



# City of Arvada

## City Council Agenda

AUGUST 14, 2023  
CITY COUNCIL CHAMBERS  
Regular Business

### Councilmembers:

Marc Williams, Mayor  
David Jones, Mayor Pro-Tem  
Lisa Feret, At large  
Bob Fifer, At large  
John Marriott, District 3  
Randy Moorman, District 1  
Lauren Simpson, District 2

### Staff Members Usually Present:

Lorie Gillis, City Manager  
Linda Haley, Deputy City Manager  
Don Wick, Deputy City Manager  
Rachel Morris, City Attorney  
Jacqueline Rhoades, Director of Public Works  
Sharon Israel, Director of Utilities  
Rob Smetana, Acting Dir. of Community & Econ. Dev.  
Bryan Archer, Director of Finance  
Gabriella Bommer, Director of Human Resources  
Rachael Kuroiwa, Director of Communications & Engagement  
Kristen Rush, City Clerk

Info: 720-898-7550

### THIRD FLOOR CONFERENCE ROOM EXECUTIVE SESSION

5:00 P.M.

Legal Advice, Pursuant to CRS 24-6-402(4)(b) Relating to Tri Point Homes Development in Candelas  
Legal Advice, Pursuant to CRS 24-6-402(4)(b) and Instructions to Negotiators, Pursuant to CRS 24-6-402(4)(e) Relating to Boomfield's withdrawal from JPPHA

### CITY COUNCIL MEETING – CITY COUNCIL CHAMBERS 6:00 PM

1. Call to Order - 6:00 PM
2. Moment of Reflection and Pledge of Allegiance - Councilmember Moorman
3. Roll Call of Councilmembers
4. Approval of Minutes - None
5. Recognitions and Communications - None
6. Presentations - None
7. Public Comment on Issues not Scheduled on Agenda - Three Minute Limit
8. New Business
  - A. Consent Agenda
    1. R23-074, A Resolution Authorizing an Agreement between the City of Arvada and Jacobs Engineering Group Inc. for Engineering Services related to the Water Treatment Plant Replacement, Piloting and Process Selection in an Amount not to Exceed \$552,687.00 for

Phase I

2. R23-075, A Resolution Authorizing a participating addendum by and between the City of Arvada and Motorola Solutions, Inc. For the purchase of Public Safety Radios and Services in an amount not to exceed \$2,400,000.00

B. Resolutions

1. R23-076, A Resolution Authorizing an Intergovernmental Agreement Titled "Program-Funded State and Local Task Force Agreement" between the City of Arvada and the United States Department of Justice, Drug Enforcement Administration (Presenter: Aaron Jacks, Sr. Asst City Attorney)

C. Ordinances (First Reading) - NONE

9. Other

10. Public Hearings - 6:15 PM

- A. Candelas Filing No. 1, Amendment No.4 Planned Unit Development (PUD), generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO. (Presenter: Rob Smetana, Acting Director of Community and Economic Development) (Continued from July 10, 2023)
- B. Candelas Filing No. 1, Amendment No.4 Major Subdivision Preliminary Plat, generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO. (Presenter: Rob Smetana, Acting Director of Community and Economic Development) (Continued from July 10, 2023)

11. Workshops

- A. Update on Water and Wastewater System Development Charges

12. Public Comment - Five Minute Limit

13. Reports from City Council

- A. Council Committee Reports

14. Reports from City Manager

- A. Review of Future Workshops and Presentations

15. Reports from City Attorney

16. Adjournment





## REPORT TO CITY COUNCIL

AGENDA ITEM  
8.A.

TO: THE HONORABLE CITY COUNCIL

DATE: August 14, 2023

SUBJECT: Consent Agenda

### **Report in Brief**

1. R23-074, A Resolution Authorizing an Agreement between the City of Arvada and Jacobs Engineering Group Inc. for Engineering Services related to the Water Treatment Plant Replacement, Piloting and Process Selection in an Amount not to Exceed \$552,687.00 for Phase I

2. R23-075, A Resolution Authorizing a participating addendum by and between the City of Arvada and Motorola Solutions, Inc. For the purchase of Public Safety Radios and Services in an amount not to exceed \$2,400,000.00

Suggested Motion: Moved by: \_\_\_\_\_ I move that the Consent Item(s),  
Number(s) \_\_\_\_\_

be  
(Removed from the Consent Agenda and Heard Upon Item \_\_\_\_\_) (Referred to a Workshop) (Postponed Indefinitely).

YES \_\_\_\_\_ NO \_\_\_\_\_ ABSENT \_\_\_\_\_

That All/Remaining Consent Items be (Approved) (Rejected).

YES \_\_\_\_\_ NO \_\_\_\_\_ ABSENT \_\_\_\_\_

Prepared by:  
Chris Koch, CCO Admin

Reviewed by:

Approved by:

Enclosure, exhibits & attachments required to support the report



## REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM  
8.A.1.

TO: THE HONORABLE CITY COUNCIL

DATE: August 14, 2023

SUBJECT: R23-074, A Resolution Authorizing an Agreement between the City of Arvada and Jacobs Engineering Group Inc. for Engineering Services related to the Water Treatment Plant Replacement, Piloting and Process Selection in an Amount not to Exceed \$552,687.00 for Phase I

### **Report in Brief**

The City of Arvada has a long history of providing high quality drinking water. To continue to provide high quality drinking water, the City must maintain, improve, and replace water treatment infrastructure as existing infrastructure ages. The Water Treatment Master Plan, completed in 2020, identified replacement of the Arvada Water Treatment Plant (AWTP) as the preferred long-term cost effective solution. The Utilities Team requested proposals from qualified consultants to perform a process selection project for the Replacement Water Treatment Plant. This project includes engineering services for a water treatment desktop, bench scale, and pilot scale evaluation to determine final process selection, as well as providing approval from CDPHE for the chosen process, a Class 4/5 cost estimate, and life cycle assessment for the selected treatment process.

The Arvada team recommends that the City Council approve R23-074, A Resolution Authorizing an Agreement between the City of Arvada and Jacobs Engineering Group Inc. for Engineering Services related to the Water Treatment Plant Replacement, Piloting and Process Selection in an Amount not to Exceed \$552,687.00 for Phase I.

### **Financial Impact**

This project is budgeted and will be funded from CIP Account Number 97606. There is \$1,000,000 allocated at this time for the pilot and process selection of the Replacement Water Treatment Plant work. The engineering support for the piloting and process selection, Phase I, is anticipated to be \$552,687. The remaining funds in this account will cover the costs of the piloting equipment and supplies.

### **Background**

The City of Arvada owns and operates two water treatment plants, the Ralston Water Treatment Plant (RWTP), and the AWTP. The AWTP, with a capacity of 16 MGD, is at the end of life and requires replacement, as recommended in the Water Treatment Master Plan. In addition to being at end of useful life, the AWTP is not designed for year-round operation which reduces resilience of water treatment. As part of planning for the AWTP replacement, the Utilities team has evaluated current and build-out demands to determine a right-size for initial construction that is cost-effective while also improving resilience. The Water Demand Forecast through 2050 (completed 2022) indicates build-out maximum day demand of up to 54 million gallons per day (mgd). The Utilities team, in moving to better resilience for water treatment, recommends planning for up to 63 mgd total treatment capacity, to be built over the next 30 years.

As part of implementing the Water Treatment Master Plan, the City team has been working on long-term planning of location and quantity of treatment. This work has resulted in the recommendation that the initial phase of the AWTP replacement should be 18 mgd, resulting in a total treatment capacity of 54 mgd, an increase of 2 mgd from the existing total treatment capacity. Note that the City's historic maximum day demand was approximately 44 mgd and the City's current average day demand is about 17 mgd. The Utilities team also recommends that the AWTP replacement facility be designed for future expansion to be ready for potential future increases in demand without overbuilding capacity in the current project.

The next step in evaluating the AWTP replacement facility is to evaluate treatment processes that will treat current water

quality (including identified historic challenges), as well as anticipated changes in source water quality and anticipated changes in regulatory requirements. The Utilities team has documented level of service goals for water treatment at the individual contaminant level for varying source water quality. This contract will use those level of service goals as the starting point for evaluation of different processes.

### **Discussion**

In order to prepare to replace the Arvada Water Treatment Plant, Arvada's Utilities Engineering Team requested proposals from qualified engineering consulting firms for the piloting, process selection, and support with CDPHE approval for the Replacement Water Treatment Plant. This project will include a Class 4/5 cost model, and a life cycle assessment to meet Level of Service Goals for treatment.

The Utilities Team has established Level of Service Goals for normal, challenging, and catastrophic conditions. Therefore, the Utilities team and the selected consultant will perform desktop, bench scale, and piloting tests to verify that the Replacement Water Treatment Plant chosen processes can deliver water as established in the Level of Service Goals. Based on these tests, the selected consultant will support the City in making a final treatment process selection for the Replacement Water Treatment Plant. The final treatment process selection will include design criteria for Phase II of the project. Phase II of the project includes the engineering design of the Replacement Water Treatment Plant and Engineering Services During Construction. Phase II will be negotiated following performance on Phase I, piloting and process selection, of the project. Phase II is not guaranteed to the Phase I selected consultant.

The Utilities Engineering team released 23-UTS-045 April 24, 2023, to provide the services described above. The City team reviewed six proposals, conducted six interviews, and selected Jacobs Engineering Inc. Proposals were reviewed using the evaluation criteria: firm and team qualifications, project approach, reference projects, project schedule, project cost, quality of the proposal, and performance measures. Jacobs Engineering will support the City in selecting the most cost effective approach to providing high quality water to the residents, visitors, and rate payers of Arvada for the Replacement Water Treatment Plant.

### **Public Contact**

Posting of the City Council agenda.

### **Commission Recommendation**

NA

### **Strategic Alignment**

This project provides the community with a safe, reliable, high-quality water supply for current and future residents, rate payers, and visitors, as well as for full city build-out, as defined by the Comprehensive Plan.

### **Alternative Courses of Action**

NA

### **Recommendation for Action**

The Arvada team recommends that the City Council approve R23-074, A Resolution Authorizing an Agreement between the City of Arvada and Jacobs Engineering Group Inc. for Engineering Services related to the Water Treatment Plant Replacement, Piloting and Process Selection in an Amount not to Exceed \$552,687.00 for Phase I.

### **Suggested Motion:**

**SUBJECT:** R23-074, A Resolution Authorizing an Agreement between the City of Arvada and Jacobs Engineering Group Inc. for Engineering Services related to the Water Treatment Plant Replacement, Piloting and Process Selection in an Amount not to Exceed \$552,687.00 for Phase I

**PAGE:** 3  
**ITEM:** 8.A.1.

I move that R23-074, A Resolution Authorizing an Agreement between the City of Arvada and Jacobs Engineering Group Inc. for Engineering Services related to the Water Treatment Plant Replacement, Piloting and Process Selection in an Amount not to Exceed \$552,687.00 for Phase I, be (approved) (rejected).

Prepared by:

Bethany Yaffe, Civil Engineer

Reviewed by:

Approved by:

|                                           |           |
|-------------------------------------------|-----------|
| Mary Stahl, Senior Civil Engineer         | 7/25/2023 |
| Jenny Wolfschlag, City Engineer           | 7/25/2023 |
| Jacqueline Rhoades, Public Works Director | 7/27/2023 |
| Sharon Israel, Director of Utilities      | 7/27/2023 |
| Bryan Archer, Director of Finance         | 7/28/2023 |
| Tammy Hedlund, Legal Specialist           | 7/28/2023 |
| Jessica Morales, Assistant City Attorney  | 7/31/2023 |
| Rachel Morris, City Attorney              | 8/1/2023  |
| Don Wick, Deputy City Manager             | 8/1/2023  |
| Lorie Gillis, City Manager                | 8/2/2023  |

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R23-074

A RESOLUTION AUTHORIZING AN AGREEMENT BETWEEN THE CITY OF ARVADA AND JACOBS ENGINEERING GROUP INC. FOR ENGINEERING SERVICES RELATED TO THE WATER TREATMENT PLANT REPLACEMENT, PILOTING AND PROCESS SELECTION IN AN AMOUNT NOT TO EXCEED \$552,687.00 FOR PHASE I

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ARVADA, COLORADO:

Section 1. The Mayor or Mayor Pro Tem is authorized to sign and the City Clerk to attest, in form approved by the City Attorney, an Agreement, which is in substantially the same form as that attached hereto, by and between the City of Arvada and Jacobs Engineering Group Inc. for Engineering Services Related to the Water Treatment Plant Replacement, Piloting and Process Selection in an Amount Not to Exceed \$552,687.00 for Phase I.

Section 2. This resolution shall be effective upon its approval by the City Council.

APPROVED AND ADOPTED this 14th day of August, 2023.

\_\_\_\_\_  
Marc Williams, Mayor

ATTEST:

\_\_\_\_\_  
City Clerk

APPROVED AS TO FORM:  
Rachel A. Morris, City Attorney

By: \_\_\_\_\_

**AN AGREEMENT BETWEEN THE CITY OF ARVADA AND  
JACOBS ENGINEERING GROUP INC. FOR ENGINEERING  
SERVICES RELATED TO THE WATER TREATMENT PLANT  
REPLACEMENT, PILOTING AND PROCESS SELECTION IN AN  
AMOUNT NOT TO EXCEED \$552,687.00 FOR PHASE I**

**1. PARTIES.** The parties to this Agreement are the City of Arvada, a Colorado home rule municipal corporation, whose mailing address is 8101 Ralston Road, Arvada, CO 80002 (“Arvada”) and Jacobs Engineering Group Inc., a Delaware Foreign Corporation, with a business office located at 6312 S. Fiddlers Green Circle, Suite 300N, Greenwood Village, CO 80111 (“Consultant” or “Contractor”).

**2. RECITALS AND PURPOSE.**

- 2.1. Arvada requires a qualified firm to provide professional engineering services as described in Arvada’s Request for Proposal # 23-UTS-045, Water Treatment Plant Replacement, Piloting and Process Selection (“Arvada’s RFP”).
- 2.2. On or about April 24, 2023, Arvada issued Arvada’s RFP seeking proposals from qualified firms to provide professional engineering services as described in Sec. 2.1 (“the Work”).
- 2.3. Consultant has extensive experience in providing professional engineering services. On or about May 26, 2023, Consultant submitted its response to Arvada’s RFP (“Consultant’s Response”).
- 2.4. On or about July 19, 2023, Consultant submitted its updated scope and pricing to include additional task items (“Consultant’s Updated Scope and Pricing”).
- 2.5. Arvada has determined that Consultant has the requisite background, skill, expertise, and insurance to provide the requested professional services and other related services, under the terms and conditions more fully set forth below.
- 2.6. Arvada and Consultant acknowledge and agree that Arvada contemplates using Consultant as a consultant for the Work as described in the Contract Documents. However, Arvada and Consultant acknowledge and agree that this Agreement in no way limits Arvada from hiring other consultants or constitutes a contract for exclusive services from Consultant.
- 2.7. Arvada and Consultant further acknowledge that this Agreement is only for Phase I Services, as described in Arvada’s RFP. Phase II Services, as described in Arvada’s RFP, may be awarded to Consultant after successful negotiation between Arvada and Consultant in compliance with Arvada’s Purchasing Ordinance. Phase II Services are not guaranteed to Consultant. If Consultant is awarded Phase II Services, the Parties will execute an Amendment to this Agreement.

**3. CONTRACT DOCUMENTS AND EXHIBITS.** The Contract Documents shall consist of this Agreement together with the following:

**Exhibit A:** Arvada's RFP, including General Terms and Conditions, Special Terms and Conditions, and Insurance Requirements;

**Exhibit B:** Consultant's Response; and

**Exhibit C:** Consultant's Updated Scope and Pricing.

All exhibits referred to in this Agreement are attached hereto and are, by reference, incorporated herein for all purposes.

- 3.1. Interpretation of Contract Documents. In the event any matter, term, provision, or condition that is the subject of this Agreement requires clarification or is in dispute, or is the subject of a difference of opinion, then the terms of this Agreement shall control, and then the terms of **Exhibit A**, and then **Exhibit C**, and then **Exhibit B** in that order.

#### 4. TERM AND TERMINATION.

- 4.1. Effective date. This Agreement will become effective and binding on both Parties upon its execution by Arvada.
- 4.2. Term. The term of the Agreement shall remain in effect for one year from Arvada's execution of the Agreement as described in Sec. 4.1., unless otherwise agreed to in writing by the Parties, and subject to availability of funds.
- 4.2.1. Termination. Notwithstanding the above, Arvada may terminate this Agreement with or without cause upon 30 days written notice and in accordance with the provisions of this Agreement and **Exhibit A**.
- 4.3. Renewal. This Agreement may be renewed by Arvada for no more than six consecutive one-year renewal terms. Renewals will be automatic unless the Agreement is terminated.
- 4.4. Phase I Timeline. Notwithstanding the above Term and Renewal sections, Consultant is expected to **complete Phase I Services by December 31, 2024**.

#### 5. COMPENSATION.

- 5.1. Payment. Arvada shall pay Consultant for the Work requested by Arvada and rendered by Consultant under this Agreement in an amount not to exceed **\$552,687.00 for Phase I Services**.
- 5.1.1. Itemized invoices. Consultant shall submit itemized monthly invoices to Arvada for actual services that have been accepted by Arvada and performed by Consultant. Payment by Arvada will be due NET 30 days.
- 5.2. Other services. While Arvada has listed the primary requirements for its solicitation in Arvada's RFP, Arvada may, during the term of this Agreement, wish to purchase other related services identified and offered by Consultant, based upon the pricing and fee

amounts contained in the Contract Documents.

6. **SCOPE OF SERVICES.** Consultant shall perform the Work as described in the Contract Documents or as amended by the mutual consent of the Parties in writing. Should the Parties agree in writing to a change in the scope of services or a change in a deadline provided in the Contract Documents, then the Parties will timely execute an amendment, which will address the amended scope of services, revisions to necessary start and end dates, any applicable deliverables and associated due dates, reporting requirements, documentation requirements, and any other matters that the Parties deem necessary.
7. **TERMS AND CONDITIONS IN SOLICITATION.** Consultant affirms that it has read and is familiar with the Contract Documents, including but not limited to the General Terms and Conditions, Special Terms and Conditions, Insurance Requirements, Arvada's City Code, and other RFP requirements, and agrees to be bound by those terms and conditions, as amended below. **If a variance requested by Consultant in Consultant's Response (see, Exhibit B), is not specifically noted in the subsections to this Section 7, then the requested variance is not accepted by Arvada and the Parties agree such variance request is not a term of this Agreement.**
  - 7.1. Section 4, Indemnification of Arvada, of the General Terms and Conditions in **Exhibit A**, is amended as follows:

“4. INDEMNIFICATION OF ARVADA. Contractor shall indemnify, defend, and hold harmless Arvada, its officers, and employees, against any and all costs, expenses, claims, damages, liabilities, court awards, and other amounts (including attorneys' fees and related costs) arising out of, made, or asserted for any damage to persons or property resulting from negligence, errors, omissions, or fault of Contractor, or its employees, agents, Subcontractors, or assigns in connection with the performance by Contractor of obligations under this solicitation and any subsequent Agreement with Arvada. Nothing herein is intended to constitute a covenant, promise or agreement to indemnify and hold harmless Arvada from any liability or damages directly caused by or attributable to Arvada's own negligence.”
  - 7.2. Section 15, *Standard and Manner of Performance*, of the General Terms and Conditions in **Exhibit A**, is amended as follows:

“15. STANDARD AND MANNER OF PERFORMANCE. Contractor shall perform its obligations under this Agreement in accordance with the generally accepted standards of care, skill, and diligence in Contractor's industry, trade, or profession.”
8. **PERFORMANCE MEASURES.** The Performance Measures for this Agreement shall be those proposed by Consultant in Consultant's Response and accepted by Arvada.
9. **PROJECT MANAGER.** Arvada designates Bethany Yaffe as Arvada's Project Manager. Bethany Yaffe (byaffe@arvada.org) will be Arvada's responsible staff member to provide direction to Consultant during the course of the Work. Arvada reserves the right to change the Project Manager(s) at its discretion and will promptly notify Consultant of any such change in writing. Consultant designates Kerry J. Meyer as Consultant's Project Manager. Kerry J.



Meyer (Kerry.Meyer3@jacobs.com) will be Consultant's primary contact person during the course of this Agreement. Consultant may change the Project Manager(s) at its discretion, but must notify Arvada of such change in writing, within three days of the change.

- 10. INSURANCE.** Consultant will be required to, at its own expense, keep in full force and effect during the term of the Agreement, and during the term of any extension or amendment of the Agreement, insurance reasonably sufficient to insure against the liability assumed by Consultant under the terms of the Contract Documents. Consultant's failure to secure and maintain sufficient insurance at any time during the pendency of this Agreement do not relieve Consultant of its obligations under this provision; Contractor's failure to fulfill the obligations of this section will make the Consultant the per se insurer.
- 11. INTEGRATION, AMENDMENT, AND SEVERABILITY.** This Agreement represents the entire agreement between the Parties; there are no oral or collateral agreements or understandings. The Parties, by mutual agreement, may amend this Agreement at any time. Any amendments must be in writing and will be incorporated into and made a part of this Agreement. If any provision in this Agreement is held to be invalid or unenforceable, the remainder of this Agreement will be deemed severable, and as such, the remaining provisions will continue in full force and effect.
- 12. NOTICES.** Any notice or notification required or permitted by the Agreement shall be in writing, and may be sent to the other Party by certified or registered mail, or by electronic mail, addressed to the that Party's project owner at such street address or email address as are set forth herein or subsequently designated by the Parties. Such notice or notification shall be deemed to have been given when deposited in the United States mail or, in the case of electronic mail, upon the sent date stamp contained in the electronic mail.
- 13. ADDITIONAL DOCUMENTS OR ACTION.** The Parties agree to execute any additional documents and to take any additional action that is necessary to carry out this Agreement.
- 14. FORCE MAJEURE.** Any delays in or failure of performance by any party of his/her or its obligations under this Agreement shall be excused if such delays or failures are a result of acts of God, pandemic, fires, floods, accidents, regulations or orders of civil or military authorities, shortages of labor or materials, or other causes, similar or dissimilar, which are beyond the control of such party.
- 15. BINDING AUTHORITY.** Consultant represents and affirms that the signature page hereof accurately states the full legal name of Consultant (whether as a corporation, partnership, limited liability company, sole proprietorship, or other), contains all requisite signature(s) on behalf of Consultant, [insert if appropriate: has been properly acknowledged by attestation, notary acknowledgment, or both,] and in all other respects is effective to bind Consultant, in accordance with all applicable statutes, regulations, resolutions, rules, bylaws, agreements, or similar sources of authority or limitation. This Agreement may be executed in counterpart(s), each of which shall be deemed to be an original, and all of which, taken together, shall constitute one instrument.

DATED this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

**CITY OF ARVADA**, a Colorado Home  
Rule Municipal Corporation

\_\_\_\_\_  
Marc Williams  
Mayor  
8101 Ralston Road  
Arvada, CO 80002

ATTEST:

\_\_\_\_\_  
City Clerk

APPROVED AS TO FORM:

Rachel A. Morris, City Attorney

By: \_\_\_\_\_

**JACOBS ENGINEERING GROUP INC.**, a  
Delaware Foreign Corporation

\_\_\_\_\_  
Albert Paquet  
Vice President  
6312 S. Fiddlers Green Circle  
Suite 300N  
Greenwood Village, CO 80111  
Email: al.paquet@jacobs.com

# **Exhibit A**

**An Agreement Between The City Of Arvada And Jacobs  
Engineering Group Inc. For Engineering Services Related  
To The Water Treatment Plant Replacement, Piloting And  
Process Selection In An Amount Not To Exceed  
\$552,687.00 For Phase I**



## REQUEST FOR PROPOSAL

**Proposal #:** 23-UTS-045

**Title:** Water Treatment Plant Replacement, Piloting and Process Selection

**RFP Issued:** 04/24/2023

**Pre-proposal Meeting:** 05/08/2023 12:30 – 2:30 p.m. MT **MANDATORY**  
Arvada City Hall, 8101 Ralston Rd., Arvada, CO 80002  
Anne Campbell Conference Room, First Floor  
Virtual Option: Google Meet, Video link: <https://meet.google.com/tjw-qssg-ghc> Phone in: (US) +1 346-800-4143 PIN: 962 039 199#  
More phone numbers: <https://tel.meet/tjw-qssg-ghc?pin=8317984450776>

**Question Deadline:** 05/15/2023 2:00 p.m. MT  
Questions and responses will be posted on BidnetDirect.com.

**Proposals Due By:** **05/26/2023 2:00 p.m. MT**  
Electronic Submissions must be submitted as (1) PDF online at BidNetDirect.com. This is the ONLY VALID source for postings regarding this solicitation.  
  
Late responses will not be considered for award.

**Projected Start Date:** 08/07/2023

Submit administrative questions NOT related to the project to: Dawn Krank, [dkrank@arvada.org](mailto:dkrank@arvada.org)  
**Direct contact with the requesting department may result in vendor disqualification.**

### **Arvada Vision: We dream big and deliver.**

**Mission:** We are dedicated to delivering superior services to enhance the lives of everyone in our community.

#### **Values:**

**Innovation** – We excel in creativity, flexibility and the use of best practices while valuing diverse backgrounds, ideas and perspectives.

**Passion** – We are a high performing, inclusive team inspiring each other to pursue excellence.

**Opportunity** – We value our diversity, embrace possibilities, face challenges, persevere and take action to deliver quality results.

### **Documents included in this Request:**

|                                                                                                        |            |           |
|--------------------------------------------------------------------------------------------------------|------------|-----------|
| General Terms and Conditions                                                                           | page 2-4   |           |
| Special Terms and Conditions                                                                           | page 4-6   |           |
| Insurance Requirements                                                                                 | page 6     |           |
| Administrative instructions and Evaluation Criteria                                                    | page 7-9   |           |
| Statement of Work / Scope of Services                                                                  | page 10-14 |           |
| Submittal Forms, submittal checklist                                                                   | page 15-16 |           |
| Performance Measures Form                                                                              | page 17    |           |
| Attachments: Intuitech City of Arvada Granular Media Filtration Pilot Module Proposal 3 (June 4, 2021) |            | Exhibit A |

## **GENERAL TERMS AND CONDITIONS**

1. **NO MULTI-YEAR FISCAL OBLIGATION.** Financial obligations of Arvada payable after the current fiscal year are contingent on funds for that purpose being appropriated, budgeted, and otherwise made available by the City Council for Arvada. Arvada's obligations under the Agreement shall be from year to year only and shall not constitute a multiple-fiscal year direct or indirect debt or other financial obligation of Arvada within the meaning of Article X, Section 20 of the Colorado Constitution (TABOR).
2. **TAXES.** Arvada shall not be liable for the payment of any excise, sales, or use taxes. Arvada is exempt from federal excise taxes under I.R.C. Chapter 32 (26 U.S.C., Subtitle D, Ch. 32) and from State and local government sales and use taxes under §§39-26-704(1), *et seq.*, C.R.S. (Colorado Sales Tax Exemption Identification Number 98-01789). Contractor shall not invoice Arvada for any state, federal or local taxes. Upon written notification by Arvada, Contractor shall reimburse Arvada in a timely manner for any taxes erroneously paid by Arvada.
3. **NO INDEMNIFICATION BY ARVADA.** Arvada is prohibited under Article XI, Section 1 of the Colorado Constitution from indemnifying anyone. Despite any provision in any contract document to the contrary, Arvada does not indemnify Contractor or anyone else under the Agreement.
4. **INDEMNIFICATION OF ARVADA.** Contractor shall indemnify, defend, and hold harmless Arvada, its employees, agents and assignees (the "Indemnified Parties"), against any and all costs, expenses, claims, damages, liabilities, court awards, and other amounts (including attorneys' fees and related costs) arising from or related to any act or omission by Contractor, or its employees, agents, Subcontractors, or assignees in connection with the Agreement.
  - 4.1. **Confidential Information Indemnification.** Disclosure or use of Arvada Confidential Information by Contractor may be cause for legal action by third parties against Contractor, Arvada, or their respective agents. Contractor shall indemnify, defend, and hold harmless the Indemnified Parties, against any and all claims, damages, liabilities, losses, costs, expenses (including attorneys' fees and costs) incurred by Arvada in relation to any act or omission by Contractor, or its employees, agents, assigns, or subcontractors.
  - 4.2. **Intellectual Property Indemnification.** Contractor shall indemnify, save, and hold harmless the Indemnified Parties, against any and all costs, expenses, claims, damages, liabilities, and other amounts (including attorneys' fees and costs) incurred by the Indemnified Parties in relation to any claim that any Deliverable, Good or Service, software, or Work provided by Contractor under the Agreement (collectively, "IP Deliverables"), or the use thereof, infringes a patent, copyright, trademark, trade secret, or any other intellectual property right. Contractor's obligations shall not extend to the combination of any IP Deliverables provided by Contractor with any other product, system, or method, unless the other product, system, or method is (a) provided by Contractor or Contractor's subsidiaries or affiliates; (b) specified by Contractor to work with the IP Deliverables; (c) reasonably required in order to use the IP Deliverables in its intended manner and the infringement could not have been avoided by substituting another reasonably available product, system, or method capable of performing the same function; or (d) is reasonably expected to be used in combination with the IP Deliverables.
5. **GOVERNMENTAL IMMUNITY.** Liability for claims for injuries to persons or property arising from the negligence of Arvada, its departments, boards, commissions, committees, bureaus, offices, employees and officials shall be governed by the provisions of the Colorado Governmental Immunity Act, §§24-10-101, *et seq.*, C.R.S. (CGIA). No term or condition of the Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions contained in the CGIA.
6. **OPEN RECORD REQUESTS.** Arvada is obligated to comply with the Colorado Open Records Act (C.R.S. §§24-72-200.1 *et seq.*)(CORA), which may require Arvada to disclose all or a portion of communications relating to the Agreement, any transaction under the Agreement, and other related matters. Contractor has been advised to familiarize itself with CORA. Any confidentiality provisions in any contract documents are subject to the provisions of CORA.
7. **PROTECTION OF PERSONAL IDENTIFYING INFORMATION.** In the event the Agreement includes or requires Arvada to disclose to Contractor any Personal Identifying Information as defined in C.R.S. § 24-73-101, Contractor shall comply with the applicable requirements of C.R.S. §§ 24-73-101, *et seq.*, relating to third-party service providers.
8. **NO THIRD PARTY BENEFICIARIES.** The Agreement does not and is not intended to confer any rights or remedies upon any person or entity other than Arvada and Contractor. Enforcement of the Agreement and all related rights and obligations are reserved solely to Arvada and Contractor. Any services or benefits which third parties receive as a result of the Agreement are incidental and do not create any rights for such third parties.
9. **ASSIGNMENT.** Contractor's rights and obligations under the Agreement are personal and may not be transferred or assigned without the prior, written consent of Arvada. Any attempt at assignment or transfer without such consent shall be void. Any assignment or transfer of Contractor's rights and obligations approved by Arvada shall be subject to the provisions of the Agreement. Any provision of an assignment that enlarges any duty, responsibility, or obligation of Arvada, or that limits, curtails, or diminishes any right or privilege of Arvada, without Arvada's express written consent, shall be void.

10. **BINDING EFFECT.** This Agreement shall inure to the benefit of, and be binding upon, the parties, their respective legal representatives, successors, heirs, and assigns.
11. **SURVIVAL.** Any provision of the Agreement that imposes an obligation on a party after the Agreement's termination or expiration shall survive the termination or expiration and shall be enforceable by the other party.
12. **SUBCONTRACTS.** Contractor shall not subcontract any of its responsibilities without Arvada's prior written approval, which will not be unreasonably withheld. Contractor shall submit to Arvada a copy of each such subcontract upon Arvada's request. All subcontracts Contractor enters into in connection with the Agreement shall comply with all applicable federal, state, and local laws and regulations, shall provide that they are governed by the laws of the State of Colorado, and shall be subject to all provisions of the Agreement. Contractor agrees it is fully responsible for subcontractors performing services under the Agreement. Contractor shall be Arvada's sole point of contact regarding the services, including with respect to payment.
13. **INDEPENDENT CONTRACTOR.** Contractor shall perform its duties under the Agreement as an independent contractor and not as an employee. Neither Contractor nor any agent or employee of Contractor shall be deemed to be an agent or employee of Arvada. Contractor shall not have authorization, express or implied, to bind Arvada to any agreement, liability, or understanding, except as expressly set forth herein. **Contractor and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through Arvada and Arvada shall not pay for or otherwise provide such coverage for Contractor or any of its agents or employees. Contractor shall pay when due all applicable employment taxes and income taxes and local head taxes incurred pursuant to the Agreement. Contractor shall: (i) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law; (ii) provide proof thereof when requested by Arvada; and (iii) be solely responsible for its acts and those of its employees and agents.**
14. **LICENSES, PERMITS, AND OTHER AUTHORIZATIONS.** Contractor shall secure, prior to the effective date, and maintain at all times during the term of the Agreement, at its sole expense, all licenses, certifications, permits, and other authorizations required to perform its obligations under the Agreement, and shall ensure that all employees, agents and subcontractors secure and maintain at all times during the term of their employment, agency or subcontract, all license, certifications, permits and other authorizations required to perform their obligations in relation to the Agreement.
15. **STANDARD AND MANNER OF PERFORMANCE.** Contractor shall perform its obligations under the Agreement in accordance with the highest standards of care, skill, and diligence in Contractor's industry, trade, or profession.
16. **TIME OF THE ESSENCE.** Contractor acknowledges and agrees that time is of the essence for this Agreement and that it is an essential term of this Agreement that Contractor maintain a rate of progress in the Services that will result in completion of the Services in accordance with this Agreement. To that end, Contractor agrees to proceed with all due diligence to complete the Services in a timely manner in accordance with this Agreement, and further agrees that failure to complete any of the Services during the Term of this Agreement, or as may be more specifically set forth in an attachment, exhibit, or modification, shall be deemed a breach.
17. **WAIVER OF BREACH.** A waiver by any party to the Agreement of a breach of any Agreement term shall not operate or be construed as a waiver of any subsequent breach by either party.
18. **RIGHT TO TERMINATE.** Arvada shall have the right to terminate, without cause, the Agreement. Any such termination shall not be considered a breach of the Agreement or any extension. In the event Arvada terminates for convenience, Arvada will pay Contractor for requested work performed up until the time of termination, not to exceed the total amount of the contract price agreed upon by Arvada and Contractor.
19. **EXTERNAL TERMS AND CONDITIONS.** Notwithstanding anything to the contrary, Arvada shall not be subject to any provision included in any terms, conditions, or agreements appearing on Contractor's or a subcontractor's website or any provision incorporated into any click-through or online agreements related to the Work unless that provision is specifically referenced in the Agreement.
20. **PROHIBITED TERMS.** Any term included in the Agreement that requires Arvada to indemnify or hold Contractor harmless; requires Arvada to agree to binding arbitration; limits Contractor's liability for damages resulting from death, bodily injury, or damage to tangible property; or that conflicts with this provision in any way shall be void ab initio. Any term included in the Agreement that limits Contractor's liability that is not void under this section shall apply only in excess of any insurance to be maintained under the Agreement, and no insurance policy shall be interpreted as being subject to any limitations of liability of the Agreement.

21. **COMPLIANCE WITH ALL LAWS.** Contractor shall comply with all applicable federal, Colorado and Arvada laws, rules, regulations, policies and procedures in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.
22. **BINDING ARBITRATION PROHIBITED.** Arvada does not agree to binding arbitration by any extra-judicial body or person. Any provision to the contrary shall be null and void.
23. **GOVERNING LAW AND VENUE.** Colorado law, rules, and regulations shall be applied in the interpretation, execution, and enforcement of the Agreement. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. All suits or actions related to the Agreement shall be filed and proceedings held in the State of Colorado and exclusive venue shall be in Jefferson County.
24. **OWNERSHIP OF WORK PRODUCT.** The originals of all plans, reports, studies, data, or other materials or information relating to the Work that are produced by Contractor shall be delivered to and become the property of Arvada. Contractor may retain copies of any originals; however, no plans, reports, studies, data, or other materials or information relating to the Work shall be released to any person or entity without the prior written consent of Arvada. Nothing in this clause is intended to affect Contractor's right to use generic know-how learned in the course of providing services under the Agreement for the future benefit of Arvada or others.
25. **SOFTWARE PIRACY PROHIBITION.** Arvada or other public funds payable under the Agreement shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Contractor hereby certifies and warrants that, during the term of the Agreement and any extensions, Contractor has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If Arvada determines that Contractor is in violation of this provision, Arvada may exercise any remedy available at law or in equity or under the Agreement, including, without limitation, immediate termination of the Agreement and any remedy consistent with federal copyright laws or applicable licensing restrictions.
26. **ACCESSIBILITY COMPLIANCE.**
  - 26.1 Arvada is obligated to comply with the Colorado Anti-Discrimination Act (C.R.S. §§24-34-300 et seq.)("CADA"), which requires all digital and online platform and content providers to comply with the minimum Accessibility Standards for Individuals with a Disability, adopted by the Colorado Office of Information Technology ("OIT") under C.R.S §24-85-103(2.5). Contractor has been advised to familiarize itself with CADA.
  - 26.2 To the extent the Work or any of Contractor's services provided under the Agreement involves digital, technological components, including but not limited to software, websites, applications, digital documents (the "Material"), all Material shall comply with the OIT's currently adopted minimum Accessibility Standards for Individuals with a Disability at all times.
  - 26.3 Contractor shall indemnify, save, and hold harmless Arvada, its employees, agents and assignees (the "Indemnified Parties") against any and all costs, expenses, claims, damages, liabilities, court awards and other amounts (including attorneys' fees and related costs) incurred by any of the Indemnified Parties in relationship to Contractor's failure to comply with Section (1.2) above.
  - 26.4 Upon Arvada's request, Contractor shall certify to Arvada that its service(s) and digital documents are compliant with Section (1.2) above. Arvada may require Contractor's compliance to the OIT's currently adopted minimum standards of accessibility to be determined by a third party selected by Arvada to attest to Contractor's compliance.

## **SPECIAL TERMS AND CONDITIONS**

### **1. PRICES FIXED AND FIRM FOR THE TERM OF THE CONTRACT**

Prices proposed by the vendor shall remain fixed and firm during the term of the contract; however, the vendor may offer incentive discounts from the fixed price. This contract shall commence upon the date specified in the Contract or Purchase Order and shall remain in effect until such time as all items/services purchased in conjunction with this solicitation have been delivered and accepted by the City's authorized representative. It shall be understood and agreed that any warranty period which exceeds this term shall remain in full force for the duration of the warranty period.

### **~~2. OPTION TO RENEW FOR SUBSEQUENT YEARS~~**

~~The prices or discounts quoted in this Solicitation shall prevail for one year from the effective date of the contract, at which time the City shall have the option to renew the contract for 4 additional one year periods; provided that the vendor provided satisfactory performance during the contract period. Continuation of the contract beyond the initial period is a City prerogative and not a right of the vendor. Unless otherwise notified in writing, the option period shall become automatic at the end of the original period.~~

~~During the option period, the City will/will not consider an adjustment to the pricing structure. For consideration, the vendor must document that it was subject to a price adjustment by the product manufacturer or a direct wholesale supplier. Any price adjustments shall not exceed the amount being passed on.~~

### **3. CONTENTS OF OFFER**

Vendors are required to submit offers with the following conditions:

- a. Vendors shall make all investigations necessary to inform themselves of the facilities affected by the delivery of products and services required by the Solicitation.
- b. Any official interpretation of the Solicitation may only be issued by an authorized agent of the City. The City shall not be responsible for other interpretations offered by employees not authorized.
- c. The City shall issue Addenda if substantial changes are required which may impact the content and submission of Offers. A copy of such addenda will be publicly posted with the original RFP posting.
- d. The apparent silence or omissions within this Solicitation regarding a detailed description of the materials or services shall be interpreted to mean that only the best commercial practices are to prevail and that only materials and workmanship of first quality are to be provided.

### **4. CLARIFICATION AND MODIFICATIONS**

The contract resulting from this solicitation will be subject to the Solicitation materials, City Ordinance, State and Federal Statutes. When conflicts occur, the highest authority shall prevail. Vendors are required to indicate any variances to the terms, conditions, requirements and specifications of this Solicitation; no matter how slight. If variations are not stated in the vendor's Offer, it shall be agreed that the vendor's Offer fully complies with all conditions identified in this Solicitation.

### **5. ELIGIBILITY OF VENDORS: MUST BE ENGAGED IN SUPPLYING PRODUCTS OR SERVICES RENDERED**

Offers will only be considered from firms which have been engaged in the business of manufacturing or distributing the goods and/or performing services described in this Solicitation. Vendors must be able to produce evidence that they have an established satisfactory record of performance for at least two (2) years and have sufficient finances and structure to ensure that they can satisfactorily execute the Contract requirements, as determined by authorities of the City. The City reserves the right, before awarding the contract, to require a vendor to submit evidence of its qualifications including, but not limited to, financial, technical and other qualifications, as well as past performance with the City, for consideration in making the award in the best interest of the City.

### **6. CONFIDENTIAL DOCUMENTS**

Vendors may designate specific pages or sections within their submission as trade secret or confidential commercial information or as otherwise protected by law ("Confidential Information"). Documents and data that are considered Confidential Information shall be clearly marked as such and separated from the rest of the solicitation submission documents. Comingling is not acceptable. The City does not favor blanket assertions of Confidential Information. Please note that blanket assertions that merely classify and/or broadly claim information is confidential are insufficient as a matter of law. See, *International Brotherhood of Electrical Workers Local 68 v. Denver Metropolitan Major League Baseball Stadium District*, 880 P.2d 160 (Colo.App. 1994). Any information that will be included in any resulting contract cannot be considered Confidential. Under no circumstances may submission pricing information be considered Confidential. In the event a formal contract is entered into with the City and a portion of the Proposal/Response carries a designation indicating the Vendor believes it is Confidential Information, then the City agrees that it will use its best efforts to forward any request for the disclosure of the Confidential Information to the Vendor. By its submission of the Proposal/Response, Vendor agrees to promptly respond to the request for disclosure with any objections and reasons therefor in accordance with the Colorado Open Records Act C.R.S. §§24-72-101 *et seq.* and any other applicable law. Further, Vendor agrees to assume the obligation to defend, hold harmless, and indemnify the City in any legal proceeding that arises from non-disclosure of documents or data pursuant to the Vendor's objection.

### **7. COOPERATIVE PURCHASING**

The City of Arvada encourages and participates in cooperative purchasing endeavors undertaken by or on behalf of other governmental agencies including the Multiple Assembly of Procurement Officials (MAPO) and the Cooperative Educational Purchasing Council (CEPC). We hereby request that any member of MAPO/CEPC be permitted to avail itself of this contract and purchase, as specified by the contract resulting from this RFP, at the contract prices established therein. Each governmental entity would establish its own contract, issue its own orders, be invoiced directly, make its own payments and issue its own exemption certificates as required. It is understood and agreed that the City of Arvada is not a legally binding party to any contractual agreement made between another governmental entity and the successful vendor as a result of this solicitation. The City shall not be liable for any costs or damages incurred by any other entity.

### **8. MODIFICATIONS TO EXISTING CONTRACT**

Terms and conditions may be added, modified, and deleted upon mutual agreement between authorized agents of the City and the vendor provided that such terms and conditions remain within the scope and original intent of the Solicitation. Said terms and conditions may include, but are not limited to, additions or deletions of service levels and/or commodities, and increases or decreases in the time limits for an existing contract. Any and all modifications must be signed by authorized agents of the City and the vendor prior to the enactment of such modifications.

### **9. DELIVERY**

Quoted prices and deliveries are to be FOB Destination freight prepaid and shall require inside delivery unless otherwise specified in the Special Conditions of this Solicitation. Title and risk of loss shall pass to the City upon inspection and acceptance by the City at its designated point of delivery; unless otherwise specified in the Special Conditions.



## 10. CONDITION OF MATERIALS AND PACKAGING

All materials and products supplied by the vendor in conjunction with this solicitation shall be new (unless otherwise specified in the Special Conditions), warranted, free from defects, and consistent with industry standards. The Solicitation price shall include commercial packaging. The materials and products shall be delivered to the City in excellent condition for inspection by City representatives. If the product(s) is damaged or a number of items or components are missing during shipment, the vendor shall either replace the damaged items (if shipped by the vendor) or be responsible for filing, processing and collecting all damage claims (if shipped by a contractor of the shipper). In the event that any of the materials and products supplied to the City by the vendor are found to be defective or do not conform to the specifications, the City reserves the right to return the product to the vendor at no cost to the City; either as an exchange for suitable merchandise or for full credit.

## INSURANCE REQUIREMENTS

The following listed insurance requirements shall be carried by the selected vendor for the entirety of the contract. Applicable requirements for this solicitation are identified by completed check boxes.

1. ☒ **Commercial General Liability**, written on an occurrence form, for limits not less than \$1,000,000 for bodily injury and property damage for each occurrence and not less than \$2,000,000 aggregate. Coverage shall include premises and operations liability, blanket contractual, broad form property damage, products and completed operations and personal injury endorsements.
2. ☒ **Workers' Compensation and Employers Liability** as required by statute. Employers Liability coverage is to be carried for a minimum limit of \$1,000,000 each accident/disease and \$2,000,000 aggregate.
3. ☒ **Automobile Liability** for limits not less than \$1,000,000 combined single limit for bodily injury and property damage for each occurrence. Coverage shall include owned, non-owned and hired automobiles.
4. ☒ **Umbrella Liability** of \$5,000,000 following form to the Commercial General Liability.
5. ☐ **Builders Risk or Course of Construction** Purchased by contractor to cover physical damage to property in construction or rehab. Contractors will ensure that City and subcontractors will be covered as additional insureds, excluding their own machinery, tools and equipment.
6. ☒ **Professional Liability** Professional Liability insurance in an amount of not less than \$1,000,000 per occurrence, covering the professional work contemplated under this proposal. The coverage shall have an extended reporting period of three (3) years following the date of substantial completion of the work for reporting of claims.
7. ☐ **Pollution Legal Liability Insurance** for limits not less than \$1,000,000 per occurrence (or claims made) and not less than \$1,000,000 aggregate for bodily Injury, personal Injury and property Damage.
8. ☐ **Privacy/Network/Cyber Liability Insurance** for limits not less than \$1,000,000 for any firm providing product or services associated with IT, software, communication, or network.

### **Additional Insurance Requirements:**

- Contractor will be required to, at its own expense, keep in full force and effect during the term of the Agreement, and during the term of any extension or amendment of the Agreement, insurance reasonably sufficient to insure against the liability assumed by Contractor pursuant to the provisions of the solicitation sent by the City of Arvada or as determined by the City of Arvada Risk Manager.
- Issuance of a Purchase Order/Contract is contingent upon the receipt of the insurance documents. Work shall not commence before this requirement is met. If the vendor fails to submit the required insurance documents within fifteen (15) calendar days after notice to submit such policies is given to the vendor by a City representative, the vendor may be in default of the Award.
- Except for Workers Compensation, Employer's Liability insurance, Automobile Liability and Professional Liability insurance, the City of Arvada must be endorsed as an additional insured on a Certificate of Insurance.
- All coverage must be written with carriers holding a minimum A.M. Best rating of A-:VII, and authorized to do business in Colorado. Coverage shall be primary, and any insurance held by the City of Arvada is excess and non-contributory.
- The City, through its Risk Manager, reserves the right to require additional insurance coverage and other requirements.

## **ADMINISTRATIVE INFORMATION**

### **1. PURPOSE - TO OBTAIN PROPOSALS**

The purpose of this Solicitation is to provide qualified vendors with sufficient information regarding the City's needs in order to adequately prepare and submit a Proposal. Proposals must be received by the date and time established in this solicitation. Once the deadline has passed, Proposals will not be able to upload to the BidNet site. Proposals are proprietary working documents offered by prospective vendors and, as such, are not subject to public inspections until an official award is made.

### **2. PREPARATION AND SUBMISSION**

Offers will be prepared as follow:

- a. A blank shall be construed as "No Bid/not offered". Where there is a discrepancy between the unit price and the extension of prices, the unit price shall prevail.
- b. Vendors will not knowingly participate in solicitations where there exists a conflict of interest with their firm and a member of City staff or their immediate family.
- c. Solicitations and addenda are available at [WWW.BIDNETDIRECT.COM](http://WWW.BIDNETDIRECT.COM). Registration is available to receive email notification of new solicitations, addenda and communications.
- d. Vendors who qualify their Offers by requiring alternate contractual terms and conditions as a stipulation for contract award, must include such alternate terms and conditions in its Offer. The City reserves the right to declare the vendor's Offer as non-responsive if any of these alternate terms and conditions are in conflict with the City's terms and conditions, or its best interest.
- e. Once Offers have been opened, the City shall not consider any subsequent submissions of alternate terms and conditions.

### **3. MODIFICATION OR WITHDRAWAL OF OFFERS**

**Modifications to Offers**- Changes to the Offer after the submission deadline shall be allowed only when the vendor can show convincing evidence that an unintentional factual mistake was made. Modification requests must be made in writing. Any modification submitted to the City must have the vendor's name, address, Solicitation Number and title included.

**Withdrawal of Offers**- Offers may not be withdrawn after the deadline for the Solicitation for a period of ninety (90) calendar days. If an Offer is withdrawn by the vendor during this ninety (90) day period, the City may, at its option, suspend the vendor and may not accept any Offer from the vendor for a six (6) month period following the withdrawal.

### **4. REJECTION OF OFFERS**

- a. The City may reject an offer, in whole or in part, for reasons including, but not be limited to:
  - i. The vendor misstates or conceals any material fact in its Proposal;
  - ii. The vendor's Offer does not strictly conform to the law or requirements of the Solicitation;
  - iii. The Offer expressly requires or implies a conditional award that conflicts with the method of award stipulated in the Special Conditions;
  - iv. The Offer does not include documents which are required for submission with the Offer; or
  - v. The Offer has not been executed by the vendor through an authorized signature.
- b. The City may, at its sole and absolute discretion:
  - i. Reject all or parts of Offers submitted by prospective vendors;
  - ii. Re-advertise this Solicitation;
  - iii. Postpone or cancel the Solicitation;
  - iv. An Offer may not be accepted from, nor any contract be awarded to, any person or firm which
    - (a) is in arrears to the City for any debt or Contract, or is a defaulter as surety for any obligation to the City.
    - (b) has failed to perform faithfully any previous contract with the City, State or Federal governmental for a minimum period of one (1) year after this previous Contract was terminated for cause.
    - (c) has pending litigation against the City on the date and time that the Solicitation is due.

### **5. BEST VALUE AGENCY**

The City of Arvada is a best value agency. Best value means a technique in a competitive solicitation process which emphasizes value over price and permits the evaluation of criteria such as, but not limited to, qualifications, experience, and performance data to determine the best overall value to the city. It is solely incumbent on the staff of the City of Arvada to conduct due diligence to determine best value prior to award.

### **6. METHOD OF AWARD - BEST EVALUATIVE SCORE BASED ON WRITTEN PROPOSAL**

It is the intent of the City to award a contract to the vendor(s) who receives the highest score from the City's RFP Evaluation Committee. The Committee will score written Proposals by reviewing documentation submitted by the vendors. Evaluation will be based on the following criteria:

| <b>Evaluation Criteria</b>                                               | <b>Maximum Points</b> |
|--------------------------------------------------------------------------|-----------------------|
| Qualifications of the Firm, Project Manager, and Project Team            | 25                    |
| Project Approach                                                         | 20                    |
| Applicability, relevance, and success of Reference Projects              | 20                    |
| Project Schedule                                                         | 15                    |
| Cost and Rate Sheet                                                      | 10                    |
| Overall quality of proposal presented                                    | 7                     |
| Performance Measures included in the proposal if a service over \$15,000 | 3                     |

Exceptions to specifications or terms and conditions may result in submission being deemed non-responsive.

## **7. PRESENTATIONS**

A second phase MAY be incorporated, in which the Committee will invite a limited number of vendors who received high scores during phase one, to provide an oral presentation. The evaluative score from the oral presentations will determine the top rated vendor(s).

If the Committee requests in-person oral presentations, they will occur June 20-22, 2023.

## **8. PROPOSAL FORMAT REQUIREMENTS**

The following items are to be included in your proposal. The entire proposal document may be no longer than twenty-five (25) pages, excluding front and back cover pages and letters, personnel resumes, subcontractor resumes, full schedule, required City forms, and table of contents page. All font shall be 11 point or greater. Pages larger than 8.5 x 11 are allowed and count as two pages. To facilitate timely review by the City, each Proposal shall be divided into the following major sections, in the order shown:

### **1. Cover Letter**

Describe your firm's areas of expertise and other information that helps characterize the firm. Acknowledge any exceptions to this RFP (please note that significant exceptions may make your proposal unresponsive). Provide the name, title, address, e-mail, and telephone number of the primary contact. The cover letter cannot be more than two pages. The Cover Letter is not included in the overall page count.

### **2. Company Information**

Provide the following information:

- Company name, address, phone number, and names of principals.
- Identify the year in which your company was established and began providing consulting services.
- Describe any pending plans to sell or merge your company.
- Provide a comprehensive listing of all the services you provide.

### **3. Related Experience**

Describe your company's qualifications to perform the scope of work by addressing each of the items listed below:

- Firm's Related Experience: State the firm's particular abilities, experience, and qualifications related to this project. Clearly indicate projects completed by proposed team. Projects completed by individual team members may be included if clearly stated.
- Results of Previous Projects: Provide information from at least three (3) projects of similar scope. Include at a minimum the:
  - Owner name,
  - Contact name,
  - Phone number,
  - Email address,
  - Brief description of project,
  - Status of project,
  - Results of the project.
  - Start and end date of project, or if project is ongoing

The City reserves the right to contact the references provided in your proposal as well as other references without prior notification to you.

- Project Manager's Experience: Identify the project manager who would be responsible for this project. List the Project Manager's relevant experience and similar work, including references.
- Qualifications of Assigned Personnel: Provide the names and resumes of the key personnel that will be performing the proposed services. Explain how the key personnel were related to the projects cited as relevant past performance.
- Qualifications of Subcontractors: List the subcontractors you expect to use, the services to be provided by the subcontractors and the amount of time that each is expected to spend on the project. Also, include the names and resumes of the key subcontractor personnel who will be working on the project. The City will contract solely with your company; therefore, subcontractors/partners remain your sole responsibility.

### **4. Understanding and Approach**

#### **a) Project Understanding**

Provide a statement of project understanding which shall cover but not be limited to:

- Understanding of the need of the project.
- Project challenges, pitfalls, and issues.
- Level of commitment the Consultant believes is necessary for this project.
- Description of the firm's ability to develop creative solutions utilizing previous projects that had similar challenges, pitfalls, and issues as examples.

b) **Project Approach**

Present proposed solutions that indicate that the firm has performed adequate planning to accomplish the tasks defined in the Scope of Work. Innovations, efficiencies, and detailed examples are encouraged.

- Discuss the Project Management Approach including budget and cost control methods and the firm's Quality Assurance/Quality Control program, including staff proposed to provide quality reviews.

**5. Proposed Work Schedule**

Summarize the proposed schedule with completion of the final BDR by December 2024.

**6. Completed City Submittal Forms and Performance Measures Form**

**7. Price Area**

Submit a proposed cost estimate for the Phase 1 Scope of Work including labor hours and other direct costs. Also submit a rate sheet for the project team.

**QUALIFICATIONS**

The proposals shall indicate the firm's and assigned personnel's experience in the following categories at minimum:

- Piloting of water demonstrated to be similar to Front Range water quality in similar environmental conditions.
- Process evaluation and selection.
- Design of potable water treatment plants using granular media filtration.
- Experience with design and services during construction for CM/GC / CMAR delivery method.
- Indicate experience with Envision Framework, and who on the staff is an Envision Sustainability Professional.

## **STATEMENT OF WORK / SCOPE OF SERVICES**

### **OBJECTIVE:**

The goal of this project is to study, pilot, and produce a basis of design report for an 18 MGD Water Treatment Plant overviewing the process selection based on the successful piloting effort. The 18 MGD Treatment Plant shall be expandable to 27 MGD. The project will consist of preparing a piloting protocol, assisting in the purchase / lease of piloting equipment, making recommendations to City of Arvada (City) staff for pilot location, setup, and operations of the pilot, and producing deliverables for the City including, but not limited to, weekly results, a pilot report, basis of design report, and CDPHE coordination materials. Following the piloting and process selection effort, the City will negotiate a scope and fee for the design and services during construction for the 18 MGD Water Treatment Plant.

### **BACKGROUND:**

The City of Arvada (City) owns and operates two water treatment plants, the Ralston (RWTP) and Arvada (AWTP) Water Treatment Plants. Following a Master Planning effort completed in 2021, the City determined that the AWTP must be decommissioned and replaced. In order to meet future demand as well as provide for the replacement of the AWTP, the City is soliciting proposals for an 18 MGD Water Treatment Plant, expandable to 27 MGD.

The City is soliciting proposals from qualified Engineering and Environmental Consultants to provide assistance with the next step in the program, piloting, and basis of design. The City's intent is to continue with the selected consultant in the design and construction phases but this is not guaranteed.

The proposed schedule of the treatment plant replacement project is as follows:

|                                                                  |                              |
|------------------------------------------------------------------|------------------------------|
| Water Treatment Plant Replacement Siting Study                   | January 2022 – May 2023      |
| Water Treatment Plant Replacement Initial Community Engagement   | January – March 2023         |
| Water Treatment Plant Replacement Process Selection/Pilot Plant  | August 2023 – October 2024   |
| Pilot Plant Operation for Optimization and Staff Familiarization | October 2024 – May 2025      |
| Water Treatment Plant Replacement Land Acquisition, if needed    | August 2023 – August 2025    |
| Water Treatment Plant Replacement Design                         | October 2024 – October 2026  |
| Water Treatment Plant Replacement Construction                   | October 2026 – December 2029 |
| Water Treatment Plant Replacement Commissioning                  | January 2030 – April 2030    |

The City has partnered with Jacobs Engineering Group Inc. to perform the siting study. The site selection has been narrowed to two sites. The results of the siting study may be found at <https://www.arvadasitingstudy.com/>. Both sites have a minimum size of 18 acres and are outside the 500-year floodplain. The City will provide the “paper doll” site layouts, produced by Jacobs Engineering Group Inc., on the two sites to the successful Consultant.

The City has partnered with HDR Engineering to perform community engagement for the Replacement Water Treatment Plant Siting Study. The City will manage public outreach using internal staff and contracts with other firms during the piloting and process selection phase. Assistance with public outreach during the design and construction phases may be needed, but the City is not requesting qualifications for this task at this time.

The scope of this solicitation will focus on Phase I of the Water Treatment Plant Replacement Project: the piloting, process selection, and CDPHE coordination. This solicitation also includes an optional Phase II, the design and services during construction for the Water Treatment Plant Replacement Project. The City is considering a Construction Manager / General Contractor (CM/GC) approach for schedule and best value reasons.

The Project Phase I will include an evaluation of potential processes to be included in the replacement treatment plant. The processes will be selected to provide flexibility with varying water quality as well as meeting anticipated future regulations. The most favorable process train will be pilot tested. The pilot testing will be designed to provide design parameters for the full-scale plant and to facilitate obtaining the appropriate permit approvals from the Colorado Department of Public Health and Environment (CDPHE).

Study design and process selection will be a collaborative approach with the City's Operations staff, Utility Engineering staff, Water Quality Staff, CDPHE, and the Consultant.

## **PHASE I: Piloting, Process Selection, and CDPHE Coordination**

### **Task 1: Project Management and Quality Control**

#### **Task 1.1: Project Initiation Meeting**

The Consultant shall hold a project initiation meeting to set project vision, expectations, communications, roles/responsibilities, schedule, and scope for the project team.

The Consultant shall provide the City with a Data Request for information they would like to receive in order to begin Task 2 services.

#### **Task 1.2: Project Coordination**

The Consultant shall lead weekly progress meetings, unless the City requests semiweekly meetings, with the City's Project Manager highlighting project progress, including issue identification and resolution. Workshops with the project team will be scheduled at key project milestones to present findings and gather consensus with the team. Workshop and meeting minutes, including a list of action items, shall be emailed to the team within three business days of each workshop. The Consultant's Project Manager will assist the City Project Manager as needed with project meetings and/or provide supporting materials for the meetings. At piloting completion, the findings will be presented at an executive meeting. The executive meeting shall include a presentation of the design parameters as included in the Basis of Design Report, Engineer's Opinion of Probable Cost, and the Lifecycle Analysis of the replacement water treatment plant.

The Consultant shall identify additional meetings as needed with the City Team. The meetings listed in this task are the minimum and are not all encompassing.

#### **Task 1.3: Project Reporting**

The Consultant shall submit monthly invoices and progress reports for approval by the City Project Manager.

#### **Task 1.4: Operations Tours**

The Consultant shall coordinate up to three tours for City Staff of local facilities with processes similar to processes selected for piloting. The tours shall occur after Task 2.2 is complete.

Task 1 deliverables include: (1) meeting agendas and minutes; (2) monthly invoices and progress reports; (3) data request.

### **Task 2: Piloting**

#### **Task 2.1: Desktop Study**

The Consultant shall delineate and quantify water quality parameters for targeted treatment. These parameters will be identified for normal conditions, seasonal challenges, fire/flood challenges, and catastrophic challenges. Normal conditions are those routinely seen in raw water influent to the facilities. Seasonal challenges are those seen on annual basis and include unique seasonal variations in the quality of Ralston and Arvada Reservoirs, such as taste and odor events, elevated levels of soluble manganese, and radionuclides. Fire / Flood challenges anticipate fire and flood in the water sheds serving the City's water treatment plants, and corresponding water quality conditions during and after these events. Catastrophic conditions are those seen on a less than 2 year basis but still realistic, such as severe drought conditions, failures in the system, or invasion of aquatic nuisance species.

The City will provide written Level of Service (LOS) Goals to the selected Consultant. The Consultant shall use the LOS to provide goals for treatment. The City's LOS Goals include treated water goals for each of the four water quality conditions above.

Using this information, the Consultant shall perform a Desktop Study. The Desktop Study shall include analyses of water treatment processes to inform the Bench Scale Study Protocol. The Consultant shall include a high level Life Cycle Analysis to evaluate cost associated with treatment alternatives and operational advantages and disadvantages. The Consultant shall provide the City with a report detailing the results of the desktop study, and present the results to the City during a workshop. Based on the Desktop Study, the City and Consultant shall determine the most suitable processes to test in the Bench Scale Study collaboratively.

## Task 2.2: Bench Scale Study

The Consultant shall use the results of the Desktop Study to inform the design of the Bench Scale Study, and produce a Bench Scale Testing Protocol. The Consultant shall assist the City in procurement of necessary items such as chemicals, reagents, and equipment, as well as execute the testing. The City owns jar testing equipment. The Consultant shall perform the Bench Scale Study with the assistance of City personnel. The Consultant shall provide the City with a report detailing the results of the Bench Scale Study, and present the results during a workshop.

The City and Consultant shall collaboratively decide on the most beneficial and suitable treatment process that gives the City the ability to meet current and anticipated future regulations, as well as anticipated normal, seasonal, fire / flood, and catastrophic challenges as delineated in Task 2.1.

## Task 2.4 Piloting Procurement and Set-up

The Consultant shall use the results of the Desktop and Bench Scale Studies, and the decisions made by the project team, to inform the piloting design. The Consultant shall provide the City with a piloting design, layout in drawing form including delivery of raw water and disposal of waste streams, and specifications of materials that are needed for set-up. The Consultant shall assist the City in the procurement of the pilot systems as delineated in the piloting design, as well as materials needed to set up the piloting skids. The City shall hold the contract with the pilot equipment vendor, but the Consultant shall assist in the review and design of the pilot equipment. Please note that the City owns an Intuitech filtration pilot skid. The City has included information of the filtration piloting skid as an appendix to this RFP.

The Consultant shall collaborate with City staff on the location and setup of the pilot, including the raw water delivery to the pilot. City staff or a contractor hired by the City shall perform the installation; the Consultant shall provide oversight that the setup matches the design, resolve field issues, and troubleshoot.

The City anticipates that the pilot unit will be located at the RWTP from January 2024 – April 2024, and at the AWTP from May 2024 – October 2024 to capture the hardest-to-treat water from each source. The City is open to keeping the pilot at one location if the Consultant and City collaborate on a plan to deliver water to one plant so the pilot does not need to be moved.

## Task 2.3: Piloting

The Consultant shall prepare a piloting protocol based on the findings of the Desktop and Bench Scale Studies, and the decisions made by the project team, to pilot the processes for the Water Treatment Plant Replacement. The piloting shall be designed such that it gives the City the ability to understand and quantify solids generation, but the City does not anticipate piloting solids handling equipment. The piloting protocol shall include testing protocols for the duration of the piloting (both for CDPHE approval and additional pilot runs for optimization), water quality testing protocols (parameters that need to be tested and frequency of testing), and a delineation of roles and responsibilities. The City shall pay for any outside testing. If specialized chemicals or reagents are needed (i.e. chemicals or reagents not kept at the City's current treatment plants), the Consultant shall assist in procuring the chemicals. The Consultant shall assist the City in procuring media for the pilot.

The Consultant's roles during piloting are anticipated to be:

- On-site assistance with startup of the pilot (assume 40 hours).
- Collect and analyze data produced by piloting on a weekly basis.
- Take specialized samples as needed and required by testing protocol.
- Work with the Water Quality Staff to have samples tested.
- Support City staff during operations of pilot, including problem solving issues and assistance with operation while on site.

The Consultant shall provide City staff with a weekly memo that includes the results collected and analyzed from the previous week, as well as recommendations for set points and testing protocols for the upcoming week if the protocols have shifted from the original piloting plan. The Consultant shall develop the weekly memo template prior to starting piloting, including the formatting of results reporting and graphing of results.

The pilot shall be operated by City staff, but the Consultant should plan to be on-site for one to two hours a week to support City staff with pilot operations.

Following the completion of the piloting to determine design parameters, the Consultant shall provide a final pilot report compiling the results from the entirety of the piloting effort and design recommendations for the full-scale plant. The report shall be edited following CDPHE review and approval to include comments from CDPHE.

A report following the optimization phase of piloting shall also be provided by the Consultant.

Please note that the roles and responsibilities discussed above are not meant to be an exhaustive list. The City expects that the piloting effort will be collaborative, and the direction of the piloting plan may shift the expectations discussed above.

Task 2 deliverables include: (1) desktop study report; (2) bench scale testing protocol; (3) piloting layout and materials list; (4) pilot protocol, (5) weekly memo; (6) final pilot report; (7) pilot optimization testing report.

### **Task 3: Process Selection**

#### **Task 3.1: Basis of Design Report**

Utilizing the data collected from the City and from Task 2, the Consultant shall produce a Basis of Design Report (BDR) entailing the process selected in its entirety via Task 2 at minimum as follows:

- Design parameters that meet all CDPHE standards, or where approved, that meet CDPHE issued variances.
- Preliminary process flow diagram.
- Sufficient information for detailed design.
- Understanding the solids production based on piloting.
- Discussion of adaptability of the design (i.e. “future-proof” aspects of design).

#### **Task 3.2 Engineering Opinion of Probable Cost and Life Cycle Analysis**

The Consultant shall produce an Engineer Opinion of Probable Cost (EOPC) for the total cost, including the procurement of land, engineering, and construction of an 18 MGD Water Treatment Plant, utilizing design parameters as included in the BDR.

The Consultant shall also provide a Life Cycle Analysis. The Life Cycle Analysis shall include information regarding cost, chemical availability, energy usage, solids production, waste stream production (if applicable), and all other operations and maintenance concerns.

The City asks the Consultant to follow the ISI Envision Framework, but documentation and document management at the pilot stage shall be managed by City Staff.

Task 3 deliverables: (1) basis of design report; (2) engineer opinion of probable cost; (3) life cycle analysis.

### **Task 4: CDPHE Coordination**

#### **Task 4.1: CDPHE Coordination**

The Consultant shall coordinate with CDPHE for the Water Treatment Plant Replacement piloting and process selection. The Consultant shall send the Pilot Report and BDR to CDPHE for review. The Consultant shall coordinate with CDPHE prior to piloting to present findings from the Desktop and Bench Scale Studies, and to discuss goals of piloting including variances. The Consultant shall plan for at minimum two additional meetings to discuss interim and final findings of the piloting.

The Consultant shall send the Final Pilot Report and BDR to CDPHE for review and agreement on the design criteria.

Task 4 deliverables: (1) meeting agendas and presentations; (2) meeting minutes.

### **Task 5: Funding Support**

#### **Task 5.1: Funding Support**

The City will be evaluating funding options for the utility as a whole under a separate contract. The Consultant shall provide up to 20 hours to support the funding options project.



## **PHASE II: Design, Permitting, and Services During Construction (Optional)**

The City's intent is to negotiate for design, permitting, and services during construction following Phase I with the selected Consultant. However, this is not guaranteed. In this task, the Consultant shall utilize the results from Phase I to support the City with the design, permitting, and services during construction for the Water Treatment Plant Replacement project. The City shall negotiate a separate scope, fee, and notice to proceed for the design, permitting, and services during construction at the appropriate time. The City anticipates proceeding with a CM/GC approach for the construction of the Water Treatment Plant Replacement. This task may also include an Operator survey to understand design and product preferences, funding support, assistance with CM/GC selection, deliverables consistent with design and construction services, training, Envision Verification of the project, and coordination for functionality of the new plant. Coordination may include any work needed at the RWTP or within the Raw Water and Distribution Systems to make the raw, treatment, and distribution system function as a whole.

## **REQUIRED VENDOR SUBMITTAL FORM**

### **SUBMITTED BY:**

Company Name: \_\_\_\_\_

Contact Names: Sales/Customer Service \_\_\_\_\_

Address: \_\_\_\_\_

Phone: (\_\_\_\_\_) \_\_\_\_\_ Email(s): \_\_\_\_\_

The undersigned hereby affirms that:

- He/she is a duly authorized agent of the vendor;
- He/she has read all Terms and Conditions and technical specifications made available in conjunction with this solicitation and fully accepts and acknowledges this offer is consistent with the specifications and terms and conditions, unless specific variations have been clearly and expressly listed in the offer.
- The Offer is in all respects fair, without outside collusion or otherwise illegal action.

By: \_\_\_\_\_  
Signature of Authorized Agent      Date      FEIN

\_\_\_\_\_  
Typed/Printed Name of Agent      Title of Agent      Agent email

\_\_\_\_\_  
Typed/Printed Name of Witness      Title of Witness      Witness email

**PAYMENT TERMS:** If the vendor does not accept a percentage discount, the City standard is net thirty (30) days after the date that the City receives an accurate invoice and has accepted the product or service. Payment is the date of the check mailing or date of the credit card transaction.

Discount: \_\_\_\_% \_\_\_\_ Days,    Net: 30 Days,    Accept Visa without additional fee? \_\_\_\_\_

**VARIATIONS:** The vendor shall identify all variations and exceptions to any RFP documents. Submittal of a Vendor Contract is considered excessive in Variations and may be cause for determining that the Bid/Offer is non-responsive and ineligible for award. For each variation listed, reference the applicable section of the solicitation document as per the example below. If no variations are listed here, it is understood that the vendor's Offer fully complies with all terms and conditions. Attach additional Variation sheets in the same format as below after starting the first three on this page.

Page #: \_\_\_\_\_ Item # or Section: \_\_\_\_\_

Variance \_\_\_\_\_  
\_\_\_\_\_

Page #: \_\_\_\_\_ Item # or Section: \_\_\_\_\_

Variance \_\_\_\_\_  
\_\_\_\_\_

Page #: \_\_\_\_\_ Item # or Section: \_\_\_\_\_

Variance \_\_\_\_\_  
\_\_\_\_\_

**SUBMITTAL INSTRUCTIONS:**

Proposals shall be submitted in the order listed below with each section clearly identified. Refer to 8. PROPOSAL FORMAT REQUIREMENTS in the Administrative Information Section for more detail. **Missing information or required documents may result in submission being deemed non-responsive.**

- ☐ Submit ON-LINE at BidnetDirect.com. Your company name must be the first word naming the pdf file.
- ☐ Cover letter
- ☐ Company Information
- ☐ Related Experience
- ☐ Understanding and Approach
- ☐ Proposed Work Schedule
- ☐ Completed City Submittal Forms including this form and the Performance Measures Form, when an applicable service
- ☐ Pricing – All fee and costs associated with the proposal and applicable rate sheet
- ☐ Insurance – Checking this box accepts that the insurance requirements listed by the City are acceptable unless listed in the variations on the previous page.
- ☐ CONFIDENTIAL information, if any, MUST be stamped as such on each page and submitted separately.
- ☐ Please initial to acknowledge Addenda, if any, have been considered in your proposal:  
#1 \_\_\_\_\_ #2 \_\_\_\_\_ #3 \_\_\_\_\_

**REFERENCES:**

- ☐ Check here if Firm's standard reference sheet is attached, otherwise, use the space below.

Name: \_\_\_\_\_ Contact Person: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone No: \_\_\_\_\_ Email: \_\_\_\_\_

Describe type of work/service performed or items supplied: \_\_\_\_\_

\_\_\_\_\_

Name: \_\_\_\_\_ Contact Person: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone No: \_\_\_\_\_ Email: \_\_\_\_\_

Describe type of work/service performed or items supplied: \_\_\_\_\_

\_\_\_\_\_

Name: \_\_\_\_\_ Contact Person: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone No: \_\_\_\_\_ Email: \_\_\_\_\_

Describe type of work/service performed or items supplied: \_\_\_\_\_

\_\_\_\_\_

## **PERFORMANCE MEASURES FORM INSTRUCTIONS:**

The City has incorporated Performance Management into its organizational culture. When vendors submit offers to the City in response to solicitations for **Services** (not associated with the primary purchase of goods, supplies, or software), they shall identify the methods and goals by which they will monitor and report their performance providing those services to the City. Vendor's performance shall be documented as to (a) Price/Cost, (b) Punctuality/Responsiveness (c) Quality/Reliability, and (d) Sustainability/or Innovation.

1. Vendor will define 1-2 measures for (a) Price/Cost, (b) Punctuality/Responsiveness (c) Quality/Reliability, and (d) Sustainability/or Innovation, that follow S.M.A.R.T goals: Specific, Measurable, Achievable, Relevant, and Timely, per category.

2. The awarded vendor will self-score their defined metrics within a score card emailed from purchasing 2 months prior to contract renewal. The department will review the vendor's self-scored measures.

**SERVICES means:** the furnishing of labor, time, effort, maintenance, etc., by a vendor/contractor/consultant, with an initial contract amount of more than \$15,000.

### **(a) Price/Cost**

*Example Measure: Consultant will submit detailed invoices substantiating amounts requested.*

1. \_\_\_\_\_
2. \_\_\_\_\_

### **(b) Punctuality/Responsiveness**

*Example Measure: Reporting of project status will occur monthly with the City and consultant's Project Manager.*

1. \_\_\_\_\_
2. \_\_\_\_\_

### **(c) Quality/Reliability**

*Example Measure: Revisions are drafted within two weeks, and no more than 3 revisions prior to final draft.*

1. \_\_\_\_\_
2. \_\_\_\_\_

### **(d) Sustainability and/or Innovation**

*Example Measure: Digital reports delivered to the City 95% of the time will to reduce the use of paper.*

1. \_\_\_\_\_
2. \_\_\_\_\_

*Performance measures will be queried for every year of the contract. Performance measures reporting will partially inform re-contracting with or renewing a contract with a vendor.*

June 4, 2021

Bethany Yaffe, PE, ENV SP  
Civil Engineer  
8101 Ralston Road  
Arvada, CO 80002



Subject: **City of Arvada Granular Media Filtration Pilot Module Proposal 3**

Bethany,

We are pleased to provide a proposal to supply a granular media filtration module for the City of Arvada Pilot Program.

## Scope of Work

### Intuitech

1. Provide one granular media filtration module in accordance with Attachment A and with the following major components
  - A. Four 0.40...4.1 GPM variable speed progressive cavity feed pumps and associated flow meters
  - B. Four 6 inch diameter by 116 inch high PVC filter columns, suitable for filtration with a max media depth of 72 inches
  - C. One parallel piping system with two raw water feed connections
  - D. One backwash system
  - E. One air scour system
  - F. Four Lovibond PTV 1000 Turbidimeter
  - G. Four chemical feed system
    1. 0.07...16.5 mL/min chemical feed pumps
    2. 20 mL chemical calibration columns
    3. 3.7 gallon chemical feed tanks
    4. 2...20 inch ultrasonic chemical level transmitters
  - H. Series and Parallel Operation
  - I. One compressed air system
  - J. One PLC/HMI control system
  - K. One multi-function alarm beacon
  - L. One wireless remote access system

2. Provide additional influent water quality instrumentation
  - A. One Lovibond PTV 1000 Turbidimeter
  - B. One Endress+Hauser pH probe (CPF81D-7LH1C) and transmitter (CM442R-AAM2CEF06)
3. Program PLC(s) and HMI(s) for proper operation
4. Provide QA/QC testing of system at Intuitech shop prior to shipment
5. Provide two copies of drawings
6. Provide two hard copies of drawings and O&M manuals
7. Provide two soft copies of drawings, O&M manuals, and component manuals in PDF format on USB drive
8. Arrange and pay for shipping to  
 Ralston Water Treatment Plant  
 18975 W 66th Ave  
 Arvada, CO 80007
9. Provide one day (8 hours) of onsite labor for commissioning and training

#### City of Arvada

1. Unload and install equipment
2. Provide filter media
3. Provide water treatment chemicals
4. Arrange for operator training during regular work day

#### **Schedule**

Shop drawings will be provided one (1) week after receipt of written order.  
 Equipment will be ready to ship four (4) weeks after receipt of written order.

Changes to the proposed design will result in delayed delivery and cost additions.

If you have any questions or concerns please let me know. We appreciate your consideration of our proposal.

Best Regards,



Brock A. Emerson, PE

Voice: 801-487-9255 X17  
 Fax: 801-487-9256  
 Mobile: 801-232-4960  
 Email: [bemerson@intuitech.com](mailto:bemerson@intuitech.com)  
 Web: [www.intuitech.com](http://www.intuitech.com)

| AUTHORIZATION                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <div style="border-bottom: 1px solid black; width: 80%; margin: 0 auto;"></div> <div style="text-align: center; margin-top: 5px;">NAME</div>      |
| <div style="border-bottom: 1px solid black; width: 80%; margin: 0 auto;"></div> <div style="text-align: center; margin-top: 5px;">SIGNATURE</div> |
| <div style="border-bottom: 1px solid black; width: 80%; margin: 0 auto;"></div> <div style="text-align: center; margin-top: 5px;">DATE</div>      |

## Terms and Conditions

Intuitech, Inc. (hereinafter referred to as "Intuitech") intends the present Proposal to be an offer to enter into a binding contract with City of Arvada, (hereinafter referred to as "Buyer"). The Buyer's Purchase Order or another document requesting Intuitech to proceed with the work discussed in the present Proposal shall be considered as the Buyer's acceptance of Intuitech's offer to enter into a binding contract and the following terms and conditions. This Proposal and Purchase Order or other responsive document shall constitute the contract between the parties, which is hereinafter referred to as the "Agreement."

**Attorney's Fees:** In the event that a suit or action arises from the terms of the Agreement, the losing party agrees to pay the prevailing party's reasonable attorney fees. The trial court shall determine the amount of reasonable attorney fees incurred by the prevailing party through the completion of trial court litigation and the appellate court shall determine the amount of reasonable attorney fees during any appeal.

**Copyright Ownership:** All software programming, drawings, documentation or any other form of original authorship of Intuitech is copyrighted material owned by Intuitech and may not be reproduced, modified or distributed, in whole or in part, without the prior written permission or license from Intuitech.

**Delay in or Failure to Enforce:** No delay or omission in the exercise of any right or remedy of Intuitech on any default by the Buyer shall impair such right or remedy or be construed as a waiver.

**Entire Agreement:** The Agreement contains the entire agreement between the parties and shall not be modified in any manner except by a written instrument executed by the party to be charged therewith.

**Expiration:** This Proposal is valid for 30 days from the date printed hereon.

**Governing Law:** The terms of the Agreement shall be governed by and construed in accordance with the laws of the State of Utah.

**Limitation of Liability:** In no event shall Intuitech be liable for any incidental, consequential, general, direct, or special damages, including damages to third parties, resulting from Intuitech's performance or failure to perform the scope of work outlined in this Proposal.

**Force Majeure:** Neither Party shall be liable for any failure or delay in the performance of its obligations due to fire, flood, earthquake, elements of nature, acts of God, acts of war, terrorism, riots, civil disorder, rebellions, or other similar cause beyond the reasonable control of the Party affected, provided that such default or delay could not have been prevented by reasonable precautions and cannot reasonably be circumvented, and, provided further, that the Party hindered or delayed immediately notifies the other Party describing the circumstances causing the delay. This provision shall not act to delay or defer the payment of any sums which may be due and owing.

**Paragraph Headings:** The paragraph headings are inserted only as a matter of convenience and in no way, define, limit or prescribe the scope or intent of the Agreement or in any way bear upon the interpretation thereof.

**Payments:** Forty-five percent of the cost will be invoiced after delivery of shop drawings. Forty-five percent will be invoiced after completion of fabrication. The remaining ten percent will be invoiced after factory testing by Intuitech, or on-site commissioning by Intuitech, or sixty days after completion of fabrication, whichever is first. Payment terms are net 30 days from the invoice date. On any amounts not paid within terms, Buyer agrees to pay interest at a rate of 1 ½% per month (18% per year). Buyer also agrees that Intuitech will provide an operation enabling code only after all payments, including interest, have been received in full, and understands that the equipment will become inoperable sixty days after shipment unless the enabling code is applied.

**Relationship of the Parties:** Nothing contained in the Agreement shall be deemed or construed to create the relationship of principal and agent, or of partnership, or of joint venture, or of any other association between the parties.

**Successors and Assigns:** The terms of the Agreement shall be binding upon the parties, their personal representatives, successors and assigns.

**Taxes:** For goods and taxable services shipped or provided within the United States the Buyer shall pay all applicable taxes. If the Buyer is tax exempt in the origin or destination jurisdiction then the Buyer shall provide appropriate exemption documentation to Intuitech. For goods and taxable services shipped outside of the United States, the buyer or their assigned agent/broker is, by definition, the importer of record responsible for payment of all duties, taxes, and fees as a result of the importation.

**Termination:** The Buyer shall pay Intuitech in full for all of Intuitech's expenses as of the date of termination, including costs incurred in the performance of services to the date of termination.

**Waiver in Writing:** Any waiver by Intuitech of any default must be in writing. One or more waivers by Intuitech of a breach by the Buyer of any term or condition of the Agreement shall not be construed as a waiver by Intuitech of a subsequent breach by the Buyer of the same term or condition.

**Warranties:** Equipment manufactured by Intuitech is warranted to be free from defects in materials and workmanship for a period of (15) months from the date of manufacture, unless otherwise agreed upon in writing. In the event of any defect in materials or workmanship, Intuitech will repair or replace, at its option, part(s), which are proven to have been defective, provided the Buyer provides written notice of the defect during the warranty period. The Buyer shall notify Intuitech of the preferred method of repair stated below.

### *Part Replacement by Buyer at Buyer's Site*

If the defective part(s) are to be replaced by the Buyer at the Buyer's site, the Buyer shall be liable for all costs associated with removal and re-installation of the part(s), and Intuitech shall be liable for the shipping of the part(s). The Buyer must return defective part(s) within 7 days after receipt of the replacement part(s) or be liable for the cost of the replacement part(s).

### *Equipment Repair by Intuitech at Buyer's Site*

If the defective equipment is to be repaired by Intuitech at the Buyer's site, the Buyer shall be liable for travel costs, including, but not limited to, airfare, auto rental, hotel, meal per diem, and transit time to and from the site charged at a rate of \$150 per hour. The Buyer must provide a purchase order to Intuitech for the amount of the estimated charges before travel arrangements will be made.

### *Equipment Repair by Intuitech at Intuitech's Manufacturing Facility*

If the defective equipment is to be repaired at Intuitech's manufacturing facility, the Buyer shall be liable for all costs associated with removal, shipping, and re-installation of the equipment. The Buyer must obtain authorization from Intuitech prior to return of the equipment.

If the defect has resulted from improper storage, installation, operation or maintenance of the equipment, Intuitech reserves the right to reject the warranty claim. Intuitech makes no warranty, express or implied, other than the foregoing express warranties, which apply only for the warranty period.

**ATTACHMENT A**

**Pilot Module Data Sheet**



- ✓ Independent filters with automatic flow control
- ✓ Chemical feed systems configurable for flow-pacing, closed-loop PID, or trim control
- ✓ Chemical feed pump configurable as a composite sampler
- ✓ Shared backwash and air scour system
- ✓ Piping for two separate influent water sources
- ✓ Influent piping weirs eliminate need for feed tanks
- ✓ Parallel or series operation
- ✓ Backwash initiated by operator in manual mode, or by run-time, run-volume, headloss, or effluent turbidity in auto mode
- ✓ Configurable backwash procedure for each filter including drain down, air scour, concurrent wash, and multiple backwash steps
- ✓ Seven ports in each filter for sampling water or media
- ✓ All equipment integrated onto one skid for plug-and-play operation
- ✓ Designed for automatic un-manned operation
- ✓ Monitored and controlled remotely via wireless cellular connection
- ✓ Data logging to formatted text file for importing into spreadsheet and charting applications
- ✓ Historical and real-time trending visualization tool
- ✓ Alarm notification via email or text messaging
- ✓ IoT network provides exceptional diagnostic information



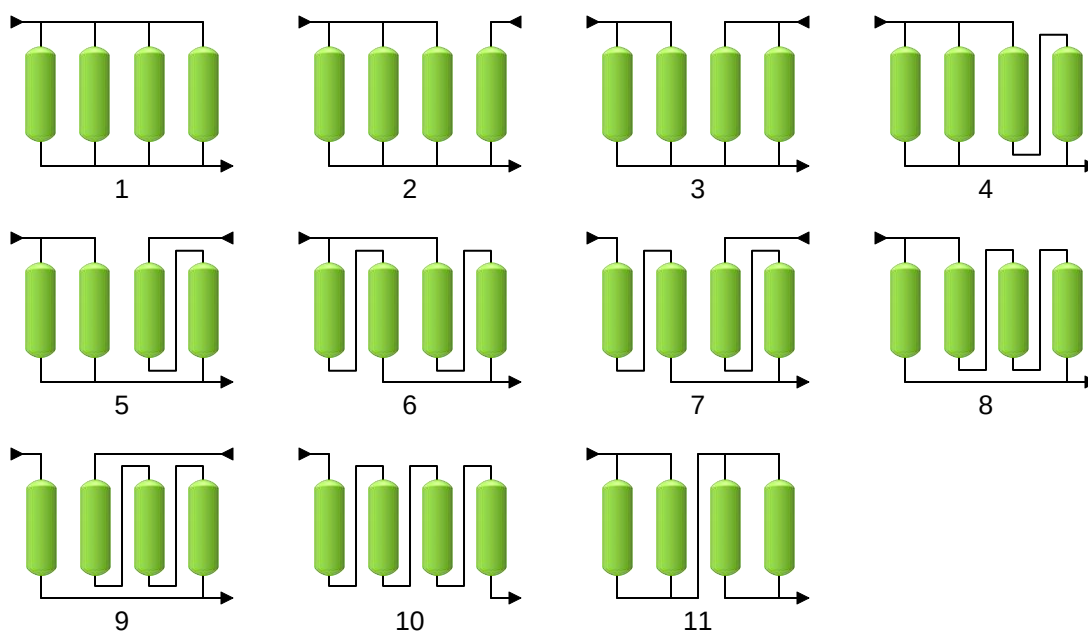
All information presented in this data sheet is for configuration code F40610-SAP-13PC-1TU-4CF.  
See ordering section for other configurations.

## Specifications

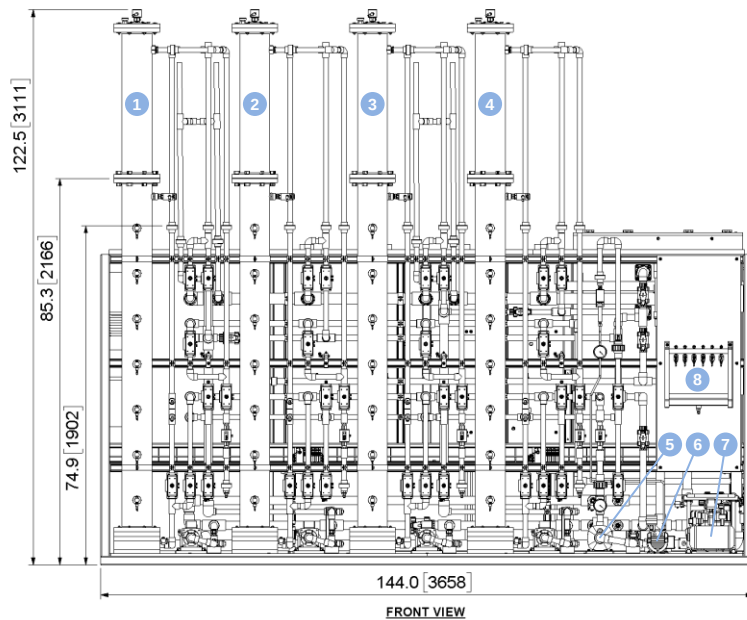
|                         |                                |                       |
|-------------------------|--------------------------------|-----------------------|
| Filters                 | 4                              | 4                     |
| Filter Diameter         | 6 inch                         | 152 mm                |
| Filter Height           | 112 inch                       | 2845 mm               |
| Maximum Media Depth     | 72 inch                        | 1829 mm               |
| Media Retention Size    | > 0.0059 inch                  | > 149 $\mu$ m         |
| Filtration Rate         | 1.3...6.6 gpm/ft <sup>2</sup>  | 3.2...16.1 m/h        |
| Backwash Rate           | 5.1...51.0 gpm/ft <sup>2</sup> | 12.4...124.6 m/h      |
| Air Scour Rate          | 2.6...9.2 scfm/ft <sup>2</sup> | 47.6...168.3 m/h      |
| Maximum Headloss        | 25 feet                        | 7.6 m                 |
| Maximum Total Flow Rate | 5.2 gpm                        | 19.7 L/min            |
| Backwash Tank Volume    | 150 gallon                     | 568 L                 |
| Chemical Feed Systems   | 4                              | 4                     |
| Chemical Feed Rate      | 0.02...16.5 mL/min             | 0.02...16.5 mL/min    |
| Chemical Tank Volume    | 4 gallon                       | 15.1 L                |
| Operating Dimensions    | 144 X 48 X 122.5 inch          | 3658 X 1219 X 3111 mm |
| Operating Weight        | 4200 lbs                       | 1905 kg               |
| Electrical Supply       | Single Phase                   | Single Phase          |
| Voltage                 | 120 / 240 V                    | 230 V                 |
| Frequency               | 60 Hz                          | 50 Hz                 |
| Maximum Current         | 18.8 / 9.4 A                   | 11.8 A                |

## Operation

The standard Granular Media Filtration Pilot module has a very flexible design. All configurations come with two feed water sources. Each source can be directed to a single filter or to a group of filters. If the PAR configuration is selected the filters are operated in parallel only. If the SAP configuration is selected the filters can be operated in series or parallel. Eleven possible configurations are shown below.

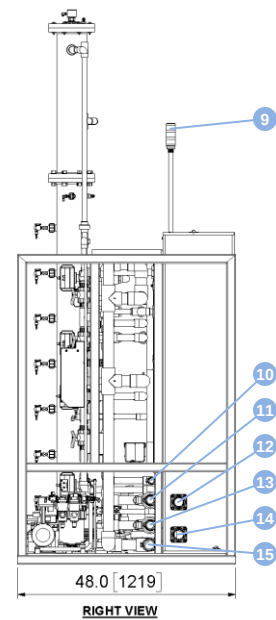


## General Arrangement Drawings

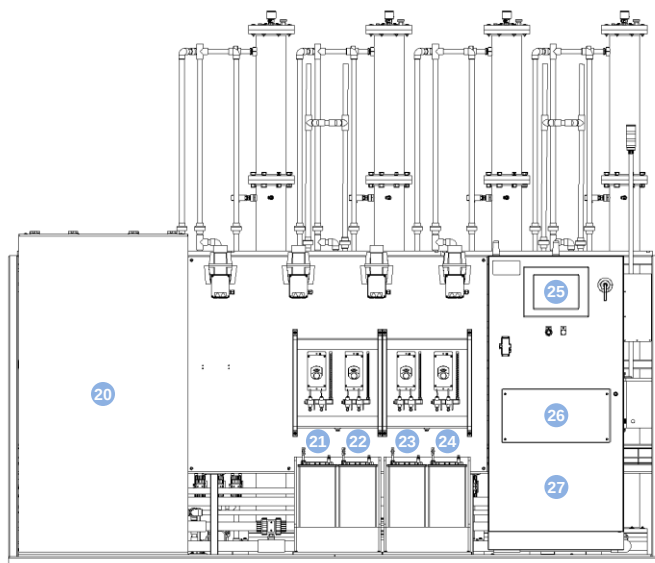


|   |               |
|---|---------------|
| 1 | Filter 1      |
| 2 | Filter 2      |
| 3 | Filter 3      |
| 4 | Filter 4      |
| 5 | Backwash Pump |

|    |                        |
|----|------------------------|
| 6  | Air Scour Blower       |
| 7  | Compressed Air System  |
| 8  | Sample Sink            |
| 9  | Status Beacon          |
| 10 | Pressure Waste, 1" MPT |

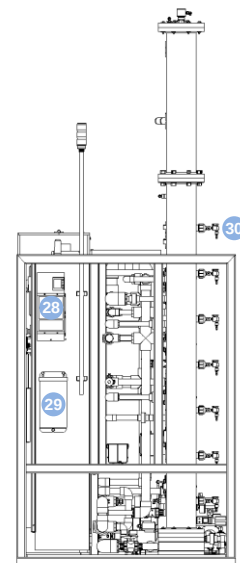


|    |                           |
|----|---------------------------|
| 11 | Inlet 1, 1½" MPT          |
| 12 | Filtrate Overflow, 2" FPT |
| 13 | Inlet 2, 1½" MPT          |
| 14 | Filtrate, 2" MPT          |
| 15 | Gravity Waste, 2" MPT     |



|    |                        |
|----|------------------------|
| 20 | Backwash Tank          |
| 21 | Chemical Feed System 1 |
| 22 | Chemical Feed System 2 |
| 23 | Chemical Feed System 3 |
| 24 | Chemical Feed System 4 |

|    |                    |
|----|--------------------|
| 25 | Operator Interface |
| 26 | Folding Shelf      |
| 27 | Control Panel      |
| 28 | Air Conditioner    |
| 29 | Power Transformer  |



|    |                           |
|----|---------------------------|
| 30 | Water / Media Sample Port |
|    |                           |
|    |                           |
|    |                           |

Dimensions: inch [mm]

## Data Logging

The following parameters are automatically collected and stored for analysis. The collection is performed at a user-specified frequency from once per second to once per twelve hours. The values are time and data stamped and simultaneously written to a formatted text file on a removable flash drive and to a backup file on the internal solid state drive. These files can be transferred by removing the flash drive or using file transfer protocol over a remote connection.

|                             |                             |                       |                            |
|-----------------------------|-----------------------------|-----------------------|----------------------------|
| Filter 1 Flow               | Filter 3 Headloss           | Chemical 1 Tank Level | Chemical 4 Tank Level      |
| Filter 1 Headloss           | Filter 3 Level              | Chemical 2 Dosage     | Backwash Flow              |
| Filter 1 Level              | Filter 3 Effluent Turbidity | Chemical 2 Flow       | Backwash Tank Level        |
| Filter 1 Effluent Turbidity | Filter 4 Flow               | Chemical 2 Tank Level | Air Scour Flow             |
| Filter 2 Flow               | Filter 4 Headloss           | Chemical 3 Dosage     | System Diagnostic Data     |
| Filter 2 Headloss           | Filter 4 Level              | Chemical 3 Flow       | Spare Signal 1 (4...20 mA) |
| Filter 2 Level              | Filter 4 Effluent Turbidity | Chemical 3 Tank Level | Spare Signal 2 (4...20 mA) |
| Filter 2 Effluent Turbidity | Chemical 1 Dosage           | Chemical 4 Dosage     | Spare Signal 3 (4...20 mA) |
| Filter 3 Flow               | Chemical 1 Flow             | Chemical 4 Flow       |                            |

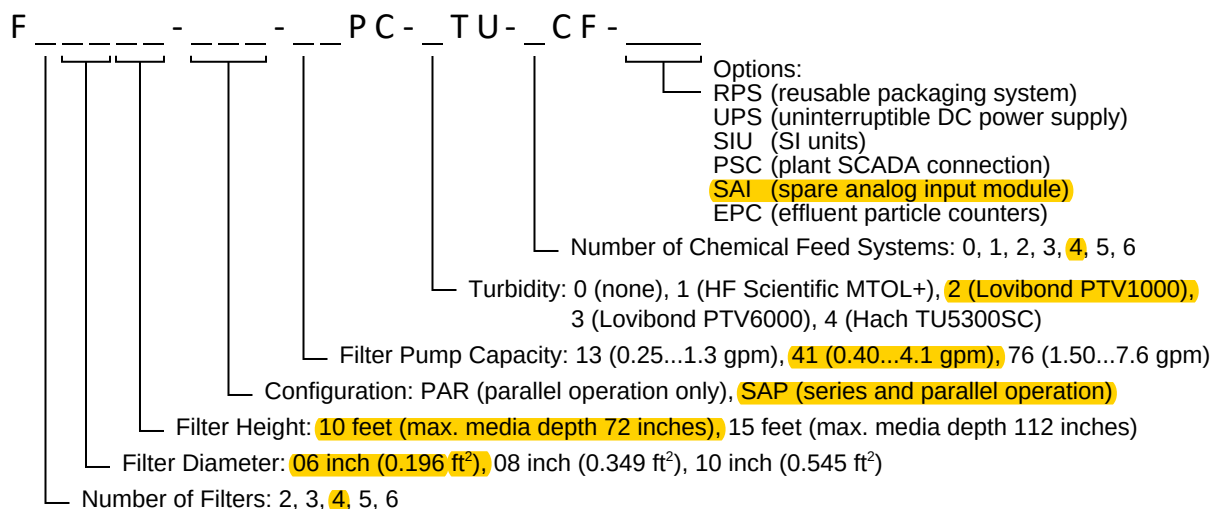
## Remote Operation

The pilot module is designed for fully automatic un-manned operation and can be monitored and controlled remotely. A wireless cellular router is installed in the control panel. This device can provide remote access to the pilot module in locations where adequate cellular data service is available. The router can be configured for the Verizon or AT&T networks depending on which network has the best service at the installed location. Data service is included during the warranty period. Data service beyond the warranty period can be purchased from Intuitech in one year blocks. Any task normally performed using the operator interface can also be performed remotely using a laptop computer, tablet, or smartphone. The operator interface can also be configured to send alarm notifications via email or text messaging.



