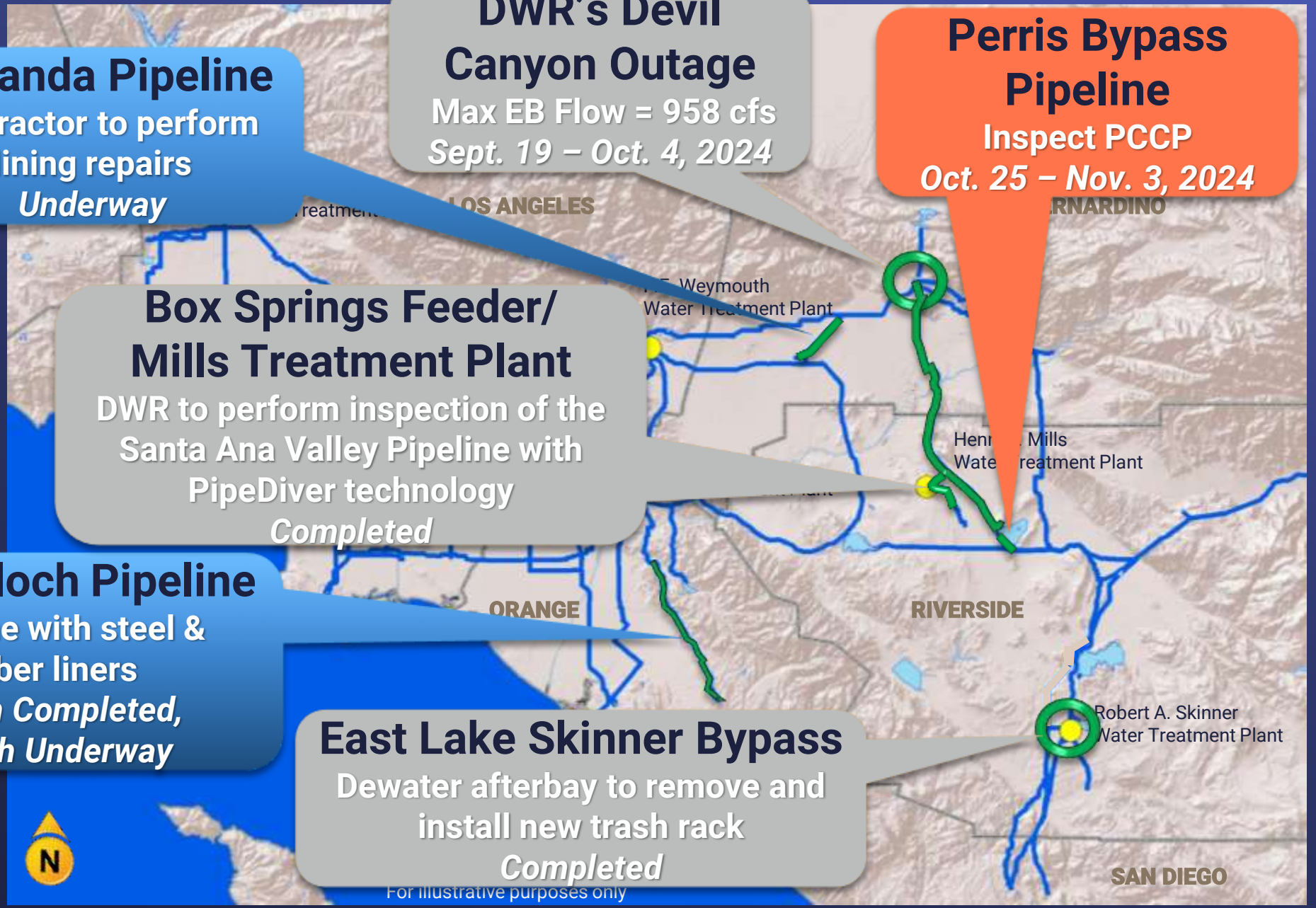
DWR's Devil Canyon Outage
Max EB Flow = 958 cfs
Sept. 19 – Oct. 4, 2024

Perris Bypass Pipeline
Inspect PCCP
Oct. 25 – Nov. 3, 2024

Box Springs Feeder/ Mills Treatment Plant
DWR to perform inspection of the Santa Ana Valley Pipeline with PipeDiver technology
Completed

Allen-McColloch Pipeline
Repair pipeline with steel & carbon fiber liners
Upper Reach Completed, Lower Reach Underway

East Lake Skinner Bypass
Dewater afterbay to remove and install new trash rack
Completed