## Ordering

Our standard Granular Media Filtration Pilot Module can be configured as shown below. It can also be customized to meet specific requirements for an additional cost. Please contact Intuitech for more information.



# **Exhibit B**

**An Agreement Between The City Of Arvada And Jacobs  
Engineering Group Inc. For Engineering Services Related  
To The Water Treatment Plant Replacement, Piloting And  
Process Selection In An Amount Not To Exceed  
\$552,687.00 For Phase I**





**RFP 23-UT-045**

## Water Treatment Plant Replacement, Piloting and Process Selection

Submitted to

**City of Arvada**

May 26, 2023



Exhibit B

**Jacobs**



6312 S. Fiddlers Green Circle  
Suite 300N  
Greenwood Village, CO 80111  
United States  
T + 1.303.771.0900  
www.jacobs.com

May 26, 2023

Bethany Yaffe, Project Manager  
Dawn Krank, Contract Manager  
City of Arvada  
8101 Ralston Road  
Arvada, CO 80002

Subject: 23-UTS-045, Water Treatment Plant Replacement, Piloting and Process Selection

Dear Ms. Yaffe, Ms. Krank, and Selection Committee,

The City of Arvada (the City) is embarking on a landmark water treatment project that will have a lasting impact on the Arvada community for generations to come. The decisions and strategies implemented during Phase 1 of the Water Treatment Plant Replacement, Piloting and Process Selection project are critical in determining the long-term success of the broader project. Based on our partnership with the City on our previous projects, we understand what is important to your team:

- Effective collaboration to identify tailored, sustainable solutions that are specific to the project's specific needs and demonstrate value to your City council and community.
- A technically sound, robust treatment system that works and is future-proof to stand the test of time, allowing the City to provide safe, reliable drinking water in perpetuity.
- A responsive, reliable team that you can count on when the project presents unexpected challenges; on a project of this complexity and duration, the unexpected is inevitable.
- An honest and ethical team who puts the project first, communicates openly, and prioritizes doing the right thing, doing it well, and having some fun along the way.

Through our recent work with the City, we have demonstrated that we can meet these expectations. Our proposal presents the same core team you know and trust, and we have supplemented it with additional industry leaders to successfully deliver the mission identified in your Request for Proposals. Our approach highlights the following qualifications that set our team apart:

- **Experience selecting, designing, and implementing treatment processes for Front Range source waters:** Our team members offer unparalleled experience piloting Front Range source waters and process selection including the Ralston WTP, Denver Water's Northwater Treatment Plant and Aurora Water's Binney Water Purification Facility as well as the St. Vrain (through Longmont) and Colorado-Big Thompson (Loveland and Fort Collins). These projects are not just our Firm's history, they represent our proposed team member's lived experience where we began with the studies that defined the projects and continued through successful design, permitting, construction, and commissioning.
- **Key personnel with unmatched technical capabilities:** Our Greenwood Village office is the hub of drinking water experts for Jacobs. We will supplement our expertise with an innovative Blue Ribbon Panel to leverage the experience and skills of leading utility and academic partners. Leading our team is Kerry Meyer with support from our treatment expert, Bill Carter. Kerry and Bill have history of successful experience working together and with Front Range clients including Arvada to address water treatment design, water quality, and optimization needs. Additionally, our familiarity with your treatment infrastructure and your team means no ramp-up time and leads to optimal efficiency of execution of Phase 1 and future phases. Our collaboration with HDR, Inc. further strengthens our depth of local resources for this work and, in particular, future Phases.
- **Proven approaches, strategies, and tools that allow for rapid, thorough, and cost-effective evaluation of a range of treatment processes:** The work in Phase 1 will determine the long-term success of the project. We will strategically use our proven tools to help get to the right answers efficiently, maintain schedule, and lead to a comprehensive and defensible Pilot Report and BODR. During the desktop phase, our team will use Jacobs Replica parametric design (formerly known as CPES) and non-monetary analysis (including Envision) to identify the best concepts for testing. Once testing begins, we will use Jacobs Alluvial to streamline data analysis and trending, facilitating operator engagement in the process and endorsement of the results.
- **Focus on collaboration with City staff to design a solution that reflects operator input and endorsement.** Kerry brings a successful track record of responsiveness, partnering on blended client-consultant teams and delivering projects on time and on budget. Her team does not force boilerplate solutions or ignore the valuable insights of your O&M staff. Jacobs is

passionate about collaborating with the City during pilot testing to identify the best treatment process, and we will continue that collaborative approach through the design, construction, and commissioning of the new facility. We encourage you to contact our references to hear about how we have successfully collaborated on other Front Range Projects. In addition to the project-specific client references included in our proposal, we have also provided Contractor references for projects currently under construction where we are working together in an alternative delivery model. For Kerry and the Jacobs project team, collaboration isn't just a buzzword; it's a core component of how we deliver successful projects.

We acknowledge receipt of Addenda No. 1 dated May 18, 2023. We have reviewed the terms and conditions and believe we can negotiate a mutually acceptable contract. We have proposed modifications to the Indemnity and Standard of Care and respectfully request inclusion of a Force Majeure clause. The proposed modifications to the Indemnity and Standard of Care clauses and example Force Majeure language are included in Appendix B, and we welcome the opportunity to discuss them with the City.

I remain your main point of contact and am based in our Greenwood Village office at 6312 S. Fiddlers Green Circle, Suite 300N, Greenwood Village, CO 80111. I can be reached at 720-323-0998 or via email at [kerry.meyer3@jacobs.com](mailto:kerry.meyer3@jacobs.com).

Your team of water quality professionals, engineers, operators, and staff have incredible experience, integrity, and professionalism. It is clear that your team takes their stewardship of the City of Arvada's values as seriously as we take our commitment to you. I speak for both Bill Carter and myself when I say that working for the City of Arvada has been a career highlight, and I humbly request that you select Jacobs for this important first phase of the Water Treatment Plant Replacement project, allowing us to continue our partnership with you.

Regards,  
Jacobs Engineering Group Inc.

A handwritten signature in blue ink that reads "Kerry Meyer".

Kerry Meyer, PE  
Project Manager

A handwritten signature in blue ink that reads "Albert Paquet".

Albert Paquet, PE  
Client Account Manager/Vice President



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- D Detailed Price Information

# 1. Company Information

Jacobs is a solutions provider working on critical problems across the built and natural environment, with particular focus on solving water challenges for our clients and their communities. We have been a part of the Colorado consulting engineering community since 1972. With water as a core business area, Jacobs has been successful in building our talent force and expertise to include capabilities across all water-related areas of interest, including bench and pilot testing, Water Treatment Plant (WTP) design, water quality modeling and evaluations, plant optimization, and permitting and regulatory support.

## Jacobs is the Right Long-Term Partner for the City

With the Water Treatment Plant Replacement, Piloting and Process Selection project (Phase 1 Pilot project), you are setting in motion elements that will ultimately form the foundation of a new treatment plant. The first few steps of this journey are the most critical. Our core team for the Phase 1 Pilot project provides the City with five technically qualified, locally based key personnel with complementary skillsets to meet your needs: Kerry Meyer, Project Manager; Bill Carter, Treatment Subject Matter Expert; Paul Swaim, Disinfection Subject Matter Expert; and Dani Davis, Piloting Support. Supporting our core team, as needed, is the full weight and resources of Jacobs. We are confident that we can meet the challenges ahead and deliver a successful product.

We have worked hard to earn a reputation with the City for being a skilled and dependable partner focused on developing and implementing the right solutions to your varied water treatment needs. With this project, we will provide effective collaboration among our team members and with the City to deliver just what you need, when you need it, and achieve your project goals to your satisfaction.

# 2. Related Experience

Our team’s work with your team on the Ralston WTP Filter Improvements project (RWTP Filter project) and the Treatment Expansion and Siting Replacement Study (Siting Study), and our experience piloting and designing Front Range water facilities to treat similar water supplies demonstrate our commitment to collaboration with the City and our ability to deliver technically sound solutions. We are aligned with you and already understand many of the local issues that must be addressed, so we can focus on what matters to you without wasting time and money exploring concepts that will not meet your needs. Our firm’s and the assigned team member’s experience on the reference projects presented later demonstrate the following qualifications that are directly applicable to achieving your project objectives.

## RFP Required Information

**Company Name, Address and Phone Number:**  
**Jacobs Engineering Group Inc. (Jacobs)**  
6312 S. Fiddlers Green Circle, Suite 300N  
Greenwood Village, CO 80111  
720.323.0998 (Kerry Meyer, PE, Project Manager)

**Company Principals:**  
**Robert V. Pragada**, Chief Executive Officer  
**Kevin C. Berryman**, Chief Financial Officer  
**Joanne E. Caruso**, Chief Legal and Administrative Officer

**Year Established:**  
1947

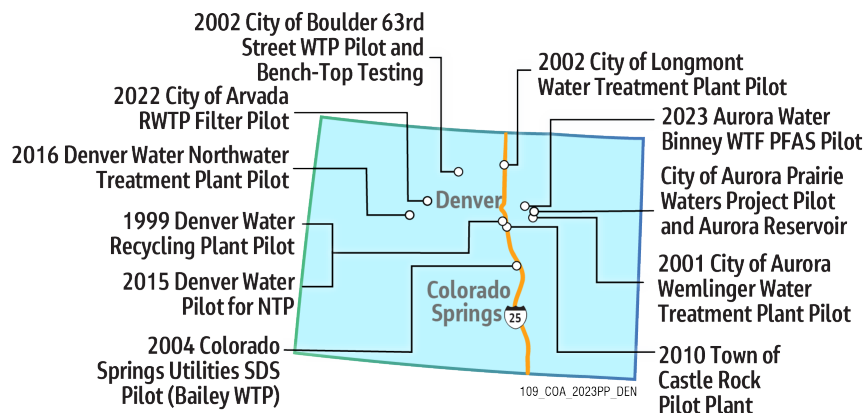
**Describe any pending plans to sell or merge your company.**  
While Jacobs Engineering Group Inc. has no pending plans to sell or merge the company, we are in the process of divesting our Critical Missions Solutions (CMS) business group into an individual company. The CMS is and will continue to be aligned to national security, space, and nuclear remediation areas. CMS and its divestiture will have no impact on our municipal client portfolio, nor will it affect our team members’ ability to continue to support the City through the piloting, design, construction, and startup of the new WTP.

**Comprehensive Listing of Services**  
Jacobs provides the full spectrum of professional services, including consulting, technical, scientific, and project delivery. These services span the water and environment, transportation, energy transmission, and advanced facilities (including semiconductors, life sciences, and electric vehicles) industries.

COA\_2023PP\_104\_DEN

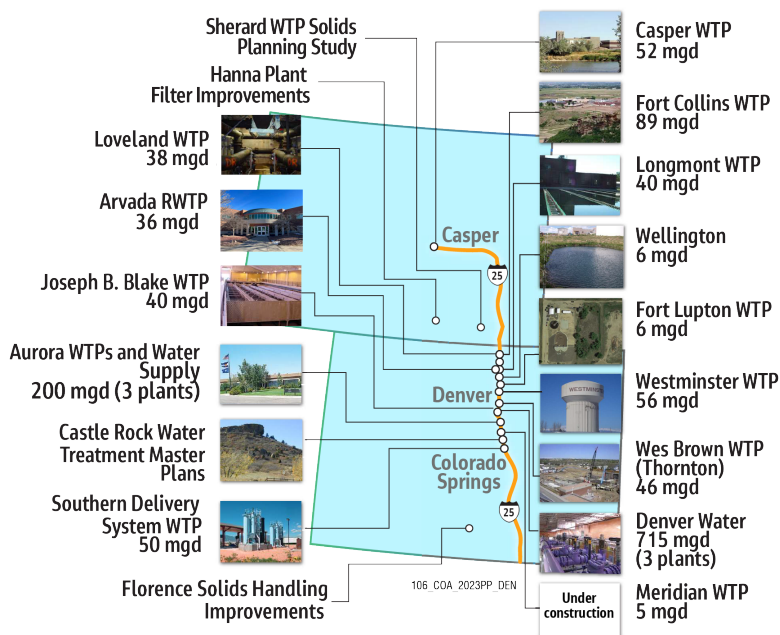
## Experience Delivering Similar Piloting Projects

With Jacobs, the City is getting a locally based team of industry leading water treatment experts in advanced treatment technologies, pilot testing, planning and design, and post-pilot process integration. We propose supplementing our expertise with a Blue Ribbon Panel to examine technologies in the Desktop Evaluation phase and leverage lessons learned from recent pilot studies. The map to the right summarizes our team's history of Front Range piloting experience.



## Front Range Treatment Plant Design Experience

Jacobs has evaluated or designed more than 1,500 treatment plants around the globe, including 20 facilities along the Front Range. Our team includes local and national experts that have planned, piloted, and designed granular media filtration and the other candidate processes along the Front Range, throughout Colorado and the Western United States. Our team's experience allows us to develop



solutions that meet the City's regulatory, financial, process, and operational goals based on a thorough understanding of the technical issues underlying water treatment plant design and operation.

The map to the left illustrates the WTP planning and design projects we have completed along the Front Range.

## Extensive Experience with Alternative Delivery Including CM/GC

We have worked successfully across the spectrum of delivery models to design water treatment facilities using a multitude of delivery methods including CM/ GC and CMAR, DB, DBB, and Public Private Partnerships. The "alternative" or "collaborative" delivery methods have evolved from the traditional DBB approach historically utilized by public entities to better allocate risk and responsibility, save time, and support best-value considerations beyond low-bid price.

Our team members have a long history of working collaboratively with clients and Contractors using CMAR and CMGC model. In the past 5 years, we have delivered over \$250 million in construction using CMAR and GMGC in the Front Range for water and wastewater facilities and infrastructure. A complete list of our CMAR and GMGC projects is included in Appendix C.

## Intimate knowledge and experience with the Envision Framework

Jacobs is an Envision Qualified Company. We are fluent with the full range of Envision services, from pre-assessment and alternatives analysis, to finalizing submittal narratives and supporting documentation for verification, in addition to providing third-party verification services on behalf of the Institute of Sustainable Infrastructure (ISI). Jacobs has delivered 5 Envision awards for clients and has 11 current projects applying the Envision rating system. Jacobs was honored to support Denver Water's Northwater Treatment Plant project culminating in an Envision Gold Award. Keisha Voigt is a credentialed Envision Sustainability Professional (ENV SP), one of 4 Envision Verifiers at Jacobs, and is included on our team. She has experience providing independent third-party review of Envision submittals to determine whether the criteria have been adequately accomplished and documented.

Previous Projects

The following descriptions highlight examples of our relevant Front Range project experience, specifically selected based on their similar technical challenges and scopes of work and the involvement of our proposed team members.

### Northwater Treatment Plant, Denver Water

**Team Members Involved/Role:** Bill Carter, Senior Technical Advisor; Holly Link, Facility Lead; Paul Swaim Subject Matter Expert for UV Disinfection

**Relevance:** Delivered using CMAR approach; Evaluated and considered multiple treatment processes piloting; Included similar source water and watershed to Arvada (source water) is Ralston Reservoir; Hydropower generation from raw water for sustainability

**Contact Information:** Pete McCormick, Project Manager, 303-628-6084, Peter.McCormick@denverwater.

**Brief description:** Jacobs provided piloting, design, and construction phase services for all of the treatment components of the Northwater Treatment Plant, a greenfield 75 mgd treatment facility that will allow for phased retirement of the Moffat facility. Jacobs facilitated a Blue Ribbon Utility Panel to explore the full spectrum of potential treatment alternatives and advise on lessons learned, developed the experimental plan for piloting and procurement documents for the pilot equipment, and assisted with commissioning and troubleshooting of the pilot system. The pilot testing focused on establishing design criteria for CDPHE approval where those criteria significantly affected construction costs.

Pilot testing demonstrated filter loading rates up to 12 gpm/sf and showed that Denver Water’s quality goals could be achieved without ozonation based on current water quality from Ralston Reservoir (space on the site and in the hydraulic profile and electrical system capacity are provided for future ozone). Sustainability through green energy production, automation to facilitate operations, and staff safety were key focus areas during design. The plant will be a net producer of energy using hydroturbines installed at the front end of the treatment process.

The selected treatment process consists of jet-injection rapid mix, 3-stage tapered flocculation, inclined plate sedimentation, deep-bed dual media filtration, and UV and chlorine disinfection. UV disinfection was integrated into the filter facility with one reactor at each filter. This approach uses the flow control valves and meters at each filter instead of duplicating these items in a separate UV facility. Also, by warming up the UV lamps during filter-to-waste, off-spec water during reactor startup is eliminated.

Bill Carter supported the Blue Ribbon Panel, experimental design, procurement of pilot equipment, and pilot plant startup and troubleshooting. After piloting, Bill has remained engaged through design, construction, and pre-commissioning activities as Jacobs’ Senior Technical Advisor. Bill also led the CDPHE permitting effort, which was completed in 6 weeks from the initial submittal with one supplement to answer six questions from CDPHE. Holly Link led the design of multiple facilities, and Paul Swaim guided the UV disinfection design, from criteria refinement to pre-procurement document development.

**Status of project:** Under construction; pre-commissioning activities underway; **Results of the project:** Alternatives development identified Denver Water’s preferred treatment approach. Pilot testing established design criteria to maximize value to Denver Water and provided the basis for CDPHE approval. Design activities included ongoing collaboration with the CMAR contractor to streamline construction and optimize the final facility. **Start and end date of project, or if project is ongoing:** Construction and commissioning are on schedule to be completed in 2024



### Ralston WTP Filter Replacement, City of Arvada

**Team Members Involved:** Kerry Meyer, Project Manager; Bill Carter, Senior Technical Advisor; Holly Link, Facility Lead Engineer; Design Team: Phillip Zelenak, Design Engineer; Jim Landman, Electrical Engineer, Al Paquet PIC/Advisor

**Relevance:** Pilot tested filters and supporting facilities; Collaborated with the City and CMGC to implement full-scale filter modifications that exceeded results of pilot

**Contact Information:** Bethany Yaffe, Project Manager, 303-598-6810, byaffe@arvada.org

**Brief description:** Guided filter pilot testing and a detailed condition assessment of the existing Ralston Water Treatment Plant (RWTP) filters and supporting facilities (backwash supply, backwash waste, etc.). The new media design was based on the piloting





results and allowed increased filtration capacity to meet City service levels. To promote regulatory endorsement, Jacobs coordinated with CDPHE early, presented key pilot findings to CDPHE and then delivered the final pilot for approval. As part of this project Jacobs also conducted a detailed condition assessment of the filter piping, valves, underdrains, underlying structural condition, and electrical and instrumentation and control (I&C) components, identifying repairs or upgrades maintain the remaining useful life of the plant. New underdrains were retrofitted to eliminate the media support layer. We performed detailed design and coordinated with plant operations staff and construction manager / general contractor (CM/GC) to define construction sequencing and constraints to complete the improvements while most of the facility remained -in operation. To complete the work within limited construction windows, we developed technical specifications for the prepurchase of the new underdrains and media. We established daily communication with the CM/GC contractor to maintain schedule and quickly and efficiently resolve unexpected construction challenges associated with the existing RWTP facility.

**Status of project:** Project is on schedule and within budget; **Results of the project:** The filter piloting informed the renovations for the WTP and established criteria for use in obtaining CDPHE approval to construct. **Start and end date of project, or if project is ongoing:** Construction is ongoing, key elements have been commissioned and placed in service and performance meets or exceed pilot and design expectations.



## Binney WPF, Aurora Water

**Team Members Involved:** Bill Carter, Project Manager; Kerry Meyer, Pilot Manager for source water sampling and pilot testing; Paul Swaim, Task Lead/Senior Consultant, Holly Link Process Engineer

**Relevance:** Supported new plant project from planning, design, construction, and startup through its current operations; Conducted pilot testing, full-scale design, and construction (including plant startup and commissioning) for treating water from the wastewater effluent dominated South Platte; Performing bench- and pilot-scale for PFAS removal

**Contact Information:** Kevin Linder, Advanced Water Treatment Superintendent, 720-859-4701, [klinder@auroragov.org](mailto:klinder@auroragov.org)

**Brief description:** Jacobs provided alternatives development, piloting, design, construction, commissioning, and optimization services for the Binney Water Purification Facility (WPF), which includes ultraviolet-advanced oxidation process, biologically active carbon filters, and granular-activated carbon post-filter adsorbers. In addition to providing 50 mgd of final treatment capacity at this site, the facility will also provide 33 mgd of pre-treatment for Aurora's other water treatment plants and is expandable to an ultimate capacity of 150 mgd.

Sustainability and treated water quality were key considerations beginning with the development of treatment alternatives, where a multi-barrier approach was developed to produce comparable water quality at a fraction of the energy consumption of high-pressure membrane systems and without a brine waste stream. Pilot testing verified the validity of the approach and refined the design criteria for a cost-effective facility and reliable operation. A campus-style layout with below-grade construction where appropriate was adopted to minimize building mass and impervious area. Jacobs participated in value engineering during design to further control facility costs without compromising operability or water quality. Jacobs' initial cost estimate (developed during conceptual design using Jacobs Parametric Cost Estimating Tool) was within 3% of the bid price, and total construction change orders (primarily Owner-directed additions and subsurface conditions) were less than 2 percent. Jacobs has continued to support the facility through expansion and optimization projects and upgrades to meet evolving regulatory requirements:

- For the Binney Filters and Solids Expansion, Bill chartered the construction team following a CMAR model. Bill helped the team build and maintain a collaborative relationship throughout delivery.
- Jacobs also led optimization efforts that reduced solids production by nearly 50 percent and, by implementing Extended Terminal Subfluidization Wash (ETSW) for filter backwashes, reduced backwash volume by 30 percent.
- We are currently leading the evaluation of bench (rapid, small-scale carbon testing) and pilot testing for the incorporation of a novel adsorbent for PFAS removal. The ongoing project is testing the adsorbent in the same pilot column as GAC media to verify performance and operability. Also ongoing is a separate pilot project for chemical spike testing and dose evaluation to optimize the UVAOP process.

**Status of project:** The facility has been operational since 2010, and Jacobs continues to support discrete projects at the facility;

**Results of the project:** The Binney WPF provides treatment that secures Aurora's water future against the pressures of population growth and climate change. The project has been recognized for technical excellence through all phases: the study phase received a

Colorado ACEC Engineering Excellence Award; the design phase received the National ACEC Excellence Award; the construction phase was recognized as the National APWA Project of the Year; and the facility received the Excellence in Water Treatment distinction from the Partnership for Safe Water based on operation. **Start and end date of project, or if project is ongoing:** Alternatives development and piloting 2004-2005; design 2005-2007; original construction and commissioning 2007-2010; filters and solids 2015-2016; PFAS, GAC, and UV testing projects ongoing (2023).



### Wemlinger WTP Renovation and Expansion, Aurora Water

**Team Members Involved:** Bill Carter, Lead Engineer; Task Lead  
**Relevance:** Piloted conventional and advanced treatment; Tested and designed to be able to treat two distinct source waters; Allowed some project elements to be deferred until source water quality dictates, but design delineated site space for future construction

**Contact Information:** Kevin Linder, Advanced Water Treatment Superintendent, 720-859-4701, [klinder@auroragov.org](mailto:klinder@auroragov.org)  
**Brief description of project:** Jacobs conducted pilot testing of multiple traditional treatment approaches (conventional flocculation/sedimentation, sand-ballasted sedimentation, and direct filtration) as well as advanced treatment technologies including chlorine dioxide and ozone. Pilot testing included two source waters, Rampart Reservoir and Aurora Reservoir, with the requirement that the selected treatment approach be capable of treating either reservoir or any blend of the two. The pilot testing results demonstrated that, based on current reservoir conditions, direct filtration could meet Aurora Water’s treatment goals; conventional treatment or sand-ballasted sedimentation provided only marginal operational improvements.  
Jacobs developed a multi-attribute decision model to identify the preferred alternative considering cost and non-monetary factors. Using on the decision model, Aurora Water elected to defer constructing sedimentation basins for conventional treatment. Instead, the design criteria from piloting were used to delineate site space for future sedimentation basins in case the source water quality deteriorates in the future. In addition to upgrades to the existing direct filtration flocculation basins, the project included replacement of the raw water flow control facility, extensive upgrades to the existing filters, a new disinfection system using a combination of chlorine dioxide and free chlorine, and new chemical storage and feed systems. With new media, underdrains, backwash troughs and filter-to-waste capabilities, the loading rate of the filters was increased to 8.8 gpm/sf for a capacity of 80 mgd, and the plant can treat either reservoir. After the improvements were completed, Wemlinger received the Excellence in Water Treatment distinction from the Partnership for Safe Water, becoming the sixth facility in the US to do so.  
**Status of project:** Complete; **Results of the project:** The team completed documentation of pilot testing and multi-attribute decision modeling that supported the City’s treatment process selection, and the plant upgrades were completed ahead of schedule and under budget. **Start and end date of project, or if project is ongoing:** Piloting and alternatives analysis 2001-2002; design and construction 2002-2004.

### Qualifications of Assigned Personnel

Our team is dedicated to the success of the Water Treatment Plant Replacement, Piloting and Process Selection project. We present a full-service team that is 100 percent committed and will provide Arvada with knowledge of your system, technical expertise, responsiveness, and depth of resources required for this project, from study and piloting to design and construction.

We will execute the City’s project using local resources, many of which have worked on other City projects. We will use collaborative workshops to capture your requirements, such as ease of operation and maintenance. Our team is structured to promote delivery efficiency and flexibility. Kerry Meyer, a proven project manager with the City, will lead our team. To meet Arvada’s goals and objectives, Kerry will be supported by a core team of local professionals who have the technical skills and relevant experience required to successfully deliver the Phase 1 Pilot project services. This is a veteran team comprising professionals who have made their careers standing by clients from project inception through completion. They are passionate about helping you generate creative solutions and will be with you through this project’s completion.

## Project Manager's Experience

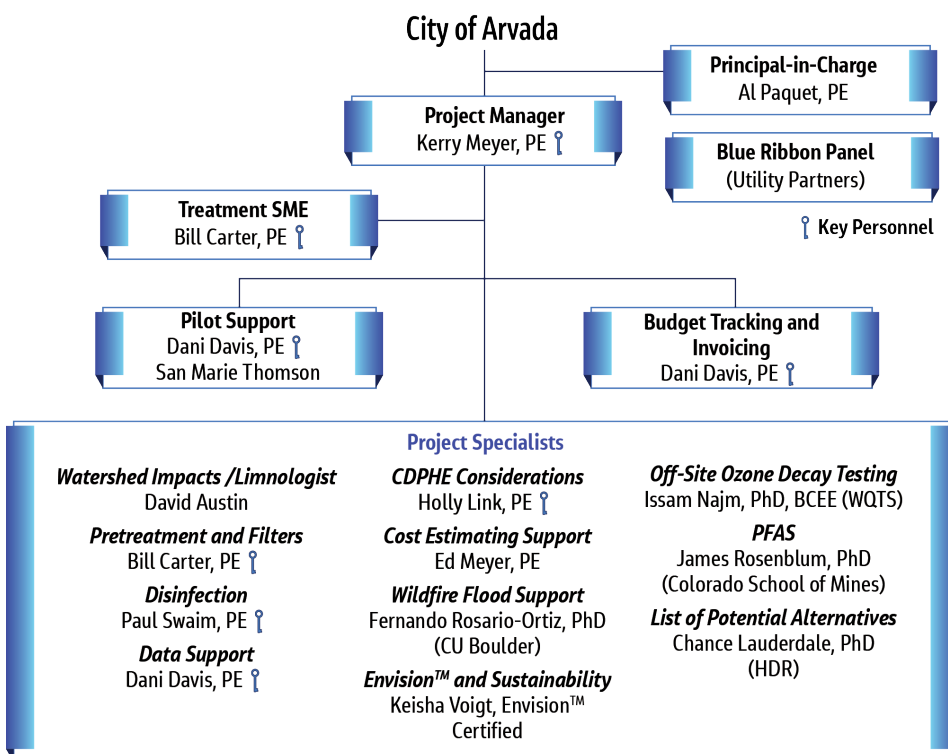
**Kerry Meyer, PE** brings over 20 years of experience leading water process, design, operation, and master planning projects. Her project experience includes close collaboration with client teams and multidisciplinary technical teams to successfully deliver complicated, high-visibility projects with extensive stakeholder involvement and tight timelines. Kerry has conducted bench- and pilot-scale testing of ozone, biofiltration, carbon filtration, precipitative softening, recarbonation, and heterotrophic and autotrophic denitrification. Kerry was the pilot lead for Aurora Water Prairie Waters Program pilot plant. In addition to her hands-on project delivery experience, she was the former Trustee of the American Water Works Association (AWWA) Water Quality and Technology Division; initiator and first Chair of the national AWWA Biological Drinking Water Treatment Committee; and has served as advisor for multiple national technical research projects for the Water Research Foundation. Kerry will pair her familiarity with the City's vision for the 2023 Pilot Project to yield a successful project. Kerry's participation on relevant past projects includes:

- Project Manager, Ralston WTP Filter Replacement, City of Arvada, Bethany Yaffe, Project Manager, 303-598-6810, byaffe@arvada.org
- Project Manager, the City of Arvada Siting Study, Mary Stahl, Project Manager, 720-898-7643, Mstahl@arvada.org
- Lead Pilot Operator, Binney Water Purification Facility, Prairie Waters Project, Aurora Water, Kevin Linder, Advanced Water Treatment Superintendent, 720-427-3912
- Project Manager, Integrated Resource Plan 2065, Mike King, (Former) Director of Planning, 303-506-8696
- CU-Boulder Pilot and Bench-scale Testing Research Lead, Ozone-Enhanced Biofiltration for Geosmin and MIB Removal (Water Research Foundation Project 2775), (Principal investigator R. Scott Summers has retired, but can be reached at 720-333-3568.)

## Qualifications of Assigned Personnel

**Bill Carter, PE** brings 24 years of experience in Colorado, including executing and managing some of the most complex water treatment facility planning and engineering projects on the Front Range. He has experience executing and managing water treatment facility projects, from concept through testing, design, construction, and startup. He was the project manager for Aurora Water's Prairie Waters project delivering the Binney WPF and the North Campus Pre-Treatment complex from inception through commissioning. He and Kerry have worked together for more than a decade, delivering projects for the City, Aurora Water, Denver Water, and Westminster. He has experience with a wide range of water treatment technologies, including conventional and sand-ballasted sedimentation; direct filtration, granular media and membrane filtration; and chlorine, chlorine dioxide, ozone, and UV. He brings to the project a unique familiarity with the City's treatment system, operating approach, and goals. Bill's participation on our relevant past projects includes:

- Senior Technical Advisor, RWTP Filter Replacement and Siting Study
- Senior Technical Advisor, Northwater Treatment Plant, Denver Water
- Project Manager, Binney Water Purification Facility, Prairie Waters Project and Wemlinger Pilot Studies and Lead Engineer Wemlinger WTP Renovation and Expansion, Aurora Water



*A high-performance core team that you know and trust will collaborate with you in achieving your project goals and will stay with this project for years to come.*





**Paul Swaim Paul, PE** is an internationally recognized expert in UV disinfection for drinking water, water reuse, and wastewater applications including regulatory issues, pilot testing, predesign, design, construction, startup, and operations. His expertise is a perfect fit for the Phase 1 Pilot project, and Paul brings over 28 years of experience in the successful completion of water treatment projects including process selection, pilot studies, facility plans, design, construction, and startup. He brings technical expertise in water treatment process selection. He has led treatability (bench- and pilot-scale) testing for clients along the Front Range and across the country. Paul's experience includes the Binney Water Purification Facility treatability testing and design; process selection, pilot testing, and WTP design for Park City's 3Kings Water Treatment Plant; Southern Delivery System's Water Treatment Plant process selection and pilot testing; and pilot testing to re-rate the Longmont Water Treatment Plant. Paul's experience with GAC projects includes the design of post-filtration GAC contactors and a full-scale demonstration test of GAC filter/adsorbers. Paul's participation on our relevant past projects includes:

- Pilot Design and Operations Manager, Binney Water Purification Facility, Prairie Waters Project, Aurora Water
- Task Lead/Senior Consultant for the Binney Water Purification Facility, Prairie Waters Project, Aurora Water
- UV Disinfection Subject Matter Expert, Northwater Treatment Plant, Denver, Water

**Holy Link, PE** has more than 22 years of experience leading, designing, and managing water treatment projects (from studies through construction and startup) for Front Range clients, including Arvada, Aurora Water, and Denver Water. She brings knowledge of and experience in drinking water regulations, regulatory reviews, permitting, pilot plant studies, demand forecasting, and water treatment process design, including GAC filtration. She is well versed in current and potential future drinking water quality and regulations affecting Front Range water utilities. Holly's participation on our relevant past projects includes:

- Facility Lead Engineer, Ralston Water Treatment Plant, City of Arvada and Northwater Treatment Plant, Denver Water
- Facility Lead Engineer, Binney Water Purification Facility/ Prairie Waters Project (original design), Aurora Water

**Dani Davis, PE** brings to the role a wide array of project experience including detailed treatment facility design, process optimization, dynamic process modeling, and planning for treatment. She has experience providing data management to support process optimization at an advanced treatment demonstration facility and onsite experience with services during construction, start up, and commissioning. She was the project engineer for an innovative water treatment plant design for Park City, UT, and conducted filter performance optimization at a 1 mgd advanced treatment demonstration facility for Hampton Roads, VA.

### Qualifications of Subcontractors

Our subconsultant partners include established consulting firms and distinguished academics who provide field-specific expertise. Each partner is listed below. Please see our detailed fee sheet (Appendix D) that includes the specific tasks and hours assigned to each of our subconsultant partners.

**Chance Lauderdale, PhD**, of HDR, will bring critical Desktop Analysis input regarding the Phase 1 Pilot project, helping identify an inclusive list of candidate processes. During Phase 2, HDR will support the raw and finished water pipeline design and will be available to provide construction services to the water pipeline during subsequent phases. HDR brings experience and expertise gained from their more than 100 years planning, designing, and constructing water, sewer, transportation, and electrical infrastructures around the world.

**Fernando Rosario-Ortiz** is an Associate Dean for Faculty Affairs for the College of Engineering and Applied Sciences and Professor at the University of Colorado-Boulder and president of the Rosario Group. He is a widely respected researcher in the areas of environmental chemistry. His ongoing topics of research include studying the impacts of wildfires on water quality and treatment. As detailed in our approach, we are proposing Fernando to inform Desktop Analysis and (potentially) bench-scale testing regarding fire and flood impacts.

**Issam Najm, PhD, BCEE**, is the founder and president of Water Quality & Treatment Solutions, Inc. (WQTS), a specialty environmental engineering and science consulting company. Dr. Najm is an expert in bench-scale testing of water treatment technologies. Dr. Najm will conduct offsite ozone demand and decay testing.

**James Rosenblum, PhD**, Colorado School of Mines, is a Research Assistant and Professor leading the Colorado School of Mines' Water Technology Hub. He has worked extensively in the municipal and industrial water reuse space in both consulting and academia. Though we know PFAS is not currently an issue, we've included Dr. Rosenblum, who is a PFAS expert, on our team to ensure that the selected process is future proofed. He will provide guidance and input, particularly during the Desktop Analysis phase.





## 3. Understanding and Approach

### Project Understanding

The Arvada Water Treatment Plant is limited to seasonal operation and has numerous operational and safety issues. Despite being newer than the Ralston Water Treatment Plant, replacing the Arvada Water Treatment Plant is critical to ensuring the City can continue to reliably meet service levels for water treatment. The replacement plant must be capable of treating water from Arvada Blunn Reservoir, which experiences seasonal taste and odor and iron and manganese challenges. The replacement plant must also be able to treat water from Ralston Reservoir, either regularly or on an emergency basis (pending contract discussions with Denver Water).

We will partner with the City, as we have on past projects, to have a successful pilot that gains CDPHE approval on key design criteria and pays for itself with dividends in the process. When it comes to your existing supplies, nobody knows how to treat water better than your Operators. Jacobs will collaborate with City operations, water quality, and engineering staff to ensure that we have selected the right processes for treatment that will not only treat today's water Arvada Blunn and Ralston Reservoir supplies but also is resilient enough to meet potential future regulations and source water challenges associated with climate change impacts. The following are critical success factors for this project that we are prepared to address:

- Operator engagement (see our Data with Donuts approach)
- Radium in the Supply (see our Solids section)
- Solids handling capacity (See our Solids section)
- Treatment reliability / resilience against climate change impacts like fire and flood (see resumes of Dr. Fernando Rosario-Ortiz and subconsultant partners; we have projected deteriorated water quality impacts for other Front Range clients and used that to inform process selection and improvements)
- Collaborative Partnership with CM/GC partner (see our qualifications section and consider our CM/GC delivery on the RWTP improvements)
- Effective partnership with the City (please check our references including staff at the City that have worked with us on RWTP Filter project and the Siting Study)
- Continuation of team (Kerry Meyer and Bill Carter have been working on projects just like this one together for more than 18 years and are committed to partnering with the City to make this project (and its future phases) a success

The Piloting Lessons Learned on the following page is a collection of our own lived experiences of challenges, pitfalls, and issues that we've encountered on similar projects. Note that some of our best practices (frequent data analysis, weekly reporting, etc.) are embedded in the City's RFP approach and are not repeated herein.

## Piloting Lessons Learned

### Making Changes

Patience is critical when operating a pilot plant. Based on learned experience, we recommend the following:

- Change only one variable at a time. If more than one variable is adjusted concurrently, the causal factor cannot be determined.
- Allow at least three bed volumes or retention times after making an operational change before evaluating the impact.
- Supplement pilot operations with bench-scale jar testing to define the best coagulation conditions for effective treatment.

### Communication Plan

An overenthusiastic project team can inadvertently inundate plant operators and managers alike. We've learned to streamline questions from Jacobs through the City PM unless it is truly urgent/timely. Our job is to get the pilot work done without derailing the primary mission of the City Operations Team.

### Project Staffing

Project staffing cannot be guaranteed and transitions do occur as do unexpected life changing events. Jacobs is lucky in that Denver remains a water treatment hub for our company. We can pull from our bench and support these events. We demonstrated that when start-up for the RWTP Filter project (Filters 10-12) was delayed and we were able to provide the City with support despite the slide in schedule. For this project, we have designed in two pilot support staff members intentionally not just because of the excellent opportunity piloting provides engineers early in their career but also because it offers a resilient approach that we've learned can benefit our clients.

### Skid Failures and Tech Support



Inevitably pilot equipment fails at the most inopportune time. Our long-standing relationships with Intuitech and alternative pilot vendors have proven helpful when navigating a pilot failure. We will also provide a list of recommended spare parts and recommendations for what to do if, for example, an ozone generator fails or a chemical feed pump needs replacement. This will also be part of the discussion and training with City pilot operator during pilot commissioning.



### Avoiding Rabbit Holes

Piloting is some of the most interesting and informative work we do. However, one of its pitfalls, especially on large teams, is erroring on the side of inclusion in terms of testing parameters, test runs, and test processes. Our team has developed an approach where we make room for innovation but maintain vigilant focus on the most important questions to be answered through pilot testing. We will do this by ensuring everyone at the stakeholder workshops provides input and by constantly asking questions about whether this something is a "nice to know" question or something that will substantially affect the plant's design or operation.

### Safety on the Job

Pilot plants are often treated as temporary makeshift projects. Regardless of the investment, pilot operations involve staff and City assets and must be safe. We will carefully consider piping routing (e.g., avoid tripping hazards), electrical needs, safe chemical storage, and delivery considerations (if applicable). We will develop safe operating instructions and a start-up/shutdown checklist to prevent some of the common operational pitfalls regarding safety.

### Navigating Treating Two Supplies (with one budget)

Several of our Front Range pilots were designed to treat two supplies just like the future AWTP. In the case of Aurora Water's Binney Water Purification Facility, two discrete trains were designed because the supplies were so unique that this was the most sustainable, reliable way to meet the project's goals. Conversely, for Aurora Water's Wemlinger WPF, an optimal water treatment process was selected to treat either supply or a blend of the two. We understand the challenges that come from designing a plant for different supplies and will bring that experience to bear on your AWTP project.

### Media Sieve Analysis for Pilot Media



Our Jacobs team makes a habit of regularly testing media upon receipt. During the RWTP filter pilot, this testing identified that some of the sand and the anthracite were significantly different than the media requested. We were able to modify the experimental plan, order additional media, and complete the pilot testing in the necessary window for CDPHE approval without significant impact. However, had the media not been tested upon receipt, the full-scale results may not have validated the pilot findings and it would have been difficult to discern the root of the performance gap.

## Project Approach

The following discussion presents the critical steps that will progress the vision of the City's pilot project.

### Forming and Chartering the Team

We would recommend a formal charter at the onset of the project prior to the Project Initiation Meeting. The purpose would be to integrate new team members and develop the framework for effective collaboration. Due to client and consultant teams' familiarity working together on prior projects and the established trust and open communication, we recommend deferring a formal Charter until a CM/GC contractor is selected and brought on board during subsequent phases of work.

### Pilot Location

During the RFI stage of this project, The City did an excellent job showcasing both of the City's existing water treatment plants and identifying potential locations for the existing and future pilot equipment. The future water treatment plant will need to be able to treat both supplies for increased reliability and resilience as part of the City's service level goals. As such, the pilot needs to be able to treat raw water from both the Arvada Blunn and Ralston Reservoirs during the 15-month project. For the purposes of this project, we conservatively assumed that the pilot would be relocated partway through testing to treat both supplies.

### Operator Engagement

The operators will work and live at the new facility for the next 40 to 50 years, so their input is among the most important. We know that operator engagement and endorsement is key for the success of any pilot-design progression. Given the constraints with shift work and the criticality of the plant's staff's primary mission – protecting public health – gaining operator engagement and endorsement is difficult. We have a three-phased approach to make sure we hear and incorporate operator perspectives.

#### Blue Ribbon Panel

Who better to help inform piloting and design than a group of operators that have recently tackled the same mission the City of Arvada is embarking on? We propose bringing some of our key utility partners into the fold to help identify what went right in recent piloting, design and/or construction of their new plants and what they would do differently. We anticipate the Blue Ribbon Panel being involved at the inception of each of the key phases of work, beginning with the Desktop Analysis that will precede bench- and pilot-scale testing.

#### Data with Donuts



*Photo of RWTP Filter Training (March 2023)*

In March, we completed a 2-week series of operator start-up training for the RWTP. We held the training over breakfast starting at 7:30 AM, to accommodate the operator shift change. We then replicated the training one week later to ensure that we engaged the full operations and maintenance team. We propose a similar approach called "Data with Donuts" for piloting and bench-scale testing. As shown on our schedule in Section 5, we will engage operators before the start of the piloting. At this stage, Jacobs will present the draft testing plan for review, modification, and ultimate endorsement. We will hold another session of Data with Donuts during the initial phase of Pilot Testing to

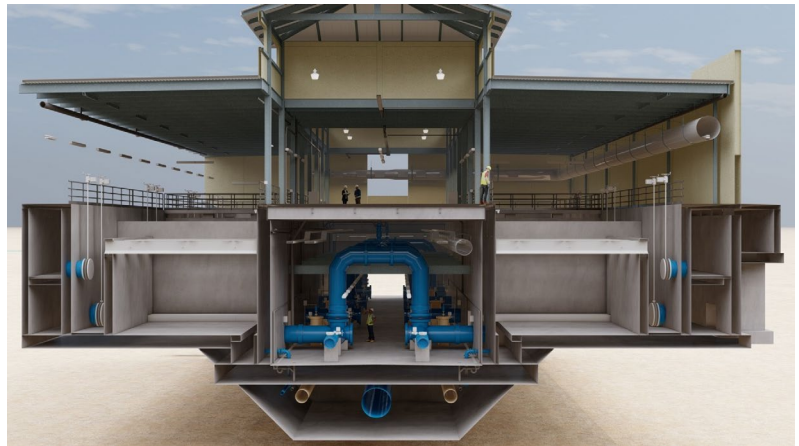
ensure that operators have timely access to the web-based pilot data. By presenting some of the key data and findings, the goal is to encourage the operators to actively engage as the pilot testing progresses and to raise questions that will ultimately lead to their endorsement. Through engagement with the operators early and throughout the project, we can make sure we are leveraging their expertise treating the plants' two supplies and help ensure that our ultimate plan for the future drinking water treatment plant is shaped and endorsed by the same group of individuals that will be the key end-users.



### Design with Donuts (Future Phase) - 3D Visualization for Operator Input

Jacobs anticipates folding 3D visualization into similar operator workshops during the future phase of work. While it may be unrealistic to assume that operators can comb through stacks of drawings in their free time, a well-timed design morning workshop (similar to the Data with Donuts) would facilitate their review of the design concepts. Through 3D visualization, operator concerns like “Will there be a covered walkway between processes?” or “Will chemical deliveries be on the south side of the building?” may surface and could be readily discussed/incorporated because it’s efficient and digestible to absorb the design in this format.

As an example for illustration, our team took the “paper dolls” placeholder layout from the City of Arvada Siting Study, placed it on one of the Top 2 Sites for the new water treatment plant and pulled into our 3D Visualization Tool. Key assumptions will shift based on the outcome of the Siting Study and this Phase 1 Pilot project. As the design progresses, we will be able to take the roofs off and show core processes inside.



*Recent 3D rendering of a Front Range GAC Adsorber Facility*



*We can bring the conceptual WTP layout to a full visualization during design and effectively incorporate the selected processes from the Pilot and BODR efforts to achieve your vision of the Future WTP. (Visualization of the Layout of the New AWTP on one of the Top 2 Sites [Site 33])*

### Operator Engagement Proof of Process

Kerry Meyer and Bill Carter have a long-standing history of successful operator engagement on similar projects and relationships with operators that have spanned multiple decades. One such example was the Prairie Waters Project. Bill was the project manager, and Kerry was the pilot lead. During pilot operation, we collaboratively brainstormed with the operators to optimize the precipitative softening process for the low settled water turbidity required to test filter loading rates. Operators were engaged weekly, and it led to process endorsement and more informed pilot testing.

Kerry's and Bill's relationships with Aurora Water Operations staff have continued long after the plant was designed and built and included activities such as plant optimization, instruction at the Boulder Short School for Operators Advanced Water Treatment, teaching a class on jar testing to high school students, and co-authoring the 2010 M57 AWWA Algae Manual and other publications.

## Desktop Evaluation

Despite its name, the Desktop Evaluation is not just a paper exercise. Our team thoughtfully added academic and experienced subconsultant partners to join our team for some dynamic and thought-provoking discussion up front. The goal is to *ask the hard questions early* so that we can complete the desktop exercise, document and effectively stage gate the selected processes for bench scale testing (and maybe piloting). The goal of the Desktop Evaluation is to identify an exhaustive list of candidate processes, efficiently but defensibly eliminate any that are not applicable, and identify what data gaps need to be filled through bench- or pilot-scale testing to identify the preferred approach. The robust and defensible reporting coming out of the Desktop Evaluation will include answers to the following questions:

- How do the selected processes compare to others under the range of anticipated operating conditions (e.g., normal, seasonal, etc.)?
- What are the cost and sustainability (including Envision) implications of the processes being evaluated?
- What processes are (or are not) being recommended for testing and why (or are not)?
- What data gaps can we effectively resolve at bench-scale to further refine piloting recommendations?

We will specifically target resilient and flexible treatment alternatives that are capable of handling varying water to meet current and future regulations, and we will build the framework for Envision sustainability scoring and cost-benefit selection. As shown in the Impact vs. Time graphic above, the most critical project decisions are made early in the project lifecycle. Decisions made at this stage will have the greatest impact on cost, sustainability, operability, and other factors that determine project success.

### Desktop Step 1: Source Water Conditions and Finished Water Quality Define the Treatment Requirements

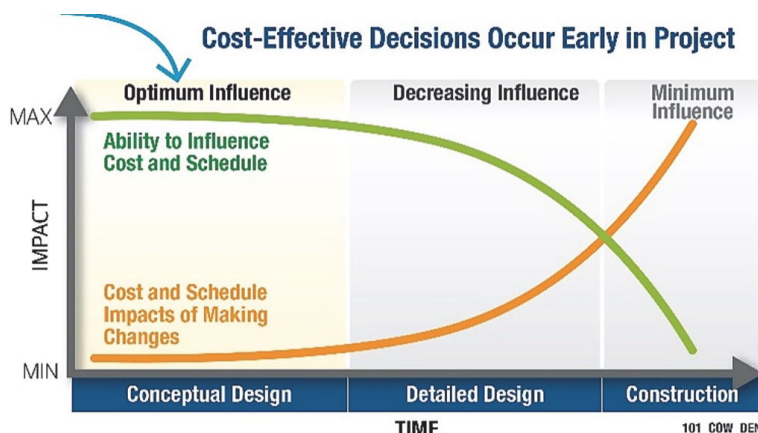
During the Desktop Evaluation, we will define the treatment requirements in terms of source and finished water quality and then screen an expansive range of treatment approaches to a manageable number for testing.

The first step in the Desktop Evaluation is to document the source water quality to be treated at the new facility and the finished water quality objectives. If this critical stage gate is not closed, it will be impossible objectively compare different potential treatment alternatives.

Jacobs has already worked with the City's RWTP operations team to review historic source water quality and current finished water quality objectives. For Denver Water's Northwater Treatment Plant, we developed standalone documents for source and finished water quality, and these documents have been invaluable references throughout piloting, design, and pre-commissioning. We propose a similar approach for this Phase 1 Pilot project, these documents will also be forward-looking instead of limited to capturing historic and current information.

For the source water, we will start with historic data for normal conditions, seasonal challenges, challenging conditions from fire/flood events, and catastrophic conditions. We will extrapolate the historic record and use it for the future by incorporating longer-term trends such as climate change. The future conditions will describe the potential effects of fire in the watershed, increased drought or flooding, and aquatic nuisance species that can be expected to occur over the service life of the new facility. We will then apply climate change factors appropriate for the Front Range to help us characterize projected water quality under various conditions.

For finished water quality, we will begin with the City's current objectives including regulatory drivers (like turbidity, disinfection, and disinfection by-products) and non-regulatory drivers (like the Partnership for Safe Water and aesthetic parameters). We will again extrapolate the current objectives and apply them to the future by incorporating anticipated regulatory changes (like PFAS) and potential regulatory changes (like disinfection by-products formed by chlorination or ozonation).





Together, the source and finished water quality documents will define the flexibility the new facility must provide during its service life. Using the past 30 years as a guide, the source water will become more difficult to treat while the treatment requirements will become increasingly stringent.

The combined historic, current, and future source and finished water quality objectives will define the performance requirements for the new facility.

### Desktop Evaluation Step 2: How Will We Use the Desktop Evaluation to Screen Alternatives?

With the new facility's performance requirements defined, we will evaluate potential processes for inclusion. Jacobs will identify potential treatment approaches, and we will facilitate discussion at a workshop to gather input from the City's project team. By considering viable treatment options at this stage of the project, we will avoid predisposition of solutions or driving to indefensible results. Instead, we will begin to identify the best-value treatment approach by addressing treatment and operational objectives, including both economic and non-monetary factors.

To balance multiple factors, evaluate a wide range of potential treatment approaches, and incorporate the interests of project team, we will utilize two proven tools. The first tool, Replica™ Parametric Design captures economic factors by building a lifecycle cost model for the alternatives being considered. The second tool is a collaborative and structured decision evaluation processes framework that captures the non-economic criteria or benefits. Together, these tools define the costs and benefits of the alternatives being considered and provide a basis for best-value selections. What makes our application of this approach unique is that we will set up these tools before the first testing is performed.

One example of what has been evaluated at the Desktop Evaluation is the concept of "Free UV." This approach reduces the CT-required to meet the inactivation requirements for virus instead of *Giardia*. The reduced footprint of the disinfection contact basin often pays for the cost of UV. Of course, given the City's sustainability goals, the introduction of this process would have to be evaluated through the lens of greenhouse gas emissions and other considerations as well as the trade-offs with operator familiarity with the process, etc. But these are the types of evaluations that our tools can facilitate.

### Tool #1 - Replica™ Cost Modeling

Our cost estimating approach focuses on quality, rapid evaluation, and decision-making support to facilitate the schedule and develop accurate cost estimates at each phase. We will develop preliminary cost estimates using Replica™ Parametric Design System (formerly known as CPES), which offers the following benefits:

- Allows design team to respond to design criteria changes based on pilot results and quickly update cost estimates.
- Increases the accuracy of conceptual cost estimates compared to (often outdated) cost curves.
- Timely cost estimates that inform the process evaluation and decision-making process before detailed drawings are produced.
- Allows consideration of numerous combinations of treatment approaches.
- Integrates with our O&M and sustainability modules to accurately estimate annual and life-cycle costs and greenhouse gas impacts.
- Provides the CM/GC contractor with an increased understanding of project facilities, equipment, and quantities at start of design.

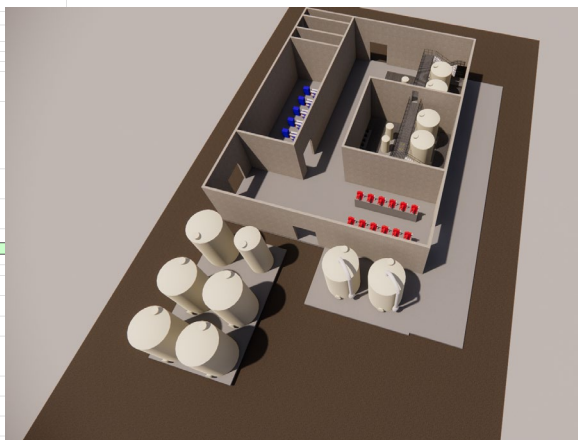
### Plan, Test, and Design for Long-Term Sustainability

Long-range planning forecasts estimate between a three and six-degree Fahrenheit mean temperature change by 2065. Increased frequency and intensity of storms and forest fires are anticipated resulting in the following impacts to watersheds:

- Increased nutrients and resultant algal growth (and potential for taste and odor compounds and cyanotoxins).
- Changes in redox conditions of surface waters, which may yield higher concentrations of dissolved iron and manganese.
- Higher turbidity water resulting from flash floods similar to that observed in 2013.
- Pound for pound higher DBP production for a given TOC resulting from fire impacts.



|    |                                                                       |                         |                                                                                                                            |             |
|----|-----------------------------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------|
| 1  | <b>Liquid Chemical Storage &amp; Feed - (Aluminum Sulfate (Alum))</b> |                         |                                                                                                                            |             |
| 2  | <b>Located in Stand Alone Chemical Building</b>                       |                         |                                                                                                                            |             |
| 3  | <b>Is This Facility Included in My Project?</b> Yes                   |                         |                                                                                                                            |             |
| 4  |                                                                       |                         |                                                                                                                            |             |
| 5  | <b>Is the Facility Storage Only (no metering pumps)?</b> No           |                         |                                                                                                                            |             |
| 6  | Y/N Overwrite Value                                                   |                         |                                                                                                                            |             |
| 7  | Select Chemical                                                       | Aluminum Sulfate (Alum) | Select "Other" from the drop down list if using a different chemical.                                                      |             |
| 8  | Percent Active Chemical, % w/w                                        | 48.50%                  | This is the intended feed strength to the process. Inputting a value in the yellow cell overwrites the cell in column "C". |             |
| 9  | Active Chemical Form for Dosage Basis                                 | A2ISO43-1420            | Inputting a value in the yellow cell overwrites the cell in column "C".                                                    |             |
| 10 | Bulk Chemical Specific Gravity                                        | 1.34                    | Inputting a value in the yellow cell overwrites the cell in column "C".                                                    |             |
| 11 | Active target solution                                                | 5.42                    | kgal                                                                                                                       | 649.90 kgm3 |
| 12 | <b>Process User Inputs</b>                                            |                         |                                                                                                                            |             |
| 13 | <b>FLOW AND CHEMICAL ADDITION</b>                                     |                         |                                                                                                                            |             |
| 14 | Application #1                                                        |                         |                                                                                                                            |             |
| 15 | 1.) Minimum flow to application point                                 | 7.00                    | mgd                                                                                                                        | 26.58 MLD   |
| 16 | 2.) Average flow to application point                                 | 45.00                   | mgd                                                                                                                        | 170.34 MLD  |
| 17 | 3.) Maximum flow to application point                                 | 65.00                   | mgd                                                                                                                        | 246.05 MLD  |
| 18 | 4.) Minimum chemical addition                                         | 3.00                    | mg/L                                                                                                                       |             |
| 19 | 5.) Average chemical addition                                         | 10.00                   | mg/L                                                                                                                       |             |
| 20 | 6.) Maximum chemical addition                                         | 40.00                   | mg/L                                                                                                                       |             |
| 21 | 7.) Input Number of Equal Simultaneous Application Points             | 1                       | #                                                                                                                          |             |
| 22 | 8.) Hours of addition per day                                         | 24.00                   | hr                                                                                                                         |             |



As the team identifies alternatives, we will use Replica™ Parametric Design System to quickly assess their cost, sustainability, and site considerations to advance alternatives that merit further consideration to bench- or pilot-scale testing. We have an existing Replica™ model set-up for conventional

treatment with ozone from our work on the Arvada Siting Study. The unit processes are sized for the Phase 1 flows but also thoughtfully incorporate the buildout capacity when appropriate (e.g., chemical storage facilities that do not lend themselves to phased construction). This effort can be updated to include additional candidate treatment processes. Once these processes are identified, we will set up lifecycle cost models for the treatment trains under consideration. Using our engineering judgement and industry literature, we will enter initial design criteria for each candidate unit process. At this level of design, each process can generally be defined by between six and 20 primary design criteria, so updates can be made very efficiently.

For a new WTP in Park City, Utah, we used Replica™ in a collaborative workshop-based approach to evaluate dozens of alternatives to treat two source waters. In a matter of weeks, we were able to identify the best approach for pilot testing and full-scale implementation.

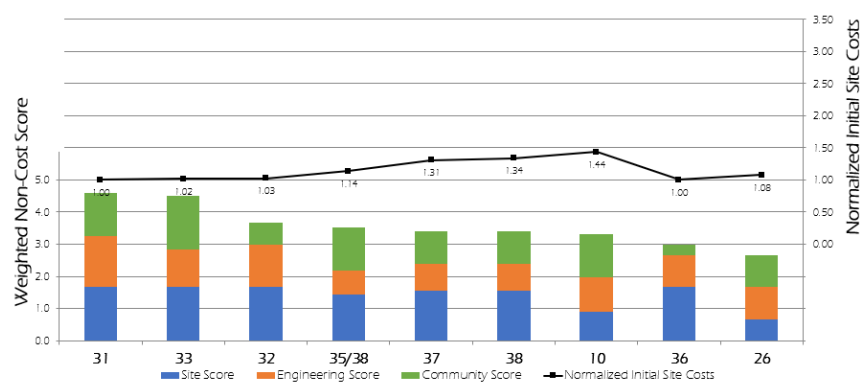
*Jacobs' Replica™ platform allowed us to quickly and efficiently evaluate many identified facility alternatives.... The application of the Replica™ toolset moved our project forward rapidly, providing defensible estimates and the ability to effectively evaluate project and environmental impacts.... [allowing] us to move forward with confidence in designing our preferred solution. -Roger McClain, PCMC Public Utilities Engineering Manager*

## Tool #2 - Use a Separate Tool for Systematically Quantifying Non-Monetary Benefits

A spreadsheet-based decision evaluation process is used to account for comparative non-monetary benefits offered by alternative treatment approaches. This tool, which we used during the Siting Study, helps our clients weigh and consider multiple needs and provides a rational, defensible approach to making the right decision when comparing process alternatives. Some typical evaluation criteria to quantify non-economic benefits, including the following:

- Ability to meet water quality targets (regulated and non-regulated) under normal, challenging, and catastrophic source water conditions
- Flexibility to meet or adapt to future regulations
- Sustainability (Envision score)
- Operational ease or difficulty
- Maintenance frequency and complexity

Site Selection Benefits Chart



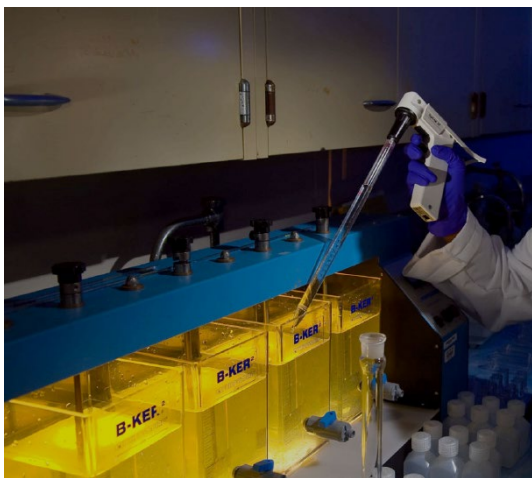
## How does the Desktop Evaluation Inform Bench and Pilot Testing?

At the completion of the Desktop Evaluation, we will have narrowed the wide net of possible alternatives to a much smaller set of plausible alternatives that the project team agrees could work and might be incorporated. During the Desktop Evaluation, preliminary design criteria are identified based on local experience, engineering judgement, and industry literature. Evaluation criteria in the decision tool are assigned a preliminary score based on operational experience. The initial Replica™ cost models and our decision evaluation tool allow sensitivity analysis of the treatment process selection to changes in the preliminary design criteria and the preliminary scores. The areas of greatest sensitivity correspond to the decisions of greatest consequence.

At this point in the process, we have identified critical data gaps for resolution bench and pilot testing. The data gaps will be verified and the initial design criteria will be refined. For example, Jacobs has designed plants with filter loading rates based on pilot testing between 5 and 14 gpm/sf and based on our local experience probably assign an initial loading rate of 10 gpm/sf for the new facility. Because the loading rate strongly influences construction cost, the loading rate must be confirmed through piloting, with the pilot results being used to update the Replica™ cost estimate.

Other data gaps will relate to the non-economic criteria. For example, ion exchange is often presented as a simple, relatively hands-off approach to removing specific contaminants. Operational experience during piloting will show whether the process is simple to operate or whether the benefit scores should be adjusted to reflect unforeseen complexities of operation. The data gaps identified during the Desktop Evaluation will inform the development of the Experimental Plan that will guide the remainder of this phase of project.

## Experimental Plan—Testing with the End in Mind



Our approach focuses the time and effort of bench and pilot testing on the decisions of greatest consequence. We do this by planning the testing to methodically fill the data gaps required to make those decisions. The decision evaluation tool and Replica™ will be updated as design criteria, such as flocculation time during cold water seasons and filter loading rate, are confirmed and refined through empirical data from testing and through the experience gained by operating the pilot scale system.

Far too many pilot studies return inconclusive results or results that cannot be applied to the greater project due to lack of foresight in planning the testing phase. When stepping into a project in which pilot testing had already been completed, we have observed “piloting gone wrong” by testing inadequate treatment approaches, testing too many treatment options, testing too broad a range of conditions, missing a key seasonal water quality event, failing to include operators in

decision-making, or ignoring the solids treatment approach altogether.

Our effective, focused Experimental Plan will identify the objective for each phase of testing (what data gap will be filled), the duration (schedule) of that test phase, and the key tasks that need to be completed. Keeping the Experimental Plan simple by using a tabular form helps maintain focus. We also propose printing a large copy of the plan, posting it at key locations around the pilot plant, and checking-off testing activities as they are completed.

For the City’s pilot test, we envision the typical key tasks of jar testing, pilot plant commissioning, and evaluating flocculation time. We also envision a task to prove filter performance and filtered water quality at filter loading rates above the CDPHE default filter loading rate based on our piloting experience for Aurora Water, Denver Water, Longmont, Colorado Springs Utilities. These testing studies demonstrated performance at higher loading rates and were accepted by CDPHE in approving design at loading rates up to 12 gpm/sf. Construction cost savings from the approved filter loading rates alone more than paid for each of these pilot tests.

Another key data gap is how the treatment process performs during challenging and catastrophic conditions. Assessing performance under challenging source water events will be incorporated into the Experimental Plan, and the performance during challenging conditions will be extrapolated to predict performance under catastrophic conditions.



## Bench-Scale Testing

A key underlying principle for maximizing the value of a treatment study is to test at the smallest scale possible. A bench-scale test can be conducted more rapidly and more cost-effectively than evaluating the same issue at pilot scale. However, while there are key tests that can be conducted at bench scale, some processes must be evaluated at pilot scale to produce meaningful results.

As shown in the table below, bench-scale testing is of the most value in addressing coagulation/ sedimentation. Bench-scale jar testing is recommended to confirm coagulant and polymer types and doses prior to pilot testing. These tests can be conducted in a couple of days, whereas evaluating the same range of conditions at pilot scale would require weeks of testing and not provide more accurate results.

| Scale                                          | Bench                                                | Pilot                                     | Demo                                                                           |
|------------------------------------------------|------------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------|
| Typical Treatment Capacity                     | 55-gallon Grab Sample                                | 3 to 10 gpm Continuous Flow               | 20 to 100 gpm Continuous Flow                                                  |
| Typical Applications                           | Coagulation, Oxidation, Disinfection, PAC Adsorption | Granular Media Filtration, GAC Adsorption | Proprietary Systems (e.g., High-Rate Clarifiers, Membranes, Solids Dewatering) |
| Typical Plan, Design and Construction Duration | 1 to 2 months                                        | 3 to 6 months                             | 6 to 12 months                                                                 |
| Typical Operation Duration                     | 2 to 4 Seasonal Episodes                             | 3 to 12 months                            | 6 to 18 months                                                                 |

Bench testing also offers value if the City elects to evaluate ozonation. Ozone demand and decay kinetics and byproduct formation can be evaluated more quickly and more safely at bench scale than at pilot scale. Because these tests are difficult to do successfully outside of a laboratory setting, we propose ozone demand and decay testing be conducted offsite by Issam Najm. Dr. Najm has years of successful ozone testing experience and will help our team efficiently and reliably determine the viability of ozone for your current and projected water quality. Conversely, testing granular media filtration requires the continuous flows provided at pilot scale. Thus, testing of the impacts of extended flocculation time on filterability, testing different filter media configurations, and evaluating filter loading rates will be conducted at pilot scale.

In our experience, bench-scale testing is most valuable when rapidly assessing a range of treatment options in a short period. Like Arvada Blunn Reservoir, the source water for the 3KWTP in Park City exhibits limited periods of more challenging water quality. Therefore, a key data gap for testing was the performance during those periods. On a few occasions during piloting at Park City, turbidity rose rapidly due to natural causes. We collected and stored drums of raw water during these events to allow jar testing afterwards. With the stored water, we were able to test a range of coagulant and polymer doses and identify the combination that provided the best settled water quality. Relying on pilot testing only during such an event means anticipating that one of the test conditions will work well, which may not be the case. With bench testing, we identified an effective coagulation combination without time constraints, instituted it at pilot scale during the next event, and produced important results on filter performance during the short-lived events. Storing small quantities of raw water when it is available will allow us to efficiently quantify performance during adverse water quality events triggered by seasonal reservoir conditions, flood, or perhaps even wildfire.



We also have Dr. Rosario-Ortiz on our team, whose specialty is watershed impacts from wildfires. His main focus will be applying relevant Front Range data from the recent Water Research Foundation report 4590 *Wildfire Impacts on Drinking Water Treatment Process Performance: Development of Evaluation Protocols and Management Practices*. Recreating the character of catastrophic water quality such as that impacted by fire, flood, or drought can be challenging, especially in the volumes required for pilot testing. However, Dr. Rosario-Ortiz has developed an approach to simulate the effects of wildfire on small quantities of source water. If desired, we can produce enough water simulating the effects of wildfire to allow bench testing to assess its effect on coagulation and DBP formation.

## Pilot-Scale Testing

Our schedule shows an expedited procurement of pilot equipment. Starting early provides the benefit of allowing for a full year of seasonal water quality variations to be captured and tested. This eliminates the guesswork in predicting exactly when the most challenging conditions will occur and captures the full range of challenging conditions, including reservoir turnover, cold water, spring runoff, warm water, etc.

## Design/Procure/Construct



There are not a multitude of vendors that build drinking water pilots. We have a successful working history with Intuitech, a leading manufacturer of high-end pilot plant equipment. Intuitech skids have a sophisticated user-friendly operator interface and well-thought-out design born from many generations of equipment models. Upon arrival, these skids often require very little in terms of installation and shakedown. The photograph from the 3KWTP pilot study shows an Intuitech conventional treatment process. Intuitech also allows the pilot units to be either rented or purchased. If the City is interested in alternatives to Intuitech, we can explore other pilot equipment suppliers. It is worth noting, however, that despite opening the procurement to other vendors on Aurora

Water's and Denver Water's recent pilots, only Intuitech submitted bids.

## More Data, But Less Work – Better Living through Automation with Jacobs Alluvial Dashboard

For the City of Arvada RWTP filter pilot, there was a 4-month period of piloting that was focused on filtration alone. Data was downloaded and collected by the City's intern and processed with input by Jacobs. We want to build on the success of the frequent data review and reporting that was produced as part of the RWTP pilot (e.g., monitor regularly – don't wait to process the data), but evolve to meet the increasing demands and complexity of this potential pilot's data. For the AWTP pilot, it is anticipated that pre-treatment will be piloted in addition to filtration with potential for ozone and other process modifications – increasing the volume of data that will need to be reviewed, analyzed, and incorporated into the weekly reports. Our team proposes using Jacobs Alluvial, fueled by PowerBI, as the framework where the weekly data will be automatically graphed and analyzed using a standard platform agreed upon by the team. An example from our Medford Water Duff WTP pilot study that completed this spring is shown in the graphs on the following page. For this project, full-scale data is plotted alongside the pilot, and Jacobs actually identified a problem with the full-scale plant operation through the review of weekly pilot data that Jacobs Alluvial provided.

The initial effort to build the Alluvial platform more than pays for itself by eliminating the need to manually process the data for the weekly reports. Because Alluvial is web-based and can be accessed by multiple users, it will facilitate operator engagement with piloting and endorsement of the results-- one of our team's critical success factors.



*The Jacobs Alluvial tool will benefit the project with efficient data management and analysis while promoting and facilitating operator involvement in pilot operations.*



Filter Calibration

The pilot study will almost certainly involve testing granular media filtration. This affords an opportunity to calibrate the pilot performance with the filter performance at full scale. No one knows how to treat Blunn Reservoir water quality better than your Operations Team. We will utilize the City’s expertise in treating Blunn Reservoir as a starting point, and then, in partnership with the City staff and our Blue Ribbon Panel, optimize pilot operations to validate performance of competing processes under challenging water quality conditions.

From our previous experience at the Wemlinger WTP, we found that achieving a close correlation between pilot and full-scale filter performance came down to filter backwashing (and post-backwashing) techniques. Filter backwashing will expand the media bed, and once backwash is completed, the media will settle. We have found that it is essential to establish a consistent approach to media compaction, making use of a rubber mallet. Your operators have experience with this from the RWTP filter pilot.

Jacobs Pilot- and Full-Scale Performance Summary -- RWTP Full-Scale Performance Before and After Construction

Based on pilot results at the Ralston WTP, the Jacobs and City team selected the 1.1 mm effective size anthracite. The goals were to maintain the same excellent filtered water turbidity as full-scale RWTP while increasing the typical 30-hour run time at a higher loading rate.

| Post Construction Filtration Performance Example                 |                   |        |                |
|------------------------------------------------------------------|-------------------|--------|----------------|
| Filter 10                                                        | Media             | UFRV   | Run Time (hrs) |
| 4/26/2023                                                        | 1.1 mm            | 22,416 | 80             |
| Pre Construction Filtration Performance Example                  |                   |        |                |
| Filter 3                                                         |                   |        |                |
| 2/7/2022                                                         | Existing (0.6 mm) | 7,862  | 28             |
| Increase                                                         |                   | 285%   | 285%           |
| Performance (After Construction) versus Pre Construction Example |                   |        |                |

Start-up results for Filter Number 10 indicate that full scale results significantly exceeded the UFRV and filter run time predicted by pilot testing (despite the calibration process, a full-scale filter always out-performs the pilot-scale filter that it was designed around). The successful pilot and subsequent full-scale test demonstrate that the key project objectives of the RWTP filter project will be achieved or exceeded, providing both increased filtration capacity and efficient operation, along with low effluent turbidity performance.

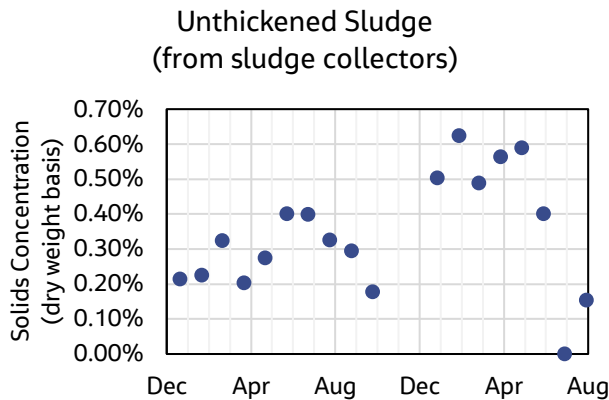
The Jacobs, City, and CMGC partner collaborated to implement full-scale filter modifications that exceeded results at pilot. Our collective team was successful at RWTP, and we will partner with you for the same success at the future water treatment plant. The City can have confidence in Jacobs’ proven approach to piloting and subsequent design.

Solids

At many drinking water treatment plants, the production capacity is limited by solids handling. When designed at a loading rate of 14 to 16 dry pounds per square foot per year, filter drying beds such as those serving Denver Water’s Moffat and Northwater WTPs (located just below Ralston Reservoir, see photo) and Aurora Water’s Binney WPF are a proven, cost-effective dewatering approach uniquely suited to Front Range climate conditions. Because drying beds are operated in batch mode, they provide a buffer against extreme raw water turbidity events such as the flooding that Arvada experienced in 2013 or potential future events associated with climate change and wildfires. The inherent solids storage capacity of drying beds also facilitates the TENORM sampling required by CDPHE prior to disposal of the solids.



While the solids produced from aluminum- and iron-based coagulants and polymers is well known, the relationship of solids to source water turbidity is site specific. Values in the literature vary wildly, each NTU of turbidity in the source water could result in 4 to 17 dry pounds of solids per million gallons treated. (The wide range in reported values is one reason solids handling systems at WTPs are often undersized.) Data collected during the pilot testing across a range of water quality conditions will be critical in accurately quantifying the solids production at full scale so that the solids handling system can be appropriately sized.



For an even more robust buffer against future extreme water quality events, gravity thickening can be included upstream of the drying beds. Water treatment sedimentation basins typically produce very dilute solids, on the order of 0.1 to 0.5 percent solids on a dry weight basis. A gravity thickener can increase the solids concentration to over 5 percent, removing 90 to 98 percent of the water before the solids reach the drying beds and allowing the beds to be cycled more quickly. The appropriate solids and hydraulic loading rates for the gravity thickener vary based on the characteristics of the source water and the upstream processes. However, solids from in the pilot clarifier can be used for batch settling tests to develop plant-specific design criteria using the method developed by Talmage and Fitch.

The solids from the thickening tests also provide the opportunity for radionuclide testing in conjunction with the pilot plant's filtered water. The abandoned Schwartzwalder uranium mine is in the watershed that feeds Ralston Reservoir, so these tests are important checks to verify that the solids will ultimately meet CDPHE's Technically Enhanced Naturally Occurring Radioactive Material (TENORM) disposal limits and the treated water will meet the maximum contaminant levels and Arvada's quality goals.

Pilot testing provides the opportunity to quantify the production of during treatment and assess the properties of the solids with an eye toward dewatering and disposal. This opportunity is often overlooked, resulting solids handling systems that are a bottleneck to plant production. We will take this opportunity to gather the data so that your new plant's solids handling systems are sized appropriately for typical conditions and sized adequately for extreme conditions.

### Stress Testing

For the City's pilot study, we recommend a defined period for stress testing. In our experience, allotting time to "try to break things" at the pilot and time to simulate potential full-scale challenges is an important undertaking to involve the future WTP operators and to test the treatment train robustness. We will first convene with the City team to identify the stress test conditions that we want to implement. Some of the tests we propose include loss of chemicals (one by one) and evaluating rapid changes in filter loading rates. At Park City, we found that treatment could withstand a brief period without polymer feed but could withstand a much longer duration without pre-oxidation. This built operator confidence and informed where incorporating additional redundancy during design would provide the most benefit. The testing with rapid changes in filter loading rate informed the selection of the number of filters and a strategy of keeping on filter in standby continuously so that taking a filter off to backwash had minimal impact on the loading rate on the other filters.

## Phase II: Beyond Pilot Testing - Future Phases of Collaboration

Subsequent phases of design, permitting, construction, and commissioning will build on successful pilot testing outcomes; the pilot testing project sets in motion elements that will ultimately form the foundation of a new treatment plant. Jacobs' goal is to continue to serve the City in these future phases. This section of our proposal presents our vision and our unique experience that will allow us to provide value to City, through completion of the new facility and beyond.

We know our team can meet your goals because:

- Our core team has a long history of working together successfully on similar projects.
- We have unmatched expertise in successfully designing water treatment and conveyance infrastructure.
- We have worked successfully across the spectrum of delivery models from traditional design-bid-build (DBB) to collaborative design-build (DB), construction-management-at-risk (CMAR) and Construction Manager / General Contractor (CM/GC) approach.



### Our Perspective on Collaborative Delivery Models

Our experience shows the best-value focus afforded by collaborative delivery models results in an objectively better facility. When all parties share their respective expertise and experience and consider all aspects of design, construction and O&M, the result is a project that maximizes value throughout its lifecycle. Completing future phases of the City's Water Treatment Replacement Project will involve a significant investment in new water treatment and conveyance infrastructure by the City. We understand the City anticipates proceeding with a CM/GC approach for schedule and best value reasons. Jacobs and our conveyance partner (HDR) have extensive successful experience with collaborative delivery in the Front range and invite you to contact some of Jacobs' CM/GC partners from projects currently underway to discuss their experience with Jacobs.

| Project                     | CM/GC Partner    | Contact Information                            |
|-----------------------------|------------------|------------------------------------------------|
| Ralston Filter Improvements | PCL Construction | Ray Torrejon, Project Manager<br>720-357-6253  |
| Denver Water Northwater     | Kiewit           | Boyd Dunham<br>(505) 331-6993                  |
| Wellington WTP Expansion    | Hensel-Phelps    | Will Martin, Project Manager<br>(970) 217-9957 |

### Design and Construction Phase Services

The project design work will be carried out using a phased design delivery approach to assure a logical and progressive completion of the design, including 30% Schematic Design, 60% Detailed Design, and 90% Final design. Each phase of design will include a specific list of work products and deliverables. Weekly to bi-weekly progress meetings would be conducted with Arvada during the design phase, and milestone review workshops will be conducted with Arvada after each design phase. Arvada's operations and engineering staff and the CMGC contractor would be invited to each meeting. Jacobs will incorporate constructability comments from the CM/GC contractor at each design phase and advise the contractor on best practices, product preferences, and vendor contacts in support of the Contractor developing their GPM.

Jacobs' core team from the Pilot Testing work would remain in place for the design and construction phases so that nothing is overlooked in the transition between study, design, and implementation.

## Water Treatment Plant Design

Jacobs will deploy its highly experienced team of professionals to design Arvada's new water treatment plant. Jacobs will execute the City's project using local staff, many of which have worked on Arvada's RWTP Filter project. Each discipline lead has experience working collaboratively with CM/GC contractors.

## Pipelines Design

Liv Haugen would join the team to direct the design and construction phase services piping within the plant site. HDR will lead raw and finished water pipeline design support services up to the fence line of the WTP.

## Permitting and Planning

We have a highly experienced permitting and planning team that will be engaged during the Phase II design activities. Our team's skillset is comprehensive, with capabilities in the following areas, and more, that may be required for planning of the new WTP.

- Colorado State Revolving Funds (if used) triggers NEPA or "NEPA-like" compliance requirements
- Environmental Clearances
- Design Related Permitting, drawing package preparation for Arvada Building Department Review
- Public Notification and Involvement
- CDPHE Design approval -- Design Criteria for Potable Water Systems Safe Drinking Water Program Implementation Policy DW005

## Construction and Startup Phase Services

With a team of mostly local staff, Jacobs would have our engineers available for onsite construction observations, site inspections for final completion and startup and commissioning activities. A project of this size warrants a full-time resident project representative to act as a trusted partner to the City of Arvada. The resident construction manager will facilitate the construction process, lead regular project meetings, monitor adherence to the project specifications, manage project documentation, and support system startup.

## Project Management Approach

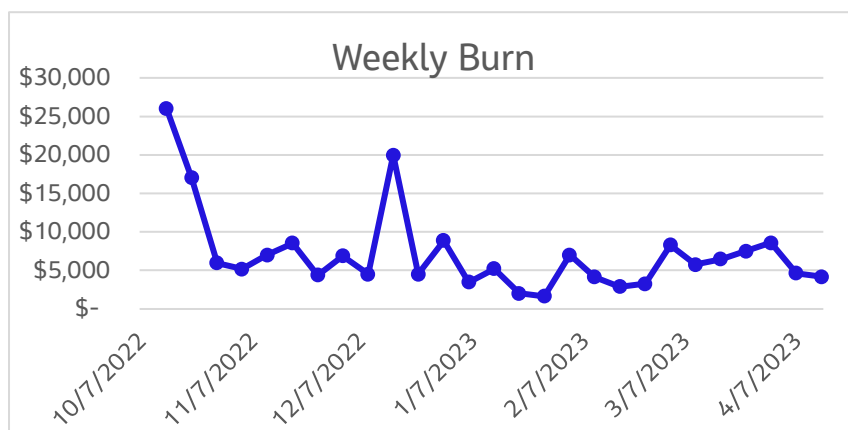
Kerry Meyer will serve as the primary point of contact for contractual matters, will have ultimate responsibility for upholding Jacobs' quality and ethical standards, and will manage progress against schedule and budget. One of the key tenets of our project management approach is clear communication and close collaboration between Arvada and the Jacobs team. We will focus on staying one step ahead, collaborating with your staff, communicating frequently, and being responsive.

Weekly progress meetings will be used to communicate project status, share information, and confirm project direction and objectives. Because of the proximity of our Greenwood Village office, technical team members can attend these meetings, as needed, based on the planned topics. Or, as demonstrated on the RWTP Filter project, PM and our broader team are also comfortable collaborating with City of Arvada's team via teleconference. For the Phase 1 Pilot project, Dani Davis will support budget tracking and invoicing. To maintain budget and cost control, we propose monitoring and reporting weekly actuals against budget like the tracking that was performed during Services during Construction for the RWTP Filter project.



*Jacobs has a highly experienced team of professionals ready to plan and design Arvada's new Water Treatment Plant.*





*We will use the same tracking process that was successfully used for the RWTP Filter project services during construction.*

## Quality Assurance/ Quality Control

Jacobs believes the quality of our services is integral to our business success. Quality is not an end product – it is integrated into our work activities during every phase of each project. Our approach to providing quality rests on Jacobs' proven methodology, which has resulted in numerous high-quality projects locally, across the U.S. and worldwide.

Jacobs brings together a consistent, cohesive quality plan that integrates QA/QC procedures throughout the project lifecycle. Documents and other deliverables prepared by our team will be reviewed internally by our treatment subject matter

expert Bill Carter before they are transmitted to Arvada. These reviews are documented to confirm the process is functioning correctly. More importantly, Bill will perform continuous QA/QC by regularly engaging with the design team. This approach ensures that quality is baked-in instead of just sprinkled on top.

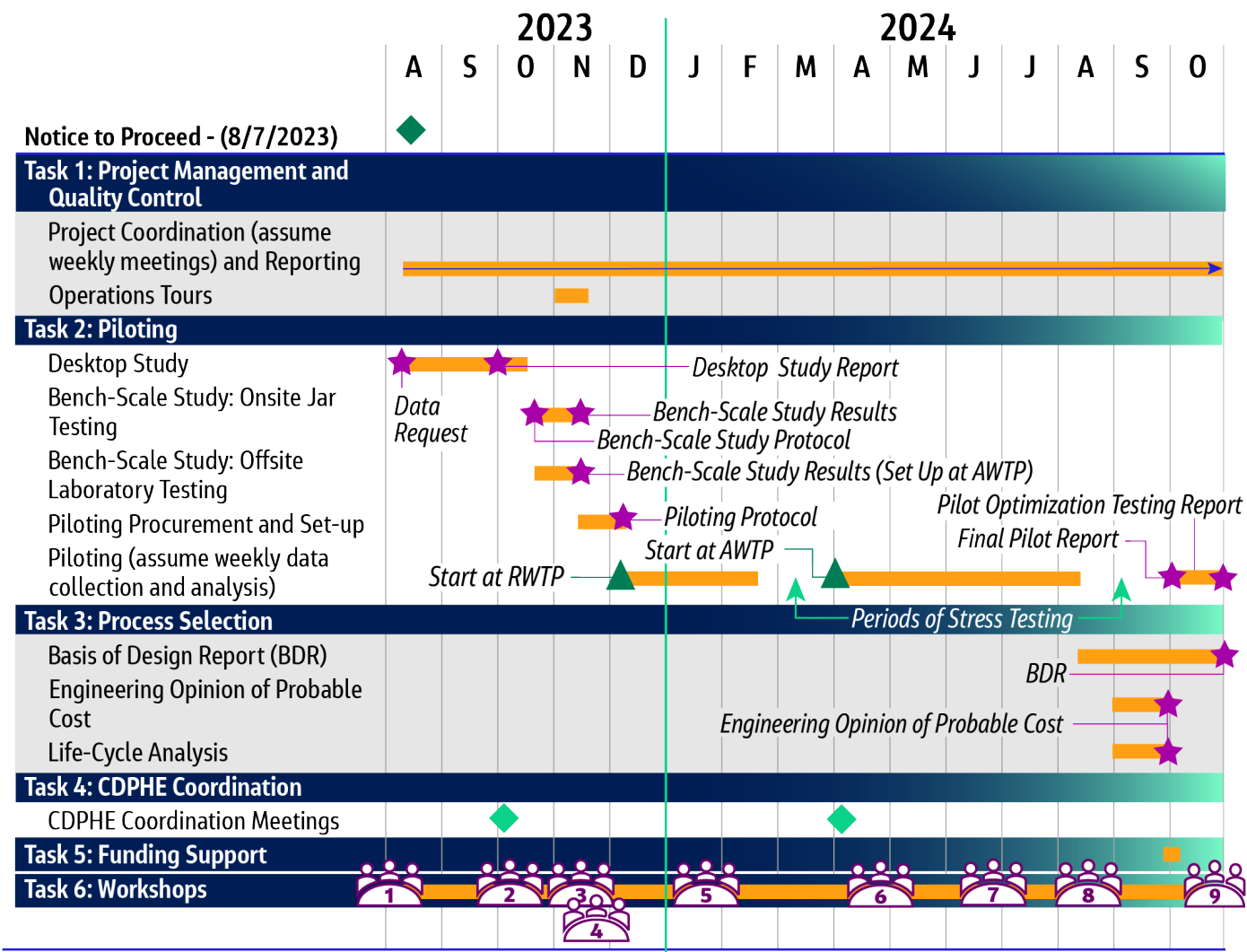
## Our Commitment to the City of Arvada

We pledge that our key team leaders and the full team behind them will be there with you as a full-service partner from the kickoff meeting to the ribbon-cutting. After the ribbon-cutting, this same team will continue to deliver the right solutions for the City, addressing water quality challenges, water treatment issues, and facility and water system optimization. We ask that you select Jacobs to continue our history of collaboration on this Water Treatment Replacement, Piloting and Process Selection project.



# 4. Proposed Schedule

Our proposed project schedule meeting the goal of delivering the BDR by December of 2024 is shown below.



- 

**WORKSHOPS**
  - 1 Project Planning and Initiaton Meeting
  - 2 Desktop Study Analysis Findings and Recommendations
  - 3 Bench-Scale Study Analysis Findings and Recommendations
  - 4 Pilot Design Review Meeting
  - 5 and 6 Pilot Update Workshops
  - 7 Challenge Testing Results Workshops
  - 8 Recommended Process Consensus (Including Envision™ Considerations)
  - 9 BDR Review Workshop

- 

**DELIVERABLES**

**Task 2**

  - Data Request
  - Desktop Study Report (including High-Level Live-Cycle Analysis)
  - Bench-Scale Study Protocol
  - Bench-Scale Study Results
  - Piloting Protocol (including Weekly Report)
  - Final Pilot Report
  - Pilot Optimization Testing Report

- Task 3**

  - BDR
  - Engineering Opinion of Probable Cost
  - Life-Cycle Analysis

**Additional Regular Deliverables Not Shown:**

  - Monthly Reporting
  - Workshop Documentation Including Meeting Agendas, Presentations, and Meeting Summaries

- 

**MEETINGS**
- 

**DATA WITH DONUTS**

## 5. Completed City Submittal Forms and Performance Measures Form

Please see Appendix B for our completed Required Vendor Submittal Form.

## 6. Price Area

Below is a summary of our cost estimate and rate sheet for the Phase 1 Scope of Work. Please see Appendix D for more a more detailed cost breakdown.

The Jacobs 2023-2024 hourly rate and fee schedule is provided below

| Project Staffing Code | Billing Classification <sup>(1)</sup>                                                           | Hourly Rate <sup>(2)</sup> |
|-----------------------|-------------------------------------------------------------------------------------------------|----------------------------|
| 01                    | Program Manager, Fellow Technologist                                                            | \$268.00                   |
| 02                    | Principal Project Manager, Principal Technologist                                               | \$228.00                   |
| 03                    | Senior Project Manager, Senior Technologist                                                     | \$212.00                   |
| 04                    | Project Manager, Engineer Specialist, Contracts Manager, Project Engineer 2                     | \$181.00                   |
| 05                    | Associate Project Manager, Project Engineer 1                                                   | \$158.00                   |
| 06                    | Associate Engineer, Associate Health and Safety Professional, Technician 4                      | \$147.00                   |
| 07                    | Staff Engineer 2, Staff Scientist 2, Biologist, Health and Safety Professional, Associate       | \$133.00                   |
| 08                    | Staff Engineer 1, Staff Scientist 1, Project Accountant 2, Staff Biologist                      | \$116.00                   |
| 09                    | Staff Engineer 3, Consultant 4                                                                  | \$135.00                   |
| 10                    | Engineering Technician 5, Environmental Technician 5, Designer 5, Graphic Designer 5, Editor 5, | \$149.00                   |
| 11                    | Engineering Technician 4, Designer 4, Graphic Designer 4, Editor 4, Publishing Technician 4     | \$139.00                   |
| 12                    | Engineering Technician 3, Graphic Designer 3, Editor 3, Publishing Technician 3                 | \$129.00                   |
| 13                    | Engineering Technician 2, Graphic Designer 2, Editor 2, Publishing Technician 2                 | \$111.00                   |
| 14                    | Engineering Technician 1, Graphic Designer 1, Editor 1, Publishing Technician 1                 | \$98.00                    |
| 15                    | Administrative Assistant, Project Accountant, Project Assistant, Engineer Intern                | \$103.00                   |

<sup>1</sup>Staff labor classifications may change during the year; staff will be categorized based on current labor classification.

<sup>2</sup>Hourly rates include allowances for salary, payroll taxes, fringe benefits, overhead, and profit.

| Expense Type -Non-Labor Rate Items                                     | Rate                                      |
|------------------------------------------------------------------------|-------------------------------------------|
| Auto Mileage Rate                                                      | Current IRS audit rate at time of service |
| Other related consumable supplies (field equipment and supplies, etc.) | At cost with no additional markup         |
| Postage, freight                                                       | At cost with no additional markup         |
| Travel costs (airfare, hotel, Auto rental, meals, etc.)                | At cost with no additional markup         |
| Subcontractors and Outside Services                                    | Actual + 5 percent                        |

| Fee Summary – Phase I - Piloting, Process Selection, and CDPHE Coordination |                                        |                          |
|-----------------------------------------------------------------------------|----------------------------------------|--------------------------|
| Task                                                                        | Description                            | Total Labor and Expenses |
| Task 1                                                                      | Project Management and Quality Control | \$65,595                 |
| Task 2                                                                      | Piloting                               | \$351,837                |
| Task 3                                                                      | Process Selection                      | \$63,294                 |
| Task 4                                                                      | CDPHE Coordination                     | \$14,233                 |
| Task 5                                                                      | Funding Support                        | \$3,440                  |
| <b>Total</b>                                                                |                                        | <b>\$ 498,400</b>        |

Note: Refer to Appendix D for detailed Fee, hours, subconsultants, and expenses by subtask



# Appendix A - Resumes



# Kerry Meyer, PE

PROJECT MANAGER – PHASES I & II

### Areas of Expertise

- More than 20 years of experience on water treatment process, design, operation, and master planning projects
- Former Trustee of the American Water Works Association (AWWA) Water Quality and Technology Division; initiator and first Chair of the AWWA Biological Drinking Water Treatment Committee
- Served as advisor for multiple national technical research projects for Water Research Foundation

### EDUCATION/QUALIFICATIONS

MS, Civil Engineering, University of Colorado

BS, Civil Engineering, University of New Hampshire

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO

### Relevant Project Experience

**Project Manager, Water Treatment Expansion and Replacement Siting Study, City of Arvada, CO.** Project manager for the development of a robust, data-driven siting study process for the City of Arvada. Activities included desktop condition assessment of existing Ralston Water Treatment Plant and development of a Road Map for Water Treatment to meet the City of Arvada Service Levels in perpetuity. The site selection portion of the work included identification of the minimum size area required for future treatment; completion of a site narrowing process informed by community, engineering, and site-specific

considerations; and ongoing coordination with a public outreach team. This project was delivered in a workshop-based approach with critical input from City stakeholders including Parks, Public Works, Utilities, and Communications.

### **Project Manager, Ralston Water Treatment Plant Filter Improvements Project, City of Arvada, CO.**

Project manager for the Preliminary Design, Final Design, and Services During Construction for the comprehensive study and design of media replacement and re-rating of the Ralston Water Treatment Plant. Project activities included media pilot testing, condition assessment of existing filter facilities, determination of acceptable design criteria deviations, CMGC collaboration, and coordination with CDPHE (including successful submission of design documentation and BODR report).

### **Project Manager, Integrated Water Resources Plan (IRP) 2065, Denver Water, CO.**

Led the team's collaboration with Denver Water to develop an adaptive plan and informed Capital Improvement Program (CIP) that will guide decisions related to the entire water system over a range of plausible planning futures for the next 50 years. The adaptive plan was developed by identifying gaps resulting from varying climate change impacts, regulations, water use demands and other drivers that influence the trajectory of capital expenditures and identifying projects with triggers for gap resolution. This challenging project includes more than 100 team members and spans a range of key divisions at Denver Water. A workshop-based approach was used to engage stakeholders at the critical project milestones and to maintain a rigorous project schedule. *Kerry Meyer is currently the Project*

*Manager for the nearly \$1M South System Planning Project. Jacobs will successfully selected by Denver Water in a competitive procurement process for this follow-on work after completion of the IRP2065.*

**Project Engineer and Lead Pilot Operator, Aurora Water Prairie Waters Project, Aurora, CO.**

Pilot-tested 120-gpm precipitative softening and granular media filtration of riverbank-filtered water for Aurora Water's Prairie Waters Project. Provided results that were significant as they validated the higher design filter loading rates proposed to the State of Colorado and identified some of the critical success factors for full-scale plant operation. Authored the final report and presented findings to state regulators, which led to acceptance of the full-scale design criteria.

**Project Manager, Water Treatment Facility Siting Study, City of Westminster, CO.** The site selection project is the first phase of the City's WATER2025 program intended to bring a new water treatment facility on-line by the end of 2025. Construction of the new facility will help prepare for the retirement of the existing Semper Water Treatment Facility by 2040. The siting study recommends a preferred location for the construction of a new 60-mgd water treatment facility to serve Westminster customers for the next 100 years. The study includes developing a comprehensive list of potential sites that are evaluated based on fatal flaws and various technical and nontechnical criteria. This evaluation and a thorough economic analysis identify the top three recommended sites to be considered. A desktop evaluation, field data, and land acquisition support for the top three sites are used to determine the final recommended site.

**Project Manager, 2015 Water Treatment Facilities Plan, City of Westminster, CO.** Managed delivery of this comprehensive master plan to address future water treatment locations for the city, which significantly impacted the Capital Improvement Program (CIP) at both the Semper

and Northwest Water Treatment Facilities. This comprehensive document included sections on water demand, water quality, demand reliability goals, future regulatory compliance, non-monetary benefit analysis, and cost and uncertainty analysis. The master plan resulted in the development of a cost-loaded capital project implementation plan to allow the City to plan through 2040. A desktop water treatment assessment was conducted for the existing treatment facilities to help define current performance, projected end of useful life, and repairs and modifications needed to maintain satisfactory performance.

**Project Engineer, Wes Brown Water Treatment Plant Operations Study, City of Thornton, CO.**

Evaluated an underperforming 50-mgd immersed membrane water treatment plant. Performed a detailed assessment of all unit processes, including oxidation, coagulation, clarification, membrane filtration, and disinfection, and recommended infrastructure improvement projects to improve plant performance. A membrane fouling study was implemented that included advanced analytical techniques such as size exclusion chromatography, chromatic elemental imaging, energy dispersive X-ray spectroscopy, and Fourier transform infrared spectroscopy.

**Project Manager; Spiritwood Station Power Plant Water Treatment Facility Projects; Great River Energy.** Managed over \$1 million in sole source private-sector work between 2012 and 2015 for Great River Energy at this water treatment facility. Activities included a water balancing study, a membrane fouling and treatment alternatives evaluation, basis of design reports including preliminary design drawings for a plant upgrade and a groundwater supply upgrade, and plant start-up and commissioning support including bench-scale, pilot-scale, and full-scale testing aimed at optimization of the existing clarifier, microfiltration, and reverse osmosis processes. Kerry's work ultimately helped to keep this power

plant from going offline during an emergency situation when a microfiltration rental skid failed and the plant suffered a lack of water. Kerry responded immediately and implemented a solution that involved treating an emergency raw supply without compromising the integrity of the reverse osmosis membranes. The client, noting that Kerry "responded at 11:30 at night on a Sunday," was impressed by her dedication, quick response, and creativity in preventing what could have been a significant crisis.

**Project Engineer and Lead Author, Water Research Foundation Project #4131: Optimizing the Sustainability of Treatment Processes for Nitrate Removal for Inland Communities, City of Glendale, AZ.** Designed and managed pilot plant operations, including three parallel biological denitrification treatment trains followed by ozone and biologically active carbon filtration. Prepared a systems analysis to score the three trains according to the sustainability triple bottom line criteria of cost, environmental, and societal implications.





## Bill Carter, PE

PRETREATMENT / FILTERS – PHASE I  
SENIOR ADVISOR – PHASE II

### Areas of Expertise

- Expert in water treatment process-mechanical design with more than 27 years of experience executing and managing water treatment facility projects, from concept through design, construction, and startup, with a proven track record with many local clients, including Denver Water, for delivering high-quality water treatment projects on time and under budget
- Process engineer on numerous water treatment projects located along the Front Range, including plants in Denver, Aurora, Castle Rock, and Colorado Springs

#### EDUCATION/QUALIFICATIONS

MS, Environmental Engineering, Georgia Institute of Technology

BS, Mechanical Engineering, Georgia Institute of Technology

#### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO, GA, UT

### Relevant Project Experience

**Senior Process Engineer, Northwater Treatment Plant, Denver Water, CO.** Lead process engineer for the greenfield, state-of-the-art, 75-million-gallon-per-day (mgd), expandable to 150-mgd water treatment plant aimed to upgrade and modernize the northern portion of Denver Water's water system. Treatment includes coagulation, flocculation and sedimentation (with inclined plates) deep bed granular media filtration with UV disinfection for *Giardia* and free chlorine pipe contactors for virus; return flow equalization and pumping; and gravity thickeners. Facilities were designed with focus on redundancy, reliability, and operator safety during maintenance.

**Project Manager, Binney Water Purification Facility (WPF), Prairie Waters Project, Aurora Water, CO.** Managed the design and construction of innovative water treatment facilities that incorporate state-of-the-art treatment processes. The Binney WPF will employ physical-chemical pretreatment, UV-based advanced oxidation, and biological filtration, and carbon adsorption to provide an additional 50 mgd of capacity to Aurora's water system. The multi-barrier approach employed on this project is designed to safeguard public health while minimizing impacts to the environment.

**Project Manager, Riverbank Filtration and Aquifer Recharge and Recovery, Prairie Waters Project, Aurora Water, CO.** Managed the design of innovative water treatment facilities that incorporate natural treatment systems. This system is designed to remove pathogens, nitrate, and emerging contaminants (such as pharmaceutical residues and endocrine disrupting compounds) through natural treatment processes while minimizing negative environmental impacts. The initial phase of this system will increase Aurora's water supply yield by 10,000 acre-feet per year.

**Project Manager, Pilot Studies, Wemlinger WTP Upgrade/Expansion, Aurora Water, CO.** Conducted pilot testing of advanced treatment technologies, including chlorine dioxide, ozone, sand-ballasted sedimentation, and direct filtration. Completed documentation of pilot testing and multi-attribute decision modeling that supported the City's treatment process selection.

**Lead Process Engineer, Wemlinger WTP Upgrade/Expansion, Aurora Water, CO.** Led engineering for the upgrade/expansion project, which involved replacement of the raw water flow control facility, extensive upgrades to the existing

filters, a new disinfection system using a combination of chlorine dioxide and free chlorine, and new chemical storage and feed systems. Because water demand dictated that the plant could be out of service only from October through May, the construction schedule significantly impacted the final design approach. The design execution allowed major portions of the construction to be completed prior to removing the plant from service and served as a major factor in the plant's being returned to service 6 weeks ahead of schedule.

**Project Manager, Griswold WPF Filter Performance Improvement Design, Aurora Water, CO.** Leading the team to address the unique filter hydraulics challenges at the Griswold plant. The team is implementing a design approach based on more than 20 years of experience designing, commissioning, and assisting with operational optimization of Aurora Water's filters. This approach avoids issues inherent in construction over multiple years and maximizes the return on Aurora Water's investment.

**Lead Engineer/Project Engineer, Denver Water Recycling Plant, Denver, CO.** Served in several roles on this project to construct a new 30-mgd water reuse plant to reclaim secondary effluent from the Metro Wastewater Reclamation District's wastewater treatment plant:

- Lead engineer for the filters during design development, final design, and construction. Work included hydraulic analysis, process design, integrating the filters with other plant processes, preparation of contract documents, and design support during construction. To maintain project schedule, the design was delivered through multiple bid packages providing flexibility in the construction sequencing and equipment procurement.
- Lead engineer for the biological aerated filter (BAF) facility during design development, process equipment selection, and

pre-purchase. The selection between two major suppliers of BAF process equipment was completed based on life-cycle cost analysis and evaluation of non-economic criteria. This approach ensured that the selected equipment cost-effectively met the project's performance while offering excellent operational characteristics.

- Project engineer for membrane pilot testing. Provided operations services for the Denver Water reuse membrane filtration pilot study. This pilot study involved two MF pilot units with alum coagulation and flocculation. In addition to operating and troubleshooting the pilot plant, responsibilities involved collection, QA/QC, and analysis of the pilot plant data.

**Project Engineer, Marston Treatment Plant, Denver Water, CO.** Provided odor sampling assistance, basis-of-design calculations, and schematic design for an odor control system for the Marston Water Treatment Plant. The project, which included coarse bubble aeration to prevent hydrogen sulfide formation in the sludge holding basin, was successfully implemented by Denver Water.

**Project Engineer, Moffat Treatment Plant, Denver Water, CO.** Developed basis-of-design calculations and a schematic design for a 720-pounds/hour carbon dioxide system for the Moffat WTP. The design, which included a purchase specification for the carbon dioxide storage and feed equipment, was successfully implemented by Denver Water.

**Senior Technical Consultant, Loveland WTP Phase II Improvements, City of Loveland, CO.** Provided continuous senior technical guidance to the design team for the new Filter Plant 4 complex and West Chemical Building chemical storage and feed facility, addressing hydraulics, process design, and operability.



## David Austin, PE

WATERSHED IMPACTS / LIMNOLOGIST – PHASE I

*David Austin is a limnologist and water quality engineer with more than 25 years of experience, including reservoir management and lake restoration projects for drinking water, recreation, habitat, and wastewater reuse. He has served as technical lead for multiple water quality monitoring and analysis projects. He is a specialist in water quality improvement (e.g., destratification, oxygenation, and aeration of reservoirs, lakes, and tidal estuaries) and water quality monitoring.*

### Areas of Expertise

- Limnologist and water quality engineer
- Specialist in destratification, oxygenation, and aeration of reservoirs, lakes, and tidal estuaries
- Expert manager of drinking water reservoirs

### EDUCATION/QUALIFICATIONS

MS, Civil and Environmental Engineering  
MS, Water Resources Management  
BA, Mathematics

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: MN  
Senior Ecologist, Ecological Society of America  
Certified Lake Manager, North American Lake Management Society (NALMS)  
Certified Ecological Designer, American Ecological Engineering Society (AEES)  
President American Ecological Engineering Society

### Relevant Project Experience

**Task Lead, Quincy Reservoir, Aurora Water; Aurora, CO.** Quincy Reservoir is a shallow basin (9 am or 30 ft) that suffers from nutrient impairments during winter under the ice. Winter anoxia sets up the reservoir for year-round water quality impairments. Aeration in winter is not acceptable if it creates open water hazards to the public. Jacobs had previously developed an effective, ice-preserving aeration system that keeps water under the high close to dissolved saturation. This project will adapt ice-preserving aeration to Quincy Reservoir to meet water quality goals year-round.

**Senior Technical Consultant, Quincy Reservoir, Aurora Water, CO.** Winter anoxia under ice degrades water quality in reservoir, sharply limiting use. Led analysis and design of improvements, including determination of phosphorus loading, circulation patterns, and design of destratification and ice-preserving aeration systems. Geochemical augmentation with Al salts is also part of design management systems.

**Reservoir Management, Parker Water and Sanitation District, CO.** Client has two reservoirs: Regional Reservoir (RR), which combines tertiary effluent and well water that flows to and Reuter Hess (RH) reservoir, a 72,000 ac-ft impoundment. Eutrophication in RR impairs operations. RH had been on line for two years. The client sought relief from poor water quality in RR and needed to ensure RH water quality provided an acceptable raw water to drinking water treatment. Project analyses in-reservoir actions necessary to ensure acceptable water quality in both reservoirs.

**Technical Lead, Lake Rehabilitation Projects,  
Riley Purgatory Bluff Creek Watershed  
Management District, Minneapolis area, MN.**

Multiple projects:

- Conducted full-scale pilot study of nitrate amendment to the hypolimnion of Round Lake (City of Eden Prairie) to successfully control methyl mercury and phosphorus release from profundal sediments. Full scale pilot study
- Conducted full-scale pilot study of hypolimnetic oxygenation in shallow, stratified lake. Study demonstrated redox controls that prevent phosphorus release from sediments
- Conducted 3-year, comprehensive evaluation of stormwater pond performance. Measured pond nutrient removal performance reveal large phosphorus releases from pond sediment that are subsequently washed downstream. Project developed rapid field assessment protocol to identify most poorly performing ponds with high statistical confidence (95%) without sampling
- Conducted winter water quality monitoring, oxygen dynamic, and redox dynamic studies to determine that late winter phosphorus release from sediments is key contributor of summer water quality
- Developed lost-cost ice-preserving aeration system to prevent late winter phosphorus release and winter fish kill
- Conducted comprehensive lake restoration studies for thirteen impaired lakes based on detailed monitoring studies of lake water quality parameters
- Conducted detailed redox dynamic studies of thirteen impaired lakes to determine phosphorus release dynamics from sediments
- Contracted and analyzed sediment oxygen demand studies on six District lakes to provide engineering design basis for future lake restoration actions

- Designed comprehensive lake and stream water quality and biological monitoring program

**Senior Technical Consultant, Preliminary Design  
of Water Quality Improvement Engineering**

**Senior Technical Consultant, Water Quality Engineering Improvement Monitoring for Shamrock Reservoir, Blalock Reservoir, Hooper Reservoir, and Smith Reservoir, Clayton County Water Authority (CCWA), GA.** CCWA operates the world's largest (de facto) direct reuse system, discharging 78 MLD (20 MGD) of tertiary effluent into to reservoirs, a watershed drainage system, and then into a final reservoir which is the principal raw water source for drinking water. Officially designed as indirect reuse, there are prolonged periods in which watershed contribution to supply is negligible. Poor water quality in the reservoirs forced the following water quality remediation projects:

- Designed 2016 monitoring program for four reservoirs to produce an engineering-quality biogeochemical / water quality data set suitable for in-situ remediation design
- Design for two hypolimnetic oxygenation systems to extinguish strong summer anoxia and one destratification aeration system to prevent occurrence of transient summer anoxia. Operational March 2019
- Design of geochemical augmentation systems to reduce total phosphorus:
  - Aluminum chlorohydrate (ACH) in final reservoir (with aeration), 2019
  - Ferric chloride in second reservoir (with oxygenation), 2019
  - ACH in upstream treatment wetland (108 ha) to reduce TP. Full-scale pilots in 2017 and 2018 support potential to reduce TP from 0.5 mg/L to 0.05 mg/L while avoiding formation of floc and keeping aluminum below chronic toxicity concentration. Permanent system in development as of March 2019





## Paul Swaim, PE

DISINFECTION – PHASE I

### Areas of Expertise

- Technical expert in water treatment process selection, treatability (bench and pilot scale) testing, granular activated carbon (GAC), treatment for emerging contaminants, UV disinfection, and advanced oxidation
- Recognized international expert in disinfection and advanced oxidation for drinking water, water reuse, and wastewater treatment applications, including regulatory approval, design, construction, startup, and operations
- Project manager, technical lead, senior reviewer, task leader, or technical advisor on more than 50 disinfection projects across North America and internationally, totaling more than 2,500 million gallons per day of disinfection capacity

#### EDUCATION/QUALIFICATIONS

MS, Civil and Environmental Engineering, University of California, Berkeley

BS, Civil Engineering, University of California, Berkeley

#### REGISTRATIONS/CERTIFICATIONS

Professional Engineer, CA, CO, UT

### Relevant Project Experience

**Task Leader/Senior Consultant, Prairie Waters Project, Binney Water Purification Facility, Aurora Water, CO.** Task manager for water quality and treatability testing tasks for Aurora Water's award-winning Prairie Waters Project. Led water quality sampling and regulatory assessment tasks and led two pilot studies to support regulatory approval of the indirect potable reuse facility. The

pilot studies included evaluating conventional treatment and filter loading rates up to 10 gpm/sf at the 80 MGD Wemlinger WTP, and evaluating softening and filter loading rates up to 12 gpm/sf for the future 50 MGD Binney Water Purification Facility. Planned and led treatability testing to evaluate removal of emerging contaminants and nitrosamines by UV advanced oxidation, and then was senior consultant for UV-AOP facility design was based on testing results.

#### **Project Engineer, Southern Delivery System Water Treatment Plant, Colorado Springs Utilities, CO.**

Project engineer for water quality evaluation, process selection, bench-scale testing, pilot testing, and pre-design for the Colorado Springs Utilities' 50-mgd Southern Delivery System water treatment plant. Project engineer for the drinking water treatment pilot study to evaluate conventional filtration, single-stage sodium hydroxide softening, and two-stage lime/soda ash softening in parallel. The pilot plant also included ozonation and biological filtration.

#### **Project Engineer, Longmont Water Treatment Plant Pilot Study, Longmont, CO.**

Pilot testing focused on conventional treatment, ozonation, and high-rate filtration with biologically-active carbon media. Follow-up testing included pilot testing with the Actiflo process. Pilot testing served as the basis for developing design criteria for a new, 30-mgd treatment plant.

#### **Project Manager, 3Kings Water Treatment Plant, Park City Municipal Corporation, UT.**

Project Manager for the desktop evaluation study to select a treatment approach meeting myriad, extremely stringent limits for mining-influenced water that is part of Park City's potable water

supply. Managed bench-top and pilot testing to demonstrate treatment performance. Also managed design of the greenfield treatment plant that can produce potable water or water for stream discharge meeting stringent requirements from a Stipulated Compliance Order. The conventional treatment design includes specialized media for metals removal, as well as on-site hypochlorite generation. The \$77.5M facility has a unique architectural theme to fit within the mountain community and the compact plant fits between two holes of the municipal golf course, while also meeting Park City's net zero energy requirements.

**Project Manager, Quinns Junction WTP Process, Capacity, and Energy Management Project, Park City Municipal Corporation, UT.** Project manager for the facilities plan evaluation of alternative treatment approaches to upgrade and uprate the Quinns Junction WTP to be more reliable in handling water quality changes. Jacobs provided engineering services for planning improvements at this direct filtration plant with microfiltration membranes. The project began with an evaluation of treatment alternatives to address water quality considerations for total organic carbon (TOC) and manganese in the source water. Jacobs subsequently developed a facilities plan that addressed several expansion scenarios, including the addition of a solids handling system. Jacobs developed a plan for re-rating the plant to higher rated capacity, working with the state regulator and plant operations on an approach and trial demonstration. Ultimately, this work resulted in the plant being re-rated with 70 percent additional capacity. Jacobs then provided preliminary and final design for treatment process improvements including post-filter GAC adsorption, chemical oxidation, manganese dioxide filtration/adsorption, and backwash supply and the addition of flow equalization capabilities. A second, ongoing project includes a membrane washwater equalization basin, an acid storage and feed system, an additional membrane rack, and other miscellaneous improvements.

**Project Manager, Disinfection By-Product Control Strategy Project, City of Henderson, Henderson, NV.** Project Manager for the evaluation of the existing filters at the City WTP for GAC compatibility and the full-scale demonstration of GAC performance using two of the existing six filters. The project will include the installation of GAC in June 2009, followed by one year of intensive operation monitoring and evaluation of GAC performance.

**Project Manager, Calumet Water Reclamation Plant (WRP) Disinfection Facilities, Chicago, IL.** Project manager for the design and construction of liquid chlorination and dechlorination facilities for this 480 MGD peak flow water reclamation plant. The innovative design included modifying the existing chlorine contact basin (CCB) to provide sufficient contact time for disinfection and dechlorination. The design includes a disinfection chemical building that houses chemical storage and feed facilities for both sodium hypochlorite and sodium bisulfite. Hydraulic modeling and CFD were completed to identify internal wall modifications within the CCB to significantly reduce headloss, preserve chlorine contact time, and allow the CCB to accommodate the WRP's peak flowrate without requiring costly booster pumping. The facility, which did not previously disinfect, became among the world's largest hypochlorite facilities upon startup. The project was completed ahead of schedule and under budget.

**Senior Consultant, Oxnard GREAT Program Advanced Water Treatment Facility, City of Oxnard, CA.** Providing senior oversight of UV advanced oxidation design for the GREAT program for Oxnard. This 6.25 MGD UV system includes low-pressure, high-output UV reactors designed to provide 1.2-log NDMA destruction and 0.5-log destruction of 1,4 dioxane. Equipment selection and detailed design have been completed and UV functional testing has been completed on-site.





## Dani Davis, PE

PILOT SUPPORT / BUDGET TRACKING AND INVOICING / DATA  
SUPPORT – PHASE I  
WATER QUALITY – PHASE II

### Areas of Expertise

- Wide array of project experience including detailed treatment facility design, process optimization, dynamic process modeling, and planning for water, wastewater, and water reuse treatment
- Resident Engineer with onsite experience with services during construction, start-up, and commissioning
- Strong verbal and written communication skills that have been utilized in project management, coordination, and facilitation for water and wastewater projects

#### EDUCATION/QUALIFICATIONS

MS, Civil Engineering, University of Colorado, Boulder

BS, Environmental Engineering, University of Colorado, Boulder

#### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO

### Relevant Project Experience

#### **Resident Engineer, Griswold Water Treatment Plant Surge Protection Project, Aurora Water; CO.**

Designed a surge protection system and pipeline for a water treatment plant. Served as the facility lead for the process mechanical discipline on the surge tank design including equipment, instrumentation, piping configuration, and cross-discipline coordination. Served as the resident engineer during construction and was the liaison between the Owner, the Contractor, and the Engineering Team. Responsibilities included managing submittals, requests for information, and ensuring construction progressed as designed and scheduled.

**Project Engineer, Adsorption Breakthrough Tool, Jacobs, Denver, CO.** Supported the development of an adsorption breakthrough dynamic modeling tool that simulates projected PFAS and TOC removal through GAC filters. The tool takes into consideration media type, process configuration, and water quality targets to provide recommendations on regeneration, cost, and contaminant breakthrough to optimize filter performance.

**Process Engineer, Wellington Water Treatment Plant Design, Town of Wellington, CO.** Served as the facility design lead for the rapid mix, flocculation, and sedimentation processes for a new water treatment plant design for the Town of Wellington. Project responsibilities included design, cross-discipline coordination, submittal review, and process support during construction.

**Project Engineer, 3Kings Water Treatment Plant, Park City Municipal Corporation, UT.** Project engineer for an innovative water treatment plant design. This included engineering support on drawing sets, specifications, submittals, and procurement. This effort required close coordination with the facility leads, vendors, project manager, and schedule.

**Hydraulics Lead, Yellowstone National Park Old Faithful Water Treatment Plant Design, National Park Services, Teton County, WY.** This project included a new design of a 50-year-old water treatment plant. Responsibilities included value engineering, alternatives analysis, technical memo and basis of design report author, design engineer, and hydraulic model lead. Led client workshops, facilitated cross-disciplinary coordination, and communicated with vendors on equipment.

**Process Engineer, Sustainable Water Initiative for Tomorrow (SWIFT) Filter Optimization, Hampton Roads Sanitation District (HRSD), Virginia Beach, VA.** Supported HRSD's SWIFT program, which will add over 100 mgd of advanced treatment by utilizing indirect potable reuse at five treatment plants. Conducted filter performance optimization at HRSD's SWIFT 1 mgd demonstration facility. This consisted of filter performance review of filter run times, GAC breakthrough, filter control strategy, and in-depth assessment of toxicity and contaminants of emerging concern including PFAS. Additional project support included analyzing and summarizing relevant data to enable water quality monitoring across treatment processes, SWIFT facility size modeling, and source control analysis for tidal influence.

**Project Engineer, Las Virgenes-Triunfo Pure Water Project Flow Equalization Evaluation for Advanced Water Treatment Facility, Las Virgenes Joint Powers Authority, Los Angeles, CA.** This project assessed the flow equalization needs for a recycled water distribution system that fed wastewater effluent to a new advanced water treatment facility and provided system wide operational recommendations. Project responsibilities included process model and hydraulic lead in Replica™, simulation modeling for various flow, treatment, and system operational scenarios, technical author for report summarizing findings and recommendations.

**Project Engineer, DC Tillman Advanced Water Purification Design-Build Project, City of Los Angeles Sanitation, Los Angeles, CA.** Provided process modeling support for flow equalization studies used to determine the current and future treatment capacities for a direct potable reuse facility. Modeling outcomes will inform the basis of design and solidified the overall hydraulics of the detailed design.



## San Marie Thomson

PILOT SUPPORT – PHASE I  
WATER QUALITY – PHASE II

### Areas of Expertise

- Microbial communities and corrosion in drinking water distribution pipes
- Laboratory - advanced molecular methods (qPCR/ddPCR), water quality analysis techniques

### EDUCATION/QUALIFICATIONS

MS, Environmental Engineering, Marquette University

BS, Civil and Environmental Engineering, Marquette University

### Relevant Project Experience

#### **Piloting Support, Binney Water Purification Facility Pilot Plant, Aurora Water, CO.**

Calculations for pilot design, data analysis, onsite pilot support. Pilot testing for the incorporation of a novel adsorbent for PFAS removal. The ongoing project is testing the novel adsorbent in the same pilot column as GAC media to verify performance and operability. Also ongoing is a separate pilot project for chemical spike testing and dose evaluation to optimize the UVAOP process.

**Process Mechanical Engineer, Yellowstone National Park Canyon Village, Grant Village, and Old Faithful WRRFs Rehabilitation and Replacement Design, National Park Service, Yellowstone National Park, WY.** Development of drawings and specifications, O&M cost analysis.

**Process Mechanical Engineer, Donald C. Tillman Water Reclamation Plant - Advanced Water Purification Facility, Los Angeles Sanitation & Environment (LASAN), CA.** Data analysis of plant flows and water quality, support of hydraulic model in Replica™, operational cost analysis,

vendor coordination/outreach. Design-build project to design and construct a 19-mgd advanced water purification facility (AWPF), including microfiltration, reverse osmosis, UVAOP, and ancillary systems. Purified water will be delivered to spreading grounds for indirect potable reuse. Currently, the project team is working with the client and stakeholders to create the preliminary design of the project.

**Commissioning and Planning Support, McCarron's Water Treatment Plant Process Improvements Project, Saint Paul Regional Water Services (SPRWS), MN.** Development and compilation of commissioning planning documents, including the Commissioning Tracking Log, Functional and Equipment Performance Testing forms, and the Training Plan.

**Process Mechanical, Honouliuli Wastewater Treatment Plant Improvements, City and County Honolulu, HI.** Development of O&M manual for the step-feed bioreactor, including summary of design criteria, equipment, safety, and operational instructions





Water Quality & Treatment Solutions, Inc.  
An Environmental Engineering & Science Consulting Company

# ISSAM NAJM, Ph.D., P.E., BCEE

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URL: <http://www.WQTS.com>

## EDUCATION:

Ph.D., Environmental Engineering, Univ. of Illinois at Urbana-Champaign 1990  
M.S., Environmental Engineering, Univ. of Illinois at Urbana-Champaign 1987  
B.S., Civil Engineering, American Univ. of Beirut, Lebanon 1985

## REGISTRATION:

Professional Civil Engineer, California (1997). Registration Number C 57496



## TEACHING EXPERIENCE:

2007 – Present Adjunct Associate Professor  
Civil & Environmental Engineering Department  
University of California at Los Angeles  
Physical & Chemical Processes in Water Treatment

1998 – 2005 Instructor  
Civil & Environmental Engineering Department  
University of California at Los Angeles  
Physical & Chemical Processes in Water Treatment  
Design of Water Treatment Plants

## PROFESSIONAL EXPERIENCE:

### **Water Quality & Treatment Solutions, Inc.**

Los Angeles, California

2000 – present: Founder and President

### **Montgomery Watson (now part of Stantec)**

Pasadena, California

1997 – 2000: Vice President and Manager, Applied Research Department

1994 – 1997: Principal Engineer; Applied Research Department

1992 – 1994: Supervising Engineer; Applied Research Department

1990 – 1992: Senior Engineer, Applied Research Department

## SUMMARY:

Issam Najm is the founder and president of Water Quality & Treatment Solutions, Inc. (WQTS), a specialty environmental engineering and science consulting company whose mission is to provide water utilities with innovative and cost-effective solutions to water quality and water treatment challenges in both groundwater and surface water sources. Dr. Najm is intimately involved in a number of WQTS projects including the evaluation of water treatment plant performance, pilot-scale and bench-scale testing of water treatment

technologies, regulatory and permitting support for existing and new treatment plants, development of water quality monitoring plans, and providing training classes to treatment plant operations staff.

Dr. Najm is a registered Professional Civil Engineer in the State of California and is a Board-Certified Environmental Engineer with the American Academy of Environmental Engineers and Scientists. Dr. Najm is an adjunct Associate Professor of environmental engineering at the University of California Los Angeles (UCLA). His primary teaching focus is on the principles and application of water treatment technologies with emphasis on physical and chemical processes.

### **RECOGNITIONS & AWARDS:**

- ❑ A.P. Black Research Award – American Water Works Association – 2021
- ❑ George Warren Fuller Award – American Water Works Association – 2017
- ❑ Best Paper Award – AWWA Water Quality Division – 2014
- ❑ Dr. Pankaj Parekh Research Innovation Award – Water Research Foundation – 2014
- ❑ Best Research Paper Award – AWWA Water Science & Research Division – 2007
- ❑ Best Publication Award – AWWA – 2007
- ❑ Board-Certified Environmental Engineer, American Academy of Environmental Engineers
- ❑ Young Civil Engineer Achievement Award, University of Illinois at Urbana-Champaign, Civil & Environmental Engineering Alumni Association, 1999
- ❑ Academic Achievement Award for best doctoral dissertation, American Water Works Association, 1990

### **MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS:**

- ❑ American Water Works Association (AWWA)
- ❑ American Academy of Environmental Engineers & Scientists (AAEES)

### **COMMITTEE MEMBERSHIP:**

- ❑ Associate Editor, AWWA Water Science, AWS, American Water Works Association, 2018 – Present
- ❑ American Academy of Environmental Engineers & Scientists, AAEES; Member of the Board of Trustees; 2015 – 2017
- ❑ AWWA CA-NV Section; SOURCE Editorial Advisory Committee, Chair; 2014 – 2017
- ❑ Disinfection By-Products Technical Action Workgroup, AWWA: 2012 – Present
- ❑ AWWA; Water Research & Science Division Trustee, 2007 – 2013
- ❑ Journal AWWA Editorial Advisory Board, Chair; 2009 – 2013
- ❑ Journal AWWA Editorial Advisory Board, Member – 2001 to 2009
- ❑ Peer Review Editorial Board, Journal AWWA, Chair; 2006 to 2009
- ❑ AWWA; Inorganic Contaminants Committee: Chair; 2002 – 2006
- ❑ AWWA; Organic Contaminants Research Committee, Chair; 1998 – 2001

### **PUBLICATIONS:**

As of the end of 2021, Dr. Najm has published 24 peer-reviewed articles in national and international technical journals, 14 peer-reviewed research reports, and has given more than 60 presentations at local, regional, national, and international conferences.





## Holly Link, PE

CDPHE CONSIDERATIONS – PHASE I

*Holly is experienced with leading, designing, and managing water treatment solutions for local Front Range clients. She has experience with master planning, demand forecasting, water conservation, water treatment process design including granular activated carbon filtration and deep bed filtration, regulatory reviews, permitting and property coordination.*

### Areas of Expertise

- Master planning, demand forecasting, capital planning
- Water treatment process design for filtration, activated carbon, and solids handling
- Drinking water regulatory reviews

### EDUCATION/QUALIFICATIONS

MS, Civil Engineering, University of Colorado at Boulder

BS, Environmental Engineering, University of Colorado at Boulder

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO

### Relevant Project Experience

**Facility Lead Engineer, Ralston Water Treatment Plant, City of Arvada, CO.** Facility design lead for rehabilitating and increasing filter loading rate for 12 existing filters and supporting systems at the 36 mgd Ralston Water Treatment Plant (WTP). Responsible for detailed filtration and backwash design calculations, coordination with other disciplines, hydraulic analysis, and coordination with the City's Construction Manager at Risk as needed to support ongoing constructability analysis and cost estimating.

**Facility Design Lead, Prairie Waters Project, Aurora Water, CO.** Performed responsibilities as facility lead for the 50-mgd filtration process at the predesign level. Continued responsibilities through final design as facility lead for the 50-mgd influent pump station and granular activated carbon (GAC) process to remove trace organics remaining in the water following filtration. Responsibilities include leading and coordinating with all facility disciplines, coordination with site disciplines, drawing and specification development, and coordination with carbon suppliers and pump manufacturers. Project responsibilities included using Fathom software to simulate pump station conditions.

**Facility Lead Engineer, Northwater Treatment Plant, Denver Water, CO.** Facility design lead for greenfield Northwater Treatment Plant with 150 mgd capacity. Lead for design of solids handling processes: equalization basin, return flow pump station, gravity thickeners, and thickened solids pump station. Facilities designed with focus on redundancy, reliability, and operator safety during maintenance.

**Project Manager, Griswold WTP Chlorine Improvements, Aurora Water, CO.** Managed improvements to the existing chlorine facility at the 80-mgd Griswold WTP. Improvements included modification of chlorine ton container storage, piping improvements, redundant piping and regulator, and addition of a nitrogen purge system. Responsibilities include leading and coordinating with all facility disciplines, drawing and specification development, and coordination equipment manufacturers.

**Facility Lead Engineer, Chlorine Contact Basin and Chemical Improvements, Denver Water, CO.** Performed responsibilities as facility lead for a



new potassium permanganate feed system for the 300-mgd Foothills Water Treatment Plant. Completed process design and coordinated with facility and site disciplines to create final drawings and specification sections.

**Task Manager, Nelson-Flanders Water Treatment Plant Expansion Planning Study, City of Longmont, CO.** Task lead for the conceptual design for the Nelson-Flanders Water Treatment Plant expansion from 30 mgd to 45 mgd. The conceptual design included a basis of design report, process flow diagrams for each process, site drawings, and an updated hydraulic profile. The preliminary design included several key workshops to discuss alternatives, receive input, and align the City and Jacobs on the path forward. Plant phasing was planned up to 60 mgd if that capacity was ever needed.

**Project Engineer, Denver Water Recycling Plant Computer O&M Manual, Denver Water, CO.** A web-based Operation and Maintenance (O&M Manual) for the Denver Water Recycling Plant was completed which require coordination with plant operation staff, design engineers, and web developers. The electronic O&M included extensive descriptions of processes and facilities that were linked, whenever possible, to diagrams, photos, and manufacturer information. Navigation through the O&M is similar to the internet and advanced graphic renderings of processes enhance the process descriptions.

**Project Manager, Post-Fire Impacts on Poudre River Water Quality, Fort Collins Utilities, CO.**

The 2012 High Park Fire continues to impact Poudre River water quality at the intake to the Fort Collins Water Treatment Facility (WTF). The purpose of this project was to evaluate available water quality and treatment data to identify trends in water quality parameters that appear to be caused by rainfall and determine whether any operational changes or capital projects are recommended.

**Facility Lead Engineer, Chasteens Grove Water Treatment Plant Design, City of Loveland, CO.**

The capacity of the Chasteens Grove WTP was increased from 30 mgd to 38 mgd as part of the Phase 2 expansion. Facility design lead for the new filter facility (Filter Plant 4A), Deskins solids drying beds, and finished water sample station. Completed the full design of these facilities including all discipline coordination, drawings, and specifications.



## Ed Meyer, PE

COST ESTIMATING SUPPORT – PHASE I

*Ed brings more than 40 years of experience in developing construction and life-cycle cost estimates for major engineering and construction projects throughout the world. He was the original developer of our parametric engineering system, which is a firmwide conceptual cost estimating tool that generates accurate construction and life-cycle cost estimates in the very early stages of a project, as early as 10 percent design.*

### Areas of Expertise

- Experienced in developing cost estimating models for a wide variety of facilities and infrastructure systems including water and wastewater treatment, and water distribution
- Experienced in developing cost estimates for many condition assessment projects, including water and wastewater treatment and distribution, storm drainage and pavement systems

#### EDUCATION/QUALIFICATIONS

BS, Electrical Engineering

BS, Business Administration

#### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO

### Relevant Project Experience

**Cost Estimator, Semper and Northwest WTPs, City of Westminster; CO.** Developed construction and life-cycle cost estimates for potential upgrades at the Semper and Northwest WTP Cost Estimator, Integrated Treated Water Supply Master Plan (ITWSMP), City of Longmont, CO. Developed cost estimates for Master Plan.

**Cost Estimator, Ballfield Facilities Phase 1 Design, Meridian Metropolitan District (MMD), Centennial, CO.** Developed cost estimates for the Ballfield Facility.

**Cost Estimator, Integrated Resource Plan 2065, Denver Water, Denver, CO.** Developed cost estimates for the IRP 2065.

**Cost Estimator, 3Kings Water Treatment Plant, Park City Municipal Corporation, Park City, UT.** Developed cost estimated for the 3Kings WTP.

**Cost Estimator, Southern Delivery System Program Conveyance, Treatment, and Pump Stations, Colorado Springs Utilities, CO.** Developed cost estimates for the Southern Delivery System, which involved conveyance, treatment, and pump stations.

**Cost Estimator, 33<sup>rd</sup> Street Intake and Pump Station, Colorado Springs Utilities, CO.** Developed conceptual cost estimates for various alternatives.

**Cost Estimator, Prologis Pump Station, Aurora Water, CO.** Developed the 90 percent design cost estimate as well as estimates for early alternatives.

**Cost Estimator, A.B. Jewell WTP, City of Tulsa, OK.** Developed cost estimates for various process alternatives at the conceptual and 90 percent design levels.



## I. Personal Information

Contact information: Department of Civil, Environmental, and Architectural Engineering  
Environmental Engineering Program  
607 UCB, SEEC 295B  
University of Colorado Boulder  
Boulder, CO 80309  
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Email: Fernando.rosario@colorado.edu  
Website: <https://www.colorado.edu/faculty/rosario-ortiz/>

## II. Academic and Professional Background

|                     |                                                                                                                                          |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Executive Editor    | <i>Environmental Science and Technology</i> , <b>2022-present</b>                                                                        |
| Associate Dean      | Associate Dean for Faculty Advancement, College of Engineering and Applied Sciences, University of Colorado Boulder, <b>2021-present</b> |
| Associate Editor    | <i>Environmental Science and Technology</i> , <b>2020-present</b>                                                                        |
| Member              | Center for the Study of Origins, University of Colorado Boulder, <b>2019-present</b>                                                     |
| Director            | Environmental Engineering Program, University of Colorado Boulder, <b>2019-2021</b>                                                      |
| Professor           | Civil, Environmental and Architectural Engineering, University of Colorado, Boulder, <b>2019-present</b>                                 |
| Associate Director  | Environmental Engineering Program, University of Colorado, Boulder, <b>2017-2019</b>                                                     |
| Visiting Professor  | Institute of Biochemistry and Pollutant Dynamics, Environmental Chemistry Group, ETH, Zürich, Switzerland, <b>2015-2016</b>              |
| Visiting Professor  | Swiss Federal Institute of Aquatic Sciences and Technology, EAWAG, Dübendorf, Switzerland, <b>2015-2016</b>                              |
| Associate Professor | Civil, Environmental and Architectural Engineering, University of Colorado, Boulder, <b>2015-2019</b>                                    |
| Assistant Professor | Civil, Environmental and Architectural Engineering, University of Colorado, Boulder, <b>2008-2015</b>                                    |
| Post-Doctoral:      | Southern Nevada Water Authority, Henderson, Nevada, <b>2006-2008</b>                                                                     |
| Graduate:           | D.Env. Environmental Science and Engineering, UCLA, <b>2006</b>                                                                          |
| Instructor:         | Environmental Charter High School, Lawndale, California, <b>2003</b>                                                                     |
| Graduate:           | M.S. in Chemistry, California Institute of Technology, <b>2002</b>                                                                       |
| Undergraduate:      | B.S. in Chemistry, University of Puerto Rico, <b>1999</b>                                                                                |

## III. Funded Research

### (Samples)

#### Current and Past Funded Grants

1. Development of an absorbance-based method to differentiate between humic substances and adulterants. Principal Investigator: Fernando L. Rosario-Ortiz. Funding Agency: HPTA. Total Award: \$28,000 (as a gift). Award Duration: **2022-2023**

2. Chemical contamination in watersheds after wildfires. Principal Investigator: Fernando L. Rosario-Ortiz. Funding Agency: Army Research Office. Total Award: \$60,000. Award Duration: **2020-2022**
3. Photochemical fate of saxitoxin and relevant analogs in aquatic systems. Principal Investigator: Fernando L. Rosario-Ortiz. Co-Principal Investigator: Teng Zheng from Syracuse University. Funding Agency: Army Research Office. Total Award: \$394,565. Award Duration: **2020-2023**
4. Quantifying hydroxylating species in dissolved organic matter. Principal Investigator: Fernando L. Rosario-Ortiz. Co-Principal Investigator: Garrett McKay. Funding Agency: National Science Foundation. Total Award: \$408,848. Award Duration: **2018-2021**
5. Application of fluorescence spectroscopy for the characterization of dissolved organic matter: Disentangling common misconceptions and underlying chemistry. Principal Investigator: Fernando L. Rosario-Ortiz. Funding Agency: National Science Foundation. Total Award to CU: \$227,538. Award Duration: **2018-2021**
6. RAPID: Assessment of water quality in Puerto Rico after Hurricane Maria. Principal Investigator: Fernando L. Rosario-Ortiz. Funding Agency: National Science Foundation. Total Award to CU: \$73,873. Award Duration: **2018-2019**
7. Characterizing pyrogenic soil organic matter as a source of nitrogenous disinfection byproducts. Principal Investigator: Fernando L. Rosario-Ortiz. Co-Principal Investigator: Julie Korak. Funding Agency: National Science Foundation. Total Award to CU: \$247,708. Award Duration: **2016-2019**
8. Impact of metals on photochemical aging of water-soluble organic carbon in atmospheric particulate matter: A combined lab and field study. Principal Investigator: Michael Hannigan. Co-Principal Investigator: Fernando L. Rosario-Ortiz. Funding Agency: National Science Foundation. Total Award to CU: \$254,219. Award Duration: **2016-2019**
9. An integrated modeling and decision framework to evaluate adaptation strategies for sustainable drinking water utility management under drought and climate change. Principal Investigator: Kenan Ozekin (WRF). Co-Principal Investigators: Balaji Rajagopalan, R. Scott Summers, Fernando Rosario-Ortiz, Ben Livneh and Joseph Kasprzyk. Funding Agency: US EPA. Total Award: \$1,250,000. Award Duration **2015-2019**
10. CAREER: Impact of effluent organic matter on photochemical processes in surface waters. Principal Investigator: Fernando L. Rosario-Ortiz. Funding Agency: National Science Foundation. Total Award: \$500,000. Award Duration: **2015-2020**
11. Wildfire Impacts on Drinking Water Treatment Process Performance: Development of Evaluation Protocols and Management Practices. Principal Investigator: Fernando L. Rosario-Ortiz. Co-Principal Investigators: R. Scott Summers, William Becker and Ben Stanford. Funding Agency: Water Research Foundation. Total Award: \$267,053. Award Duration: **2014-2017**
12. EPA National Center for Innovation in Small Drinking Water Systems: Sunlight Photochemical Processes (FRO Project, part of Center). Principal Investigator for Center: R. Scott Summers. Funding Agency: US EPA. Total Award: \$4,099,973 (\$250,000 for FRO). Award Duration: **2014-2017**
13. The impact of Colorado wildfires on source water and implications for water treatment and finished water quality. Principal Investigator: Fernando L. Rosario-Ortiz. Co-Principal Investigators: R. Scott Summers and Pinar Omur-Ozbek. Funding Agency: Water Research Foundation. Total Award: \$100,000. Award Duration: **2013-2014**

**Dr. James S. Rosenblum, Research Assistant Professor**

Department of Civil and Environmental Engineering

Colorado School of Mines, Golden, Colorado 80401

Phone: 720-389-9064 | E-mail: jrosenblum@mines.edu

**A. Professional Preparation**

|                                            |                                                  |        |      |
|--------------------------------------------|--------------------------------------------------|--------|------|
| Eastern Michigan University, Ypsilanti, MI | Biochemistry                                     | B.S.   | 2006 |
| The Ohio State University, Columbus, OH    | Environmental Health Science                     | M.P.H. | 2009 |
| The Ohio State University, Columbus, OH    | Environmental Health Science                     | Ph.D.  | 2013 |
| University of Colorado, Boulder, CO        | Postdoctoral associate/Environmental Engineering |        | 2017 |

**B. Appointments**

***Colorado School of Mines, Golden, CO***

10/2018 – Present Research Assistant Professor, Department of Civil and Environmental Engineering

***CH2M Hill, Centennial, CO***

1/2018 – 10/2018 Scientist IV, Drinking Water and Reuse, Denver CO

***University of Colorado, Boulder, CO***

1/2013 – 12/2017 Postdoctoral Associate, Department of Civil, Environmental, & Architectural Engineering

***The Ohio State University, Columbus, OH***

8/2009 – 7/2013 Research Assistant, College of Public Health, Division of Environmental Health Sciences

**C. Relevant Research and Experience**

- a. Colorado School of Mines Direct Potable Reuse Trailer
  - i. Developed idea from conception to our current research program
  - ii. Evaluating contaminants of emerging using targeted and non-targeted methods, and specifically in-vitro bioassays to evaluate treatment and unknowns.
- b. Prioritization and Risk-Ranking of Regulated and Unregulated Chemicals in United States Drinking Water
  - i. Developing a framework and model to identify priority drinking water chemicals
  - ii. Using a health reference normalized approach (e.g., Hazard Index) to evaluate 140 chemicals nationally using national drinking water data (> 6 million measurements)
- c. WRRF 15-04: Characterization and Treatability of TOC from DPR Processes Compared to Surface Water Supplies.
  - i. The study investigates how organics should be regulated for potable reuse projects through the comparison of organics present at various locations in the domestic water cycle. I contributed to the data management and framework development, as well as team lead for municipal and academic partners.
- d. Advanced Oxidation to Reclaim Contaminated Ground Water for Public Use (LADWP and ARCADIS)
  - i. Evaluated UV/H<sub>2</sub>O<sub>2</sub>-based advanced oxidation for destruction of emerging contaminants and VOCs, including disinfection byproducts and toxicity screening in Los Angeles, CA ground water

**D. Recent Publications**

1. Acharya, S. M., Enalls, B. C., Walian, P. J., Van Houghton, B. D., Rosenblum, J. S., Cath, T. Y., ... & Chakraborty, R. (2023). Iodidimonas, a bacterium unable to degrade hydrocarbons, thrives in a bioreactor treating oil and gas produced water. bioRxiv, 2023-03.
2. Van Houghton, B. D., Acharya, S. M., **Rosenblum, J. S.**, Chakraborty, R., Tringe, S. G., & Cath, T. Y. (2022). Membrane bioreactor pretreatment of high-salinity O&G produced water. ACS ES&T Water, 2(3), 484-494.
3. Cooper, C. M., McCall, J., Stokes, S. C., McKay, C., Bentley, M. J., **Rosenblum, J. S.**, ... & Katz, L. E. (2021). Oil and gas produced water reuse: Opportunities, treatment needs, and challenges. ACS ES&T Engineering, 2(3), 347-366.

4. Sitterley, K. A., Silverstein, J., **Rosenblum, J.**, & Linden, K. G. (2021). Aerobic biological degradation of organic matter and fracturing fluid additives in high salinity hydraulic fracturing wastewaters. *Science of The Total Environment*, 758, 143622.
5. Vinge, S. L., **Rosenblum, J.**, Linden, Y. S., Saenz, A., Hull, N. M., & Linden, K. G. (2021). Assessment of UV Disinfection and Advanced Oxidation Processes for Treatment and Reuse of Hydraulic Fracturing Produced Water. *ACS ES&T Engineering*.
6. Sitterley, K. A., **Rosenblum, J.**, Ruyle, B., Keliher, R., & Linden, K. G. (2020). Factors impacting electrocoagulation treatment of hydraulic fracturing fluids and removal of common fluid additives and scaling ions. *Journal of Environmental Chemical Engineering*, 8(3), 103728.
7. Pochiraju, S. S., Linden, K., Gu, A. Z., & **Rosenblum, J.** (2020). Development of a separation framework for effects-based targeted and non-targeted toxicological screening of water and wastewater. *Water research*, 170, 115289.
8. Dischinger, S. M., **Rosenblum, J.**, Noble, R. D., & Gin, D. L. (2019). Evaluation of a nanoporous lyotropic liquid crystal polymer membrane for the treatment of hydraulic fracturing produced water via cross-flow filtration. *Journal of Membrane Science*, 592, 117313.
9. Rogers, J. D., Thurman, E. M., Ferrer, I., **Rosenblum, J.**, Evans, M. V., Mouser, P. J., & Ryan, J. N. (2019). Degradation of polyethylene glycols and polypropylene glycols in microcosms simulating a spill of produced water in shallow groundwater. *Environmental Science: Processes & Impacts*.
10. Hull, N. M., **Rosenblum, J.**, Robertson, C. E., Harris, J. K., & Linden, K. G. (2018). Succession of toxicity and microbiota in hydraulic fracturing flowback and produced water in the Denver–Julesburg Basin. *Science of The Total Environment*, 644, 183-192.
11. **Rosenblum, J.**, Thurman, E. M., Ferrer, I., Aiken, G., & Linden, K. G. (2017). Organic chemical characterization and mass balance of a hydraulically fractured well: From fracturing fluid to produced water over 405 days. *Environmental science & technology*, 51(23), 14006-14015.
12. **Rosenblum J.\***, Dischinger S.\*, Gin D., Nobel R., Linden K. (2017). Hybrid Membrane-Bioprocess for the Treatment of Hydraulic Fracturing Flowback. *Journal of Membrane Science*, 543, 319 – 327 \*Co-first Authors
13. **Rosenblum, J.**, Nelson, A. W., Ruyle, B., Schultz, M. K., Ryan, J. N., & Linden, K. G. (2017). Temporal characterization of flowback and produced water quality from a hydraulically fractured oil and gas well. *Science of The Total Environment*, 596, 369-377.
14. Freedman, D. E., Riley, S. M., Jones, Z. L., **Rosenblum, J. S.**, Sharp, J. O., Spear, J. R., & Cath, T. Y. (2017). Biologically active filtration for fracturing flowback and produced water treatment. *Journal of water process engineering*, 18, 29-40.
15. **Rosenblum, J.**, Sitterley, K. A., Thurman, E. M., Ferrer, I., & Linden, K. G. (2016). Hydraulic fracturing wastewater treatment by coagulation-adsorption for removal of organic compounds and turbidity. *Journal of environmental chemical engineering*, 4(2), 1978-1984.
16. Thurman E.M., Ferrer I., **Rosenblum J.**, Linden K., Ryan J.N. Identification of Polyethylene and Polypropylene Glycols and Their Carboxylates in Flowback and Produced Water from Hydraulic Fracturing Using LC/QTOF-MS. *Journal of Hazardous Materials*, 2017 (323), 11 - 17
17. Leite-Lobo F., Wang H., Huggins T., **Rosenblum J.**, Linden K.G., Ren J.Z. Low-energy Hydraulic Fracturing Wastewater Treatment via AC Powered Electrocoagulation with Biochar. *Journal of Hazardous Materials*, 2016 (309), 180-184

## 1. Patent

- a. U.S. Provisional Patent Application No. 62/459,946 & 62/459,307, filed February 16, 2017 Title: “*Methods and Devices for Treating Wastewaters*” By: Karl Linden, **James Rosenblum**, et al.

## 2. Editorial work for Journals

- a. *Environmental Science & Technology*; *Water Research*; *Journal of Membrane Science*; *Desalination*; *Environmental Engineering Science*; *Human and Ecological Risk Assessment: An International Journal*

## 3. Membership in Professional Societies:

- a. American Chemical Society (**ACS**); Association of Environmental Engineering & Science Professors (**AEESP**); American Public Health Association (**APHA**); American Water Works Association (**AWWA**); Water Reuse Colorado (**WRCO**); Society of Petroleum Engineering (**SPE**)





## Al Paquet, PE

PRINCIPAL-IN-CHARGE – PHASE I  
SENIOR ADVISOR – PHASE II

### Areas of Expertise

- More than 25 years of experience planning, designing, constructing, and managing water and wastewater facilities across the Front Range
- Hands-on leader who collaborates with consulting teams and client teams, including engineers and operators
- Recently worked with Kerry to attend the startup of the first bank of filters at the Ralston WTP

#### EDUCATION/QUALIFICATIONS

BS, Civil Engineering, Northeastern University

#### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO, CA

### Relevant Project Experience

**Project Manager, Longmont Nelson-Flanders Water Treatment Plant (WTP) Expansion Planning Study.** Developed a phased expansion Plan for the WTP to increase capacity from 30 to 60 million gallons per day (MGD). Developed a detailed Basis of Design Report, Schematic Drawings, and Capital Improvement Plan to advance the project in two 15 MGD increments. Developed a resiliency and redundancy approach that provides high level of service and reliability for the WTP.

**Project Manager, Longmont Integrated Treated Water Supply Master Plan.** Developed a detailed master plan to meet specific objectives identified by the city during project planning including: integrated treated water supply options for build-out demands, near- and long-term drinking water quality regulations and treatment

requirements, risk evaluation of primary facilities to identify projects that improve the reliability and level of service of the system based on likelihood and consequence of occurrence, taste and odor treatment evaluation, watershed assessment of St. Vrain watershed and the Colorado-Big Thompson raw water supply system and recommendations to maintain and protect water quality, development of a CIP that includes facilities for raw water, water treatment, and treated water transmission and storage, rerating of the existing Nelson Flanders WTP by 25 percent (10-MGD increase).

**Assistant Project Manager, Water Treatment Facility Master Plan Update, Fort Collins Utilities, CO.** Managed critical portions of the Water Treatment Facility Master Plan to provide guidance for future regulatory compliance, support capital planning to maintain the condition of current facilities, and maintain the level of service desired by Fort Collins Utilities. The Master Plan addresses water resources and demand production, existing facility treatment capacity, facility condition assessment, regulatory compliance assessment, treatment challenges, and environmental considerations, and provides a recommended plan for facility capital improvements. The condition and maintenance of mission critical assets is a key concern of the condition assessment work performed by a team consisting of operations, engineering, and maintenance staff supported by the City's Alternate Product Delivery System (APDS) contractor. The condition assessment team is able to quickly identify improvements and projects to be included in the Capital Improvement Plan (CIP) and allow for update to the City's work order maintenance tracking system and recently implemented asset management system.

**Project Manager, Fort Collins Chlorine Contact Basin (CCB).** Led the Jacobs team during planning, design, and construction phases of the project. Design elements included a 2.6 million-gallon CCB process facility, geotechnical report, hydraulic design, utility replacement, site storm water drainage report, pipe design and the use of the City's Alternative Project Delivery System construction model.

**Project Manager, City of Loveland Water Treatment Phase II Conceptual Master Plan..**

Managed the master planning and capital improvements plan for the WTP Facility expansion from 30 to 38 MGD with buildout capabilities to 46 MGD. Key project elements included the development of an incremental expansion study that included forecasting demand projections, addressing regulatory changes, assessing existing facility conditions, and determining the need for new treatment process replacement or improvement. A conceptual master plan study summarized the design elements and provided support for budgeting and for design and construction. The project included cost estimating and sequence phasing of plant facilities.

**Project Manager, City of Loveland Flood Emergency Recovery and Response Assistance.**

Led a multi-disciplinary design team to respond to the 2013 post-flood conditions. Work included in-stream dam and hydropower facility assessments, distribution and collection system restoration, FEMA and CDPHE coordination, permitting planning and design. Provided construction management and design assistance for the City of Loveland and Consolidated Home Supply Water Districts Dam. Provided independent review of the dam design, spillway alternatives, city's water supply intake, and design of the controls for the Obermeyer gated spillway addition. Performed construction management and oversight as Owner's agent. Master planned transmission pipe alternatives to provide protection against future floods and improve redundancy using parallel transmission pipeline and riverbank stabilization.



## Phillip Zelenak, PE

DESIGN MANAGER – PHASE II

### Areas of Expertise

- Experienced Design Manager and Project Manager for municipal water projects. In 2022, Phillip lead a Jacobs team to complete design drawings and specifications for Arvada's Ralston Water Treatment Plant Filter Improvements Project.
- passion for developing resilient public water infrastructure and is skilled at bridging the gap between new or innovative approaches and practical solutions

### EDUCATION/QUALIFICATIONS

MS, Environmental Science and Engineering,  
Colorado School of Mines

BS, Engineering - Environmental Specialty,  
Colorado School of Mines

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO

### Relevant Project Experience

**Design Manager, Ralston Water Treatment Plant, Filter Improvements Project and Services During Construction, City of Arvada, CO.** The project involved upgrading the water treatment plant capacity from 36 up to 44 MGD at an aging facility for an additional facility service life of up to 20 years. Design upgrades included replace filter media, retrofit filter underdrains, replace filter valves, gates and actuators, replace surface wash arms and nozzles, add new filter instrumentation for monitoring filter level and performance, and electrical upgrades including adding VFDs to backwash pumps. Managed process, mechanical, electrical, structural, and

I&C design teams to deliver 30%, 60%, and Issued for Construction (IFC) plans and specifications. Provided engineering services during construction including submittal and shop drawing reviews and onsite engineering observations. This project was delivered with a Construction Manager/ General Contractor (CMGC) integrated delivery model.

### **Design Manager, Biosolids Management Design and Construction, Town of Windsor, CO.**

Design and construction of new facilities to increase solids handling capacity and prepare the wastewater treatment facility for additional collection system flows due to future development and buildout. Coordinated electrical, structural, architectural, mechanical, and civil engineering teams to design a new aerobic digester system and biosolids dewatering facility. Supported engineering services during construction for new wastewater treatment facilities. Coordinating pipeline, civil, and geotechnical engineering teams to design water, natural gas, and fiber optic communications lines to the new facilities.

### **Design Manager, Confidential Client, Pueblo, CO.**

Design of an industrial water treatment facility to remove selenium and sulfate consisting of ultrafiltration (UF), close circuit reverse osmosis (CCRO) water treatment units with zero liquid discharge brine treatment. Managing process, mechanical, electrical, structural, architectural, civil, and I&C design teams to integrate vendor provided equipment and deliver 30%, 60%, and Issued for Construction (IFC) plans and specifications.

**Project Manager/Engineer, District Engineering, Northern Douglas County Water and Sanitation Highlands Ranch, CO.** District Engineering tasks

including project reviews for new residential and commercial developments, annual water and sewer maintenance programs, retail meter replacement project, and all sampling and reporting tasks per the CDPHE drinking water monitoring schedule. Supported lead and copper sampling and reporting per Lead and Copper Rule requirements for the public water system. Served as project manager for completing US-EPA required risk and resilience assessment per America's Water Infrastructure Act of 2018 (AWIA) requirements. Led a series of four workshops with District management, District Engineer, operator-in-responsible charge (ORC), and maintenance staff to assess consequence of failure, vulnerability, and threat likelihood of the District's public water system.

**Project Engineer, Well Pump Station Upgrade Projects, East Cherry Creek Valley (ECCV) Water and Sanitation Aurora, CO.** Managed electrical, structural, mechanical, and civil design teams to complete pump house retrofit design packages for two new raw water supply wells. Wrote design basis report for submittal to CDPHE for changing primary disinfection from chlorination to chloramination for one existing domestic water supply well. Completed process mechanical design for system piping, chemical dosing system, and sample pumps.

**Project Engineer, Master Planning and Risk and Resilience Assessments, Arapahoe County Water and Wastewater Authority (ACWWA), CO.**

Supported water demand and collection system flow analysis for modeling the Authority's public water and wastewater collection systems. Supported condition assessments of collection system pump stations. Supported US-EPA Risk and Resilience Assessments as required by the 2018 America's Water Infrastructure Act (AWIA).



## Whitney Wimer

ENVIRONMENTAL PLANNER – PHASE II

### Areas of Expertise

- More than 15 years of professional experience as an environmental planner and scientist, specializing in alternatives development, applied ecological studies, environmental impact analysis, public and agency involvement, and environmental permitting and regulatory compliance related to transportation and linear projects
- Experience in alternatives analysis to support NEPA documentation, environmental regulatory research, permitting and approval tracking, agency coordination field botany; GPS data collection and management; aquatic and terrestrial biological monitoring; emergency management; and analysis and permitting of various types of water projects
- Primary author and/or supporting resource specialist on numerous technical and agency-specific documents for clients including the U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), and various state agencies

### EDUCATION/QUALIFICATIONS

BS, Bioenvironmental Science, Texas A&M University

### Relevant Project Experience

**Deputy Project Manager, Halligan Water Supply Project (HWSP), City of Fort Collins, CO.** The HWSP will enlarge the existing Halligan Reservoir by approximately 8,200 acre-feet to meet the demand of the future Fort Collins Utilities water customers and provide increased reliability for existing customers to help protect against service interruptions related to prolonged drought and

emergencies. Jacobs serves as a strategic advisor to the City's Project Manager, providing environmental review of USACE 404 permitting documents, mitigation support, and agency coordination. For HWSP mitigation support includes developing a conceptual mitigation plan for all resources to support the Environmental Impact Statement (EIS), ecological resources surveys, fish and wildlife mitigation plan in accordance with CRS 37060-122.2, and designing the mitigation site for Preble's meadow jumping mouse mitigation plan to support the USFWS Biological Assessment and wetland mitigation plan to support the 404 permitting process. Each mitigation plan requires constant coordination with a unique group of agencies, stakeholders, and landowners with differing priorities that have to managed while building a sense of community around the project.

**Environmental Permitting Lead, Resilient St. Vrain Stream Restoration Project, City of Longmont, CO.** The Resilient St. Vrain Project resulted from the 100-year to 500-year floods Colorado experienced in 2013. Permitting included assisting with the FEMA CLOMR/LOMR, USACE nationwide and individual permits, USFWS consultation, SHPO consultation, and Colorado Senate Bill 40 - riparian and fish habitat consultation with Colorado Parks and Wildlife. Additionally, assisted with the development of the wetland mitigation and habitat development plans. Oversaw the planting of two of the reaches three reaches that have completed construction.

**NEPA and Environmental Task Manager, Green Ridge Glade Reservoir By-Pass Pipeline, City of Loveland, CO.** The City of Loveland (City) is working with the US Bureau of Reclamation (USBR) to install new components at the



upstream and downstream ends of an existing bypass pipeline around the northern and eastern sides of the Green Ridge Glade Reservoir. Liaison between the City, USBR, and USACE. Provided documentation to support the USBR NEPA process and the USACE Section 404 Nationwide Permit while maintaining the project's aggressive schedule.

**NEPA and Environmental Task Manager, Wellington Wastewater Treatment Plant Improvements Project, Wellington, CO.** Updated the Town's Environmental Assessment (EA) to include changes in the footprint and design. Liaison between the Town and CDPHE. CDPHE manages the State Revolving Funds and oversee the NEPA process for EPA.

**Environmental Task Manager, US Highway 36 Site 17, Colorado Department of Transportation (CDOT), Lyons, CO.** Part of the 2013 Flood Recovery Program to stabilize and add resiliency to US 36 and reroute the Little Thompson River back to its historic channel. The project was located on U.S. Forest Service (USFS) land and required consultation with multiple federal agencies, including USFS, FHWA, FEMA, USFWS, and USACE. Coordination efforts led to the project qualifying under a NEPA categorical exclusion. Authored project-special specifications and provided design plan and specification reviews to ensure the environmental commitments are incorporated and that any design changes comply with environmental mitigation commitments.

**Environmental Task Manager, State Highway (SH) 119A Road Improvements Milepost 27.25 to Milepost 38, CDOT, Loveland, CO.** Part of the 2013 Flood Recovery Program to stabilize and add resiliency to SH 119 and Middle Boulder Creek. Coordinated the environmental tasks, including fieldwork for biological and cultural resources for approximately 11 roadway and river miles. The project had multiple section 4(f) resources, trails, and parking areas, requiring temporary closures due to blasting and construction-related activities. Provided design

plan and specification reviews to ensure the environmental commitments are incorporated and that any design changes comply with environmental mitigation commitments.

**Environmental Task Manager, Boxelder Creek Stream Enhancement Project, TB Design Group and City of Fort Collins, CO.** Worked closely with the design team through alternative development to optimize stream enhancements, while preserving existing habitat along Boxelder Creek. Facilitated coordination with USACE on permitting approach and wetland mitigation. Worked with the design team to develop wetland mitigation that meets USACE and City of Fort Collins requirements. Led USACE 404 permitting effort.

**Local Agency Environmental Support Staff, Flood Recovery Incident Response Center, CDOT, Greeley, CO.** Member of the environmental support staff for local agency environmental projects at the CDOT Flood Recovery Office. Responsible for developing and reviewing a variety of clearance documents for permanent repair projects for local agencies. Responsibilities included developing and providing environmental guidance to the local agencies for permanent repairs, conducting technical and quality reviews of all resource documents including biological resource reports, cultural resource reports, hazardous materials reports, stormwater management plans, and USACE Section 404 permits. In addition, performed wetland delineations, USACE 404 permitting, USFWS habitat assessments, Colorado Parks and Wildlife Senate Bill 40 applications, and mitigation monitoring. Also provided design plan and specification reviews to ensure the environmental commitments are incorporated in the plans and any design changes comply with environmental mitigation commitments.





## Maddie Murphy, EIT

PERMITTING SUPPORT – PHASE II

### Areas of Expertise

- Working with state and local agencies on water-related permitting efforts for Metro Wastewater Reclamation District, Parker Water and Sanitation District, Cottonwood Water and Sanitation District, Colorado Springs Utility, and Arapahoe Water and Wastewater Authority

#### EDUCATION/QUALIFICATIONS

MS, Petroleum Engineering, University of Texas at Austin, Austin, Texas

BS, Environmental Engineering with Geology Minor, Southern Methodist University, Dallas, Texas

#### REGISTRATIONS/CERTIFICATIONS

Engineer-in-Training: TX

40-Hour HAZWOPER Certification

### Relevant Project Experience

**Permitting Lead Binney Water Treatment Plant, Alternatives Analysis for Pipeline and Pump Station, South Metro WISE Authority, Centennial CO.** Developed a proposed permitting matrix and schedule for a new pipeline and pump station that connects to WISE's consecutive system.

**Environmental and Permitting Lead, Joint Water and Purification Plant, Cottonwood Water and Sanitation District and Arapahoe County Water and Wastewater Authority, CO.** Responsible for procuring state and local permits for a water treatment plant, conducting site inspections for compliance with stormwater quality and dewatering discharge permits. Participated in weekly pre-construction meetings and assisted in preparing monthly reports to the clients.

**Project Engineer, Cherry Creek Interceptor, Parker Water and Sanitation District, CO.** Led the CDPHE and local permitting efforts in developing the site application and use by special review for the 2.5-mile interceptor in the Town of Parker. The project eliminates three lift stations and enables the District to consolidate treatment.

**Permitting Engineer, Second Creek Interceptor and Sand Creek Interceptor Improvements; Metro Wastewater Reclamation District, Denver, CO.** Responsibilities included developing a site application and conditional use permits for a proposed pipeline that feeds to the North Treatment Plant in Brighton, Colorado.

**Environmental Compliance, Navajo/Gallup Water Treatment Plant, City of Gallup, NM, Navajo Nation, and Jicarillo Apache Nation, NM.** Provided regulatory guidance on the National Pollutant Discharge Elimination System (NPDES) discharge permit application to the U.S. Environmental Protection Agency for solids treatment discharges. This includes preparing EPA Form 1 and 2D for permitting new sources or discharges to discharge process wastewater.

**Project Engineer, North Water Reclamation Facility Expansion, Parker Water and Sanitation District, CO.** Leads the CDPHE and local permitting efforts in developing the site application, process design report, and site location application for the expansion of the North Water Reclamation Facility in Parker, Colorado.





## Stuart Wagoner

SITE VISUALIZATIONS – PHASE II

### Areas of Expertise

- Expert in the use of standard 3D and Jacobs' BIM technologies
- Experience on a variety of projects, from small 2D projects to large 3D and BIM modelling efforts with a focus on visualization.
- Helped develop state-of-the-art methods to create photorealistic renderings, construction sequencing animations and virtual project walk-throughs

### EDUCATION/QUALIFICATIONS

BA, 3D Modeling and Animation, Southern New Hampshire University

A.S., Drafting and Engineering Graphics, Linn Benton Community College

### Relevant Project Experience

#### **Visualization Designer, 3Kings WTP, Park City Utah, Park City Municipal Corporation, UT.**

Preliminary and final design for 7.2 million gallons per day water treatment facility treating mining-influenced water from two tunnel sources on a constrained site with significant visual appeal requirements. Prepared renderings of the site and facilities. Worked closely with architects and landscaping to visualize a wide variety of materials, colors and plants. These renderings were key in meeting the requirements of the visual impact the project site would have. Overlayed BIM models on drone images to give the client a look at a completed project, while also creating animation flythroughs with roughly 25,000 acres of computer-generated terrain. This provided ability to quickly visualize different materials and colors provided from the architect on the BIM models and helped with decision-making for path forward.

#### **Visualization Designer, Goodyear RWPS/WTF, City of Goodyear, AZ.**

This was a progressive design-build project for a new raw water intake facility and delivery pipeline and a water treatment facility and a finished water pipeline for the City of Goodyear, AZ. The project is in the final stages of construction. Put together site and facility renderings as the lead visualization designer. Created large-scale civil surfaces so the project models could be viewed with realistic landscape. Used real-world sun positions with the BIM models to better understand facility coverings and shade. Rendered project animations used during design review phases.

#### **Digital Delivery Lead, Dallas WWTF Recycled Water Project, City of Dallas, OR.**

Project scope includes adding a tertiary treatment to the Dallas WWTF to create recycled water for industrial and irrigation use. Project includes treatment package preselection for filtration, and design of pumping and recycled water disinfection facilities. Project also includes the replacement of the plant effluent UV disinfection system. Managed interdisciplinary CAD design team for each phase of the project. Responsible for the CAD standards and BIM models which included designs for headworks, sludge pump station, filters, chlorine contact basin, UV building, cooling towers, hypochlorite facility and electrical building. Created renderings from project site photos to convey completed concepts to client. Ran clash detection and prepped submittal sets for client delivery team. Reduced design change costs by following CAD standards and hosting bi-weekly review meetings with the design team.

#### **Visualization Designer, San Jose Headworks Design-Build, San Jose California, City of San Jose, CA.**

This project consisted of constructing a

new Headworks 3, making minimal improvements to existing Headworks 2, decommissioning the existing aging Headworks 1, and making improvements to the influent conveyance facilities. The facilities will be capable of treating current flows and extreme peak hour wet weather design condition of 2040 of 396 million gallons per day. Served as the project's visualization designer. Produced facility renderings, site renderings and videos throughout each design phase. The images were used in the contractor documents and workshop meetings to help with coordination. Created a video featuring the complex work being done by yard piping and electrical, as well as assisted with clash detection efforts. Increased coordination with client and design team being able to fly around a realistic virtual site.

**Visualization Designer, Regional Surface Water Supply Project, Stanislaus Regional Water Authority, Stanislaus County, CA.** This is a progressive design-build project for a new raw water intake facility and delivery pipeline for the Turlock Irrigation district and a Water Treatment facility and a finished water pipeline for SRWA. The project is still in the early stages of construction and has produced 30% drawings. Leading the visualization efforts during the proposal stage. Working directly with the design team to create realistic site and facility renderings. Created a live virtual model that could be toured during the proposal meeting with roughly 384 acres of surface terrain, civil work, landscaping, existing features, and BIM models. Overlayed models into images taken from neighboring homes to display future views, create animations and update renderings during each design phase in the contractor documents.

**Visualization Designer, Columbia Blvd, City of Portland Environmental Services, Portland, OR.**

The purpose of the project is to add two new 150-foot-diameter secondary clarifiers, along with a combination of projects that are either in close proximity or operationally connected, including a complete upgrade of the biosolids thickening and dewatering facilities. Created concept renderings with a variety of materials and colors, site renderings, facility renderings, construction sequencing and equipment installation animations. Worked with creating custom textures, lighting and equipment rigging to give realistic representation early in the modelling stages. Provided clarification that large pumps could be swapped and transferred throughout the facility by animating equipment and simulating clash detection.

**Visualization Designer, CWWTP Aeration Improvements, City of Dallas, TX.** Project included design on a new complex blower facility, elevated air pipe and drop leg modifications. Stuart created a short and long video used by the City of Dallas to give contractors scope of work when the site was closed due to COVID-19. Overlayed BIM models into drone footage, construction sequencing, visualize contractor staging areas and modification being done around the site. Allowed contractors a visual scope of work when sites were closed due to COVID-19.



## Keisha Voigt, ENV SP

ENVISION™ SUSTAINABILITY PROFESSIONAL – PHASE II

### Areas of Expertise

- Possesses a broad work experience background as an environmental scientist that includes participation on National Environmental Policy Act (NEPA) teams. NEPA evaluations involve evaluating potential impacts of infrastructure design alternatives on cultural and natural resources
- Participates on teams that provide technical assistance for public policy projects; task management for environmental scopes; has participated in an assortment of hazardous waste characterization projects; provides community involvement support for various projects; and prepares various permits for regulatory agency approvals
- Experienced researching and writing environmental assessments, environmental baseline surveys, project plans, proposed remedial action plans, records of decisions, and community involvement plans

### EDUCATION/QUALIFICATIONS

Master of Public Policy

BS, Environmental Science

### REGISTRATIONS/CERTIFICATIONS

Envision Sustainability Professional

### Relevant Project Experience

**Sustainability Lead, Noman Cole Jr. Pollution Control Plant, MCC Solids Projects, Fairfax County Department of Public Utilities, Lorton, VA.** This project involved replacing and modifying 40 motor control centers and 18 distribution centers located throughout the plant. The project

involved extensive duct bank installation, as well as construction and renovation of instrumentation, controls, process, and mechanical work and building services. Using the Envision Rating System for Sustainable Infrastructure (v2, ISI and Zofnass 2015), worked with other Envision Sustainability Professionals and the project's design and construction management team in applying the Envision rating system to this project. Tasks included collecting and organizing relevant supporting documentation to support the Envision ratings, completing credit coversheets which summarize how credit requirements are met, and annotating documentation for each of the Envision credits.

**Sustainability Lead, Northeast Water Purification Plant Expansion (NEWPP), City of Houston Department of Public Works and Engineering/ Houston Waterworks Team, TX.** This project will add 320 mgd by 2024 to the existing water plant's capacity, allowing the City and the regional water authorities to meet projected demands while fulfilling requirements set by nearby Districts. This will result in a shift from historical groundwater usage to a predominant reliance on surface water. During the planning and design stages of the project, served as the ENV SP and led the Houston Waterworks Team's Envision Workshop in 2017. Presented Envision framework and how it could be used on the NEWPP project.

**Sustainability Lead, RiverRenew Tunnel System Project, AlexRenew, Alexandria, VA.** Helped prepare the project's sustainability management plan that will be used to manage sustainability across all components of the project and through all project phases.







## Liv Haugen, PE

ONSITE PIPELINES – PHASE II

### Areas of Expertise

- Successful track record of project leadership including more than 15 years of pipeline-related project delivery in the Denver Metropolitan area.
- More than 21 years of experience focused on delivery of project planning, design, condition assessment and rehabilitation for water, storm, and wastewater pipelines including permitting coordination and construction. Experience includes large- and small-diameter pipeline design and construction in a variety of materials.
- Has provided design services including alignment studies, hydraulic models, final design, and services during construction for more than 200 miles of pipelines.

### EDUCATION/QUALIFICATIONS

MS, Bioresource/Agricultural Engineering, Colorado State University

BS, Bioresource/Agricultural Engineering and Chemical Engineering, Colorado State University

### REGISTRATION

Professional Engineer: CO, CA, NE, MI

### Relevant Project Experience

#### **Project Manager, Binney WISE Pipeline and Pump Station, South Metro WISE Authority, CO.**

Providing project management for pipeline alignment study and pump station design and construction for the Binney Connection for the regional WISE project. The project includes approximately 4 to 5 miles of 42-inch potable

water pipeline with construction in open areas, multi-lane roadways, and across existing designated open space. The project includes support for obtaining easements, coordination with existing utilities, and comprehensive permitting support including CDPHE, USACE, and City of Aurora. The pump station includes finished water treatment/disinfection, chemical storage and addition, pumps, and surge.

#### **Design Manager and Services during Construction Manager, Prairie Waters Project North Campus, Aurora Water, CO.**

Provided design and services during construction management for the final design of the North Campus portion of the Prairie Waters Project. The North Campus is a natural purification system designed to provide up to 12 mgd of collected and passively treated water. The principle components of the North Campus are an alluvial well field, an aquifer recharge and recovery (ARR) site, and transmission pipeline. The alluvial well field is located adjacent to the South Platte River and includes 17 alluvial wells, associated valve vaults, gravel access roads, and approximately 2.5 miles of collection pipelines ranging in diameter from 12 to 30 inches. The ARR site covers 200 acres includes 3 miles of low-permeability barrier, large infiltration basins, 27 recovery wells, yard piping, a discharge structure, and gravel access roads. The project also includes approximately 4 miles of 36- and 42-inch diameter pipeline with several trenchless crossings of roadways and irrigation ditches.

**Project Engineer, Southern Delivery System, Colorado Springs Utilities, CO.** Prepared welded steel pipeline design calculations to support project cost estimating and alternative evaluation. Developed technical memorandum

defining the approach for welded steel pipeline design for the project, which includes 66 miles of pipeline conveying raw water supply. Developed alternatives to evaluate hydraulic capacity versus design considerations for pipeline diameters to support decisions related to selecting the most cost-efficient alternatives to convey the water supply.

**Senior Technical Resource and Quality Reviewer, Greenridge Glade Reservoir Diversion and Bypass, Loveland, CO.** Provided quality reviewer and senior technical guidance for the design and construction of the bypass line that connects to the existing canal diversion and treatment plant. The design included a complicated hydraulic analysis to connect to the existing systems over a variety of operating conditions and design of the connecting pipeline.

**Senior Technical Resource, 2018/2019 Water Line System Improvements Project, Aurora, CO.** Providing senior technical review and quality leadership for the survey, design, and environmental services to replace 9,000 feet of old cast and ductile iron small diameter water lines in a residential area west of Havana Street, near the intersection of 3rd Avenue. The project includes design of a new water line to remove services from the existing 30-inch water line in Havana Street. Challenges have included the evaluation of pipe materials in areas of soil and groundwater contamination. Jacobs will continue providing bidding and construction-phase services in support of the project.

**Principal in Charge, Havana Street Watermain Condition Assessment Project, Aurora, CO.** Provided senior technical leadership and guidance for the condition assessment of a 30-inch diameter steel watermain. The main has a history of breaks and the condition assessment was completed in phases. The initial assessment including measurement of wall thickness where the pipe was exposed in vaults. A detailed cathodic protection system assessment was also completed to identify the areas with reduced effectiveness of the impressed current system.

An advanced technology tool was also implemented to quantify the wall thickness variations along the main. The final recommendations including cost estimates for rehabilitation and replacement options.

**Assistant Project Manager, Box Creek Reservoir Preliminary Design, Aurora, CO.** Providing project management support for identification of dam and reservoir storage alternatives, evaluation of alternatives, and selection of the preferred alternative. The project is intended to provide valuable, high-elevation raw water storage for Aurora Water and includes challenges such as federal permitting triggers, land acquisition, geotechnical and seismic concerns, road realignments. The project involves developing criteria for evaluation of the alternatives to support Aurora with identification of the preferred dam alignment and storage volume for the facility.

**Senior Technical Resource and Quality Reviewer, Greenridge Glade Reservoir Diversion and Bypass, Loveland, CO.** Provided quality reviewer and senior technical guidance for the design and construction of the bypass line that connects to the existing canal diversion and treatment plant. The design included a complicated hydraulic analysis to connect to the existing systems over a variety of operating conditions and design of the connecting pipeline.





## Kyle Hamilton, PE

WATERSHED MANAGEMENT – PHASE II

### Areas of Expertise

- Principal program and project manager for design, construction, and study related projects covering various fields, including water resources, dams and reservoirs, hydrology, hydraulics, stream restoration, environmental and ecosystem improvements, watershed assessments, fisheries, stormwater, water quality, wetlands, permitting, website tools, and data management
- Extensive experience in water resources infrastructure design and permitting projects in Colorado, including the \$1B Southern Delivery System for Colorado Springs Utilities, the \$140M St. Vrain Creek Stream Restoration Program in Longmont, and the \$30M Standley Lake Dam Improvements Project in Westminster
- Current director and past president for the South Platte Enhancement Board

#### EDUCATION/QUALIFICATIONS

MS, Civil Engineering, Colorado State University

BS, Civil Engineering, Colorado State University

#### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO

### Relevant Project Experience

**Watershed Lead, Integrated Resources Plan (IRP), Denver, CO.** Watershed leader for the Denver Water IRP. Jacobs led the assessment of watershed-related needs and concerns, created a set of tools to address those needs, performed a triple-bottom-line analysis, and developed cost estimates. Watershed health is a critical

component of Denver Water's water supply system and this assessment focused on forest restoration and maintenance, pre-wildfire preparedness, water quality monitoring, pollution control, sediment control, stream restoration, reservoir management, and other watershed aspects.

#### **Project Manager, Sugar Creek and Pine Creek Watersheds and Sediment Mitigation**

**Assessments, Douglas County, CO.** These projects created a repeatable process that has now been used on other streams, watersheds, and forests in Colorado. By investigating all facets related to the road, stream, and environmentally sensitive areas, truly multi-objective solutions were obtained. The assessments addressed the condition of forests, streams, development, roads, and trails, as well as operational improvements, culvert crossings, road erosion, snow plowing operations, and more. The stream assessment addressed stream stability, erosion, substrate condition, invertebrate habitat, fish cover, and more. The biological assessment addressed habitat areas, wetland areas, and other areas needing special protection and permitting. The assessments resulted in sustainable solutions to prevent additional habitat damage and restore the watersheds. The Sugar Creek sediment mitigation pilot project led to full-scale implementation of sediment capture and stabilization measures that were used as Preble's mouse mitigation for the Chatfield Reservoir Reallocation Project. As a follow-on to the Pine Creek watershed assessment, we developed a preliminary design for the aquatic organism passage (AOP) culvert on Pine Creek near the confluence with the South Platte River.

**Program Manager, Resilient St. Vrain Program; City of Longmont, CO.** Program manager for this \$140M program to repair flood damage caused in the 2013 floods. Natural channel design is used to repair damage, increase flood conveyance capacity, stabilize the creek, enhance the natural habitat along the creek for wildlife and fish, improve water quality, replace and restore greenway trails and pedestrian bridges, improve the safety for residential and commercial areas, and mitigate impacts to historic structures. The project included alternatives analysis, design, modeling, extensive permitting, funding support, land acquisition support, and floodplain analysis and mapping for over 8 miles of St. Vrain Creek.

**Project Manager, Roads to Rivers Assessment of Eleven Mile Canyon, Happy Meadows, and Sportsmen's Paradise Roads, Douglas County, CO.** Performed an assessment of Eleven Mile Canyon, Happy Meadows, and Sportsmen's Paradise Roads related to the roadway, drainage and sediment, and environmental and biological factors. Eleven Mile Road extends from Lake George, Colorado to Eleven Mile Dam, operated by Denver Water. The analysis included investigation of existing conditions and recommendations related to road and pedestrian safety, traffic management, roadway maintenance, sediment and water control, weed management, restoration of wetlands and uplands, trails, and campgrounds. Coordinated with Denver Water related to road maintenance, staff safety, public use of the canyon, drainage and sediment concerns, and recommended solutions to improve maintenance efficiency and environmental benefits for overall watershed and ecosystem sustainability. As a follow-on to the assessment, Jacobs is currently leading the design, permitting, and coordination for removal of the diversion dam at the downstream end of the canyon to restore the ecosystem, provide fish passage and habitat, and provide natural stream design to mimic the pre-dam conditions.

**Environmental and Permitting Manager; Southern Delivery System Project, Colorado**

**Springs Utilities, Colorado Springs, CO.**

Environmental and permitting manager for the \$1.4B Southern Delivery System Project, Colorado Springs Utilities. Manager of the surface water and environmental tasks for the project. This work included analysis and preliminary design of Jimmy Camp Creek Dam, Williams Creek Dam, and Upper Williams Creek Dam. The analysis also included determining conveyance alternatives consisting of canal, pipeline, and natural stream conveyance. Managed the environmental and permitting portion of the project during design to obtain federal NEPA, state, county, and city permits required for construction.

**Project Manager, Water Resources Planning, Arkansas Basin Implementation Plan, Pueblo, CO.** Project manager for the environmental and recreational team for the Arkansas River Basin Implementation Plan for the Arkansas Roundtable. This work included assessment of the watershed's conditions, problems, and needs. A basin-wide project database was developed that includes needs, plans of action, and other attributes for environmental, recreational, municipal, industrial, and agricultural needs throughout the basin. The work was integrated into the Colorado Water Plan.

**Subject Matter Expert, Water Resources Planning, Colorado River Basin Study, U.S. Bureau of Reclamation.** Co-lead for the environmental and recreational portion of the Colorado River Basin Study for the U.S. Bureau of Reclamation. Subject matter expert for this project that assessed the Colorado River Basin in the seven basin states. Watershed health, ecosystems, threatened and endangered species, and recreational opportunities, in combination with municipal, industrial, and agricultural water demands, were analyzed and prioritized to determine feasible solutions for a sustainable watershed.



## Hilary Marsh Feier

REPLICA™ PROCESS MODELING – PHASE II

### Areas of Expertise

- Preliminary and detailed process design
- Hydraulics and controls modelling and evaluation
- Design management
- Evaluation of process alternatives
- Master planning

### EDUCATION/QUALIFICATIONS

PhD, Chemical and Biological Engineering;  
University of Colorado at Boulder

BS, Chemical Engineering; University of Dayton

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO

### Relevant Project Experience

#### **Project Engineer, Binney Water Purification Facility Pilot System Design, Aurora Water, CO.**

Project engineer for the Binney Water Purification Facility Pilot System Project, which included specifying pilot system equipment and designing the plumbing and electrical connections that are required for the operation of the pilot system.

#### **Project Engineer, Griswold Filter Improvements; Aurora Water, Aurora, CO.**

The Griswold Filter Improvements Project includes replacing existing filter backwash troughs with media retaining troughs, and replacing existing filter valves and flow meters. Hilary created a hydraulic model using Jacobs' Replica™ hydraulics and controls software to verify filter hydraulics, optimized the backwash sequence, and led the process design.

#### **Process Engineer, Chandler Pecos Water Treatment Plant Digital Twin, City of Chandler, AZ.**

Built and calibrated a hydraulics and controls

model of the Pecos Water Treatment Plant. Used the model to evaluate scenarios and control strategies. Scenarios included adding ozone upstream of the filters, increasing plant influent flow to 60 MGD, and alternative EQ basin and filter control strategies. Also led in-person operator training sessions to teach operators how to use the model to test their own scenarios.

#### **Process Engineer, F. Wayne Hill Water Resources Center (FWHWRC) Tertiary Treatment System Replica Model, Atlanta, GA.**

The FWHWRC tertiary treatment facilities experience operational challenges caused by flow fluctuations through pre- and post-ozonation. Modelled the hydraulics and controls of the FWHWRC membrane facility using Jacobs' Replica™ hydraulics and controls software and calibrated the model with historic plant data. Developed control strategy alternatives to minimize flow fluctuations in the plant. Developed improved control strategies.

#### **Process Engineer, Lift Station Condition Assessment, City of Chandler, AZ.**

Process engineer for the development of a digital twin for the City of Chandler wastewater Influent Pump Station using Jacobs' Replica™ hydraulics and controls software. Built and calibrated the model with historic data and used it to evaluate pump station scenarios such as shutdown one of the downstream wastewater plants, or shutdown of one side of the pump station. Prepared the model and agenda for operator training.

#### **Process Engineer, Clean Water Services Monochloramine Pilot Project, Hillsboro, OR.**

Process engineer for the design of a preformed monochloramine pilot for the Rock Creek Advanced Wastewater Treatment Facility's undisinfected filter effluent. The goal of the pilot

was to test the use of preformed monochloramine to reduce DBP formation while achieving disinfection. Developed the pilot process flow diagram, performed process calculations, sized the equipment, created the equipment list, and wrote the pilot testing protocol and test plan.

**Design Manager and Process Engineer; Wellington Water Treatment Plant Expansion Project, Town of Wellington, CO.** Coordinates discipline engineers, manages project schedule and budget, coordinates services during construction, hydraulics and ozonation process lead. The Town of Wellington is expanding their 2 MGD water treatment plant to 4.2 MGD (with provisions for future 6.9 MGD) and adding ozone treatment to mitigate taste and odor issues.

**Process Engineer, Denver Water Northern Treatment Plant (NTP), Denver Water, CO.** Served as facility lead for the rapid mix/flocculation/sedimentation facility, chemical facility, and backwash supply tank. Developed process flow diagrams, plant mass balance, process and instrumentation diagrams, and conducted alternatives evaluations for chemical technologies and treatment processes. Assisted with the preliminary design of the filter and headworks facilities and led water quality data analysis and evaluated cost and power implications of the NTP design for Independent Microgrid and value engineering efforts. Led a chemical metering pump demonstration test where peristaltic pump vendors came to the client site to demonstrate pump performance at the flow rates required for the new plant. In addition, co-authored the startup and commissioning “Water and Residuals Management Plan” for the plant and estimated the volume of water needed for startup. Involved part-time in services during construction and start up efforts.

This new 75 MGD treatment plant includes jet-injection rapid mix, three-stage tapered flocculation, inclined plate sedimentation, deep-bed dual media filtration, and ultraviolet

and chlorine disinfection. Provisions are provided for future ozone and biological filtration. This plant is currently in construction.

**Process Engineer, Denver Water South System Planning Program, Denver, CO.** Developed preliminary design criteria for improvements to Denver Water’s Marston and Foothills Water Treatment Plants. Improvements included projects to treat a new water supply, optimize treatment, and replace aging infrastructure. The design criteria will be used for cost estimation to inform Denver Water’s capital plan.

**Process Engineer, South Truckee Meadows Water Reclamation Facility, Reno, NV.** Developed a preliminary design and cost estimate for a 1000 gpm advanced water treatment plant (AWTP) to treat the South Truckee Meadows Water Reclamation Facility (STMWRF) wastewater treatment plant effluent for potable reuse and subsequent aquifer injection. The AWTP preliminary design includes rapid mix/flocculation/sedimentation, ozone, biofiltration, GAC adsorption, UV, and plant pump stations. Developed two preliminary retrofit designs for STMWRF. The first is a vault to retrofit a 48-inch buried filter effluent pipe with a flow meter. The second is an acid addition system to reduce pH of reservoir water that is treated at the plant.

**Project Engineer, Denver Water Integrated Resource Plan (IRP), Denver Water, CO.** Project engineer for the 2065 IRP that provides an adaptable planning framework to meet the future water needs of Denver Water customers and will inform long-range resource and capital planning. Hilary assisted in the development of an assessment of Denver Water’s current water supply system as a part of the Water Supply Technical Team. Assisted in the development and documentation of potential new water supply options.



# Jake Wicks, P.Eng.

## PROCESS MECHANICAL – PHASE II

### Areas of Expertise

- Energetic and passionate engineer with 8+ years consultation experience focusing on water and wastewater infrastructure.
- A skilled communicator of complex technical concepts, strong leadership for the integration of multidisciplinary engineering teams and a propensity for innovation.

### EDUCATION/QUALIFICATIONS

Honours Degree Environmental Engineering,  
University of Guelph, Ontario

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: ON

### Relevant Project Experience

#### **Project Manager/Lead Process, High Lift Pump #6 Valve Replacement, LAWSS, Sarnia, ON.**

Project management, engineering design and construction services for the removal of a control valve and installation of a 500-mm check valve for a VFD controlled pump.

#### **Project Manager/Lead Process, Fort Erie Elevated Tank Detailed Design, Niagara Region, ON.**

Detailed design, bid assistance, construction services and site inspections for a 9-ML composite elevated tank. The project is currently under design.

#### **Process Engineer/Assistant Project Manager, Well 5/5A Class EA, Town of Orangeville, ON.**

Municipal Class EA for additional storage and pumping at Well 5/5A during temporary 6-month shutdown during rehabilitation of an elevated water tank. The project is currently under design in 2022.

#### **Process Engineer, Paisley Water Station Upgrade, City of Guelph, ON.**

Detailed design, tendering, construction administration, and site

inspection for a 13,600 m<sup>3</sup> reservoir and 670 L/s capacity pumping station. The project is currently under construction with completion in 2023.

**Process Engineer/Assistant Project Manager, Wellesley WTP Upgrades, Region of Waterloo, Wellesley, ON.** Pre-design, detailed design, tendering, construction administration, and site inspection for water treatment plant upgrades of a 920 m<sup>3</sup> reservoir and 130 L/s capacity pumping station. Project under construction in early 2022 with completion in 2023.

**Process Engineer/Assistant Project Manager, Ailsa Craig Elevated Tank, Municipality of North Middlesex, Ailsa Craig, ON.** Detailed design, tendering, construction administration, and site inspection for a new 2,500 m<sup>3</sup> composite elevated tank in Ailsa Craig. The project is currently under construction with completion in late 2022.

**Drayton Elevated Tank, Township of Mapleton, Drayton, ON.** Detailed design, tendering, construction administration, and site inspection for a new 2,400 m<sup>3</sup> composite elevated tank in Drayton. The project is currently under construction with completion in late 2022.

**Process Engineer, Preliminary Design of a Bi-Directional Pumping System, CMDW, Ventura, CA.** Preliminary design of bidirectional water delivery system utilizing gravity and three booster pumping stations at 850 L/s each and two storage reservoirs at 9,000 m<sup>3</sup> each (incl. top-up chlorination) for improved hydraulic flexibility and storage of water during drought years.

**Project Engineer/Lead Process Designer, Eastside Water Bank Preliminary Design, AVEK Water Agency, Palmdale, CA.** Project Engineer for the preliminary design of three recharge basins 34 hectares in size, 1.2 km of 600-mm-diameter CML&C influent pipe delivering approximately 600 L/s.

**Project Engineer, Cactus Corridor Pre-Design, Eastern Municipal Water District, Moreno Valley, CA.** Project Engineer for the preliminary hydraulic and civil design of four (4) well sites (160 L/s total), treatment equipment for PFAS/PFOS, water blending and reservoir with a 410 L/s booster pumping station.

**Project Engineer, Kejick Bay Water Treatment Plant (WTP), Lac Seul First Nation, Kejick Bay, ON.** Project Engineer for the initial funding, conceptual design, preliminary design, final design, permitting, and contract administration support of an indigenous owned and operated greenfield groundwater under the influence of surface water (GUDI) WTP (600 m<sup>3</sup>/d), water main expansion, and development of two municipal style wells.

**Process Lead and Project Engineer, Water Treatment Plant Expansion, Georgina Island First Nation, Georgina Island, ON.** Project Engineer for the initial funding, conceptual design, preliminary design, final design, permitting, and contract administration support of a proposed indigenous owned and operated brownfield surface water WTP (400 m<sup>3</sup>/d) with new surface intake.

**Project Engineer, Water Treatment Plant Upgrades, Miitanjigamiing First Nation, Fort Frances, ON.** Project Engineer for the initial funding, conceptual design, preliminary design, final design, and permitting for an indigenous-owned and operated surface water treatment upgrade.

**Project Engineer, Frenchman's Head Wastewater Treatment Plant, Lac Seul First Nation, Lac Seul, ON.** Project Engineer for the initial funding, conceptual design, and preliminary design of an indigenous-owned and operated collection system and treatment facility.

**Project Engineer, Water Pollution Control Plant Re-Rating Class EA, Town of Shelburne, Shelburne, ON.** Project Engineer for the hydraulic analysis and support for process analysis for the upgrade/rerating of a Sewage Plant with a peak rated at 9,000 m<sup>3</sup>/d.

**Project Engineer, Water Treatment Plant Upgrades, Nigigoonsiminikaaning First Nation, Nigigoonsiminikaaning, ON.** Project Engineer for the initial funding, conceptual design, preliminary design, final design, and permitting for an indigenous-owned and operated surface water treatment upgrade.

**Project Engineer, Water Treatment Plant, Naicatchewenin First Nation, North West Bay, ON.** Project Engineer for the initial funding, conceptual, preliminary, final designs, and permitting of a proposed indigenous owned and operated surface water WTP (525 m<sup>3</sup>/d) with water main expansion.

**Project Engineer, Water Treatment Plant for New Gold Atkinson Road Mining Camp, Onikaajigan Construction, Barwick, ON.** Technical Lead for the conceptual, preliminary, final designs, permitting, and contract administration supports an indigenous-owned and operated proposed GUDI WTP (200 m<sup>3</sup>/d).

**Technical Lead, Big Grassy Water Treatment Plant Conditions Assessment, New Gold, Big Grassy First Nation, ON.** Technical Lead of a condition assessment report of an indigenous-owned and operated water treatment plant (440 m<sup>3</sup>/d).

**Technical Lead, Grey County Bridge and Culvert Inspections, Grey County, ON.** Project lead for the data collection, inspection, and reporting for an inventory of over 200 structures over 5 years conforming to the Ontario Structural Inspection Manual formatting and guidelines.