Ensuring Continued System Reliability

2024/25 Shutdown Schedule

- Shutdown Schedule presented to Member Agencies on Sept. 20
- Features detailed schedule of 24 major shutdowns planned for 2024/25 season
- Also includes preliminary three-year look-ahead schedule for longer-term planning
- Developed through extensive collaboration with member and retail agencies, and DWR

Excellence through Collaboration

September 26, 2024

DWR and MWD Meeting at Pearblossom

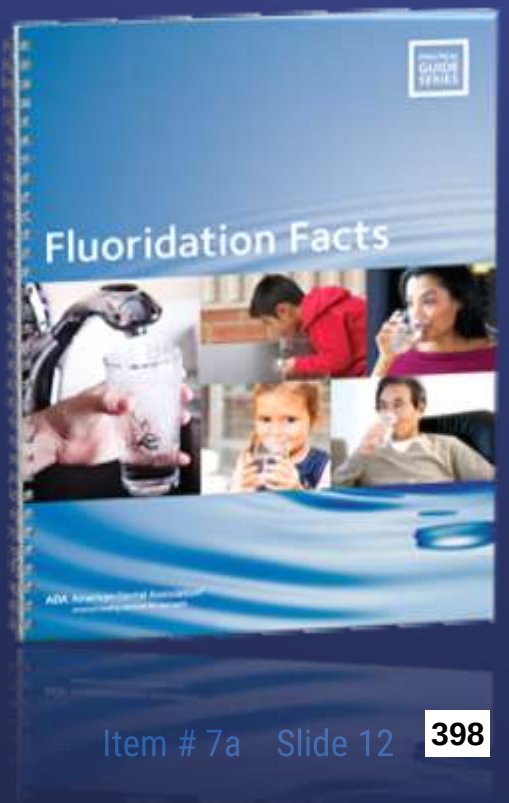
Range of topics covered by both parties:

- Seismic Resilient Water Supply Task Force
- Emergency Management Program
- Project Management Program
- Process Improvements
- Dam Safety
- Asset Management
- Drought Mitigation

Tour of Pearblossom Pumping Plant

Recent Ruling on Fluoridation in Drinking Water

- Federal judge ruled that water fluoridated at levels typical in U.S. poses unreasonable risk of injury to public health
  - Judge relied on report which found drinking water with fluoride at over double the recommended limit associated with lower IQ in children
- Ruling requires EPA to respond under Toxic Substances Control Act, but does not dictate what actions EPA must take
- Leading health organizations continue to support community water fluoridation at current low levels in drinking water
  - California requires fluoridation for large water systems
- Metropolitan will coordinate with regulators and industry groups to monitor any regulatory response
- No changes to Metropolitan's water treatment operations are required at this time



Information Technology

No update for this period


THE METROPOLITAN WATER DISTRICT OF
SOUTHERN CALIFORNIA
1928

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Board Report

Operations Groups

- **Operations Monthly Activities for September 2024**

Summary

This monthly report for the Operations Groups provides a summary of activities for September 2024 in the following key areas:

- Enhance Workforce Safety
- Manage Business Operations, Budget, and Staffing
- Develop New Solutions to Enhance Operational and Business Processes
- Provide Reliable Water Deliveries and Manage Storage
- Develop New Supplies and Optimize System Flexibility
- Protect Source Waters and Ensure Water Quality Compliance
- Optimize Water Treatment and Distribution
- Protect Infrastructure and Optimize Maintenance
- Optimize Asset and Maintenance Management
- Ensure Power and Environmental Regulatory Compliance
- Enhance Emergency Preparedness and Response
- Advance Education and Outreach Initiatives
- Engage with Member Agencies and Other Stakeholders on Technical Matters

Purpose

Informational by the Operations Groups on a summary of key activities for the month of September 2024

Attachments

Attachment 1: Detailed Report – Operations Groups' Monthly Activities for September 2024

Date of Report: October 7, 2024

Operations

Operations Groups

Core Business Objectives

Enhance Workforce Safety

The Desert Safety Committee consists of Desert employees; Desert managers; Safety, Regulatory, and Training (SRT) staff; and a Union representative. The committee meets regularly to assess safety recommendations from staff and track progress of safety-related projects. The committee met in September as part of the ongoing commitment to open communication and collaboration on safety.

Desert Safety Committee Meeting

Manage Business Operations, Budget, and Staffing

Business Management Team (BMT) is working with Fleet to prepare Operating Equipment entries for FY 2025/26 into Questica with guidance from the Budget Unit. The BMT is bridging the gap between Accounts Payable and the Business Support Teams in the Operations groups by setting up a monthly forum to discuss key topics and help prevent issues that may arise related to invoice processing. Monthly informational sessions are also being held on various personnel topics with guest speakers to discuss administrative changes and share information.