# Jason Till, PE

STRUCTURAL – PHASE I

## Areas of Expertise:

- SBSA Forensic Specialist for construction defect claims investigation projects throughout the Colorado Front Range
- Supervised destructive testing to identify construction defects and distress of existing buildings. Used code expertise to write reports for 3 construction claims litigation cases for building envelope and foundation defects
- Designed civil and structural details to repair defects

## Relevant Project Experience

### EDUCATION/QUALIFICATIONS

BS, Structural Design and Construction Engineering Technology, Pennsylvania State University

MS, Structural Engineering, University of Colorado Denver

### REGISTRATION

Professional Engineer: CO, CA, ID

### Lead Structural Engineer for City of Aurora, Wemlinger Chlorine Contact Chamber, CO.

Designed and provided construction support for 2.5 million gallon buried concrete baffled tank using internally cured concrete. The facility included two subgrade pipe galleries and an above grade precast concrete storage and electrical structures.

### Lead Structural Engineer for the On-Call Agreement with the City of Fort Collins, CO.

Included projects at Drake WRF including the Dewatering and Strain Press Design Project, Cogen Project, HVAC improvements and Sidestream-P treatment. Designed retrofit for existing steel joists in blower building. Conducted condition assessment of existing clarifiers.

### Lead Structural Engineer for Greeley, CO Boyd Lake Ozone Improvements.

Designed extensive modifications to existing floc/sed basins to provide new interior dry space that was previously occupied by water, new ozone contact basins and building founded on new concrete deck placed over existing basins.

### Lead Structural Engineer for City of Meridian, ID Sidestream Phosphorous Removal Project.

Designed building roof composite diaphragm around two reactor tanks that penetrated the roof.

### Lead Structural Engineer for Centennial, CO Flocculation/Sedimentation Improvements Project.

Designed modifications to existing enclosed concrete basins to improve flocculation time and new chemical building with associated facilities.

### Lead Structural Engineer for Steamboat Springs (Mt. Werner), CO Master Plan and Contact Basin Improvements.

Conducted condition assessment of existing facilities and design plan for baffling of existing buried 5 MG tank to provide improved contact time. New baffles designed with sacrificial connections for seismic events.





## Dave Curran, PE

GEOTECH – PHASE II

### Areas of Expertise

- Extensive experience in geotechnical site investigations, engineering analysis and design, specification development, subcontracting support, and construction support
- Skilled at providing recommendations and performing reviews for shallow and deep foundations, retaining walls, slope stabilization, and subgrade stabilization
- Experienced with driven pile and drilled shaft calculations, settlement calculations, slope stability analyses, seepage analyses and dam safety

### EDUCATION/QUALIFICATIONS

MS, Civil Engineering, University of Colorado

ME, Engineering Management, University of Colorado

BS, Chemical and Materials Engineering, University of Connecticut

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO, NE, NM, UT

### Relevant Project Experience

**Lead Geotechnical Engineer, Binney Connection Pumping and Treatment, South Metro WISE Authority, CO.** Provided support to design team including assistance with implementation of subconsultant recommendations for foundations, underdrain design, minimization of pipeline impacts to roadways founded on expansive soils and development of earthwork specifications. Provided support during construction, including onsite observation of fill settlement issues, submittal reviews and responses to requests for information.

**Geotechnical Engineer, Northern Treatment Plant, Metro Wastewater Reclamation District, Brighton, CO.** Provided support to design team, including assisting with implementation of subconsultant recommendations, swelling bedrock, slurry wall, and tunneled crossing issues. Provided support during construction, including submittal reviews and review of subcontractor plans for stabilization of a 78-inch interceptor line that was settling due to compressing fill. Observed permeation grouting operations during stabilization.

**Lead Geotechnical Engineer, Phase II Water Treatment Plant Expansion, City of Loveland, CO.** Assisted project team with implementation of subconsultant recommendations and developed additional foundation recommendations based on existing data. Developed specifications and provided support during construction.

**Geotechnical and Dam Safety Engineer, Aurora Reservoir Improvements, Aurora Water, CO.** Senior reviewer for geotechnical and dam safety aspects of a new 72-inch guard valve and vault, and associated pipeline modifications. Provided support during construction.

**Lead Geotechnical Engineer, Greenridge Glade Reservoir Diversion and Bypass, City of Loveland, CO.** Developed and executed in-house geotechnical investigation program. Provided foundation recommendations and performed field observations during construction.

**Lead Geotechnical Engineer, 33<sup>rd</sup> Street Intake and Pump Station, Colorado Springs Utilities, CO.** Developed and oversaw in-house geotechnical investigation program for the alternatives analysis. Provided foundation recommendations and recommended additional investigations for the selected alternative.

**Lead Geotechnical Engineer, Off-Channel Reservoir, Private Client, Brazoria County, TX.**

Developed and oversaw geotechnical investigation program for Stage 2 front-end loading (FEL) services for a new 47,000 acre-foot reservoir and associated river intake, pump station and hydraulic structures.

**Lead Geotechnical Engineer, Prologis Lift Station Improvements, City of Aurora, CO.**

Developed and oversaw in-house geotechnical investigation program for new structures and stabilization of existing infrastructure distressed by settling soils. Developed foundation recommendations and specifications, including a compaction grouting specification to reduce the potential for additional future settlement.

**Lead Geotechnical Engineer, Ridgeway Line/Rueter-Hess WISE Infrastructure Project, Parker Water & Sanitation District, CO.** Developed and oversaw in-house geotechnical investigation program for a new 42-inch-diameter, 4.5-mile-long pipeline, as well as valve vaults, and ammonia storage facility. Provided foundation recommendations, developed specifications, and provided support during construction.

**Lead Geotechnical Engineer, Pump Station 1 and Zone A Pipeline, Pinery Water and Wastewater District, Douglas County, CO.**

Developed and oversaw in-house geotechnical investigation program for a new pump station and pipeline. Provided foundation recommendations and developed specifications.

**Lead Geotechnical Engineer, 33rd Street Intake and Pump Station, Colorado Springs Utilities, CO.**

Developed and oversaw in-house geotechnical investigation program for the alternatives analysis. Provided foundation recommendations and recommended additional investigations for the selected alternative.

**Lead Geotechnical Engineer, Resilient St. Vrain Project, City of Longmont, CO.** Developed and oversaw an extensive in-house geotechnical investigation program for channel improvements, pedestrian bridges, diversions, retaining walls, park facilities, and pavements for two reaches on a 7-mile corridor. Provided site development and foundation recommendations, permitting support, and earthwork specifications.



## Erik Neperud, PE

SITE CIVIL – PHASE II

### Areas of Expertise

- Lead civil engineer with 14 years of experience on a range of projects, including wastewater and stormwater treatment facility design
- Coordinates and organizes multidisciplinary needs for facility layout, yard piping, and equipment placement to develop project site plans, roads layouts, grading and drainage, utility plans, and physical security designs

Develops basis of design technical memorandums and design criteria for civil facilities. Prepares engineering specifications related to asphalt and concrete pavement, fencing, utilities, and earthwork

#### EDUCATION/QUALIFICATIONS

BS, Bio-Resource and Agricultural (Civil) Engineering, Colorado State University, Fort Collins

BS, Equine Science, Colorado State University, Fort Collins

#### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO

### Relevant Project Experience

**Site Civil Engineer, Fountain Valley Water Treatment Plant (WTP) Facility Plan, Colorado Springs Utilities, CO.** The project included a detailed condition assessment of aging treatment plant infrastructure, alternatives analysis, and facility planning. Jacobs focused on individual processes to better position the plant to manage lower raw water quality conditions and more stringent regulatory requirements in the future.

The Jacobs team worked closely with plant staff to review the physical condition of the overall facility and major individual equipment assets. After quantifying the current state, Jacobs developed alternatives to meet target states identified jointly with Colorado Springs Utilities. Following a collaborative alternatives analysis, Jacobs developed and presented a prioritized list of improvements and repair and replacement projects for the facility.

Responsibilities included site inspections and preparation of a condition assessment report for civil and physical security related aspects of the water treatment plant. The condition assessment of civil related infrastructure included site grades, storm drains, manholes, ditches, pavements, handrails, loading areas, and signage. Condition assessment of physical security infrastructure included perimeter fences, grates, site lighting, cameras, locks, and other barriers.

**Site Civil Engineer, 33rd Street Pump Station and Intake, Colorado Springs Utilities, CO.** This project involved pump capacity assessment, site investigation, alternatives analysis, and facility planning. Final design is currently ongoing to replace aging infrastructure and provide provisions for more reliable, improved water delivery with a capacity of 10 mgd to Mesa Water Treatment Plant by developing a design and an operations scheme that will maximize the use of the pump station and Utilities' Front Range water rights. Design includes Obermeyer diversion within Fountain Creek, Coanda screen intake, and vertical turbine pumps with variable frequency drives to provide capacities from 0.5 mgd to 10 mgd.

Used Replica™ simulation software for the hydraulic and power consumption analyses to determine optimum pump and drive selection. Jacobs performed the requisite site visits to collect data and evaluate site conditions, geotechnical investigations, groundwater analysis, and soil analysis to support development of a geotechnical baseline report.

Responsibilities included site plan development, coordination with all disciplines and facility leads to position new pump station, demolition plans, site grading and drainage, preparation of survey scope of work for base drawings, coordination with floodplain engineers, development of separate early site preparation package, Basis of Design Report technical memorandum, project specifications, coordination with permitting leads.

**Lead Site Civil, 3Kings Water Treatment Plant, Park City Municipal Corporation, Park City, UT.**

This project is the replacement of a potable water treatment plant in Park City, Utah. The new plant will have the ability to treat approximately 7.2 MGD and pump to the City's water distribution system. The water sources into the plant are from two abandoned mine tunnels and a local artesian spring. The site is located between two holes of play on the Park City Golf Course. The treatment plant will also have the capacity to generate a small amount of electricity to help offset the power consumption of the plant. This site proved to be a challenging and complex design due to its proximity to the golf course, the mine tunnels, the artesian spring, and the steep grades across the project.

Responsibilities included site demolition of existing water treatment plant, site plan development for all new facilities and buildings, coordination with all disciplines and facility leads for facility placement and yard piping design. Additionally, responsibilities included grading and drainage, development of separate early site preparation package, and coordination with the project client and golf course. Continuous communications with the client were done to collectively deliver a design to meet their needs and address all challenges on the site.





## Jim Landman, PE

ELECTRICAL – PHASE II

### Areas of Expertise

- Electrical engineer experienced in design for municipal water and wastewater facilities and commercial and industrial sectors of the communication, electrical power, and wastewater industry
- Expertise in the design of low- and medium-voltage power distribution systems and standby generation facilities, as well as application and interpretation of the National Electrical Code (NEC)
- Renewable resource projects include hydroelectric plant design and feasibility studies, wind energy resource analysis, zero carbon footprint nuclear plants, tidal power feasibility studies, and LEED-certified facilities

#### EDUCATION/QUALIFICATIONS

MS, Electrical Engineering, Michigan Technological University

BS, Electrical Engineering, Michigan Technological University

#### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO, CA, AK, AZ, MD (Ret.), NM, OR, WA

### Relevant Project Experience

**Lead Electrical Engineer, Ralston Water Treatment Plant, Filter Upgrade, City of Arvada, Arvada, CO.** Work included replacement of low-voltage power distribution equipment.

**Senior Technical Consultant - Electrical, Foothills Treatment Plant, Denver Water, Denver, CO.** Provided electrical quality control review and technical consulting for unit

substation and variable frequency drive replacements at a major water treatment facility. Unit substations consist of low and medium-voltage switchgear with integral power transformers. Provided electrical systems inspection to ensure quality installation and safe environment for plant operators. Assisted with unit substation startup and testing.

**Lead Electrical Engineer, National Park Service, Grand Canyon National Park (NP), Yellowstone National Park, Bandelier National Monument, and Glen Canyon National Recreational Area, US National Park Service.** Led the electrical team for renovation or replacement of one water treatment plant and multiple wastewater treatment facilities and lift stations.

**Quality Control Reviewer, Wellington Wastewater Treatment Plant, Town of Wellington, CO.**

Performed QC review of designs developed for the Wellington Wastewater Treatment Plant.

**Senior Technical Consultant - Electrical, North Water Reclamation Facility Phase 1A Improvements, Parker Water and Sanitation District, CO.** Provided senior level consulting services during the preliminary electrical design and quality control for detailed design for plant improvements including new Advanced Water Treatment, UV Disinfection, ATAD and odor control facilities. Electrical distribution included upgrade from secondary metered system to 15kV primary metered system, low voltage distribution and electrical support for plant control and monitoring systems.

**Senior Technical Consultant - Electrical, Nelson-Flanders Water Treatment Plant, City of Longmont, CO.** Jacobs performed the conceptual design for expanding the Nelson-Flanders Water



Treatment Plant. Water demand projections, risk parameters, and cost estimates were considered to determine a cost-effective construction phasing approach that also provided the desired redundancy for the City's water treatment system. Operations staff presented Jacobs with a list of existing plant issues ranging from poor stormwater control on site to corrosion issues, recommendations were made for small capital projects to address these issues with cost estimates. The main treatment process alternatives were decided in the Integrated Treated Water Supply Master Plan (also completed by Jacobs), but a more in-depth look at operational issues resulted in alternatives analysis for additional items, including fluoride feed, pH and alkalinity control, disinfection, soda ash and site electrical redundancy. The preliminary design incorporated redundancy concepts that will allow the main treatment processes to operate independently from other trains for full redundancy. The conceptual design project included several key workshops to discuss alternatives, receive input, and gain consensus on the path forward.

**Senior Technical Consultant - Electrical, Rueter-Hess Water Purification Facility (RHWPf), Parker Water and Sanitation District, CO.** The project included finished water pump station upgrades focused on connecting the RHWPf finished water system to the Water, Infrastructure and Supply Efficiency (WISE) piping and infrastructure network. The connection added a new potable water source for pumping to Parker Water and Sanitation District's (PWSD) water distribution system. The project included hydraulic and surge analyses, addition of two high-service vertical turbine pumps, relocation of a surge tank within the facility, a new flow control valve vault, cost estimating, and services during construction.

**Lead Electrical Engineer, Cutter Lateral Water Treatment Facility, US Bureau of Reclamation, Northwestern New Mexico, NM.** Led the project electrical team in the design of a water treatment

plant. Work included the design of 25kV-480V unit substation equipment, low-voltage distribution and end-use equipment.

**Lead Electrical Engineer, 4-Mile Creek Water Quality Reclamation Facility, City of Wichita Department of Public Works, Wichita, KS.** Led the project electrical team for a wastewater treatment plant expansion. Work included coordination with the local power utility for the relocation of underground 12.47kV primary distribution lines, design of low-voltage distribution systems, indoor and outdoor lighting systems, system analysis, and mitigation of power system harmonics.

**Lead Electrical Engineer, Water Treatment Project, Confidential Client, TX.** Responsible for the design of low-voltage power distribution systems for a 20-mgd water treatment plant with estimated capital cost of \$50 million. Work included the design of 480V distribution systems with motors to 450 hp.

**Lead Electrical Engineer, Ina Road WRF Arc Flash Label Preparation and Installation Subproject, Pima County Regional Wastewater Reclamation, Tucson, AZ.** Led the electrical engineering team in the work leading to the installation of 1,500 arc flash labels. The project included extensive field work to accurately document system configuration and consultation with the owner for integration of arc flash work with their safety program. Recommended changes to overcurrent device settings to reduce incident energy levels.



## Dennis Thomas, PE

I&C – PHASE II

### Areas of Expertise

- Senior I&C and Control Systems Engineer with nearly 30 years of experience in automation and power plant controls, including all aspects of I&C, distributed control systems (DCS), programmable logic controllers (PLCs), and graphical user interfaces (GUIs)
- Serves as technical lead for control system projects, including supervision of programmers during preparation of code, preparation of project test document for factory and site testing, and interface with clients and subcontractors
- Experience and training in Fisher Provox Configuration, Fisher Envovox Configuration, Fisher Univox Configuration, Fisher ROC Configuration, Fisher Control Valve Sizing, Wonderware configuration, Allen-Bradley PLC 5 Part 1 and 2, Intellution Fix, GE Fanuc 90-30 Configuration, and ABB Protective Relaying

### EDUCATION/QUALIFICATIONS

BS, Electrical Engineering, San Jose State University

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO, CA, KS, TN, UT, Guam

### Relevant Project Experience

#### **Control Systems Engineer and Project Manager, Water Utilities Division, City of Boulder, CO.**

Responsible for design and implementation of logic for a water treatment plant and instrumentation specification including Allen Bradley Controllogix PLCs.

#### **Control Systems Engineer and Project Manager, Public Works Department, City of Riverton, WY.**

Responsible for design and implementation of logic for a water treatment plant and instrumentation specification including Allen Bradley Controllogix PLCs.

#### **Control Systems Engineer and Project Manager, Eagle River Water & Sanitation District, Avon, CO.**

Responsible for design and implementation of logic for a wastewater treatment plant, including SCADA, human machine interface (HMI), and PLC (Allen-Bradley 5/40) configuration for an Auto Thermic Thermo-phillic Aerobic Digester (ATAD) waste disposal process.

#### **Project Engineer, DCS Retrofit, Sierra Pacific Power, Reno, NV.**

Designed a DCS retrofit on 105-MW 1500 I/O point gas fired plant. Challenges included identification and replacement of all existing pneumatic plant controls, complete replacement of existing Forney relay-based burner management system (BMS), and integration of BMS controls into a dedicated Ovation DCS controller. Turbine controls were also integrated into dedicated DCS controller. This project required extensive onsite research and drawing verification.

#### **Lead I&C Engineer, Wet Flue Gas Desulfurization Project, American Electric Power, New Haven, WV.**

Lead I&C engineer for a wet flue gas desulfurization project for the Mountaineer Plant using Emerson Ovation DCS. Responsibilities included preparation of wiring diagrams and specification of all required instrumentation, including DCS.





## Craig VanHorn, PE

CORROSION – PHASE II

### Areas of Expertise

- Expertise in corrosion and materials, metallurgical analysis, failure analysis, corrosion analysis, nondestructive evaluation, and coatings selection and inspection
- Experience in a wide range of industries, including water infrastructure (wastewater, dams, and levees), oil and gas, power, nuclear, Department of Energy, Department of Defense, and mining

### EDUCATION/QUALIFICATIONS

MS, Engineering (Metallurgy and Materials Specialty), Colorado School of Mines

BS, Engineering (Mechanical Specialty), Colorado School of Mines

### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO

NACE Certified Corrosion Technician

NACE Certified Coating Inspector

### Relevant Project Experience

**Materials/Corrosion Engineer, Coating Specification and Coating Inspection, Condition Assessment and Coating Design of Aluminum Hydrogen Peroxide Tanks, Binney Water Treatment Plant, Aurora Water, CO.** Assessed the condition of hydrogen peroxide tanks that have been in service for less than 7 years. Evidence of leakage occurred on the exterior surfaces of the tank forming crystal nodules. Ultrasonic testing was recommended to determine overall wall thickness and/or pitting. Ultrasonic testing indicated that pitting was the primary form of corrosion. Contaminated product, from chlorides,

was determined to be the cause of pitting. Vinyl ester liner system was recommended for rehabilitation. Vinyl ester liner system was specified and installed. Provided oversight and inspection during the liner installation process performing thickness and holiday testing.

**Materials and Corrosion Engineer, Fountain Valley Water Treatment Plant Facility Plan, Colorado Springs Utilities, CO.** The project included a detailed condition assessment of aging treatment plant infrastructure, alternatives analysis, and facility planning. Jacobs worked closely with plant staff to review the physical condition of the overall facility and major individual equipment assets. Following a collaborative alternatives analysis, Jacobs developed and presented a prioritized list of facility improvements and repair and replacement projects. The condition assessment evaluated the existing cathodic protection systems, coatings, concrete basins, and miscellaneous materials throughout the facility.

**Corrosion Engineer, Chlorine Contact Basin Project, City of Fort Collins, CO.** Performed site wide survey of impressed current cathodic protection system. Tested joint bonds for ductile iron pipe using a digital low resistance ohm meter. Performed longitudinal pipe resistance testing.

**Corrosion Engineer, Denver Water On-Call, Pipe-to-Soil Survey and Terminal Board Replacement, Denver Water, CO.** Provided pipe-to-soil survey and replaced terminal boards on water pipelines throughout the city of Denver. The survey included uploading data into a cloud-based data collector application via mobile devices.





## Brittany Faber, PE

BUILDING MECHANICAL – PHASE II

### Areas of Expertise

- Building mechanical engineer who focuses on heating, ventilation, and air conditioning and plumbing design
- Experience on a variety of projects including water and wastewater treatment plants (such as at the current YELL water/wastewater system projects), and commercial airport and office spaces

#### EDUCATION/QUALIFICATIONS

Mechanical Engineering, Missouri University of Science and Technology

#### REGISTRATIONS/CERTIFICATIONS

Professional Engineer: CO, TX

### Relevant Project Experience

**Mechanical Engineer, Three Kings Water Supply Pump Station Hydraulic Transient Analysis, Park City Municipal Corporation, UT.** Providing construction mechanical engineering services with a CMAR contractor for a 7.2 mgd water treatment facility treating mining-influenced water from two tunnel sources on a constrained site with significant visual appeal requirements. The facility encompasses treatment for municipal drinking water use and for discharge to local streams in accordance with a Stipulated Compliance Order (SCO) and a Utah Pollutant Discharge Elimination System (UPDES) permit. Treatment technologies implemented are capable of reducing metals concentrations for antimony, arsenic, cadmium, iron, lead, manganese, thallium, and zinc, while also meeting surface water treatment requirements. Liquids treatment processes include chlorine oxidation, high pH flocculation and

sedimentation, filtration with manganese dioxide media, low pH adsorption with titanium dioxide media, and UV light disinfection. Solids treatment processes include gravity thickening and plate and frame filter presses for dewatering. Micro-hydro power generation facilities are also included on raw water supplies into the facility. Mechanical design for review of submittals and responding to requests for information during construction. Also provided the required mechanical design to support permitting documentation.

**Mechanical Engineer, Phantom Ranch WWTP Short-Term Improvements, NPS, Grand Canyon National Park, AZ.** Designed the HVAC system for the \$5M Short Term Improvements Project at the Phantom Ranch Wastewater Treatment Plant at Grand Canyon National Park. Provided evaluation and engineering design services for the NPS to bring the HVAC system up to current design standards and to meet new requirements as dictated by the process improvements to the Phantom Ranch Wastewater Treatment Plant.

**Mechanical Engineer, Replace WWTP at South Rim Village, DB RFP, NPS, Grand Canyon National Park, National Park Service (NPS), AZ.** Lead building mechanical engineer and will be designing the HVAC and plumbing systems for the replacement of the wastewater treatment plant at South Rim Village. Designed the HVAC and plumbing systems to meet current design standards, helped prevent corrosion throughout each building, and provided the NPS building mechanical systems which meet their needs.

**Mechanical Engineer, WWTP for Canyon Village, Grant, Mammoth and Old Faithful, NPS, Yellowstone National Park, WY.** Led building mechanical engineer for improvements to the water treatment plant and multiple

water/wastewater treatment plants throughout Yellowstone National Park. Assessed existing buildings and provided building mechanical designs for the existing and new buildings to support the process improvement upgrades throughout the Park.

**Mechanical Engineer, Interconnect DB at Agua Nueva Water Reclamation Facility, Pima County, Tucson, AZ.** Developed mechanical, electrical, and plumbing (MEP) design for interconnect pipeline between existing reuse facility and Agua Nueva treatment facility. The project included design and construction of an innovative treatment process that uses dissolved air flotation (DAF) clarification for primary treatment, a 5-stage Bardenpho enhanced with step feed capabilities and deep tank secondary clarification. Stringent disinfection requirements are met through tertiary treatment using cloth disk filters and disinfection through chloramination.

**Mechanical Engineer, Tres Rios Water Reclamation Facility, Pima County Regional Water Reclamation District, Tucson, AZ.**

Developed the HVAC design for a new odor control electrical building. Sized the HVAC system for the extreme summer heat to provide proper functionality for the critical electrical systems located within the building.





## Mark Powell, RA

LEAD ARCHITECT – PHASE II

### Areas of Expertise

- More than 30 years of experience in all phases of architectural practice
- Has provided architectural services for a variety of projects, including commercial, industrial, food processing, healthcare, institutional, and government work
- His responsibilities at Jacobs include architectural design and team management for all phases of project design, from programming through construction documents and contract administration, including estimating and CAD production of drawings

### EDUCATION/QUALIFICATIONS

BA, Architecture, University of Tennessee

### REGISTRATIONS

Registered Architect: CO, TN, TX, UT

National Council Architectural Registration Boards

### Relevant Project Experience

**Lead Architect, Parker Water and Sanitation District North Reclamation Facility Phase 1 - Parker, CO.** Served as Lead Architect for five new buildings to facilitate the growing demands of the Parker area. Buildings included Headworks, Advanced Water Treatment, Chemical/Pump Building, ATAD, and Ultraviolet Disinfection Building. The buildings were designed to blend into the existing campus-like architecture that is visible in the community.

**Lead Architect, 33rd Street Pump Station, Colorado Springs Utilities, CO.** Served as Lead Architect for a new Pump Station to increase

capacity on an existing site. The facility is adjacent to a creek/greenway, and consideration of aesthetics was an important architectural consideration.

**Lead Architect, South Fort Collins Sanitation District Expansion and Improvements, Fort Collins, CO.** Served as lead architect for two new buildings (Blower Building and Advanced Thermophilic Aerobic Digestion Building [ATAD]) at an existing Plant site. Designed and developed building concepts for the overall site campus for functional relationships and adjacencies.

**Lead Architect, Midland Water Pollution Control Plant, Secondary Treatment Facility Upgrades, Midland, TX.** Served as Lead Architect for four new buildings at an existing treatment facility. The buildings include Blower Building, Dewatering Facility, and Chemical/Electrical Building, along with several shade and shelter canopies. The new buildings were designed to architecturally integrate into the existing plant complex.

**Lead Architect, Missile Integrated Support Facility, Lockheed Martin, Kings Bay, GA.** Served as Lead Architect for the design and construction of a renovated facility to provide testing facilities for Lockheed Martin. Responsibilities included existing building evaluation, programming, design, production of construction documents, and engineering discipline coordination.







## Mark Remmers

ONSITE CONSTRUCTION SERVICES  
RESIDENT PROJECT REPRESENTATIVE – PHASE II

### EDUCATION/QUALIFICATIONS

AS, Agricultural Mechanics, Moraine Park Technical College, Fond du Lac, Wisconsin

### REGISTRATIONS/CERTIFICATIONS

Pursuing Certified Construction Manager accreditation through CMCI (Certified Construction Manager Institute) and CMAA (Construction Management Association of America Inc.)

CDOT Certifications:  
Stormwater Management and Erosion Control  
Asphalt Laydown – Level A  
Asphalt Paving Inspector – Level I  
Concrete Paving Inspector – Level I

City of Laramie, WY:  
Utility Contractor Certification

### Relevant Project Experience

**Contract Administration, Spring Canyon Water District, City of Fort Collins, CO.** Performing Contract Administration and inspections for the site piping and related tie-ins to existing pipelines, new tanks and new pump stations. The work is generally described as follows:

- Approximately 7,300 feet of 8-inch diameter pipe, related fittings, valves, and related appurtenances. One prefabricated pump station adjacent to FCLWD system
- One prefabricated pump station adjacent to Medicine Ridge, 800 feet of 8-inch waterline and 2 buried 25,000 gallon fiberglass tanks
- Demolition of an existing 200,000 gallon water storage tank, and construction of a new 200,000 gallon steel tank

- Installation of surge valve by the existing water treatment plant
- Removal of PRV in the existing distribution system

**Contract Administration, South Zone Pump Station, Town of Windsor, CO.** Performed Contract Administration and inspections for a closed-loop pump station that incorporated 485-Hp of three-phase, split-case centrifugal water pumps with variable frequency drives, located at grade level in a CMU building. The station also includes a backup generator to provide continuous service during power outages, a SCADA system and a remote terminal unit.

**Contract Administration, Nederland Membrane Water Treatment Plant, Town of Nederland, CO.** Performed Contract Administration and inspections for a new raw water pump station, new intake structure, three submersible pumps, davit crane, interior and exterior piping and valving, HVAC equipment, SCADA system, and associated site grading. Modifications to the existing water treatment facility included an addition to the existing treatment building, installation of a Siemens Memcor XS membrane filtration system, Siemens neutralization system, flocculation tank, automatic raw water screens, interior and exterior piping and valving, new HVAC equipment and a SCADA system. Modifications to the existing backwash tank were performed to facilitate use as a new clearwell with three vertical-turbine pumps to fill the Town's existing water storage tanks.





# Appendix B - Completed Vendor Submittal Form

## REQUIRED VENDOR SUBMITTAL FORM

### SUBMITTED BY:

Company Name: Jacobs Engineering Group Inc.

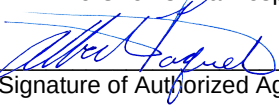
Contact Names: Sales/Customer Service Albert Paquet

Address: 6312 S Fiddlers Green Circle, Suite 300N, Greenwood Village, CO 80111

Phone: ( 720 ) 286-6023 Email(s): al.paquet@jacobs.com

The undersigned hereby affirms that:

- He/she is a duly authorized agent of the vendor;
- He/she has read all Terms and Conditions and technical specifications made available in conjunction with this solicitation and fully accepts and acknowledges this offer is consistent with the specifications and terms and conditions, unless specific variations have been clearly and expressly listed in the offer.
- The Offer is in all respects fair, without outside collusion or otherwise illegal action.

By:  May 26, 2023 95-4081636  
Signature of Authorized Agent Date FEIN

Albert Paquet, PE Client Account Manager/Vice President al.paquet@jacobs.com  
Typed/Printed Name of Agent Title of Agent Agent email

Kerry Meyer, PE Project Manager Kerry.Meyer3@jacobs.com  
Typed/Printed Name of Witness Title of Witness Witness email

**PAYMENT TERMS:** If the vendor does not accept a percentage discount, the City standard is net thirty (30) days after the date that the City receives an accurate invoice and has accepted the product or service. Payment is the date of the check mailing or date of the credit card transaction.

Discount:     %      Days, Net: 30 Days, Accept Visa without additional fee?                     

**VARIATIONS:** The vendor shall identify all variations and exceptions to any RFP documents. Submittal of a Vendor Contract is considered excessive in Variations and may be cause for determining that the Bid/Offer is non-responsive and ineligible for award. For each variation listed, reference the applicable section of the solicitation document as per the example below. If no variations are listed here, it is understood that the vendor's Offer fully complies with all terms and conditions. Attach additional Variation sheets in the same format as below after starting the first three on this page.

**Jacobs has reviewed the contractual General Terms and Conditions for the Water Treatment, Piloting and Process Selection and would like to request the changes noted below and detailed in the document attached at the end of this form.**

Page #: 2 Item # or Section: 4

Variance      Please see attached document

Page #: 3 Item # or Section: 15

Variance      Please see attached document

Page #: N/A Item # or Section: Additional Terms and Conditions

Variance      Please see attached document

**SUBMITTAL INSTRUCTIONS:**

Proposals shall be submitted in the order listed below with each section clearly identified. Refer to 8. PROPOSAL FORMAT REQUIREMENTS in the Administrative Information Section for more detail. **Missing information or required documents may result in submission being deemed non-responsive.**

- ☒ Submit ON-LINE at BidnetDirect.com. Your company name must be the first word naming the pdf file.
- ☒ Cover letter
- ☒ Company Information
- ☒ Related Experience
- ☒ Understanding and Approach
- ☒ Proposed Work Schedule
- ☒ Completed City Submittal Forms including this form and the Performance Measures Form, when an applicable service
- ☒ Pricing – All fee and costs associated with the proposal and applicable rate sheet
- ☒ Insurance – Checking this box accepts that the insurance requirements listed by the City are acceptable unless listed in the variations on the previous page.
- ☒ CONFIDENTIAL information, if any, MUST be stamped as such on each page and submitted separately.
- ☒ Please initial to acknowledge Addenda, if any, have been considered in your proposal:

#1 AP, May 18, 2023 #2 \_\_\_\_\_ #3 \_\_\_\_\_

**REFERENCES:**

- ☐ Check here if Firm's standard reference sheet is attached, otherwise, use the space below.

Name: References are provided in Proposal with our project descriptions Contact Person: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone No: \_\_\_\_\_ Email: \_\_\_\_\_

Describe type of work/service performed or items supplied: \_\_\_\_\_

Name: \_\_\_\_\_ Contact Person: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone No: \_\_\_\_\_ Email: \_\_\_\_\_

Describe type of work/service performed or items supplied: \_\_\_\_\_

Name: \_\_\_\_\_ Contact Person: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone No: \_\_\_\_\_ Email: \_\_\_\_\_

Describe type of work/service performed or items supplied: \_\_\_\_\_

## **PERFORMANCE MEASURES FORM INSTRUCTIONS:**

The City has incorporated Performance Management into its organizational culture. When vendors submit offers to the City in response to solicitations for **Services** (not associated with the primary purchase of goods, supplies, or software), they shall identify the methods and goals by which they will monitor and report their performance providing those services to the City. Vendor's performance shall be documented as to (a) Price/Cost, (b) Punctuality/Responsiveness (c) Quality/Reliability, and (d) Sustainability/or Innovation.

1. Vendor will define 1-2 measures for (a) Price/Cost, (b) Punctuality/Responsiveness (c) Quality/Reliability, and (d) Sustainability/or Innovation, that follow S.M.A.R.T goals: Specific, Measurable, Achievable, Relevant, and Timely, per category.

2. The awarded vendor will self-score their defined metrics within a score card emailed from purchasing 2 months prior to contract renewal. The department will review the vendor's self-scored measures.

**SERVICES means:** the furnishing of labor, time, effort, maintenance, etc., by a vendor/contractor/consultant, with an initial contract amount of more than \$15,000.

### (a) Price/Cost

*Example Measure: Consultant will submit detailed invoices substantiating amounts requested.*

1. Consultant will submit monthly invoices substantiating amounts requested and progress reports detailing work completed and worked to be completed in next month.
2. \_\_\_\_\_

### (b) Punctuality/Responsiveness

*Example Measure: Reporting of project status will occur monthly with the City and consultant's Project Manager.*

1. Consultant project manager will report project status to the city project manager on a monthly basis through monthly progress reports.
2. Consultant will establish communication protocols during the Kickoff meeting.

### (c) Quality/Reliability

*Example Measure: Revisions are drafted within two weeks, and no more than 3 revisions prior to final draft.*

1. Consultant will maintain project files on a SharePoint website to incorporate version control, allow easy access to most current file, and provide a secure storage location.
2. Consultant will submit revisions within two weeks with no more than two revisions prior to final.

### (d) Sustainability and/or Innovation

*Example Measure: Digital reports delivered to the City 95% of the time will to reduce the use of paper.*

1. Consultant will deliver meeting agendas, meeting notes, and reports digitally to the City 95% of the time to reduce the use of paper.
2. During scoping, we will work with the City to establish sustainability goals and innovated ideas appropriate for this project.

*Performance measures will be queried for every year of the contract. Performance measures reporting will partially inform re-contracting with or renewing a contract with a vendor.*



**JACOBS ENGINEERING GROUP INC.**

**REQUEST FOR PROPOSAL**

**RFP-23-UTS-045 - Water Treatment Plant Replacement, Piloting and Process Selection**

This document is attached to the Required Vendor Submittal Form for Jacobs Engineering Group Inc.'s response.

Page #: 2 Item # or Section: 4. INDEMNIFICATION OF ARVADA

Variance Section 4, Indemnification of Arvada, of the General Terms and Conditions of the RFP is amended to read, *"Contractor shall hold harmless and indemnify Arvada, its officers, and employees, against any and all costs, expenses, claims, damages, liabilities, court awards, and other amounts (including attorneys' fees and related costs) arising out of, made, or asserted for any damage to persons or property resulting from the negligence or fault of Contractor in connection with the performance by Contractor of obligations under this solicitation and any subsequent Agreement with Arvada. Nothing herein is intended to constitute a covenant, promise or agreement to indemnify and hold harmless Arvada from any liability or damages directly caused by or attributable to Arvada's own negligence."*

Page #: 3 Item # or Section: 15. STANDARD OF CARE

Variance Section 15, Standard and Manner of Performance, of the General Terms and Conditions of the RFP is amended to read, *"Contractor shall perform its obligations under the Agreement in accordance with the generally accepted standards of care, skill, and diligence in Contractor's industry, trade, or profession."*

Page #: n/a Item # or Section: Additional terms and conditions

Variance Jacobs respectfully requests that language be added - *FORCE MAJEURE. Any delays in or failure of performance by any party of his/her or its obligations under the Agreement shall be excused if such delays or failure are a result of acts of God, pandemic, fires, floods, accidents, regulations or orders of civil or military authorities, shortages of labor or materials, or other causes, similar or dissimilar, which are beyond the control of such party.*



# Appendix C - Additional Qualification Details



## Appendix C. Additional Qualification Details

| Project/ Client/Status                                                                           | Construction Fee           | Team Member(s) Involved                                                                                          |
|--------------------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------|
| Loveland WTP Green Ridge Glade Reservoir Bypass/City of Loveland, CO/Completed (2022)            | \$3M                       | Al Paquet, Richard Saxton, Mark Remmers (Phase 2 Team), Hensel Phelps Contractor                                 |
| WWTP Expansion/South Fort Collins Sanitation District, CO/Completed (2021)                       | \$40M                      | Jason Rysavy, Steve Tamburini, Kile Snider, Richard Saxton, Al Paquet (Phase 2 Team), Hensel Phelps Construction |
| WWTP Biosolids Dewatering System Design/Town of Windsor, CO/Ongoing                              | \$18M                      | Al Paquet, Phillip Zelenak, Mark Remmers (Phase 2 Team), Hensel Phelps Contractor                                |
| WWTP Expansion/Town of Wellington, CO/Ongoing                                                    | \$47M                      | Al Paquet, Richard Saxton (Phase 2 Team), Moltz Construction                                                     |
| WTP Expansion/Town of Wellington/Ongoing                                                         | \$36M                      | Al Paquet, Bill Carter, Richard Saxton, Mark Remmers (Phase 2 Team), Hensel Phelps Construction                  |
| North Treatment Plant Expansion/Parker Water and Sanitation District, CO/Completed (2022)        | \$50M                      | Garney Construction                                                                                              |
| South WWTP Improvements/Parker Water and Sanitation District, CO/Completed (2022)                | \$7M                       | Al Paquet, Jonathan Janes, Garney Construction                                                                   |
| Filter Improvements/City of Arvada, CO/Completed (2023)                                          | \$11.7M                    | Bill Carter, Kerry Meyer, Holly Link, Phillip Zelenak, Al Paquet PCL Construction                                |
| Fort Collins WTP Improvements/City of Fort Collins, CO/Completed 2007 through 2019               | \$50 M (Projects Combined) | Al Paquet, Bill Carter, Holly Link, Hensel Phelps and pipelines by Garney                                        |
| Northwater Plant/Denver Water, CO/Ongoing                                                        | \$475M                     | Bill Carter, Holly Link, Kiewit and PCL Construction                                                             |
| Nelson Flanders WTP Montgomery Tank and Valve Improvements/City of Longmont, CO/Completed (2010) | \$250K                     | Al Paquet, Holly Link, Moltz Construction                                                                        |
| Flocculation Basin 3 and Filter Upgrades Improvements/City of Loveland, CO/Completed (2012-2014) | \$1M                       | Al Paquet, Holly Link, USA Construction                                                                          |
| <i>Jacobs' Front Range Water and Wastewater Treatment Plant CM/GC Experience</i>                 |                            |                                                                                                                  |





# Appendix D - Detailed Price Information

| Fee Estimate                                                     | PM/DM                                                    |                                                | Process Specialists                                                 |                                                                 |                                                       |                                               | Sustain-ability                                      | Estimating                             | Pilot Staff                                                 |                                                              | CAD                            | Subcontractors                                                                 |                                                                                   |                                                                     |                                                                        | Labor and Expenses                |                               |                                           |                     |                             |
|------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------|------------------------------------------------------|----------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------|-------------------------------|-------------------------------------------|---------------------|-----------------------------|
|                                                                  | Project Manager (Principal PM)<br><i>Kerry Meyer, PE</i> | Administrative Assistant<br><i>Sandy Orren</i> | Water Treatment SME (Fellow Technologist)<br><i>Bill Carter, PE</i> | Sr. Process Eng. (Senior Technologist)<br><i>Holly Link, PE</i> | Watershed Impacts /Limnologist<br><i>David Austin</i> | Disinfection Support<br><i>Paul Swain, PE</i> | Envision Support<br><i>Keisha Voigt, MPP, ENV SP</i> | Cost Estimating<br><i>Ed Meyer, PE</i> | Pilot Support (Project Engineer 1)<br><i>Dani Davis, PE</i> | Pilot Support (Staff Engineer 2)<br><i>San Marie Thomson</i> | CAD Tech<br><i>Tyler White</i> | Bench Scale Testing SME (Fellow Technologist)<br><i>Issam Najm, PhD (WQTS)</i> | Wildfire and Flooding Expert<br><i>Fernando Rosario-Ortiz, D.Env (CU Boulder)</i> | PFAS SME (Fellow Technologist)<br><i>James Rosenblum, PhD (CSM)</i> | Pilot SME (Fellow Technologist)<br><i>Chance Lauderdale, PhD (HDR)</i> | Total Jacobs Labor Effort (Hours) | Total Jacobs Labor Value (\$) | Total Subcontractor Consultant Value (\$) | Total Expenses (\$) | Total Labor & Expenses (\$) |
| Project Billing Rate                                             | \$228                                                    | \$103                                          | \$268                                                               | \$220                                                           | \$268                                                 | \$268                                         | \$228                                                | \$228                                  | \$158                                                       | \$133                                                        | \$149                          | \$289                                                                          | \$210                                                                             | \$210                                                               | \$289                                                                  |                                   |                               |                                           |                     |                             |
| PHASE I - Piloting, Process Selection, and CDPHE Coordination    |                                                          |                                                |                                                                     |                                                                 |                                                       |                                               |                                                      |                                        |                                                             |                                                              |                                |                                                                                |                                                                                   |                                                                     |                                                                        |                                   |                               |                                           |                     |                             |
| Task 1 - Project Management and Quality Control                  | 109                                                      | 0                                              | 31                                                                  | 4                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 155                                                         | 39                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 338                               | \$63,776                      | \$0                                       | \$1,819             | \$65,595                    |
| 1.1 Project Initiation Meeting                                   | 8                                                        | 0                                              | 4                                                                   | 4                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 8                                                           | 12                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 36                                | \$6,638                       | \$0                                       | \$819               | \$7,457                     |
| 1.2 Project Coordination                                         | 59                                                       | 0                                              | 7                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 15                                                          | 15                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 96                                | \$19,743                      | \$0                                       |                     | \$19,743                    |
| 1.3 Project Reporting                                            | 30                                                       | 0                                              | 0                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 120                                                         | 0                                                            | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 150                               | \$25,802                      | \$0                                       |                     | \$25,802                    |
| 1.4 Operations Tours                                             | 12                                                       | 0                                              | 20                                                                  | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 12                                                          | 12                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 56                                | \$11,592                      | \$0                                       | \$1,000             | \$12,592                    |
| Task 2 - Piloting                                                | 227                                                      | 24                                             | 219                                                                 | 0                                                               | 12                                                    | 40                                            | 44                                                   | 16                                     | 498                                                         | 574                                                          | 0                              | 36                                                                             | 44                                                                                | 18                                                                  | 34                                                                     | 1654                              | \$295,557                     | \$33,233                                  | \$23,048            | \$351,837                   |
| 2.1 Desktop Study                                                |                                                          |                                                |                                                                     |                                                                 |                                                       |                                               |                                                      |                                        |                                                             |                                                              |                                |                                                                                |                                                                                   |                                                                     |                                                                        |                                   |                               |                                           |                     |                             |
| 2.1a Desktop Study                                               | 24                                                       | 0                                              | 32                                                                  | 0                                                               | 12                                                    | 16                                            | 4                                                    | 16                                     | 32                                                          | 32                                                           | 0                              | 8                                                                              | 20                                                                                | 8                                                                   | 12                                                                     | 168                               | \$35,435                      | \$11,655                                  |                     | \$47,090                    |
| 2.1b Desktop Study Analysis Workshop                             | 8                                                        | 0                                              | 8                                                                   | 0                                                               | 0                                                     | 4                                             | 0                                                    | 0                                      | 16                                                          | 16                                                           | 0                              | 0                                                                              | 4                                                                                 | 0                                                                   | 0                                                                      | 52                                | \$9,699                       | \$840                                     | \$197               | \$10,736                    |
| 2.1c Desktop Study Report                                        | 8                                                        | 4                                              | 8                                                                   | 0                                                               | 0                                                     | 4                                             | 0                                                    | 0                                      | 16                                                          | 16                                                           | 0                              | 0                                                                              | 4                                                                                 | 0                                                                   | 0                                                                      | 56                                | \$10,111                      | \$840                                     |                     | \$10,951                    |
| 2.2 Bench Scale Study                                            |                                                          |                                                |                                                                     |                                                                 |                                                       |                                               |                                                      |                                        |                                                             |                                                              |                                |                                                                                |                                                                                   |                                                                     |                                                                        |                                   | \$0                           |                                           |                     |                             |
| 2.2a Onsite Jar Testing                                          | 4                                                        | 0                                              | 4                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 0                                                           | 24                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 32                                | \$5,176                       | \$0                                       | \$131               | \$5,307                     |
| 2.2b Offsite Laboratory (Optional)                               | 0                                                        | 0                                              | 0                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 0                                                           | 0                                                            | 0                              | 16                                                                             | 0                                                                                 | 0                                                                   | 0                                                                      | 0                                 | \$0                           | \$4,620                                   | \$20,000            | \$24,620                    |
| 2.2c Bench Scale Study Workshop                                  | 8                                                        | 0                                              | 8                                                                   | 0                                                               | 0                                                     | 4                                             | 0                                                    | 0                                      | 16                                                          | 16                                                           | 0                              |                                                                                | 4                                                                                 |                                                                     |                                                                        | 52                                | \$9,699                       | \$840                                     | \$197               | \$10,736                    |
| 2.2d Bench Scale Study Protocol                                  | 12                                                       | 4                                              | 16                                                                  | 0                                                               | 0                                                     | 0                                             | 8                                                    | 0                                      | 16                                                          | 32                                                           | 0                              | 4                                                                              | 4                                                                                 | 0                                                                   | 4                                                                      | 88                                | \$16,045                      | \$3,150                                   |                     | \$19,195                    |
| 2.2e Bench Scale Results                                         | 6                                                        | 4                                              | 8                                                                   | 0                                                               | 0                                                     | 4                                             | 8                                                    | 0                                      | 20                                                          | 28                                                           | 0                              | 4                                                                              | 4                                                                                 | 0                                                                   | 4                                                                      | 78                                | \$13,706                      | \$3,150                                   |                     | \$16,856                    |
| 2.3 Piloting Procurement and Set-up (2 Locations)                | 24                                                       | 0                                              | 24                                                                  | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 96                                                          | 16                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 160                               | \$29,210                      | \$0                                       | \$362               | \$29,572                    |
| 2.4 Piloting                                                     |                                                          |                                                |                                                                     |                                                                 |                                                       |                                               |                                                      |                                        |                                                             |                                                              |                                |                                                                                |                                                                                   |                                                                     |                                                                        |                                   |                               |                                           |                     |                             |
| 2.4a Piloting                                                    | 65                                                       | 0                                              | 24                                                                  | 0                                                               | 0                                                     | 8                                             | 0                                                    | 0                                      | 172                                                         | 172                                                          | 0                              | 0                                                                              | 0                                                                                 | 10                                                                  | 10                                                                     | 441                               | \$73,343                      | \$4,988                                   | \$1,408             | \$79,738                    |
| 2.4b Blue Ribbon Panel                                           | 8                                                        | 0                                              | 8                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 12                                                          | 12                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 40                                | \$7,462                       | \$0                                       |                     | \$7,462                     |
| 2.4c Piloting Protocol                                           | 12                                                       | 4                                              | 16                                                                  | 0                                                               | 0                                                     | 0                                             | 8                                                    | 0                                      | 16                                                          | 40                                                           | 0                              | 4                                                                              | 4                                                                                 | 0                                                                   | 4                                                                      | 96                                | \$17,109                      | \$3,150                                   |                     | \$20,259                    |
| 2.4d Data for Donuts (2 Meetings Delivered Twice)                | 8                                                        | 0                                              | 16                                                                  | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 0                                                           | 8                                                            | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 32                                | \$7,179                       | \$0                                       | \$262               | \$7,441                     |
| 2.4e Piloting Workshops (5 Workshops)                            | 23                                                       | 0                                              | 23                                                                  | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 26                                                          | 26                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 98                                | \$18,803                      | \$0                                       | \$491               | \$19,294                    |
| 2.4f Final Pilot Report                                          | 12                                                       | 4                                              | 16                                                                  | 0                                                               | 0                                                     | 0                                             | 8                                                    | 0                                      | 40                                                          | 88                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 168                               | \$27,287                      | \$0                                       |                     | \$27,287                    |
| 2.4g Pilot Optimization Testing Report                           | 6                                                        | 4                                              | 8                                                                   | 0                                                               | 0                                                     | 0                                             | 8                                                    | 0                                      | 20                                                          | 48                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 94                                | \$15,293                      | \$0                                       |                     | \$15,293                    |
| Task 3 - Process Selection                                       | 30                                                       | 8                                              | 30                                                                  | 68                                                              | 0                                                     | 0                                             | 8                                                    | 16                                     | 68                                                          | 104                                                          | 16                             | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 348                               | \$63,130                      | \$0                                       | \$164               | \$63,294                    |
| 3.1 Basis of Design Report                                       |                                                          |                                                |                                                                     |                                                                 |                                                       |                                               |                                                      |                                        |                                                             |                                                              |                                |                                                                                |                                                                                   |                                                                     |                                                                        |                                   |                               |                                           |                     |                             |
| 3.1a Basis of Design Report                                      | 12                                                       | 4                                              | 16                                                                  | 60                                                              | 0                                                     | 0                                             | 8                                                    | 0                                      | 40                                                          | 56                                                           | 16                             | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 212                               | \$38,644                      | \$0                                       |                     | \$38,644                    |
| 3.1b BDR Review Workshop                                         | 6                                                        | 0                                              | 6                                                                   | 8                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 16                                                          | 16                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 52                                | \$9,398                       | \$0                                       | \$164               | \$9,561                     |
| 3.2 Engineering Opinion of Probable Cost and Life Cycle Analysis | 12                                                       | 4                                              | 8                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 16                                     | 12                                                          | 32                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 84                                | \$15,089                      | \$0                                       |                     | \$15,089                    |
| Task 4 - CDPHE Coordination                                      | 12                                                       | 0                                              | 12                                                                  | 16                                                              | 0                                                     | 0                                             | 0                                                    | 0                                      | 16                                                          | 16                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 72                                | \$14,138                      | \$0                                       | \$95                | \$14,233                    |
| 4.1 CDPHE Coordination                                           | 12                                                       | 0                                              | 12                                                                  | 16                                                              | 0                                                     | 0                                             | 0                                                    | 0                                      | 16                                                          | 16                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 72                                | \$14,138                      | \$0                                       | \$95                | \$14,233                    |
| Task 5 - Funding Support                                         | 4                                                        | 0                                              | 0                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 16                                                          | 0                                                            | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 20                                | \$3,440                       | \$0                                       | \$0                 | \$3,440                     |
| 5.1 Funding Support                                              | 4                                                        | 0                                              | 0                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 16                                                          | 0                                                            | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 20                                | \$3,440                       | \$0                                       |                     | \$3,440                     |
| Total Labor Hours                                                | 382                                                      | 32                                             | 292                                                                 | 88                                                              | 12                                                    | 40                                            | 52                                                   | 32                                     | 753                                                         | 733                                                          | 16                             | 36                                                                             | 44                                                                                | 18                                                                  | 34                                                                     | 2432                              | \$ 440,042                    | \$ 33,233                                 | \$ 25,125           | \$ 498,400                  |

Notes

- Project billing rates will be applied according to an employee's project Staffing Code Category, as shown. Rates are valid through 2024.
- Representative job titles are shown only. Not an exhaustive list of the billing titles that may align to the Staffing Code category shown herein.
- Hourly rates include allowance for salary, payroll taxes, fringe benefits, overhead, and profit, but do not include allowances for Direct Expenses.
- Markup on Subconsultants: 5%
- Mileage Rate: Current IRS allowable mileage rate.
- Other Direct Costs: At Cost





## Contact:

Kerry Meyer, PE, Project Manager  
6312 S. Fiddlers Green Circle  
Suite 300N  
Greenwood Village, CO 80111  
720-323-0998  
[kerry.meyer3@jacobs.com](mailto:kerry.meyer3@jacobs.com)



# Jacobs



# **Exhibit C**

**An Agreement Between The City Of Arvada And Jacobs  
Engineering Group Inc. For Engineering Services Related  
To The Water Treatment Plant Replacement, Piloting And  
Process Selection In An Amount Not To Exceed  
\$552,687.00 For Phase I**

| Fee Estimate                                                     | PM/DM                                                    |                                                | Process Specialists                                                 |                                                                 |                                                       |                                               | Sustain-ability                                      | Estimating                             | Pilot Staff                                                 |                                                              | CAD                            | Subcontractors                                                                 |                                                                                   |                                                                     |                                                                        | Labor and Expenses                |                                           |                     |                             |
|------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------|------------------------------------------------------|----------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------|-------------------------------------------|---------------------|-----------------------------|
|                                                                  | Project Manager (Principal PM)<br><i>Kerry Meyer, PE</i> | Administrative Assistant<br><i>Sandy Orren</i> | Water Treatment SME (Fellow Technologist)<br><i>Bill Carter, PE</i> | Sr. Process Eng. (Senior Technologist)<br><i>Holly Link, PE</i> | Watershed Impacts /Limnologist<br><i>David Austin</i> | Disinfection Support<br><i>Paul Swaim, PE</i> | Envision Support<br><i>Keisha Voigt, MPP, ENV SP</i> | Cost Estimating<br><i>Ed Meyer, PE</i> | Pilot Support (Project Engineer 1)<br><i>Dani Davis, PE</i> | Pilot Support (Staff Engineer 2)<br><i>San Marie Thomson</i> | CAD Tech<br><i>Tyler White</i> | Bench Scale Testing SME (Fellow Technologist)<br><i>Issam Najm, PhD (WQTS)</i> | Wildfire and Flooding Expert<br><i>Fernando Rosario-Ortiz, D.Env (CU Boulder)</i> | PFAS SME (Fellow Technologist)<br><i>James Rosenblum, PhD (CSM)</i> | Pilot SME (Fellow Technologist)<br><i>Chance Lauderdale, PhD (HDR)</i> | Total Jacobs Labor Effort (Hours) | Total Subcontractor Consultant Value (\$) | Total Expenses (\$) | Total Labor & Expenses (\$) |
| Project Billing Rate                                             | \$228                                                    | \$103                                          | \$268                                                               | \$228                                                           | \$268                                                 | \$268                                         | \$228                                                | \$228                                  | \$158                                                       | \$133                                                        | \$149                          | \$289                                                                          | \$210                                                                             | \$210                                                               | \$289                                                                  |                                   |                                           |                     |                             |
| PHASE I - Piloting, Process Selection, and CDPHE Coordination    |                                                          |                                                |                                                                     |                                                                 |                                                       |                                               |                                                      |                                        |                                                             |                                                              |                                |                                                                                |                                                                                   |                                                                     |                                                                        |                                   |                                           |                     |                             |
| Task 1 - Project Management and Quality Control                  | 109                                                      | 0                                              | 31                                                                  | 4                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 155                                                         | 39                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 338                               | \$0                                       | \$1,819             | \$65,624                    |
| 1.1 Project Initiation Meeting                                   | 8                                                        | 0                                              | 4                                                                   | 4                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 8                                                           | 12                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 36                                | \$0                                       | \$819               | \$7,486                     |
| 1.2 Project Coordination                                         | 59                                                       | 0                                              | 7                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 15                                                          | 15                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 96                                | \$0                                       |                     | \$19,743                    |
| 1.3 Project Reporting                                            | 30                                                       | 0                                              | 0                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 120                                                         | 0                                                            | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 150                               | \$0                                       |                     | \$25,802                    |
| 1.4 Operations Tours                                             | 12                                                       | 0                                              | 20                                                                  | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 12                                                          | 12                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 56                                | \$0                                       | \$1,000             | \$12,592                    |
| Task 2 - Piloting                                                | 227                                                      | 24                                             | 219                                                                 | 0                                                               | 12                                                    | 40                                            | 44                                                   | 16                                     | 498                                                         | 574                                                          | 0                              | 36                                                                             | 44                                                                                | 18                                                                  | 34                                                                     | 1654                              | \$33,233                                  | \$23,048            | \$351,837                   |
| 2.1 Desktop Study                                                |                                                          |                                                |                                                                     |                                                                 |                                                       |                                               |                                                      |                                        |                                                             |                                                              |                                |                                                                                |                                                                                   |                                                                     |                                                                        |                                   |                                           |                     |                             |
| 2.1a Desktop Study                                               | 24                                                       | 0                                              | 32                                                                  | 0                                                               | 12                                                    | 16                                            | 4                                                    | 16                                     | 32                                                          | 32                                                           | 0                              | 8                                                                              | 20                                                                                | 8                                                                   | 12                                                                     | 168                               | \$11,655                                  |                     | \$47,090                    |
| 2.1b Desktop Study Analysis Workshop                             | 8                                                        | 0                                              | 8                                                                   | 0                                                               | 0                                                     | 4                                             | 0                                                    | 0                                      | 16                                                          | 16                                                           | 0                              | 0                                                                              | 4                                                                                 | 0                                                                   | 0                                                                      | 52                                | \$840                                     | \$197               | \$10,736                    |
| 2.1c Desktop Study Report                                        | 8                                                        | 4                                              | 8                                                                   | 0                                                               | 0                                                     | 4                                             | 0                                                    | 0                                      | 16                                                          | 16                                                           | 0                              | 0                                                                              | 4                                                                                 | 0                                                                   | 0                                                                      | 56                                | \$840                                     |                     | \$10,951                    |
| 2.2 Bench Scale Study                                            |                                                          |                                                |                                                                     |                                                                 |                                                       |                                               |                                                      |                                        |                                                             |                                                              |                                |                                                                                |                                                                                   |                                                                     |                                                                        |                                   |                                           |                     |                             |
| 2.2a Onsite Jar Testing                                          | 4                                                        | 0                                              | 4                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 0                                                           | 24                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 32                                | \$0                                       | \$131               | \$5,307                     |
| 2.2b Offsite Laboratory (Optional)                               | 0                                                        | 0                                              | 0                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 0                                                           | 0                                                            | 0                              | 16                                                                             | 0                                                                                 | 0                                                                   | 0                                                                      | 0                                 | \$4,620                                   | \$20,000            | \$24,620                    |
| 2.2c Bench Scale Study Workshop                                  | 8                                                        | 0                                              | 8                                                                   | 0                                                               | 0                                                     | 4                                             | 0                                                    | 0                                      | 16                                                          | 16                                                           | 0                              |                                                                                | 4                                                                                 |                                                                     |                                                                        | 52                                | \$840                                     | \$197               | \$10,736                    |
| 2.2d Bench Scale Study Protocol                                  | 12                                                       | 4                                              | 16                                                                  | 0                                                               | 0                                                     | 0                                             | 8                                                    | 0                                      | 16                                                          | 32                                                           | 0                              | 4                                                                              | 4                                                                                 | 0                                                                   | 4                                                                      | 88                                | \$3,150                                   |                     | \$19,195                    |
| 2.2e Bench Scale Results                                         | 6                                                        | 4                                              | 8                                                                   | 0                                                               | 0                                                     | 4                                             | 8                                                    | 0                                      | 20                                                          | 28                                                           | 0                              | 4                                                                              | 4                                                                                 | 0                                                                   | 4                                                                      | 78                                | \$3,150                                   |                     | \$16,856                    |
| 2.3 Piloting Procurement and Set-up (2 Locations)                | 24                                                       | 0                                              | 24                                                                  | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 96                                                          | 16                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 160                               | \$0                                       | \$362               | \$29,572                    |
| 2.4 Piloting                                                     |                                                          |                                                |                                                                     |                                                                 |                                                       |                                               |                                                      |                                        |                                                             |                                                              |                                |                                                                                |                                                                                   |                                                                     |                                                                        |                                   |                                           |                     |                             |
| 2.4a Piloting                                                    | 65                                                       | 0                                              | 24                                                                  | 0                                                               | 0                                                     | 8                                             | 0                                                    | 0                                      | 172                                                         | 172                                                          | 0                              | 0                                                                              | 0                                                                                 | 10                                                                  | 10                                                                     | 441                               | \$4,988                                   | \$1,408             | \$79,738                    |
| 2.4b Blue Ribbon Panel                                           | 8                                                        | 0                                              | 8                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 12                                                          | 12                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 40                                | \$0                                       |                     | \$7,462                     |
| 2.4c Piloting Protocol                                           | 12                                                       | 4                                              | 16                                                                  | 0                                                               | 0                                                     | 0                                             | 8                                                    | 0                                      | 16                                                          | 40                                                           | 0                              | 4                                                                              | 4                                                                                 | 0                                                                   | 4                                                                      | 96                                | \$3,150                                   |                     | \$20,259                    |
| 2.4d Data for Donuts (2 Meetings Delivered Twice)                | 8                                                        | 0                                              | 16                                                                  | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 0                                                           | 8                                                            | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 32                                | \$0                                       | \$262               | \$7,441                     |
| 2.4e Piloting Workshops (5 Workshops)                            | 23                                                       | 0                                              | 23                                                                  | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 26                                                          | 26                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 98                                | \$0                                       | \$491               | \$19,294                    |
| 2.4f Final Pilot Report                                          | 12                                                       | 4                                              | 16                                                                  |                                                                 | 0                                                     | 0                                             | 8                                                    | 0                                      | 40                                                          | 88                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 168                               | \$0                                       |                     | \$27,287                    |
| 2.4g Pilot Optimization Testing Report                           | 6                                                        | 4                                              | 8                                                                   |                                                                 | 0                                                     | 0                                             | 8                                                    | 0                                      | 20                                                          | 48                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 94                                | \$0                                       |                     | \$15,293                    |
| Task 3 - Process Selection                                       | 30                                                       | 8                                              | 30                                                                  | 68                                                              | 0                                                     | 0                                             | 8                                                    | 16                                     | 68                                                          | 104                                                          | 16                             | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 348                               | \$0                                       | \$164               | \$63,789                    |
| 3.1 Basis of Design Report                                       |                                                          |                                                |                                                                     |                                                                 |                                                       |                                               |                                                      |                                        |                                                             |                                                              |                                |                                                                                |                                                                                   |                                                                     |                                                                        |                                   |                                           |                     |                             |
| 3.1a Basis of Design Report                                      | 12                                                       | 4                                              | 16                                                                  | 60                                                              | 0                                                     | 0                                             | 8                                                    | 0                                      | 40                                                          | 56                                                           | 16                             | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 212                               | \$0                                       |                     | \$39,081                    |
| 3.1b BDR Review Workshop                                         | 6                                                        | 0                                              | 6                                                                   | 8                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 16                                                          | 16                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 52                                | \$0                                       | \$164               | \$9,620                     |
| 3.2 Engineering Opinion of Probable Cost and Life Cycle Analysis | 12                                                       | 4                                              | 8                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 16                                     | 12                                                          | 32                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 84                                | \$0                                       |                     | \$15,089                    |
| Task 4 - CDPHE Coordination                                      | 12                                                       | 0                                              | 12                                                                  | 16                                                              | 0                                                     | 0                                             | 0                                                    | 0                                      | 16                                                          | 16                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 72                                | \$0                                       | \$95                | \$14,349                    |
| 4.1 CDPHE Coordination                                           | 12                                                       | 0                                              | 12                                                                  | 16                                                              | 0                                                     | 0                                             | 0                                                    | 0                                      | 16                                                          | 16                                                           | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 72                                | \$0                                       | \$95                | \$14,349                    |
| Task 5 - Funding Support                                         | 4                                                        | 0                                              | 0                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 16                                                          | 0                                                            | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 20                                | \$0                                       | \$0                 | \$3,440                     |
| 5.1 Funding Support                                              | 4                                                        | 0                                              | 0                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 16                                                          | 0                                                            | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 20                                | \$0                                       |                     | \$3,440                     |
| Task 6 - Additional Activities                                   | 16                                                       | 0                                              | 80                                                                  | 48                                                              | 0                                                     | 0                                             | 0                                                    | 0                                      | 28                                                          | 0                                                            | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 172                               | \$0                                       | \$13,178            | \$53,646                    |
| 6.1 Additional CDPHE Meeting                                     | 4                                                        | 0                                              | 8                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 4                                                           | 0                                                            | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 16                                | \$0                                       |                     | \$3,690                     |
| 6.2 Additional desktop/bench-scale support for fire and flood    | 8                                                        | 0                                              | 0                                                                   | 0                                                               | 0                                                     | 0                                             | 0                                                    | 0                                      | 0                                                           | 0                                                            | 0                              | 0                                                                              | 0                                                                                 | 0                                                                   | 0                                                                      | 8                                 | \$0                                       | \$13,178            | \$15,000                    |
| 6.3 Process Design Bootcamp with Operator Engagement             | 4                                                        |                                                | 72                                                                  | 48                                                              |                                                       |                                               |                                                      |                                        | 24                                                          |                                                              |                                |                                                                                |                                                                                   |                                                                     |                                                                        | 148                               | \$0                                       |                     | \$34,956                    |
| Total Labor Hours                                                | 398                                                      | 32                                             | 372                                                                 | 136                                                             | 12                                                    | 40                                            | 52                                                   | 32                                     | 781                                                         | 733                                                          | 16                             | 36                                                                             | 44                                                                                | 18                                                                  | 34                                                                     | 2604                              | \$ 33,233                                 | \$ 38,303           | \$ 552,687                  |

Notes

- Project billing rates will be applied according to an employee's project Staffing Code Category, as shown. Rates are valid through 2024.
- Representative job titles are shown only. Not an exhaustive list of the billing titles that may align to the Staffing Code category shown herein.
- Hourly rates include allowance for salary, payroll taxes, fringe benefits, overhead, and profit, but do not include allowances for Direct Expenses.
- Markup on Subconsultants: 5%
- Mileage Rate: Current IRS allowable mileage rate.
- Other Direct Costs: At Cost



## REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM  
8.A.2.

TO: THE HONORABLE CITY COUNCIL

DATE: August 14, 2023

SUBJECT: R23-075, A Resolution Authorizing a participating addendum by and between the City of Arvada and Motorola Solutions, Inc. For the purchase of Public Safety Radios and Services in an amount not to exceed \$2,400,000.00

### **Report in Brief**

The Information Technology Department requests the replacement of radio subscriber units (hand-held and mobile devices). This replacement implementation is mission-critical to support Public Safety and Public Works operations.

The Arvada Team recommends that the City Council approve R23-075, A Resolution Authorizing a participating addendum by and between the City of Arvada and Motorola Solutions, Inc. For the purchase of Public Safety Radios and Services in an amount not to exceed \$2,400,000.00.

### **Financial Impact**

The replacement of Subscriber units and warranty in the amount not to exceed \$2,400,000.00 is a one-time cost. Account number 52.560016.54006, Technology Replacement Fund

### **Background**

Our subscriber units were purchased in 2013 and have reached the end of their useful life. Replacing the subscriber units is critical to keep current and supported with replacement parts. Failing to replace aging hand-held radio equipment increases the risk of catastrophic failure when radio communication is critical, mainly when an officer is engaged in enforcement action outside the patrol vehicle. This subscriber replacement will be anywhere from a six to ten-year investment as we evaluate the future of our radio system.

Arvada is able to enter into this participating addendum pursuant to the NASPO ValuePoint cooperative agreement entered into by the State of Colorado, pursuant to City Code Sec. 82-42(c).

### **Discussion**

The current subscriber units need replacement to avoid technical difficulties and reliability issues due to aging devices.

City staff evaluated and demoed two subscriber units based on size, shape, weight, battery life, knobs and buttons for operations, antenna, audio quality, and overall ease of use, and a clear choice emerged.

We are currently working with the (NCR) North Central Region on the future of the radio systems, which is doing a study of about ten surrounding agencies. Out of the ten Cores, there are only two that use L3Harris; the rest are Motorola. After the study, we will review the data to look at the five-year future of the entire radio system and the need for enhanced interoperability.

### **Public Contact**

Posting of the City Council agenda.

**Commission Recommendation**

n/a

**Strategic Alignment**

This action supports the City Council Strategic Plan Priority Area Operational Effectiveness in the Innovation Technology Management Department and supports the City Council Strategic Plan Priority Area Safe Community.

**Alternative Courses of Action**

n/a

**Recommendation for Action**

The Arvada team recommends that the City Council approve A Resolution Authorizing a participating addendum by and between the City of Arvada and Motorola Solutions, Inc. For the purchase of Public Safety Radios and Services in an amount not to exceed \$2,400,000.00.

**Suggested Motion:**

I move that R23-075, A Resolution Authorizing a participating addendum by and between the City of Arvada and Motorola Solutions, Inc. For the purchase of Public Safety Radios and Services in an amount not to exceed \$2,400,000.00, be (approved) (rejected).

Prepared by:

Erin Green, Technology Infrastructure and Operations Manager

Reviewed by:

Approved by:

|                                        |           |
|----------------------------------------|-----------|
| Kylie Justus, Assistant City Attorney  | 7/24/2023 |
| Craig Poley, Chief Information Officer | 7/25/2023 |
| Bryan Archer, Director of Finance      | 7/25/2023 |
| Edward Brady, Deputy Police Chief      | 7/26/2023 |
| Rachel Morris, City Attorney           | 8/1/2023  |
| Linda Haley, Deputy City Manager       | 8/2/2023  |
| Lorie Gillis, City Manager             | 8/3/2023  |

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R 23-075

A RESOLUTION AUTHORIZING A PARTICIPATING ADDENDUM BY AND BETWEEN  
THE CITY OF ARVADA AND MOTOROLA SOLUTIONS, INC. FOR THE PURCHASE OF  
PUBLIC SAFETY RADIOS AND SERVICES IN AN AMOUNT NOT TO EXCEED  
\$2,400,000.00

WHEREAS, on or about January 1, 2022, the State of Washington, through NASPO ValuePoint, entered into a cooperative agreement with Motorola Solutions, Inc. for the sale of public safety radios and services; and

WHEREAS, on or about June 29, 2022, the State of Colorado, through NASPO ValuePoint and pursuant to Colorado Procurement Code, §24-102-202, C.R.S. and 1 CCR 101-9 R-24-102-202-01., and its associated rules, entered into a participating addendum with Motorola Solutions, Inc.; and

WHEREAS, Arvada is able to join the State of Colorado's cooperative contract through the execution of its own participating addendum; and

WHEREAS, the NASPO ValuePoint contract gives Arvada the ability to purchase public safety radios and services for the best value.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ARVADA, COLORADO:

Section 1. The Mayor or Mayor Pro Tem is authorized to sign and the City Clerk to attest, in form approved by the City Attorney, the Participating Addendum, which is in substantially the same form as that attached hereto.

Section 2. This resolution shall be effective upon its approval by the City Council.

APPROVED AND ADOPTED this 14th day of August, 2023.

\_\_\_\_\_  
Marc Williams, Mayor

ATTEST:

\_\_\_\_\_  
City Clerk

APPROVED AS TO FORM:  
Rachel A. Morris, City Attorney:

BY: \_\_\_\_\_

**Attention: Project Owner**  
**Contract Review**

This agreement is being submitted for your review, approval or comments. Please ensure the contract captures the project details.

Approved by:

Project Owner

*Erin Green*  
\_\_\_\_\_  
Name: ERIN GREEN

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*This cover page confirms you have reviewed the contract being submitted to the vendor and provides an opportunity for you to return the contract to the City Attorney's Office with any comments and/or suggested revisions.*

*If the contract captures the project details, please initial to complete this transaction to send the contract to the vendor. However, if you have comments and/or suggested revisions, please select the "Add Comment" icon. You will be provided a text box to include any comments/suggested revisions. Once complete hit "Post."*

*Please contact Gail Walker at (720) 898-7187 if you have any questions.*



**A PARTICIPATING ADDENDUM BY AND BETWEEN THE CITY OF ARVADA  
AND MOTOROLA SOLUTIONS, INC. FOR THE PURCHASE OF PUBLIC  
SAFETY RADIOS AND SERVICES IN AN AMOUNT NOT TO EXCEED  
\$2,400,000.00**

**1. PARTIES.** The parties to this Participating Addendum (“Arvada PA”) are the City of Arvada, Colorado, a Colorado home rule municipal corporation (“Arvada”) and Motorola Solutions, Inc., a Delaware Corporation with a principal place of business at Corporation Trust Center, 1209 Orange Street, Wilmington, DE 19801 (“Contractor”).

**2. RECITALS AND PURPOSE.**

- 2.1.** On or about January 1, 2022, the State of Washington (“Leading State”) through NASPO ValuePoint, entered into an agreement with Contractor titled “NASPO ValuePoint Cooperating Purchasing Master Agreement No. 00318, Public Safety Communications Products, Services and Solutions” (“Master Agreement”), for the sale of public safety radios and services. The term of the Master Agreement is from January 1, 2022 to December 31, 2026. Pursuant to Sec. 2 of the Master Agreement, participating entities may join the Leading State in the purchase of public safety radio products and services with Contractor upon the execution of a participating addendum.
- 2.2.** On or about June 29, 2022, the State of Colorado (“Participating State”) through NASPO ValuePoint and pursuant to Colorado Procurement Code, §24-102-202, C.R.S. and 1 CCR 101-9 R-24-102-202-01., and its associated rules, entered into a participating addendum with Contractor titled “Participating Addendum to NASPO ValuePoint Public Safety Communications Products, Services, and Solutions Administered by the State of Washington with Motorola Solutions, Inc. Master Agreement No. 00318 and the State of Colorado Contract #173765” (“Participating Addendum”). The term of the participating addendum corresponds with the term of the Master Agreement.
- 2.3.** The Participating Addendum allows other Colorado State agencies and government entities to utilize the Participating Addendum with the prior approval of the State’s chief procurement official.
- 2.4.** Arvada and Contractor acknowledge and agree that Arvada is a political subdivision of the State of Colorado and is authorized to use State contracts, including the Participating Addendum with Contractor. A copy of the Participating Addendum is attached hereto and incorporated by reference herein as **Exhibit A**.

- 2.5. As a political subdivision of the State of Colorado, and pursuant to the Participating Addendum, Arvada is authorized to make purchases under the Participating Addendum as a Purchasing Entity.
  - 2.6. Arvada and Contractor acknowledge and agree that Arvada contemplates public safety radios and services at this time in an amount not to exceed \$2,400,000.00. The parties agree that Arvada may wish to purchase other public safety radios, equipment, and services under the Participating Addendum and that this Arvada PA in no way limits Arvada's choice to for such products and services in the future.
3. **CONTRACT DOCUMENTS AND EXHIBITS.** The Contract Documents shall consist of this Arvada PA, the Participating Addendum (**Exhibit A**), and Contractor's Price Quotes Nos. 2206541, 2225923, and 2073458 (**Exhibit B**), Motorola Price List (**Exhibit C**), and any amendments or change orders signed by the parties to the Master Agreement or Participating Addendum. All exhibits referred to in this Arvada PA are attached hereto and are, by reference, incorporated herein for all purposes. In the event any matter, term, provision, or condition that is the subject of the Arvada PA requires clarification or is in dispute, or is the subject of a difference of opinion, the purpose and intent of the Arvada PA shall be first ascertained by reference to the Contract Documents in their entirety. In the event of any dispute or differences between the respective documents that constitute the Contract Documents, then Contractor shall secure written instructions from Arvada before proceeding with performance of the services, if any, affected by such conflicts, omissions, or discrepancies.
  4. **TERM AND LIVING DOCUMENT CLAUSE.** The Arvada PA will become effective and binding on all parties upon Arvada's execution of the Arvada PA, which will occur within a reasonable time following Arvada's receipt of the executed Arvada PA from Contractor, and will be in accordance with the term of the Master Agreement and Participating Addendum. The parties agree to treat the Arvada PA as a living document to allow for industry and technology advances, to add licenses, products, and/or services to the Quote (or new Quotes) of the Arvada PA as mutually agreed from time to time. Arvada and Contractor will confer on a regular, periodic basis, at mutually agreeable times and locations, in order to conduct a review to evaluate the possible addition of new product/service offerings to the Arvada PA. Should Arvada and Contractor reach a mutual agreement regarding pricing and/or discounts for any/all new licenses, products, and/or services, the parties will add them to the Arvada PA by written amendment.
  5. **PAYMENT SCHEDULE.** Contractor shall initiate payment requests by invoice to Arvada reflecting pricing consistent with **Exhibits A, B, and C**. Arvada shall pay each invoice within 30 days following Arvada's receipt of that invoice, so long as the amount invoiced correctly represents the hardware and services Arvada wishes to purchase. If Arvada determines that the amount of any invoice is not correct, then Contractor shall make all changes necessary to correct that invoice.

6. **PRODUCTS, SERVICES, AND WARRANTIES.** Contractor agrees to provide the requested products, and if relevant, services, and warranties as represented in the Master Agreement and Purchasing Agreement.
7. **DELIVERY.** Contractor shall provide all goods and perform all services described in each Order received from Arvada. Unless specifically agreed to otherwise in an Order, Contractor shall deliver all goods under an Order in good, working and undamaged condition. All Goods shall be free on board ("F.O.B.") destination to the location specified in the Order. If a good in an Order is out of stock, Contractor may only provide a substitute good if it has notified the Purchasing Entity for that Order, in writing, that the good is out of stock and has received the Purchasing Entity's approval to provide the substitute good. Purchasing Entities may request additional information comparing the substitute good with the original good in the Purchasing Entity's sole discretion.
8. **GENERAL TERMS AND CONDITIONS.** The parties agree that Contractor is bound to offer and provide the products and services identified above as approved by the Master Agreement and Participating Addendum, including all terms, conditions, specification, exceptions, and amendments. Contractor shall provide such products and services in accordance with the terms of the Master Agreement and Participating Addendum as applicable to Arvada as a Purchasing Entity. Contractor shall also abide by any terms set forth in the Master Agreement and Participating Addendum, unless modified by this Arvada PA.
9. **CHANGES TO INSURANCE REQUIREMENTS.** The parties understand and agree that under the terms of the Arvada PA, Contractor will be providing products and services to Arvada. Therefore, for the purposes of any insurance requirements, the references to the State of Colorado in the Participating Addendum are hereby changed to mean Arvada.
10. **VENUE.** Venue for any action arising under the Arvada PA shall be in the appropriate court for Jefferson County, Colorado.
11. **TAXES.** Arvada shall not be liable for the payment of any excise, sales, or use taxes. Arvada is exempt from federal excise taxes under I.R.C. Chapter 32 (26 U.S.C., Subtitle D, Ch. 32) and from State and local government sales and use taxes under §§39-26-704(1), *et seq.*, C.R.S. (Colorado Sales Tax Exemption Identification Number 98-01789). Contractor shall not invoice Arvada for any state, federal or local taxes. Upon written notification by Arvada, Contractor shall reimburse Arvada in a timely manner for any taxes erroneously paid by Arvada.
12. **NO INDEMNIFICATION BY ARVADA.** Arvada is prohibited under Article XI, Section 1 of the Colorado Constitution from indemnifying anyone. Despite any provision in any contract document to the contrary, Arvada does not indemnify Contractor or anyone else under the Agreement.

- 13. CHANGES TO INDEMNIFICATION.** Contractor shall indemnify Arvada in the same manner it indemnifies the State of Colorado in the Participating Addendum.
- 14. BREACH.** Arvada shall have the same remedies available to it as are available to the State of Colorado in Section 14 of the Participating Addendum. For clarification, any reference to the State of Colorado in Section 14 of the Participating Addendum shall be replaced with Arvada.
- 15. GOVERNMENTAL IMMUNITY.** Liability for claims for injuries to persons or property arising from the negligence of Arvada, its departments, boards, commissions, committees, bureaus, offices, employees and officials shall be governed by the provisions of the Colorado Governmental Immunity Act, §§ 24-10-101, et seq., C.R.S. (CGIA). No term or condition of the Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions contained in the CGIA.
- 16. OPEN RECORD REQUESTS.** Arvada is obligated to comply with the Colorado Open Records Act (C.R.S. §§24-72-200.1 *et seq.*)(CORA), which may require Arvada to disclose all or a portion of communications relating to the Agreement, any transaction under the Agreement, and other related matters. Contractor has been advised to familiarize itself with CORA. Any confidentiality provisions in any contract documents are subject to the provisions of CORA.
- 17. RIGHT TO TERMINATE.** Arvada shall have the right to terminate, without cause, the Arvada PA. Any such termination shall not be considered a breach of the Arvada PA or Participating Addendum or any extension thereof. In the event Arvada terminates for convenience, Arvada will pay Contractor for requested work performed and equipment delivered up until the time of termination, not to exceed the total amount of the contract price agreed upon by Arvada and Contractor.
- 18. EXTERNAL TERMS AND CONDITIONS.** Notwithstanding anything to the contrary, Arvada shall not be subject to any provision included in any terms, conditions, or agreements appearing on Contractor's or a subcontractor's website or any provision incorporated into any of Contractor's or a subcontractor's click-through or online agreements unless that provision is specifically referenced in this Arvada PA, the Participating Addendum, or Master Agreement.
- 19. NO MULTI-YEAR FISCAL OBLIGATION.** Financial obligations of Arvada payable after the current fiscal year are contingent on funds for that purpose being appropriated, budgeted, and otherwise made available by the City Council for Arvada. Arvada's obligations under the Agreement shall be from year to year only and shall not constitute a multiple-fiscal year direct or indirect debt or other financial obligation of Arvada within the meaning of Article X, Section 20 of the Colorado Constitution (TABOR).

**20. BINDING ARBITRATION PROHIBITED.** Arvada does not agree to binding arbitration by any extra-judicial body or person. Any provision to the contrary in any of the Contract Documents or Master Agreement shall be null and void.

**21. NOTICES.** Any notice or notification required or permitted by this Arvada PA shall be in writing and shall be deemed to have been sufficiently given for all purposes if sent by certified mail or registered mail, postage and fees prepaid, address to the party to whom such notice is to be given at the address set forth on the signature page below, or at such other address as has been previously furnished in writing, to the other party. Such notice or notification shall be deemed to have been given when deposited in the United States mail. The parties may update or modify the names and/or addresses below by providing written notice of such as provided herein.

**22. BINDING AUTHORITY.** Contractor represents and affirms that the signature page hereof accurately states the full legal name of Contractor (whether as a corporation, partnership, limited liability company, sole proprietorship, or other), contains all requisite signature(s) on behalf of Contractor, and in all other respects is effective to bind Contractor, in accordance with all applicable statutes, regulations, resolutions, rules, bylaws, agreements, or similar sources of authority or limitation. The Arvada PA may be executed in counterpart(s), each of which shall be deemed to be an original, and all of which, take together, shall constitute one instrument.

DATED this \_\_\_\_ day of \_\_\_\_\_, 2023.

**CITY OF ARVADA**, a Colorado home rule  
municipal corporation

\_\_\_\_\_  
Marc Williams, Mayor  
8101 Ralston Road  
P.O. Box 8101  
Arvada, CO 80002

ATTEST:

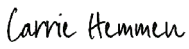
\_\_\_\_\_  
City Clerk

APPROVED AS TO FORM:

Rachel A. Morris, City Attorney

By: Kylie Justus \_\_\_\_\_

**CONTRACTOR, Motorola Solutions,  
Inc.**

  
\_\_\_\_\_  
Carrie Hemmen, MSSSI VP and Director of  
Sales  
[carrie.hemmen@motorolasolutions.com](mailto:carrie.hemmen@motorolasolutions.com)



**PARTICIPATING ADDENDUM**  
**to NASPO ValuePoint**  
**Public Safety Communications Products, Services, and Solutions**  
**Administered by the State of Washington**  
**with Motorola Solutions, Inc.**  
**Master Agreement No. 00318**  
**And**  
**The State of Colorado**  
**Contract # 173765**

**1. PARTIES AND SCOPE**

This Participating Addendum, including all of its attached exhibits and other documents incorporated by reference (the “Participating Addendum”), is entered into by and between Motorola Solutions, Inc. (the “Contractor”), and the State of Colorado (the “State”). This Participating Addendum covers participation in the **Public Safety Communications Products, Services, and Solutions** Master Agreement led by the State of Washington (the “Master Agreement”), for use by State agencies and other entities located in Colorado which are authorized by law to utilize State contracts with the prior approval of the State Purchasing Director. The specific Goods and Services provided under the Master Agreement are listed in **Exhibit C Products and Price List** of this agreement.

**2. PARTICIPATION**

Agencies, political subdivisions and other entities (including cooperatives) authorized by the State’s statutes to use State contracts may make purchases under this Participating Addendum as of its Effective Date. Issues of interpretation and eligibility for participation are solely within the authority of the Chief Procurement Officer.

**3. STATE MODIFICATIONS TO MASTER AGREEMENT AND APPLICABILITY**

To the extent not modified by this Participating Addendum and all its exhibits, the Master Agreement and all its terms and conditions shall apply to this Participating Addendum. If any term of this Participating Addendum conflicts with the Master Agreement, then this Participating Addendum shall control for all transactions between the State and the Contractor under this Participating Addendum. All terms defined in the Master Agreement shall have the meaning given to them in the Master Agreement, except for those terms specifically defined differently in this **PARTICIPATING ADDENDUM**.

**4. RESERVED**

**5. PRIMARY CONTACTS AND PERSONNEL RESPONSIBILITIES**

The primary contacts for this Participating Addendum are the individuals named in this section. Either Party may change its primary contacts or primary contacts contact information by notice submitted to the other party in writing no later than 5 days following the date on which the change

occurs, without a formal amendment to this Participating Addendum. The Contractor's primary contact shall be ultimately responsible for ensuring that all Goods are delivered and all Services are completed in accordance with this Participating Addendum.

**Primary Contact for the State:**

Greg Draughon  
Colorado State Purchasing & Contracts Office  
1525 Sherman Street, 3<sup>rd</sup> Floor  
Denver, CO 80203  
303-866-4552  
Gregory.Draughon@state.co.us

**Primary Contact for the Contractor:**

Lane Feingold  
Motorola Solutions, Inc.  
7237 Church Ranch Blvd, #406  
Westminster, CO 80021  
720-338-7624  
Lane.Feingoild@motorolasolutions.com

Each individual identified in this §5 of the Participating Addendum shall be the primary contact of the designating Party. All notices required or permitted to be given under this Participating Addendum shall be in writing and shall be delivered **(A)** by hand with receipt required, **(B)** by certified or registered mail to such Party's primary contact at the address set forth above or **(C)** as an email with read receipt requested to the primary contact at the email address, if any, set forth above. If a Party delivers a notice to another through email and the email is undeliverable then, unless the Party has been provided with an alternate email contact, the Party delivering the notice shall deliver the notice by hand with receipt required or by certified or registered mail to such Party's primary contact at the address set forth above. Unless otherwise provided in this Participating Addendum, notices shall be effective upon delivery of the written notice.

In addition to the primary contact in this section, the Contractor shall also provide an individual who is ultimately responsible for the creation and submission of the quarterly volume report described in **Exhibit A** of this Participating Addendum. This individual, as named in this section, shall ensure that all required quarterly volume reports are accurate and delivered by the appropriate due date for that quarterly volume report. The Contractor may change this individual or their contact information by notice submitted to the other party in writing no later than 5 days following the date on which the change occurs, without a formal amendment to this Participating Addendum.

**Individual Responsible for Quarterly Volume Report Creation and Submission:**

Lane Feingold  
Motorola Solutions, Inc.  
7237 Church Ranch Blvd, #406  
Westminster, CO 80021  
720-338-7624  
Lane.Feingoild@motorolasolutions.com

## **6. SUBCONTRACTORS**

The Contractor may only use Subcontractors, as defined in **Exhibit A. §4**, under this Participating Addendum if the State has provided written approval for the Contractor to use that Subcontractor. All such approved Subcontractors authorized in the State of Colorado, as shown on the dedicated Contractor website, are approved to provide sales and service support to the State and any Purchasing Entity in the State. The Contractor's Subcontractor's participation shall be in accordance with the terms and conditions set forth in the Master Agreement and this Participating Addendum, as appropriate.

## 7. ORDERS

Any Order placed by a Purchasing Entity in the State of Colorado for a Good or Service available under this Participating Addendum shall be deemed to be a sale (and governed by the prices and other terms and conditions) under the Master Agreement and this Participating Addendum unless the parties to the Order agree in writing that another contract or agreement applies to such Order or the terms of that Order control to the extent that they conflict with the terms of the Master Agreement or this Participating Addendum.

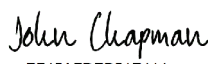
## 8. ORDER OF PRECEDENCE AND ATTACHED EXHIBITS

All of the exhibits listed in this section are attached to this Participating Addendum and are incorporated herein by reference. In the event of a conflict or inconsistency between this Participating Addendum and any exhibits or attachment such conflict or inconsistency shall be resolved by reference to the documents in the following order of priority:

- A. Colorado Special Provisions in **§20 of Exhibit A**, State Specific Terms
- B. **Exhibit E**, Safeguarding Requirements for Federal Tax Information, as applicable
- C. **Exhibit D**, HIPPA Business Associate Agreement, as applicable
- D. **Exhibit F**, Information Technology Provisions
- E. The provisions of this Participating Addendum
- F. All other sections of **Exhibit A**, State Specific Terms
- G. **Exhibit B** Statement of Work
- H. **Exhibit C** Products and Price List

Notwithstanding anything to the contrary herein, the State and Purchasing Entities shall not be subject to any provision incorporated in any terms and conditions appearing on Contractor's or Subcontractor's website, any provision incorporated into any click-through or online agreements, or any provisions incorporated into any other document or agreement between the Parties that (i) requires the State to indemnify or hold harmless Contractor or any other party, (ii) is in violation of State law as, regulations, rules, fiscal rules, policies, or other State requirements as deemed solely by the State or (iii) is contrary to any of the provisions incorporated into **Exhibit A, §19** or the main body of this Participating Addendum.

**THE PARTIES HERETO HAVE EXECUTED THIS AMENDMENT**

|                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p align="center"><b>CONTRACTOR</b><br/><b>Motorola Solutions, Inc.</b></p> <p>By: Jack Molloy</p> <p>Title: _____</p> <p>By: _____</p> <p align="center">DocuSigned by:<br/><br/>096752D80F8F4EE...<br/>Signature</p> <p>Date: 6/29/2022</p> | <p align="center"><b>STATE OF COLORADO</b><br/><b>Jared S. Polis, Governor</b></p> <p align="center">Department of Personnel &amp; Administration<br/>State Purchasing and Contracts Office</p> <p>Tobin Follenw _____</p> <p>By: _____</p> <p align="center">DocuSigned by:<br/><br/>EF45AFDEB51E414...<br/>Sherri Maxwell, Chief Procurement Officer, or<br/>John Chapman, State Purchasing Manager</p> <p>Date: 6/29/2022</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**STATE OF COLORADO**  
Governor's Office of Information Technology

In accordance with §24-30-202, C.R.S., if this Contract is for a Major Information Technology Project, this Contract is not valid until signed and dated below by the Chief Information Officer or an authorized delegate.

**STATE CHIEF INFORMATION OFFICER**  
**Anthony Neal-Graves, Chief Information Officer and Executive Director**

Signed: \_\_\_\_\_

DocuSigned by:  
  
AAADC6558C9A4BD...

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

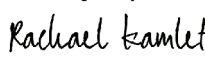
Date: 6/29/2022

**ALL CONTRACTS REQUIRE APPROVAL BY THE STATE CONTROLLER**

§24-30-202 C.R.S. requires the State Controller to approve all State Contracts. This Participating Addendum is not valid until signed and dated below by the State Controller or an authorized delegate.

**STATE CONTROLLER**  
**Robert Jaros, CPA, MBA, ITD**

By: \_\_\_\_\_

DocuSigned by:  
  
6D1AC497138C48B...

Name: \_\_\_\_\_

Date: 6/29/2022

**ALL CONTRACTS REQUIRE APPROVAL BY THE STATE CONTROLLER**

§24-30-202, C.R.S. requires the State Controller to approve all State Contracts. This Participating Addendum is not valid until signed and dated below by the State Controller or an authorized delegate.

**PARTICIPATING ADDENDUM**  
**EXHIBIT A**  
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**1. AUTHORITY**

Authority to enter into this Participating Addendum exists in the Colorado Procurement Code, §24-102-202, C.R.S. and 1 CCR 101-9 R-24-102-202-01., and its associated rules.

**2. PURPOSE**

The Parties are entering into this Participating Addendum for the Contractor to provide Public Safety Communications Products, Services, and Solutions to Purchasing Entities. The Contractor

was selected as a result of **State Price Agreement**.

### **3. TERM**

#### **A. Initial Term - Work Commencement**

The Parties' respective performances under this Participating Addendum shall commence on the Effective Date and shall be co-terminus with NASPO ValuePoint Master Agreement 00318. Unless this Participating Addendum is terminated earlier, as described herein, or the State cancels its participation as described in the Master Agreement (the "Term"), the term of the Participating Addendum shall follow the Master Agreement initial term and will be automatically extended beyond the initial term if the Master Agreement term is extended (See Section 3.B.).

#### **B. Extension of Term**

If the term of NASPO ValuePoint Master Agreement is extended for any reason, the Term of this Participating Addendum shall be automatically modified to account for that extension, so long as such extension complies with the Colorado Procurement Code.

#### **C. End of Term Extension**

If this Participating Addendum approaches the end of its Initial Term, or any Extension Term then in place, the State, at its discretion, upon written notice to Contractor's primary contact listed in §5 of the Participating Addendum and in accordance with §5 of this Participating Addendum, may unilaterally extend such Initial Term or Extension Term for a period not to exceed 2 months (an "End of Term Extension"), regardless of whether additional Extension Terms are available or not. The provisions of this Participating Addendum in effect when such notice is given shall remain in effect during the End of Term Extension. The End of Term Extension shall automatically terminate upon execution of a replacement contract or modification extending the total term of this Participating Addendum.

#### **D. Order Term**

Orders may only be placed prior to the expiration or earlier termination of this Participating Addendum, but may have a delivery date or performance period that extends no longer than 120 calendar days following that expiration or earlier termination date. Regardless of whether this Participating Addendum has expired or has been terminated, the Contractor shall comply with all Orders that extend past the expiration or termination, as described in this section, and all requirements of this Participating Addendum necessary to complete outstanding Orders shall survive the expiration or termination of this Participating Addendum until all Orders are complete.

#### **E. Early Termination in the Public Interest**

The State is entering into this Participating Addendum to serve the public interest of the State of Colorado as determined by its Governor, General Assembly, or Courts. A determination that this Contract should be terminated in the public interest shall not be equivalent to a State right to terminate for convenience. This subsection shall not apply to a termination of this Participating Addendum by the State for breach by Contractor, which shall be governed by §14.A.i.

##### **i. Method and Content**

The State shall notify Contractor of such termination in accordance with §5 of this Participating Addendum. The notice shall specify the effective date of the termination



and whether it affects all or a portion of this Participating Addendum, and shall include, to the extent practicable, the public interest justification for the termination.

ii. **Obligations and Rights**

Upon receipt of notice for termination in the public interest, Contractor shall be subject to the rights and obligations set forth in **§Error! Reference source not found..**

iii. **Payments**

If the State terminates this Participating Addendum in the public interest, the Purchasing Entities shall pay Contractor according to their orders with the Contractor for Goods provided and Services rendered. The sum of any and all payments shall not exceed the maximum amount payable to Contractor under each order.

#### 4. **DEFINITIONS**

The following terms shall be construed and interpreted as follows:

- A. **“Administration Fee”** means the fee that is due to the State for the administration of this Participating Addendum, as described in **§7. A.** of this **Exhibit A.**
- B. **“Breach of Contract”** means the failure of a Party to perform any of its obligations in accordance with this Contract, in whole or in part or in a timely or satisfactory manner. The institution of proceedings under any bankruptcy, insolvency, reorganization or similar law, by or against Contractor, or the appointment of a receiver or similar officer for Contractor or any of its property, which is not vacated or fully stayed within thirty (30) days after the institution of such proceeding, shall also constitute a breach. If Contractor is debarred or suspended under §24-109-105, C.R.S. at any time during the term of this Contract, then such debarment or suspension shall constitute a breach.
- C. **“Business Day”** means any day in which the State is open and conducting business, but shall not include Saturday, Sunday or any day on which the State observes one of the holidays listed in §24-11-101(1), C.R.S.
- D. **“Ceiling Price”** means the maximum price a Contractor or a Subcontractor may charge for a Good or Service under this Participating Addendum.
- E. **“Chief Procurement Officer”** means the individual to whom the Executive Director of the Department of Personnel & Administration has delegated his or her authority pursuant to §24-102-202, C.R.S. to procure or supervise the procurement of all supplies and services needed by the state.
- F. **“CJI”** means criminal justice information collected by criminal justice agencies needed for the performance of their authorized functions, including, without limitation, all information defined as criminal justice information by the U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Security Policy, as amended, and all Criminal Justice Records as defined under §24-72-302, C.R.S.
- G. **“Confidential Information”** means any and all information that is normally considered confidential in nature, and includes, but is not limited to, all State Records not subject to disclosure under the Colorado Open Records Act, §§24-72-200.1, *et seq.*, C.R.S. (“CORA”).
- H. **“Contract”** means this Participating Addendum, including all attached Exhibits, all documents incorporated by reference, all referenced statutes, rules and cited authorities, and any future modifications thereto.

- I. **“Contract Funds”** means the funds that have been appropriated, designated, encumbered, or otherwise made available for payment by a Purchasing Entity for Orders placed under this Participating Addendum.
- J. **“CORA”** means the Colorado Open Records Act, §§24-72-200.1, *et. seq.*, C.R.S.
- K. **“Effective Date”** means the date Contract is signed by the State Controller or their designee.
- L. **“End of Term Extension”** means the time period defined in **§3. C.** of this Exhibit A.
- M. **“Environmentally Preferable Products”** means products that have a lesser or reduced adverse effect on human health and the environment when compared with competing products that serve the same purpose, as defined in §24-103-904, C.R.S.
- N. **“Effective Date”** means the date on which this Participating Addendum is approved and signed by the Colorado State Controller or designee, as shown on the Signature Page for this Participating Addendum. If this Contract is for a Major Information Technology Project, as defined in §24-37.5-102(2.6), C.R.S., then the Effective Date of this Contract shall be the later of the date on which this Contract is approved and signed by the State’s Chief Information Officer or authorized delegate or the date on which this Contract is approved and signed by the State Controller or authorized delegate, as shown on the Signature Page for this Contract.
- O. **“Exhibits”** means the following exhibits attached to this Contract:
  - i. **Exhibit A**, State Specific Terms.
  - ii. **Exhibit B**, Statement of Work.
  - iii. **Exhibit C**, Products and Price List
  - iv. **Exhibit D**, HIPAA Business Associate Agreement
  - v. **Exhibit E**, Safeguarding Federal Tax Information
  - vi. **Exhibit F**, Information Technology Provisions
- P. **“Extension Term”** means the time period defined in **§3. B.**
- Q. **“Goods”** means any movable material acquired, produced, or delivered by Contractor as set forth in this Participating Addendum and shall include any movable material acquired, produced, or delivered by Contractor in connection with the Services.
- R. **“Incident”** means any accidental or deliberate event that results in or constitutes an imminent threat of the unauthorized access, loss, disclosure, modification, disruption, or destruction of any communications or information resources of the State, which are included as part of the Work, as described in §§24-37.5-401, *et. seq.*, C.R.S. Incidents include, without limitation (i) successful attempts to gain unauthorized access to a State system or State Information regardless of where such information is located; (ii) unwanted disruption or denial of service; (iii) the unauthorized use of a State system for the processing or storage of data; or (iv) changes to State system hardware, firmware, or software characteristics without the State’s knowledge, instruction, or consent.
- S. **“Initial Term”** means the time period defined in **§3.A** of this **Exhibit A**.
- T. **“Order”** means any delivery order, purchase order, contract, agreement or other binding document used by a Purchasing Entity to order the Goods and Services described in this

Participating Addendum from the Contractor, and shall include any modification to such a document.

- U. **“Party”** means the State or Contractor, and **“Parties”** means both the State and Contractor.
- V. **“Purchasing Entity”** means any entity or organization that has been authorized by the State to place Orders with the Contractor, and may include, without limitation, agencies of the State, government supported institution of higher education within the State, political subdivisions of the State, authorized non-profit organizations and other authorized entities.
- W. **“PCI”** means payment card information including any data related to credit card holders’ names, credit card numbers, or the other credit card information as may be protected by state or federal law.
- X. **“PII”** means personally identifiable information including, without limitation, any information maintained by the State about an individual that can be used to distinguish or trace an individual’s identity, such as name, social security number, date and place of birth, mother’s maiden name, or biometric records; and any other information that is linked or linkable to an individual, such as medical, educational, financial, and employment information. PII includes, but is not limited to, all information defined as personally identifiable information in §§24-72-501 and 24-73-101, C.R.S.
- Y. **“PHI”** means any protected health information, including, without limitation any information whether oral or recorded in any form or medium: **(i)** that relates to the past, present or future physical or mental condition of an individual; the provision of health care to an individual; or the past, present or future payment for the provision of health care to an individual; and **(ii)** that identifies the individual or with respect to which there is a reasonable basis to believe the information can be used to identify the individual. PHI includes, but is not limited to, any information defined as Individually Identifiable Health Information by the federal Health Insurance Portability and Accountability Act.
- Z. **“Services”** means the services to be performed by Contractor as set forth in this Participating Addendum, and shall include any services to be rendered by Contractor in connection with the Goods.
- AA. **“State Confidential Information”** means any and all State Records not subject to disclosure under CORA. State Confidential Information shall include, but is not limited to, PII, PCI, and State personnel records not subject to disclosure under CORA. State Confidential Information shall not include information or data concerning individuals that is not deemed confidential but nevertheless belongs to the State, which has been communicated, furnished, or disclosed by the State to Contractor which (i) is subject to disclosure pursuant to CORA; (ii) is already known to Contractor without restrictions at the time of its disclosure to Contractor; (iii) is or subsequently becomes publicly available without breach of any obligation owed by Contractor to the State; (iv) is disclosed to Contractor, without confidentiality obligations, by a third party who has the right to disclose such information; or (v) was independently developed without reliance on any State Confidential Information. With respect to Motorola, “Confidential Information” means any and all non-public information provided by one Party (“Discloser”) to the other (“Recipient”) that is disclosed under this Agreement in oral, written, graphic, machine recognizable, or sample form, being clearly designated, labeled or marked as confidential or its equivalent or that a reasonable businessperson would consider non-public and confidential by its nature. Confidential

Information will also include Products and Services, and Documentation, as well as any other information relating to the Products and Services.

- BB. **“State Fiscal Rules”** means that fiscal rules promulgated by the Colorado State Controller pursuant to §24-30-202(13) (a), C.R.S.
- CC. **“State Fiscal Year”** means a 12-month period beginning on July 1 of each calendar year and ending on June 30 of the following calendar year. If a single calendar year follows the term, then it means the State Fiscal Year ending in that calendar year.
- DD. **“State Records”** means any and all State data, information, and records, regardless of physical form, including, but not limited to, information subject to disclosure under CORA.
- EE. **“Subcontractor”** means third-parties, if any, engaged by Contractor pursuant to §18.B. to aid in performance of the Work. The term “Subcontractor” includes, without limitation, any dealers, distributors, partners or resellers engaged by the Contractor to perform the Work.
- FF. **“Tax Information”** means federal and State of Colorado tax information including, without limitation, federal and State tax returns, return information, and such other tax-related information as may be protected by federal and State law and regulation. Tax Information includes, but is not limited to all information defined as federal tax information in Internal Revenue Service Publication 1075.
- GG. **“Work”** means the Goods delivered and Services performed pursuant to this Contract.
- HH. **“Work Product”** means the tangible and intangible results of the Work, whether finished or unfinished, including drafts. Work Product includes, but is not limited to, documents, text, software (including source code), research, reports, proposals, specifications, plans, notes, studies, data, images, photographs, negatives, pictures, drawings, designs, models, surveys, maps, materials, ideas, concepts, know-how, and any other results of the Work. “Work Product” does not include any material that was developed prior to the Effective Date that is used, without modification, in the performance of the Work. Work Product also does not include the software, tools, data, and other materials, including designs, utilities, models, methodologies, systems, and specifications, which Contractor has developed or licensed from third parties (including any corrections, bug fixes, enhancements, updates, modifications, adaptations, translations, de-compilations, disassembly’s, or derivative works of the foregoing, which Contractor gives the State access to.

Any other term used in this Participating Addendum that is defined in an Exhibit shall be construed and interpreted as defined in that Exhibit.

## 5. STATEMENT OF WORK

Contractor shall complete the Work as described in this Participating Addendum and in accordance with the provisions of Exhibits A, B, C and D, and with any Purchasing Entity’s Order. Contractor personnel shall work cooperatively with State and Purchasing Entity staff to ensure the completion of the Work.

### A. Ordering and Order Fulfillment

#### i. Ordering

- a. Contractor shall provide a complete and accurate Internal Revenue Service form W9 to the State prior to accepting an Order from any Purchasing Entity. Upon a

request by a Purchasing Entity, Contractor shall provide a complete and accurate Internal Revenue Service form W9 to that Purchasing Entity.

- b. Each Purchasing Entity may complete an Order in accordance with its own rules and policies, as available to Contractor, using the appropriate documentation for that organization to issue an Order.
- c. Contractor shall communicate directly with each Purchasing Entity related to that Purchasing Entity's Orders.
- d. Contractor shall ensure that all Orders it accepts have the proper information contained in them for Contractor to be able to comply with all reporting requirements of this Exhibit A.
- e. If Contractor provides for Ordering through an internet-based portal or electronic catalog, Contractor shall maintain all of Contractor's necessary hardware, software, backup-capacity and network connections required to operate that internet-based portal or electronic catalog.
- f. Contractor's internet-based portal and electronic catalogs shall clearly designate that they are part of this Participating Addendum and shall have a link to the State's designated web location, as determined by the State. Contractor shall ensure that all Environmentally Preferable Products are clearly listed on internet-based portal and electronic catalogs.
- g. If Contractor provides an internet-based portal or electronic catalog, Contractor shall also provide paper catalogs or catalogs on other digital media upon request by a Purchasing Entity.
- h. If Contractor's catalog will be either hosted on or accessed through the State's eCommerce system, when available, then Contractor shall comply with all policies, procedures and directions from the State in relation to hosting its catalog on or making its catalog accessible through that system. Contractor shall ensure that all information made available through the State's eCommerce system is accurate and complies with this Participating Addendum.

## **6. PAYMENTS TO CONTRACTOR**

### **A. Payments Under Orders**

- i. Contractor shall allow the State and Purchasing Entities to use a procurement card or other credit card to make payments under any Order, in addition to any other payment procedure available to the State or Purchasing Entity.
- ii. The State shall not pay any amount to Contractor under this Participating Addendum unless the State issues an Order, at which time it shall pay Contractor in accordance with that Order. The State shall not be responsible for payment under any Order that is issued by a Purchasing Entity that is not the State, and the Contractor shall seek no payment or other compensation from the State for any Work performed under any Order issued by a Purchasing Entity that is not the State.

### **B. Payment Procedures**

- i. Invoices



Contractor shall invoice each Purchasing Entity in accordance with that Purchasing Entity's Order. Contractor shall not invoice the State under any Order unless the State issued that Order. Contractor shall allow 45 days for the State and Purchasing Entities to pay an invoice following the receipt of the invoice, unless the State or a Purchasing Entity specifically agrees to a shorter time in an Order. State law and regulations provide that State payments made within 45 days are not considered delinquent, and unless otherwise agreed, State Purchasing Entities will pay interest on any unpaid balance beginning on the 45th day at the rate of 1% per month until paid in full; provided, however, that interest shall not accrue on unpaid amounts that are the subject of a good faith dispute regarding the obligation to pay all or a portion of the liability. Contractor shall invoice State Ordering Entities separately for accrued interest on delinquent amounts due. The billing shall reference the delinquent payment, the number of day's interest to be paid, and the applicable interest rate. (§ 24-30-202(24), C.R.S., as amended.)

ii. Payment Disputes

Unless different procedures are specified in an Order, if Contractor disputes any calculation, determination or amount of any payment, Contractor shall notify the Purchasing Entity issuing the Order in writing of its dispute within 30 days following the earlier to occur of Contractor's receipt of the payment or notification of the determination or calculation of the payment by that Purchasing Entity. The Purchasing Entity will review the information presented by Contractor and may make changes to its determination based on this review. The calculation, determination or payment amount that results from the Purchasing Entity's review shall not be subject to additional dispute under this subsection. No payment subject to a dispute under this subsection shall be due until after the Purchasing Entity has concluded its review, and the Purchasing Entity shall not pay any interest on any amount during the period it is subject to dispute under this subsection.

iii. Available Funds-Contingency-Termination of Order

Purchasing Entities, except for authorized non-profit entities, are prohibited by law from making commitments beyond the term of the current Purchasing Entity's Fiscal Year. Payment to Contractor beyond the current Purchasing Entity's Fiscal Year is contingent on the appropriation and continuing availability of Contract Funds in any subsequent year (See Colorado Special Provision). If federal funds, non-State funds or funds from any other source constitute all or some of the Contract Funds, the Purchasing Entity's obligation to pay Contractor shall be contingent upon such funding continuing to be made available for payment. Orders under this Participating Addendum shall be made only from Contract Funds, and the Purchasing Entity's liability for such payments shall be limited to the amount remaining of such Contract Funds. If State, federal or other Purchasing Entity funds are not appropriated, or otherwise become unavailable to fund an Order under this Participating Addendum, the Purchasing Entity may, upon written notice, terminate the Order, in whole or in part, without incurring further liability. The Purchasing Entity shall, however, remain obligated to pay for Services and Goods that are delivered and accepted prior to the effective date of notice of termination of Order. A State Purchasing Entity Order termination shall otherwise be treated as if the Order was terminated in the public interest as described in §3. E. of this Exhibit A.



The Purchasing Entity may effect such termination by giving Contractor a written notice of termination, to the Contractor's primary contact in accordance with §5 of the Participating Addendum, and by paying to Contractor any amounts which are due and have not been paid through the last day of the Fiscal Year for which appropriated funds are available. The Purchasing Entity shall endeavor to give notice of such termination not less than 30 days prior to the day of non-availability of funds, and shall notify Contractor of any anticipated termination.

iv. Discount and Delinquency Period

Any applicable cash discount period or delinquency period for the amounts shown on an invoice shall begin on the date the Purchasing Entity's approves of the invoice, or from the date of receipt of acceptable Goods or Services at the specified destination by an authorized Purchasing Entity representative, whichever is later.

## 7. PAYMENTS TO STATE

### Administrative Fees

- A. Each State Fiscal Year quarter, Contractor shall, using a form as directed by the State, calculate an Administrative Fee equal to 1% of the total sales made under Orders during that State Fiscal Year quarter. Contractor shall pay the State the Administrative Fee for each State Fiscal Year quarter within 45 days following the end of that State Fiscal Year quarter.
- B. Contractor shall remit all administrative fees to the State's primary contact identified in §5 of the Participating Addendum and with the payee as "State of Colorado".

## 8. REPORTING – NOTIFICATION

### A. Volume Reporting

The State will use a centralized method of tracking volume. Contractor shall provide a quarterly volume report to the State's primary contact identified in §5 of this Participating Addendum within 30 calendar days following the end of the State Fiscal Year quarter that the report covers. The quarterly volume report shall be submitted in a form as directed by the State, which may be modified by the State from time to time. The quarterly volume report shall contain, at a minimum, all of the following:

- i. A summary volume report that includes, but is not limited to, all of the following for the quarter that the report covers:
  - a. The total spent by each type of Purchasing Entity under this Participating Addendum.
  - b. The total of the list price of all items purchased by each type of Purchasing Entity under this Participating Addendum.
  - c. The total estimated price savings for each type of Purchasing Entity under this Participating Addendum, calculated as the total list price of all items purchased by each type of Purchasing Entity minus the total spent for that type of Purchasing Entity.
  - d. The total paid through the use of a procurement card or credit card for each Purchasing Entity under this Participating Addendum.
  - e. The total sales of environmentally preferable products, as defined in the State's Environmentally Preferable Purchasing Policy, for each Purchasing Entity under

this Participating Addendum.

- f. The amount of the total administrative fee due to the State.
- g. Any additional summary information as requested by the State.
- ii. A detail report that includes, but is not limited to, all of the following for each sale that occurred during the quarter that the report covers:
  - a. The name of the Purchasing Entity who the sale was made to.
  - b. The date of the sale.
  - c. A listing of each item purchased in the sale, the quantity of the item, the unit price for the item, the extended price for the item calculated by multiplying the unit price by the quantity, the list price per unit for the item, the extended list price for the item calculated by multiplying the quantity by the list price, and the savings on the item calculated by subtracting the extended cost from the extended list price.
  - d. Any other detail information as requested by the State.

**B. Additional Operational Reporting**

Upon request by the State, the Contractor shall provide operational reporting that includes all detailed and summary transaction, historical or payment information related to the State or any of the Participating Entities as requested by the State. The Contractor shall provide all such additional reports within 10 Business Days following the State's request for that information, unless the State agrees to a longer period of time in writing.

**C. Environmentally Preferable Product Reporting**

Upon request by the State, the Contractor shall provide detailed reporting on environmentally preferable products, as defined in the State's Environmentally Preferable Purchasing Policy, that are purchased or made available under this Participating Addendum. The scope and detail of such reports shall be agreed upon by the State and the Contractor. The Contractor shall provide all such additional reports within 10 Business Days following the State's request for that information, unless the State agrees to a longer period of time in writing.

**D. Litigation Reporting**

If Contractor is served with a pleading or other document in connection with an action before a court or other administrative decision making body, and such pleading or document relates to this Participating Addendum or may affect Contractor's ability to perform its obligations under this Participating Addendum, Contractor shall, within 10 days after being served, notify the State of such action and deliver copies of such pleading or document to the State's primary contact identified in §5 of the Participating Addendum .

**E. Performance Outside the State of Colorado or the United States, §24-102-206, C.R.S.**

To the extent not previously disclosed in accordance with §24-102-206, C.R.S., Contractor shall provide written notice to the State's primary contact in accordance with §5 of the Participating Addendum and in a form designated by the State, within 20 days following the earlier to occur of Contractor's decision to perform Services outside of the State of Colorado or the United States, or its execution of an agreement with a Subcontractor to perform Services outside the State of Colorado or the United States. Such notice shall specify the type of Services to be performed outside the State of Colorado or the United States and the reason

why it is necessary or advantageous to perform such Services at such location or locations, and such notice shall be a public record. Knowing failure by Contractor to provide notice to the State under this section shall constitute a breach of this Participating Addendum. This section shall not apply if the Participating Addendum Funds include any federal funds.

## **9. CONTRACTOR RECORDS**

### **A. Maintenance**

Contractor shall maintain a file of all documents, records, communications, notes and other materials relating to the Work (the "Contractor Records") performed by the Contractor and any Subcontractors, that are required to ensure proper performance of that Work. Contractor shall maintain Contractor Records until the last to occur of: **(i)** the date 3 years after the date this Participating Addendum expires or is terminated, **(ii)** final payment under this Participating Addendum is made, **(iii)** the resolution of any pending Contract matters, or **(iv)** if an audit is occurring, or Contractor has received notice that an audit is pending, the date such audit is completed and its findings have been resolved (the "Record Retention Period").

### **B. Inspection**

Contractor shall permit the State to audit, inspect, examine, excerpt, copy and transcribe Contractor Records during the Record Retention Period. Contractor shall make Contractor Records available during normal business hours at Contractor's office or place of business, or at other mutually agreed upon times or locations, upon no fewer than 2 Business Days' notice from the State, unless the State determines that a shorter period of notice, or no notice, is necessary to protect the interests of the State.

### **C. Monitoring**

The State may monitor Contractor's performance of its obligations under this Participating Addendum. The State shall evaluate Contractor's performance in a manner that does not unduly interfere with Contractor's performance of the Work.

### **D. Final Audit Report**

Contractor shall promptly submit to the State a copy of any final audit report of an audit performed on Contractor's records that relates to or affects this Participating Addendum or the Work, whether the audit is conducted by Contractor or a third party.

### **E. Periodic Business Reviews**

- i. The State may schedule periodic business reviews to review Contractor's performance under this Participating Addendum.
- ii. Contractor shall ensure personnel assigned to the Participating Addendum are available for these meetings with the State as scheduled by the State and Contractor.
- iii. Contractor's primary contact designated in §5 of this the Participating Addendum shall be available for all regularly scheduled meetings between Contractor and the State, unless the State has granted prior, written approval otherwise.

## **10. CONFIDENTIAL INFORMATION-STATE RECORDS**

### **A. Confidentiality**

Contractor shall keep confidential, and cause all Subcontractors to keep confidential, all State Records, unless those State Records are publicly available. Contractor shall not, without prior

written approval of the State, use, publish, copy, disclose to any third party, or permit the use by any third party of any State Records, except as otherwise stated in this Participating Addendum, permitted by law or approved in Writing by the State. Contractor shall provide for the security of all State Confidential Information in accordance with all policies promulgated by the Colorado Office of Information Security and all applicable laws, rules, policies, publications, and guidelines. If Contractor or any of its Subcontractors will or may receive the following types of data, Contractor or its Subcontractors shall provide for the security of such data according to the following: **(i)** the most recently promulgated IRS Publication 1075 for all Tax Information and in accordance with the Safeguarding Requirements for Federal Tax Information attached to this Contract as an Exhibit, if applicable, **(ii)** the most recently updated PCI Data Security Standard from the PCI Security Standards Council for all PCI, **(iii)** the most recently issued version of the U.S. Department of Justice, Federal Bureau of Investigation, Criminal Justice Information Services Security Policy for all CJI, and **(iv)** the federal Health Insurance Portability and Accountability Act for all PHI and the HIPAA Business Associate Agreement attached to this Contract , if applicable. Contractor shall immediately forward any request or demand for State Records to the State's primary contact as identified in §5 of the Participating Addendum.

**B. Other Entity Access and Nondisclosure Agreements**

Contractor may provide State Records to its agents, employees, assigns and Subcontractors as necessary to perform the Work, but shall restrict access to State Confidential Information to those agents, employees, assigns and Subcontractors who require access to perform their obligations under this Participating Addendum. Contractor shall ensure all such agents, employees, assigns, and Subcontractors sign agreements containing nondisclosure provisions at least as protective as those in this Participating Addendum, and that the nondisclosure provisions are in force at all times the agent, employee, assign or Subcontractor has access to any State Confidential Information. Contractor shall provide copies of those signed nondisclosure provisions to the State upon execution of the nondisclosure provisions.

**C. Use, Security, and Retention**

Contractor shall use, hold and maintain State Confidential Information in compliance with any and all applicable laws and regulations in facilities located within the United States, and shall maintain a secure environment that ensures confidentiality of all State Confidential Information wherever located. Contractor shall provide the State with access, subject to Contractor's reasonable security requirements, for purposes of inspecting and monitoring access and use of State Confidential Information and evaluating security control effectiveness. Upon the expiration or termination of this Participating Addendum, Contractor shall return State Records provided to Contractor or destroy such State Records and certify to the State that it has done so, as directed by the State. If Contractor is prevented by law or regulation from returning or destroying State Confidential Information, Contractor warrants it will guarantee the confidentiality of, and cease to use, such State Confidential Information.

**D. Incident Notice and Remediation**

If Contractor becomes aware of any Incident, it shall notify the State as soon as possible, and cooperate with the State regarding recovery, remediation, and the necessity to involve law enforcement, as determined by the State. Unless Contractor can establish that neither Contractor nor any of Contractor's agents, employees, assigns or Subcontractors are the cause or source of the Incident, Contractor shall be responsible for the cost of notifying each person who may have been impacted by the Incident. After an Incident, Contractor shall take steps

to reduce the risk of incurring a similar type of Incident in the future as directed by the State, which may include, but is not limited to, developing and implementing a remediation plan that is approved by the State at no additional cost to the State. The State may, in its sole discretion and at Contractor's sole expense, require Contractor to engage the services of an independent, qualified, State-approved third party to conduct a security audit. Contractor shall provide the State with the redacted version of results of such audit and evidence of Contractor's planned remediation in response to any negative findings, redacting Contractor's confidential restricted information, to the extent there is any such confidential, restricted information included in the audit results.

E. Data Protection and Handling

Contractor shall ensure that all State Records and Work Product in the possession of Contractor or any Subcontractors are protected and handled in accordance with the requirements of this Contract, including the requirements of any Exhibits hereto, at all times.

F. Safeguarding PII

If Contractor or any of its Subcontractors will or may receive PII under this Contract, Contractor shall provide for the security of such PII, in a manner and form acceptable to the State, including, without limitation, State non-disclosure requirements, use of appropriate technology, security practices, computer access security, data access security, data storage encryption, data transmission encryption, security inspections, and audits. Contractor shall be a "Third-Party Service Provider" as defined in §24-73-103(1)(i), C.R.S. and shall maintain security procedures and practices consistent with §§24-73-101 *et seq.*, C.R.S.

## 11. CONFLICTS OF INTEREST

A. Actual Conflicts of Interest

Contractor shall not engage in any business or activities, or maintain any relationships that conflict in any way with the full performance of the obligations of Contractor under this Participating Addendum. Such a conflict of interest would arise when a Contractor or Subcontractor's employee, officer or agent were to offer or provide any tangible personal benefit to an employee of the State, or any member of his or her immediate family or his or her partner, related to the award of, entry into or management or oversight of this Participating Addendum.

B. Apparent Conflicts of Interest

Contractor acknowledges that, with respect to this Participating Addendum, even the appearance of a conflict of interest shall be harmful to the State's interests. Absent the State's prior written approval, Contractor shall refrain from any practices, activities or relationships that reasonably appear to be in conflict with the full performance of Contractor's obligations under this Participating Addendum.

C. Disclosure to the State

If a conflict or the appearance of a conflict arises, or if Contractor is uncertain whether a conflict or the appearance of a conflict has arisen, Contractor shall submit to the State a disclosure statement setting forth the relevant details for the State's consideration. Failure to promptly submit a disclosure statement or to follow the State's direction in regard to the actual or apparent conflict constitutes a breach of this Participating Addendum.

## 12. INSURANCE



Contractor shall obtain and maintain, and ensure that each Subcontractor shall obtain and maintain, insurance as specified in this section at all times during the term of this Participating Addendum and until all orders for goods or Services or both have been delivered and accepted, regardless of whether this Participating Addendum has expired or has been terminated. All insurance policies required by this Participating Addendum shall be issued by insurance companies as approved by the State.

A. Workers' Compensation

Workers' Compensation insurance as required by state statute, and employers' liability insurance covering all Contractor or Subcontractor employees acting within the course and scope of their employment. Insurance must stay in place and in effect even if the contract terms expires, until all product or terms of the contract are completed and satisfied up to 120 days after contract term expires.

B. General Liability

Commercial general liability insurance covering premises operations, fire damage, independent contractors, products and completed operations, blanket contractual liability, personal injury, and advertising liability with limits as follows:

- i. \$1,000,000 each occurrence;
- ii. \$2,000,000 general aggregate;
- iii. \$1,000,000 products and completed operations aggregate; and
- iv. \$50,000 any 1 fire.

C. Automobile Liability

Automobile liability insurance covering any auto (including owned, hired and non-owned autos) with a limit of \$1,000,000 each accident combined single limit.

D. Professional Liability including Cyber/Network Security and Privacy Liability

Liability insurance covering civil, regulatory, and statutory damages, contractual damages, data breach management exposure, and any loss of income or extra expense as a result of actual or alleged breach, violation or infringement of right to privacy, consumer data protection law, confidentiality or other legal protection for personal information, as well as State Confidential Information with limits as follows:

- i. \$3,000,000 each claim; and
- ii. \$6,000,000 general aggregate.

E. Professional liability insurance shall also include coverage for Protected Information

Liability insurance covering all loss of State Confidential Information, such as PII, PCI, PHI, Tax Information, and CJI, and claims based on alleged violations of privacy rights through improper use or disclosure of protected information.

F. Professional Liability Insurance

Professional liability insurance covering any damages caused by an error, omission or any negligent act.

G. Crime Insurance

Crime insurance including employee dishonesty coverage with limits as follows:



- i. \$1,000,000 each claim; and
- ii. \$1,000,000 general aggregate.

H. Additional Insured

The State shall be included as additional insured on required commercial general liability policies (leases and construction contracts require additional insured coverage for completed operations) required of Contractor and Subcontractors.

I. Primacy of Coverage

Coverage required of Contractor and each Subcontractor shall be primary and noncontributory over any insurance or self-insurance program carried by Contractor or the State.

J. Cancellation

The above insurance policies shall include provisions preventing cancellation or non-renewal, except for cancellation based on non-payment of premiums, without at least 30 days prior notice to Contractor and Contractor shall forward such notice to the State in accordance with §5 of the Participating Addendum within 7 days of Contractor's receipt of such notice.

K. Subrogation Waiver

All insurance policies except those secured or maintained by Contractor or its Subcontractors in relation to this Participating Addendum shall include clauses stating that each carrier shall waive all rights of recovery under subrogation or otherwise against Contractor or the State, its agencies, institutions, organizations, officers, agents, employees, and volunteers.

L. Public Entities

If Contractor is a "public entity" within the meaning of the Colorado Governmental Immunity Act, §§24-10-101, *et seq.*, C.R.S. (the "GIA"), Contractor shall maintain, in lieu of the liability insurance requirements stated above, at all times during the term of this Participating Addendum such liability insurance, by commercial policy or self-insurance, as is necessary to meet its liabilities under the GIA. If a Subcontractor is a public entity within the meaning of the GIA, Contractor shall ensure that the Subcontractor maintain at all times during the terms of this Participating Addendum, in lieu of the liability insurance requirements stated above, such liability insurance, by commercial policy or self-insurance, as is necessary to meet the Subcontractor's obligations under the GIA.

M. Certificates

Contractor shall provide to the State certificates evidencing Contractor's insurance coverage required in this Participating Addendum within 7 Business Days following the Effective Date. Contractor shall provide to the State certificates evidencing Subcontractor insurance coverage within 7 Business Days following the Effective Date, except that, if Contractor's subcontract is not in effect as of the Effective Date, Contractor shall provide to the State certificates showing Subcontractor insurance coverage within 7 Business Days following Contractor's execution of the subcontract. Before the expiration date of Contractor's or any Subcontractor's coverage, Contractor shall deliver to the State certificates of insurance evidencing renewals of coverage. At renewal time during the term of this Participating Addendum, upon request by the State, Contractor shall, within 7 Business Days following the request by the State, supply to the State evidence satisfactory to the State of compliance with the provisions of this §12.

### 13. BREACH OF CONTRACT

In the event of a Breach of Contract, the aggrieved Party shall give written notice of breach to the other Party. If the notified Party does not cure the Breach of Contract, at its sole expense, within 30 days after the delivery of written notice, the Party may exercise any of the remedies as described in §14 for that Party. Notwithstanding any provision of this Participating Addendum to the contrary, the State, in its discretion in order to protect the public interest of the State (such circumstances including, but not limited to, where the State Governor issues an executive order or the State Legislature passes a law that could impact the public interest as it relates to this Participating Addendum) need not provide notice or a cure period and may immediately terminate this Participating Addendum in whole or in part or institute any other remedy in this Participating Addendum; or if Contractor is debarred or suspended under §24-109-105, C.R.S., the State, in its discretion, need not provide notice or cure period and may terminate this Contract in whole or in part or institute any other remedy in this Contract as of the date that the debarment or suspension takes effect.

### 14. REMEDIES

#### A. State's Remedies

If Contractor is in breach under any provision of this Participating Addendum and fails to cure such breach, the State, following the notice and cure period set forth in §13, shall have all of the remedies listed in this section in addition to all other remedies set forth in this Participating Addendum or at law. The State may exercise any or all of the remedies available to it, in its discretion, concurrently or consecutively.

##### i. Termination for Breach

In the event of Contractor's uncured breach, the State may terminate this entire Participating Addendum or any part of this Participating Addendum. Contractor shall continue performance of this Participating Addendum to the extent not terminated, if any.

If after termination by the State, the State agrees that Contractor was not in breach or that Contractor's action or inaction was excusable, such termination shall be treated as a termination in the public interest, and the rights and obligations of the Parties shall be as if this Participating Addendum had been terminated in the public interest under §3. E.

##### ii. Remedies Not Involving Termination

The State, in its discretion, may exercise one or more of the following additional remedies:

##### a. Suspend Performance

Suspend Contractor's performance with respect to all or any portion of the Work pending corrective action as specified by the State without entitling Contractor to an adjustment in price or cost or an adjustment in the performance schedule. Contractor shall promptly cease performing Work and incurring costs in accordance with the State's directive, and neither the State nor any Purchasing Entity shall be liable for costs incurred by Contractor after the suspension of performance; however, Purchasing Entity is still liable for cost of Goods and Services provided up until date of suspension.

b. Removal

Demand immediate removal of any of Contractor's employees, agents, or Subcontractors from the Work whom the State deems incompetent, careless, insubordinate, unsuitable, or otherwise unacceptable or whose continued relation to this Participating Addendum is deemed by the State to be contrary to the public interest or the State's best interest.

c. Intellectual Property

Contractor shall, indemnify and defend the State against any third-party claim alleging that a Contractor-developed or manufactured product or Service directly infringes a United States patent or copyright ("Infringement Claim"), and Contractor shall pay all damages finally awarded against the State by a court of competent jurisdiction for an Infringement Claim, and at its option: (i) secure that right to use such Work for the State, Purchasing Entity and Contractor; (ii) replace the Work with non infringing Work or modify the Work so that it becomes noninfringing; or, (iii) remove any infringing Work and grant the State a reo-rated refund any amounts pre-paid for the infringing product if it is a software product, or a credit if the product is equipment

Contractor's duties under this section are conditioned upon (a) the State promptly notifying Contractor in writing of the Infringement Claim; (b) Contractor having primary control over the defense of the suit and all negotiations for its settlement or compromise, and (c) the State cooperating with Contractor and if requested by Contractor, providing reasonable assistance in the defense of the Infringement Claim.

This Section provides the State's sole and exclusive remedy and Contractor's entire liability in the event of an Infringement Claim.

B. Contractor's Remedies

If the State is in breach of any provision of this Participating Addendum and does not cure such breach, Contractor, following the notice and cure period in §13 and the dispute resolution process in §15 shall have all remedies available at law and equity. If a Purchasing Entity is in breach of a provision of an Order, Contractor shall have all remedies available to it under that Order and available at law and equity.

C. Purchasing Entity's Remedies

- i. If Contractor is in breach under any provision of an Order by a Purchasing Entity, the Purchasing Entity shall have all of the remedies listed in that Order, all remedies listed in §14. A. ii above, all remedies listed here in §14.C and all other remedies available by law or equity. The Purchasing Entity may exercise any or all of the remedies available to it, in its discretion, concurrently or consecutively.
- ii. If a Purchasing Entity gives Contractor notice of breach or terminates an Order because of Contractor's breach of that Order, Contractor shall provide notice to the State of that breach or termination within 30 Business Days following Contractor's receipt of that notice of breach or termination.
- iii. Payments and Damages

- a. Notwithstanding anything to the contrary, Purchasing Entities shall only pay Contractor for accepted Work received as of the date of termination. Subject to the provisions of Section 14 and 15, a Purchasing Entity may withhold any amount that may be due Contractor as the Purchasing Entity deems necessary until Contractor corrects its Work or to protect itself against loss including, without limitation, loss as a result of outstanding liens and costs incurred by the Purchasing Entity in procuring from third parties replacement Work as cover.
- b. Notwithstanding any other remedial action by the State, Contractor shall remain liable to the State or appropriate Purchasing Entity for any damages sustained by the State or Purchasing Entity in connection with any breach by Contractor, and the Purchasing Entity may withhold payment to Contractor for the purpose of mitigating the Purchasing Entity's damages.

A Purchasing Entity may deny payment to Contractor for Work not performed, or that due to Contractor's actions or inactions, cannot be performed or if they were performed are reasonably of no value to the state; provided, that any denial of payment shall be equal to the value of the obligations not performed.

## 15. DISPUTE RESOLUTION

### A. Order Disputes, Termination and Resolution

- i. If a dispute related to an Order arises between Contractor and a Purchasing Entity, Contractor shall meet with the Purchasing Entity to attempt to resolve the issue. If Contractor is unable to resolve the issue with the Purchasing Entity, then Contractor may request assistance from the State by submitting a request in writing, which includes the pertinent information about the dispute and the assistance sought by Contractor, in accordance with §5 of the Participating Addendum. Nothing in this section shall be interpreted as limiting the rights or obligations of Contractor, the State or any Purchasing Entity under this Contract of any Order.
- ii. A Purchasing Entity may terminate an Order if it determines that Contractor was in breach of that Order. Termination of an Order shall not terminate any other Order or this Participating Addendum. Termination of an Order does not relieve the Purchasing Entity of obligation for payment of Goods and Services delivered by the Contractor.
- iii. If a Purchasing Entity gives Contractor notice of breach or terminates an Order because of Contractor's breach of that Order, Contractor shall provide notice to the State of that breach or termination within 30 Business Days following Contractor's receipt of that notice of breach or termination.

### B. Initial Resolution

Except as herein specifically provided otherwise, disputes concerning the performance of this Participating Addendum which cannot be resolved by the designated Participating Addendum primary contacts, as identified in §5 of the Participating Addendum, or through a dispute on an Order shall be referred in writing to a senior departmental management staff member designated by the State and a senior manager designated by Contractor for resolution.

### C. Resolution of Controversies arising under this Participating Addendum

If the initial resolution described in §15.B. fails to resolve the dispute within thirty (30) Business Days, Contractor shall submit any alleged breach of this Participating Addendum

by the State to the Procurement Official of the State Purchasing and Contracts Office as described in in §24-102-202(3), C.R.S. for resolution in accordance with the provisions of §§24-109-101.1 through 24-109-505, C.R.S., (the “Resolution Statutes”), except that if Contractor wishes to challenge any decision rendered by the Procurement Official, Contractor’s challenge shall be an appeal to the Executive Director of the Department of Personnel and Administration, or their delegate, under the Resolution Statutes before Contractor pursues any further action as permitted by such statutes. Except as otherwise stated in this Section, all requirements of the Resolution Statutes shall apply including, without limitation, time limitations.

## **16. RIGHTS IN WORK PRODUCT AND OTHER INFORMATION**

### **A. Work Product**

Contractor assigns to the Purchasing Entity and its successors and assigns, the entire right, title, and interest in and to all causes of action, either in law or in equity, for past, present, or future infringement of intellectual property rights related to the Work Product and all works based on, derived from, or incorporating the Work Product under an Order. Whether or not Contractor is under contract with the State at the time, Contractor shall execute applications, assignments, and other documents, and shall render all other reasonable assistance requested by the State, to enable the Purchasing Entity to secure patents, copyrights, licenses and other intellectual property rights related to the Work Product. To the extent that Work Product would fall under the definition of “works made for hire” under 17 U.S.C.S. §101, the parties intend the Work Product to be a work made for hire.

### **B. Exclusive Property of the State**

Except to the extent specifically provided elsewhere in this Participating Addendum, any pre-existing State Records, State software, research, reports, studies, photographs, negatives or other documents, drawings, models, materials, data and information shall be the exclusive property of the State (collectively, “State Materials”). Contractor shall not use, willingly allow, cause or permit Work Product or State Materials to be used for any purpose other than the performance of Contractor’s obligations in this Participating Addendum without the prior written consent of the State. Upon termination of this Participating Addendum for any reason, Contractor shall provide all Work Product and State Materials to the State in a form and manner as directed by the State.

### **C. Exclusive Property of Contractor**

Contractor retains the exclusive rights, title, and ownership to any and all pre-existing materials owned or licensed to Contractor including, but not limited to, all pre-existing software, licensed products, associated source code, machine code, text images, audio and/or video, and third-party materials, delivered by Contractor under the Contract, whether incorporated in a Deliverable or necessary to use a Deliverable (collectively, “Contractor Property”). Contractor Property shall be licensed to the State as set forth in this Contract or a State approved license agreement: **(i)** entered into as exhibits to this Contract; **(ii)** obtained by the State from the applicable third-party vendor; or **(iii)** in the case of open source software, the license terms set forth in the applicable open source license agreement.

## **17. OBLIGATIONS AND RIGHTS IN THE EVENT OF TERMINATION OF ORDER OR CONTRACT**

To the extent specified in any termination notice, Contractor shall not incur further obligations or render further performance past the effective date of such notice, and shall



terminate outstanding orders and subcontracts with third parties. However, Contractor shall complete and deliver to Purchasing Entities all Work not cancelled by the termination notice, and may incur obligations as necessary to do so within this Participating Addendum's terms. At the request of the State, Contractor shall assign to the appropriate Purchasing Entity all of Contractor's rights, title, and interest in and to such terminated orders or subcontracts. Upon termination, Contractor shall take timely, reasonable and necessary action to protect and preserve property in the possession of Contractor in which the appropriate Purchasing Entity has an interest. At the State or Purchasing Entity's request, Contractor shall return materials owned by the Purchasing Entity that Contractor possesses at the time of any termination. Contractor shall deliver all completed Work Product to the appropriate Purchasing Entity at the State or Purchasing Entity's request.

## **18. STATEWIDE CONTRACT MANAGEMENT SYSTEM**

If the maximum amount payable to Contractor under this Contract is \$100,000 or greater, either on the Effective Date or at any time thereafter, this section shall apply. Contractor agrees to be governed by and comply with the provisions of §§24-102-206, 24-106-103, 24-106-106, and 24-106-107, C.R.S. regarding the monitoring of vendor performance and the reporting of contract information in the State's contract management system ("Contract Management System" or "CMS"). Contractor's performance shall be subject to evaluation and review in accordance with the terms and conditions of this Contract, Colorado statutes governing CMS, and State Fiscal Rules and State Controller policies.

## **19. GENERAL PROVISIONS**

### **A. Assignment**

Contractor's rights and obligations under this Participating Addendum are personal and may not be transferred or assigned without the prior, written consent of the State. Any attempt at assignment or transfer without such consent shall be void. Any assignment or transfer of Contractor's rights and obligations approved by the State shall be subject to the provisions of this Participating Addendum.

### **B. Subcontracts**

The Contractor shall provide the State with a list of all subcontractors providing services pursuant to this Participating Addendum. All subcontracts entered into by Contractor in connection with this Participating Addendum shall comply with all applicable federal and state laws and regulations, shall provide that they are governed by the laws of the State of Colorado, and shall be subject to all provisions of this Participating Addendum.

### **C. Binding Effect**

Except as otherwise provided in §19.A., all provisions of this Participating Addendum, including the benefits and burdens, shall extend to and be binding upon the Parties' respective successors and assigns.

### **D. Authority**

Each Party represents and warrants to the other that the execution and delivery of this Participating Addendum and the performance of such Party's obligations have been duly authorized.

### **E. Captions and References**



The captions and headings in this Participating Addendum are for convenience of reference only, and shall not be used to interpret, define, or limit its provisions. All references in this Participating Addendum to sections (whether spelled out or using the § symbol), subsections, exhibits or other attachments, are references to sections, subsections, exhibits or other attachments contained herein or incorporated as a part hereof, unless otherwise noted.

F. Counterparts

This Participating Addendum may be executed in multiple, identical, original counterparts, each of which shall be deemed to be an original, but all of which, taken together, shall constitute one and the same agreement.

G. Entire Understanding

This Participating Addendum represents the complete integration of all understandings between the Parties related to the Work, and all prior representations and understandings related to the Work, oral or written, are merged into this Participating Addendum. Prior or contemporaneous additions, deletions, or other changes to this Participating Addendum shall not have any force or effect whatsoever, unless embodied herein.

H. Digital Signatures

If any signatory signs this agreement using a digital signature in accordance with the Colorado State Controller Contract, Grant and Purchase Order Policies regarding the use of digital signatures issued under the State Fiscal Rules, then any agreement or consent to use digital signatures within the electronic system through which that signatory signed shall be incorporated into this Contract by reference.

I. Modification

Except as otherwise provided in this Participating Addendum, any modification to this Participating Addendum shall only be effective if agreed to in a formal amendment to this Participating Addendum, properly executed and approved in accordance with applicable Colorado State law and State Fiscal Rules. Modifications permitted under this Participating Addendum, other than contract amendments, shall conform to the policies issued by the Colorado State Controller.

J. Statutes, Regulations, Fiscal Rules, and Other Authority.

Any reference in this Participating Addendum to a statute, regulation, State Fiscal Rule, fiscal policy or other authority shall be interpreted to refer to such authority then current, as may have been changed or amended since the Effective Date of this Participating Addendum.

K. Severability

The invalidity or unenforceability of any provision of this Participating Addendum shall not affect the validity or enforceability of any other provision of this Participating Addendum, which shall remain in full force and effect, provided that the Parties can continue to perform their obligations under this Participating Addendum in accordance with the intent of this Participating Addendum.

L. Survival of Certain Contract Terms

Any provision of this Participating Addendum that imposes an obligation on the Contractor or a Purchasing Entity after termination or expiration of this Participating Addendum shall

survive the termination or expiration of this Participating Addendum and shall be enforceable by the other Party.

M. Taxes

The State is exempt from federal excise taxes under I.R.C. Chapter 32 (26 U.S.C., Subtitle D, Ch. 32) (Federal Excise Tax Exemption Certificate of Registry No. 84-730123K) and from State and local government sales and use taxes under §§39-26-704(1), *et seq.*, C.R.S. (Colorado Sales Tax Exemption Identification Number 98-02565). The State shall not be liable for the payment of any excise, sales, or use taxes, regardless of whether any political subdivision of the State imposes such taxes on Contractor. Contractor shall be solely responsible for any exemptions from the collection of excise, sales or use taxes that Contractor may wish to have in place in connection with this Participating Addendum. Contractor shall honor any tax exemption that any Purchasing Entity has, and shall not charge any Purchasing Entity any excise, sales, or use taxes from which that Purchasing Entity is exempt.

N. Third Party Beneficiaries

Except for a Purchasing Entity and/or the Parties' respective successors and assigns described in §19.A, this Participating Addendum does not and is not intended to confer any rights or remedies upon any person or entity other than the Parties. Enforcement of this Participating Addendum and all rights and obligations hereunder are reserved solely to the Parties. Any services or benefits which third parties receive as a result of this Participating Addendum are incidental to this Participating Addendum, and do not create any rights for such third parties.

O. Waiver

A Party's failure or delay in exercising any right, power, or privilege under this Participating Addendum, whether explicit or by lack of enforcement, shall not operate as a waiver, nor shall any single or partial exercise of any right, power, or privilege preclude any other or further exercise of such right, power, or privilege.

P. CORA Disclosure

To the extent not prohibited by federal law, this Participating Addendum and the performance measures and standards required under §24-106-107, C.R.S., if any, are subject to public release through the CORA.

Q. Standard and Manner of Performance

Contractor shall perform its obligations under this Participating Addendum in accordance with the highest standards of care, skill and diligence in Contractor's industry, trade, or profession.

R. Licenses, Permits, and Other Authorizations.

Contractor shall secure, prior to the Effective Date, and maintain at all times during the term of this Participating Addendum, at its sole expense, all licenses, certifications, permits, and other authorizations required to perform its obligations under this Participating Addendum, and shall ensure that all employees, agents and Subcontractors secure and maintain at all times during the term of their employment, agency or subcontract, all license, certifications, permits and other authorizations required to perform their obligations in relation to this Participating Addendum.

S. Indemnification

i. General Indemnification

Contractor shall indemnify, save, and hold harmless the State, its employees, agents and assignees (the “Indemnified Parties”), against any and all costs, expenses, claims, damages, liabilities, court awards and other amounts (including attorneys’ fees and related costs) arising from actual third-party claim, demand, action or proceeding (“Claim”) incurred by any of the Indemnified Parties in relation to any negligent, gross negligence or willful misconduct by Contractor, or its employees, agents, Subcontractors, or assignees in connection with its performance of duties in this Participating Addendum. Contractor’s duties under this Section are conditioned upon: (a) the State promptly notifying Contractor in writing of the Claim; (b) Contractor having sole control of the defense of the suit and all negotiations for its settlement or compromise; and (c) the State cooperating with Contractor and, if requested by Contractor, providing reasonable assistance in the defense of the Claim.

ii. Confidential Information Indemnification

Disclosure or use of State Confidential Information by Contractor in violation of §10 may be cause for legal action by third parties against Contractor, the State, or their respective agents. Contractor shall indemnify, save, and hold harmless the Indemnified Parties, against any and all claims, damages, liabilities, losses, costs, expenses (including attorneys’ fees and costs) arising from actual third-party claim, demand, action or proceeding incurred by the State in relation to any negligent, gross negligence act or omission or willful misconduct by Contractor, or its employees, agents, assigns, or Subcontractors in violation of §10.

## 20. COLORADO SPECIAL PROVISIONS (COLORADO FISCAL RULE 3-3)

These Special Provisions apply to all contracts except where noted in italics.

### A. STATUTORY APPROVAL. §24-30-202(1), C.R.S.

This Contract shall not be valid until it has been approved by the Colorado State Controller or designee. If this Contract is for a Major Information Technology Project, as defined in §24-37.5-102(2.6), then this Contract shall not be valid until it has been approved by the State’s Chief Information Officer or designee.

### B. FUND AVAILABILITY. §24-30-202(5.5), C.R.S.

Financial obligations of the State payable after the current State Fiscal Year are contingent upon funds for that purpose being appropriated, budgeted, and otherwise made available.

### C. GOVERNMENTAL IMMUNITY.

Liability for claims for injuries to persons or property arising from the negligence of the State, its departments, boards, commissions committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, §24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b), and the State’s risk management statutes, §§24-30-1501, et seq. C.R.S. No term or condition of this Contract shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

### D. INDEPENDENT CONTRACTOR

Contractor shall perform its duties hereunder as an independent contractor and not as an employee. Neither Contractor nor any agent or employee of Contractor shall be deemed to be an agent or employee of the State. Contractor shall not have authorization, express or implied, to bind the State to any agreement, liability or understanding, except as expressly set forth herein. Contractor and its employees and agents are not entitled to unemployment insurance or workers compensation benefits through the State and the State shall not pay for or otherwise provide such coverage for Contractor or any of its agents or employees. Contractor shall pay when due all applicable employment taxes, income taxes and local head taxes incurred pursuant to this Contract. Contractor shall (i) provide and keep in force workers' compensation and unemployment compensation insurance in the amounts required by law, (ii) provide proof thereof when requested by the State, and (iii) be solely responsible for its acts and those of its employees and agents.

**E. COMPLIANCE WITH LAW.**

Contractor shall comply with all applicable federal and State laws, rules, and regulations in effect or hereafter established, including, without limitation, laws applicable to discrimination and unfair employment practices.

**F. CHOICE OF LAW, JURISDICTION, AND VENUE.**

Colorado law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Contract. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. All suits or actions related to this Contract shall be filed and proceedings held in the State of Colorado and exclusive venue shall be in the City and County of Denver.

**G. PROHIBITED TERMS.**

Any term included in this Contract that requires the State to indemnify or hold Contractor harmless; requires the State to agree to binding arbitration; limits Contractor's liability for damages resulting from death, bodily injury, or damage to tangible property; or that conflicts with this provision in any way shall be void ab initio. Nothing in this Contract shall be construed as a waiver of any provision of §24-106-109 C.R.S. Any term included in this Contract that limits Contractor's liability that is not void under this section shall apply only in excess of any insurance to be maintained under this Contract, and no insurance policy shall be interpreted as being subject to any limitations of liability of this Contract.

**H. SOFTWARE PIRACY PROHIBITION.**

State or other public funds payable under this Contract shall not be used for the acquisition, operation, or maintenance of computer software in violation of federal copyright laws or applicable licensing restrictions. Contractor hereby certifies and warrants that, during the term of this Contract and any extensions, Contractor has and shall maintain in place appropriate systems and controls to prevent such improper use of public funds. If the State determines that Contractor is in violation of this provision, the State may exercise any remedy available at law or in equity or under this Contract, including, without limitation, immediate termination of this Contract and any remedy consistent with federal copyright laws or applicable licensing restrictions.

**I. EMPLOYEE FINANCIAL INTEREST/CONFLICT OF INTEREST. §§24-18-201 and 24-50-507, C.R.S.**

The signatories aver that to their knowledge, no employee of the State has any personal or beneficial interest whatsoever in the service or property described in this Contract. Contractor has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with the performance of Contractor's services and Contractor shall not employ any person having such known interests.

**J. VENDOR OFFSET AND ERRONEOUS PAYMENTS. §§24-30-202(1) and 24-30-202.4, C.R.S.**

*[Not applicable to intergovernmental agreements]* Subject to §24-30-202.4(3.5), C.R.S., the State Controller may withhold payment under the State's vendor offset intercept system for debts owed to State agencies for: (i) unpaid child support debts or child support arrearages; (ii) unpaid balances of tax, accrued interest, or other charges specified in §§39-21-101, *et seq.*, C.R.S.; (iii) unpaid loans due to the Student Loan Division of the Department of Higher Education; (iv) amounts required to be paid to the Unemployment Compensation Fund; and (v) other unpaid debts owing to the State as a result of final agency determination or judicial action. The State may also recover, at the State's discretion, payments made to Contractor in error for any reason, including, but not limited to, overpayments or improper payments, and unexpended or excess funds received by Contractor by deduction from subsequent payments under this Contract, deduction from any payment due under any other contracts, grants or agreements between the State and Contractor, or by any other appropriate method for collecting debts owed to the State.

**K. PUBLIC CONTRACTS FOR SERVICES. §§8-17.5-101, *et seq.*, C.R.S.**

*[Not applicable to agreements relating to the offer, issuance, or sale of securities, investment advisory services or fund management services, sponsored projects, intergovernmental agreements, or information technology services or products and services]* Contractor certifies, warrants, and agrees that it does not knowingly employ or contract with an illegal alien who will perform work under this Contract and will confirm the employment eligibility of all employees who are newly hired for employment in the United States to perform work under this Contract, through participation in the E-Verify Program or the State verification program established pursuant to §8-17.5-102(5)(c), C.R.S., Contractor shall not knowingly employ or contract with an illegal alien to perform work under this Contract or enter into a contract with a Subcontractor that fails to certify to Contractor that the Subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this Contract. Contractor (i) shall not use E-Verify Program or the program procedures of the Colorado Department of Labor and Employment ("Department Program") to undertake pre-employment screening of job applicants while this Contract is being performed, (ii) shall notify the Subcontractor and the contracting State agency or institution of higher education within 3 days if Contractor has actual knowledge that a Subcontractor is employing or contracting with an illegal alien for work under this Contract, (iii) shall terminate the subcontract if a Subcontractor does not stop employing or contracting with the illegal alien within 3 days of receiving the notice, and (iv) shall comply with reasonable requests made in the course of an investigation, undertaken pursuant to §8-17.5-102(5), C.R.S., by the Colorado Department of Labor and Employment. If Contractor participates in the Department program, Contractor shall deliver to the contracting State agency, Institution of Higher Education or political subdivision, a written, notarized affirmation, affirming that Contractor has examined the legal work status of such employee, and shall comply with all of the other requirements of the Department program. If Contractor fails to comply with any requirement of this provision or §§8-17.5-101, *et seq.*, C.R.S., the contracting State agency,

institution of higher education or political subdivision may terminate this Contract for breach and, if so terminated, Contractor shall be liable for damages.

**L. PUBLIC CONTRACTS WITH NATURAL PERSONS. §§24-76.5-101, *et seq.*, C.R.S.**

Contractor, if a natural person eighteen (18) years of age or older, hereby swears and affirms under penalty of perjury that Contractor **(i)** is a citizen or otherwise lawfully present in the United States pursuant to federal law, **(ii)** shall comply with the provisions of §§24-76.5-101, *et seq.*, C.R.S., and **(iii)** has produced one form of identification required by §24-76.5-103, C.R.S. prior to the Effective Date of this Contract.



## **EXHIBIT B STATEMENT OF WORK**

### **1. GOODS AND/OR SERVICES**

For a description of what the Participating Addendum will provide, see Attachment of the Master Agreement 00318, "Cost sheet"

### **2. OTHER PROJECT REQUIREMENTS**

#### **A. Delivery of Goods and Performance of Services**

- i. Contractor shall provide all Goods and perform all Services described in each Order.
- ii. Unless specifically agreed to otherwise in an Order, Contractor shall deliver all Goods under an Order in good, working and undamaged condition. All Goods shall be free on board ("F.O.B.") destination to the location specified in the Order.
- iii. If a good in an Order is out of stock, Contractor may only provide a substitute good if it has notified the Purchasing Entity for that Order, in writing, that the good is out of stock and has received the Purchasing Entity's approval to provide the substitute good. Purchasing Entities may request additional information comparing the substitute good with the original good in the Purchasing Entity's sole discretion.

#### **B. Additional Terms**

Any additional terms and conditions on any invoice, statement, Contractor time sheet, website, electronic license or use agreement or any other form, including, without limitation, terms regarding indemnification, limitation of liability, cancellation fees, choice of law and binding arbitration shall be void and unenforceable except to the extent that they are specifically included in this Participating Addendum or an Order. The signature of any employee of a Purchasing Entity on any such form shall be effective to establish receipt of Goods or completion of Services and shall not make any term of that form enforceable.

## **EXHIBIT C PRODUCTS AND PRICE LIST**

1. Contractor has been awarded the following categories:
  - PUBLIC SAFETY COMMUNICATIONS PRODUCTS, SERVICES, AND SOLUTIONS
2. The products and price list is located on the Contractor's dedicated State website, hosted and maintained by the Contractor, and is incorporated into this Participating Addendum by reference. Changes in product and pricing must be approved by the lead state and shall be effective when published on the dedicated state website.
  - A. Price Decreases and Ceiling Prices  
The prices listed in this Exhibit C are Ceiling Prices, Contractor may offer lower prices to Purchasing Entities, and Purchasing Entities may negotiate lower prices with Contractor, without the review or approval of the State. Contractor shall not allow a Subcontractor to charge an amount greater than the Ceiling Price for any Order.

## EXHIBIT D – HIPAA BUSINESS ASSOCIATE AGREEMENT

This HIPAA Business Associate Agreement (“Agreement”) between the State and Contractor is agreed to in connection with, and as an exhibit to, the Contract. For purposes of this Agreement, the State is referred to as “Covered Entity” and the Contractor is referred to as “Business Associate”. Unless the context clearly requires a distinction between the Contract and this Agreement, all references to “Contract” shall include this Agreement.

### 1. Purpose

Covered Entity wishes to disclose information to Business Associate, which may include Protected Health Information (“PHI”). The Parties intend to protect the privacy and security of the disclosed PHI in compliance with the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), Pub. L. No. 104-191 (1996) as amended by the Health Information Technology for Economic and Clinical Health Act (“HITECH Act”) enacted under the American Recovery and Reinvestment Act of 2009 (“ARRA”) Pub. L. No. 111-5 (2009), implementing regulations promulgated by the U.S. Department of Health and Human Services at 45 C.F.R. Parts 160, 162 and 164 (the “HIPAA Rules”) and other applicable laws, as amended. Prior to the disclosure of PHI, Covered Entity is required to enter into an agreement with Business Associate containing specific requirements as set forth in, but not limited to, Title 45, Sections 160.103, 164.502(e) and 164.504(e) of the Code of Federal Regulations (“C.F.R.”) and all other applicable laws and regulations, all as may be amended.

### 2. Definitions

The following terms used in this Agreement shall have the same meanings as in the HIPAA Rules: Breach, Data Aggregation, Designated Record Set, Disclosure, Health Care Operations, Individual, Minimum Necessary, Notice of Privacy Practices, Protected Health Information, Required by Law, Secretary, Security Incident, Subcontractor, Unsecured Protected Health Information, and Use.

The following terms used in this Agreement shall have the meanings set forth below:

- a. Business Associate. “Business Associate” shall have the same meaning as the term “business associate” at 45 C.F.R. 160.103, and shall refer to Contractor.
- b. Covered Entity. “Covered Entity” shall have the same meaning as the term “covered entity” at 45 C.F.R. 160.103, and shall refer to the State.
- c. Information Technology and Information Security. “Information Technology” and “Information Security” shall have the same meanings as the terms “information technology” and “information security”, respectively, in §24-37.5-102, C.R.S.

Capitalized terms used herein and not otherwise defined herein or in the HIPAA Rules shall have the meanings ascribed to them in the Contract.

### 3. Obligations and Activities of Business Associate

- d. Permitted Uses and Disclosures.
  - i. Business Associate shall use and disclose PHI only to accomplish Business Associate’s obligations under the Contract.

- ii. To the extent Business Associate carries out one or more of Covered Entity's obligations under Subpart E of 45 C.F.R. Part 164, Business Associate shall comply with any and all requirements of Subpart E that apply to Covered Entity in the performance of such obligation.
- iii. Business Associate may disclose PHI to carry out the legal responsibilities of Business Associate, provided, that the disclosure is Required by Law or Business Associate obtains reasonable assurances from the person to whom the information is disclosed that:
  - A. the information will remain confidential and will be used or disclosed only as Required by Law or for the purpose for which Business Associate originally disclosed the information to that person, and;
  - B. the person notifies Business Associate of any Breach involving PHI of which it is aware.
- iv. Business Associate may provide Data Aggregation services relating to the Health Care Operations of Covered Entity. Business Associate may de-identify any or all PHI created or received by Business Associate under this Agreement, provided the de-identification conforms to the requirements of the HIPAA Rules.
- e. Minimum Necessary. Business Associate, its Subcontractors and agents, shall access, use, and disclose only the minimum amount of PHI necessary to accomplish the objectives of the Contract, in accordance with the Minimum Necessary Requirements of the HIPAA Rules including, but not limited to, 45 C.F.R. 164.502(b) and 164.514(d).
- f. Impermissible Uses and Disclosures.
  - i. Business Associate shall not disclose the PHI of Covered Entity to another covered entity without the written authorization of Covered Entity.
  - ii. Business Associate shall not share, use, disclose or make available any Covered Entity PHI in any form via any medium with or to any person or entity beyond the boundaries or jurisdiction of the United States without express written authorization from Covered Entity.
- g. Business Associate's Subcontractors.
  - i. Business Associate shall, in accordance with 45 C.F.R. 164.502(e)(1)(ii) and 164.308(b)(2), ensure that any Subcontractors who create, receive, maintain, or transmit PHI on behalf of Business Associate agree in writing to the same restrictions, conditions, and requirements that apply to Business Associate with respect to safeguarding PHI.
  - ii. Business Associate shall provide to Covered Entity, on Covered Entity's request, a list of Subcontractors who have entered into any such agreement with Business Associate.
  - iii. Business Associate shall provide to Covered Entity, on Covered Entity's request, copies of any such agreements Business Associate has entered into with Subcontractors.
- h. Access to System. If Business Associate needs access to a Covered Entity Information Technology system to comply with its obligations under the Contract or this Agreement, Business Associate shall request, review, and comply with any and all policies applicable to Covered Entity regarding such

system including, but not limited to, any policies promulgated by the Office of Information Technology and available at <http://oit.state.co.us/about/policies>.

- i. Access to PHI. Business Associate shall, within ten days of receiving a written request from Covered Entity, make available PHI in a Designated Record Set to Covered Entity as necessary to satisfy Covered Entity's obligations under 45 C.F.R. 164.524.
- j. Amendment of PHI.
  - i. Business Associate shall within ten days of receiving a written request from Covered Entity make any amendment to PHI in a Designated Record Set as directed by or agreed to by Covered Entity pursuant to 45 C.F.R. 164.526, or take other measures as necessary to satisfy Covered Entity's obligations under 45 C.F.R. 164.526.
  - ii. Business Associate shall promptly forward to Covered Entity any request for amendment of PHI that Business Associate receives directly from an Individual.
- k. Accounting Rights. Business Associate shall, within ten days of receiving a written request from Covered Entity, maintain and make available to Covered Entity the information necessary for Covered Entity to satisfy its obligations to provide an accounting of Disclosure under 45 C.F.R. 164.528.
- l. Restrictions and Confidential Communications.
  - i. Business Associate shall restrict the Use or Disclosure of an Individual's PHI within ten days of notice from Covered Entity of:
    - (1) a restriction on Use or Disclosure of PHI pursuant to 45 C.F.R. 164.522; or
    - (2) a request for confidential communication of PHI pursuant to 45 C.F.R. 164.522.
  - ii. Business Associate shall not respond directly to an Individual's requests to restrict the Use or Disclosure of PHI or to send all communication of PHI to an alternate address.
  - iii. Business Associate shall refer such requests to Covered Entity so that Covered Entity can coordinate and prepare a timely response to the requesting Individual and provide direction to Business Associate.
- m. Governmental Access to Records. Business Associate shall make its facilities, internal practices, books, records, and other sources of information, including PHI, available to the Secretary for purposes of determining compliance with the HIPAA Rules in accordance with 45 C.F.R. 160.310.
- n. Audit, Inspection and Enforcement.
  - i. Business Associate shall obtain and update at least annually a written assessment performed by an independent third party reasonably acceptable to Covered Entity, which evaluates the Information Security of the applications, infrastructure, and processes that interact with the Covered Entity data Business Associate receives, manipulates, stores and distributes. Upon request by Covered Entity, Business Associate shall provide to Covered Entity the executive summary of the assessment.
  - ii. Business Associate, upon the request of Covered Entity, shall fully cooperate with Covered Entity's efforts to audit Business Associate's compliance with applicable HIPAA Rules. If,

through audit or inspection, Covered Entity determines that Business Associate's conduct would result in violation of the HIPAA Rules or is in violation of the Contract or this Agreement, Business Associate shall promptly remedy any such violation and shall certify completion of its remedy in writing to Covered Entity.

o. Appropriate Safeguards.

- i. Business Associate shall use appropriate safeguards and comply with Subpart C of 45 C.F.R. Part 164 with respect to electronic PHI to prevent use or disclosure of PHI other than as provided in this Agreement.
- ii. Business Associate shall safeguard the PHI from tampering and unauthorized disclosures.
- iii. Business Associate shall maintain the confidentiality of passwords and other data required for accessing this information.
- iv. Business Associate shall extend protection beyond the initial information obtained from Covered Entity to any databases or collections of PHI containing information derived from the PHI. The provisions of this section shall be in force unless PHI is de-identified in conformance to the requirements of the HIPAA Rules.

p. Safeguard During Transmission.

- i. Business Associate shall use reasonable and appropriate safeguards including, without limitation, Information Security measures to ensure that all transmissions of PHI are authorized and to prevent use or disclosure of PHI other than as provided for by this Agreement.
- ii. Business Associate shall not transmit PHI over the internet or any other insecure or open communication channel unless the PHI is encrypted or otherwise safeguarded with a FIPS-compliant encryption algorithm.

q. Reporting of Improper Use or Disclosure and Notification of Breach.

- i. Business Associate shall, as soon as reasonably possible, but immediately after discovery of a Breach, notify Covered Entity of any use or disclosure of PHI not provided for by this Agreement, including a Breach of Unsecured Protected Health Information as such notice is required by 45 C.F.R. 164.410 or a breach for which notice is required under §24-73-103, C.R.S.
- ii. Such notice shall include the identification of each Individual whose Unsecured Protected Health Information has been, or is reasonably believed by Business Associate to have been, accessed, acquired, or disclosed during such Breach.
- iii. Business Associate shall, as soon as reasonably possible, but immediately after discovery of any Security Incident that does not constitute a Breach, notify Covered Entity of such incident.
- iv. Business Associate shall have the burden of demonstrating that all notifications were made as required, including evidence demonstrating the necessity of any delay.

r. Business Associate's Insurance and Notification Costs.



- i. Business Associate shall bear all costs of a Breach response including, without limitation, notifications, and shall maintain insurance to cover:
  - (1) loss of PHI data;
  - (2) Breach notification requirements specified in HIPAA Rules and in §24-73-103, C.R.S.; and
  - (3) claims based upon alleged violations of privacy rights through improper use or disclosure of PHI.
- ii. All such policies shall meet or exceed the minimum insurance requirements of the Contract or otherwise as may be approved by Covered Entity (e.g., occurrence basis, combined single dollar limits, annual aggregate dollar limits, additional insured status, and notice of cancellation).
- iii. Business Associate shall provide Covered Entity a point of contact who possesses relevant Information Security knowledge and is accessible 24 hours per day, 7 days per week to assist with incident handling.
- iv. Business Associate, to the extent practicable, shall mitigate any harmful effect known to Business Associate of a Use or Disclosure of PHI by Business Associate in violation of this Agreement.
- s. Subcontractors and Breaches.
  - i. Business Associate shall enter into a written agreement with each of its Subcontractors and agents, who create, receive, maintain, or transmit PHI on behalf of Business Associate. The agreements shall require such Subcontractors and agents to report to Business Associate any use or disclosure of PHI not provided for by this Agreement, including Security Incidents and Breaches of Unsecured Protected Health Information, on the first day such Subcontractor or agent knows or should have known of the Breach as required by 45 C.F.R. 164.410.
  - ii. Business Associate shall notify Covered Entity of any such report and shall provide copies of any such agreements to Covered Entity on request.
- t. Data Ownership.
  - i. Business Associate acknowledges that Business Associate has no ownership rights with respect to the PHI.
  - ii. Upon request by Covered Entity, Business Associate immediately shall provide Covered Entity with any keys to decrypt information that the Business Association has encrypted and maintains in encrypted form, or shall provide such information in unencrypted usable form.
- u. Retention of PHI. Except upon termination of this Agreement as provided in Section 5 below, Business Associate and its Subcontractors or agents shall retain all PHI throughout the term of this Agreement, and shall continue to maintain the accounting of disclosures required under Section 1.k above, for a period of six years.

#### 4. Obligations of Covered Entity

- a. Safeguards During Transmission. Covered Entity shall be responsible for using appropriate safeguards including encryption of PHI, to maintain and ensure the confidentiality, integrity, and security of PHI transmitted pursuant to this Agreement, in accordance with the standards and requirements of the HIPAA Rules.
- b. Notice of Changes.
  - i. Covered Entity maintains a copy of its Notice of Privacy Practices on its website. Covered Entity shall provide Business Associate with any changes in, or revocation of, permission to use or disclose PHI, to the extent that it may affect Business Associate's permitted or required uses or disclosures.
  - ii. Covered Entity shall notify Business Associate of any restriction on the use or disclosure of PHI to which Covered Entity has agreed in accordance with 45 C.F.R. 164.522, to the extent that it may affect Business Associate's permitted use or disclosure of PHI.

#### 5. Termination

- a. Breach.
  - i. In addition to any Contract provision regarding remedies for breach, Covered Entity shall have the right, in the event of a breach by Business Associate of any provision of this Agreement, to terminate immediately the Contract, or this Agreement, or both.
  - ii. Subject to any directions from Covered Entity, upon termination of the Contract, this Agreement, or both, Business Associate shall take timely, reasonable, and necessary action to protect and preserve property in the possession of Business Associate in which Covered Entity has an interest.
- b. Effect of Termination.
  - i. Upon termination of this Agreement for any reason, Business Associate, at the option of Covered Entity, shall return or destroy all PHI that Business Associate, its agents, or its Subcontractors maintain in any form, and shall not retain any copies of such PHI.
  - ii. If Covered Entity directs Business Associate to destroy the PHI, Business Associate shall certify in writing to Covered Entity that such PHI has been destroyed.
  - iii. If Business Associate believes that returning or destroying the PHI is not feasible, Business Associate shall promptly provide Covered Entity with notice of the conditions making return or destruction infeasible. Business Associate shall continue to extend the protections of Section 3 of this Agreement to such PHI, and shall limit further use of such PHI to those purposes that make the return or destruction of such PHI infeasible.

## 6. Injunctive Relief

Covered Entity and Business Associate agree that irreparable damage would occur in the event Business Associate or any of its Subcontractors or agents use or disclosure of PHI in violation of this Agreement, the HIPAA Rules or any applicable law. Covered Entity and Business Associate further agree that money damages would not provide an adequate remedy for such Breach. Accordingly, Covered Entity and Business Associate agree that Covered Entity shall be entitled to injunctive relief, specific performance, and other equitable relief to prevent or restrain any Breach or threatened Breach of and to enforce specifically the terms and provisions of this Agreement.

## 7. Limitation of Liability

Any provision in the Contract limiting Contractor's liability shall not apply to Business Associate's liability under this Agreement, which shall not be limited.

## 8. Disclaimer

Covered Entity makes no warranty or representation that compliance by Business Associate with this Agreement or the HIPAA Rules will be adequate or satisfactory for Business Associate's own purposes. Business Associate is solely responsible for all decisions made and actions taken by Business Associate regarding the safeguarding of PHI.

## 9. Certification

Covered Entity has a legal obligation under HIPAA Rules to certify as to Business Associate's Information Security practices. Covered Entity or its authorized agent or contractor shall have the right to examine Business Associate's facilities, systems, procedures, and records, at Covered Entity's expense, if Covered Entity determines that examination is necessary to certify that Business Associate's Information Security safeguards comply with the HIPAA Rules or this Agreement.

## 10. Amendment

- a. Amendment to Comply with Law. The Parties acknowledge that state and federal laws and regulations relating to data security and privacy are rapidly evolving and that amendment of this Agreement may be required to provide procedures to ensure compliance with such developments.
  - i. In the event of any change to state or federal laws and regulations relating to data security and privacy affecting this Agreement, the Parties shall take such action as is necessary to implement the changes to the standards and requirements of HIPAA, the HIPAA Rules and other applicable rules relating to the confidentiality, integrity, availability and security of PHI with respect to this Agreement.
  - ii. Business Associate shall provide to Covered Entity written assurance satisfactory to Covered Entity that Business Associate shall adequately safeguard all PHI, and obtain written assurance satisfactory to Covered Entity from Business Associate's Subcontractors and agents that they shall adequately safeguard all PHI.
  - iii. Upon the request of either Party, the other Party promptly shall negotiate in good faith the terms of an amendment to the Contract embodying written assurances consistent with the standards and requirements of HIPAA, the HIPAA Rules, or other applicable rules.

iv. Covered Entity may terminate this Agreement upon 30 days' prior written notice in the event that:

- (1) Business Associate does not promptly enter into negotiations to amend the Contract and this Agreement when requested by Covered Entity pursuant to this Section; or
- (2) Business Associate does not enter into an amendment to the Contract and this Agreement, which provides assurances regarding the safeguarding of PHI sufficient, in Covered Entity's sole discretion, to satisfy the standards and requirements of the HIPAA, the HIPAA Rules and applicable law.

b. Amendment of Appendix. The Appendix to this Agreement may be modified or amended by the mutual written agreement of the Parties, without amendment of this Agreement. Any modified or amended Appendix agreed to in writing by the Parties shall supersede and replace any prior version of the Appendix.

## 11. Assistance in Litigation or Administrative Proceedings

Covered Entity shall provide written notice to Business Associate if litigation or administrative proceeding is commenced against Covered Entity, its directors, officers, or employees, based on a claimed violation by Business Associate of HIPAA, the HIPAA Rules or other laws relating to security and privacy or PHI. Upon receipt of such notice and to the extent requested by Covered Entity, Business Associate shall, and shall cause its employees, Subcontractors, or agents assisting Business Associate in the performance of its obligations under the Contract to, assist Covered Entity in the defense of such litigation or proceedings. Business Associate shall, and shall cause its employees, Subcontractor's and agents to, provide assistance, to Covered Entity, which may include testifying as a witness at such proceedings. Business Associate or any of its employees, Subcontractors or agents shall not be required to provide such assistance if Business Associate is a named adverse party.

## 12. Interpretation and Order of Precedence

Any ambiguity in this Agreement shall be resolved in favor of a meaning that complies and is consistent with the HIPAA Rules. In the event of an inconsistency between the Contract and this Agreement, this Agreement shall control. This Agreement supersedes and replaces any previous, separately executed HIPAA business associate agreement between the Parties.

## 13. Survival

Provisions of this Agreement requiring continued performance, compliance, or effect after termination shall survive termination of this contract or this agreement and shall be enforceable by Covered Entity.

14. APPENDIX D.1. TO HIPAA BUSINESS ASSOCIATE AGREEMENT, attached to this Exhibit is incorporated and made part hereof.

## APPENDIX D.1 TO HIPAA BUSINESS ASSOCIATE AGREEMENT

This Appendix (“Appendix”) to the HIPAA Business Associate Agreement (“Agreement”) is s an appendix to the Contract and the Agreement. For the purposes of this Appendix, defined terms shall have the meanings ascribed to them in the Agreement and the Contract.

Unless the context clearly requires a distinction between the Contract, the Agreement, and this Appendix, all references to “Contract” or “Agreement” shall include this Appendix.

### 1. Purpose

This Appendix sets forth additional terms to the Agreement. Any sub-section of this Appendix marked as “Reserved” shall be construed as setting forth no additional terms.

### 2. Additional Terms

- a. Additional Permitted Uses. In addition to those purposes set forth in the Agreement, Business Associate may use PHI for the following additional purposes:
  - i. Reserved.
- a. Additional Permitted Disclosures. In addition to those purposes set forth in the Agreement, Business Associate may disclose PHI for the following additional purposes:
  - i. Reserved.
- c. Approved Subcontractors. Covered Entity agrees that the following Subcontractors or agents of Business Associate may receive PHI under the Agreement:
  - i. Reserved.
- d. Definition of Receipt of PHI. Business Associate’s receipt of PHI under this Contract shall be deemed to occur, and Business Associate’s obligations under the Agreement shall commence, as follows:
  - i. Reserved.
- e. Additional Restrictions on Business Associate. Business Associate agrees to comply with the following additional restrictions on Business Associate’s use and disclosure of PHI under the Contract:
  - i. Reserved.
- f. Additional Terms. Business Associate agrees to comply with the following additional terms under the Agreement:
  - i. Reserved.





## EXHIBIT E

### SAFEGUARDING REQUIREMENTS FOR FEDERAL TAX INFORMATION

This Addendum regarding Safeguarding Requirements for Federal Tax Information (“Addendum”)<sup>1</sup> is an essential part of the agreement between the State and Contractor as described in the Contract to which this Addendum is attached. Unless the context clearly requires a distinction between the Contract and this Addendum, all references to “Contract” shall include this Addendum.

#### 1. PERFORMANCE

In performance of this Contract, the Contractor agrees to comply with and assume responsibility for compliance by Contractor’s employees with the following requirements:

- A. All work will be done under the supervision of the Contractor or the Contractor’s employees.
- B. The Contractor and the Contractor’s employees with access to or who use FTI must meet the background check requirements defined in IRS Publication 1075 and Colorado Revised Statutes 24-50-1002.
- C. Any return or return information made available in any format shall be used only for the purpose of carrying out the provisions of this Contract. Information contained in such material will be treated as confidential and will not be divulged or made known in any manner to any person except as may be necessary in the performance of this Contract. Disclosure to anyone other than an officer or employee of the Contractor will be prohibited.
- D. All returns and return information will be accounted for upon receipt and properly stored before, during, and after processing. In addition, all related output will be given the same level of protection as required for the source material.
- E. The Contractor certifies that the data processed during the performance of this Contract will be completely purged from all data storage components of Contractor’s computer facility, and no output will be retained by the Contractor at the time the work is completed. If immediate purging of all data storage components is not possible, the Contractor certifies that any FTI remaining in any storage component will be safeguarded to prevent unauthorized disclosures.
- F. Any spoilage or any intermediate hard copy printout that may result during the processing of FTI will be given to the State or the State’s designee. When this is not possible, the Contractor will be responsible for the destruction of the spoilage or any intermediate hard copy printouts, and will provide the State or the State’s designee with a statement containing the date of destruction, description of material destroyed, and the method used.
- G. All computer systems receiving, processing, storing or transmitting FTI must meet the requirements defined in IRS Publication 1075. To meet functional and assurance requirements, the security features of the environment must provide for the managerial, operational, and technical controls.

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<sup>1</sup> The language of this Addendum is derived from IRS Publication 1075, *Tax Information Security Guidelines For Federal, State and Local Agencies*, Exhibit 7 – Safeguarding Contract Language, “Contract Language for Technology Services.” This Addendum is not exhaustive of all requirements contained in Publication 1075. By agreeing to this Addendum, Contractor agrees to comply with all applicable requirements in Publication 1075 or described on the website of the IRS Safeguards Program, located at [www.irs.gov/privacy-disclosure/safeguards-program](http://www.irs.gov/privacy-disclosure/safeguards-program).

All security features must be available and activated to protect against unauthorized use of and access to FTI.

H. No work involving FTI furnished under this Contract will be subcontracted without prior written approval of the State, by and through the contracting agency and the Office of Information Technology, and the IRS.<sup>2</sup>

I. The Contractor will maintain a list of employees' authorized access. Such list will be provided to the State and, upon request, to the IRS reviewing office.

J. The Contractor will not use live FTI in a test environment or utilize a cloud computing model that receives processes, stores, or transmits FTI without express written authorization from the State.<sup>3</sup>

K. The Contractor will maintain the confidentiality of all taxpayer information provided by the State or learned in the course of Contractor's duties under this Contract in accordance with safeguards set forth under Colorado Revised Statutes § 39-21-113(4), as amended.

L. The Contractor agrees to comply with the following additional requirements in performance of this Contract:

None

M. The State will have the right to void the Contract if the Contractor fails to provide the safeguards described above.

## 2. CRIMINAL/CIVIL SANCTIONS

A. Each officer or employee of any person<sup>4</sup> to whom returns or return information is or may be disclosed will be notified in writing by such person that returns or return information disclosed to such officer or employee can be used only for a purpose and to the extent authorized herein, and that further disclosure of any such returns or return information for a purpose or to an extent unauthorized herein constitutes a felony punishable upon conviction by a fine of as much as \$5,000 or imprisonment for as long as 5 years, or both, together with the costs of prosecution. Such person shall also notify each such officer and employee that any such unauthorized further disclosure of returns or return information may also result in an award of civil damages against the officer or employee in an amount not less than \$1,000 with respect to each instance of unauthorized disclosure. These penalties are prescribed by IRCs 7213 and 7431 and set forth at 26 CFR 301.6103(n)-1.

B. Each officer or employee of any person to whom returns or return information is or may be disclosed shall be notified in writing by such person that any return or return information made available in any format shall be used only for the purpose of carrying out the provisions of this Contract. Information contained in such material shall be treated as confidential and shall not be divulged or made known in any manner to any person except as may be necessary in the performance of the Contract. Inspection by or disclosure to anyone without an official need to know constitutes a criminal

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<sup>2</sup> see IRS Publication 1075, Exhibit 6 – Contractor 45-Day Notification Procedures.

<sup>3</sup> see IRS Publication 1075, Section 9 and <https://www.irs.gov/privacy-disclosure/use-of-live-fti-in-system-testing>.

<sup>4</sup> The term "person" is used in this Section 2 as it is used in Title 26 of the United States Code and related regulations. The term "person" means a person or entity, including "an individual, a trust, estate, partnership, association, company or corporation." 26 U.S.C. § 7701(a)(1).

misdemeanor punishable upon conviction by a fine of as much as \$1,000 or imprisonment for as long as 1 year, or both, together with the costs of prosecution. Such person shall also notify each such officer and employee that any such unauthorized inspection or disclosure of returns or return information may also result in an award of civil damages against the officer or employee in an amount equal to the sum of the greater of \$1,000 for each act of unauthorized inspection or disclosure with respect to which such defendant is found liable or the sum of the actual damages sustained by the plaintiff as a result of such unauthorized inspection or disclosure plus in the case of a willful inspection or disclosure which is the result of gross negligence, punitive damages, plus the costs of the action. These penalties are prescribed by IRC 7213A and 7431 and set forth at 26 CFR 301.6103(n)-1.

C. Additionally, Contractor shall inform its officers and employees of the penalties for improper disclosure imposed by the Privacy Act of 1974, 5 U.S.C. 552a. Specifically, 5 U.S.C. 552a(i)(1), which is made applicable to Contractor by 5 U.S.C. 552a(m)(1), provides that any officer or employee of a Contractor, who by virtue of his/her employment or official position, has possession of or access to State records which contain individually identifiable information, the disclosure of which is prohibited by the Privacy Act or regulations established thereunder, and who knowing that disclosure of the specific material is prohibited, willfully discloses the material in any manner to any person or agency not entitled to receive it, shall be guilty of a misdemeanor and fined not more than \$5,000.

D. Granting a Contractor access to FTI must be preceded by certifying that each individual understands the State's security policy and procedures for safeguarding FTI. Contractors must maintain their authorization to access FTI through annual recertification. The initial certification and recertification must be documented and placed in the State's files for review. As part of the certification and at least annually afterwards, Contractors must be advised of the provisions of IRCs 7431, 7213, and 7213A (see *Exhibit 4, Sanctions for Unauthorized Disclosure*, and *Exhibit 5, Civil Damages for Unauthorized Disclosure*). The training provided before the initial certification and annually thereafter must also cover the incident response policy and procedure for reporting unauthorized disclosures and data breaches.<sup>5</sup> For both the initial certification and the annual certification, the Contractor must sign, either with ink or electronic signature, a confidentiality statement certifying their understanding of the security requirements.

### 3. INSPECTION

The IRS and the State, with 24-hour notice, shall have the right to send its inspectors into the offices and plants of the Contractor to inspect facilities and operations performing any work with FTI under this Contract for compliance with requirements defined in IRS Publication 1075. The IRS's right of inspection shall include the use of manual and/or automated scanning tools to perform compliance and vulnerability assessments of information technology (IT) assets that access, store, process, or transmit FTI. On the basis of such inspection, corrective actions may be required in cases where the Contractor is found to be noncompliant with Contract safeguards.

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<sup>5</sup> see IRS Publication 1075, Section 10 or [www.irs.gov/privacy-disclosure/reporting-improper-inspections-or-disclosures](http://www.irs.gov/privacy-disclosure/reporting-improper-inspections-or-disclosures).



## **PARTICIPATING ADDENDUM EXHIBIT F, INFORMATION TECHNOLOGY PROVISIONS**

This Exhibit regarding Information Technology Provisions (the “Exhibit”) is an essential part of the agreement between the State and Contractor as described in the Contract to which this Exhibit is attached. Unless the context clearly requires a distinction between the Contract and this Exhibit, all references to “Contract” shall include this Exhibit.

### **1. PROTECTION OF SYSTEM DATA**

- A. In addition to the requirements of the main body of this Contract, if Contractor or any Subcontractor is given access to State Information Technology resources or State Records by the State or its agents in connection with Contractor’s performance under the Contract, Contractor shall protect such Information Technology resources and State Records in accordance with this Exhibit. To the extent applicable to the Subcontractor’s scope of work performed in furtherance of the contract, all provisions of this Exhibit that refer to Contractor shall apply equally to any Subcontractor performing work in connection with the Contract.
- B. The terms of this Exhibit shall apply to the extent that Contractor’s obligations under this Contract include the provision of Information Technology goods or services to the State. Information Technology is computer-based equipment and related services designed for the storage, manipulation, and retrieval of data, and includes, without limitation:
  - i. Any technology, equipment, or related services described in §24-37.5-102(2), C.R.S.;
  - ii. The creation, use, processing, disclosure, transmission, or disposal of State Records, including any data or code, in electronic form; and
  - iii. Other existing or emerging technology, equipment, or related services that may require knowledge and expertise in Information Technology.
- C. To the extent the State has purchased the services listed in this Section, Contractor shall, and shall cause its Subcontractors to meet all of the following:
  - i. Provide physical and logical protection for all hardware, software, applications, and data that meets or exceeds industry standards and the requirements of this Contract.
  - ii. Maintain network, system, and application security, which includes, but is not limited to, network firewalls, intrusion detection (host and network), annual

- security testing, and improvements or enhancements consistent with evolving industry standards.
- iii. Comply with State and federal rules and regulations related to overall security, privacy, confidentiality, integrity, availability, and auditing.
  - iv. Provide that security is not compromised by unauthorized access to workspaces, computers, networks, software, databases, or other physical or electronic environments.
  - v. Promptly report all Incidents, including Incidents that do not result in unauthorized disclosure or loss of data integrity, to a designated representative of the State's Office of Information Security ("OIS").
  - vi. Comply with all rules, policies, procedures, and standards issued by the Governor's Office of Information Technology ("OIT"), including change management, project lifecycle methodology and governance, technical standards, documentation, and other requirements posted at [www.oit.state.co.us/about/policies](http://www.oit.state.co.us/about/policies).
- D. Subject to Contractor's reasonable access security requirements and upon reasonable prior notice, Contractor shall provide the State with scheduled access for the purpose of inspecting and monitoring access and use of State Records, maintaining State systems, and evaluating physical and logical security control effectiveness.
- E. Contractor shall perform current background checks in a form reasonably acceptable to the State on all of its respective employees and agents performing services or having access to State Records provided under this Contract, including any Subcontractors or the employees of Subcontractors. A background check performed within 30 days prior to the date such employee or agent begins performance or obtains access to State Records shall be deemed to be current.
- i. Upon request, Contractor shall provide notice to a designated representative for the State indicating that background checks have been performed. Such notice will inform the State of any action taken in response to such background checks, including any decisions not to take action in response to negative information revealed by a background check.
  - ii. If Contractor will have access to Federal Tax Information under the Contract, Contractor shall agree to the State's requirements regarding Safeguarding Requirements for Federal Tax Information and shall comply with the background check requirements defined in IRS Publication 1075 and §24-50-1002, C.R.S.

## 2. DATA HANDLING

- A. Contractor may not maintain or forward these State Records to or from any other facility or location, except for the authorized and approved purposes of backup and disaster recovery purposes, without the prior written consent of the State. Contractor may not



maintain State Records in any data center or other storage location outside the United States for any purpose without the prior express written consent of OIS.

- B. Except for as needed for support services, Contractor shall not allow remote access to State Records from outside the United States, including access by Contractor's employees or agents, without the prior express written consent of OIS. Contractor shall communicate any request regarding non-U.S. access to State Records to the Security and Compliance Representative for the State. The State shall have sole discretion to grant or deny any such request.
- C. Upon request by the State made any time prior to 60 days following the termination of this Contract for any reason, whether or not the Contract is expiring or terminating, Contractor shall make available to the State a complete download file of all State data.
  - i. This download file shall be made available to the State within 10 Business Days of the State's request, shall be encrypted and appropriately authenticated, and shall contain, without limitation, all State Records, Work Product, and system schema and transformation definitions, or delimited text files with documents, detailed schema definitions along with attachments in its native format.
  - ii. Upon the termination of Contractor's provision of data processing services, Contractor shall, as directed by the State, return all State Records provided by the State to Contractor, and the copies thereof, to the State or destroy all such State Records and certify to the State that it has done so. If any legal obligation imposed upon Contractor prevents it from returning or destroying all or part of the State Records provided by the State to Contractor, Contractor shall guarantee the confidentiality of all State Records provided by the State to Contractor and will not actively process such data anymore. Contractor shall not interrupt or obstruct the State's ability to access and retrieve State Records stored by Contractor.
- D. The State retains the right to use the established operational services to access and retrieve State Records stored on Contractor's infrastructure at its sole discretion and at any time. Upon request of the State or of the supervisory authority, Contractor shall submit its data processing facilities for an audit of the measures referred to in this Exhibit in accordance with the terms of this Contract.

### 3. COMPLIANCE

- A. In addition to the compliance obligations imposed by the main body of the Contract, Contractor shall comply with:
  - i. To the extent applicable to the products being sold herein, all information security and privacy obligations imposed by any federal, state, or local statute or regulation, or by any specifically incorporated industry standards or guidelines, as applicable based on the classification of the data relevant to Contractor's performance under the Contract. Such obligations may arise from:
    - a. Health Information Portability and Accountability Act (HIPAA)

- b. IRS Publication 1075
  - c. Payment Card Industry Data Security Standard (PCI-DSS)
  - d. FBI Criminal Justice Information Service Security Addendum
  - e. CMS Minimum Acceptable Risk Standards for Exchanges
  - f. Electronic Information Exchange Security Requirements and Procedures For State and Local Agencies Exchanging Electronic Information With The Social Security Administration
- B. Contractor shall implement and maintain all appropriate administrative, physical, technical, and procedural safeguards necessary and appropriate to ensure compliance with the standards and guidelines applicable to Contractor's performance under the Contract.
- C. Contractor shall allow the State reasonable access and shall provide the State with information reasonably required to assess Contractor's compliance. Such access and information shall include to the extent available:
  - i. An annual SOC2 Type II audit including, at a minimum, the Trust Principles of Security, Confidentiality, and Availability, or an alternative audit recommended by OIS; or
  - ii. The performance of security audit and penetration tests, as requested by OIS.
- D. To the extent Contractor controls or maintains information systems used in connection with State Records, Contractor will provide OIS with the results of all security assessment activities when conducted on such information systems, including any code-level vulnerability scans, application level risk assessments, and other security assessment activities as required by this Contract or reasonably requested by OIS. Contractor will make reasonable efforts to remediate any vulnerabilities or will request a security exception from the State. The State will work with Contractor and OIS to prepare any requests for exceptions from the security requirements described in this Contract and its Exhibits, including mitigating controls and other factors, and OIS will consider such requests in accordance with their policies and procedures referenced herein.

#### **4. TRANSITION OF SERVICES**

Upon request by the State prior to expiration or earlier termination of this Contract or any Services provided in this Contract, Contractor shall provide reasonable and necessary assistance to accomplish a complete transition of the Services from Contractor to the State or any replacement provider designated solely by the State without any interruption of or adverse impact on the Services. Contractor shall cooperate fully with the State or any successor provider and shall promptly take all steps required to assist in effecting a complete transition of the Services designated by the State. All services related to such transition shall be performed at no additional cost beyond what would be paid for the Services in this Contract.

#### **5. LICENSE OR USE AUDIT RIGHTS**

- A. To the extent that Contractor, through this Contract or otherwise as related to the subject matter of this Contract, has granted to the State any license or otherwise limited

permission to use any Contractor Property, subject to the Motorola Software License Agreement, the terms of this section shall apply.

- B. Contractor shall have the right, at any time during and throughout the Contract Term, but not more than once per Fiscal Year, to request via written notice in accordance with the notice provisions of the Contract that the State audit its use of and certify as to its compliance with any applicable license or use restrictions and limitations contained in this Contract (an "Audit Request"). The Audit Request shall specify the time period to be covered by the audit, which shall not include any time periods covered by a previous audit. The State shall complete the audit and provide certification of its compliance to Contractor ("Audit Certification") within 120 days following the State's receipt of the Audit Request.
- C. If upon receipt of the State's Audit Certification, the Parties reasonably determine that: (i) the State's use of licenses, use of software, use of programs, or any other use during the audit period exceeded the use restrictions and limitations contained in this Contract ("Overuse") and (ii) the State would have been or is then required to purchase additional maintenance and/or services ("Maintenance"), Contractor shall provide written notice to the State in accordance with the notice provisions of the Contract identifying any Overuse or required Maintenance and request that the State bring its use into compliance with such use restrictions and limitations.



**MOTOROLA SOLUTIONS**

## Arvada Police Department

06/20/2023

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**Exhibit B**



QUOTE-2206541

06/20/2023

Arvada Police Department  
ARVADA POLICE DEPT, CITY OF  
8101 RALSTON RD  
ARVADA, CO 80002

Dear Erin Green,

Motorola Solutions is pleased to present Arvada Police Department with this quote for quality communications equipment and services. The development of this quote provided us the opportunity to evaluate your requirements and propose a solution to best fulfill your communications needs.

This information is provided to assist you in your evaluation process. Our goal is to provide Arvada Police Department with the best products and services available in the communications industry. Please direct any questions to Amber Geiwitz at [amber.geiwitz@motorolasolutions.com](mailto:amber.geiwitz@motorolasolutions.com).

We thank you for the opportunity to provide you with premier communications and look forward to your review and feedback regarding this quote.

Sincerely,

Amber Geiwitz





QUOTE-2206541

## Billing Address:

ARVADA POLICE DEPARTMENT,  
CITY OF  
ARVADA POLICE DEPT, CITY  
OF  
8101 RALSTON RD  
ARVADA, CO 80002  
US

Quote Date:06/20/2023

Expiration Date:09/18/2023

Quote Created By:

Amber Geiwitz  
amber.geiwitz@  
motorolasolutions.com

End Customer:

Arvada Police Department  
Erin Green  
egreen@arvada.org  
7208987872

| Line # | Item Number | Description                                             | Qty | List Price | Sale Price | Ext. Sale Price |
|--------|-------------|---------------------------------------------------------|-----|------------|------------|-----------------|
| 1      | RLN6544A    | MISSION CRITICAL<br>WIRELESS RSM W/ BATTERY<br>AND CLIP | 1   | \$270.00   | \$197.10   | \$197.10        |

Grand Total

\$197.10(USD)

## Notes:

- Unless otherwise noted, this quote excludes sales tax or other applicable taxes (such as Goods and Services Tax, sales tax, Value Added Tax and other taxes of a similar nature). Any tax the customer is subject to will be added to invoices.



Any sales transaction following Motorola's quote is based on and subject to the terms and conditions of the valid and executed written contract between Customer and Motorola (the "Underlying Agreement") that authorizes Customer to purchase equipment and/or services or license software (collectively "Products"). If no Underlying Agreement exists between Motorola and Customer, then Motorola's Standard Terms of Use and Motorola's Standard Terms and Conditions of Sales and Supply shall govern the purchase of the Products.