Develop New Solutions to Enhance Operational and Business Processes

In preparation for rollout of Metropolitan's zero-emission vehicles (ZEV), several teams have been piloting ZEVs to determine best use of the technology and gain feedback. For the past three months, the Jensen Treatment team has utilized a Ford Lightning to complete operations at the treatment plant. This use case demonstrates the application of new technology and its practical functionality. This zero-emission truck has received positive feedback from staff and charging has been effective to maintain continuous utilization by staff in their operation of the treatment plant.

Integrating a zero-emission truck for Jensen plant operations

Provide Reliable Water Deliveries and Manage Storage

Metropolitan member agency water deliveries were 137,800 acre-feet (AF) for September with an average of 4,600 AF per day, which was about 100 AF per day lower than in August. Metropolitan continued delivering water to the Cyclic and Conjunctive Use Programs. Treated water deliveries were 7,000 AF lower than in August, for a total of 73,400 AF, or 53 percent of total deliveries for the month. The Colorado River Aqueduct (CRA) pumped a total of 98,000 AF in September. State Water Project (SWP) imports averaged 3,000 AF per day, totaling about 89,400 AF for the month. The target SWP blend is 25% for Weymouth, Diemer, and Skinner Plants.

Metropolitan expects to have sufficient SWP and Colorado River supplies to meet demands in 2024. Water continues to be managed according to Water Surplus and Drought Management (WSDM) principles and operational objectives with an emphasis on positioning SWP supplies to meet future demands in the SWP-dependent areas. Metropolitan has resumed deliveries to Desert Water Agency and Coachella Valley Water District with the improved supply

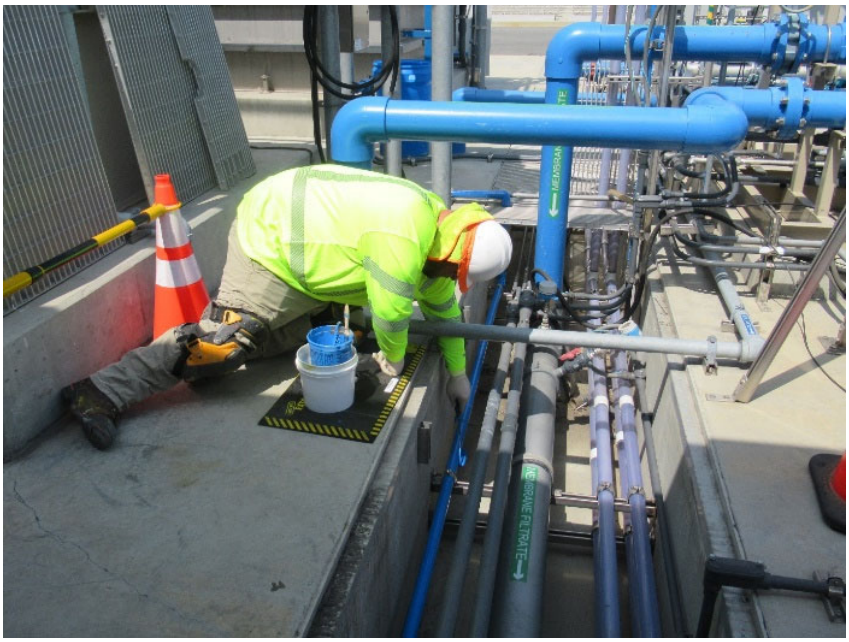
conditions. Metropolitan is continuing to minimize the use of Table A supplies this year to improve SWP Carryover for next year.

Develop New Supplies and Optimize System Flexibility

Staff completed a white paper, *"Roadmap for Direct Potable Reuse: Considerations for Implementing DPR through the Pure Water Southern California Program"*. This document outlines the role of DPR in the PWSC program, the implications of newly adopted DPR regulations, and the research and planning needed for successful implementation. It also explores the unique opportunities and challenges of different DPR approaches, specifically raw and treated water augmentation. The paper provides several recommended next steps for Metropolitan to guide future research and implementation strategies. A collaborative effort, the white paper reflects contributions from staff across Water Quality, System Operations, Engineering, and External Affairs, underscoring the teamwork and collective expertise of Metropolitan staff. It was presented to the Board's Pure Water Southern California and Regional Conveyance Subcommittee on September 24.

During September, staff continued baseline monitoring for tertiary membrane bioreactor (MBR) nitrification-denitrification testing at the Pure Water Southern California Napolitano Innovation Center demonstration plant. Staff resolved a biological upset involving partial nitrification loss that began in late June. Staff also returned the reverse osmosis (RO) system to 85% recovery and resolved operational issues with running the RO at the design setpoints.

Staff coated piping at the Grace F. Napolitano Pure Water Southern California Innovation Center in Carson. The coatings applied enhance reliability of the piping system and help with identification of the pipe contents to provide safety awareness for staff working at the facility.



Staff coating pipes at Napolitano Center

Staff continued to perform VOC spike testing using acetone to demonstrate removal in gas and liquid forms and confirm operational setpoints to support full-scale permitting and future direct potable reuse testing. Metropolitan staff supported Los Angeles County Sanitation Districts emissions testing to support future environmental permitting of the full-scale system.

Staff replacing cartridge filters ahead of reverse osmosis system (left) and collecting samples during VOC spike testing (right)

Protect Source Waters and Ensure Water Quality Compliance

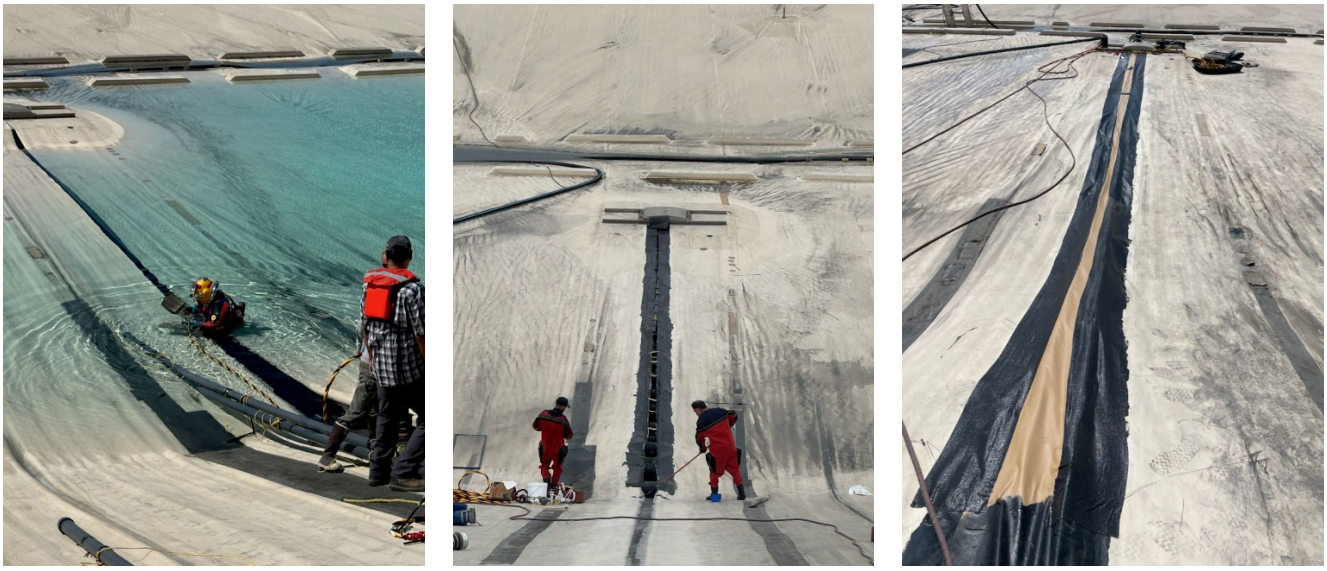
Metropolitan complied with all water quality regulations and primary drinking water standards during August 2024.

On August 29, Metropolitan participated in a Municipal Water District of Orange County (MWDOC) Water Quality and Operations Management Workshop that included several MWDOC subagencies. The focus of the workshop was nitrification and how Metropolitan, MWDOC, and the subagencies were addressing nitrification in their systems. Discussion topics included a review of the state of the science of nitrification, distribution systems, operational considerations, and mitigation strategies that included how agencies can collaborate to tackle this system-wide issue. Metropolitan staff participated in the workshop and provided presentations. A follow-up workshop will be held on October 1.

On September 11, staff attended a Nevada Environmental Response Trust Feasibility Study Roundtable discussion in Las Vegas, Nevada. The meeting focused on reviewing draft information on the preliminary screening of remedial technologies for chemicals of potential concern in soil and groundwater, including perchlorate, at the Trust site in Henderson, Nevada. Discussions centered on evaluating potential remediation options, addressing stakeholder input, and preparing for the upcoming Feasibility Study Report.