Motorola Solutions, Inc.: 500 West Monroe, United States - 60661 ~ #: 36-1115800

**MOTOROLA SOLUTIONS**

## City of Arvada Police Department

KVL5000

07/07/2023

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**Exhibit B**



QUOTE-2225923

07/07/2023

City of Arvada Police Department  
ARVADA POLICE DEPT, CITY OF  
8101 RALSTON RD  
ARVADA, CO 80002

RE: Motorola Quote for KVL5000  
Dear Erin Green,

Motorola Solutions is pleased to present City of Arvada Police Department with this quote for quality communications equipment and services. The development of this quote provided us the opportunity to evaluate your requirements and propose a solution to best fulfill your communications needs.

This information is provided to assist you in your evaluation process. Our goal is to provide City of Arvada Police Department with the best products and services available in the communications industry. Please direct any questions to Amber Geiwitz at [amber.geiwitz@motorolasolutions.com](mailto:amber.geiwitz@motorolasolutions.com).

We thank you for the opportunity to provide you with premier communications and look forward to your review and feedback regarding this quote.

Sincerely,

Amber Geiwitz



QUOTE-2225923  
KVL5000

Billing Address:

ARVADA POLICE DEPARTMENT,  
CITY OF  
ARVADA POLICE DEPT, CITY  
OF  
8101 RALSTON RD  
ARVADA, CO 80002  
US

Quote Date:07/07/2023

Expiration Date:10/05/2023

Quote Created By:

Amber Geiwitz  
amber.geiwitz@  
motorolasolutions.com

End Customer:

City of Arvada Police Department  
Erin Green  
egreen@arvada.org  
7208987872

| Line # | Item Number | Description                                   | Qty | List Price | Sale Price | Ext. Sale Price |
|--------|-------------|-----------------------------------------------|-----|------------|------------|-----------------|
|        | KVL 5000    |                                               |     |            |            |                 |
| 1      | T8476B      | KVL 5000                                      | 1   | \$6,900.00 | \$5,037.00 | \$5,037.00      |
| 1a     | CA00182AW   | ADD: AES ENCRYPTION SOFTWARE                  | 1   | \$0.00     | \$0.00     | \$0.00          |
| 1b     | CA03467AA   | ADD: NORTH AMERICA MICRO USB CHARGER 100/240V | 1   | \$0.00     | \$0.00     | \$0.00          |
| 1c     | CA03358AA   | ADD: ASTRO 25 MODE                            | 1   | \$0.00     | \$0.00     | \$0.00          |
| 1d     | CA00243AJ   | ADD: ADP PRIVACY                              | 1   | \$330.00   | \$240.90   | \$240.90        |
| 2      | HKN6182B    | CABLE KEYLOADING ADAPTER CGAI                 | 1   | \$225.40   | \$164.54   | \$164.54        |
| 3      | TKN8531C    | CABLE, KEYLOAD                                | 1   | \$358.16   | \$261.46   | \$261.46        |

Grand Total **\$5,703.90(USD)**

Notes:

- Unless otherwise noted, this quote excludes sales tax or other applicable taxes (such as Goods and Services Tax, sales tax, Value Added Tax and other taxes of a similar nature). Any tax the customer is subject to will be added to invoices.



Any sales transaction following Motorola's quote is based on and subject to the terms and conditions of the valid and executed written contract between Customer and Motorola (the "Underlying Agreement") that authorizes Customer to purchase equipment and/or services or license software (collectively "Products"). If no Underlying Agreement exists between Motorola and Customer, then Motorola's Standard Terms of Use and Motorola's Standard Terms and Conditions of Sales and Supply shall govern the purchase of the Products.  
Motorola Solutions, Inc.: 500 West Monroe, United States - 60661 ~ #: 36-1115800

**MOTOROLA SOLUTIONS**

**Billing Address:**  
 City of Arvada, Police Department  
 8101 Ralston Road  
 Arvada, Colorado 80002

**Quote Name:** Arvada Police Department Radio Replacement**Quote Date:** 2023-03-07**Expiration Date:** 2023-06-05**Quote Number:** 2073458**Customer:** Arvada Police Department, City of**Contact Name:** Erin Green**Contact Email:** egreen@arvada.org**Contact Phone:** 720-898-7872**Terms and Conditions:** Proposed pricing meets or exceeds NASPO Contract Value, State of Colorado.

| Line # | Item Number                                       | Description                                                                           | Quantity | Unit Price | Ext. Price     |
|--------|---------------------------------------------------|---------------------------------------------------------------------------------------|----------|------------|----------------|
|        | <b>Proposed Option #1</b>                         | <b>APX Series Radios - Basic Configuration, Flashes to Purchase Separately</b>        |          |            |                |
|        | <b>APX™ 6000 Series (Police Portables)</b>        |                                                                                       |          |            |                |
| 1      | H98UCF9PW6BN                                      | APX6000 700/800 MODEL 2.5 PORTABLE.                                                   | 300      | \$4,383.16 | \$1,314,947.10 |
|        | <b>Standalone Items</b>                           |                                                                                       |          |            |                |
| 2      | PMNN4487A (APX6000 Battery)                       | BATT IMPRES 2 LIION R IP68 4850T.                                                     | 300      | \$125.89   | \$37,768.32    |
| 3      | NNTN8860A (APX6000 Single Unit Charger)           | CHARGER, SINGLE-UNIT, IMPRES 2, 3A, 115VAC, US/NA.                                    | 300      | \$97.79    | \$29,335.86    |
| 4      | HLN6875A (APX6000 Belt Clip)                      | BELT CLIP 3 INCH.                                                                     | 300      | \$8.10     | \$2,429.25     |
| 5      | PMMN4099CL (APX4000 & APX6000 Remote Speaker Mic) | AUDIO ACCESSORY-REMOTE SPEAKER MICROPHONE, IP68 REMOTE SPEAKER MICROPHONE, 3.5MM, UL. | 300      | \$82.22    | \$24,664.59    |
|        | <b>APX™ 4500 Enhanced (Police Mobiles)</b>        |                                                                                       |          |            |                |
| 6      | M22URS9PW1BN                                      | APX4500 ENHANCED 7/800 MHZ MOBILE.                                                    | 160      | \$3,751.95 | \$600,311.52   |
|        | <b>APX™ 4000 Series (Public Works Portables)</b>  |                                                                                       |          |            |                |
| 7      | H51UCF9PW6AN                                      | APX 4000 7/800 MHZ MODEL 2 PORT.                                                      | 20       | \$2,823.93 | \$56,478.52    |
|        | <b>Standalone Items</b>                           |                                                                                       |          |            |                |
| 8      | PMNN4448B (APX4000 Battery)                       | BATT IMPRES LIION IP68 2800T.                                                         | 20       | \$92.83    | \$1,856.66     |
| 9      | PMPN4576A (APX4000 Single Unit Charger)           | CHARGER, CHGR DESKTOP SINGLE UNIT IMPRES EXT PS US/NA/TW.                             | 20       | \$47.34    | \$946.74       |
| 10     | PMMN4099CL (APX4000 & APX6000 Remote Speaker Mic) | AUDIO ACCESSORY-REMOTE SPEAKER MICROPHONE, IP68 REMOTE SPEAKER MICROPHONE, 3.5MM, UL. | 20       | \$82.22    | \$1,644.31     |
|        | <b>APX™ 4500 Enhanced (Public Works Mobiles)</b>  |                                                                                       |          |            |                |
| 11     | M22URS9PW1BN                                      | APX4500 ENHANCED 7/800 MHZ MOBILE.                                                    | 70       | \$3,131.99 | \$219,239.62   |

\*Pricing based on bulk purchasing incentive; pricing is based upon the purchase of 580 radios.\*

|                          |                       |
|--------------------------|-----------------------|
| <b>Net Total</b>         | <b>\$2,289,622.48</b> |
| <b>Estimated Tax</b>     | <b>\$0.00</b>         |
| <b>Estimated Freight</b> | <b>\$0.00</b>         |
| <b>Grand Total</b>       | <b>\$2,289,622.48</b> |

|   | A La Carte Pricing                        |                                  |                   |              |
|---|-------------------------------------------|----------------------------------|-------------------|--------------|
|   | APX™ 6000 Series (Police Portables)       |                                  |                   |              |
| 1 | G996AX                                    | ENH: PROGRAMMING OVER P25 (OTAP) | 300               | \$27,813.00  |
| 2 | QA09008A                                  | ADD: GROUP SERVICES FLP          | 300               | \$41,610.00  |
|   | APX™ 4500 Enhanced (Police Mobiles)       |                                  |                   |              |
| 3 | G996AW                                    | ENH: PROGRAMMING OVER P25 (OTAP) | 160               | \$14,833.60  |
| 4 | GA09008AB                                 | ADD: GROUP SERVICES FLP          | 160               | \$22,192.00  |
|   | APX™ 4000 Series (Public Works Portables) |                                  |                   |              |
| 5 | G996AX                                    | ENH: PROGRAMMING OVER P25 (OTAP) | 20                | \$1,854.20   |
| 6 | QA09008A                                  | ADD: GROUP SERVICES FLP          | 20                | \$2,774.00   |
|   | APX™ 4500 Enhanced (Public Works Mobiles) |                                  |                   |              |
| 7 | G996AW                                    | ENH: PROGRAMMING OVER P25 (OTAP) | 70                | \$6,489.70   |
| 8 | GA09008AB                                 | ADD: GROUP SERVICES FLP          | 70                | \$9,709.00   |
|   |                                           |                                  | Net Total         | \$127,275.50 |
|   |                                           |                                  | Estimated Tax     | \$0.00       |
|   |                                           |                                  | Estimated Freight | \$0.00       |
|   |                                           |                                  | Grand Total       | \$127,275.50 |



| Category                                                                            | Part Number  | Description                        | Unit List  | Discount | Sale Price |
|-------------------------------------------------------------------------------------|--------------|------------------------------------|------------|----------|------------|
| <b>Category 1.1 Radio: Single-Band Portable Radio (P25) APX900</b>                  |              |                                    |            |          |            |
|                                                                                     | H92UCF9PW6AN | APX900 7/800 MODEL 2               | \$1,974.00 | 27%      | \$1,441.02 |
|                                                                                     | QA04096      | P25 TRUNKING                       | \$1,177.00 | 27%      | \$859.21   |
|                                                                                     | QA06653      | AES 256 SW ENCRYPTION              | \$358.00   | 27%      | \$261.34   |
| <b>Category 1.1 Radio: Single-Band Portable Radio (P25) APX900 Warranty Options</b> |              |                                    |            |          |            |
|                                                                                     | H885         | 3 YEAR ESSENTIAL SERVICE           | \$133.00   | 0%       | \$133.00   |
|                                                                                     | Q887         | 5 YEAR ESSENTIAL SERVICE           | \$222.00   | 0%       | \$222.00   |
| <b>Category 1.1 Radio: Single-Band Portable Radio (P25) APX6000</b>                 |              |                                    |            |          |            |
|                                                                                     | H98UCF9PW6BN | APX6000 700/800 MODEL 2.5 PORTABLE | \$3,595.00 | 27%      | \$2,624.35 |
|                                                                                     | Q361         | P25 9600 BAUD TRUNKING             | \$330.00   | 27%      | \$240.90   |
|                                                                                     | H38          | ADD: SMARTZONE OPERATION           | \$1,320.00 | 27%      | \$963.60   |
|                                                                                     | Q806         | ASTRO DIGITAL                      | \$567.00   | 27%      | \$413.91   |
|                                                                                     | Q629         | AES ENCRYPTION                     | \$523.00   | 27%      | \$381.79   |
| <b>Category 1.1 Radio: Single-Band Portable Radio (P25) APX600 Warranty Options</b> |              |                                    |            |          |            |
|                                                                                     | Q58          | 3 YEAR ESSENTIAL SERVICE           | \$184.00   | 0%       | \$184.00   |
|                                                                                     | Q887         | 5 YEAR ESSENTIAL SERVICE           | \$306.00   | 0%       | \$306.00   |
| <b>Category 1.2 Radio: Single-Band Mobile Radio (P25) APX1500</b>                   |              |                                    |            |          |            |
|                                                                                     | M36URS9PW1BN | APX1500 ENHANCED 7/800 MHZ MOBILE  | \$1,932.00 | 27%      | \$1,410.36 |
|                                                                                     | GA01547      | AES 256 SW ENCRYPTION              | \$523.00   | 27%      | \$381.79   |
|                                                                                     | GA00235      | NO GPS ANTENNA                     | \$0.00     | 27%      | \$0.00     |
|                                                                                     | G66          | DASH MOUNT O2                      | \$138.00   | 27%      | \$100.74   |
|                                                                                     | B18          | AUXILIARY SPEAKER 7.5W NON WATER   | \$66.00    | 27%      | \$48.18    |
|                                                                                     | GA00804      | O2 CONTROL HEAD                    | \$541.00   | 27%      | \$394.93   |
|                                                                                     | G89          | NO RF ANTENNA                      | \$0.00     | 27%      | \$0.00     |
|                                                                                     | GA01339      | P25 TRUNKING                       | \$1,177.00 | 27%      | \$859.21   |
|                                                                                     | G444         | CONTROL HEAD SOFTWARE              | \$0.00     | 27%      | \$0.00     |
|                                                                                     | W22          | STANDARD PALM MICROPHONE           | \$79.00    | 27%      | \$57.67    |
| <b>Category 1.2 Radio: Single-Band Mobile Radio (P25) APX1500 Warranty Options</b>  |              |                                    |            |          |            |
|                                                                                     | G24          | 3 YEAR ESSENTIAL SERVICE           | \$216.00   | 0%       | \$216.00   |
|                                                                                     | GA00318      | 5 YEAR ESSENTIAL SERVICE           | \$360.00   | 0%       | \$360.00   |
| <b>Category 1.2 Radio: Single-Band Mobile Radio (P25) APX6500</b>                   |              |                                    |            |          |            |
|                                                                                     | M25URS9PW1BN | APX6500 ENHANCED 7/800 MHZ MOBILE  | \$3,383.00 | 27%      | \$2,469.59 |

Exhibit C

|                                                                                     |                                   |            |     |            |
|-------------------------------------------------------------------------------------|-----------------------------------|------------|-----|------------|
| G66                                                                                 | DASH MOUNT                        | \$138.00   | 27% | \$100.74   |
| G51                                                                                 | SMARTZONE                         | \$1,320.00 | 27% | \$963.60   |
| GA01606                                                                             | NO GPS ANTENNA                    | \$0.00     | 27% | \$0.00     |
| B18                                                                                 | AUXILIARY SPEAKER 7.5W NON WATER  | \$66.00    | 27% | \$48.18    |
| G843                                                                                | AES ENCRYPTION                    | \$523.00   | 27% | \$381.79   |
| G89                                                                                 | NO RF ANTENNA                     | \$0.00     | 27% | \$0.00     |
| G444                                                                                | CONTROL HEAD SOFTWARE             | \$0.00     | 27% | \$0.00     |
| G806                                                                                | ASTRO DIGITAL                     | \$567.00   | 27% | \$413.91   |
| GA01670                                                                             | APX E5 CONTROL HEAD               | \$717.00   | 27% | \$523.41   |
| W22                                                                                 | STANDARD PALM MICROPHONE          | \$79.00    | 27% | \$57.67    |
| G361                                                                                | P25 TRUNKING                      | \$330.00   | 27% | \$240.90   |
| <b>Category 1.2 Radio: Single-Band Mobile Radio (P25) APX6500 Warranty Options</b>  |                                   |            |     |            |
| G78                                                                                 | 3 YEAR ESSENTIAL SERVICE          | \$288.00   | 0%  | \$288.00   |
| GA00318                                                                             | 5 YEAR ESSENTIAL SERVICE          | \$480.00   | 0%  | \$480.00   |
| <b>Category 1.3 Radio: Single-Band Desktop Radio (P25) APX1500</b>                  |                                   |            |     |            |
| M36URS9PW1BN                                                                        | APX1500 ENHANCED 7/800 MHZ MOBILE | \$1,932.00 | 27% | \$1,410.36 |
| GA01547                                                                             | AES 256 SW ENCRYPTION             | \$523.00   | 27% | \$381.79   |
| GA00235                                                                             | NO GPS ANTENNA                    | \$0.00     | 27% | \$0.00     |
| G66                                                                                 | DASH MOUNT O2                     | \$138.00   | 27% | \$100.74   |
| G142                                                                                | NO SPEAKER                        | \$0.00     | 27% | \$0.00     |
| GA00804                                                                             | O2 CONTROL HEAD                   | \$541.00   | 27% | \$394.93   |
| G89                                                                                 | NO RF ANTENNA                     | \$0.00     | 27% | \$0.00     |
| GA01339                                                                             | P25 TRUNKING                      | \$1,177.00 | 27% | \$859.21   |
| G444                                                                                | CONTROL HEAD SOFTWARE             | \$0.00     | 27% | \$0.00     |
| W382                                                                                | CONTROL STATION DESK MIC          | \$186.00   | 27% | \$135.78   |
| W665                                                                                | BASE STATION OP                   | \$77.00    | 27% | \$56.21    |
| <b>Category 1.3 Radio: Single-Band Desktop Radio (P25) APX1500 Warranty Options</b> |                                   |            |     |            |
| G24                                                                                 | 3 YEAR ESSENTIAL SERVICE          | \$216.00   | 0%  | \$216.00   |
| GA00318                                                                             | 5 YEAR ESSENTIAL SERVICE          | \$360.00   | 0%  | \$360.00   |
| <b>Category 1.4 Radio: Multi-Band Portable Radio (P25) APX8000</b>                  |                                   |            |     |            |
| H91TGD9PW5AN                                                                        | APX8000 7/800 MODEL 1.5           | \$7,138.00 | 27% | \$5,210.74 |
| Q806                                                                                | ASTRO DIGITAL                     | \$567.00   | 27% | \$413.91   |
| Q361                                                                                | P25 TRUNKING                      | \$330.00   | 27% | \$240.90   |
| H38                                                                                 | SMARTZONE                         | \$1,650.00 | 27% | \$1,204.50 |

|                                                                                      |                                  |            |     |            |
|--------------------------------------------------------------------------------------|----------------------------------|------------|-----|------------|
| Q629                                                                                 | AES                              | \$523.00   | 27% | \$381.79   |
| <b>Category 1.4 Radio: Multi-Band Portable Radio (P25) APX8000 Warranty Options</b>  |                                  |            |     |            |
| Q58                                                                                  | 3 YEAR ESSENTIAL SERVICE         | \$184.00   | 0%  | \$184.00   |
| Q887                                                                                 | 5 YEAR ESSENTIAL SERVICE         | \$306.00   | 0%  | \$306.00   |
| <b>Category 1.4 Radio: Multi-Band Portable Radio (P25) APXNEXT Device</b>            |                                  |            |     |            |
| H55TG9PW8AN                                                                          | APX NEXT                         | \$8,241.00 | 27% | \$6,015.93 |
| H38                                                                                  | SMARTZONE                        | \$1,650.00 | 27% | \$1,204.50 |
| Q806                                                                                 | ASTRO DIGITAL                    | \$567.00   | 27% | \$413.91   |
| Q629                                                                                 | AES                              | \$523.00   | 27% | \$381.79   |
| Q361                                                                                 | P25 TRUNKING                     | \$330.00   | 27% | \$240.90   |
| <b>Category 1.4 Radio: Multi-Band Portable Radio (P25) APX NEXT Warranty Options</b> |                                  |            |     |            |
| LSV01S01414                                                                          | 3 YEAR ESSENTIAL SERVICE         | \$206.00   | 0%  | \$206.00   |
| LSV01S01414                                                                          | 5 YEAR ESSENTIAL SERVICE         | \$344.00   | 0%  | \$344.00   |
| <b>Category 1.5 Radio: Multi-Band Mobile Radio (P25) APX8500</b>                     |                                  |            |     |            |
| M37TSS9PW1AN                                                                         | APX8500 MP MOBILE                | \$5,894.00 | 27% | \$4,302.62 |
| G66                                                                                  | DASH MOUNT                       | \$138.00   | 27% | \$100.74   |
| G51                                                                                  | SMARTZONE                        | \$1,650.00 | 27% | \$1,204.50 |
| GA01606                                                                              | NO GPS ANTENNA                   | \$0.00     | 27% | \$0.00     |
| B18                                                                                  | AUXILIARY SPEAKER 7.5W NON WATER | \$66.00    | 27% | \$48.18    |
| G843                                                                                 | AES ENCRYPTION                   | \$523.00   | 27% | \$381.79   |
| G89                                                                                  | NO RF ANTENNA                    | \$0.00     | 27% | \$0.00     |
| G444                                                                                 | APX CONTROL HEAD SOFTWARE        | \$0.00     | 27% | \$0.00     |
| GA01517                                                                              | NO ADAPTER CABLE                 | \$0.00     | 27% | \$0.00     |
| GA01670                                                                              | E5 CONTROL HEAD                  | \$717.00   | 27% | \$523.41   |
| W22                                                                                  | STANDARD PALM MICROPHONE         | \$79.00    | 27% | \$57.67    |
| G361                                                                                 | P25 TRUNKING SOFTWARE            | \$330.00   | 27% | \$240.90   |
| G806                                                                                 | ASTRO DIGITAL                    | \$567.00   | 27% | \$413.91   |
| <b>Category 1.5 Radio: Multi-Band Mobile Radio (P25) APX8500 Warranty Options</b>    |                                  |            |     |            |
| G87                                                                                  | 3 YEAR ESSENTIAL SERVICE         | \$288.00   | 0%  | \$288.00   |
| GA00318                                                                              | 5 YEAR ESSENTIAL SERVICE         | \$480.00   | 0%  | \$480.00   |
| <b>Category 1.6 Radio: Multi-Band Desktop Radio (P25) APX8500</b>                    |                                  |            |     |            |
| M37TSS9PW1AN                                                                         | APX8500 MP MOBILE                | \$5,894.00 | 27% | \$4,302.62 |
| W665                                                                                 | BASE STATION OP                  | \$77.00    | 27% | \$4,136.91 |
| G66                                                                                  | DASH MOUNT                       | \$138.00   | 27% | \$100.74   |

|                                                                                    |                                   |             |     |             |
|------------------------------------------------------------------------------------|-----------------------------------|-------------|-----|-------------|
| G51                                                                                | SMARTZONE                         | \$1,650.00  | 27% | \$1,204.50  |
| GA00235                                                                            | NO GPS ANTENNA                    | \$0.00      | 27% | \$0.00      |
| G142                                                                               | NO SPEAKER                        | \$0.00      | 27% | \$48.18     |
| G843                                                                               | AES ENCRYPTION                    | \$523.00    | 27% | \$381.79    |
| G89                                                                                | NO RF ANTENNA                     | \$0.00      | 27% | \$0.00      |
| G444                                                                               | APX CONTROL HEAD SOFTWARE         | \$0.00      | 27% | \$0.00      |
| GA01517                                                                            | NO ADAPTER CABLE                  | \$0.00      | 27% | \$0.00      |
| GA01670                                                                            | E5 CONTROL HEAD                   | \$717.00    | 27% | \$523.41    |
| W382                                                                               | CONTROL STATION DESK MIC          | \$186.00    | 27% | \$57.67     |
| G361                                                                               | P25 TRUNKING SOFTWARE             | \$330.00    | 27% | \$240.90    |
| G806                                                                               | ASTRO DIGITAL                     | \$567.00    | 27% | \$413.91    |
| <b>Category 1.6 Radio: Multi-Band Desktop Radio (P25) APX8500 Warranty Options</b> |                                   |             |     |             |
| G87                                                                                | 3 YEAR ESSENTIAL SERVICE          | \$288.00    | 0%  | \$288.00    |
| GA00318                                                                            | 5 YEAR ESSENTIAL SERVICE          | \$480.00    | 0%  | \$480.00    |
| <b>Category 1.7 Base Station Repeater</b>                                          |                                   |             |     |             |
| T7039                                                                              | GTR8000 BASE RADIO                | \$0.00      | 20% | \$0.00      |
| CA03863                                                                            | ASTRO SYSTEM RELEASE              | \$0.00      | 20% | \$0.00      |
| X530                                                                               | VHF BAND                          | \$6,300.00  | 20% | \$5,040.00  |
| X591                                                                               | ASTRO 25 SITE REPEATER SW         | \$25,000.00 | 20% | \$20,000.00 |
| <b>Category 2.1 Radio: Narrow Band Portable, Non P25</b>                           |                                   |             |     |             |
| H84UCD9PW5AN                                                                       | APX1000                           | \$1,391.00  | 27% | \$1,015.43  |
| QA04097                                                                            | CONVENTIONAL                      | \$385.00    | 27% | \$281.05    |
| Q667                                                                               | ADP                               | \$0.00      | 27% | \$0.00      |
| <b>Category 2.1 Radio: Narrow Band Portable, Non P25 Warranty Options</b>          |                                   |             |     |             |
| H885                                                                               | 3 YEAR ESSENTIAL SERVICE          | \$133.00    | 0%  | \$133.00    |
| Q887                                                                               | 5 YEAR ESSENTIAL SERVICE          | \$222.00    | 0%  | \$222.00    |
| <b>Category 2.2 Radio: Narrow Band Mobile, Non P25</b>                             |                                   |             |     |             |
| M36URS9PW1BN                                                                       | APX1500 ENHANCED 7/800 MHZ MOBILE | \$1,932.00  | 27% | \$1,410.36  |
| G193                                                                               | ADP                               | \$0.00      | 27% | \$0.00      |
| GA00235                                                                            | NO GPS ANTENNA                    | \$0.00      | 27% | \$0.00      |
| G66                                                                                | DASH MOUNT O2                     | \$138.00    | 27% | \$100.74    |
| B18                                                                                | AUXILIARY SPEAKER 7.5W NON WATER  | \$66.00     | 27% | \$48.18     |
| GA00804                                                                            | O2 CONTROL HEAD                   | \$541.00    | 27% | \$394.93    |
| G89                                                                                | NO RF ANTENNA                     | \$0.00      | 27% | \$0.00      |

|                                                                                       |                                      |            |     |            |
|---------------------------------------------------------------------------------------|--------------------------------------|------------|-----|------------|
| Q811                                                                                  | CONVENTIONAL                         | \$811.00   | 27% | \$592.03   |
| G444                                                                                  | CONTROL HEAD SOFTWARE                | \$0.00     | 27% | \$0.00     |
| W22                                                                                   | STANDARD PALM MICROPHONE             | \$79.00    | 27% | \$57.67    |
| <b>Category 2.2 Radio: Narrow Band Mobile, Non P25 Warranty Options</b>               |                                      |            |     |            |
| G24                                                                                   | 3 YEAR ESSENTIAL SERVICE             | \$216.00   | 0%  | \$216.00   |
| GA00318                                                                               | 5 YEAR ESSENTIAL SERVICE             | \$360.00   | 0%  | \$360.00   |
| <b>Category 2.3 Radio: Narrow Band Desktop Radio Non P25 APX1500</b>                  |                                      |            |     |            |
| M36URS9PW1BN                                                                          | APX1500 ENHANCED 7/800 MHZ MOBILE    | \$1,932.00 | 27% | \$1,410.36 |
| G193                                                                                  | ADP                                  | \$0.00     | 27% | \$0.00     |
| GA00235                                                                               | NO GPS ANTENNA                       | \$0.00     | 27% | \$0.00     |
| G66                                                                                   | DASH MOUNT O2                        | \$138.00   | 27% | \$100.74   |
| G142                                                                                  | NO SPEAKER                           | \$0.00     | 27% | \$0.00     |
| GA00804                                                                               | O2 CONTROL HEAD                      | \$541.00   | 27% | \$394.93   |
| G89                                                                                   | NO RF ANTENNA                        | \$0.00     | 27% | \$0.00     |
| Q811                                                                                  | CONVENTIONAL                         | \$811.00   | 27% | \$592.03   |
| G444                                                                                  | CONTROL HEAD SOFTWARE                | \$0.00     | 27% | \$0.00     |
| W382                                                                                  | CONTROL STATION DESK MIC             | \$186.00   | 27% | \$135.78   |
| W665                                                                                  | BASE STATION OP                      | \$77.00    | 27% | \$56.21    |
| <b>Category 2.3 Radio: Narrow Band Desktop Radio Non P25 APX1500 Warranty Options</b> |                                      |            |     |            |
| G24                                                                                   | 3 YEAR ESSENTIAL SERVICE             | \$216.00   | 0%  | \$216.00   |
| GA00318                                                                               | 5 YEAR ESSENTIAL SERVICE             | \$360.00   | 0%  | \$360.00   |
| <b>Category 2.4 Base Station Repeater</b>                                             |                                      |            |     |            |
| T7039                                                                                 | GTR8000 BASE RADIO                   | \$0.00     | 20% | \$0.00     |
| CA03863                                                                               | ASTRO SYSTEM RELEASE                 | \$0.00     | 20% | \$0.00     |
| X530                                                                                  | VHF BAND                             | \$6,300.00 | 20% | \$5,040.00 |
| CA01949                                                                               | CONVENTIONAL                         | \$7,450.00 | 20% | \$5,960.00 |
| <b>Category 4 Dispatch Consoles</b>                                                   |                                      |            |     |            |
| B1949                                                                                 | MCC 7500E SOFTWARE DVD               | \$250.00   | 15% | \$212.50   |
| B1948                                                                                 | MCC 7500E DISPATCH POSITION LICENSE  | \$0.00     | 15% | \$0.00     |
| UA00249AA                                                                             | ADD: 15 RADIO RESOURCES LICENSE      | \$3,675.00 | 15% | \$3,123.75 |
| UA00655AA                                                                             | ADD: ADVANCED CONVENTIONAL OPERATION | \$3,960.00 | 15% | \$3,366.00 |
| UA00653AA                                                                             | ADD: BASIC CONSOLE OPERATION         | \$5,280.00 | 15% | \$4,488.00 |
| UA00661AA                                                                             | ADD: ENHANCED IRR                    | \$3,000.00 | 15% | \$2,550.00 |
| UA00657AA                                                                             | ADD: TELEPHONY OPERATION             | \$1,200.00 | 15% | \$1,020.00 |

|               |                                     |             |     |             |
|---------------|-------------------------------------|-------------|-----|-------------|
| T7039         | GTR 8000 Base Radio                 | \$0.00      | 20% | \$0.00      |
| CA03863       | ADD: ASTRO SYSTEM RELEASE 2022.1    | \$0.00      | 20% | \$0.00      |
| CA01948AA     | ADD: DIGITAL CONVENTIONAL SOFTWARE  | \$16,900.00 | 20% | \$13,520.00 |
| X153AW        | ADD: RACK MOUNT HARDWARE            | \$50.00     | 20% | \$40.00     |
| X530BG        | ADD: VHF (136-174 MHZ)              | \$6,300.00  | 20% | \$5,040.00  |
| T7039         | GTR 8000 Base Radio                 | \$0.00      | 20% | \$0.00      |
| CA03863       | ADD: ASTRO SYSTEM RELEASE 2022.1    | \$0.00      | 20% | \$0.00      |
| CA01948AA     | ADD: DIGITAL CONVENTIONAL SOFTWARE  | \$16,900.00 | 20% | \$13,520.00 |
| X153AW        | ADD: RACK MOUNT HARDWARE            | \$50.00     | 20% | \$40.00     |
| X530BG        | ADD: VHF (136-174 MHZ)              | \$6,300.00  | 20% | \$5,040.00  |
| T7039         | GTR 8000 Base Radio                 | \$0.00      | 20% | \$0.00      |
| CA03863       | ADD: ASTRO SYSTEM RELEASE 2022.1    | \$0.00      | 20% | \$0.00      |
| CA01948AA     | ADD: DIGITAL CONVENTIONAL SOFTWARE  | \$16,900.00 | 20% | \$13,520.00 |
| X153AW        | ADD: RACK MOUNT HARDWARE            | \$50.00     | 20% | \$40.00     |
| X530BG        | ADD: VHF (136-174 MHZ)              | \$6,300.00  | 20% | \$5,040.00  |
| T7039         | GTR 8000 Base Radio                 | \$0.00      | 20% | \$0.00      |
| CA03863       | ADD: ASTRO SYSTEM RELEASE 2022.1    | \$0.00      | 20% | \$0.00      |
| CA01948AA     | ADD: DIGITAL CONVENTIONAL SOFTWARE  | \$16,900.00 | 20% | \$13,520.00 |
| X153AW        | ADD: RACK MOUNT HARDWARE            | \$50.00     | 20% | \$40.00     |
| X530BG        | ADD: VHF (136-174 MHZ)              | \$6,300.00  | 20% | \$5,040.00  |
| DSDS4345D4B   | DS4345D-4-B, 148-160MHZ 4 CH TX COM | \$15,024.00 | 10% | \$13,521.60 |
| DSDSRMC0608AA | RMC06, 8 CH HIGH GAIN AMP UNIV RMC  | \$3,624.00  | 10% | \$3,261.60  |
| DSMWF1BUN     | 137-174MHZ UNI WINDOW MILLED FILTER | \$3,611.00  | 10% | \$3,249.90  |
| DSDS1F00P36UM | 150-164 MHZ, VHF ANTENNA, OMNIDIREC | \$1,980.00  | 10% | \$1,782.00  |
| DSAT012J50    | AT012J50, 1/2" TRANSMISSION LINE,50 | \$2.15      | 10% | \$1.72      |
| DSDMA01250B   | 7/16 DIN MALE FOR 1/2 CABLE (USE WI | \$35.25     | 10% | \$31.73     |
| DSNMA01250B   | N MALE FOR 1/2 CABLE (USE WITH CT01 | \$25.25     | 10% | \$22.73     |
| DSVHF50DMAPGR | RF SPD, 100-512MHZ, DC BLOCK HIGH P | \$208.00    | 10% | \$187.20    |
| SQM01SUM0237  | SINGLE ZONE CONV NON-RED CORE       | \$26,943.00 | 20% | \$21,554.40 |



|                |                                     |            |     |            |
|----------------|-------------------------------------|------------|-----|------------|
| CA01663AB      | ADD: RACK                           | \$495.00   | 20% | \$396.00   |
| CA01896AB      | ADD: BACKHAUL SWITCH                | \$3,259.00 | 20% | \$2,607.20 |
| SQM01SUM0205   | GGM 8000 GATEWAY                    | \$5,250.00 | 15% | \$4,462.50 |
| CA01616AA      | ADD: AC POWER                       | \$0.00     | 15% | \$0.00     |
| CA02141AA      | ADD: LOW DENSITY ENH CONV GATEWAY   | \$3,000.00 | 15% | \$2,550.00 |
| DS430501A04SH  | SHORT HAUL CONTROL STATION COMBINER | \$1,925.00 | 10% | \$1,732.50 |
| DSAT012J50     | AT012J50, 1/2" TRANSMISSION LINE,50 | \$2.15     | 10% | \$1.72     |
| DSIS50NXC2MA   | RF SPD, 125-1000MHZ DC BLOCK FLANGE | \$87.00    | 10% | \$78.30    |
| DSNMA01250B    | N MALE FOR 1/2 CABLE (USE WITH CT01 | \$35.25    | 10% | \$31.73    |
| DSNFA01250B    | N FEMALE FOR 1/2 CABLE (USE WITH CT | \$39.00    | 10% | \$35.10    |
| DSDS1X00CS36UN | 148-174MHZ UNITY GAIN CONTROL STATI | \$1,237.00 | 10% | \$1,113.30 |

**Category Radio System Solutions Trunking Sample**

|               |                                     |             |     |             |
|---------------|-------------------------------------|-------------|-----|-------------|
| SQM01SUM7054  | GTR 8000 EXPANDABLE SITE SUBSYSTEM  | \$6,000.00  | 20% | \$4,800.00  |
| CA00303AA     | ADD: QTY (1) SITE CONTROLLER        | \$2,500.00  | 20% | \$2,000.00  |
| CA03863AA     | ADD: ASTRO SYSTEM RELEASE 2022.1    | \$0.00      | 20% | \$0.00      |
| CA01402AA     | ADD: 7.0 FT OPEN RACK               | \$495.00    | 20% | \$396.00    |
| CA01431AA     | ADD: ASTRO 25 EXPRESS SYSTEM SITE   | \$7,500.00  | 20% | \$6,000.00  |
| CA02686AA     | ADD: AC DC POWER DISTRIBUTION       | \$0.00      | 20% | \$0.00      |
| X304AE        | ADD: QTY (4) GTR 8000 BASE RADIOS   | \$23,600.00 | 20% | \$18,880.00 |
| X591AE        | ENH: ASTRO 25 SITE REPEATER SW      | \$25,000.00 | 20% | \$20,000.00 |
| X530BG        | ADD: VHF (136-174 MHZ)              | \$6,300.00  | 20% | \$5,040.00  |
| DSDSRMC0608AA | RMC06, 8 CH HIGH GAIN AMP UNIV RMC  | \$3,624.00  | 10% | \$3,261.60  |
| DSDS4345D4B   | DS4345D-4-B, 148-160MHZ 4 CH TX COM | \$15,024.00 | 10% | \$13,521.60 |
| DSDS1F00P36UM | 150-164 MHZ, VHF ANTENNA, OMNIDIREC | \$1,980.00  | 10% | \$1,782.00  |
| DSMWF1BUN     | 137-174MHZ UNI WINDOW MILLED FILTER | \$3,611.00  | 10% | \$3,249.90  |
| DSVHF50DMAPGR | RF SPD, 100-512MHZ, DC BLOCK HIGH P | \$208.00    | 10% | \$187.20    |
| DSAT012J50    | AT012J50, 1/2" TRANSMISSION LINE,50 | \$2.15      | 10% | \$1.94      |
| DSDMA01250B   | 7/16 DIN MALE FOR 1/2 CABLE (USE WI | \$35.25     | 10% | \$31.73     |
| DSNMA01250B   | N MALE FOR 1/2 CABLE (USE WITH CT01 | \$35.25     | 10% | \$31.73     |
| SQM01SUM0237  | SINGLE ZONE CONV NON-RED CORE       | \$26,943.00 | 20% | \$21,554.40 |
| CA01663AB     | ADD: RACK                           | \$495.00    | 20% | \$396.00    |
| CA01896AB     | ADD: BACKHAUL SWITCH                | \$3,259.00  | 20% | \$2,607.20  |
| SQM01SUM0205  | GGM 8000 GATEWAY                    | \$5,250.00  | 10% | \$4,725.00  |
| CA01616AA     | ADD: AC POWER                       | \$0.00      | 10% | \$0.00      |

|                |                                     |            |     |            |
|----------------|-------------------------------------|------------|-----|------------|
| CA02141AA      | ADD: LOW DENSITY ENH CONV GATEWAY   | \$3,000.00 | 10% | \$2,700.00 |
| DS430501A04SH  | SHORT HAUL CONTROL STATION COMBINER | \$1,925.00 | 10% | \$1,732.50 |
| DSAT012J50     | AT012J50, 1/2" TRANSMISSION LINE,50 | \$2.15     | 10% | \$1.94     |
| DSIS50NXC2MA   | RF SPD, 125-1000MHZ DC BLOCK FLANGE | \$87.00    | 10% | \$78.30    |
| DSNMA01250B    | N MALE FOR 1/2 CABLE (USE WITH CT01 | \$35.25    | 10% | \$31.73    |
| DSNFA01250B    | N FEMALE FOR 1/2 CABLE (USE WITH CT | \$39.00    | 10% | \$35.10    |
| DSDS1X00CS36UN | 148-174MHZ UNITY GAIN CONTROL STATI | \$1,237.00 | 10% | \$1,113.30 |

**Services**

|                                                                                                |                    |
|------------------------------------------------------------------------------------------------|--------------------|
| Consultation                                                                                   | \$ 240.00 Per hour |
| Project Management                                                                             | \$ 240.00 Per hour |
| Impementation                                                                                  | \$ 240.00 Per hour |
| Installation                                                                                   | \$ 240.00 Per hour |
| Configuration/Desgin                                                                           | \$ 240.00 Per hour |
| Radio Programming                                                                              | \$ 240.00 Per hour |
| Product Recycling/Buy Back                                                                     | No Cost            |
| Training                                                                                       | \$ 320.00 Per hour |
| Maintenance/Repair                                                                             | \$ 240.00 Per hour |
| Encryption (AES-256 software upgrade, single-key                                               | \$ 135.00 Per hour |
| Encryption (AES-256 software upgrade, multi-key                                                | \$ 145.00 Per hour |
| Customer Service Support, regular business hours                                               | \$ 240.00 Per hour |
| Customer Service Support, after-hours business hours                                           | \$ 240.00 Per hour |
| Technical Support, regular business hours                                                      | \$ 240.00 Per hour |
| Technical Support, after-hours                                                                 | \$ 240.00 Per hour |
| Other (Cybersecurity, Microwave propration Study, Essential Services, Premier offerings, etc.) | \$ 240.00 Per hour |

**Additional Items**

|                                                                                                   |                       |
|---------------------------------------------------------------------------------------------------|-----------------------|
| APX Radio Software Features and Accessories                                                       | 27% Discount off List |
| Alternative APX Radio Single or Multi-Band Radio                                                  | 27% Discount off List |
| GTR8000 Base Station Software Features and Accessories                                            | 20% Discount off List |
| MCC7500 Console Software Features and Accessories                                                 | 15% Discount off List |
| Conventional and Trunked Radio System Network Management, Data, and Interoperability Applications | 20% Discount off List |
| Conventional and Trunked Radio System Combiner and Antenna Systems                                | 10% Discount off List |

| Category                                                                            | Part Number  | Description                        | Unit List  | Discount | Sale Price |
|-------------------------------------------------------------------------------------|--------------|------------------------------------|------------|----------|------------|
| <b>Category 1.1 Radio: Single-Band Portable Radio (P25) APX900</b>                  |              |                                    |            |          |            |
|                                                                                     | H92UCF9PW6AN | APX900 7/800 MODEL 2               | \$1,898.00 | 27%      | \$1,385.54 |
|                                                                                     | QA04096      | P25 TRUNKING                       | \$1,177.00 | 27%      | \$859.21   |
|                                                                                     | QA06653      | AES 256 SW ENCRYPTION              | \$358.00   | 27%      | \$261.34   |
| <b>Category 1.1 Radio: Single-Band Portable Radio (P25) APX900 Warranty Options</b> |              |                                    |            |          |            |
|                                                                                     | H885         | 3 YEAR ESSENTIAL SERVICE           | \$95.00    | 0%       | \$95.00    |
|                                                                                     | Q887         | 5 YEAR ESSENTIAL SERVICE           | \$170.00   | 0%       | \$170.00   |
| <b>Category 1.1 Radio: Single-Band Portable Radio (P25) APX6000</b>                 |              |                                    |            |          |            |
|                                                                                     | H98UCF9PW6BN | APX6000 700/800 MODEL 2.5 PORTABLE | \$3,595.00 | 27%      | \$2,624.35 |
|                                                                                     | Q361         | P25 9600 BAUD TRUNKING             | \$330.00   | 27%      | \$240.90   |
|                                                                                     | H38          | ADD: SMARTZONE OPERATION           | \$1,320.00 | 27%      | \$963.60   |
|                                                                                     | Q806         | ASTRO DIGITAL                      | \$567.00   | 27%      | \$413.91   |
|                                                                                     | Q629         | AES ENCRYPTION                     | \$523.00   | 27%      | \$381.79   |
| <b>Category 1.1 Radio: Single-Band Portable Radio (P25) APX600 Warranty Options</b> |              |                                    |            |          |            |
|                                                                                     | Q58          | 3 YEAR ESSENTIAL SERVICE           | \$121.00   | 0%       | \$121.00   |
|                                                                                     | Q887         | 5 YEAR ESSENTIAL SERVICE           | \$227.00   | 0%       | \$227.00   |
| <b>Category 1.2 Radio: Single-Band Mobile Radio (P25) APX1500</b>                   |              |                                    |            |          |            |
|                                                                                     | M36URS9PW1BN | APX1500 ENHANCED 7/800 MHZ MOBILE  | \$1,858.00 | 27%      | \$1,356.34 |
|                                                                                     | GA01547      | AES 256 SW ENCRYPTION              | \$523.00   | 27%      | \$381.79   |
|                                                                                     | GA00235      | NO GPS ANTENNA                     | \$0.00     | 27%      | \$0.00     |
|                                                                                     | G66          | DASH MOUNT O2                      | \$138.00   | 27%      | \$100.74   |
|                                                                                     | B18          | AUXILIARY SPEAKER 7.5W NON WATER   | \$66.00    | 27%      | \$48.18    |
|                                                                                     | GA00804      | O2 CONTROL HEAD                    | \$541.00   | 27%      | \$394.93   |
|                                                                                     | G89          | NO RF ANTENNA                      | \$0.00     | 27%      | \$0.00     |
|                                                                                     | GA01339      | P25 TRUNKING                       | \$1,177.00 | 27%      | \$859.21   |
|                                                                                     | G444         | CONTROL HEAD SOFTWARE              | \$0.00     | 27%      | \$0.00     |
|                                                                                     | W22          | STANDARD PALM MICROPHONE           | \$79.00    | 27%      | \$57.67    |
| <b>Category 1.2 Radio: Single-Band Mobile Radio (P25) APX1500 Warranty Options</b>  |              |                                    |            |          |            |
|                                                                                     | G24          | 3 YEAR ESSENTIAL SERVICE           | \$145.00   | 0%       | \$145.00   |
|                                                                                     | GA00318      | 5 YEAR ESSENTIAL SERVICE           | \$271.00   | 0%       | \$271.00   |
| <b>Category 1.2 Radio: Single-Band Mobile Radio (P25) APX6500</b>                   |              |                                    |            |          |            |
|                                                                                     | M25URS9PW1BN | APX6500 ENHANCED 7/800 MHZ MOBILE  | \$3,253.00 | 27%      | \$2,374.69 |

|                                                                                     |                                   |            |     |            |
|-------------------------------------------------------------------------------------|-----------------------------------|------------|-----|------------|
| G66                                                                                 | DASH MOUNT                        | \$138.00   | 27% | \$100.74   |
| G51                                                                                 | SMARTZONE                         | \$1,320.00 | 27% | \$963.60   |
| GA01606                                                                             | NO GPS ANTENNA                    | \$0.00     | 27% | \$0.00     |
| B18                                                                                 | AUXILIARY SPEAKER 7.5W NON WATER  | \$66.00    | 27% | \$48.18    |
| G843                                                                                | AES ENCRYPTION                    | \$523.00   | 27% | \$381.79   |
| G89                                                                                 | NO RF ANTENNA                     | \$0.00     | 27% | \$0.00     |
| G444                                                                                | CONTROL HEAD SOFTWARE             | \$0.00     | 27% | \$0.00     |
| G806                                                                                | ASTRO DIGITAL                     | \$567.00   | 27% | \$413.91   |
| GA01670                                                                             | APX E5 CONTROL HEAD               | \$717.00   | 27% | \$523.41   |
| W22                                                                                 | STANDARD PALM MICROPHONE          | \$79.00    | 27% | \$57.67    |
| G361                                                                                | P25 TRUNKING                      | \$330.00   | 27% | \$240.90   |
| <b>Category 1.2 Radio: Single-Band Mobile Radio (P25) APX6500 Warranty Options</b>  |                                   |            |     |            |
| G78                                                                                 | 3 YEAR ESSENTIAL SERVICE          | \$176.00   | 0%  | \$145.00   |
| GA00318                                                                             | 5 YEAR ESSENTIAL SERVICE          | \$352.00   | 0%  | \$271.00   |
| <b>Category 1.3 Radio: Single-Band Desktop Radio (P25) APX1500</b>                  |                                   |            |     |            |
| M36URS9PW1BN                                                                        | APX1500 ENHANCED 7/800 MHZ MOBILE | \$1,858.00 | 27% | \$1,356.34 |
| GA01547                                                                             | AES 256 SW ENCRYPTION             | \$523.00   | 27% | \$381.79   |
| GA00235                                                                             | NO GPS ANTENNA                    | \$0.00     | 27% | \$0.00     |
| G66                                                                                 | DASH MOUNT O2                     | \$138.00   | 27% | \$100.74   |
| G142                                                                                | NO SPEAKER                        | \$0.00     | 27% | \$0.00     |
| GA00804                                                                             | O2 CONTROL HEAD                   | \$541.00   | 27% | \$394.93   |
| G89                                                                                 | NO RF ANTENNA                     | \$0.00     | 27% | \$0.00     |
| GA01339                                                                             | P25 TRUNKING                      | \$1,177.00 | 27% | \$859.21   |
| G444                                                                                | CONTROL HEAD SOFTWARE             | \$0.00     | 27% | \$0.00     |
| W382                                                                                | CONTROL STATION DESK MIC          | \$186.00   | 27% | \$135.78   |
| W665                                                                                | BASE STATION OP                   | \$77.00    | 27% | \$56.21    |
| <b>Category 1.3 Radio: Single-Band Desktop Radio (P25) APX1500 Warranty Options</b> |                                   |            |     |            |
| G24                                                                                 | 3 YEAR ESSENTIAL SERVICE          | \$145.00   | 0%  | \$145.00   |
| GA00318                                                                             | 5 YEAR ESSENTIAL SERVICE          | \$271.00   | 0%  | \$271.00   |
| <b>Category 1.4 Radio: Multi-Band Portable Radio (P25) APX8000</b>                  |                                   |            |     |            |
| H91TGD9PW5AN                                                                        | APX8000 7/800 MODEL 1.5           | \$6,863.00 | 27% | \$5,009.99 |
| Q806                                                                                | ASTRO DIGITAL                     | \$567.00   | 27% | \$413.91   |
| Q361                                                                                | P25 TRUNKING                      | \$330.00   | 27% | \$240.90   |

|                                                                                      |                                  |            |     |            |
|--------------------------------------------------------------------------------------|----------------------------------|------------|-----|------------|
| H38                                                                                  | SMARTZONE                        | \$1,650.00 | 27% | \$1,204.50 |
| Q629                                                                                 | AES                              | \$523.00   | 27% | \$381.79   |
| <b>Category 1.4 Radio: Multi-Band Portable Radio (P25) APX8000 Warranty Options</b>  |                                  |            |     |            |
| Q58                                                                                  | 3 YEAR ESSENTIAL SERVICE         | \$121.00   | 0%  | \$145.00   |
| Q887                                                                                 | 5 YEAR ESSENTIAL SERVICE         | \$227.00   | 0%  | \$271.00   |
| <b>Category 1.4 Radio: Multi-Band Portable Radio (P25) APXNEXT Device</b>            |                                  |            |     |            |
| H55TGT9PW8AN                                                                         | APX NEXT                         | \$8,241.00 | 27% | \$6,015.93 |
| H38                                                                                  | SMARTZONE                        | \$1,650.00 | 27% | \$1,204.50 |
| Q806                                                                                 | ASTRO DIGITAL                    | \$567.00   | 27% | \$413.91   |
| Q629                                                                                 | AES                              | \$523.00   | 27% | \$381.79   |
| Q361                                                                                 | P25 TRUNKING                     | \$330.00   | 27% | \$240.90   |
| <b>Category 1.4 Radio: Multi-Band Portable Radio (P25) APX NEXT Warranty Options</b> |                                  |            |     |            |
| LSV01S01414                                                                          | 3 YEAR ESSENTIAL SERVICE         | \$162.00   | 0%  | \$145.00   |
| LSV01S01414                                                                          | 5 YEAR ESSENTIAL SERVICE         | \$324.00   | 0%  | \$271.00   |
| <b>Category 1.5 Radio: Multi-Band Mobile Radio (P25) APX8500</b>                     |                                  |            |     |            |
| M37TSS9PW1AN                                                                         | APX8500 MP MOBILE                | \$5,667.00 | 27% | \$4,136.91 |
| G66                                                                                  | DASH MOUNT                       | \$138.00   | 27% | \$100.74   |
| G51                                                                                  | SMARTZONE                        | \$1,650.00 | 27% | \$1,204.50 |
| GA01606                                                                              | NO GPS ANTENNA                   | \$0.00     | 27% | \$0.00     |
| B18                                                                                  | AUXILIARY SPEAKER 7.5W NON WATER | \$66.00    | 27% | \$48.18    |
| G843                                                                                 | AES ENCRYPTION                   | \$523.00   | 27% | \$381.79   |
| G89                                                                                  | NO RF ANTENNA                    | \$0.00     | 27% | \$0.00     |
| G444                                                                                 | APX CONTROL HEAD SOFTWARE        | \$0.00     | 27% | \$0.00     |
| GA01517                                                                              | NO ADAPTER CABLE                 | \$0.00     | 27% | \$0.00     |
| GA01670                                                                              | E5 CONTROL HEAD                  | \$717.00   | 27% | \$523.41   |
| W22                                                                                  | STANDARD PALM MICROPHONE         | \$79.00    | 27% | \$57.67    |
| G361                                                                                 | P25 TRUNKING SOFTWARE            | \$330.00   | 27% | \$24.09    |
| G806                                                                                 | ASTRO DIGITAL                    | \$567.00   | 27% | \$413.91   |
| <b>Category 1.5 Radio: Multi-Band Mobile Radio (P25) APX8500 Warranty Options</b>    |                                  |            |     |            |
| G87                                                                                  | 3 YEAR ESSENTIAL SERVICE         | \$176.00   | 0%  | \$176.00   |
| GA00318                                                                              | 5 YEAR ESSENTIAL SERVICE         | \$352.00   | 0%  | \$271.00   |
| <b>Category 1.6 Radio: Multi-Band Desktop Radio (P25) APX8500</b>                    |                                  |            |     |            |
| M37TSS9PW1AN                                                                         | APX8500 MP MOBILE                | \$5,667.00 | 27% | \$4,136.91 |

|                                                                                    |                                   |             |     |             |
|------------------------------------------------------------------------------------|-----------------------------------|-------------|-----|-------------|
| W665                                                                               | BASE STATION OP                   | \$77.00     | 27% | \$4,136.91  |
| G66                                                                                | DASH MOUNT                        | \$138.00    | 27% | \$100.74    |
| G51                                                                                | SMARTZONE                         | \$1,650.00  | 27% | \$1,204.50  |
| GA00235                                                                            | NO GPS ANTENNA                    | \$0.00      | 27% | \$0.00      |
| G142                                                                               | NO SPEAKER                        | \$0.00      | 27% | \$48.18     |
| G843                                                                               | AES ENCRYPTION                    | \$523.00    | 27% | \$381.79    |
| G89                                                                                | NO RF ANTENNA                     | \$0.00      | 27% | \$0.00      |
| G444                                                                               | APX CONTROL HEAD SOFTWARE         | \$0.00      | 27% | \$0.00      |
| GA01517                                                                            | NO ADAPTER CABLE                  | \$0.00      | 27% | \$0.00      |
| GA01670                                                                            | E5 CONTROL HEAD                   | \$717.00    | 27% | \$523.41    |
| W382                                                                               | CONTROL STATION DESK MIC          | \$186.00    | 27% | \$57.67     |
| G361                                                                               | P25 TRUNKING SOFTWARE             | \$330.00    | 27% | \$24.09     |
| G806                                                                               | ASTRO DIGITAL                     | \$567.00    | 27% | \$413.91    |
| <b>Category 1.6 Radio: Multi-Band Desktop Radio (P25) APX8500 Warranty Options</b> |                                   |             |     |             |
| G87                                                                                | 3 YEAR ESSENTIAL SERVICE          | \$176.00    | 0%  | \$176.00    |
| GA00318                                                                            | 5 YEAR ESSENTIAL SERVICE          | \$352.00    | 0%  | \$271.00    |
| <b>Category 1.7 Base Station Repeater</b>                                          |                                   |             |     |             |
| T7039                                                                              | GTR8000 BASE RADIO                | \$0.00      | 20% | \$0.00      |
| CA00719                                                                            | ASTRO SYSTEM RELEASE              | \$0.00      | 20% | \$0.00      |
| X530                                                                               | VHF BAND                          | \$6,300.00  | 20% | \$5,040.00  |
| X591                                                                               | ASTRO 25 SITE REPEATER SW         | \$21,760.00 | 20% | \$17,408.00 |
| <b>Category 2.1 Radio: Narrow Band Portable, Non P25</b>                           |                                   |             |     |             |
| H84UCD9PW5AN                                                                       | APX1000                           | \$1,391.00  | 27% | \$1,015.43  |
| QA04097                                                                            | CONVENTIONAL                      | \$385.00    | 27% | \$281.05    |
| Q667                                                                               | ADP                               | \$0.00      | 27% | \$0.00      |
| <b>Category 2.1 Radio: Narrow Band Portable, Non P25 Warranty Options</b>          |                                   |             |     |             |
| H885                                                                               | 3 YEAR ESSENTIAL SERVICE          | \$95.00     | 0%  | \$95.00     |
| Q887                                                                               | 5 YEAR ESSENTIAL SERVICE          | \$170.00    | 0%  | \$170.00    |
| <b>Category 2.2 Radio: Narrow Band Mobile, Non P25</b>                             |                                   |             |     |             |
| M36URS9PW1BN                                                                       | APX1500 ENHANCED 7/800 MHZ MOBILE | \$1,858.00  | 27% | \$1,356.34  |
| G193                                                                               | ADP                               | \$0.00      | 27% | \$0.00      |
| GA00235                                                                            | NO GPS ANTENNA                    | \$0.00      | 27% | \$0.00      |
| G66                                                                                | DASH MOUNT O2                     | \$138.00    | 27% | \$100.74    |



|                                                                                       |                                     |            |     |            |
|---------------------------------------------------------------------------------------|-------------------------------------|------------|-----|------------|
| B18                                                                                   | AUXILIARY SPEAKER 7.5W NON WATER    | \$66.00    | 27% | \$48.18    |
| GA00804                                                                               | O2 CONTROL HEAD                     | \$541.00   | 27% | \$394.93   |
| G89                                                                                   | NO RF ANTENNA                       | \$0.00     | 27% | \$0.00     |
| Q811                                                                                  | CONVENTIONAL                        | \$811.00   | 27% | \$592.03   |
| G444                                                                                  | CONTROL HEAD SOFTWARE               | \$0.00     | 27% | \$0.00     |
| W22                                                                                   | STANDARD PALM MICROPHONE            | \$79.00    | 27% | \$57.67    |
| <b>Category 2.2 Radio: Narrow Band Mobile, Non P25 Warranty Options</b>               |                                     |            |     |            |
| G24                                                                                   | 3 YEAR ESSENTIAL SERVICE            | \$145.00   | 0%  | \$145.00   |
| GA00318                                                                               | 5 YEAR ESSENTIAL SERVICE            | \$271.00   | 0%  | \$271.00   |
| <b>Category 2.3 Radio: Narrow Band Desktop Radio Non P25 APX1500</b>                  |                                     |            |     |            |
| M36URS9PW1BN                                                                          | APX1500 ENHANCED 7/800 MHZ MOBILE   | \$1,858.00 | 27% | \$1,356.34 |
| G193                                                                                  | ADP                                 | \$0.00     | 27% | \$0.00     |
| GA00235                                                                               | NO GPS ANTENNA                      | \$0.00     | 27% | \$0.00     |
| G66                                                                                   | DASH MOUNT O2                       | \$138.00   | 27% | \$100.74   |
| G142                                                                                  | NO SPEAKER                          | \$0.00     | 27% | \$0.00     |
| GA00804                                                                               | O2 CONTROL HEAD                     | \$541.00   | 27% | \$394.93   |
| G89                                                                                   | NO RF ANTENNA                       | \$0.00     | 27% | \$0.00     |
| Q811                                                                                  | CONVENTIONAL                        | \$811.00   | 27% | \$592.03   |
| G444                                                                                  | CONTROL HEAD SOFTWARE               | \$0.00     | 27% | \$0.00     |
| W382                                                                                  | CONTROL STATION DESK MIC            | \$186.00   | 27% | \$135.78   |
| W665                                                                                  | BASE STATION OP                     | \$77.00    | 27% | \$56.21    |
| <b>Category 2.3 Radio: Narrow Band Desktop Radio Non P25 APX1500 Warranty Options</b> |                                     |            |     |            |
| G24                                                                                   | 3 YEAR ESSENTIAL SERVICE            | \$145.00   | 0%  | \$145.00   |
| GA00318                                                                               | 5 YEAR ESSENTIAL SERVICE            | \$271.00   | 0%  | \$271.00   |
| <b>Category 2.4 Base Station Repeater</b>                                             |                                     |            |     |            |
| T7039                                                                                 | GTR8000 BASE RADIO                  | \$0.00     | 20% | \$0.00     |
| CA00719                                                                               | ASTRO SYSTEM RELEASE                | \$0.00     | 20% | \$0.00     |
| X530                                                                                  | VHF BAND                            | \$6,300.00 | 20% | \$5,040.00 |
| CA01949                                                                               | CONVENTIONAL                        | \$6,700.00 | 20% | \$5,360.00 |
| <b>Category 4 Dispatch Consoles</b>                                                   |                                     |            |     |            |
| B1949                                                                                 | MCC 7500E SOFTWARE DVD              | \$250.00   | 15% | \$212.50   |
| B1948                                                                                 | MCC 7500E DISPATCH POSITION LICENSE | \$0.00     | 15% | \$0.00     |
| UA00249AA                                                                             | ADD: 15 RADIO RESOURCES LICENSE     | \$3,675.00 | 15% | \$3,123.75 |

|               |                                     |             |     |             |
|---------------|-------------------------------------|-------------|-----|-------------|
| T7039         | GTR 8000 Base Radio                 | \$0.00      | 20% | \$0.00      |
| CA00719AA     | ADD: ASTRO SYSTEM RELEASE 2019.2    | \$0.00      | 20% | \$0.00      |
| CA01948AA     | ADD: DIGITAL CONVENTIONAL SOFTWARE  | \$12,500.00 | 20% | \$10,000.00 |
| X153AW        | ADD: RACK MOUNT HARDWARE            | \$50.00     | 20% | \$40.00     |
| X530BG        | ADD: VHF (136-174 MHZ)              | \$6,300.00  | 20% | \$5,040.00  |
| T7039         | GTR 8000 Base Radio                 | \$0.00      | 20% | \$0.00      |
| CA00719AA     | ADD: ASTRO SYSTEM RELEASE 2019.2    | \$0.00      | 20% | \$0.00      |
| CA01948AA     | ADD: DIGITAL CONVENTIONAL SOFTWARE  | \$12,500.00 | 20% | \$10,000.00 |
| X153AW        | ADD: RACK MOUNT HARDWARE            | \$50.00     | 20% | \$40.00     |
| X530BG        | ADD: VHF (136-174 MHZ)              | \$6,300.00  | 20% | \$5,040.00  |
| T7039         | GTR 8000 Base Radio                 | \$0.00      | 20% | \$0.00      |
| CA00719AA     | ADD: ASTRO SYSTEM RELEASE 2019.2    | \$0.00      | 20% | \$0.00      |
| CA01948AA     | ADD: DIGITAL CONVENTIONAL SOFTWARE  | \$1,250.00  | 20% | \$1,000.00  |
| X153AW        | ADD: RACK MOUNT HARDWARE            | \$50.00     | 20% | \$40.00     |
| X530BG        | ADD: VHF (136-174 MHZ)              | \$6,300.00  | 20% | \$5,040.00  |
| T7039         | GTR 8000 Base Radio                 | \$0.00      | 20% | \$0.00      |
| CA00719AA     | ADD: ASTRO SYSTEM RELEASE 2019.2    | \$0.00      | 20% | \$0.00      |
| CA01948AA     | ADD: DIGITAL CONVENTIONAL SOFTWARE  | \$12,500.00 | 20% | \$10,000.00 |
| X153AW        | ADD: RACK MOUNT HARDWARE            | \$50.00     | 20% | \$40.00     |
| X530BG        | ADD: VHF (136-174 MHZ)              | \$6,300.00  | 20% | \$5,040.00  |
| DSDS4345D4B   | DS4345D-4-B, 148-160MHZ 4 CH TX COM | \$15,024.00 | 10% | \$13,521.60 |
| DSDSRMC0608AA | RMC06, 8 CH HIGH GAIN AMP UNIV RMC  | \$3,624.00  | 10% | \$3,261.60  |
| DSMWF1BUN     | 137-174MHZ UNI WINDOW MILLED FILTER | \$3,611.00  | 10% | \$3,249.90  |
| DSDS1F00P36UM | 150-164 MHZ, VHF ANTENNA, OMNIDIREC | \$1,980.00  | 10% | \$1,782.00  |

|                |                                     |             |     |             |
|----------------|-------------------------------------|-------------|-----|-------------|
| DSAT012J50     | AT012J50, 1/2" TRANSMISSION LINE,50 | \$2.20      | 10% | \$1.98      |
| DSDMA01250B    | 7/16 DIN MALE FOR 1/2 CABLE (USE WI | \$35.25     | 10% | \$31.73     |
| DSNMA01250B    | N MALE FOR 1/2 CABLE (USE WITH CT01 | \$25.25     | 10% | \$22.73     |
| DSVHF50DMAPGR  | RF SPD, 100-512MHZ, DC BLOCK HIGH P | \$166.00    | 10% | \$149.40    |
| SQM01SUM0237   | SINGLE ZONE CONV NON-RED CORE       | \$24,950.00 | 20% | \$19,960.00 |
| CA01663AB      | ADD: RACK                           | \$495.00    | 20% | \$396.00    |
| CA01896AB      | ADD: BACKHAUL SWITCH                | \$2,250.00  | 20% | \$1,800.00  |
| SQM01SUM0205   | GGM 8000 GATEWAY                    | \$5,250.00  | 15% | \$4,462.50  |
| CA01616AA      | ADD: AC POWER                       | \$0.00      | 15% | \$0.00      |
| CA02141AA      | ADD: LOW DENSITY ENH CONV GATEWAY   | \$3,000.00  | 15% | \$2,550.00  |
| DS430501A04SH  | SHORT HAUL CONTROL STATION COMBINER | \$1,638.00  | 10% | \$1,474.20  |
| DSAT012J50     | AT012J50, 1/2" TRANSMISSION LINE,50 | \$2.20      | 10% | \$1.98      |
| DSISS0NXC2MA   | RF SPD, 125-1000MHZ DC BLOCK FLANGE | \$73.00     | 10% | \$65.70     |
| DSNMA01250B    | N MALE FOR 1/2 CABLE (USE WITH CT01 | \$35.25     | 10% | \$31.73     |
| DSNFA01250B    | N FEMALE FOR 1/2 CABLE (USE WITH CT | \$35.25     | 10% | \$31.73     |
| DSDS1X00CS36UN | 148-174MHZ UNITY GAIN CONTROL STATI | \$1,237.00  | 10% | \$1,113.30  |

**Category Radio System Solutions Trunking Sample**

|               |                                     |             |     |             |
|---------------|-------------------------------------|-------------|-----|-------------|
| SQM01SUM7054  | GTR 8000 EXPANDABLE SITE SUBSYSTEM  | \$6,000.00  | 20% | \$4,800.00  |
| CA00303AA     | ADD: QTY (1) SITE CONTROLLER        | \$2,500.00  | 20% | \$2,000.00  |
| CA00719AA     | ADD: ASTRO SYSTEM RELEASE 2019.2    | \$0.00      | 20% | \$0.00      |
| CA01402AA     | ADD: 7.0 FT OPEN RACK               | \$495.00    | 20% | \$396.00    |
| CA01431AA     | ADD: ASTRO 25 EXPRESS SYSTEM SITE   | \$7,500.00  | 20% | \$6,000.00  |
| CA02686AA     | ADD: AC DC POWER DISTRIBUTION       | \$0.00      | 20% | \$0.00      |
| X304AE        | ADD: QTY (4) GTR 8000 BASE RADIOS   | \$23,600.00 | 20% | \$18,880.00 |
| X591AE        | ENH: ASTRO 25 SITE REPEATER SW      | \$21,760.00 | 20% | \$17,408.00 |
| X530BG        | ADD: VHF (136-174 MHZ)              | \$6,300.00  | 20% | \$5,040.00  |
| DSDSRMC0608AA | RMCO6, 8 CH HIGH GAIN AMP UNIV RMC  | \$3,624.00  | 10% | \$3,261.60  |
| DSDS4345D4B   | DS4345D-4-B, 148-160MHZ 4 CH TX COM | \$15,024.00 | 10% | \$13,521.60 |
| DSDS1F00P36UM | 150-164 MHZ, VHF ANTENNA, OMNIDIREC | \$1,980.00  | 10% | \$1,782.00  |
| DSMWF1BUN     | 137-174MHZ UNI WINDOW MILLED FILTER | \$3,611.00  | 10% | \$3,249.90  |
| DSVHF50DMAPGR | RF SPD, 100-512MHZ, DC BLOCK HIGH P | \$189.00    | 10% | \$170.10    |
| DSAT012J50    | AT012J50, 1/2" TRANSMISSION LINE,50 | \$2.00      | 10% | \$1.80      |
| DSDMA01250B   | 7/16 DIN MALE FOR 1/2 CABLE (USE WI | \$35.25     | 10% | \$31.73     |

|                |                                     |             |     |             |
|----------------|-------------------------------------|-------------|-----|-------------|
| DSNMA01250B    | N MALE FOR 1/2 CABLE (USE WITH CT01 | \$35.25     | 10% | \$31.73     |
| SQM01SUM0237   | SINGLE ZONE CONV NON-RED CORE       | \$24,950.00 | 20% | \$19,960.00 |
| CA01663AB      | ADD: RACK                           | \$495.00    | 20% | \$396.00    |
| CA01896AB      | ADD: BACKHAUL SWITCH                | \$2,250.00  | 20% | \$1,800.00  |
| SQM01SUM0205   | GGM 8000 GATEWAY                    | \$5,250.00  | 10% | \$4,725.00  |
| CA01616AA      | ADD: AC POWER                       | \$0.00      | 10% | \$0.00      |
| CA02141AA      | ADD: LOW DENSITY ENH CONV GATEWAY   | \$3,000.00  | 10% | \$2,700.00  |
| DS430501A04SH  | SHORT HAUL CONTROL STATION COMBINER | \$1,638.00  | 10% | \$1,474.20  |
| DSAT012J50     | AT012J50, 1/2" TRANSMISSION LINE,50 | \$2.00      | 10% | \$1.80      |
| DSIS50NXC2MA   | RF SPD, 125-1000MHZ DC BLOCK FLANGE | \$73.00     | 10% | \$65.70     |
| DSNMA01250B    | N MALE FOR 1/2 CABLE (USE WITH CT01 | \$35.25     | 10% | \$31.73     |
| DSNFA01250B    | N FEMALE FOR 1/2 CABLE (USE WITH CT | \$35.25     | 10% | \$31.73     |
| DSDS1X00CS36UN | 148-174MHZ UNITY GAIN CONTROL STATI | \$1,237.00  | 10% | \$1,113.30  |

#### Services

|                                                                                                |           |          |
|------------------------------------------------------------------------------------------------|-----------|----------|
| Consultation                                                                                   | \$ 240.00 | Per hour |
| Project Management                                                                             | \$ 240.00 | Per hour |
| Impementation                                                                                  | \$ 240.00 | Per hour |
| Installation                                                                                   | \$ 240.00 | Per hour |
| Configuration/Desgin                                                                           | \$ 240.00 | Per hour |
| Radio Programming                                                                              | \$ 240.00 | Per hour |
| Product Recycling/Buy Back                                                                     | No Cost   |          |
| Training                                                                                       | \$ 320.00 | Per hour |
| Maintenance/Repair                                                                             | \$ 240.00 | Per hour |
| Encryption (AES-256 software upgrade, single-key                                               | \$ 135.00 | Per hour |
| Encryption (AES-256 software upgrade, multi-key                                                | \$ 145.00 | Per hour |
| Customer Service Support, regular business hours                                               | \$ 240.00 | Per hour |
| Customer Service Support, after-hours business hours                                           | \$ 240.00 | Per hour |
| Technical Support, regular business hours                                                      | \$ 240.00 | Per hour |
| Technical Support, after-hours                                                                 | \$ 240.00 | Per hour |
| Other (Cybersecurity, Microwave propration Study, Essential Services, Premier offerings, etc.) | \$ 240.00 | Per hour |

#### Additional Items

|                                             |                       |
|---------------------------------------------|-----------------------|
| APX Radio Software Features and Accessories | 27% Discount off List |
|---------------------------------------------|-----------------------|

|                                                                                                   |                       |
|---------------------------------------------------------------------------------------------------|-----------------------|
| Alternative APX Radio Single or Multi-Band Radio                                                  | 27% Discount off List |
| GTR8000 Base Station Software Features and Accessories                                            | 20% Discount off List |
| MCC7500 Console Software Features and Accessories                                                 | 15% Discount off List |
| Conventional and Trunked Radio System Network Management, Data, and Interoperability Applications | 20% Discount off List |
| Conventional and Trunked Radio System Combiner and Antenna Systems                                | 10% Discount off List |



## REPORT TO CITY COUNCIL RESOLUTION

AGENDA ITEM  
8.B.1.

TO: THE HONORABLE CITY COUNCIL

DATE: August 14, 2023

SUBJECT: R23-076, A Resolution Authorizing an Intergovernmental Agreement Titled "Program-Funded State and Local Task Force Agreement" between the City of Arvada and the United States Department of Justice, Drug Enforcement Administration (Presenter: Aaron Jacks, Sr. Asst City Attorney)

### **Report in Brief**

PRESENTER: Sr. Asst. City Attorney Aaron Jacks

The Arvada Police Department (APD) partners with the US Drug Enforcement Administration (DEA) to address drug trafficking and related crimes that impact the Arvada community. The APD currently assigns one investigator full time to DEA Enforcement Group 1. Drug trafficking investigations are often time consuming, and investigators regularly accrue overtime pay as a result.

This intergovernmental agreement (IGA) provides that the DEA will reimburse the City for overtime accrued by the APD's assigned investigator, subject to certain terms and an annual cap, through September, 2026.

The Arvada team recommends that the City Council approve R23-076, A Resolution Authorizing an Intergovernmental Agreement Titled "Program-Funded State and Local Task Force Agreement" between the City of Arvada and the United States Department of Justice, Drug Enforcement Administration.

### **Financial Impact**

This IGA has no negative financial impact to the City. The DEA will reimburse overtime costs to the APD which can then be used to fund other overtime expenditures as appropriate.

### **Background**

The APD has assigned one investigator to DEA Enforcement Group 1. The APD investigator, along with seven DEA Special Agents, works large-scale drug trafficking cases that bring illegal drugs into the Denver area and the City. This allows the APD to leverage DEA resources to have a greater impact on drug trafficking that reaches into Arvada and surrounding communities.

This IGA between the City and the DEA provides that the DEA will reimburse the City for overtime costs associated with our investigator's work at Enforcement Group 1.

### **Discussion**

This IGA must be authorized by City Council because it is between the Arvada Police Department as a department of the City of Arvada, and the U.S. Drug Enforcement Administration as an agency of the United States government. In accordance with ACC 2.2, this IGA is appropriate for adoption by resolution because it does not meet any of the criteria requiring adoption by ordinance.

### **Public Contact**

Posting of the City Council agenda.



**SUBJECT:** R23-076, A Resolution Authorizing an Intergovernmental Agreement Titled "Program-Funded State and Local Task Force Agreement" between the City of Arvada and the United States Department of Justice, Drug Enforcement Administration (Presenter: Aaron Jacks, Sr. Asst City Attorney)

**PAGE:** 2  
**ITEM:** 8.B.1.

### **Commission Recommendation**

N/A

### **Strategic Alignment**

This IGA supports the City's Safe Communities strategies by obtaining overtime reimbursement which can then be used to pay other APD overtime costs as necessary.

### **Alternative Courses of Action**

### **Recommendation for Action**

The Arvada team recommends that the City Council approve R23-076, A Resolution Authorizing an Intergovernmental Agreement Titled "Program-Funded State and Local Task Force Agreement" between the City of Arvada and the United States Department of Justice, Drug Enforcement Administration.

### **Suggested Motion:**

I move that R23-076, A Resolution Authorizing an Intergovernmental Agreement Titled "Program-Funded State and Local Task Force Agreement" between the City of Arvada and the United States Department of Justice, Drug Enforcement Administration, be (approved) (rejected).

Prepared by:  
Aaron Jacks, Assistant City Attorney

Reviewed by:

Approved by:

|                                      |           |
|--------------------------------------|-----------|
| Aaron Jacks, Assistant City Attorney | 7/24/2023 |
| Edward Brady, Deputy Police Chief    | 7/24/2023 |
| Rachel Morris, City Attorney         | 8/1/2023  |
| Lorie Gillis, City Manager           | 8/2/2023  |

Enclosure, exhibits & attachments required to support the report

RESOLUTION NO. R23-076

A RESOLUTION AUTHORIZING AN INTERGOVERNMENTAL AGREEMENT TITLED  
“PROGRAM-FUNDED STATE AND LOCAL TASK FORCE AGREEMENT” BETWEEN  
THE CITY OF ARVADA AND THE UNITED STATES DEPARTMENT OF JUSTICE, DRUG  
ENFORCEMENT ADMINISTRATION

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ARVADA, COLORADO:

Section 1. The Mayor or Mayor Pro Tem is authorized to sign and the City Clerk to attest, in form approved by the City Attorney, An intergovernmental agreement titled “Program-Funded State and Local Task Force Agreement”, which is in substantially the same form as that attached hereto, for reimbursement of certain overtime costs to the Arvada Police Department.

Section 2. This resolution shall be effective upon its approval by the City Council.

APPROVED AND ADOPTED this 14th day of August, 2023.

\_\_\_\_\_  
Marc Williams, Mayor

ATTEST:

\_\_\_\_\_  
City Clerk

APPROVED AS TO FORM:

Rachel Morris, City Attorney

By: \_\_\_\_\_

## PROGRAM - FUNDED STATE AND LOCAL TASK FORCE AGREEMENT

This agreement is made this 1st day of July, 2023, between the United States Department of Justice, Drug Enforcement Administration (hereinafter "DEA"), and the Arvada Police Department ORI#CO03000100 (hereinafter "parent agency"). The DEA is authorized to enter into this cooperative agreement concerning the use and abuse of controlled substances under the provisions of 21 USC § 873.

WHEREAS there is evidence that trafficking in narcotics and dangerous drugs exists in the Mountain West Region area and that such illegal activity has a substantial and detrimental effect on the health and general welfare of the people of Colorado, the parties hereto agree to the following:

1. The Enforcement Group 1 Task Force will perform the activities and duties described below:
  - a. disrupt the illicit drug traffic in the Mountain West Region area by immobilizing targeted violators and trafficking organizations;
  - b. gather and report intelligence data relating to trafficking in narcotics and dangerous drugs; and
  - c. conduct undercover operations where appropriate and engage in other traditional methods of investigation in order that the Task Force's activities will result in effective prosecution before the courts of the United States and the State of Colorado.
2. To accomplish the objectives of the Enforcement Group 1 Task Force, the parent agency agrees to detail one (1) experienced officer(s) to the Enforcement Group 1 Task Force for a period of not less than two years. During this period of assignment, the parent agency officer(s) will be under the direct supervision and control of DEA supervisory personnel assigned to the Task Force.
3. The parent agency officer(s) assigned to the Task Force shall adhere to DEA policies and procedures. Failure to adhere to DEA policies and procedures shall be grounds for dismissal from the Task Force.
4. The parent agency officer(s) assigned to the Task Force shall be deputized as Task Force Officers of DEA pursuant to 21 USC § 878.
5. To accomplish the objectives of the Enforcement Group 1 Task Force, DEA will assign seven (7) Special Agents to the Task Force. The parent agency agrees to provide and maintain a vehicle for use for each of its assigned Task Force Officers. DEA will also, subject to the availability of annually appropriated funds or any continuing resolution thereof, provide necessary funds and equipment to support the activities of the DEA Special Agents and parent agency officers assigned to the Task Force. This support will include: office space, office supplies, travel funds, funds for the purchase of evidence and information, investigative equipment, training, and other support items.

6. During the period of assignment to the Enforcement Group 1 Task Force, the parent agency will remain responsible for establishing the salary and benefits, including overtime, of the officers assigned to the Task Force, and for making all payments due them. DEA will, subject to availability of funds, reimburse the parent agency for overtime payments. Annual overtime for each state and local law enforcement officer is capped at the equivalent to 25% of the salary of a GS-12, step 1, of the general pay scale for the rest of the United States. Reimbursement for all types of qualified expenses shall be contingent upon availability of funds and submission of a proper request for reimbursement which shall be submitted monthly or quarterly on a fiscal year basis, and which provides the names of investigators who incurred overtime for DEA during invoiced period, the number of overtime hours incurred, the hourly regular and overtime rates in effect for each investigator, and the total cost for the invoiced period. The parent agency will bill overtime as it is performed and no later than 60 days after the end of each quarter in which the overtime is performed. . ***Note: Task Force Officer's overtime "shall not include any costs for benefits, such as retirement, FICA, and other expenses."***
7. In no event will the parent agency charge any indirect cost rate to DEA for the administration or implementation of this agreement.
8. The parent agency shall maintain on a current basis complete and accurate records and accounts of all obligations and expenditures of funds under this agreement in accordance with generally accepted accounting principles and instructions provided by DEA to facilitate on-site inspection and auditing of such records and accounts.
9. The parent agency shall permit and have readily available for examination and auditing by DEA, the United States Department of Justice, the Comptroller General of the United States, and any of their duly authorized agents and representatives, any and all records, documents, accounts, invoices, receipts or expenditures relating to this agreement. The parent agency shall maintain all such reports and records until all audits and examinations are completed and resolved, or for a period of six (6) years after termination of this agreement, whichever is later.
10. The parent agency shall comply with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, as amended, and all requirements imposed by or pursuant to the regulations of the United States Department of Justice implementing those laws, 28 C.F.R. Part 42, Subparts C, F, G, H and I.
11. The parent agency agrees that an authorized officer or employee will execute and return to DEA the attached OJP Form 4061/6, Certification Regarding Lobbying; Debarment, Suspension and Other Responsibility Matters; and Drug-Free Workplace Requirements. The parent agency acknowledges that this agreement will not take effect and no Federal funds will be awarded to the parent agency by DEA until the completed certification is received.

12. When issuing statements, press releases, requests for proposals, bid solicitations, and other documents describing projects or programs funded in whole or in part with Federal money, the parent agency shall clearly state: (1) the percentage of the total cost of the program or project which will be financed with Federal money and (2) the dollar amount of Federal funds for the project or program.
13. The term of this agreement shall be effective from the date in paragraph number one until September 30, 2026. This agreement may be terminated by either party on thirty days' advance written notice. DEA's support to the Task force, including reimbursement of overtime, is subject to the availability of funds on a fiscal year basis (October 1 through September 30 of the next year). Billing for all outstanding obligations must be received by DEA within 60 days of the end of the fiscal year or within 60 days of the date of termination of this agreement. DEA will be responsible only for obligations incurred by parent agency during the term of this agreement on a fiscal year basis, subject to the availability of funds.

For the Drug Enforcement Administration:

\_\_\_\_\_  
David S. Olesky  
Acting Special Agent in Charge

\_\_\_\_\_  
Date

By the City of Arvada,  
For the Arvada Police Department

\_\_\_\_\_  
~~Ed Brady~~ Marc Williams  
~~Chief~~ Mayor

\_\_\_\_\_  
Date

Approved as to Form:

Attest:

\_\_\_\_\_  
Aaron Jacks  
Sr. Asst. City Attorney

\_\_\_\_\_  
Kristen Rush  
City Clerk



## REPORT TO CITY COUNCIL PUBLIC HEARING

AGENDA ITEM  
10.A.

TO: THE HONORABLE CITY COUNCIL

DATE: August 14, 2023

SUBJECT: Candelas Filing No. 1, Amendment No.4 Planned Unit Development (PUD), generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO. (Presenter: Rob Smetana, Acting Director of Community and Economic Development) (Continued from July 10, 2023)

### **Report in Brief**

TRI Point Homes Inc., Owner/Developer, is requesting approval of a townhome and mixed-use development in Candelas.

The development is located on a 5.45 acre site at the entrance of McIntyre Street and West 93rd Place, and will provide additional for-sale townhomes as well as for-rent units above neighborhood retail in two mixed-used buildings. The mixed use retail buildings are located at the entrance to the neighborhood on both sides of McIntyre Street with an urban park and landscaped entrance. The staff report, plans and neighborhood meeting minutes are located on agenda item 10.F.

The Arvada Team recommends that the City Council Approve a Planned Unit Development (PUD) consistent with the Land Development Code generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO.

### **Financial Impact**

There is no fiscal impact to the city.

### **Background**

The subject property is located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way. The site is designated in the Candelas Outline Development Plan (ODP) as Parcel 2 zoned PUD Residential (PUD-R and platted as Block 9 and Block 22) and Parcel 10 zoned PUD-Business, Professional, Residential (PUD-BPR) and platted as Block 10 and Block 21). The site plan combines ODP 2-ee, 2-ff, 2-oo with Parcel 10 to include 39 townhomes, 33 multi-family units and 10,743 square feet of retail spaces.

Development for this property was previously presented before the Planning Commission and City Council. The first was DA2019-0119 for eleven townhome buildings totaling 57 units. On July 6, 2020, the City Council denied the application since the development did not include any retail uses on Parcel 10 as designated by the Candelas ODP to be mixed-use with residential uses. On June 2022, City Council denied DA2021-0150 and indicated their major concerns included reducing the residential units, increase the size of retail spaces, not enough off-street parking and guest parking are provided, and additional safety improvements for pedestrians.

### **Discussion**

| Div. 8-3-10 PUD Development Plan Approval Criteria | Finding | Rationale |
|----------------------------------------------------|---------|-----------|
|----------------------------------------------------|---------|-----------|



**SUBJECT:** Candelas Filing No. 1, Amendment No.4 Planned Unit Development (PUD), generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO. (Presenter: Rob Smetana, Acting Director of Community and Economic Development) (Continued from July 10, 2023)

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|                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. The plan is consistent with the Comprehensive Plan or reflects conditions that have changed since the adoption of the Comprehensive Plan                                                                                                                                                                                                                                                                                             | Complies | The PUD includes ODP Parcel 2 2-ee, 2-ff, and 2-oo that are consistent with the Comprehensive Plan Suburban Residential for attached residential units. ODP Parcel 10 is also consistent with the Mixed-Use Residential Emphasis for multi-use building of neighborhood retail use and multi-family units.                                                                                                                                                                                                                                                     |
| 2. The plan is consistent with and implements and previously approved Outline Development Plan in effect for the subject property, per Section 8-3-10-7, PUDs Approved Prior to Effective Date.                                                                                                                                                                                                                                         | Complies | The PUD meets all requirements and regulations of the approved ODP including use, height, setbacks, and density requirements.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 3. The plan represents a development that will address a unique situation, confer a substantial benefit to the City, or incorporate creative site design such that it achieves the purposes set out in Section 8-3-10-1, Purpose of Planned Development Zone, and represents an improvement in quality over what could have been accomplished through application of the otherwise applicable zoning district or development standards. | Complies | The PUD provides additional townhomes and multi-family units housing choices intended in the Candelas Master-Planned. Neighborhood retail opportunities are proposed including enhanced pedestrian plazas, creating a more urban feel at the entrance directly adjacent to the Candelas Swim and Fitness Club. Additional traffic calming and pedestrian safety include crosswalk pavement markings and curb bump outs on all four legs of the West 93rd Place and McIntyre Street. A pedestrian activated rectangular rapid flashing beacon is also included. |
| 4. The plan generally complies with the intent of the use, development and design standards set forth in the LDC.                                                                                                                                                                                                                                                                                                                       | Complies | The PUD complies with all applicable use, development and design standards of the Land Development Code.                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 5. To the extent reasonably feasible, the plan provides for integration and connection with adjoining development through street connections, sidewalks, trails, and similar features; unless due to the nature of the uses that are allowable in the plan such connections are not desirable.                                                                                                                                          | Complies | The PUD is part of the Candelas and is the remaining site to be developed and will connect with the existing street connections, sidewalk, trails, and parks and open space to residential communities in Candelas.                                                                                                                                                                                                                                                                                                                                            |
| 6. Sufficient public safety, transportation, and utility facilities and services will, prior to development, be available to serve the subject property, while maintaining sufficient levels of service to existing development.                                                                                                                                                                                                        | Complies | As part of the master utility and facilities, existing streets, Police and Fire Department there is sufficient public safety, and infrastructure services are available to serve the proposed development.                                                                                                                                                                                                                                                                                                                                                     |
| 7. The proposed uses (or group of uses) are appropriately located and designed, both within the boundaries of the plan and in relation to adjacent uses, such that the foreseeable, material adverse impacts that may be created by the scale, design, and operating characteristics (e.g., hours of operation, traffic generation, lighting, noise, odor, dust, and other                                                              | Complies | The townhomes and the multi-use buildings are compatible with the adjacent residential uses in terms of scale, site design and character of Candelas. The addition of two mixed-use buildings with ground level retail pedestrian scale interest along the public street facing elevation and residential on the                                                                                                                                                                                                                                               |

**SUBJECT:** Candelas Filing No. 1, Amendment No.4 Planned Unit Development (PUD), generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO. (Presenter: Rob Smetana, Acting Director of Community and Economic Development) (Continued from July 10, 2023)

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**ITEM:** 10.A.

external impacts) of the uses are avoided or mitigated.

second and third floor, pedestrian providing a more urban feel. This will help define the mixed-use village center of the neighborhood.

### **Public Contact**

The required neighborhood meeting for this project took place in person on November 9, 2022 and virtually on November 30, 2022. The applicant, staff, and 28 community members attended the first meeting while 16 others attended the second meeting. The main issues were:

- On-street and offsite parking,
- Vehicular traffic and parking on McIntyre Street,
- Vehicle access onto McIntyre Street from Candelas Parkway,
- The number of residential units,
- The type of retail the commercial spaces would attract; and
- For rent multi-family units will bring down the value of existing single-family homes

The applicant prepared a summary for each meeting, which are attached.

Written notice was sent 15 days prior to the meeting, a published notice was posted in the newspaper 15 days prior to the meeting, and a public hearing sign was posted 15 days prior to the meeting.

### **Commission Recommendation**

On April 18, 2023 the Planning Commission voted ( 7 to 0 ) to recommend approval to the City Council.

### **Strategic Alignment**

The project is consistent with the City Council Strategic Plan principles for the Community and Economic Development work system.

### **Alternative Courses of Action**

N/A

### **Recommendation for Action**

The Arvada Team recommends that the City Council Approve the Planned Unit Development (PUD) Development Plan generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO.

### **Suggested Motion:**

I move that a Planned Unit Development (PUD) Development Plan generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO., be (approved)(denied).

This motion is based on the findings of fact and required conditions (if any) adopted by the Planning

**SUBJECT:** Candelas Filing No. 1, Amendment No.4 Planned Unit Development (PUD), generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO. (Presenter: Rob Smetana, Acting Director of Community and Economic Development) (Continued from July 10, 2023)

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Commission.

This motion is based on the following findings of fact for denial: (Recite approval criteria you believe the evidence fails to satisfy and your reasons).

Prepared by:  
Heidi Van Gieson, Administrative Specialist

Reviewed by:

Approved by:

|                                                                    |           |
|--------------------------------------------------------------------|-----------|
| Josie Suk, Development Systems and Administrative Manager          | 7/19/2023 |
| Rob Smetana, Acting Director of Community and Economic Development | 7/19/2023 |
| Carol Ibanez, Senior Planner                                       | 7/25/2023 |
| Gail Walker, Legal Specialist-Contracts                            | 7/25/2023 |
| Emily Grogg, Senior Assistant City Attorney                        | 7/25/2023 |
| Rachel Morris, City Attorney                                       | 8/1/2023  |
| Linda Haley, Deputy City Manager                                   | 8/2/2023  |
| Lorie Gillis, City Manager                                         | 8/3/2023  |

Enclosure, exhibits & attachments required to support the report



## REPORT TO CITY COUNCIL PUBLIC HEARING

AGENDA ITEM  
10.B.

TO: THE HONORABLE CITY COUNCIL

DATE: August 14, 2023

SUBJECT: Candelas Filing No. 1, Amendment No.4 Major Subdivision Preliminary Plat, generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO. (Presenter: Rob Smetana, Acting Director of Community and Economic Development)  
(Continued from July 10, 2023)

### **Report in Brief**

TRI Point Homes Inc., Owner/Developer, is requesting approval of a townhome and mixed-use development in Candelas.

The development is located on a 5.45 acre site at the entrance of McIntyre Street and West 93rd Place, and will provide additional for-sale townhomes as well as for-rent units above neighborhood retail in two mixed-used buildings. The mixed use retail buildings are located at the entrance to the neighborhood on both sides of McIntyre Street with an urban park and landscaped entrance.

The Arvada Team recommends that the City Council Approve a Major Subdivision Preliminary Plat consistent with the Land Development Code generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO.

### **Financial Impact**

There is no fiscal impact to the city.

### **Background**

The subject property is located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way. The site is designated in the Candelas Outline Development Plan (ODP) as Parcel 2 zoned PUD Residential (PUD-R and platted as Block 9 and Block 22) and Parcel 10 zoned PUD-Business, Professional, Residential (PUD-BPR) and platted as Block 10 and Block 21). The site plan combines ODP 2-ee, 2-ff, 2-oo with Parcel 10 to include 39 townhomes, 33 multi-family units and 10,743 square feet of retail spaces.

Development for this property was previously presented before the Planning Commission and City Council. The first was DA2019-0119 for eleven townhome buildings totaling 57 units. On July 6, 2020, the City Council denied the application since the development did not include any retail uses on Parcel 10 as designated by the Candelas ODP to be mixed-use with residential uses. On June 2022, City Council denied DA2021-0150 and indicated their major concerns included reducing the residential units, increasing the size of retail spaces, not enough off-street parking and guest parking being provided, and additional safety improvements for pedestrians.

### **Discussion**

| Div. 8-3-8 Major Subdivision Preliminary Plat Approval Criteria | Finding | Rationale |
|-----------------------------------------------------------------|---------|-----------|
|-----------------------------------------------------------------|---------|-----------|

**SUBJECT:** Candelas Filing No. 1, Amendment No.4 Major Subdivision Preliminary Plat, generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO. (Presenter: Rob Smetana, Acting Director of Community and Economic Development) (Continued from July 10, 2023)

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**ITEM: 10.B.**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. The proposed subdivision is consistent with the Comprehensive Plan.                                                                                                                                                                                                                                                                                                                                                                                                                       | Complies | The subdivision is consistent with the Comprehensive Plan.                                                                                                                                                                                                                                                     |
| 2. The proposed subdivision is consistent with, and implements, the intent of the zoning district in which it is located. If the subject property is in a PUD zoning district, the subdivision is consistent with any previously approved PUD Outline Development Plan, PUD Development Plan, and/or PUD Final Development Plan.                                                                                                                                                             | Complies | The subdivision is consistent with ODP. A total of 39 townhomes, 33 multi-family units and 10,743 square feet of retail spaces.                                                                                                                                                                                |
| 3. Adequate and sufficient public safety, transportation, utility facilities and services, recreation facilities, parks, and schools will, prior to development, be available to serve the subject property, while maintaining sufficient levels of service to existing development.                                                                                                                                                                                                         | Complies | Public safety, transportation, utility facilities and services, recreation facilities, parks and schools were included and accounted with the Candelas master-planned development.                                                                                                                             |
| 4. The subdivision will not result in significant adverse impacts on the natural environment or the use and enjoyment of adjoining property, including changes in air quality, water quality, noise levels, stormwater runoff, wildlife habitat, and / or natural vegetation, in that such impacts will be substantially avoided or mitigated by design.                                                                                                                                     | Complies | The subdivision is located at the entrance of residential subdivision and will not result in adverse impacts to the natural environment or the use and enjoyment of the Candelas development which this PUD is part of.                                                                                        |
| 5. The proposed subdivision complies with all applicable regulations, standards, requirements, or plans of the federal or state governments and other general or special-purpose governmental entities with jurisdiction, involving (but not limited to) such matters as wetlands, water quality, erosion control, potable water, fire safety, or wastewater regulations.                                                                                                                    | Complies | The subdivision complies with all applicable regulations, standards, requirements or plans of the federal or state governments or other relevant jurisdiction, involving (but not limited to) such matters as wetlands, water quality, erosion control, potable water, fire safety, or wastewater regulations. |
| 6. The proposed subdivision complies with all applicable use, development, and design standards set forth in Chapter 2, Zoning Districts Chapter 4, Environmental and Site Design, and other applicable provisions of this Code, except to the extent the same are modified as may be provided in this LDC. Applicants shall avoid creating lots or patterns of lots in the subdivision that will make future compliance with such development and design standards difficult or infeasible. | Complies | The subdivision complies with all applicable use, development and design standards within the LDC that have not been modified or waived with the ODP and Candelas Architectural Design Standards. Off-street parking required exceeds the Code requirements.                                                   |
| 7. The general layout of lots, roads, driveways, utilities, drainage facilities, and other services within the proposed subdivision is designed in a way that minimizes the amount of land disturbance, maximizes the amount of open space in the development, preserves existing trees / vegetation                                                                                                                                                                                         | Complies | The subdivision is the final site to be developed within the Candelas Master-Planned development. The general layout of the lots, roads, drainage facilities, water, sewer, and storm public improvements were constructed to also serve this subdivision.                                                     |

**SUBJECT:** Candelas Filing No. 1, Amendment No.4 Major Subdivision Preliminary Plat, generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO. (Presenter: Rob Smetana, Acting Director of Community and Economic Development) (Continued from July 10, 2023)

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and riparian areas, protects critical wildlife habitat, and otherwise accomplishes the purposes and intent of this LDC.