On September 12, staff participated in the annual Clean Colorado River Sustainability Coalition meeting in Lake Havasu City, Nevada. This meeting covered updates and discussions on various initiatives aimed at protecting and sustaining the Colorado River ecosystem. The discussions contribute to Metropolitan's ongoing efforts to monitor and address water quality concerns along the Colorado River to ensure continued safety and reliability of water supplies.

The floating cover at Garvey Reservoir experienced a large tear along a seam while staff were walking on the cover completing routine maintenance. A staff member wearing personal protective equipment fell into the reservoir but was quickly and safely assisted out. Staff and management immediately responded to assess safety concerns and evaluate potential water quality impacts from the tear. Urgent repairs were made to restore normal operations, and additional monitoring was conducted to confirm no water quality impact resulting from the tear. The event was also promptly reported to the state's Division of Drinking Water. Staff's quick thinking, expertise and teamwork ensured no operational issues and safeguarded the integrity of the reservoir.



Reservoir floating cover ripped open (right), staff repairing the cover (middle), and repaired cover (left) at the Garvey reservoir

Optimize Water Treatment and Distribution

The SWP target blend entering the Weymouth and Diemer plants stayed at 25 percent in September. The SWP blend entering Lake Skinner remained at 25 percent. Flow-weighted running annual averages for total dissolved solids from July 2023 through June 2024 for Metropolitan's treatment plants capable of receiving a blend of supplies from the SWP and the CRA were 460, 535, and 475 mg/L for the Weymouth, Diemer, and Skinner plants, respectively.

At the Diemer plant, staff wired the control panel for a sodium hypochlorite feed pump as part of a chemical injection system that will be used at the OC-88 pump station to control nitrification. Nitrification is a process of biological conversion of ammonia to nitrite within chloraminated water systems, potentially causing a decrease in chloramine residual. Under more serious nitrification events, there can be a notable decrease in chloramine residual that allows bacterial growth. This chemical feed system was designed to inject sodium hypochlorite directly into the Allen-McColloch Pipeline at OC-88 to help maintain a target chloramine residual and minimize nitrification.

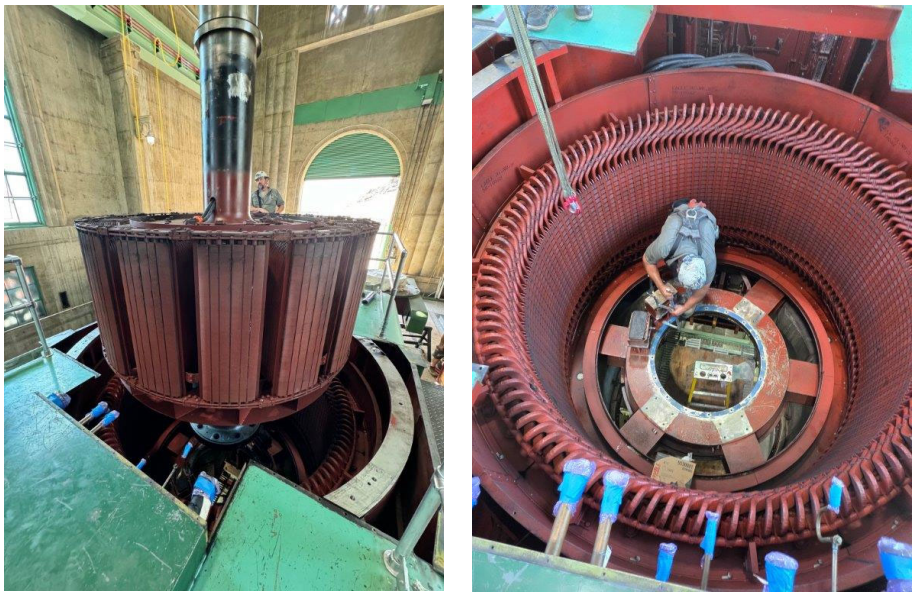
Staff is working on a nitrification control chemical feed system

Staff continued upgrading the 240V electrical distribution panels at the Skinner Administration Building and a Service Building which houses the Skinner Fleet, Mechanical, and Electrical Teams. The existing panels are original equipment from the 1970s which are obsolete and beyond their useful life. The replacements will ensure safe and reliable electrical distribution for critical control room and maintenance shop operations.