### **Public Contact**

The required neighborhood meeting for this project took place in person on November 9, 2022 and virtually on November 30, 2022. The applicant, staff, and 28 community members attended the first meeting while 16 others attended the second meeting. The main issues were:

- On-street and offsite parking,
- Vehicular traffic and parking on McIntyre Street,
- Vehicle access onto McIntyre Street from Candelas Parkway,
- The number of residential units,
- The type of retail the commercial spaces would attract; and
- For rent multi-family units will bring down the value of existing single-family homes

The applicant prepared a summary for each meeting, which are attached.

Written notice was sent 15 days prior to the meeting, a published notice was posted in the newspaper 15 days prior to the meeting, and a public hearing sign was posted 15 days prior to the meeting.

### **Commission Recommendation**

On April 18, 2023 the Planning Commission voted ( 7 to 0 ) to recommend approval to the City Council.

### **Strategic Alignment**

The project is consistent with the City Council Strategic Plan principles for the Community and Economic Development work system.

### **Alternative Courses of Action**

N/A

### **Recommendation for Action**

The Arvada Team recommends that the City Council Approve a Major Subdivision Preliminary Plat generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO.

### **Suggested Motion:**

I move that a Major Subdivision Preliminary Plat generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO., be (approved)(denied).

This motion is based on the findings of fact and required conditions (if any) adopted by the Planning Commission.



**SUBJECT:** Candelas Filing No. 1, Amendment No.4 Major Subdivision Preliminary Plat, generally located north of Candelas Parkway and McIntyre Street, bounded by West 93rd Place and Kilmer Way, in the City of Arvada, CO. (Presenter: Rob Smetana, Acting Director of Community and Economic Development) (Continued from July 10, 2023)

**PAGE:** 4  
**ITEM:** 10.B.

This motion is based on the following findings of fact for denial: (Recite approval criteria you believe the evidence fails to satisfy and your reasons).

Prepared by:  
Heidi Van Gieson, Administrative Specialist

Reviewed by:

Approved by:

|                                                                    |           |
|--------------------------------------------------------------------|-----------|
| Josie Suk, Development Systems and Administrative Manager          | 7/19/2023 |
| Rob Smetana, Acting Director of Community and Economic Development | 7/19/2023 |
| Carol Ibanez, Senior Planner                                       | 7/20/2023 |
| Gail Walker, Legal Specialist-Contracts                            | 7/21/2023 |
| Emily Grogg, Senior Assistant City Attorney                        | 7/21/2023 |
| Rachel Morris, City Attorney                                       | 8/1/2023  |
| Linda Haley, Deputy City Manager                                   | 8/2/2023  |
| Lorie Gillis, City Manager                                         | 8/2/2023  |

Enclosure, exhibits & attachments required to support the report

**City of Arvada**  
**Community and Economic Development Department**  
**PUBLIC HEARING STAFF REPORT**

**CANDELAS FINAL PLAT NO. 1 AMENDMENT 4 PLANNED UNIT  
DEVELOPMENT (PUD) DEVELOPMENT PLAN AND MAJOR  
SUBDIVISION PRELIMINARY PLAT  
DA2022-0093**

**NATURE OF REQUEST**

TRI Point Homes Inc., Owner/Developer, is requesting approval of a townhome and mixed-use development in Candelas.

The development is located on a 5.45 acre site at the entrance of McIntyre Street and West 93<sup>rd</sup> Place, and will provide additional for-sale townhomes as well for-rent units above neighborhood retail in two mixed-use buildings. The mixed-use retail buildings are located at the entry to the neighborhood on both side of McIntyre Street with an urban park and landscaping entry.

**LOCATION AND HISTORY**

The subject property is located north of Candelas Parkway and McIntyre Street, bounded by West 93<sup>rd</sup> Place and Kilmer Way. The site is designated in the Candelas Outline Development Plan (ODP) as Parcel 2 zoned PUD Residential (PUD-R and platted as Block 9 and Block 22) and Parcel 10 zoned PUD-Business, Professional, Residential (PUD-BPR) and platted as Block 10 and Block 21). The site plan combines ODP 2-ee, 2-ff, 2-oo with Parcel 10 to include 39 townhomes, 33 multi-family units and 10,743 square feet of retail spaces.

Development for this property was previously presented before the Planning Commission and City Council. The first was DA2019-0119 for eleven townhome buildings totaling 57 units. On July 6, 2020, the City Council denied the application since the development did not include any retail uses on Parcel 10 as designated by the Candelas ODP to be mixed-use with residential uses. On June 2022, City Council denied DA2021-0150 and indicated their major concerns included reducing the residential units, increase the size of retail spaces, not enough off-street parking and guest parking are provided, and additional safety improvements for pedestrians.

**NEIGHBORHOOD MEETING**

Division 8-2-2 of the Land Development Code requires that at least one neighborhood meeting be held for projects that require public hearings before the Planning Commission and City Council. The required neighborhood meeting for this project took place with an in-person meeting on November 9, 2022 and a virtual meeting held on November 30, 2022.

The applicant, staff, and 28 community members attended the first meeting while 16 others attended the second meeting. The main issues were:

- On-street and offsite parking,
- Vehicular traffic and parking on McIntyre Street,

- Vehicle access onto McIntyre Street from Candelas Parkway,
- The number of residential units,
- The type of retail the commercial spaces would attract; and
- For rent multi-family units will bring down the value of existing single-family homes

The applicant prepared a summary for each meeting, which are attached.

### **PUBLIC NOTIFICATION**

Division 8-2-4 of the Land Development Code requires public notification for all public hearings as follows:

Written Notice: At least 15 days prior to all public hearings, written notice must be mailed to all property owners within 1,500 feet of the subject property and to all homeowners associations and neighborhood associations with a known interest in the subject property. The applicant will provide an affidavit of mailing verifying this requirement has been met prior to the public hearing.

Posted Notice: At least 15 days prior to all public hearings, signs notifying the public of the hearing must be posted on the subject property. The applicant will provide a posting log verifying that this requirement has been met prior to the public hearing.

Published Notice: At least 15 days prior to all public hearings, notice of the hearing must be published in a newspaper of general circulation in the City. The required notice has been published.

### **DEVELOPMENT REVIEW TIMELINE**

The development application was submitted on November 14, 2022, and was processed under the standard development review track of 22 weeks. The applicant and City met the established review and submitted timeline.

### **ALIGNMENT WITH CITY COUNCIL STRATEGIC PLAN**

The project is consistent with the City Council Strategic Plan principles for the Community and Economic Development work system.

### **ZONING AND LAND USE**

The subject property is currently zoned Planned Unit Development (PUD) and is approximately 5.44 acres in size. The surrounding properties are zoned and utilized as follows:

| Direction | Zoning                  | Actual Use                                            |
|-----------|-------------------------|-------------------------------------------------------|
| North     | PUD                     | Single-family detached, trails, and open space        |
| South     | PUD                     | Vacant land                                           |
| East      | CG (Commercial General) | Retail, service and restaurants                       |
| West      | PUD                     | Single-family detached, parks, trails, and open space |

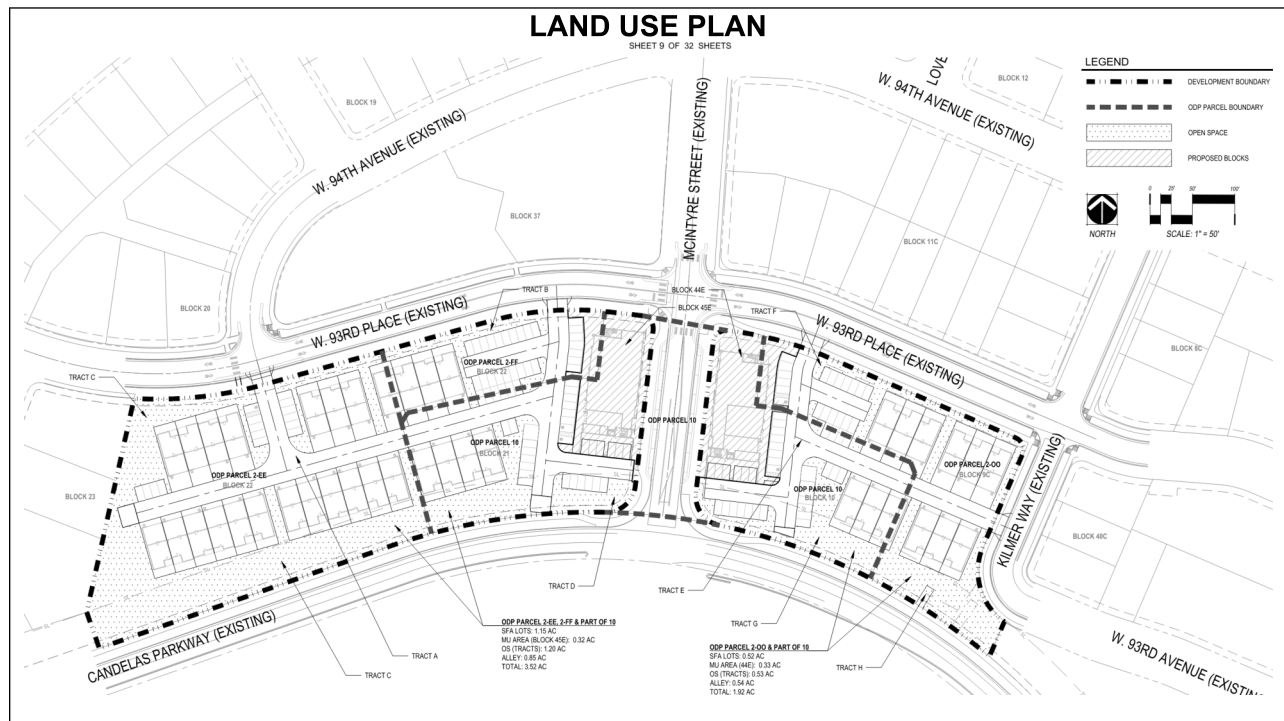
## UPDATED PROJECT ANALYSIS

At the City Council's June 2022 public hearing, Council members provided their concerns as to why they denied approval of the development. The applicant addressed the concerns and made the following changes to the PDP:

- Reduced the townhome unit count from 42 units to 39 units.
- Increased the retail square footage for the mixed-use buildings.
- Additional safety improvements to the neighborhood streets to include curb bump outs, crosswalk striping, and pedestrian crossing signs and beacons.
- Increased the number of guest surface parking spaces for townhomes, multifamily and retail spaces. Two of the spaces will be include EV charging stations.
- Increased the number of bike parking.
- Relocated the mixed-use trash enclosures internal to the site.

## Compliance with the Comprehensive Plan

The Comprehensive Plan Future Land Use Plan designation is "Mixed-Use Residential Emphasis" which allows the proposed development of townhomes, and mix-use buildings on either side of McIntyre Street, which includes ground floor neighborhood scale retail and multi-family units above.



### **Compliance with Other Applicable Plans**

The proposed PDP meets all requirements and requirements and regulations of the approved Candelas ODP.

### **Setbacks**

The proposed minimum setbacks and dimensional standards are as follows:

|                                                                  |                                              |
|------------------------------------------------------------------|----------------------------------------------|
| Minimum lot size                                                 | 1700 SF                                      |
| Minimum lot frontage                                             | 25 FT                                        |
| Minimum lot depth                                                | 68 FT                                        |
| Side setback                                                     | 0 FT                                         |
| Rear setback                                                     | 6 FT                                         |
| Living area to property line<br>Covered porches to property line | 8 FT                                         |
| Minimum distance between structures                              | 15 FT                                        |
| Maximum building heights                                         | 25 FT Townhomes<br>40 FT Mixed-use buildings |
| Maximum building coverage                                        | 80% Townhomes<br>70% Mixed-use buildings     |
| Residential setback to arterial street                           | Candelas Parkway is 100 feet.                |

### **Building Height**

The maximum height allowed for townhomes is 35 feet and the mixed-use building is 45 feet. The proposed townhomes will not exceed 25 feet; while the mixed-use buildings will be 40 feet. Both the townhomes and mixed-use buildings comply with the ODP height standards.

### **Open Space and Parks**

The total acreage required for park and open space land dedication were provided on a community wide basis for Candelas and not by individual subdivision filings. A summary of all park and open space land dedications required and provided and are accounted with each filing. For this development, based on total number of units, the open space required is 1.09 acres with 1.82 acres provided. The required park land dedication for this development is 1.35 acres. The overall park land dedication exceeded what was required. There is approximately 70.66 acres with two recreation centers, five parks and over 13 miles of trails within Candelas.

### **Landscaping, Buffering and Fencing**

The entrance to McIntyre Street and Candelas Parkway includes enhanced landscaping, large planting beds with varying plants species for seasonal interest creating a prominent entrance to the community. An urban plaza along the corners of McIntyre and W. 93<sup>rd</sup> Place is also provided. The proposed landscape area is 35 percent exceeding the minimum of 20 percent. A 20 foot landscape buffer is provided on the west side of the townhomes adjacent to the single family homes. Additional screening includes deciduous, ornamental and evergreen trees and 6 foot privacy fences consistent with the adjacent lots allowed as part of the Candelas design guidelines.

## Building Design

The townhomes and the mix-use buildings conform to the LDC standards. There are two elevation styles for the townhomes that are designed incorporating similar materials, massing, windows, roof forms and fenestration on all four sides. Entryways include large front porches and adjacent side windows, and outdoor patio spaces.

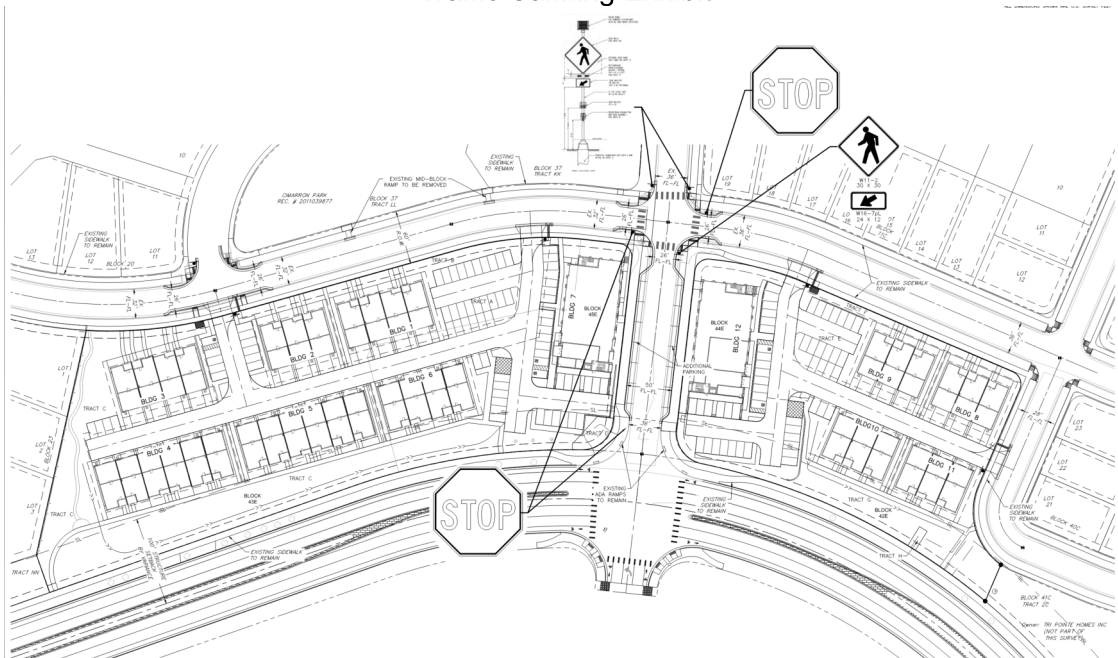
The mixed-use buildings both face the street and bookend the two sides of McIntyre Street creating a pedestrian scale and fenestration at street level. The architecture features incorporate visual interest and articulation to include roof parapet stepping, materials transitions, store front glazing enhancing transparency at all street facing elevations.

## Circulation and Connectivity

Primary access to the site is from State Highway 72, Indiana Street, Candelas Parkway and McIntyre Street. Direct access will be from three accesses along West 93<sup>rd</sup> Place and one access from Kilmer Way. The development is expected to generate approximately 1,090 weekly daily trips, with 57 trips occurring during the morning peak hour and 110 trips occurring in the afternoon peak.

Measures to address on-going concerns include additional traffic calming and pedestrian safety. Crosswalk pavement markings and curb bump outs on all four legs of the West 93<sup>rd</sup> Place and McIntyre Street. Curb bump outs are proposed at the West 93<sup>rd</sup> Place and West 94<sup>th</sup> Avenue intersections narrowing the roadway resulting in slower vehicle speeds through these intersections and reduce the distance for a pedestrian crossing. A pedestrian activated rectangular rapid flashing beacon is proposed on the north leg of the intersection to provide additional notice for McIntyre Street drivers that a pedestrian is crossing. Parallel parking is proposed along the east and west side of McIntyre Street, fronting the retail uses and further control vehicle speed.

## Traffic Calming Exhibit





### **Grading and Drainage**

Overlot grading for the site was completed with the Candelas Filing No. 1 development. Minimum grading is proposed on-site and no impact is anticipated to the adjacent neighborhood. Drainage will flow to the northeast corner of the property where inlets have been constructed to serve this development. The Candelas Filing No. 1 Final Drainage Report indicated that this area will drain to the existing Pond 408. The grading for this site will adhere to the Filing No. 1 drainage patterns.

### **Parking and Loading**

The required off-street parking space for townhomes and multi-family units is 2 spaces per unit. Retail spaces require 4 spaces per 1,000 square feet. A total of 252 parking spaces are provided.

|                     | Units  | Required Parking | Provided Parking | Details                                |
|---------------------|--------|------------------|------------------|----------------------------------------|
| Townhomes East/West | 39     | 78               | 112              | 82 garage, 34 driveways                |
| Mixed-Use           | 33     | 66               | 66               | Head-in, 2 EV, 1 accessible            |
| Retail              | 10,743 | 44               | 44               | Head-in, 3 accessible                  |
| Guest spaces        |        | 0                | 30               | McIntyre - 12 parallel<br>18 Head In   |
| Overall total       |        | 188              | 252              | 64 spaces (additional spaces per Code) |

### **Utility Services**

The overall supporting infrastructure for the site was designed and built as part of the Infrastructure Master Plan for Jefferson Center Metropolitan District No. 1 North Area. An existing 8" sanitary sewer is located within West 93rd Place and McIntyre Street. There are existing water lines surrounding the development. A 12" water main is located in Candelas Parkway, two 8" water mains in McIntyre Street, and an 8" water main in West 93rd Place. The development will connect to the existing wastewater and water mains designed to accommodate this development.

Dry utility providers (i.e. gas, electric, phone and cable services) will design and provide service to the area including telephone, cable television, and internet services. The service providers include Lumens, TDS, Public Service and Xcel Energy.

### **Police and Fire Protection**

The Arvada Police Department (APD) will continue to provide police service from the Whisper Creek Station at 14360 West 89th Drive. The Arvada Fire Protection District (AFPD) also serves the development which is located within Candelas.

### **School District**

Candelas is within the Jefferson County R-1 School District (JeffCo). The required school land dedication was determined based on the maximum number of dwelling units within ODP Parcel

2 and Parcel 10. A total of 25 acres were dedicated by the master developer Arvada Residential Partners to JeffCo Schools to meet the required school land dedication. Three Creeks K-8 is located on the west side of Candelas along West 94th Avenue serves the students within the Candelas neighborhood.

### **LAND DEVELOPMENT CODE APPROVAL CRITERIA**

It is the responsibility of the applicant to justify the requested land use application. The Planning Commission should make a recommendation to the City Council based on its findings regarding the approval criteria shown in the tables below and upon testimony heard during the public hearing as it applied to the criteria.

Staff performed an analysis of the proposal, based on the approval criteria listed in Chapter 8 of the Land Development Code, and presents the following findings:

| <b>Div. 8-3-10 PUD Development Plan Approval Criteria</b>                                                                                                                                                                                                                                                                                                                                                                               | <b>Finding</b> | <b>Rationale</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. The plan is consistent with the Comprehensive Plan or reflects conditions that have changed since the adoption of the Comprehensive Plan                                                                                                                                                                                                                                                                                             | Complies       | The PUD includes ODP Parcel 2 2-ee, 2-ff, and 2-oo that are consistent with the Comprehensive Plan Suburban Residential for attached residential units. ODP Parcel 10 is also consistent with the Mixed-Use Residential Emphasis for multi-use building of neighborhood retail use and multi-family units.                                                                                                                                                                                                                                                     |
| 2. The plan is consistent with and implements and previously approved Outline Development Plan in effect for the subject property, per Section 8-3-10-7, PUDs Approved Prior to Effective Date.                                                                                                                                                                                                                                         | Complies       | The PUD meets all requirements and regulations of the approved ODP including use, height, setbacks, and density requirements.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 3. The plan represents a development that will address a unique situation, confer a substantial benefit to the City, or incorporate creative site design such that it achieves the purposes set out in Section 8-3-10-1, Purpose of Planned Development Zone, and represents an improvement in quality over what could have been accomplished through application of the otherwise applicable zoning district or development standards. | Complies       | The PUD provides additional townhomes and multi-family units housing choices intended in the Candelas Master-Planned. Neighborhood retail opportunities are proposed including enhanced pedestrian plazas, creating a more urban feel at the entrance directly adjacent to the Candelas Swim and Fitness Club. Additional traffic calming and pedestrian safety include crosswalk pavement markings and curb bump outs on all four legs of the West 93rd Place and McIntyre Street. A pedestrian activated rectangular rapid flashing beacon is also included. |

|                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. The plan generally complies with the intent of the use, development and design standards set forth in the LDC.                                                                                                                                                                                                                                                                                                                  | Complies | The PUD complies with all applicable use, development and design standards of the Land Development Code.                                                                                                                                                                                                                                                                                                                                                 |
| 5. To the extent reasonably feasible, the plan provides for integration and connection with adjoining development through street connections, sidewalks, trails, and similar features; unless due to the nature of the uses that are allowable in the plan such connections are not desirable.                                                                                                                                     | Complies | The PUD is part of the Candelas and is the remaining site to be developed and will connect with the existing street connections, sidewalk, trails, and parks and open space to residential communities in Candelas.                                                                                                                                                                                                                                      |
| 6. Sufficient public safety, transportation, and utility facilities and services will, prior to development, be available to serve the subject property, while maintaining sufficient levels of service to existing development.                                                                                                                                                                                                   | Complies | As part of the master utility and facilities, existing streets, Police and Fire Department there is sufficient public safety, and infrastructure services are available to serve the proposed development.                                                                                                                                                                                                                                               |
| 7. The proposed uses (or group of uses) are appropriately located and designed, both within the boundaries of the plan and in relation to adjacent uses, such that the foreseeable, material adverse impacts that may be created by the scale, design, and operating characteristics (e.g., hours of operation, traffic generation, lighting, noise, odor, dust, and other external impacts) of the uses are avoided or mitigated. | Complies | The townhomes and the multi-use buildings are compatible with the adjacent residential uses in terms of scale, site design and character of Candelas. The addition of two mixed-use buildings with ground level retail pedestrian scale interest along the public street facing elevation and residential on the second and third floor, pedestrian providing a more urban feel. This will help define the mixed-use village center of the neighborhood. |

| Div. 8-3-8 Major Subdivision Preliminary Plat Approval Criteria                                                                                                                                                                                                                                                                  | Finding  | Rationale                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. The proposed subdivision is consistent with the Comprehensive Plan.                                                                                                                                                                                                                                                           | Complies | The subdivision is consistent with the Comprehensive Plan.                                                                                                                         |
| 2. The proposed subdivision is consistent with, and implements, the intent of the zoning district in which it is located. If the subject property is in a PUD zoning district, the subdivision is consistent with any previously approved PUD Outline Development Plan, PUD Development Plan, and/or PUD Final Development Plan. | Complies | The subdivision is consistent with ODP. A total of 39 townhomes, 33 multi-family units and 10,743 square feet of retail spaces.                                                    |
| 3. Adequate and sufficient public safety, transportation, utility facilities and services, recreation facilities, parks, and schools will, prior to development, be available to serve the subject property, while maintaining sufficient levels of service to existing development.                                             | Complies | Public safety, transportation, utility facilities and services, recreation facilities, parks and schools were included and accounted with the Candelas master-planned development. |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. The subdivision will not result in significant adverse impacts on the natural environment or the use and enjoyment of adjoining property, including changes in air quality, water quality, noise levels, stormwater runoff, wildlife habitat, and / or natural vegetation, in that such impacts will be substantially avoided or mitigated by design.                                                                                                                                     | Complies | The subdivision is located at the entrance of residential subdivision and will not result in adverse impacts to the natural environment or the use and enjoyment of the Candelas development which this PUD is part of.                                                                                        |
| 5. The proposed subdivision complies with all applicable regulations, standards, requirements, or plans of the federal or state governments and other general or special-purpose governmental entities with jurisdiction, involving (but not limited to) such matters as wetlands, water quality, erosion control, potable water, fire safety, or wastewater regulations.                                                                                                                    | Complies | The subdivision complies with all applicable regulations, standards, requirements or plans of the federal or state governments or other relevant jurisdiction, involving (but not limited to) such matters as wetlands, water quality, erosion control, potable water, fire safety, or wastewater regulations. |
| 6. The proposed subdivision complies with all applicable use, development, and design standards set forth in Chapter 2, Zoning Districts Chapter 4, Environmental and Site Design, and other applicable provisions of this Code, except to the extent the same are modified as may be provided in this LDC. Applicants shall avoid creating lots or patterns of lots in the subdivision that will make future compliance with such development and design standards difficult or infeasible. | Complies | The subdivision complies with all applicable use, development and design standards within the LDC that have not been modified or waived with the ODP and Candelas Architectural Design Standards. Off-street parking required exceeds the Code requirements.                                                   |
| 7. The general layout of lots, roads, driveways, utilities, drainage facilities, and other services within the proposed subdivision is designed in a way that minimizes the amount of land disturbance, maximizes the amount of open space in the development, preserves existing trees / vegetation and riparian areas, protects critical wildlife habitat, and otherwise accomplishes the purposes and intent of this LDC.                                                                 | Complies | The subdivision is the final site to be developed within the Candelas Master-Planned development. The general layout of the lots, roads, drainage facilities, water, sewer, and storm public improvements were constructed to also serve this subdivision.                                                     |

### **STAFF RECOMMENDATION**

Based upon project analysis and updated PUD Preliminary Development Plan and Major Subdivision Preliminary Plat, and the Land Development Code approval criteria, staff recommends approval of the project.

The Planning Commission may recommend denial of the requests if it cannot make affirmative findings of the approval criteria stated above.

# CANDELAS MEETING

## Sign-In Sheet

11/9/22

| Name                 | Email                     | Phone Number | Address                                     |
|----------------------|---------------------------|--------------|---------------------------------------------|
| Bob Boscolo          | bboscola@aol.com          | 303-246-2843 | 15477 W 95 <sup>th</sup> AVE DRUMMOND 80007 |
| John Martinez        | johnmartinezwdt@yahoo.com |              | 15855 W 94 <sup>th</sup> Ave                |
| Jim + Melissa Victor | jimvictor70@gmail.com     |              | 9340 Nick Ct.                               |
| Dennis Morales       | dimorales@gmail.com       |              | 9844 Kilmer Valley - follow up              |
| Jeff Caliguire       | Jeff.Caliguire@yahoo.com  | 224-232-7126 | 9330 Nick Court - follow up                 |
| Craig Conway         | conway.csa@gmail.com      | 848 992 1949 | 9560 Kendrick way                           |
| MIVE Samore          | Salmonmb@gmail.com        | 206-940-2041 | 9574 LeYCEE way                             |
| ROBIN CHARTIER       | ROBINDC12@GMAIL.COM       | 303-505-8292 | 9324 Kilmer Way - follow up                 |
| E Ash                | Klemistoy@gmail.com       | 773 991 7520 | 15341 W. 93rd Place                         |

5/12/2022



# CANDELAS MEETING

## Sign-In Sheet

11/9/22

| Name                              | Email                           | Phone Number             | Address                 |
|-----------------------------------|---------------------------------|--------------------------|-------------------------|
| Dale Miller                       | dale.miller@comcast.net         |                          | 7322 Noble Way          |
| Kim Avery                         | KimAvery@aol.com                | 3-956-7303               | 9535 Kilmer Way         |
| Laura Carpenter<br>Bob Vanderveen | carpentfamily@gmail.com         | 3-956-1118<br>3-656-6659 | 9320 Nile Ct Anada 8007 |
| Wayne & Becky<br>Soderfeldt       | wbsoder@gmail.com               | 720 255-9689             | 15798 W 95th Ave        |
| Carol Ann                         | city of Anada                   |                          |                         |
| Jason Smith                       | jasbsmith77@gmail.com           | 305-710-7413             | 9374 Kilmer Way         |
| Joshua Hernandez                  | joshua.hernandez.1989@gmail.com | 915-497-3607             | 15795 W 94th Ave        |
| Kristy Thorson                    |                                 | 3570-4470                | Juniper Way             |
| Heather Buschman                  | heatherbuschman@gmail.com       | 3) 815-3384              | 95TH & MCINTYRE         |



## 11/9/22

[illegible]

# CANDELAS MEETING

## Sign-In Sheet

11/9/22

| Name             | Email                     | Phone Number   | Address           |
|------------------|---------------------------|----------------|-------------------|
| Erin Bott        | erinbott09@gmail.com      | (303) 249-5810 | 9364 Kilmer Way   |
| Jessica Flick    | J.Flick@fuse.net          | 959-512-4749   | 15206 W-94th Ave  |
| Alex Ginter      | ginterabxandra@gmail.com  | 720 999 5799   | 5320 S. Roslyn St |
| Molly Kehl       | mkehl@live.com            | 303-908-1628   | 9374 Kilmer Way   |
| Jennifer Myhr    | jennifer.myhr@gmail.com   | 720/220-9116   | 15225 W 93rd Ave  |
| Scott Myhr       | S.myhr11@gmail.com        | 3/931-5537     | 11                |
| Brenda Atkins    | brenda.g.atkins@gmail.com | 720-737-8194   | 9557 Nile Way     |
| Stephanie Myers  | Stinears51@gmail.com      | 727-741-3847   | 15795 W 94th Ave  |
| Salam Sami Ahmed | asbani.ahmed@gmail.com    | 414 736 5638   | 19020 W 92nd Dr   |

Candelas Neighborhood Filing No. 1 Amendment 4 Meeting Notes  
Candelas Swim and Fitness Club  
November 9, 2022  
6:00pm – 7:30pm

The meeting was attended by 28 members of the Candelas community along with representatives from TRI Pointe Homes and their consulting team.

Outreach director Marcus Pachner and Planner Bonnie Niziolek co-presented a 25-slide presentation that provided a short history of the site, previous site plan iterations, feedback from community outreach to date, and the new proposed site plan

Highlights of the presentation included:

- The challenges (and community push back) about temporary uses
- TRI Pointe's success in finding a partner willing to accept the commercial partner free of charge.
- New Site Plan specifics –
  - Removed 3 townhomes
  - Reduced Max Building Heights (25' max townhome, 40' max mixed use)
  - Safety Improvements
    - Additional Signage
    - Flashing Beacon Light for pedestrians
    - Speed bumps
  - Increased Commercial Space
  - Increased Bike Parking
  - Adding EV Charging to 2 surface spaces
  - Reallocation of trash enclosure to the internal of the site.

During the question-and-answer period, the main issues of concern were:

- On-street parking and offsite parking
- Vehicular traffic and parking on McIntyre
- Vehicle access onto McIntyre from Candelas
- The increase in the number of residential units
- The type of retail the commercial spaces would attract
- Multi-family for-rent product bringing down the property value of existing single-family homes.

Below is a run down of questions and the answers provided by TRI Pointe Homes or members of the consulting team:

Q. What is the width of 93<sup>rd</sup> north of the site?

A. We are doing the bulb outs on the northside side 26 ft from curb to curb.

Q. The Sight distances going south on McIntyre and East bound on Candelas parkway make it hard enough to get out of Candelas. Are you proposing trees along McIntyre in those sight distances?

A. The Tripointe team will be planting trees along McIntyre, but no trees will be blocking or interfering with sight distances on McIntyre

Q. Have you looked at the raised crosswalk?

A. The team has evaluated the raised crosswalk and will solicit feedback from the city.

Q. What is going on with the other Tripointe Project?

A. We are finalizing the project and model homes will be established soon.

Q. 34 of the parking spots are allocated to 17 units, so why are 34 parking spots for the townhomes counted in the total numbers as a whole? Why are we not counting these as separate counts?

A. The parking counts were counted per Arvada parking code. Please refer to the chart below for parking count below for allocation parking.

| Use          | Required           | Provided                              |
|--------------|--------------------|---------------------------------------|
| Townhome     | 2 per home = 78    | 78 Garage<br>34 Driveway (north lots) |
| Multi-family | 2 per home = 66    | 66 Surface                            |
| Commercial   | 4 per 1000 SF = 44 | 44 Surface                            |
| Guest        | 0                  | 12 Parallel on McIntyre<br>18 Surface |
| Total        | 188                | 252 (+64)                             |
|              |                    | 28 Bike Parking Spaces                |

Q. We are concerned about the parking at the pool for guests and visitors. Is there any way we can regulate the parking at the pool?

A. There will be a sub association that we can set up to help regulate parking.

Q. Is there a financial plan in place to ensure this development gets developed?

A. Tripointe Homes will build the townhomes and our partner would build the retail.

Q. Is there a plan for the western neighbors to have a fence or something to help buffer out the space?

A. We are doing a 6 ft privacy fence, and adding landscaping along the westernly edge to allow for additional buffering.

Q. Why are there so many units?

A. This site was actually planned for much more density on this site in the master plan and the comprehensive plan. We are working the least amount of density that will support the retail on this site.

Q. Why do they need so many units if they are getting this land for free?

A. It's a substantial investment to build these buildings.

Q. Why are these units not condos?

A. Not a lot of builders are building condos due to Local construction defects and liability.

Q. Is the eastern access emergency vehicular access only?

A. No, the access is open to all, and is needed to comply with fire codes and standards.

Q. Why is there a sidewalk along the eastern side of the property if it was going to be developed as access?

A. The sidewalk there is a temporary condition that needs to knit together and link up with the surrounding sidewalks.

Q. Could there be additional signage for residents only on Kilmer way to restrict people from parking on our roads?

A. We can ask the city to see if that's possible. The proposed 12 homes on the eastern property have 30 parking spots in total , we hope and encourage those homeowners to park in their spots.

Q. What is the average size of a parking space? What do the McIntyre parking spots look like?

A. Average size of parking spaces are 8ft. We are cutting into our property 6ft and maintaining the 3 lanes on McIntyre.

Q. Could there be a roundabout on the north side of the project?

A. Our team looked at it, but we want to slow down traffic, roundabouts take up a lot of space, and generally make the distance longer for pedestrians to cross.

Q. Do the units have patios?

A. There are patios on every unit, middle units have front facing patios and the end lots have side facing patios.

Q. What's your commercial parking spaces?

A. 4 per 1000 sq ft for a total of 44 surface parking spaces.

Q. How many businesses does the retail space hold?

A. We don't know at this time.

Q. How does our Association regulate covenants?

A. This project will have a subassociation will write their CCRs to reflect the metro district association's CCRs

Q. What assurance do we have for the commercial developer?

A. We went to the city to change the comp plan to ensure that this land use is adhering to the vision of the community.

The meeting adjourned at 7:30pm



# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO

SHEET 1 OF 32 SHEETS

### LEGAL DESCRIPTION:

ALL OF CANDELAS FILING NO. 1, AMENDMENT NO. 4, RECORDED UNDER RECEPTION NUMBER \_\_\_\_\_ LOCATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF ARVADA, COUNTY OF JEFFERSON, STATE OF COLORADO.

SAID PARCELS CONTAIN A TOTAL OF 5.44 ACRES (237,158 SQ. FT.) MORE OR LESS.

### STATEMENT OF INTENT

#### OVERALL CONCEPT:

CANDELAS FILING NO. 1 AMENDMENT NO. 4 IS A NEW RESIDENTIAL DEVELOPMENT IN THE CANDELAS NEIGHBORHOOD OF ARVADA. THE SITE IS LOCATED ON FOUR EXISTING VACANT BLOCKS (BLOCK 9, BLOCK 10, BLOCK 21 AND BLOCK 22) NORTH OF CANDELAS PARKWAY, SOUTH OF WEST 93TH PLACE, EAST OF NOBLE STREET AND BISECTED IN THE NORTH-SOUTH DIRECTION BY MONTYRE STREET. THE GROUND SURFACE SLOPES GENTLY TO THE NORTHEAST. THE SITE HAS NO EXISTING STRUCTURES AND NO EXISTING TREES OR NOTABLE VEGETATION.

THE FOLLOWING REVISIONS HAVE BEEN INCLUDED FROM THE PREVIOUS APPLICATION:

- THE TOWNHOME UNIT COUNT HAS BEEN REDUCED FROM 42 TO 39 UNITS.
- THE RETAIL SQUARE FOOTAGE OF THE MIXED-USE BUILDINGS HAS BEEN INCREASED FROM 8,328 SF TO 10,743 SF.
- AVAILABLE SURFACE PARKING HAS BEEN INCREASED TO PROVIDE ADDITIONAL GUEST SPACES FOR BOTH TOWNHOME UNITS, MULTIFAMILY UNITS, AND RETAIL SPACES, INCLUDING 2 EV SPACES.
- BIKE PARKING HAS BEEN INCREASED.
- THE BUFFER TO THE ADJACENT HOMES TO THE WEST HAS BEEN INCREASED.
- SAFETY IMPROVEMENTS HAVE BEEN ADDED INCLUDING CURB BUMP OUTS, CROSSWALK STRIPING, AND PEDESTRIAN CROSSING SIGNS AND BEACONS.
- THE TRASH ENCLOSURES HAVE BEEN RELOCATED INTERNAL TO THE SITE.

THE SITE FOR THIS NEW TOWNHOME COMMUNITY IS CURRENTLY ZONED FOR RESIDENTIAL (PUD-R AND PUD-BPR ZONING). 42 SINGLE-FAMILY ATTACHED LOTS ARE BEING PROPOSED WHICH WILL VARY IN SIZE SLIGHTLY BETWEEN 68'X25', 68'X26', 80'X25', AND 80'X26' DEPENDING ON THE LOCATION AND THE DRIVEWAY SET-UP. THE LOT SIZES ALSO VARY DUE TO THE DIFFERENCE IN THE REAR APRON TO THE GARAGE AND THE LOCATION AS END UNIT OR INTERIOR UNIT. TWO MIXED-USE BUILDINGS ARE LOCATED ON EITHER SIDE OF MONTYRE STREET, WITH NEIGHBORHOOD SCALE RETAIL ON THE GROUND FLOORS AND 32 MULTI-FAMILY UNITS LOCATED ABOVE. A MANAGER'S UNIT IS LOCATED ON THE GROUND FLOOR OF THE WESTERN BUILDING AS WELL. THIS ALLOWS FOR APPROXIMATELY 5,821 SF WEST SIDE, 4,922 EAST SIDE OF NEIGHBORHOOD SCALE RETAIL OPPORTUNITIES ON THE WEST AND EAST BUILDINGS, RESPECTIVELY. DUE TO THE NATURE OF AN ALLEY-LOADED NEIGHBORHOOD, THE TOWNHOMES AND MIXED-USE OPPORTUNITIES PROMOTE A PEDESTRIAN FRIENDLY ENVIRONMENT WHICH ENCOURAGES COMMUNITY INTERACTION. ATTRACTIVE FACADES ENHANCE THE RESIDENT'S EXPERIENCE AND BUILDS UPON THE OVERALL CANDELAS VISION.

THE PROPOSED PLANS PROVIDE AMPLE OPEN SPACE AREAS WITH NEARBY PARKS ACCESS AND AN URBAN PLAZA AMENITY. A PROMINENT ENTRY IS PROVIDED AT THE ENTRANCE OF MONTYRE STREET AND CANDELAS PARKWAY, COMPLEMENTING THE URBAN PLAZA AND AMENITIES. THE ELEVATION STYLE OF THE TOWNHOMES IS WARM-CONTEMPORARY BLENDED WITH A MORE TRADITIONAL ARCHITECTURAL STYLE WITH FOUR-SIDED BUILDING DESIGN. THIS BLEND OF WARM CONTEMPORARY AND TRADITIONAL WILL CREATE A WELCOMING STREETSCAPE THAT FITS SEAMLESSLY INTO THE COMMUNITY. THE TOWNHOME ELEVATION STYLES ARE "FARMHOUSE" AND "PRAIRIE" AND THE MIX OF BUILDING ELEVATIONS, ESPECIALLY WITH THE MIXED-USE BUILDINGS ALONG MONTYRE, WITH THE ADDITION OF FRONT PORCHES FRONTING THE STREET, PROVIDES VISUAL INTEREST AND CHARACTER. CLOSE ATTENTION IS GIVEN TO THE COLOR PALETTES AND ARCHITECTURAL FEATURES THAT ARE DESIGNED FOR EACH ELEVATION.

THE PROPOSED NEIGHBORHOOD WILL HAVE LANDSCAPE BUFFERS AROUND THE SITE, HELPING TO INTEGRATE INTO THE REST OF THE COMMUNITY. LANDSCAPE AND EVERGREEN TREES WILL BE USED TO SCREEN THE PROPOSED HOMES FROM CANDELAS PARKWAY. THERE ARE ALSO MULTIPLE OPEN SPACE TRACTS USED TO BREAK UP THE RESIDENTIAL BUILDINGS AND SERVE AS AMENITIES TO THE SURROUNDING NEIGHBORHOOD.

THE CITY PARKING REQUIREMENTS ARE EXCEEDED, WITH TWO PARKING SPACES REQUIRED PER UNIT. 39 TOWNHOME UNITS REQUIRES A TOTAL OF 78 SPACES, AND 33 MULTI-FAMILY UNITS REQUIRES A TOTAL OF 66 SPACES. EACH TOWNHOME UNIT HAS A TWO-CAR GARAGE, WHICH RESULTS IN THE REQUIRED 84 SPACES. IN ADDITION, 17 UNITS HAVE FULL-LENGTH DRIVEWAYS, WHICH RESULTS IN 34 GUEST PARKING SPACES. 66 MULTI-FAMILY SPACES PROVIDED, 1 BEING ACCESSIBLE, 2 EV. RETAIL REQUIRES FOUR PARKING SPACES PER 1,000 SF. AT 5,821 SF AND 4,922 SF RETAIL, A TOTAL OF 44 RETAIL PARKING SPACES ARE REQUIRED. 44 HEAD-IN RETAIL PARKING SPACES ARE PROVIDED, 3 ACCESSIBLE. ADDITIONALLY, 18 HEAD-IN GUEST PARKING SPACES ARE PROVIDED (1 ACCESSIBLE, PLUS 1 ON-STREET GUEST SPACE ON MONTYRE) 6 PARALLEL PARKING SPACES ON EITHER SIDE OF MONTYRE STREET FOR A TOTAL OF 12 STREET PARKING SPACES. THUS, A TOTAL OF 252 PARKING SPACES ARE PROVIDED, FOR A SURPLUS OF 64 SPACES.

### STATEMENT OF INTENT:

CANDELAS ODP AMENDMENT 6 WAS APPROVED IN 2017 FOR 1950 D/U ON PARCEL 2 AND 34 D/U ON PARCEL 10. THIS PDF FILING NO. 1 AMENDMENT NO. 4 IS FOR 39 TOWNHOME UNITS AND 33 MULTI-FAMILY D/U, 32 OF WHICH ARE LOCATED ON PARCEL 2, AND 40 OF WHICH ARE LOCATED ON PARCEL 10. THE ODP ALLOWS FOR A MINOR MODIFICATION OF UP TO A 20% INCREASE IN DENSITY. ALLOWING PARCEL 10 TO INCREASE BY 20% FROM 34 UNITS TO 40 UNITS. THUS THE TOTAL NUMBER OF D/U REPRESENTS 31 UNITS LESS (1950-1919 TOWNHOMES) THAN WHAT IS POSSIBLE ACCORDING TO ODP 6 FOR PARCEL 2 AND 10.

### PDF FILING NO. 1, AMENDMENT NO. 4 DEVELOPED AREA:

FILING NO. 1, AMENDMENT NO. 4 INCLUDES A TOTAL PLATTED AREA OF 5.58 ACRES OF WHICH 1.73 ACRES ARE OPEN SPACE. THE GROSS PDF AREA IS 5.44 ACRES, AND THIS FILING HAS 72 SINGLE FAMILY ATTACHED UNITS CREATING A GROSS DENSITY OF 10.36 DU/AC.

### FUTURE DEVELOPMENT AT CANDELAS:

THE MAXIMUM DWELLING UNITS FOR ODP PARCEL 2 WITH THIS AMENDMENT IS 1,950 DU AT A DENSITY OF 2.66 DU/AC. THE MAXIMUM DWELLING UNITS FOR ODP PARCEL 10 WITH THIS AMENDMENT AND MINOR MODIFICATION IS 40 DU/AC AT A DENSITY OF 11.70 DU/AC, FOR A TOTAL OF 1,990 D/U. TO DATE, 1,712 DU HAVE BEEN PLATTED WITH FILINGS 1 THROUGH 4 AND ASSOCIATED AMENDMENTS. PENDING APPROVAL, AN ADDITIONAL 98 DU WILL BE PLATTED AS PART OF FILING 2 AMENDMENT 2, 72 DU AS PART OF FILING 1 AMENDMENT 4 (PARCELS 2 AND 10), AND 37 DU AS PART OF FILING 1 AMENDMENT 5 FOR A TOTAL OF 1,919 DU THAT WOULD LEAVE A BALANCE OF 31 DU AVAILABLE FOR FUTURE USE. HOWEVER, THE PARCEL 2 AND 10 AREAS WILL BE FULLY BUILT OUT AFTER FILING 1 AMENDMENT 4 AND AMENDMENT 5 AND THEREFORE THE REMAINING UNIT COUNT IS 0.

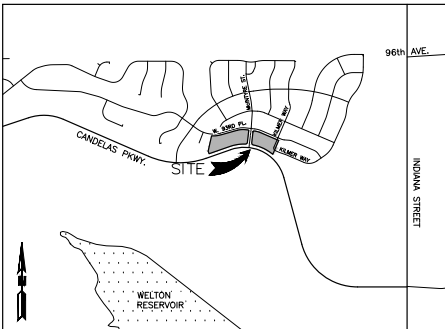
### DEVELOPMENT SCHEDULE:

THIS IS A PRIVATELY FUNDED DEVELOPMENT AND CONSTRUCTION IS MARKET DEPENDENT.

### ACCESS:

ACCESS TO THE SITE WILL BE FROM THE EXISTING ROAD NETWORK CONSTRUCTED WITH FILING NO. 1. PROPOSED ALLEYS WILL CONNECT TO EXISTING W. 93RD PLACE.

NO NEW PUBLIC ROADS ARE PROPOSED AS A PART OF THIS DEVELOPMENT.



VICINITY MAP

NOT TO SCALE

### CITY REVIEW TEAM

ARVADA FPD:  
STEVEN PARKER -- FIRE MARSHAL  
PHONE: (303)403-0477  
EMAIL: steven.parker@arvadafire.com

STORMWATER:  
JAKE MOYER  
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EMAIL: jmoyer@arvada.org

### PROJECT TEAM

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DENVER, CO 80237  
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TRAFFIC:  
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4582 S. ULLSTER ST. #1500  
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12499 W. COLFAX AVENUE  
LAKEWOOD, CO, 80215  
PHONE: (303)431-6100

DEVELOPMENT ENGINEERING/TRAFFIC:  
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PLANNER/LANDSCAPE ARCHITECT:  
NORRIS DESIGN  
1101 BANNOCK STREET  
DENVER CO 80204  
PHONE: (303)892-1166

PHOTOMETRICS:  
STUDIO LIGHTING  
63 SUNSET DR.  
BAILEY, CO 80421  
PHONE: (303)242-1572

### SHEET INDEX

|           |                                      |
|-----------|--------------------------------------|
| CIVIL     | COVER SHEET                          |
| 1         | SITE PLAN                            |
| 2         | UTILITY PLAN                         |
| 3         | GRADING PLAN                         |
| 4         | EROSION CONTROL PLAN                 |
| 5         | SIGNING & STRIPING PLAN              |
| 6         | EMERGENCY ACCESS & SNOW STORAGE PLAN |
| 7         | PLANNING                             |
| 8         | TYPICAL STREET SECTIONS              |
| 9         | LAND USE PLAN                        |
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| 14        | LANDSCAPE PLAN                       |
| 15        | LANDSCAPE PLAN                       |
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| 32        | SITE LIGHTING DETAILS                |

TRI Pointe

MARTIN/MARTIN  
1101 BANNOCK STREET  
DENVER, COLORADO 80204  
P 303.892.1166  
WWW.MARTINMARTIN.COM

NORRIS DESIGN  
Planning | Landscape Architecture | Interiors

1101 BANNOCK STREET  
DENVER, COLORADO 80204  
P 303.892.1166  
WWW.NORRISDESIGN.COM

CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
COVER SHEET

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PDF SUBMITTAL | 12/17/21 | DK   |
| 2   | 2nd PDF SUBMITTAL | 02/25/22 | DK   |
| 3   | 3rd PDF SUBMITTAL | 04/17/22 | DK   |
| 4   | 4th PDF SUBMITTAL | 06/17/22 | DK   |
| 5   | 5th PDF SUBMITTAL | 11/17/22 | DK   |
| 6   | 6th PDF SUBMITTAL | 07/06/23 | DK   |
| 7   | 7th PDF SUBMITTAL | 08/23/23 | DK   |

|                     |        |
|---------------------|--------|
| Job Number          | 161271 |
| Project Manager     | DK     |
| Design By           | BB     |
| Drawn By            | MB     |
| Principal In Charge | DL     |

THE SECOND SIGNATURE OF THE ARCHITECT IS REQUIRED FOR ALL PLANS, INCLUDING THIS COVER SHEET, TO BE VALID. THE ARCHITECT'S SIGNATURE MUST BE OBTAINED FROM THE ARCHITECT'S FIRM, NOT A REPRESENTATIVE OF THE FIRM, AND MUST BE OBTAINED FROM THE ARCHITECT'S FIRM, NOT A REPRESENTATIVE OF THE FIRM, AND MUST BE OBTAINED FROM THE ARCHITECT'S FIRM, NOT A REPRESENTATIVE OF THE FIRM.

Sheet Number:

# LEGEND

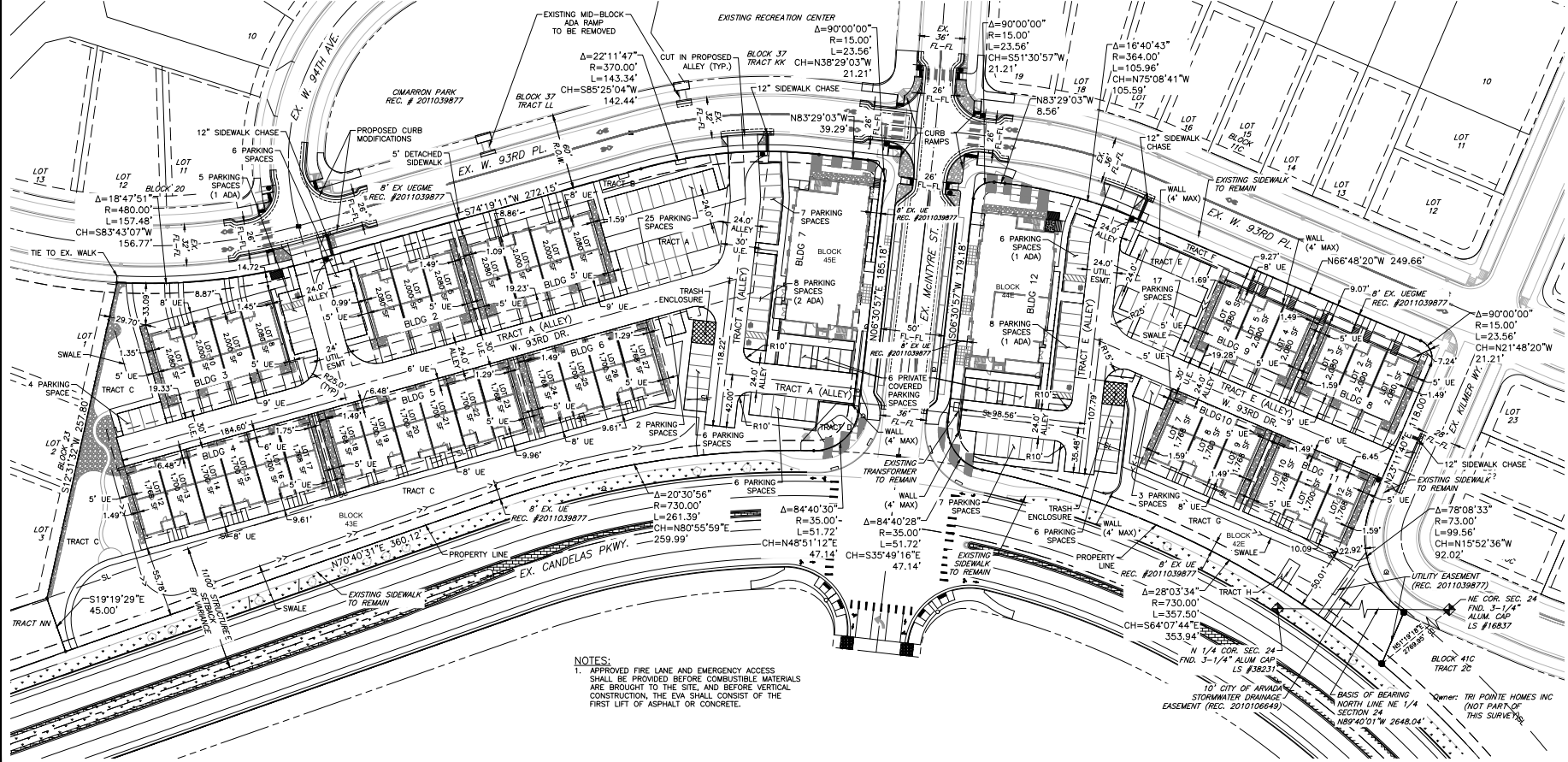
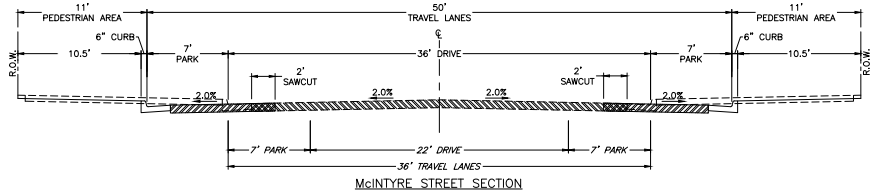
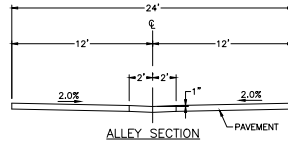
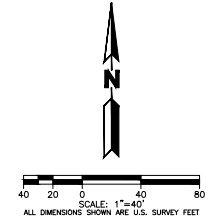
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| BLOCK LINE        | ————— |
| LOT LINE          | ————— |
| RIGHT-OF-WAY LINE | ————— |
| PROPERTY LINE     | ————— |
| SECTION LINE      | ————— |
| PROPOSED EASEMENT | ————— |
| EXISTING EASEMENT | ————— |
| TRAIL             | ————— |
| MAIL KIOSK        | ————— |
| VISIBILITY        | ————— |
| AC PEDESTAL       | ————— |

**EASEMENT LEGEND:**  
 UEGME - UTILITY EASEMENT-GAS MAIN EXCLUSIVE  
 UED - UTILITY AND DRAINAGE EASEMENT  
 UE - UTILITY EASEMENT  
 PA - PUBLIC ACCESS  
 TRACT USE LEGEND:  
 OS - OPEN SPACE  
 D - DRAINAGE  
 U - UTILITY  
 T - TRAIL  
 EA - EMERGENCY ACCESS  
**TRACT OWNERS:**  
 CMD - CIMARRON METROPOLITAN DISTRICT  
 ARP - ARVADA RESIDENTIAL PARTNERS

- NOTES:**  
 1. — DESIGNATES STREET CENTERLINE CONTROL POINT (RANGE POINT) TO BE SET PER CITY OF ARVADA STANDARDS AFTER CONSTRUCTION.  
 2. APPROVED EVA SHALL BE PROVIDED DURING CONSTRUCTION, UNLESS OTHERWISE APPROVED, THE EVA SHALL CONSIST OF THE FIRST LIFT OF ASPHALT OR CONCRETE SHALL BE PROVIDED PRIOR TO COMMENCING VERTICAL CONSTRUCTION.

## CANDELAS FILING NO. 1, AMENDMENT NO. 4 PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
 BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
 CITY OF ARVADA, COUNTY OF JEFFERSON  
 STATE OF COLORADO  
 SHEET 2 OF 32 SHEETS



- NOTES:**  
 1. APPROVED FIRE LANE AND EMERGENCY ACCESS SHALL BE PROVIDED BEFORE COMBUSTIBLE MATERIALS ARE BROUGHT TO THE SITE, AND BEFORE VERTICAL CONSTRUCTION, THE EVA SHALL CONSIST OF THE FIRST LIFT OF ASPHALT OR CONCRETE.

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PDP SUBMITTAL | 12/17/21 | DK   |
| 2   | 2nd PDP SUBMITTAL | 02/25/22 | DK   |
| 3   | 3rd PDP SUBMITTAL | 04/17/22 | DK   |
| 4   | 4th PDP SUBMITTAL | 05/17/22 | DK   |
| 5   | 5th PDP SUBMITTAL | 11/17/22 | DK   |
| 6   | 6th PDP SUBMITTAL | 01/09/23 | DK   |
| 7   | 7th PDP SUBMITTAL | 02/02/23 | DK   |



| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PDP SUBMITTAL | 12/17/21 | DK   |
| 2   | 2nd PDP SUBMITTAL | 02/25/22 | DK   |
| 3   | 3rd PDP SUBMITTAL | 04/17/22 | DK   |
| 4   | 4th PDP SUBMITTAL | 06/17/22 | DK   |
| 5   | 5th PDP SUBMITTAL | 11/17/22 | DK   |
| 6   | 6th PDP SUBMITTAL | 07/06/23 | DK   |
| 7   | 7th PDP SUBMITTAL | 07/06/23 | DK   |
| 8   | 8th PDP SUBMITTAL | 02/07/23 | DK   |

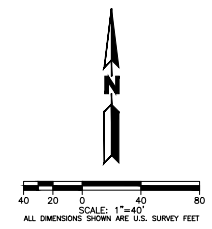
Job Number: 19.1271

Project Manager: DK  
Design By: BB  
Drawn By: MW  
Principal In Charge: DL

Sheet Number:

# CANDELAS FILING NO. 1, AMENDMENT NO. 4 PRELIMINARY DEVELOPMENT PLAN

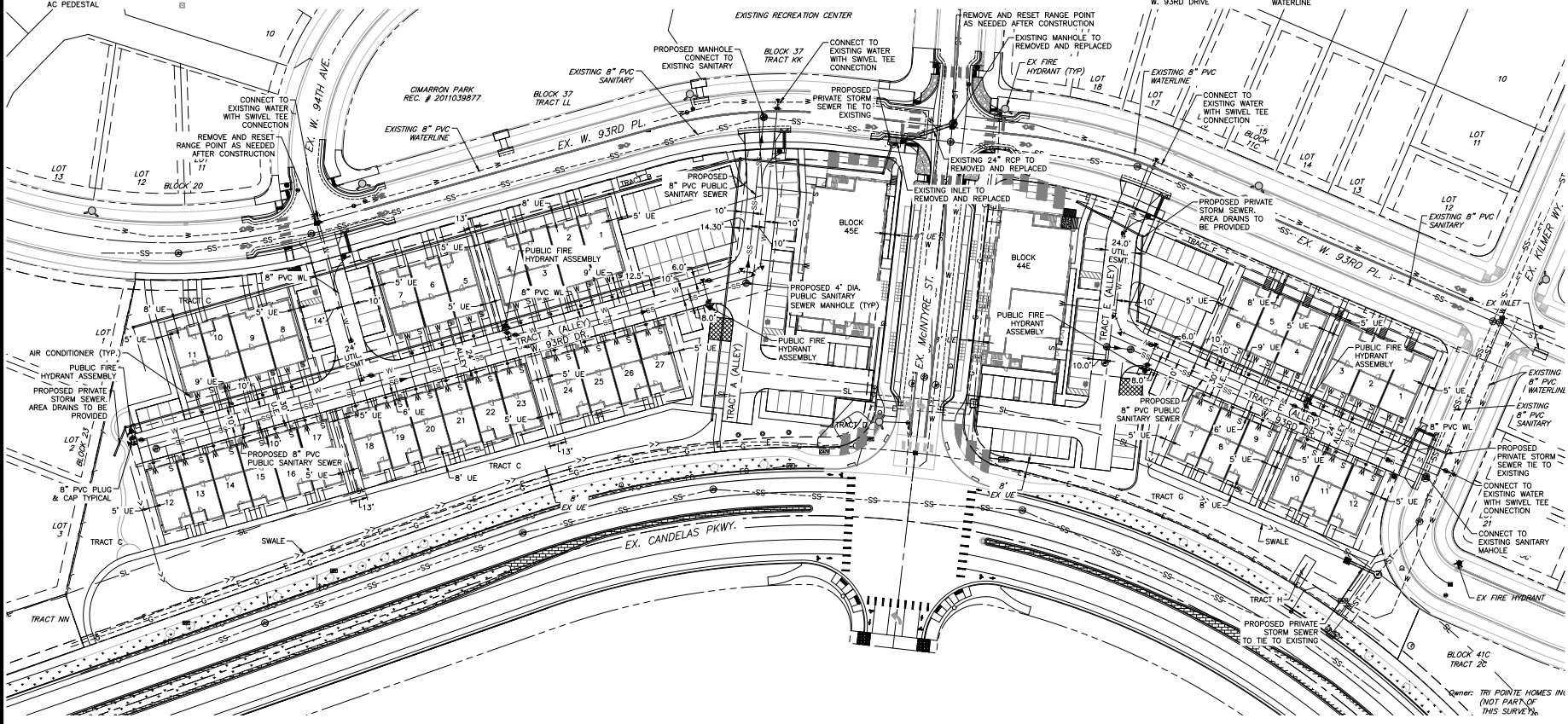
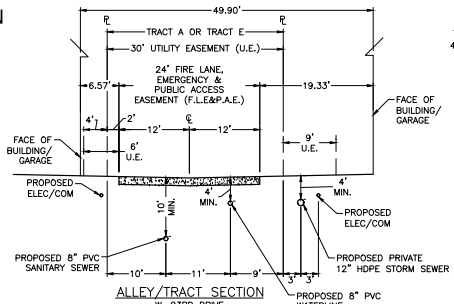
ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 3 OF 32 SHEETS



- LEGEND**
- BLOCK LINE
  - LOT LINE
  - RIGHT-OF-WAY LINE
  - PROPERTY LINE
  - SECTION LINE
  - PROPOSED EASEMENT
  - EXISTING EASEMENT
  - SETBACK LINE
  - STORM SEWER
  - STORM MANHOLE
  - STORM INLET
  - FLARED END SECTION
  - SANITARY SEWER
  - SANITARY MANHOLE
  - WATER LINE
  - WATER VALVE
  - FIRE HYDRANT
  - TRAIL
  - EX. SANITARY SEWERLINE
  - EX. WATER MAIN
  - RANGE POINT
  - MAIL KIOSK
  - WATER METER/SERVICE
  - SWALE
  - WALL
  - EX. TREE
  - AC PEDESTAL

- EASEMENT LEGEND:**  
UE/MC - UTILITY EASEMENT-GAS MAIN EXCLUSIVE  
UE - UTILITY AND DRAINAGE EASEMENT  
UE - UTILITY EASEMENT  
TRACT USE LEGEND:  
OS - OPEN SPACE  
D - DRAINAGE  
U - UTILITY  
T - TRAIL  
EA - EMERGENCY ACCESS
- TRACT OWNERSHIP:**  
CMD - CIMARRON METROPOLITAN DISTRICT  
ARP - ARVADA RESIDENTIAL PARTNERS
- NOTES:**  
1. DESIGNATES STREET CENTERLINE CONTROL POINT (RANGE POINT) TO BE SET PER CITY OF ARVADA STANDARDS AFTER CONSTRUCTION

- NOTES:**  
1. FIRE HYDRANTS SHALL BE INSTALLED AND OPERATIONAL TO PROVIDE THE MINIMUM REQUIRED FIRE FLOW PRIOR TO COMMENCING VERTICAL CONSTRUCTION.  
2. THE MINIMUM REQUIRED FIRE-FLOW IS 2,250 GALLONS PER MINUTE.  
3. WHERE WATER METERS ARE PLACED IN DRIVEWAYS A TRAFFIC RATED LID WILL BE REQUIRED.



PLOT DATE: Thursday, March 23, 2023 11:11 AM LAST SAVED BY: MWOD  
DRAWING LOCATION: G:\LOWE\19.1271-Candelas F1 Townhomes\PLANS\19.1271-Utility Plan.dwg

Owner: TRI POINTE HOMES INC.  
(NOT PART OF THIS SURVEY)

# LEGEND

|                        |      |
|------------------------|------|
| BLOCK LINE             | ---  |
| LOT LINE               | ---  |
| RIGHT-OF-WAY LINE      | ---  |
| PROPERTY LINE          | ---  |
| SECTION LINE           | ---  |
| PROPOSED EASEMENT      | ---  |
| EXISTING EASEMENT      | ---  |
| SETBACK LINE           | ---  |
| STORM SEWER            | ST   |
| STORM MANHOLE          | ○    |
| STORM INLET            | ○    |
| FLARED END SECTION     | ---  |
| SANITARY SEWER         | 8"SS |
| SANITARY MANHOLE       | ○    |
| WATER LINE             | 8"W  |
| WATER VALVE            | ○    |
| FIRE HYDRANT           | △    |
| TRAIL                  | ---  |
| EX. SANITARY SEWERLINE | SS   |
| EX. WATER MAIN         | W    |
| RANGE POINT            | △    |
| MAIL KIOSK             | ○    |
| WATER METER/SERVICE    | ---  |
| SWALE                  | ---  |
| WALL                   | ---  |
| EX TREE                | ○    |
| AC PEDESTAL            | ○    |

## CANDELAS FILING NO. 1, AMENDMENT NO. 4 PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 4 OF 32 SHEETS

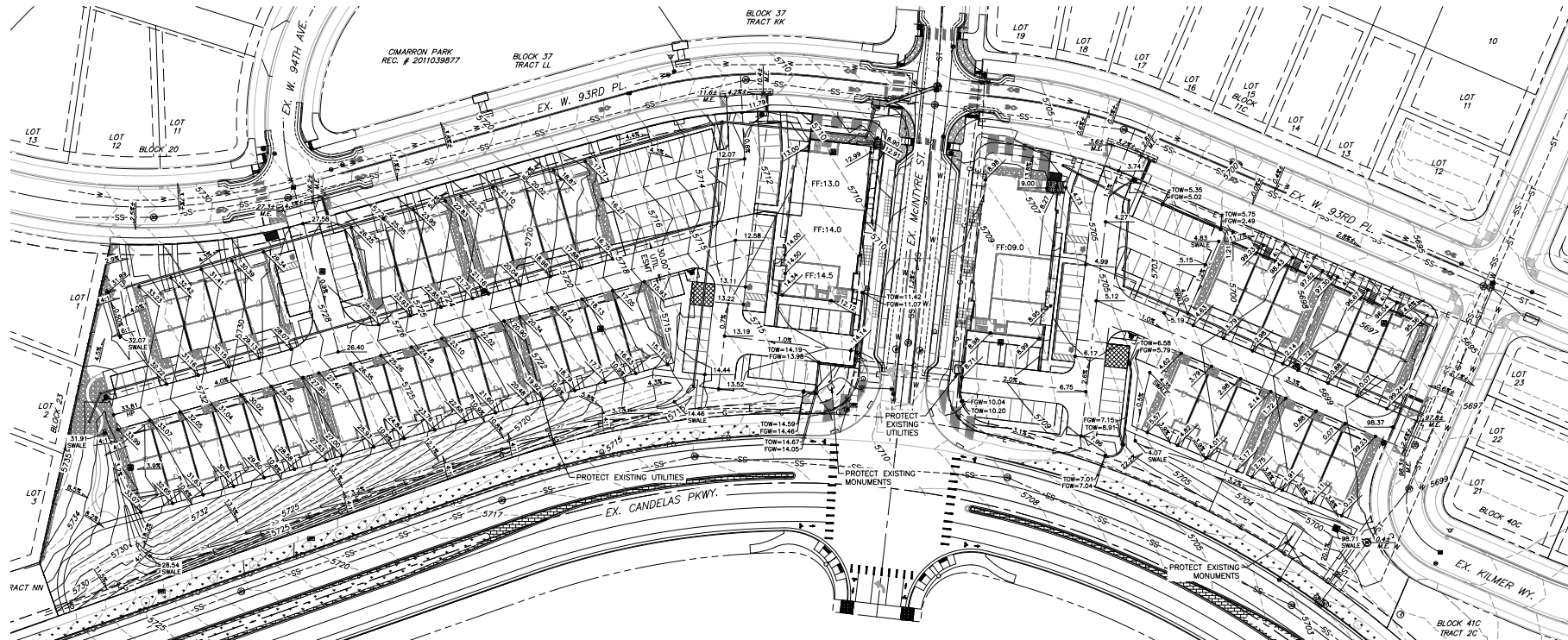
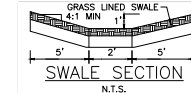
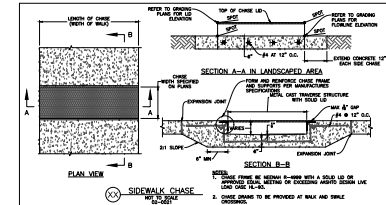
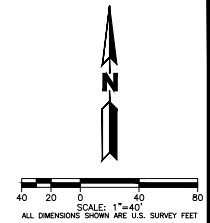
**EASEMENT LEGEND:**  
UECME - UTILITY EASEMENT-GAS MAIN EXCLUSIVE  
UE - UTILITY AND DRAINAGE EASEMENT  
UE - UTILITY EASEMENT  
**TRACT USE LEGEND:**  
OS - OPEN SPACE  
D - DRAINAGE  
U - UTILITY  
T - TRAIL  
EA - EMERGENCY ACCESS

**NOTES:**  
1. DESIGNATES STREET CENTERLINE CONTROL POINT (RANGE POINT) TO BE SET PER CITY OF ARVADA STANDARDS AFTER CONSTRUCTION  
2. TOTAL LIMITS OF DISTURBANCE (LOD)=5.59AC TOTAL (2.02AC EAST, 3.57AC WEST)

**TRACT OWNERSHIP:**  
CMD - CIMARRON METROPOLITAN DISTRICT  
ARP - ARVADA RESIDENTIAL PARTNERS

### Cut/Fill Summary

| Name       | Cut Factor | Fill Factor | 2d Area    | Cut          | Fill         | Net                |
|------------|------------|-------------|------------|--------------|--------------|--------------------|
| West vs EG | 1.000      | 1.000       | 3.596acres | 4787 Cu. Yd. | 1544 Cu. Yd. | 3243 Cu. Yd.<Cut>  |
| East vs EG | 1.000      | 1.000       | 1.982acres | 613 Cu. Yd.  | 3860 Cu. Yd. | 3248 Cu. Yd.<Fill> |
| Totals     |            |             | 5.578acres | 5400 Cu. Yd. | 5404 Cu. Yd. | 5 Cu. Yd.<Fill>    |



CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
GRADING PLAN

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PDP SUBMITTAL | 12/17/21 | DK   |
| 2   | 2nd PDP SUBMITTAL | 02/25/22 | DK   |
| 3   | 3rd PDP SUBMITTAL | 04/17/22 | DK   |
| 4   | 4th PDP SUBMITTAL | 07/17/22 | DK   |
| 5   | 5th PDP SUBMITTAL | 07/26/23 | DK   |
| 6   | 6th PDP SUBMITTAL | 03/27/23 | DK   |

Job Number: 19.1271  
Project Manager: DK  
Design By: BB  
Drawn By: MW  
Principal In Charge: DL  
The second shown sheet is included as a final drawing. All other sheets are preliminary and subject to change without notice. This drawing is not to be used for construction purposes without the written approval of the engineer of record. PROFESSIONAL ENGINEER, TRINITY MARTIN, INC.

Sheet Number:



# LEGEND

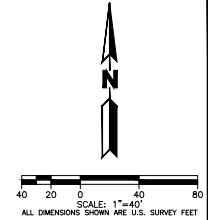
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| LOT LINE                 | ---- |
| RIGHT-OF-WAY LINE        | ---- |
| PROPERTY LINE            | ---- |
| SECTION LINE             | ---- |
| PROPOSED EASEMENT        | ---- |
| EXISTING EASEMENT        | ---- |
| SETBACK LINE             | ---- |
| STORM SEWER              | ST   |
| STORM MANHOLE            | ○    |
| STORM INLET              | ○    |
| FLARED END SECTION       | ○    |
| SANITARY SEWER           | 8"SS |
| SANITARY MANHOLE         | ○    |
| WATER LINE               | 8"W  |
| WATER VALVE              | ○    |
| FIRE HYDRANT             | ○    |
| TRAIL                    | ---  |
| EX. SANITARY SEWERLINE   | SS   |
| EX. WATER MAIN           | W    |
| RANGE POINT              | △    |
| MAIL KIOSK               | ○    |
| WATER METER/SERVICE      | ○    |
| SWALE                    | ---  |
| WALL                     | ---  |
| EX TREE                  | ○    |
| AC PEDESTAL              | ○    |
| CF - CF                  | CF   |
| SF - SF                  | SF   |
| SCL                      | SCL  |
| VEHICLE TRACKING CONTROL | VTC  |
| INLET PROTECTION         | IP   |
| AREA INLET PROTECTION    | IPA  |
| STABILIZED STAGING AREA  | SSA  |
| CONCRETE WASHOUT AREA    | CWA  |
| ROCK SOCK                | RS   |
| DIVERSION DITCH/SWALE    | DD/S |
| SEDIMENT TRAP            | SB   |
| CHECK DAM                | CD   |
| ROUGH CUT STREET         | RCS  |
| STREET SWEEPING          | SS   |
| PERMANENT SEEDING        | PS   |
| LIMITS OF DISTURBANCE    | LOD  |

## CANDELAS FILING NO. 1, AMENDMENT NO. 4 PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4

CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO

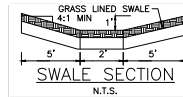
SHEET 5 OF 32 SHEETS



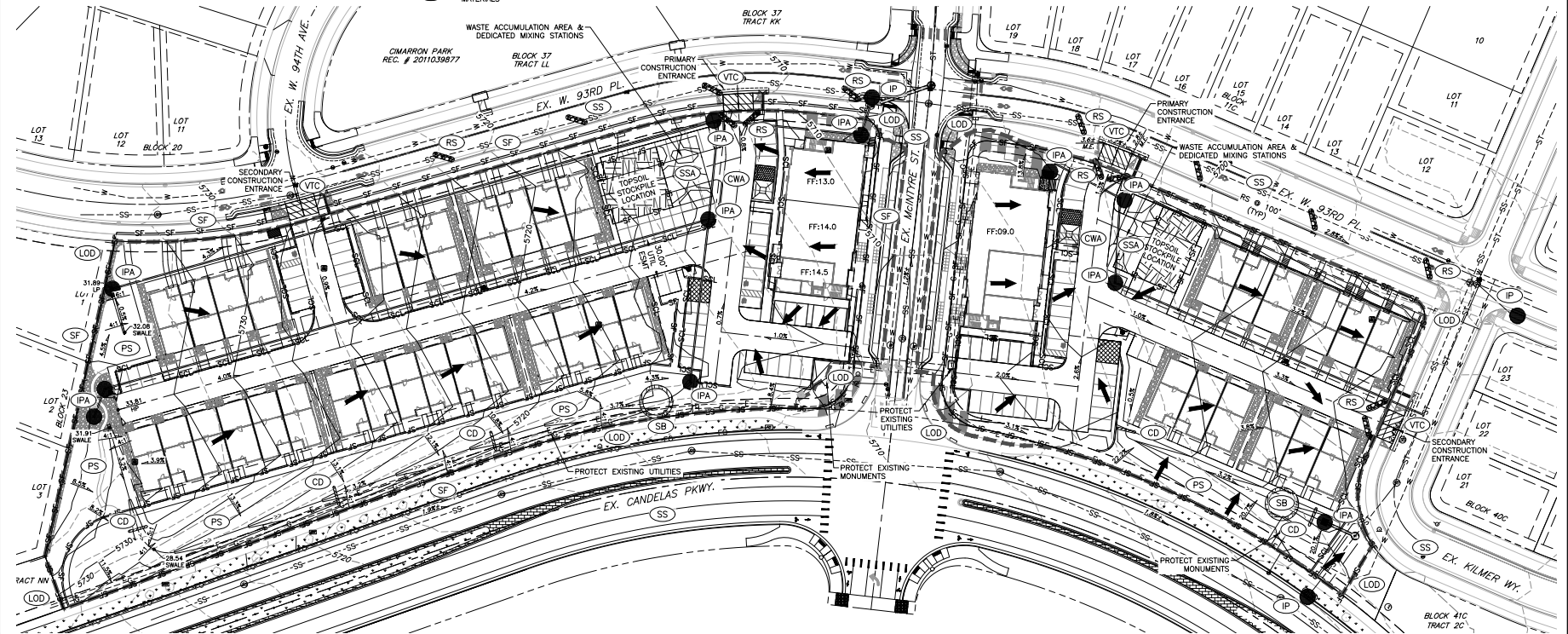
**EASEMENT LEGEND:**  
UE/M - UTILITY EASEMENT-GAS MAIN EXCLUSIVE  
UE - UTILITY AND DRAINAGE EASEMENT  
UE - UTILITY EASEMENT  
**TRACT USE LEGEND:**  
OS - OPEN SPACE  
D - DRAINAGE  
U - UTILITY  
T - TRAIL  
EA - EMERGENCY ACCESS

**NOTES:**  
1. -A- DESIGNATES STREET CENTERLINE CONTROL POINT (RANGE POINT) TO BE SET PER CITY OF ARVADA STANDARDS AFTER CONSTRUCTION  
2. TOTAL LIMITS OF DISTURBANCE (LOD)=5.59AC TOTAL (2.02AC EAST, 3.57AC WEST)

**TRACT OWNERSHIP:**  
CMD - CIMARRON METROPOLITAN DISTRICT  
ARP - ARVADA RESIDENTIAL PARTNERS



FOR SEED MIX, PLEASE  
REFERENCE THE LANDSCAPING  
PLANS BY NORRIS DESIGN IN  
ACCORDANCE WITH REPEALED  
ARVADA CODE §45.2.3 GRASS  
MATERIALS



CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
EROSION & SEDIMENT CONTROL PLAN

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PDP SUBMITTAL | 12/17/21 | OK   |
| 2   | 2nd PDP SUBMITTAL | 02/25/22 | OK   |
| 3   | 3rd PDP SUBMITTAL | 04/17/22 | OK   |
| 4   | 4th PDP SUBMITTAL | 06/17/22 | OK   |
| 5   | 5th PDP SUBMITTAL | 11/17/22 | OK   |
| 6   | 6th PDP SUBMITTAL | 01/09/23 | OK   |
| 7   | 7th PDP SUBMITTAL | 02/02/23 | OK   |

Job Number 19.1271  
Project Manager DK  
Design By BB  
Drawn By MW  
Principal In Charge DL  
Sheet Number:  
**5**

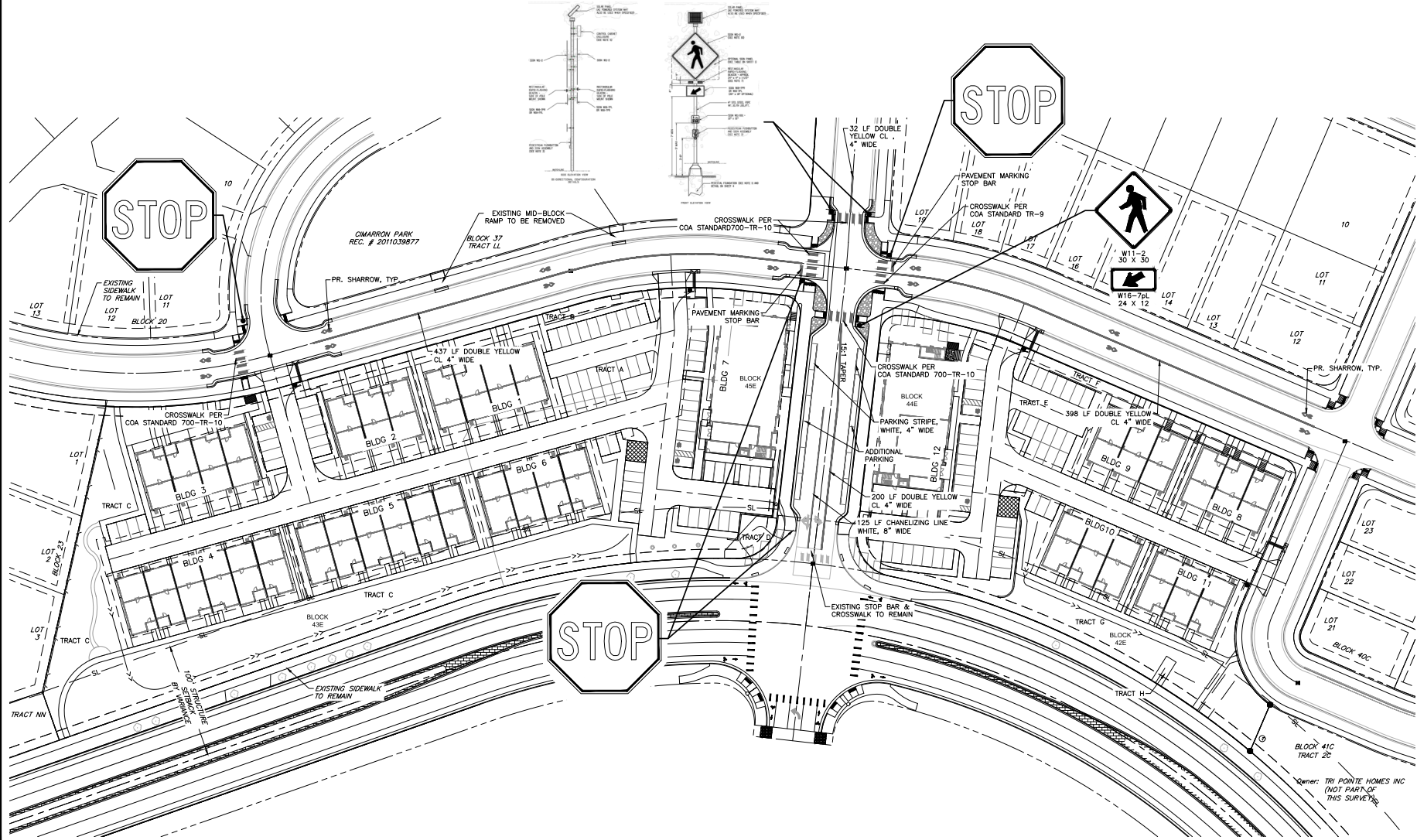
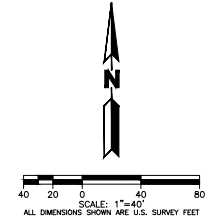
PLOT DATE: Thursday, March 23, 2023 11:12 AM LAST SAVED BY: MW000  
DRAWING LOCATION: G:\LOWRYS\13-1221-Candelas F1 Townhomes\PLANS\PSD\Amendment 4 (E)Vol-Traffic Plan.dwg

| LEGEND            |       |
|-------------------|-------|
| BLOCK LINE        | ————— |
| LOT LINE          | ————— |
| RIGHT-OF-WAY LINE | ————— |
| PROPERTY LINE     | ————— |
| SECTION LINE      | ————— |
| PROPOSED EASEMENT | ————— |
| EXISTING EASEMENT | ————— |
| TRAIL             | ————— |
| MAIL KIOSK        | ————— |
| VISIBILITY        | ————— |
| AC PEDESTAL       | ————— |

# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 6 OF 32 SHEETS



CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
SIGNING & STRIPING PLAN

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PDP SUBMITTAL | 12/17/21 | OK   |
| 2   | 2nd PDP SUBMITTAL | 02/25/22 | OK   |
| 3   | 3rd PDP SUBMITTAL | 04/17/22 | OK   |
| 4   | 4th PDP SUBMITTAL | 06/17/22 | OK   |
| 5   | 5th PDP SUBMITTAL | 11/11/22 | OK   |
| 6   | 6th PDP SUBMITTAL | 07/06/23 | OK   |
| 7   | 7th PDP SUBMITTAL | 07/27/23 | OK   |
| 8   | 8th PDP SUBMITTAL | 03/27/23 | OK   |

Job Number: 13-1221  
Project Manager: DK  
Design By: BB  
Drawn By: MW  
Principal In Charge: DL  
The second shown name is the principal engineer.  
The third shown name is the principal surveyor.  
The fourth shown name is the principal planner.  
The fifth shown name is the principal architect.  
The sixth shown name is the principal interior designer.  
The seventh shown name is the principal landscape architect.  
The eighth shown name is the principal civil engineer.  
The ninth shown name is the principal mechanical engineer.  
The tenth shown name is the principal electrical engineer.  
The eleventh shown name is the principal chemical engineer.  
The twelfth shown name is the principal nuclear engineer.  
The thirteenth shown name is the principal aerospace engineer.  
The fourteenth shown name is the principal marine engineer.  
The fifteenth shown name is the principal agricultural engineer.  
The sixteenth shown name is the principal biomedical engineer.  
The seventeenth shown name is the principal environmental engineer.  
The eighteenth shown name is the principal industrial engineer.  
The nineteenth shown name is the principal materials engineer.  
The twentieth shown name is the principal software engineer.  
The twenty-first shown name is the principal systems engineer.  
The twenty-second shown name is the principal transportation engineer.  
The twenty-third shown name is the principal urban engineer.  
The twenty-fourth shown name is the principal water resources engineer.  
The twenty-fifth shown name is the principal wind engineering.

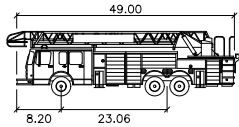
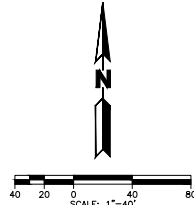
Sheet Number:  
6



# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 7 OF 32 SHEETS



Arvada Fire

|                   |         |
|-------------------|---------|
| Width             | : 10.20 |
| Track             | : 8.00  |
| Lock to Lock Time | : 11.0  |
| Steering Angle    | : 40.0  |

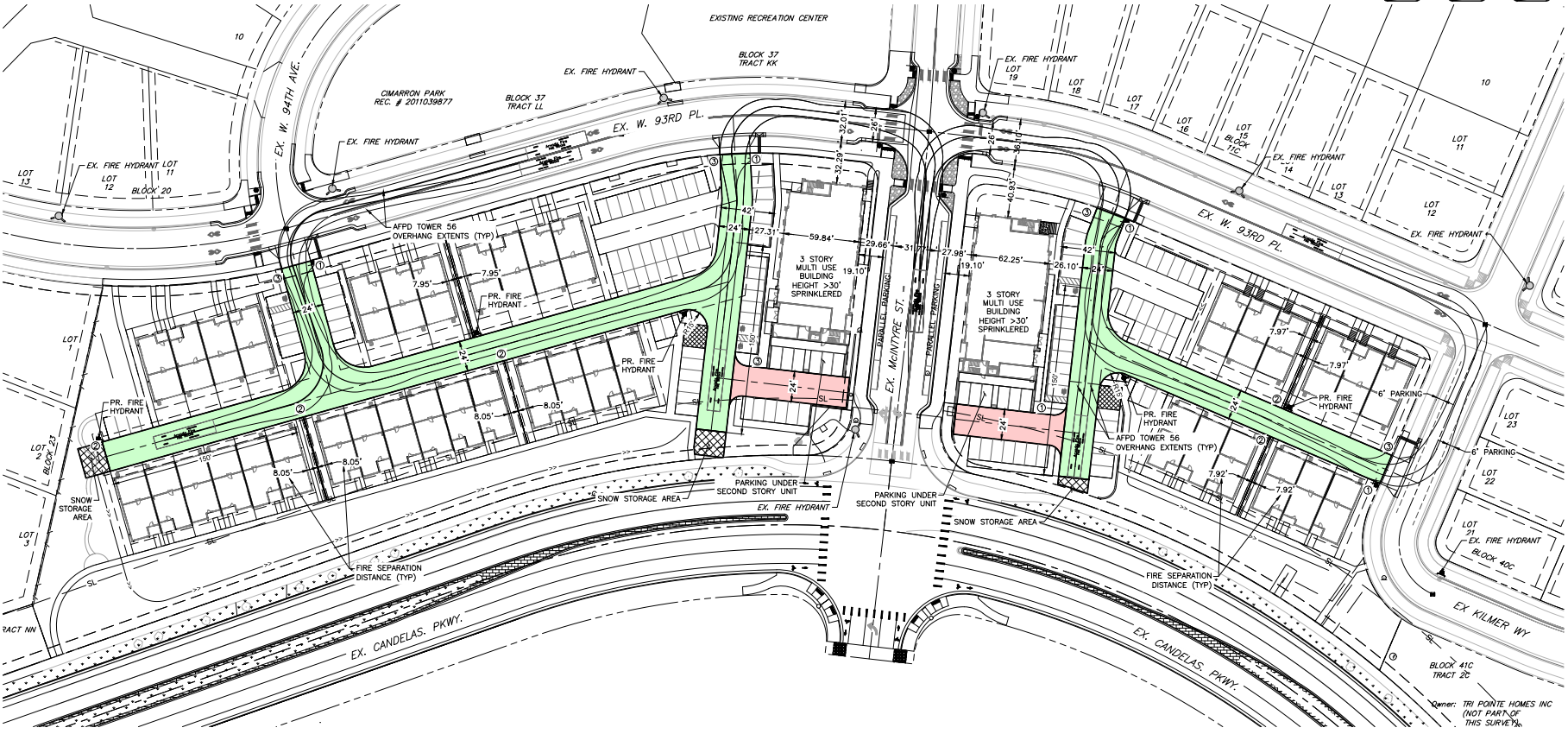
LEGEND:

- EMERGENCY ACCESS
- NO EMERGENCY ACCESS
- FIRE HYDRANT

TRAFFIC SIGN LEGEND:

- 1 NO PARKING FIRE LANE
- 2 NO PARKING FIRE LANE
- 3 NO PARKING FIRE LANE

PER THE ARVADA FIRE SITE DEVELOPMENT GUIDE-APRIL 2020, "FIRE ACCESS ROADS SHALL PROVIDE A MINIMUM INSIDE TURNING RADIUS OF TWENTY-SIX (26) FEET THREE (3) INCHES AND AN OUTSIDE TURNING RADIUS OF AT LEAST FORTY-SEVEN (47) FEET SIX (6) INCHES". PLEASE SEE THE ANNOTATED TURNING RADIUS BELOW THAT DO NOT MEET THIS CRITERIA, HOWEVER THE TURNING EXHIBIT SHOWS THAT NAVIGATION IS POSSIBLE.



CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
EMERGENCY ACCESS &  
SNOW STORAGE PLAN

| No. | Issue / Revision | Date     | Name |
|-----|------------------|----------|------|
| 1   | 1st PDP SUBMITAL | 12/17/21 | DK   |
| 2   | 2nd PDP SUBMITAL | 02/25/22 | DK   |
| 3   | 3rd PDP SUBMITAL | 04/15/22 | DK   |
| 4   | 4th PDP SUBMITAL | 07/11/22 | DK   |
| 5   | 5th PDP SUBMITAL | 07/06/23 | DK   |
| 6   | 6th PDP SUBMITAL | 07/06/23 | DK   |
| 7   | 7th PDP SUBMITAL | 03/27/23 | DK   |

Job Number 191271  
Project Manager DK  
Design By BB  
Drawn By MW  
Principal In Charge DL

THE SECOND SHEET HEREIN INCLUDING ALL TECHNICAL DRAWINGS, SPECIFICATIONS, NOTES, AND EXHIBITS, IS HEREBY CERTIFIED TO BE A TRUE AND CORRECT REPRESENTATION OF THE PROJECT AS DESIGNED BY THE ENGINEER, AND IS NOT TO BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN PERMISSION FROM MARTIN/MARTIN, INC.