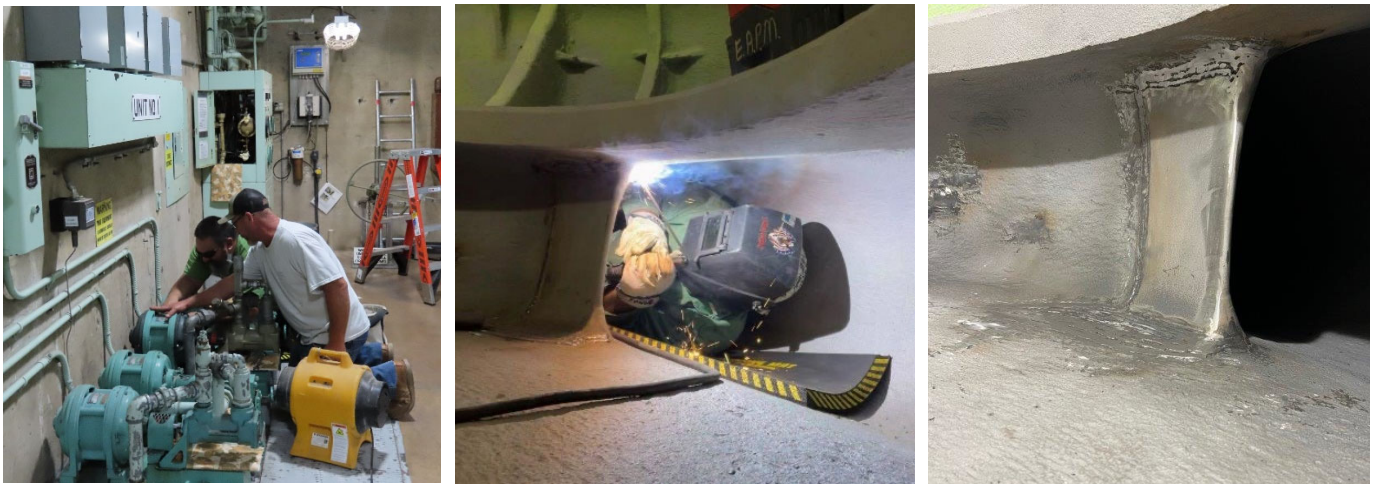
Staff replacing electrical distribution panel in the Mechanical, Electrical, and Fleet shop at the Skinner plant

Protect Infrastructure and Optimize Maintenance

Pump maintenance team and pump plant staff worked together at the Eagle Mountain pump plant to disassemble the Unit 9 pump. The pump was removed from service and will undergo maintenance to repair or replace worn components. Pump plant staff removed a lubrication oil pump for repair. The lubrication system ensures the 12,500hp motor and pump bearings are lubricated during operation. Proactively maintaining the auxiliary systems mitigates the risk of costly repairs to the CRA main pump units. Data collected throughout this maintenance will be analyzed by Engineering to help determine the scope of the CRA Main Pump Rehabilitation capital project.



Removing the rotor and hydraulic jacks from Eagle Mountain Unit 9 stator



Removing a lubrication pump and motor for rebuild (left), splitter welding to build up worn areas (middle), and splitter weld repairs completed and ready for coating repairs (right)

The desert coaters installed temporary containment specifically designed for blasting pump bowls. For this application, this containment is quicker to assemble than traditional speed rails and shrink wrap type of containment. It is also less likely to be breached while blasting. This ridged containment is built in 4’ x 4’ sections and incorporates a personnel access door, plexiglass viewing window, interior lighting, and ventilation equipment access.


Installing pump bowl containment at Eagle Unit 9 (left), and a look inside the containment (right)

Staff began installation of an infiltration basin and drainage piping to capture the Service Connection WB-06 Valve Structure sump pump discharge water. Installation of this basin will allow the sump pump drainage water to percolate into the soil and eliminate water discharge onto the public street.


Excavating for percolation test pit (left) and conducting percolation test (right)

Staff completed the installation of new communications infrastructure on the Auld Valley Pipeline as part of a SCADA Network upgrade to enhance network reliability and security. The local utility service provider will install a new fiber communications line to complete the project.

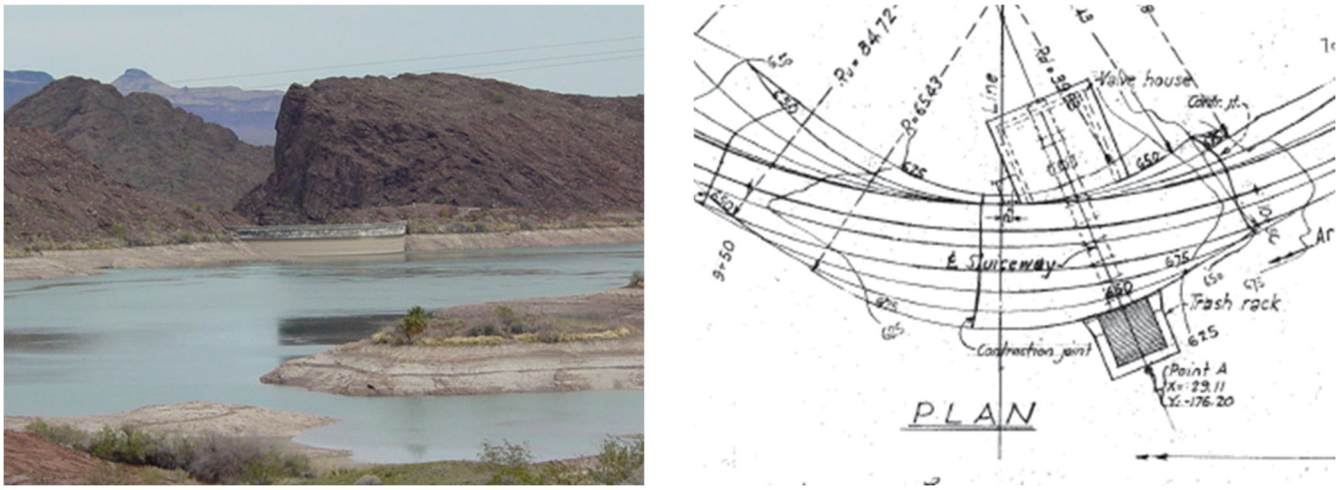
Potholing for existing utilities (left) and backfilling over new conduit for fiber optic cable (right)

Staff completed installation of a replacement mobile chlorinator connection and feed line at the Lake Mathews Outlet Tower. This secondary sodium hypochlorite feed point is utilized quarterly to allow the mobile chlorination unit to apply sodium hypochlorite to the outlet tower. This is a critical operation to control quagga mussel growth between the outlet tower and forebay. Continuous chlorination is utilized at the forebay to control quagga mussel growth downstream of the forebay and through the Upper and Lower Feeders to the Weymouth and Diemer treatment plants.

Fabricating the pipe supports (left) and completed chlorination line with coated containment piping (right)

Operations (continued)

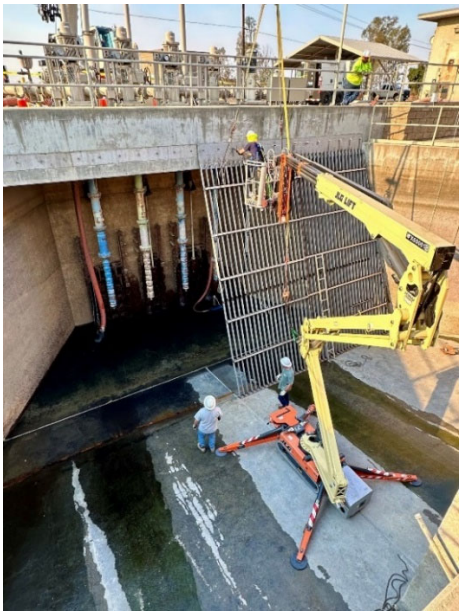
The La Verne Shops completed an inspection of the inlet side of the Gene Wash Dam fixed cone valve using an underwater remote-operated vehicle (ROV). The valve, which is submerged 100 feet under water, will be operated next month to perform a full-flow operational test. The inspection was completed to verify there was no large debris or obstructions on the inlet side of the dam's fixed cone valve.



Gene Wash Dam (left) and plan view of valve location (right)

Inspection of valve inlet trash rack

Staff completed installation of a new trash rack for the East Lake Skinner Bypass structure. This structure transitions the San Diego Canal into raw water pipelines that feed San Diego County Water Authority. Metropolitan staff built and installed the trash rack that is used to prevent debris from entering the San Diego pipelines while the lake bypass is in operation.



Staff installing a new trash rack at the East Lake Skinner Bypass

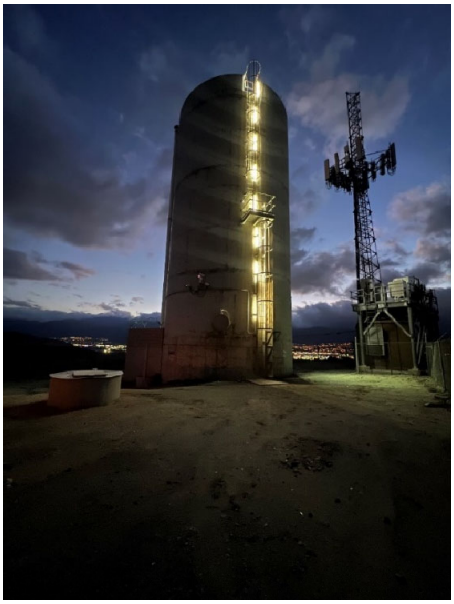
The Weymouth Mechanical Team installed two drop gates that isolated six filters from service. The filters were isolated and removed from service to allow staff to replace the influent and effluent valve on one for the filters. Following the valve replacement, plant staff worked with water quality staff to complete disinfection and bacteriological testing of the filters prior to being placed back into service. Over the next 12 months, a similar procedure will be followed to replace additional filter valves as part of the Weymouth Basin 5-8 Rehabilitation capital project.

Mechanics removing filter effluent channel drop gate at the Weymouth plant

Skinner staff replaced existing bollards surrounding a fire hydrant in a high traffic area with taller bollards. This will improve safety by increasing visibility of the protective devices when traveling through the area, as the shorter bollards have been hit in the past.

Replacement of bollards protecting fire hydrant with new, taller bollards for increased protection and visibility

The Mills Electrical Team installed lighting on Temescal and Corona power plant towers located on the Lower Feeder in Corona, between Lake Mathews and the Diemer plant. These towers are often accessed at night to complete operational activities. This lighting improvement will provide necessary illumination improving staff safety and accessibility.



Temescal tower lighting improvements with the sun setting in the west

Optimize Asset and Maintenance Management

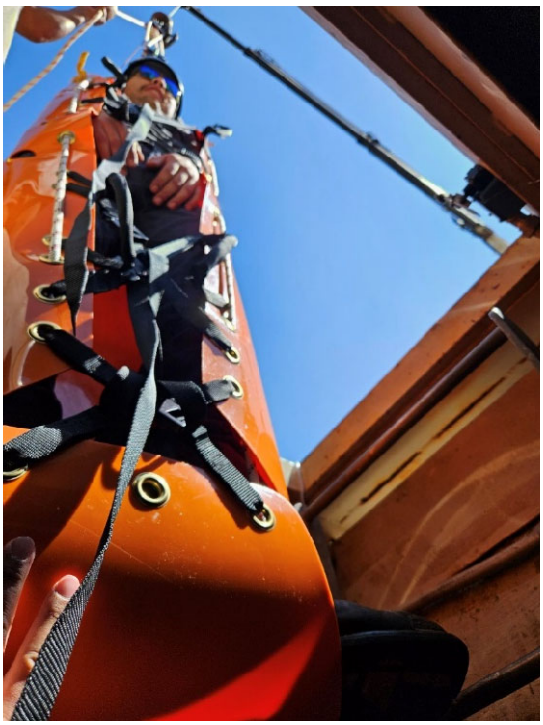
Staff installed a new Human Machine Interface (HMI) on the local control panel of the Ozone Contactor maintenance air compressor system. A Human Machine Interface (HMI) serves as a user interface that allows humans (staff) to interact with machines and/or systems by providing a visual way to monitor and control processes. The HMI essentially acts as a bridge between the operator and the machine, simplifying complex operations and improving efficiency, safety, and productivity through intuitive displays and controls. This installation enhances the local monitoring and troubleshooting capabilities for the critical air compressor system, which is essential for purging residual ozone gas when the system is taken out of service, ensuring a safe environment for workers.

Staff installing Human Machine Interface (HMI) for interactive control and data related to the ozone contactor air compressor system

Enhance Emergency Preparedness and Response

During the week of August 26, the Water Quality Incident Command Post collaborated with Metropolitan's Emergency Operations Center and participated in the USEPA Water Laboratory Alliance Full-Scale Exercise that provided staff with essential hands-on training in standardized emergency communication pathways and continued experience in emergency response actions.

A vendor provided extraction device training at Garvey Reservoir to train staff in the event an employee must be safely lifted from a pipeline or sub-structure. The certified instructor held a field session on using extraction devices, followed by hands-on exercises to safely lift an employee wrapped in a specialized stretcher using a crane or tripod. This class satisfies Cal/OSHA's requirement for annual confined space rescue.



Extraction training from a substructure

Advance Education and Outreach Initiatives

On August 26, staff at the Diemer plant conducted a tour for MWDOC and the Orange County Grand Jury, a body impaneled annual to investigate and report on county criminal and civil matters. The tour provided participants valuable insight into the plant's operations, highlighting key water treatment processes and the staff's commitment to maintaining public safety and water quality.

Staff conducted a tour for MWDOC and the Orange County Grand Jury

Engage with Member Agencies and Other Stakeholders on Technical Matters

Metropolitan hosted a group of young professionals from Japan Water Works Association, whose trip was coordinated through the American Water Works Association (AWWA). Various staff members provided presentations on risk assessment, source water protection, treatment process, and operation and maintenance of the conveyance and distribution system.