Sheet Number:  
7

PLOT DATE: Friday, March 24, 2023 9:27 AM LAST SAVED BY: BOARLSON  
DRAWING LOCATION: P:\TRI Pointe Candela - 0435-01-2001\Drawings\Submittals\PPP-CA-ND-PLANNING-PLAN-PPP\_Amend.dwg

# CANDELAS FILING NO. 1, AMENDMENT NO. 4

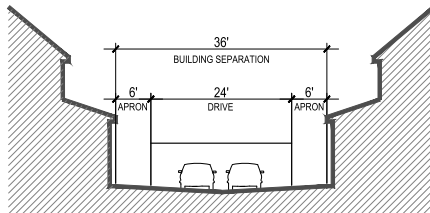
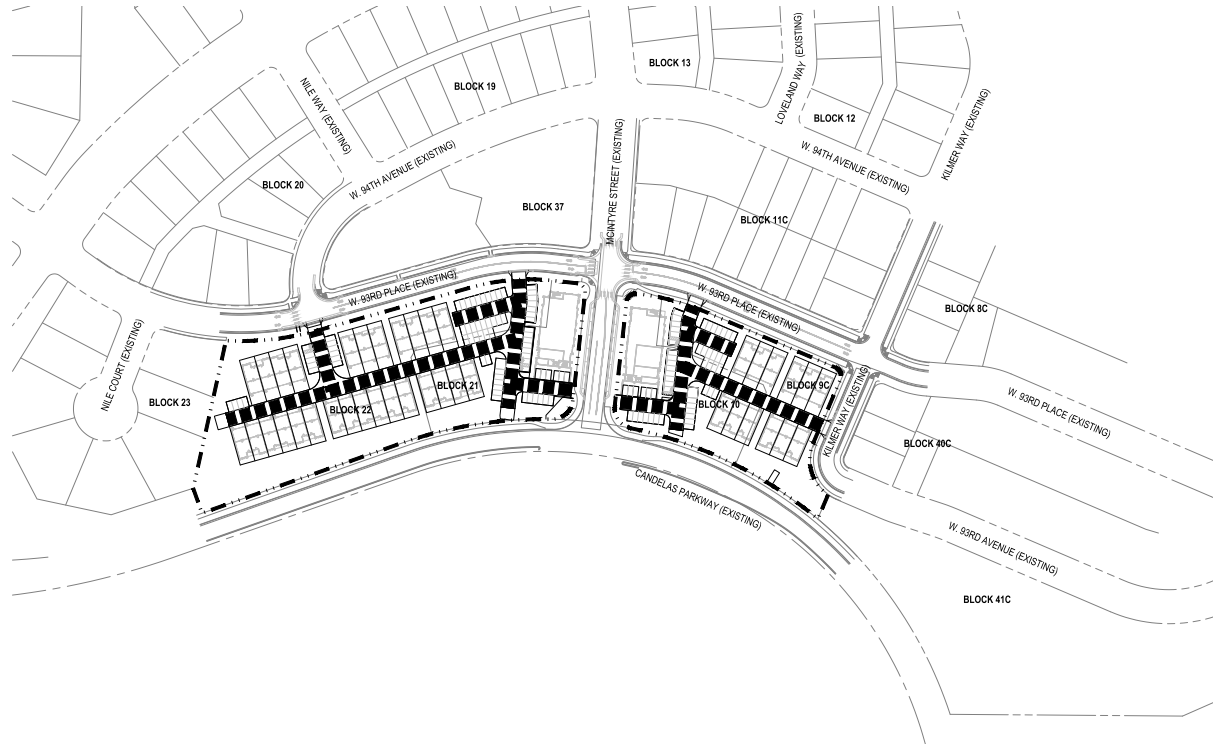
## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO

SHEET 8 OF 32 SHEETS

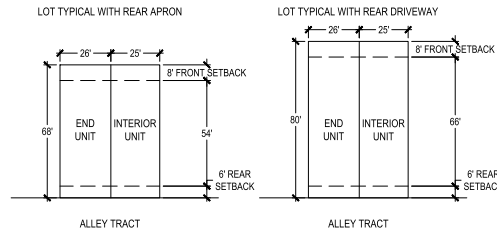
### LEGEND

--- DEVELOPMENT BOUNDARY  
--- ALLEY  
(RE: SECTION 1 BELOW)



1 ALLEY

SCALE: 1" = 10'



2 TOWNHOME LOT TYPICAL

SCALE: 1" = 20'



MARTIN/MARTIN  
ARCHITECTS  
1101 BROADWAY, SUITE 1000  
DENVER, COLORADO 80202  
303.733.1100  
WWW.MARTINMARTIN.COM



1101 Broadway Street  
Denver, Colorado 80202  
P 303.862.1100  
WWW.NORRISDESIGN.COM

CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
TYPICAL STREET SECTIONS

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PDP SUBMITTAL | 12/17/21 | DK   |
| 2   | 2nd PDP SUBMITTAL | 02/09/23 | DK   |
| 3   | 3rd PDP SUBMITTAL | 04/17/23 | DK   |
| 4   | 4th PDP SUBMITTAL | 06/17/23 | DK   |
| 5   | 5th PDP SUBMITTAL | 11/17/23 | DK   |
| 6   | 6th PDP SUBMITTAL | 01/09/24 | DK   |
| 7   | 7th PDP SUBMITTAL | 02/27/24 | DK   |

Job Number: 19.1271  
Project Manager: DK  
Design By: BB  
Drawn By: MW  
Principal In Charge: DL  
CANDOLA ARCHITECTS, LLC  
1101 BROADWAY, SUITE 1000  
DENVER, COLORADO 80202  
303.733.1100  
WWW.CANDOLAARCHITECTS.COM

Sheet Number:

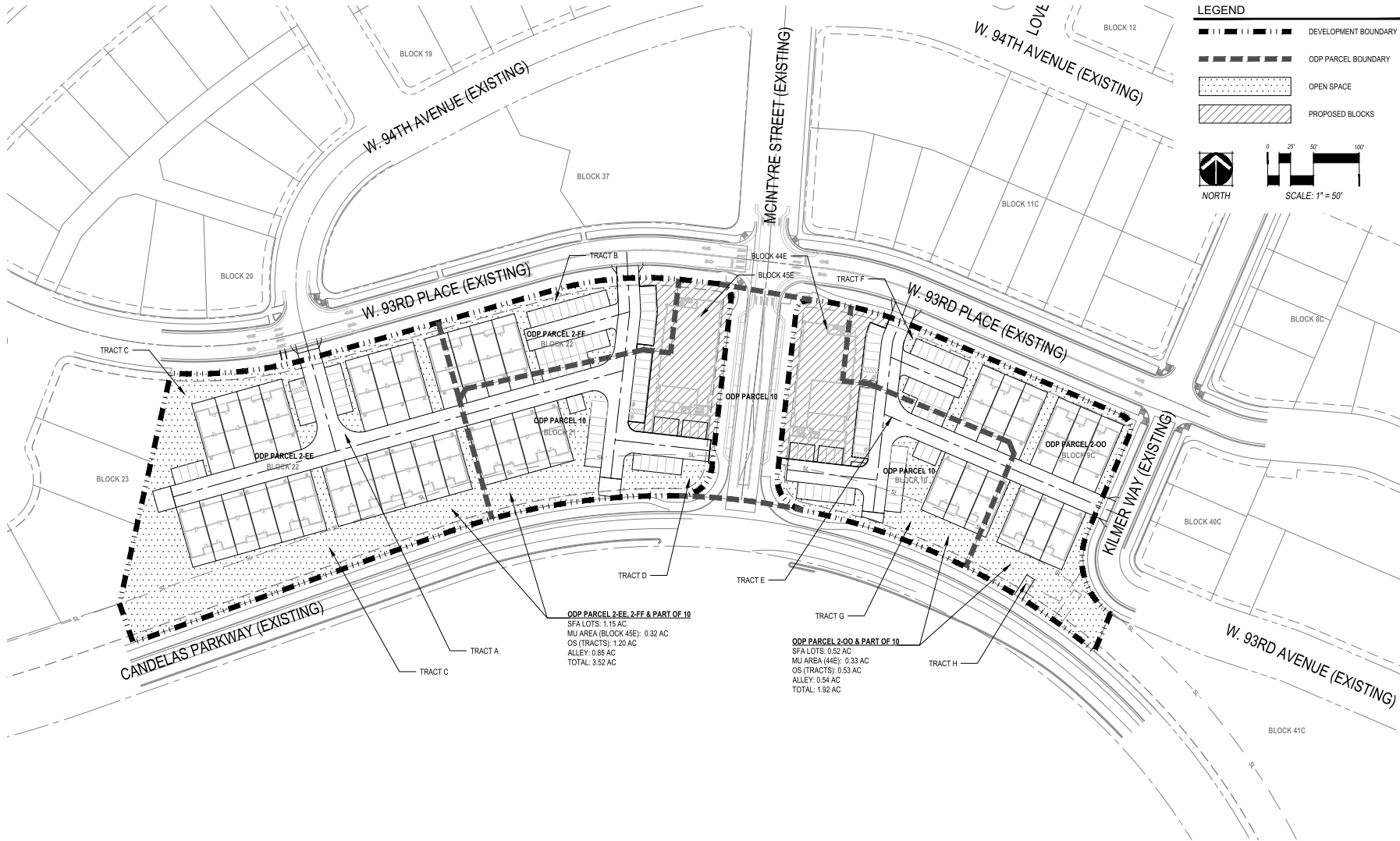
8

# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO

SHEET 9 OF 32 SHEETS



**LEGEND**

- DEVELOPMENT BOUNDARY
- ODP PARCEL BOUNDARY
- OPEN SPACE
- PROPOSED BLOCKS

**SCALE: 1" = 50'**

**NORTH**

**TRI** **Pointe**

MARTIN/MARTIN  
150 WEST COLORED AVENUE, SUITE 200, COLORED, COLORADO 80015  
303.440.0000 MARTINMARTIN.COM

**NORRIS DESIGN**  
Planning | Landscape Architecture | Consulting

1101 Remond Street  
Denver, Colorado 80202  
P 303.852.1100  
www.norris-design.com

CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
LAND USE PLAN

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PDP SUBMITTAL | 12/17/21 | DK   |
| 2   | 2nd PDP SUBMITTAL | 02/09/22 | DK   |
| 3   | 3rd PDP SUBMITTAL | 04/07/22 | DK   |
| 4   | 4th PDP SUBMITTAL | 06/07/22 | DK   |
| 5   | 5th PDP SUBMITTAL | 11/17/22 | DK   |
| 6   | 6th PDP SUBMITTAL | 01/04/23 | DK   |
| 7   | 7th PDP SUBMITTAL | 02/07/23 | DK   |

Sheet Number:

**9**

PLOT DATE: Friday, March 24, 2023 9:27 AM LAST SAVED BY: BOARLSON  
DRAWING LOCATION: P:\TRI Pointe Candelas - 0455-01-2001\Drawings\Submittals\PPP-CA-LAND-PLANNING-PLAN-PDP\_Arvt.dwg

PLOT DATE: Friday, March 24, 2023 3:27 AM LAST SAVED BY: BOARLSON  
DRAWING LOCATION: P:\TRI Pointe Candela - 0435-01-2061\Drawings\Submittals\POP-CA-ND-PLANNING-PLAN-POP-Ann.dwg

# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 10 OF 32 SHEETS

DEVELOPMENT STANDARDS TABLE

| NEIGHBORHOOD | ODP PARCELS | ODP SUB-PARCELS | LAND USE  | DEVELOPED POP UNIT COUNT | ODP UNIT COUNT | ODP UNIT COUNT WITH MINOR MODIFICATION | PROJECTED WITH FUTURE ODP | ODP SUB-PARCEL AREA | COMBINED ODP SUB-PARCEL AREA | LOT AND ALLEY TRACT ACREAGE | DEVELOPED NET DENSITY | DEVELOPED GROSS DENSITY | MINIMUM LOT SIZE | MINIMUM LOT FRONTAGE AT PROPERTY LINE | MINIMUM LOT DEPTH | FRONT SETBACKS<br>LIVING AREA TO PL | COVERED PORCHES TO FRONT PL | SIDE SETBACKS | CORNER SIDE SETBACKS | REAR SETBACKS | SETBACK TO SUD | SETBACK TO CANDELAS | MINIMUM DISTANCE BETWEEN STRUCTURES | MAXIMUM BUILDING HEIGHT | MAXIMUM BUILDING COVERAGE |
|--------------|-------------|-----------------|-----------|--------------------------|----------------|----------------------------------------|---------------------------|---------------------|------------------------------|-----------------------------|-----------------------|-------------------------|------------------|---------------------------------------|-------------------|-------------------------------------|-----------------------------|---------------|----------------------|---------------|----------------|---------------------|-------------------------------------|-------------------------|---------------------------|
| TND          | PARCEL 2    | PARCEL 2-EE     | TOWNHOMES | 20                       | 11             |                                        | 0                         | 2.22                |                              | 2.09                        | 15.31                 | 7.14                    | 1700 SF          | 25 FT                                 | 68 FT             | 8 FT                                | 8 FT                        | 0 FT          | 0 FT                 | 6 FT          | N/A            | N/A                 | 15 FT                               | 25 FT                   | 80%                       |
|              |             | PARCEL 2-FF     | TOWNHOMES | 3                        | 11             | 36 *                                   | 0                         | 0.67                | 4.48                         |                             |                       |                         | 1700 SF          | 25 FT                                 | 68 FT             | 8 FT                                | 8 FT                        | 0 FT          | 0 FT                 | 6 FT          | N/A            | N/A                 | 15 FT                               | 25 FT                   | 80%                       |
|              |             | PARCEL 2-OO     | TOWNHOMES | 9                        | 8              |                                        | 0                         | 1.58                |                              |                             |                       |                         | 1700 SF          | 25 FT                                 | 68 FT             | 8 FT                                | 8 FT                        | 0 FT          | 0 FT                 | 6 FT          | N/A            | N/A                 | 15 FT                               | 25 FT                   | 80%                       |
|              | PARCEL 10   |                 | MIXED-USE | 33                       | 34             | 40 *                                   | 0                         | 2.47                | 2.47                         | 0.96                        | 41.67                 | 16.19                   | 1700 SF          | 25 FT                                 | 65 FT             | 8 FT                                | 8 FT                        | 0 FT          | 0 FT                 | 6 FT          | N/A            | N/A                 | 15 FT                               | 25 FT                   | 80%                       |
| TOTAL        |             |                 |           | 72                       | 64             | 76 *                                   | 0                         | 6.95                | 6.95                         | 3.05                        | 23.61                 | 19.36                   | N/A              | N/A                                   | N/A               | 8 FT **                             |                             | N/A           | N/A                  | N/A           | 15 FT          | 50 FT               | N/A                                 | 40 FT                   | 70%                       |

\* THE ODP ALLOWS FOR A MINOR MODIFICATION OF UP TO A 20% INCREASE IN PARCEL UNITS, PROVIDED THAT THE TOTAL NUMBER OF UNITS IN PARCEL 2 DOES NOT EXCEED 1,950 UNITS. THIS ALLOWS PARCEL 10 AND THE SUB-PARCELS OF PARCEL 2 TO INCREASE BY 20% FROM 64 UNITS TO 76 ALLOWABLE UNITS. UNITS MAY BE SHIFTED BETWEEN PARCELS AND SUB-PARCELS SO LONG AS THE OVERALL UNIT COUNT IS NOT EXCEEDED.  
\*\* THE FRONT OF THE MIXED-USE BUILDING IS DETERMINED TO BE THE FACADE WHICH FRONTS MCINTYRE STREET.

### LAND USE SUMMARY

|                                    |             |                                                   |  |
|------------------------------------|-------------|---------------------------------------------------|--|
| ODP SUB-PARCEL AREA                | 6.95 AC     | ODP SUB-PARCEL AREA                               |  |
| PLATTED ROW                        | 1.51 AC     | ROW PLATTED WITH FILING NO. 1                     |  |
| PLAT AREA                          | 5.44 AC     | ENTIRE AREA OF EXISTING BLOCKS 9C, 10, 21, 22     |  |
| GROSS POP AREA                     | 5.44 AC     | GROSS POP AREA                                    |  |
| PARK LAND AREA                     | 0.00 AC     | USEABLE PARK SPACE AS SHOWN ON THE LANDSCAPE PLAN |  |
| NATURALLY ENHANCED OPEN SPACE AREA | 1.73 AC     | TOTAL OF OPEN SPACE TRACTS                        |  |
| GROSS OPEN SPACE AREA              | 1.73 AC     | ENTIRE OPEN SPACE / PARK AREA                     |  |
| GROSS ALLEY TRACT AREA             | 1.39 AC     | ENTIRE ALLEY TRACT AREA                           |  |
| GROSS NUMBER OF DWELLING UNITS     | 72 DU       | TOTAL NUMBER DWELLING UNITS WITHIN GROSS POP AREA |  |
| GROSS POP DENSITY                  | 13.24 DU/AC | TOTAL NUMBER DWELLING UNITS / GROSS POP AREA      |  |

NOTES:  
1. DWELLING UNITS AND PARKS REQUIREMENT ARE BASED ON THE GROSS POP AREA (5.44 AC) AND UNIT COUNTS.

### PARKING SUMMARY

| TOWNHOME UNITS       | REQUIRED PARKING (2.0 SPACES/UNIT) | TOWNHOME SPACES PROVIDED | NOTES ON PROVIDED PARKING           |
|----------------------|------------------------------------|--------------------------|-------------------------------------|
| BLOCK 9C & 10 (EAST) | 12                                 | 24                       | 24 GARAGE, 15 DRIVEWAY (NORTH LOTS) |
| BLOCK 9C & 10 (WEST) | 27                                 | 54                       | 54 GARAGE, 22 DRIVEWAY (NORTH LOTS) |
| SUB-TOTAL            | 39                                 | 78                       | 78 GARAGE, 34 DRIVEWAY (NORTH LOTS) |

| MIXED-USE UNITS      | RESIDENT PARKING REQUIRED (2.0 SPACES/UNIT) | RESIDENT SPACES PROVIDED | NOTES ON PROVIDED PARKING   |
|----------------------|---------------------------------------------|--------------------------|-----------------------------|
| BLOCK 9C & 10 (EAST) | 17                                          | 34                       | HEAD-IN, 1 EV, 1 ACCESSIBLE |
| BLOCK 9C & 10 (WEST) | 16                                          | 32                       | HEAD-IN, 1 EV               |
| SUB-TOTAL            | 33                                          | 66                       | HEAD-IN, 2 EV, 1 ACCESSIBLE |

| RETAIL AREA (SF)     | REQUIRED PARKING (4.0 SPACES/1,000 SF) | RETAIL SPACES PROVIDED | NOTES ON PROVIDED PARKING |
|----------------------|----------------------------------------|------------------------|---------------------------|
| BLOCK 9C & 10 (EAST) | 4,922                                  | 20                     | HEAD-IN, 1 ACCESSIBLE     |
| BLOCK 9C & 10 (WEST) | 5,621                                  | 24                     | HEAD-IN, 3 ACCESSIBLE     |
| SUB-TOTAL            | 10,543                                 | 44                     | HEAD-IN, 3 ACCESSIBLE     |

|                      | GUEST SPACES REQUIRED | GUEST SPACES PROVIDED | NOTES ON PROVIDED PARKING           |
|----------------------|-----------------------|-----------------------|-------------------------------------|
| BLOCK 9C & 10 (EAST) | 0                     | 9                     | 6 PARALLEL ON MCINTYRE, 3 HEAD-IN   |
| BLOCK 9C & 10 (WEST) | 0                     | 21                    | 5 PARALLEL ON MCINTYRE, 15 HEAD-IN  |
| SUB-TOTAL            | 0                     | 30                    | 12 PARALLEL ON MCINTYRE, 15 HEAD-IN |

|                      | TOTAL SPACES REQUIRED | TOTAL SPACES PROVIDED | EXCESS SPACES TO CODE |
|----------------------|-----------------------|-----------------------|-----------------------|
| BLOCK 9C & 10 (EAST) | 78                    | 66                    | 12                    |
| BLOCK 9C & 10 (WEST) | 110                   | 157                   | 47                    |
| TOTAL                | 188                   | 223                   | 34                    |

### HOA ENFORCEMENT PARKING AND GARAGE PARKING

ALL VEHICULAR PARKING IS REGULATED BY THE CCR DOCUMENT. THE FOLLOWING LANGUAGE WILL BE PART OF THE CCR:  
- GARAGES SHALL BE USED FOR PARKING AUTOMOBILES AND OTHER MOTOR VEHICLES ONLY AND SHALL NOT BE CONVERTED FOR HABITABLE LIVING SPACE OR FOR STORAGE WHICH PREVENTS THE PARKING OF TWO AUTOMOBILES IN EACH GARAGE.  
- THE BOARD OF DIRECTORS IS HEREBY AUTHORIZED TO ENFORCE THIS REGULATION THROUGH THE ENFORCEMENT POLICY CONTAINED WITHIN THE RULES AND REGULATIONS OF THE HOA AND IN ACCORDANCE WITH THE COLORADO COMMON INTEREST OWNERSHIP ACT (CCIOA). FURTHERMORE, THE BOARD IS AUTHORIZED TO GRANT VARIANCES TO THIS POLICY FOR HARDSHIP AND/OR SPECIAL CIRCUMSTANCES A THEY MAY ARISE.  
- ALL NON-GARAGE AND NON-DRIVEWAY SURFACE SPACES MAY BE SHARED BETWEEN MIXED-USE RESIDENTS, GUESTS, AND RETAIL, ACROSS LOTS/BLOCKS.

### TRACT USE TABLE

| TRACT | AREA (SF) | AREA (AC) | OWNERSHIP/MAINTENANCE          | USE*      |
|-------|-----------|-----------|--------------------------------|-----------|
| A     | 36,989    | 0.849     | HOA                            | D/U/EA/PA |
| B     | 7,242     | 0.166     | HOA                            | OS/D/U/T  |
| C     | 44,049    | 1.011     | HOA                            | OS/D/U/T  |
| D     | 1,003     | 0.023     | CIMARRON METROPOLITAN DISTRICT | OS/M      |
| E     | 23,546    | 0.541     | HOA                            | D/U/EA/PA |
| F     | 5,631     | 0.129     | HOA                            | OS/D/U/T  |
| G     | 17,201    | 0.395     | HOA                            | OS/D/U/T  |
| H     | 250       | 0.006     | CIMARRON METROPOLITAN DISTRICT | OS/M      |

\* OS=OPEN SPACE; D=DRAINAGE; U=UTILITY; T=TRAIL; EA=EMERGENCY ACCESS; PA=PUBLIC ACCESS; M=MONUMENT

NOTES:  
1. TRACTS A AND E SHALL BE FOR ALLEY ACCESS PURPOSES AND SHALL BE OWNED AND MAINTAINED BY THE CIMARRON METROPOLITAN DISTRICT.  
2. TRACTS B, C, F, AND G SHALL BE FOR OPEN SPACE, DRAINAGE, UTILITY, AND TRAIL PURPOSES AND SHALL BE OWNED AND MAINTAINED BY THE CIMARRON METROPOLITAN DISTRICT.

### SUMMARY OF FILINGS

| CANDELAS PARCEL 2                 |          |
|-----------------------------------|----------|
| FILING 1, AMENDMENT 1             | 477 DU   |
| FILING 2                          | 199 DU   |
| FILING 3                          | 262 DU   |
| FILING 4                          | 231 DU   |
| FILING 1, AMENDMENT 2             | 97 DU    |
| FILING 4, AMENDMENT 1             | 342 DU   |
| FILING 3, LOT 1, BLOCK 10         | 104 DU   |
| FILING 2, AMENDMENT 2             | 98 DU    |
| FILING 1, AMENDMENT 4 - PARCEL 2  | 32 DU    |
| FILING 1, AMENDMENT 4 - PARCEL 10 | 40 DU    |
| FILING 1, AMENDMENT 5             | 37 DU    |
| TOTAL                             | 1,919 DU |

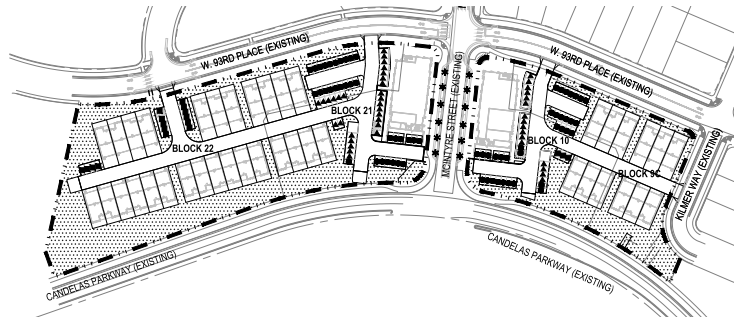
### BUILDING SUMMARY

| BUILDING | UNITS | MIN. UNIT WIDTH | BUILDING SIZE   | MINIMUM LOT SF | MAXIMUM LOT SF |
|----------|-------|-----------------|-----------------|----------------|----------------|
| 1        | 4     | 25'             | 52'2" X 99'1"   | 2,000.00       | 2,080.00       |
| 2        | 3     | 25'             | 51'9" X 74'2"   | 2,000.00       | 2,080.00       |
| 3        | 4     | 25'             | 52'2" X 99'1"   | 2,000.00       | 2,080.00       |
| 4        | 16    | MIXED-USE       | 62'3" X 151'11" | N/A            | N/A            |
| 5        | 4     | 25'             | 52'2" X 99'1"   | 1,700.00       | 1,768.00       |
| 6        | 6     | 25'             | 52'2" X 148'11" | 1,700.00       | 1,768.00       |
| 7        | 6     | 25'             | 52'2" X 148'11" | 1,700.00       | 1,768.00       |
| 8        | 17    | MIXED-USE       | 62'3" X 151'11" | N/A            | N/A            |
| 9        | 3     | 25'             | 52'1" X 74'0"   | 2,000.00       | 2,080.00       |
| 10       | 3     | 25'             | 51'9" X 74'2"   | 2,000.00       | 2,080.00       |
| 11       | 3     | 25'             | 52'1" X 74'0"   | 1,700.00       | 1,768.00       |
| 12       | 3     | 25'             | 52'1" X 74'0"   | 1,700.00       | 1,768.00       |

### ADDITIONAL DEVELOPMENT STANDARDS

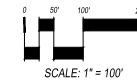
- SETBACK FOR RESIDENTIAL ALONG CANDELAS PARKWAY IS 100' FROM CENTER LINE TO STRUCTURE.
- CARS SHALL NOT OVERHANG INTO THE ALLEYS FROM GARAGES.

### PARKING EXHIBIT



### LEGEND

- MIXED-USE RESIDENTIAL SURFACE SPACES (34 EAST, 32 WEST)
- MIXED-USE RETAIL SURFACE SPACES (16 EAST, 28 WEST)
- GUEST SURFACE SPACES (3 EAST, 15 WEST)
- ADDITIONAL GUEST ON-STREET SPACES (MCINTYRE - 6 EAST, 6 WEST)



| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st POP REVISION  | 12/17/21 | BB   |
| 2   | 2nd POP REVISION  | 01/26/22 | BB   |
| 3   | 3rd POP REVISION  | 02/02/22 | BB   |
| 4   | 4th POP REVISION  | 02/02/22 | BB   |
| 5   | 5th POP REVISION  | 02/02/22 | BB   |
| 6   | 6th POP REVISION  | 02/02/22 | BB   |
| 7   | 7th POP REVISION  | 02/02/22 | BB   |
| 8   | 8th POP REVISION  | 02/02/22 | BB   |
| 9   | 9th POP REVISION  | 02/02/22 | BB   |
| 10  | 10th POP REVISION | 02/02/22 | BB   |
| 11  | 11th POP REVISION | 02/02/22 | BB   |
| 12  | 12th POP REVISION | 02/02/22 | BB   |

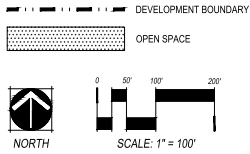
|                     |         |
|---------------------|---------|
| Job Number          | 19.1271 |
| Project Manager     | DK      |
| Design By           | BB      |
| Drawn By            | MW      |
| Principal In Charge | DL      |

Sheet Number:



CANDELAS FILING NO. 1, AMENDMENT NO. 4  
PRELIMINARY DEVELOPMENT PLAN  
ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 11 OF 32 SHEETS

LEGEND



NOTES

- DWELLING UNITS AND PARKS REQUIREMENT ARE BASED ON THE GROSS POP AREA (6.44 AC) AND UNIT COUNTS.
- ON-STREET TRAILS AND WALKS ARE PUBLIC.

PARK / CITY DEDICATED LAND

| PARKS / CITY DEDICATED LAND - REQUIRED |                          |            |                |
|----------------------------------------|--------------------------|------------|----------------|
| UNITS                                  | USE                      | POPULATION | ACRES REQUIRED |
| 72                                     | TOWNHOME AND MULTIFAMILY | 135        | 1.35           |
| TOTAL                                  |                          |            | 1.35           |

| PARKS / CITY DEDICATED LAND - PROVIDED |                          |            |                |
|----------------------------------------|--------------------------|------------|----------------|
| UNITS                                  | USE                      | POPULATION | ACRES PROVIDED |
| 72                                     | TOWNHOME AND MULTIFAMILY | 135        | 0.00           |
| TOTAL                                  |                          |            | 0.00           |

| PARK SUMMARY                      |                                                |       |     |     |            |                      |      |      |      |                      |               |               |
|-----------------------------------|------------------------------------------------|-------|-----|-----|------------|----------------------|------|------|------|----------------------|---------------|---------------|
| FILING                            | PLATTED UNITS SUBJECT TO FUTURE TOTAL PROPOSED |       |     |     | MULTIPLIER | TOTAL PARKS REQUIRED |      |      |      | TOTAL PARKS PROVIDED |               |               |
|                                   | SFA                                            | SFD   | SFA | SFD |            | SFA                  | SFD  | SFA  | SFD  | OVERALL              | OVERALL ACRES |               |
| FILING 1, AMENDMENT 1             | 0                                              | 477   | 0   | 0   | 0          | 477                  | 2.38 | 2.83 | 0.00 | 13.50                | 34.32         | 65.32%        |
| FILING 2                          | 0                                              | 199   | 0   | 0   | 0          | 199                  | 2.38 | 2.83 | 0.00 | 5.63                 | 8.27          | 15.74%        |
| FILING 3                          | 0                                              | 262   | 0   | 0   | 0          | 262                  | 2.38 | 2.83 | 0.00 | 7.41                 | 7.41          | 23.45%        |
| FILING 4                          | 0                                              | 231   | 0   | 0   | 0          | 231                  | 2.38 | 2.83 | 0.00 | 6.54                 | 6.54          | 25.58%        |
| FILING 1, AMENDMENT 2             | 0                                              | 97    | 0   | 0   | 0          | 97                   | 2.38 | 2.83 | 0.00 | 2.75                 | 2.75          | 0.00%         |
| FILING 4, AMENDMENT 1             | 0                                              | 342   | 0   | 0   | 0          | 342                  | 2.38 | 2.83 | 0.00 | 9.88                 | 9.88          | 0.00%         |
| FILING 3, LOT 1, BLOCK 10         | 104                                            | 0     | 0   | 0   | 104        | 0                    | 2.38 | 2.83 | 2.48 | 0.00                 | 2.48          | 0.00%         |
| FILING 2, AMENDMENT 2             | 98                                             | 0     | 0   | 0   | 98         | 0                    | 2.38 | 2.83 | 2.33 | 0.00                 | 2.33          | 0.00%         |
| FILING 1, AMENDMENT 4 - PARCEL 2  | 32                                             | 0     | 0   | 0   | 32         | 0                    | 1.97 | 2.84 | 0.00 | 0.69                 | 0.00          | 0.00%         |
| FILING 1, AMENDMENT 4 - PARCEL 10 | 40                                             | 0     | 0   | 0   | 40         | 0                    | 1.87 | 2.84 | 0.75 | 0.00                 | 0.00          | 0.00%         |
| FILING 1, AMENDMENT 5             | 37                                             | 0     | 0   | 0   | 37         | 0                    | 2.38 | 2.83 | 0.88 | 0.00                 | 0.00          | 0.00%         |
| TOTAL                             | 311                                            | 1,608 | 0   | 0   | 311        | 1,608                | N/A  | N/A  | 7.03 | 45.51                | 52.54         | 70.66 134.49% |

THIS TABLE AND ALL QUANTITIES CONTAINED HAVE BEEN UPDATED TO ACCOMMODATE THE CURRENT APPLICATION.

OPEN SPACE

| OPEN SPACE - REQUIRED |                          |            |                |
|-----------------------|--------------------------|------------|----------------|
| AREA                  | USE                      | MULTIPLIER | ACRES REQUIRED |
| 5.44                  | TOWNHOME AND MULTIFAMILY | 0.20       | 1.09           |
| TOTAL                 |                          |            | 1.09           |

| OPEN SPACE - PROVIDED |        |                |
|-----------------------|--------|----------------|
| TRACT                 | USE    | ACRES PROVIDED |
| TRACT B               | OS/UTL | 0.192          |
| TRACT C               | OS/UTL | 1.611          |
| TRACT D               | OS/M   | 0.023          |
| TRACT F               | OS/UTL | 0.129          |
| TRACT G               | OS/UTL | 0.395          |
| TRACT H               | OS/M   | 0.006          |
| TOTAL                 |        | 1.739          |

\* OS=OPEN SPACE; D=DRAINAGE;  
U=UTILITY; T=TRAIL

| OPEN SPACE SUMMARY        |                                 |        |       |      |                |        |     |            |                   |       |         |                   |         |
|---------------------------|---------------------------------|--------|-------|------|----------------|--------|-----|------------|-------------------|-------|---------|-------------------|---------|
| FILING                    | PLATTED ACRES SUBJECT TO FUTURE |        |       |      | TOTAL PROPOSED |        |     | MULTIPLIER | TOTAL OS REQUIRED |       |         | TOTAL OS PROVIDED |         |
|                           | SFA                             | SFD    | SFA   | SFD  | SFA            | SFD    | SFA |            | SFA               | SFD   | OVERALL | OVERALL ACRES     | %       |
| FILING 1, AMENDMENT 1     | 0.00                            | 38.92  | 11.30 | 0.00 | 11.30          | 98.92  | 0.2 | 0.1        | 2.26              | 9.88  | 12.15   | 41.90             | 78.15%  |
| FILING 2                  | 0.00                            | 36.69* | 0.00* | 0.00 | 0.00*          | 36.69* | 0.2 | 0.1        | 0.00              | 3.67  | 3.67    | 39.58             | 73.63%  |
| FILING 3                  | 0.00                            | 54.16  | 10.70 | 0.00 | 10.70          | 54.16  | 0.2 | 0.1        | 2.14              | 5.42  | 7.56    | 8.13              | 15.16%  |
| FILING 4                  | 0.00                            | 113.14 | 0.00  | 0.00 | 0.00           | 113.14 | 0.2 | 0.1        | 0.00              | 11.31 | 11.31   | 71.24             | 132.68% |
| FILING 1, AMENDMENT 2     | 0.00                            | 16.58  | 0.00  | 0.00 | 0.00           | 16.58  | 0.2 | 0.1        | 0.00              | 1.66  | 1.66    | 2.84              | 5.48%   |
| FILING 4, AMENDMENT 1     | 0.00                            | 72.64  | 0.00  | 0.00 | 0.00           | 72.64  | 0.2 | 0.1        | 0.00              | 7.26  | 7.26    | 50.37             | 93.55%  |
| FILING 3, LOT 1, BLOCK 10 | 10.52                           | 0.00   | 0.00  | 0.00 | 10.52          | 0.00   | 0.2 | 0.1        | 2.10              | 0.00  | 2.10    | 3.70              | 6.96%   |
| FILING 2, AMENDMENT 2     | 29.58                           | 0.00   | 0.00  | 0.00 | 29.58          | 0.00   | 0.2 | 0.1        | 5.62              | 0.00  | 5.62    | 12.33             | 23.00%  |
| FILING 1, AMENDMENT 4     | 5.44                            | 0.00   | 0.00  | 0.00 | 5.44           | 0.00   | 0.2 | 0.1        | 1.09              | 0.00  | 1.09    | 1.73              | 3.22%   |
| FILING 1, AMENDMENT 5     | 4.45                            | 0.00   | 0.00  | 0.00 | 4.45           | 0.00   | 0.2 | 0.1        | 0.89              | 0.00  | 0.89    | 2.27              | 4.23%   |
| TOTAL                     | 49.99                           | 392.14 | 22.00 | 0.00 | 71.99          | 392.14 | N/A | N/A        | 14.40             | 39.22 | 93.61   | 234.19            | 436.82% |

THIS TABLE AND ALL QUANTITIES CONTAINED HAVE BEEN UPDATED TO ACCOMMODATE THE CURRENT APPLICATION.

\* THIS NUMBER HAS BEEN UPDATED BY SUBTRACTING AREA PREVIOUSLY PLATTED AS SFD AND INCLUDED IN FILING 2 AMENDMENT 2 AREA SPECIFICALLY THE PREVIOUS LOTS PLATTED NORTH OF W. 93RD PLACE.  
\*\* THIS NUMBER HAS BEEN UPDATED BY SUBTRACTING AREA INCLUDED IN FILING 2 AMENDMENT 2 (BLOCKS 12 AND 13). THIS REPRESENTS AN ACCURATE TOTAL NUMBER SINCE THE PROPOSED UNIT COUNTS FOR BLOCKS 12 AND 13 ARE INCLUDED AT THE BOTTOM OF THE TABLE UNDER THE CURRENT APPLICATION.

CANDELAS FILING NO. 1, AMENDMENT NO. 4  
PRELIMINARY DEVELOPMENT PLAN  
ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 120F 32 SHEETS

GENERAL NOTES

1. THESE PLANS SHALL NOT BE UTILIZED FOR CONSTRUCTION OR PERMITTING UNLESS STATED FOR SUCH USE IN THE TITLE BLOCK.
2. DRAWINGS ARE INTENDED TO BE PRINTED ON 24" X 36" PAPER. PRINTING THESE DRAWINGS AT A DIFFERENT SIZE WILL IMPACT THE SCALE. VERIFY THE GRAPHIC SCALE BEFORE REFERENCING ANY MEASUREMENTS ON THESE SHEETS. THE RECIPIENT OF THESE DRAWINGS SHALL BE RESPONSIBLE FOR ANY ERRORS RESULTING FROM INCORRECT PRINTING, COPYING, OR ANY OTHER CHANGES THAT ALTER THE SCALE OF THE DRAWINGS.
3. VERIFY ALL PLANT DIMENSIONS PRIOR TO START OF CONSTRUCTION. NOTIFY THE OWNER'S REPRESENTATIVE TO ADDRESS ANY QUESTIONS OR CLARIFY ANY DISCREPANCIES.
4. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
5. SUBMIT A CHANGE ORDER FOR APPROVAL FOR ANY CHANGES TO WORK SCOPE RESULTING FROM FIELD CONDITIONS OR DIRECTION BY OWNER'S REPRESENTATIVE WHICH REQUIRE ADDITIONAL COST TO THE OWNER PRIOR TO PERFORMANCE OF WORK.
6. THE CONTRACTOR SHALL PROVIDE A STAKED LAYOUT OF ALL SITE IMPROVEMENTS FOR INSPECTION BY THE OWNER'S REPRESENTATIVE AND MAKE MODIFICATIONS AS REQUIRED. ALL LAYOUT INFORMATION IS AVAILABLE IN DIGITAL FORMAT FOR USE BY THE CONTRACTOR. IF A GEOTECHNICAL SOILS REPORT IS NOT AVAILABLE AT THE TIME OF CONSTRUCTION, NORRIS DESIGN RECOMMENDS A REPORT BE AUTHORIZED BY THE OWNER AND THAT ALL RECOMMENDATIONS OF THE REPORT ARE FOLLOWED DURING CONSTRUCTION. THE CONTRACTOR SHALL USE THESE CONTRACT DOCUMENTS AS A BASIS FOR THE BID. IF THE OWNER ELECTS TO PROVIDE A GEOTECHNICAL REPORT, THE CONTRACTOR SHALL REVIEW THE REPORT AND SUBMIT AN APPROPRIATE CHANGE ORDER TO THE OWNERS REPRESENTATIVE IF ADDITIONAL COSTS ARE REQUESTED.
8. CONTRACTOR SHALL CONFIRM THAT SITE CONDITIONS ARE SIMILAR TO THE PLANS, WITHIN TOLERANCES STATED IN THE CONTRACT DOCUMENTS, AND SATISFACTORY TO THE CONTRACTOR PRIOR TO START OF WORK. SHOULD SITE CONDITIONS BE DIFFERENT THAN REPRESENTED ON THE PLANS OR UNSATISFACTORY TO THE CONTRACTOR, THE CONTRACTOR SHALL CONTACT THE OWNER'S REPRESENTATIVE FOR CLARIFICATION AND FURTHER DIRECTION.
9. CONTRACTOR IS RESPONSIBLE TO PAY FOR, AND OBTAIN, ANY REQUIRED APPLICATIONS, PERMITTING, LICENSES, INSPECTIONS AND METERS ASSOCIATED WITH WORK.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES OR PENALTIES ASSESSED TO THE OWNER RELATING TO ANY VIOLATIONS OR NON-COMFORMANCE WITH THE PLANS, SPECIFICATIONS, CONTRACT DOCUMENTS, JURISDICTIONAL CODES, AND REGULATORY AGENCIES.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL UTILITY LOCATES PRIOR TO ANY EXCAVATION. REFER TO ENGINEERING UTILITY PLANS FOR ALL PROPOSED UTILITY LOCATIONS AND DETAILS. NOTIFY OWNER'S REPRESENTATIVE IF EXISTING OR PROPOSED UTILITIES INTERFERE WITH THE ABILITY TO PERFORM WORK.
12. UNLESS IDENTIFIED ON THE PLANS FOR DEMOLITION OR REMOVAL, THE CONTRACTOR IS RESPONSIBLE FOR THE COST TO REPAIR UTILITIES, ADJACENT OR EXISTING LANDSCAPE, ADJACENT OR EXISTING PAVING, OR ANY PUBLIC AND PRIVATE PROPERTY THAT IS DAMAGED BY THE CONTRACTOR OR THEIR SUBCONTRACTORS OPERATIONS DURING INSTALLATION, ESTABLISHMENT OR DURING THE SPECIFIED MAINTENANCE PERIOD. ALL DAMAGES SHALL BE REPAIRED TO PRE-CONSTRUCTION CONDITIONS AS DETERMINED BY THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL BE RESPONSIBLE FOR LOGGING ANY DAMAGES PRIOR TO START OF CONSTRUCTION AND DURING THE CONTRACT PERIOD.
13. ALL WORK SHALL BE CONFINED TO THE AREA WITHIN THE CONSTRUCTION LIMITS AS SHOWN ON THE PLANS. ANY AREAS OR IMPROVEMENTS DISTURBED OUTSIDE THESE LIMITS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. IN THE EVENT THE CONTRACTOR REQUIRES A MODIFICATION TO THE CONSTRUCTION LIMITS, WRITTEN PERMISSION MUST BE OBTAINED FROM THE OWNER'S REPRESENTATIVE PRIOR TO ANY DISTURBANCE OUTSIDE OF THE LIMITS OF WORK.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY OF THEIR TRENCHES OR EXCAVATIONS THAT SETTLE.
15. THE CONTRACTOR SHALL BE RESPONSIBLE TO PREPARE AND SUBMIT A TRAFFIC CONTROL PLAN TO THE APPROPRIATE JURISDICTIONAL AGENCIES AND THE OWNER'S REPRESENTATIVE IF THEIR WORK AND OPERATIONS AFFECT OR IMPACT THE PUBLIC RIGHTS-OF-WAY. OBTAIN APPROVAL PRIOR TO ANY WORK WHICH AFFECTS OR IMPACTS THE PUBLIC RIGHTS-OF-WAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES OR PENALTIES ASSESSED TO THE OWNER RELATING TO THIS REQUIREMENT DURING THE CONTRACT PERIOD.
16. SIGHT TRIANGLES AND SIGHT LINES SHALL REMAIN UNOBTSTRUCTED BY EQUIPMENT, CONSTRUCTION MATERIALS, PLANT MATERIAL, OR ANY OTHER VISUAL OBSTACLE DURING THE CONTRACT PERIOD AND AT MATURITY OF PLANTS PER LOCAL JURISDICTIONAL REQUIREMENTS. NO PLANT MATERIAL OTHER THAN GROUND COVER IS ALLOWED TO BE PLANTED ADJACENT TO PRE-HYDRANTS AS STIPULATED BY JURISDICTIONAL REQUIREMENTS.
17. COORDINATE SITE ACCESS, STAGING, STORAGE AND CLEANOUT AREAS WITH OWNER'S REPRESENTATIVE.
18. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY SAFETY FENCING AND BARRIERS AROUND ALL IMPROVEMENTS SUCH AS WALLS, PLAY STRUCTURES, EXCAVATIONS, ETC ASSOCIATED WITH THEIR WORK UNTIL SUCH FACILITIES ARE COMPLETELY INSTALLED PER THE PLANS, SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS.

19. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF THEIR MATERIAL STOCK PILES AND WORK FROM VANDALISM, EROSION OR UNINTENDED DISTURBANCE DURING THE CONSTRUCTION PERIOD AND UNTIL FINAL ACCEPTANCE IS ISSUED.
20. THE CONTRACTOR SHALL KNOW, UNDERSTAND AND ABIDE BY ANY STORM WATER POLLUTION PREVENTION PLAN (SWPPP) ASSOCIATED WITH THE SITE. IF A STORM WATER POLLUTION PREVENTION PLAN IS NOT PROVIDED BY THE OWNER'S REPRESENTATIVE, REQUEST A COPY BEFORE PERFORMANCE OF ANY SITE WORK.
21. MAINTAIN ANY STORM WATER MANAGEMENT FACILITIES THAT EXIST ON SITE FOR FULL FUNCTIONALITY. THE CONTRACTOR SHALL INSTALL AND MAINTAIN ANY NEW STORM WATER MANAGEMENT FACILITIES THAT ARE IDENTIFIED IN THE SCOPE OF WORK TO FULL FUNCTIONALITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES OR PENALTIES ASSESSED TO THE OWNER FOR FAILURE TO MAINTAIN STORM WATER MANAGEMENT FACILITIES DURING THE CONTRACT PERIOD.
22. THE CONTRACTOR SHALL PREVENT SEDIMENT, DEBRIS AND ALL OTHER POLLUTANTS FROM EXITING THE SITE OR ENTERING THE STORM SEWER SYSTEM DURING ALL DEMOLITION OR CONSTRUCTION OPERATIONS THAT ARE PART OF THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES OR PENALTIES ASSESSED TO THE OWNER RELATING TO THESE REQUIREMENTS DURING THEIR CONTRACTED COURSE OF WORK.
23. THE CONTRACTOR SHALL BE RESPONSIBLE TO PREVENT ANY IMPACTS TO ADJACENT WATERWAYS, WETLANDS, OR OTHER ENVIRONMENTALLY SENSITIVE AREAS RESULTING FROM WORK DONE AS PART OF THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES OR PENALTIES ASSESSED TO THE OWNER RELATING TO THESE STANDARDS DURING THEIR CONTRACTED COURSE OF WORK.
24. THE CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL INSURE THAT ALL LOADS OF CONSTRUCTION MATERIAL IMPORTED TO OR EXPORTED FROM THE PROJECT SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF MATERIAL DURING TRANSPORT. TRANSPORTATION METHODS ON PUBLIC RIGHT-OF-WAYS SHALL CONFORM TO JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES OR PENALTIES ASSESSED TO THE OWNER RELATING TO THESE REQUIREMENTS.
25. THE CLEANING OF EQUIPMENT IS PROHIBITED AT THE JOB SITE UNLESS AUTHORIZED BY THE OWNER'S REPRESENTATIVE IN A DESIGNATED AREA. THE DISCHARGE OF WATER, WASTE, CONCRETE, POLLUTANTS, OR OTHER MATERIALS SHALL ONLY OCCUR IN AREAS DESIGNED FOR SUCH USE AND APPROVED BY THE OWNER'S REPRESENTATIVE.
26. THE CLEANING OF CONCRETE EQUIPMENT IS PROHIBITED AT THE JOB SITE EXCEPT IN DESIGNATED CONCRETE WASHOUT AREAS. THE DISCHARGE OF WATER CONTAINING WASTE CONCRETE IN THE STORM SEWER IS PROHIBITED.
27. OPEN SPACE SWALES: IF SWALES ARE EXISTING ON SITE AND ARE NOT INTENDED TO BE MODIFIED AS PART OF THE PLANS, THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN THE CONVEYANCE OF WATER WITHIN THE SWALES DURING THE CONTRACT PERIOD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DIVERSION OR PUMPING OF WATER IF REQUIRED TO COMPLETE WORK. ANY SWALES DISTURBED BY THE CONTRACTOR SHALL BE REPAIRED/RESTORED TO THEIR ORIGINAL CONDITION. IF THE SWALE NEEDS TO BE DISTURBED OR MODIFIED FOR ANY REASON, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO DISTURBANCE.
28. DETENTION AND WATER QUALITY PONDS: IF DETENTION PONDS AND WATER QUALITY PONDS ARE EXISTING ON SITE AND ARE NOT INTENDED TO BE MODIFIED AS PART OF THE PLANS, THE CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE PONDS. DRAINAGE STRUCTURES AND SPILLWAYS DURING CONSTRUCTION. ALL PONDS, DRAINAGE STRUCTURES AND SPILLWAYS SHALL BE MAINTAINED IN OPERABLE CONDITIONS AT ALL TIMES. ANY POND OR SPILLWAY AREAS DISTURBED BY THE CONTRACTOR SHALL BE REPAIRED/RESTORED TO THEIR ORIGINAL CONDITION. IF THE POND NEEDS TO BE DISTURBED OR MODIFIED FOR ANY REASON, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO DISTURBANCE.
29. MAINTENANCE ACCESS BENCHES: IF MAINTENANCE BENCHES OR ACCESS ROADS EXIST ON SITE AND ARE NOT INTENDED TO BE MODIFIED AS PART OF THE PLANS, THE CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE BENCHES OR ACCESS ROADS DURING CONSTRUCTION. ANY BENCHES OR ACCESS ROADS DISTURBED BY THE CONTRACTOR SHALL BE REPAIRED/RESTORED TO THEIR ORIGINAL CONDITION. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING BENCHES AND ACCESS ROADS DURING THE CONSTRUCTION PERIOD. IF ACCESS NEEDS TO BE BLOCKED FOR ANY REASON, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO INTERRUPTION OF ACCESS.
30. LOCAL, STATE AND FEDERAL JURISDICTIONAL REQUIREMENTS, RESTRICTIONS OR PROCEDURES SHALL SUPERSEDE THESE PLANS, NOTES AND SPECIFICATIONS WHEN MORE STRINGENT. NOTIFY THE OWNER'S REPRESENTATIVE IF CONFLICTS OCCUR.

LANDSCAPE NOTES

1. THE CONTRACTOR SHALL FOLLOW THE LANDSCAPE PLANS AND SPECIFICATIONS AS CLOSELY AS POSSIBLE. ANY SUBSTITUTION OR ALTERATION SHALL NOT BE ALLOWED WITHOUT APPROVAL OF THE OWNER'S REPRESENTATIVE. OVERALL PLANT QUANTITY AND QUALITY SHALL BE CONSISTENT WITH THE PLANS.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PLANT QUANTITIES. GRAPHIC QUANTITIES TAKES PRECEDENCE OVER WRITTEN QUANTITIES.
3. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO INSPECT AND TAG ALL PLANT MATERIAL PRIOR TO SHIPPING TO THE SITE. IN ALL CASES, THE OWNER'S REPRESENTATIVE MAY REJECT PLANT MATERIAL AT THE SITE IF MATERIAL IS DAMAGED, DISEASED, OR DECLINING IN HEALTH AT THE TIME OF ON SITE INSPECTIONS OR IF THE PLANT MATERIAL DOES NOT MEET THE MINIMUM SPECIFIED STANDARD IDENTIFIED ON THE PLANS AND IN THE SPECIFICATIONS. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER'S REPRESENTATIVE FOR INSPECTION AND APPROVAL OF ALL MATERIALS AND PRODUCTS PRIOR TO INSTALLATION.
4. THE OWNER'S REPRESENTATIVE MAY ELECT TO UPSIZE PLANT MATERIAL AT THEIR DISCRETION BASED ON SELECTION, AVAILABILITY, OR TO ENHANCE SPECIFIC AREAS OF THE PROJECT. THE CONTRACTOR SHALL VERIFY PLANT MATERIAL SIZES WITH OWNERS REPRESENTATIVE PRIOR TO PURCHASING, SHIPPING OR STOCKING OF PLANT MATERIALS. SUBMIT CHANGE ORDER REQUEST TO OWNERS REPRESENTATIVE FOR APPROVAL IF ADDITIONAL COST IS REQUESTED BY THE CONTRACTOR PRIOR TO INSTALLATION. RE-STOCKING CHARGES WILL NOT BE APPROVED IF THE CONTRACTOR FAILS TO SUBMIT A REQUEST FOR MATERIAL CHANGES.
5. THE CONTRACTOR SHALL WARRANTY ALL CONTRACTED WORK AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION HAS BEEN ISSUED BY THE OWNER'S REPRESENTATIVE FOR THE ENTIRE PROJECT UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS OR SPECIFICATIONS.
6. REFER TO IRRIGATION PLANS FOR LIMITS AND TYPES OF IRRIGATION DESIGNED FOR THE LANDSCAPE. IN NO CASE SHALL IRRIGATION BE EMITTED WITHIN THE MINIMUM DISTANCE FROM BUILDING OR WALL FOUNDATIONS AS STIPULATED IN THE GEOTECHNICAL REPORT. ALL IRRIGATION DISTRIBUTION LINES, HEADS AND EMITTERS SHALL BE KEPT OUTSIDE THE MINIMUM DISTANCE AWAY FROM ALL BUILDING AND WALL FOUNDATIONS AS STIPULATED IN THE GEOTECHNICAL REPORT.
7. LANDSCAPE MATERIAL LOCATIONS SHALL HAVE PRECEDENCE OVER IRRIGATION MAINLINE AND LATERAL LOCATIONS. COORDINATE INSTALLATION OF IRRIGATION EQUIPMENT SO THAT IT DOES NOT INTERFERE WITH THE PLANTING OF TREES OR OTHER LANDSCAPE MATERIAL.
8. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING POSITIVE DRAINAGE EXISTS IN ALL LANDSCAPE AREAS. SURFACE DRAINAGE ON LANDSCAPE AREAS SHALL NOT FLOW TOWARD STRUCTURES AND FOUNDATIONS. MAINTAIN SLOPE AWAY FROM FOUNDATIONS PER THE GEOTECHNICAL REPORT RECOMMENDATIONS. ALL LANDSCAPE AREAS BETWEEN WALKS AND CURBS SHALL DRAIN FREELY TO THE CURB UNLESS OTHERWISE IDENTIFIED ON THE GRADING PLAN. IN NO CASE SHALL THE GRADE, TURF THATCH, OR OTHER LANDSCAPE MATERIALS DAM WATER AGAINST WALKS. MINIMUM SLOPES ON LANDSCAPE AREAS SHALL BE 2% MAXIMUM SLOPE SHALL BE 2% UNLESS SPECIFICALLY IDENTIFIED ON THE PLANS OR APPROVED BY THE OWNER'S REPRESENTATIVE.
9. PRIOR TO INSTALLATION OF PLANT MATERIALS, AREAS THAT HAVE BEEN COMPACTED OR DISTURBED BY CONSTRUCTION ACTIVITY SHALL BE THOROUGHLY LOOSENEED TO A DEPTH OF 8" - 12" AND AMENDED PER SPECIFICATIONS.
10. ALL LANDSCAPED AREAS ARE TO RECEIVE ORGANIC SOIL PREPARATION AT 4 cu yds/sf, 100sf/sf OR AS NOTED IN THE TECHNICAL SPECIFICATIONS.
11. TREES SHALL NOT BE LOCATED IN DRAINAGE SWALES, DRAINAGE AREAS, OR UTILITY EASEMENTS. CONTACT OWNER'S REPRESENTATIVE FOR RELOCATION OF PLANTS IN QUESTIONABLE AREAS PRIOR TO INSTALLATION.
12. THE CENTER OF EVERGREEN TREES SHALL NOT BE PLACED CLOSER THAN 8' AND THE CENTER OF ORNAMENTAL TREES CLOSER THAN 6' FROM A SIDEWALK, STREET OR DRIVE LANE. EVERGREEN TREES SHALL NOT BE LOCATED ANY CLOSER THAN 15' FROM IRRIGATION ROTOR HEADS. NOTIFY OWNER'S REPRESENTATIVE IF TREE LOCATIONS CONFLICT WITH THESE STANDARDS FOR FURTHER DIRECTION.
13. ALL EVERGREEN TREES SHALL BE FULLY BRANCHED TO THE GROUND AND SHALL NOT EXHIBIT SIGNS OF ACCELERATED GROWTH AS DETERMINED BY THE OWNER'S REPRESENTATIVE.
14. ALL TREES ARE TO BE STAKED AND GUYED PER DETAILS FOR A PERIOD OF 1 YEAR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING STAKES AT THE END OF 1 YEAR FROM ACCEPTANCE OF LANDSCAPE INSTALLATION BY THE OWNER'S REPRESENTATIVE. OBTAIN APPROVAL BY OWNER'S REPRESENTATIVE PRIOR TO REMOVAL.
15. ALL TREES INSTALLED ABOVE RETAINING WALLS UTILIZING GEO-GRID MUST BE HAND DUG TO PROTECT GEO-GRID. GEO-GRID MUST BE TIGHTLY INSTALLED. APPROVAL MUST BE GIVEN BY OWNER'S REPRESENTATIVE PRIOR TO DOING WORK.
16. TREE WRAP SHALL BE APPLIED IN LATE FALL AFTER INSTALLATION AND REMOVED THE FOLLOWING SPRING. TREES GREATER THEN 4" IN CALIPER MAY NOT REQUIRE TREE WRAP IF BARK IS SUFFICIENTLY DEVELOPED. OBTAIN APPROVAL FROM OWNERS REPRESENTATIVE FOR ANY TREES THAT WILL NOT BE WRAPPED.
17. ALL TREES IN SEED OR TURF AREAS SHALL RECEIVE MULCH RINGS. OBTAIN APPROVAL FROM OWNERS REPRESENTATIVE FOR ANY TREES THAT WILL NOT BE MULCHED FOR EXCESSIVE MOISTURE REASONS.
18. SHRUB, GROUND COVER AND PERENNIAL BEDS ARE TO BE CONTAINED BY 4" x 14 PERFORATED, ROLL TOP, INTERLOCKING TYPE EDGER, RYERSON OR EQUAL. EDGER IS NOT REQUIRED WHEN ADJACENT TO CURBS, WALLS, WALKS OR SOLID FENCES WITHIN 3' OF PRE-MULCHED FINAL GRADE. EDGER SHALL NOT BE REQUIRED TO SEPARATE MULCH TYPES UNLESS SPECIFIED ON THE PLANS.
19. IN ALL CASES SHRUB, GROUND COVER AND PERENNIAL BEDS ADJACENT TO BUILDING AND WALL FOUNDATIONS SHALL BE CONTAINED BY 14 GAUGE GREEN, ROLL TOP, INTERLOCKING TYPE PERFORATED EDGER, RYERSON OR EQUAL. EDGER SHALL NOT RESTRICT THE FREE FLOW OF DRAINAGE OR DAM WATER IN ANY CASE. EDGER IS NOT REQUIRED WHEN ADJACENT TO CURBS, WALLS, WALKS OR SOLID FENCES WITHIN 3' OF PRE-MULCHED FINAL

- GRADE. EDGER SHALL NOT BE REQUIRED TO SEPARATE MULCH TYPES UNLESS SPECIFIED ON THE PLANS.
20. ALL SHRUB BEDS ARE TO BE MULCHED WITH MIN. 3" DEPTH, 3/4" TAN RIVER ROCK FROM FRONT RANGE MATERIALS, INC. OVER SPECIFIED GEOTEXTILE WEED CONTROL FABRIC. ON LOT ROCK MULCH SHALL BE DETERMINED BY BUILDER AND OR HOME OWNER SUBJECT TO REVIEW BY CORC IN ACCORDANCE WITH THE DESIGN GUIDELINES.
21. ALL GROUND COVER AND PERENNIAL FLOWER BEDS SHALL BE MULCHED WITH 4" DEPTH GORILLA HAIR CEDAR MULCH. NO WEED CONTROL FABRIC IS REQUIRED IN GROUND COVER OR PERENNIAL AREAS.
22. AT SEED AREA BOUNDARIES ADJACENT TO EXISTING NATIVE AREAS, OVERLAP ABUTTING NATIVE AREAS BY THE FULL WIDTH OF THE SEEDER.
23. EXISTING TURF AREAS THAT ARE DISTURBED DURING CONSTRUCTION, ESTABLISHMENT AND THE MAINTENANCE PERIOD SHALL BE RESTORED WITH NEW SOD TO MATCH EXISTING TURF SPECIES. DISTURBED NATIVE AREAS WHICH ARE TO REMAIN SHALL BE OVER SEEDED AND RESTORED WITH SPECIFIED SEED MIX.
24. CONTRACTOR SHALL OVER SEED ALL MAINTENANCE OR SERVICE ACCESS BENCHES AND ROADS WITH SPECIFIED SEED MIX UNLESS OTHERWISE NOTED ON THE PLANS.
25. ALL SEDED SLOPES EXCEEDING 25% IN GRADE (4:1) SHALL RECEIVE EROSION CONTROL BLANKETS. PRIOR TO INSTALLATION, NOTIFY OWNERS REPRESENTATIVE FOR APPROVAL OF LOCATION AND ANY ADDITIONAL COST IF A CHANGE ORDER IS NECESSARY.
26. WHEN COMPLETE, ALL GRADES SHALL BE WITHIN +/- 1/8" OF FINISHED GRADES AS SHOWN ON THE PLANS.
27. SOFT SURFACE TRAILS NEXT TO MANICURED TURF OR SHRUB BEDS SHALL BE CONTAINED WITH 4" x 14 GAUGE GREEN ROLL TOP EDGER, RYERSON OR EQUAL.
28. STEEL EDGER (4" x 14 GAUGE) SHALL BE INSTALLED ALONG ALL REAR AND IOR SIDE LOT LINES WHERE RESIDENTIAL LOTS ABUT OPEN SPACE.
29. TREE LAWN LANDSCAPE TO BE INSTALLED BY BUILDER IN R.O.W. ADJACENT TO PROPERTY PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY FOR EACH HOME.
30. A MINIMUM OF 12" SHALL BE PROVIDED BETWEEN SIDEWALK AND LANDSCAPE BOUNDERS. PERMETER FENCE SHALL BE INSTALLED BY BUILDER.
31. CONTRACTOR SHALL EXERCISE RECOMMENDED MAINTENANCE PRACTICES THAT WILL SUSTAIN THE HEALTH OF ALL PROTECTED TREES, INCLUDING PROVISIONS FOR IRRIGATION DURING GROWING SEASONS, PRUNING, FOLIAR FEEDING, ETC.
33. DECIDUOUS TREES IN SIGHT TRIANGLES TO BE LIMBED UP TO 9'. PERENNIALS AND SHRUBS WITHIN THE SIGHT TRIANGLE MAY NOT EXCEED 24" TALL AT MATURITY.

SOIL PREPARATION NOTES

1. EXCESSIVE WETTING OR DRYING OF THE OPEN FOUNDATION EXCAVATION SHOULD BE AVOIDED AS MUCH AS PRACTICAL DURING CONSTRUCTION.
2. THE GROUND SURFACE SURROUNDING THE EXTERIOR OF THE FOUNDATION SHOULD BE MAINTAINED IN SUCH A MANNER AS TO PROVIDE FOR POSITIVE SURFACE DRAINAGE AWAY FROM THE FOUNDATION. AT COMPLETION OF CONSTRUCTION, WE RECOMMEND A MINIMUM FALL AWAY FROM THE FOUNDATION OF 6 INCHES IN THE FIRST 5 FEET. THIS SLOPE SHOULD BE CONTINUOUS ACROSS THE BACKFILL ZONE.
3. AREAS WHICH SETTLE SHOULD BE FILLED AS SOON AS POSSIBLE IN ORDER TO MAINTAIN POSITIVE DRAINAGE AWAY FROM THE FOUNDATION.
4. IF LAWN EDGING IS USED AROUND THE EXTERIOR OF THE FOUNDATION, IT SHOULD BE CONSTRUCTED IN A MANNER TO PREVENT FLOODING OF SURFACE WATER IN THE VICINITY OF THE BACKFILL SOILS.
5. DRAINAGE SWALES SHOULD BE CONSTRUCTED AND MAINTAINED A MINIMUM OF 5 FEET AWAY FROM THE FOUNDATION ON SIDE YARDS AND 15 FEET AWAY FROM THE FOUNDATION ON BACK AND FRONT YARDS. NATURAL DRAINAGE SWALES SHOULD MAINTAIN A SLOPE OF AT LEAST 2% OFF OF THE LOT. SWALES MUST NOT BE BLOCKED BY FENCES, LANDSCAPING, PATHS OR OTHER HOMEOWNER INSTALLED ITEMS.
6. ROOF DOWNSPOUTS AND DRAINS SHOULD DISCHARGE WELL BEYOND THE LIMITS OF FOUNDATION BACKFILL.
7. WATERING ADJACENT TO THE FOUNDATION SHOULD BE REDUCED AS MUCH AS PRACTICAL. LANDSCAPING WHICH REQUIRES EXCESSIVE WATERING SHOULD NOT BE LOCATED WITHIN 5 FEET OF FOUNDATION WALLS. SPRINKLER LINES, ZONE CONTROL BOXES, AND DRAINS SHOULD BE LOCATED OUTSIDE THE LIMITS OF THE FOUNDATION BACKFILL. SPRINKLER HEADS SHOULD BE POSITIONED SUCH THAT THE SPRAY DOES NOT FALL WITHIN 5 FEET OF FOUNDATION WALLS.
8. PLASTIC MEMBRANES SHOULD NOT BE USED TO COVER THE GROUND SURFACE IMMEDIATELY SURROUNDING THE FOUNDATION. THESE MEMBRANES TEND TO TRAP MOISTURE AND PREVENT NORMAL EVAPORATION FROM OCCURRING. WE RECOMMEND THE USE OF A WEED SUPPRESSANT GEOTEXTILE FABRIC.
9. ALL SITES FOR PLANTINGS SHALL INCORPORATE SOIL AMENDMENTS AT A RATE OF 3 CUBIC YARDS PER 1000 SQUARE FEET TO A MINIMUM DEPTH OF 6". A LESSER AMOUNT SHALL BE GIVEN IF A SOIL TEST SHOWS THAT 3 CUBIC YARDS PER 1000 SQUARE FEET IS NOT NECESSARY FOR WATER RETENTION AND DEEP ROOTING OF PLANT MATERIALS. IF THE SPECIFIED PLANT MATERIAL REQUIRES LESS FERTILE SOIL, THOSE AREAS MAY HAVE LESS SOIL AMENDMENTS INSTALLED IF APPROVED BY THE COMMUNITY DEVELOPMENT DIRECTOR. THESE AREAS SHALL BE IDENTIFIED ON THE LANDSCAPE PLAN. EXISTING TOPSOIL SHALL BE SALVAGED AND STOCKPILED FOR USE AS SOIL AMENDMENTS OR TOPSOIL. NO TOPSOIL SHALL BE REMOVED FROM THE SITE UNLESS THE CITY APPROVES THE TRANSFER OF TOPSOIL TO A CITY-OWNED PARK OR OPEN SPACE AREA. A NOTE SHALL BE PLACED ON THE LANDSCAPE PLAN REFLECTING THE ABOVE REQUIREMENTS REGARDING SOIL AMENDMENTS AND TOPSOIL. EXAMPLES OF ACCEPTABLE SOIL AMENDMENTS INCLUDE COMPOST AND AGED MANURE. MOUNTAIN PEAT AND INORGANIC MATERIALS SUCH AS SAND, GYPSUM AND LIME ARE PROHIBITED SOIL AMENDMENTS. ALL SITES ARE SUBJECT TO INSPECTION BY THE CITY FOR COMPLIANCE WITH SOIL AMENDMENT REQUIREMENTS.

| No. | Issue / Revision | Date     | Name |
|-----|------------------|----------|------|
| 1   | 1st Issue        | 11/17/21 | MM   |
| 2   | 2nd Issue        | 11/17/21 | MM   |
| 3   | 3rd Issue        | 11/17/21 | MM   |
| 4   | 4th Issue        | 11/17/21 | MM   |
| 5   | 5th Issue        | 11/17/21 | MM   |
| 6   | 6th Issue        | 11/17/21 | MM   |
| 7   | 7th Issue        | 11/17/21 | MM   |
| 8   | 8th Issue        | 11/17/21 | MM   |
| 9   | 9th Issue        | 11/17/21 | MM   |
| 10  | 10th Issue       | 11/17/21 | MM   |
| 11  | 11th Issue       | 11/17/21 | MM   |
| 12  | 12th Issue       | 11/17/21 | MM   |
| 13  | 13th Issue       | 11/17/21 | MM   |
| 14  | 14th Issue       | 11/17/21 | MM   |
| 15  | 15th Issue       | 11/17/21 | MM   |
| 16  | 16th Issue       | 11/17/21 | MM   |
| 17  | 17th Issue       | 11/17/21 | MM   |
| 18  | 18th Issue       | 11/17/21 | MM   |
| 19  | 19th Issue       | 11/17/21 | MM   |
| 20  | 20th Issue       | 11/17/21 | MM   |
| 21  | 21st Issue       | 11/17/21 | MM   |
| 22  | 22nd Issue       | 11/17/21 | MM   |
| 23  | 23rd Issue       | 11/17/21 | MM   |
| 24  | 24th Issue       | 11/17/21 | MM   |
| 25  | 25th Issue       | 11/17/21 | MM   |
| 26  | 26th Issue       | 11/17/21 | MM   |
| 27  | 27th Issue       | 11/17/21 | MM   |
| 28  | 28th Issue       | 11/17/21 | MM   |
| 29  | 29th Issue       | 11/17/21 | MM   |
| 30  | 30th Issue       | 11/17/21 | MM   |
| 31  | 31st Issue       | 11/17/21 | MM   |
| 32  | 32nd Issue       | 11/17/21 | MM   |
| 33  | 33rd Issue       | 11/17/21 | MM   |
| 34  | 34th Issue       | 11/17/21 | MM   |
| 35  | 35th Issue       | 11/17/21 | MM   |
| 36  | 36th Issue       | 11/17/21 | MM   |
| 37  | 37th Issue       | 11/17/21 | MM   |
| 38  | 38th Issue       | 11/17/21 | MM   |
| 39  | 39th Issue       | 11/17/21 | MM   |
| 40  | 40th Issue       | 11/17/21 | MM   |
| 41  | 41st Issue       | 11/17/21 | MM   |
| 42  | 42nd Issue       | 11/17/21 | MM   |
| 43  | 43rd Issue       | 11/17/21 | MM   |
| 44  | 44th Issue       | 11/17/21 | MM   |
| 45  | 45th Issue       | 11/17/21 | MM   |
| 46  | 46th Issue       | 11/17/21 | MM   |
| 47  | 47th Issue       | 11/17/21 | MM   |
| 48  | 48th Issue       | 11/17/21 | MM   |
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| 68  | 68th Issue       | 11/17/21 | MM   |
| 69  | 69th Issue       | 11/17/21 | MM   |
| 70  | 70th Issue       | 11/17/21 | MM   |
| 71  | 71st Issue       | 11/17/21 | MM   |
| 72  | 72nd Issue       | 11/17/21 | MM   |
| 73  | 73rd Issue       | 11/17/21 | MM   |
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| 85  | 85th Issue       | 11/17/21 | MM   |
| 86  | 86th Issue       | 11/17/21 | MM   |
| 87  | 87th Issue       | 11/17/21 | MM   |
| 88  | 88th Issue       | 11/17/21 | MM   |
| 89  | 89th Issue       | 11/17/21 | MM   |
| 90  | 90th Issue       | 11/17/21 | MM   |
| 91  | 91st Issue       | 11/17/21 | MM   |
| 92  | 92nd Issue       | 11/17/21 | MM   |
| 93  | 93rd Issue       | 11/17/21 | MM   |
| 94  | 94th Issue       | 11/17/21 | MM   |
| 95  | 95th Issue       | 11/17/21 | MM   |
| 96  | 96th Issue       | 11/17/21 | MM   |
| 97  | 97th Issue       | 11/17/21 | MM   |
| 98  | 98th Issue       | 11/17/21 | MM   |
| 99  | 99th Issue       | 11/17/21 | MM   |
| 100 | 100th Issue      | 11/17/21 | MM   |



ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 130F 32 SHEETS

| SYM                                         | COMMON NAME                     | BOTANICAL NAME                          | SIZE          | WATER USE |
|---------------------------------------------|---------------------------------|-----------------------------------------|---------------|-----------|
| <b>DECIDUOUS TREES</b>                      |                                 |                                         |               |           |
| CL                                          | WESTERN CATPA                   | CATPA SPECIOSA                          | 13' CAL. BAB  | MODERATE  |
| DL                                          | GREENDIP LINDEN                 | FLA CORONATA GREENDIP                   | 2' CAL. BAB   | HIGH      |
| MP                                          | IMPERIAL HONEYLOCUST            | GLEDITSIA TRACANTHOS NERMIS IMPERIAL    | 2' CAL. BAB   | MODERATE  |
| SH                                          | SHADEMASTER HONEYLOCUST         | GLEDITSIA TRACANTHOS NERMIS SHADEMASTER | 2' CAL. BAB   | MODERATE  |
| SWO                                         | SWAMP WHITE OAK                 | QUERCUS BICOLOR                         | 2' CAL. BAB   | MODERATE  |
| <b>ORNAMENTAL TREES</b>                     |                                 |                                         |               |           |
| CCP                                         | CHANTICLEER PEAR                | PIRUS CALLERYANA CHANTICLEER            | 2' CAL. BAB   | MODERATE  |
| DOW                                         | DOWNY HAWTHORN                  | CRATAEGUS PHENOXYMUM                    | 2' CAL. BAB   | MODERATE  |
| GHT                                         | HOT WINGS MAH MAPLE             | ACER GNALLA HOT WINGS                   | 2' CAL. BAB   | MODERATE  |
| TMT                                         | THORNLESS COOKSPUR HAWTHORN     | CRATAEGUS ORUS-GALLINERIS               | 2' CAL. BAB   | MODERATE  |
| <b>EVERGREEN TREES/LARGE SHRUBS</b>         |                                 |                                         |               |           |
| AUS                                         | AUSTRIAN PINE                   | PINUS MORA                              | 6-12' HT. BAB | LOW       |
| BOB                                         | BOSNIAN PINE                    | PINUS HELDREICHI VAR. LEUCODERMIS       | 6-12' HT. BAB | LOW       |
| CBS                                         | COLORADO BLUE SPRUCE            | POCEA PUNGENS GLAUC                     | 6-12' HT. BAB | MODERATE  |
| PN                                          | PIKON FINE                      | PINUS EDULIS                            | 6-12' HT. BAB | LOW       |
| PON                                         | PONDEROSA PINE                  | PINUS PONDEROSA                         | 6-12' HT. BAB | LOW       |
| <b>EVERGREEN/BROADLEAF EVERGREEN SHRUBS</b> |                                 |                                         |               |           |
| BCH                                         | BLUE CHIP JUNIPER               | JUNIPERUS HORIZONTALIS BLUE CHIP        | 45' CENT.     | LOW       |
| BSS                                         | SPANISH GOLD BROOM              | CYTISUS PURGAN SPANISH GOLD             | 45' CENT.     | LOW       |
| BUF                                         | BUFFALO JUNIPER                 | JUNIPERUS SABINA BUFFALO                | 45' CENT.     | LOW       |
| GSP                                         | DWARF GLOBE BLUE SPRUCE         | POCEA PUNGENS GLAUCA GLOBOSA            | 45' CENT.     | MODERATE  |
| KRS                                         | KINGS RANSOM OREGON GRACE HOLLY | MAHONIA ACQUILUM KINGS RANSOM           | 45' CENT.     | MODERATE  |
| MNO                                         | MOPS MAGNOLIA                   | PIRUS MAGNOLIA                          | 45' CENT.     | MODERATE  |
| NPA                                         | PINCHOT MANDARINA               | ARCTOSTAPHYLOS PINCHOT                  | 45' CENT.     | LOW       |
| RHM                                         | RH MONTGOMERY SPRUCE            | POCEA PUNGENS RH MONTGOMERY             | 45' CENT.     | MODERATE  |
| <b>DECIDUOUS SHRUB</b>                      |                                 |                                         |               |           |
| AMP                                         | AMERICAN PLUM                   | PRUNUS AMERICANA                        | 45' CENT.     | LOW       |
| APL                                         | APACHE PLUME                    | PALLISUA PARADOXA                       | 45' CENT.     | LOW       |
| BOW                                         | BUFFALO BUTTERFLY BUSH          | BUTTEIDA DAVIDI VAR.                    | 45' CENT.     | MODERATE  |
| BMS                                         | BLUE MIST SPIREA                | CARYOPHTERIS X GLANDONENSIS BLUE MIST   | 45' CENT.     | VERY LOW  |
| CLC                                         | CLOVE CURRENT                   | RIBES CORDATUM                          | 45' CENT.     | MODERATE  |
| CDL                                         | COMMON PURPLE LILAC             | SYRINGA VULGARIS                        | 45' CENT.     | MODERATE  |
| GMP                                         | DWARF GINNALIA MAPLE            | ACER GINNALIA COMPACTA                  | 45' CENT.     | MODERATE  |
| FER                                         | FERNBERRY                       | CHAMAEBATARIA MELLEOLIM                 | 45' CENT.     | LOW       |
| LPS                                         | LITTLE PRINCESS SPIREA          | SPIREEA JAPONICA LITTLE PRINCESS        | 45' CENT.     | MODERATE  |
| PRS                                         | PAWNEE BUTTES SANDCHERRY        | PRUNUS BESSEYI PAWNEE BUTTES            | 45' CENT.     | MODERATE  |
| RAB                                         | RABBITBRUSH                     | CHRYSOETHAINUS NAUSEOSUS                | 45' CENT.     | VERY LOW  |
| RES                                         | RESENT SERVICEBERRY             | AMELANCHIER ALNIFOLIA RESENT            | 45' CENT.     | MODERATE  |
| RSA                                         | RUSSIAN SAGE                    | PEROVSKIA ATRIPPLICIFOLIA               | 45' CENT.     | LOW       |
| VJA                                         | VAUTOWN JAZZ VIBURNUM           | VIBURNUM DENTATUM RALPH SENIOR          | 45' CENT.     | MODERATE  |
| WCV                                         | WYOTE WILLOW                    | SAULX EXIGUA                            | 45' CENT.     | MODERATE  |
| <b>GRASSES</b>                              |                                 |                                         |               |           |
| FRG                                         | FEATHER REED GRASS              | CALAMAGROSTIS ACUTIFLORA KARL FOERSTER  | 41" CENT.     | MODERATE  |
| HFG                                         | HARRY FOUNTAIN GRASS            | PENNISETUM ALPECOENSES HAMELIN          | 41" CENT.     | LOW       |
| HFG                                         | HARDY FOUNTAIN GRASS            | ERIOCHLOA HYMNOCLOEA                    | 41" CENT.     | LOW       |
| WAG                                         | WAGGEN GRASS                    | MISCANTHUS SINEENSIS SCAPULIMUS         | 41" CENT.     | LOW       |
| RSO                                         | SHEENADOWN SMOOTHGRASS          | PANICUM VIRGATUM SHEENADOWN             | 41" CENT.     | MODERATE  |
| VMO                                         | VAREGATED MARDEN GRASS          | MISCANTHUS SINEENSIS VAREGATUS          | 41" CENT.     | LOW       |
| <b>PERENNIALS</b>                           |                                 |                                         |               |           |
| CMT                                         | CATMINT                         | NEPETA FASSENTI                         | 41" CENT.     | LOW       |
| FPE                                         | FIREWIGHT PINK LEAF             | DIANTHUS GRATIACANTOPOLITANUS FIREWIGHT | 41" CENT.     | LOW       |
| GAJ                                         | BURGUNDY BLANKET FLOWER         | CALLUNA X GRANDIPLORA BURGUNDY          | 41" CENT.     | LOW       |
| HBJ                                         | HIMALAYAN BORDER JEWEL          | PERISCARPA AFFINIS                      | 4" CENT.      | LOW       |
| PFE                                         | PARTIDGE FLOWER                 | TANACECTUM DENSUM SSP AMANI             | 4" CENT.      | LOW       |
| SES                                         | AUTUMN JOY STONECROP            | SEDUM AUTUMN JOY                        | 41" CENT.     | MODERATE  |
| SSS                                         | SILVER MOUND SAGE               | ARTEMISA SCHMIDTIANA                    | 41" CENT.     | LOW       |
| SUN                                         | SUN NIGHT SALVIA                | SAULIA PECTINISTES X MANMANT            | 41" CENT.     | LOW       |
| SOM                                         | MOONSHINE YARROW                | ACHILLEA MOONSHINE                      | 41" CENT.     | VERY LOW  |

| COMMON NAME        | BOTANICAL NAME                    | % OF TOTAL | PLS/ACRE |
|--------------------|-----------------------------------|------------|----------|
| CRESTED WHEATGRASS | AGROPYRON CRISTATUM               | 25%        | 6.25     |
| MOUNTAIN BROME     | BROMUS MARGINATUS                 | 20%        | 5.00     |
| HARD FESCUE, DURAR | FESTUCA TRACHYPHYLLA/LAIONGIFOLIA | 15%        | 3.75     |
| ANNUAL RYEGRASS    | LOLIUM PERENNE SP. MULTIFLORUM    | 5%         | 1.25     |
| CANADA BLUEGRASS   | POA COMPRESSA                     | 1%         | 0.25     |
| SIDEQATS GRAMA     | BOUELOUA CURTIPENDULA             | 1%         | 0.25     |
| LITTLE BLUESTEM    | SCHIZACHYRIUM SCOPARIUM           | 5%         | 1.25     |
| BLUE GRAMA         | BOUELOUA GRAMA                    | 4%         | 1.00     |
| SAND DROPSPEED     | SPOROBOLUS CRYPTANDRUM            | 1%         | .25      |
|                    | TOTAL                             | 100%       | 25 LBS   |

| COMMON NAME            | % OF TOTAL |      |
|------------------------|------------|------|
| CREEPING RED FESCUE    | 35%        |      |
| SR3200 BLUE FESCUE     | 25%        |      |
| SR3100 HARD FESCUE     | 12.5%      |      |
| REUBENS CANADIAN BLUE  | 15%        |      |
| SR5100 CHEWINGS FESCUE | 12.5%      |      |
|                        | TOTAL      | 100% |

| TYPE                      | MINIMUM % | MAXIMUM % | PROVIDED % |
|---------------------------|-----------|-----------|------------|
| TURF (13,054 SF)          | 5 %       | 24 %      | 15.94 %    |
| NATIVE SEED (35,772 SF)   | 42 %      | 61 %      | 43.67 %    |
| BEDS (33,092 SF)          | 29 %      | 48 %      | 40.40 %    |
| LANDSCAPE AREA REQUIRED:  | 20 %      |           |            |
| LANDSCAPE AREAS PROVIDED: | 35%       |           |            |

NOTE: PERCENTAGES BASED ON TOTAL PERVIOUS AREA OUTSIDE OF LOTS = 81,918 SF.  
 NOTE: TOTAL SITE AREA: 237,044.5279 SF (5.44 AC)

| OPEN SPACE                                               | REQUIRED | PROVIDED |
|----------------------------------------------------------|----------|----------|
| TREES (18000 S.F.)                                       | 26       | 158      |
| (CANOPY)                                                 |          |          |
| (EVERGREEN)                                              |          | (62)     |
| (ORNAMENTAL)                                             |          | (83)     |
| (SHRUBS - 1600 S.F.)                                     | (127)    | (127)    |
| NOTE - PROVIDED TREES ABOVE ALSO INCLUDES THE FOLLOWING: |          |          |
| WESTERN BUFFER                                           |          |          |
| OPTION A (30' WIDE / 221 LF)                             |          |          |
| TREES (3 TREES / 100' LF)                                | 7        | 30       |
| (40% MIN. EVERGREEN)                                     | (3)      | (20)     |
| OPTION B (20' WIDE / 35 LF)                              |          |          |
| TREES (4 TREES / 100' LF)                                | 4        | 4        |
| (40% MIN. EVERGREEN)                                     | (2)      |          |
| TOTAL:                                                   | 11 (5)   | 34 (23)  |

|                                                                        |    |    |
|------------------------------------------------------------------------|----|----|
| ONE TREE PER UNIT                                                      | 39 | 89 |
| <u>STREET FRONTAGE TREES</u>                                           | 34 | 35 |
| 1 CANOPY TREE EVERY 40' O.C. (DOES NOT INCLUDE EXISTING CANDELAS PKWY) |    |    |

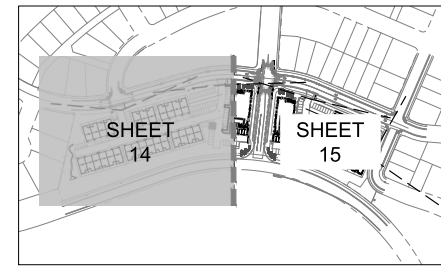
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# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 14 OF 32 SHEETS

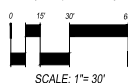
### KEY MAP



### LEGEND

- PAVING
- STEEL EDGER
- RIGHT OF WAY
- MATCHLINE
- MOW LINE
- SOD
- NATIVE SEED - DRYLAND SEED MIX
- MIXED COBBLE (5' NO IRRIGATION ZONE)
- CRUSHER FINES
- PLANTING BED
- ENHANCED DECORATIVE PAVING
- EXISTING TREE TO REMAIN
- CANOPY TREE
- EVERGREEN TREE
- ORNAMENTAL TREE
- LANDSCAPE SEAT WALL
- BENCH
- PET PICKUP STATION
- BUILDING NUMBER

NOTES:  
1. A 3'-0" CLEAR SPACE SHALL BE MAINTAINED AROUND ALL FIRE HYDRANTS AND NOT OBSTRUCTED.  
2. TREES WITHIN THIS DEVELOPMENT, WHEN FULLY MATURE, SHALL PROVIDE AN UNOBSTRUCTED VERTICAL CLEARANCE OF 12'-6".  
3. ALL TREES WITHIN SIGHT TRIANGLES SHALL BE MAINTAINED TO 8' MIN. BRANCH HEIGHT.



Know what's below.  
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CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN

| No. | Issue / Revision   | Date     | Name |
|-----|--------------------|----------|------|
| 1   | 1st PDP SUBMITTAL  | 10/17/21 | DK   |
| 2   | 2nd PDP SUBMITTAL  | 06/29/22 | DK   |
| 3   | 3rd PDP SUBMITTAL  | 06/29/22 | DK   |
| 4   | 4th PDP SUBMITTAL  | 06/29/22 | DK   |
| 5   | 5th PDP SUBMITTAL  | 06/29/22 | DK   |
| 6   | 6th PDP SUBMITTAL  | 06/29/22 | DK   |
| 7   | 7th PDP SUBMITTAL  | 06/29/22 | DK   |
| 8   | 8th PDP SUBMITTAL  | 06/29/22 | DK   |
| 9   | 9th PDP SUBMITTAL  | 06/29/22 | DK   |
| 10  | 10th PDP SUBMITTAL | 06/29/22 | DK   |

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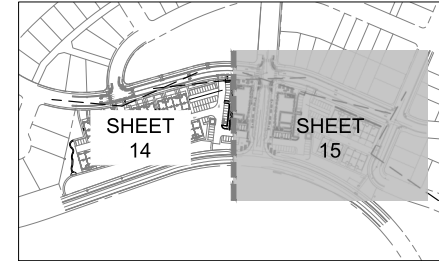
14

# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 15 OF 32 SHEETS

### KEY MAP



### LEGEND

- PAVING
- STEEL EDGER
- RIGHT OF WAY
- MATCHLINE
- MOW LINE
- SOD
- NATIVE SEED - DRYLAND SEED MIX
- MIXED COBBLE
- CRUSHER FINES
- PLANTING BED
- ENHANCED DECORATIVE PAVING
- EXISTING TREE TO REMAIN
- CANOPY TREE
- EVERGREEN TREE
- ORNAMENTAL TREE
- LANDSCAPE SEAT WALL
- BENCH
- PET PICK-UP STATION
- BUILDING NUMBER

NOTES:  
1. A 3'-4" CLEAR SPACE SHALL BE MAINTAINED AROUND ALL FIRE HYDRANTS AND NOT OBSTRUCTED.  
2. TREES WITHIN THIS DEVELOPMENT, WHEN FULLY MATURE, SHALL PROVIDE AN UNOBSTRUCTED VERTICAL CLEARANCE OF 13'-4".  
3. ALL TREES WITHIN SIGHT TRIANGLES SHALL BE MAINTAINED TO 8' MIN. BRANCH HEIGHT.



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CANDELAS FILING NO. 1,  
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| No. | Issue / Revision | Date     | Name |
|-----|------------------|----------|------|
| 1   | 1st PIP          | 12/17/21 | DK   |
| 2   | 2nd PIP          | 02/04/22 | BB   |
| 3   | 3rd PIP          | 04/14/22 | BB   |
| 4   | 4th PIP          | 06/01/22 | BB   |
| 5   | 5th PIP          | 07/11/22 | BB   |
| 6   | 6th PIP          | 08/01/22 | BB   |
| 7   | 7th PIP          | 09/01/22 | BB   |
| 8   | 8th PIP          | 10/01/22 | BB   |
| 9   | 9th PIP          | 11/01/22 | BB   |
| 10  | 10th PIP         | 12/01/22 | BB   |

Job Number 15.1271  
Project Manager DK  
Design By BB  
Drawn By MW  
Principal In Charge DL  
Sheet Number:  
15



PLOT DATE: Monday, March 27, 2023 1:00 PM LAST SAVED BY: GBANIS  
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# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

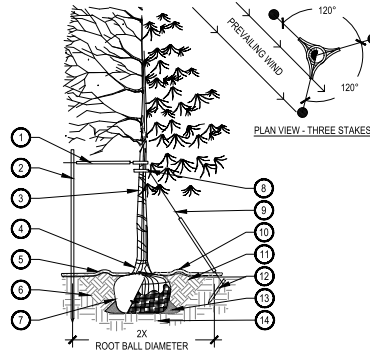
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BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 16OF 32 SHEETS

### PRUNING NOTES:

- ALL PRUNING SHALL COMPLY WITH ANSI A300 STANDARDS.
- DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS AND BROKEN BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED. HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.

### STAKING NOTES:

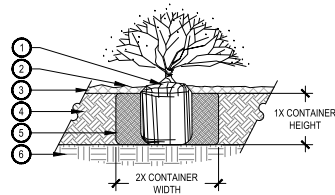
- STAKE TREES PER FOLLOWING SCHEDULE, THEN REMOVE AT END OF FIRST GROWING SEASON:
  - 1-1/2" CALIPER SIZE - MIN. 1 STAKE ON SIDE OF PREVAILING WIND (GENERALLY N.W. SIDE)
  - 1-1/2" - 3" CALIPER SIZE - MIN. 2 STAKES - ONE ON N.W. SIDE, ONE ON S.W. SIDE (OR PREVAILING WIND SIDE AND 180° FROM THAT SIDE)
  - 3" CALIPER SIZE AND LARGER - 3 STAKES PER DIAGRAM
- WIRE OR CABLE SHALL BE MIN. 12 GAUGE, TIGHTEN WIRE OR CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. NYLON STRAPS SHALL BE LONG ENOUGH TO ACCOMMODATE 1-1/2" OF GROWTH AND BUFFER ALL BRANCHES FROM WIRE.



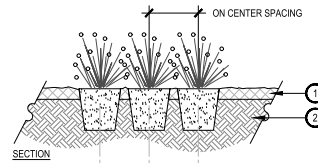
- PLACE MINIMUM 1/2" PVC PIPE AROUND EACH WIRE. EXPOSED WIRE SHALL BE MAXIMUM 2" EACH SIDE
- 6"x0" UNTREATED WOOD POST, MINIMUM 1.5" DIAMETER. ALL SHALL BE DRIVEN OUTSIDE ROOTBALL AND IN UNDISTURBED SOIL
- TREE WRAP TO BE INSTALLED ONLY FROM OCTOBER 1 THROUGH APRIL 30, DECIDUOUS ONLY. WRAP FROM BASE OF TRUNK TO BOTTOM LIMB
- PLANT TREE SO THAT TOP MOST MAJOR ROOT IS 1'-2" ABOVE FINISHED GRADE
- 2'-0" RADIUS MULCH RING, VENTERED ON TRUNK, 3" DEPTH. DO NOT PLACE MULCH IN CONTACT WITH TREE TRUNK. FINISHED GRADE REFERENCES TOP OF MULCH
- 1:1 SLOPE ON SIDES OF PLANTING HOLE
- ROPES AT TOP OF ROOTBALL SHALL BE CUT. REMOVE TOP 1/3 OF BURLAP. NON-BIODEGRADABLE MATERIAL SHALL BE TOTALLY REMOVED
- GROMMETED NYLON STRAPS
- GALVANIZED WIRE, MINIMUM 12 GAUGE CABLE TWIST WIRE ONLY TO KEEP FROM SLIPPING
- 4'-0" HIGH WATER SAUCER IN NON-TURF AREAS
- BACKFILL WITH BLEND OF EXISTING SOIL AND A MAXIMUM 20% BY VOLUME, ORGANIC MATERIAL, WATER THOROUGHLY WHEN BACKFILLING
- 2'-0" STEEL T-POST, ALL SHALL BE DRIVEN BELOW GRADE AND OUTSIDE ROOTBALL IN UNDISTURBED SOIL
- PLACE SOIL AROUND ROOT BALL FIRMLY. DO NOT COMPACT OR TAMP. SETTLE SOIL WITH WATER TO FILL ALL AIR POCKETS
- PLACE ROOT BALL ON UNDISTURBED SOIL TO PREVENT SETTLEMENT

## 1 TREE PLANTING DETAIL

SCALE: 3/16" = 1'-0"



- SET SHRUB ROOT-BALL 1" HIGHER THAN FINISH GRADE
- FINISH GRADE (TOP OF MULCH)
- SPECIFIED MULCH
- TILL IN SPECIFIED SOIL AMENDMENT TO A DEPTH OF 8" IN BED
- BACKFILLED AMENDED SOIL
- UNDISTURBED SOIL



- SPECIFIED MULCH
- AMENDED PLANTING BED TILLED TO A DEPTH OF 8"
- CENTER OF PLANT

### PLAN

### PLAN ON CURVE

### NOTES:

- WHEN PLANTED ON A CURVE, ORIENT ROWS TO FOLLOW THE LONG AXIS OF AREAS WHERE PLANTS ARE MASSED.

## 2 SHRUB PLANTING

SCALE: 1 1/2" = 1'-0"

## 3 PERENNIAL PLANT LAYOUT

SCALE: 1" = 1'-0"

| No. | Issue / Revision   | Date     | Name |
|-----|--------------------|----------|------|
| 1   | 1st FDP SUBMITTAL  | 10/17/21 | DK   |
| 2   | 2nd FDP SUBMITTAL  | 06/29/22 | BB   |
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| 31  | 31st FDP SUBMITTAL | 06/29/22 | BB   |
| 32  | 32nd FDP SUBMITTAL | 06/29/22 | BB   |

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# CANDELAS FILING NO. 1, AMENDMENT NO. 4 PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
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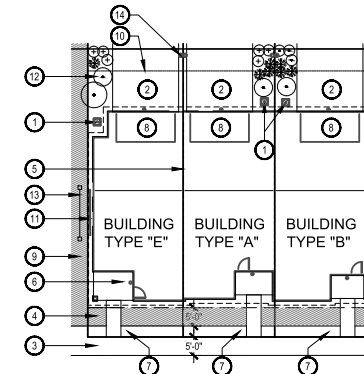
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CANDELAS FILING NO. 1,  
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DEVELOPMENT PLAN

| No. | Issue / Revision | Date     | Name |
|-----|------------------|----------|------|
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| 89  | 89th FPD         | 06/07/22 | GB   |
| 90  | 90th FPD         | 06/07/22 | GB   |
| 91  | 91st FPD         | 06/07/22 | GB   |
| 92  | 92nd FPD         | 06/07/22 | GB   |
| 93  | 93rd FPD         | 06/07/22 | GB   |
| 94  | 94th FPD         | 06/07/22 | GB   |
| 95  | 95th FPD         | 06/07/22 | GB   |
| 96  | 96th FPD         | 06/07/22 | GB   |
| 97  | 97th FPD         | 06/07/22 | GB   |
| 98  | 98th FPD         | 06/07/22 | GB   |
| 99  | 99th FPD         | 06/07/22 | GB   |
| 100 | 100th FPD        | 06/07/22 | GB   |

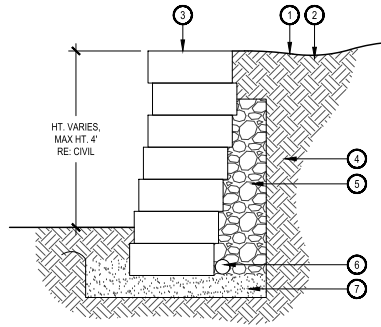
Sheet Number:

17



- NOTES:
1. ALL RESIDENTIAL LANDSCAPES SHALL BE COMPLIANT TO THE CANDELAS NEIGHBORHOOD DESIGN GUIDELINES.
  2. NORRIS DESIGN PROVIDED THIS DETAIL FOR REFERENCE ONLY.
  3. ALL FRONT YARDS TO BE COVERED IN ROCK MULCH.

- 1 AIR CONDITION UNIT
- 2 18' WIDE DRIVEWAY
- 3 5' WIDE CONCRETE SIDEWALK
- 4 5' NON IRRIGATED ZONE
- 5 LOT-LINE
- 6 COVERED PORCH
- 7 FRONT LANDSCAPE BY BUILDER/HOMEOWNER
- 8 2 CAR GARAGE
- 9 ADJACENT LANDSCAPE
- 10 UTILITY EASEMENT
- 11 BANK OF GAS AND ELECTRICAL METERS
- 12 PLANT MATERIAL TO SCREEN A/C UNITS
- 13 6X4 POSTS WITH REMOVABLE SCREEN, REF DETAIL 1/16
- 14 PAIRED SANITARY OR WATER SERVICES SET 1' OFF LOT LINE. PAIRS OF WAT & SAN SERVICES ALTERNATING TO MAINTAIN 10' SEPARATION BETWEEN WATER AND SANITARY



- 1 FINISH GRADE
- 2 SWALE
- 3 LINK BLOCK, GLUED CAP
- 4 COMPACTED SUBGRADE
- 5 COMPACTED DRAINAGE AGGREGATE W/ FILTER FABRIC
- 6 4" PERFORATED PIPE, DAYLIGHT TO DRAIN
- 7 6" MIN. COMPACTED AGGREGATE BASE

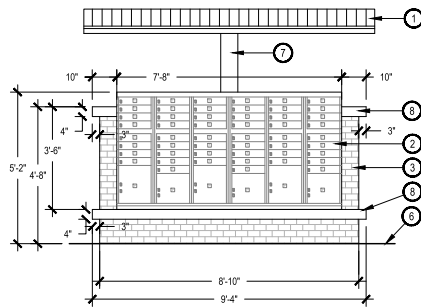
- NOTES:
1. BLOCK TO BE ALLEN BLOCK COLLECTION: AB ASHLAR BLEND FOUR COURSE PATTERN OR APPROVED EQUAL
  2. COLOR: TAN BLEND
  3. CONTACT: BASALITE, PHONE: 303.292.2345
  4. SUGGESTED CONSTRUCTION DETAIL, MANUFACTURER TO PROVIDE DETAIL DRAWINGS.

1 LOT TYPICAL

SCALE: 3/4" = 1'-0"

2 BLOCK RETAINING WALL

SCALE: 3/4" = 1'-0"



3 MAIL KIOSK

SCALE: 1/2" = 1'-0"

- 1 COLORADO SHELTER: MODEL: COLORADO 6X10 HR-36 1 POST, COLOR RUST CONTACT: GR MORLOT AND ASSOCIATES, 303.762.1090
- 2 MAILBOX UNIT: MODEL: N102787, COLOR SANDSTONE, CONTACT: POSTAL PRODUCTS UNLIMITED
- 3 STONE VENEER, ASPEN COUNTRY BY CULTURED STONE
- 4 SECURITY LIGHT, SOLAR POWERED, MODULE: (2) NOAH ENERGY NH-12M, BATTERY: (1) NP2-12 12V, 7.0AH, LIGHT: (1) ESHINE SOLAR LED SW, CHARGE CONTROLLER: (1) GLS MPPT 12-2, CONTACT: SUNTALK SOLAR
- 5 LIGHTING CONTROL BOX
- 6 FINISH GRADE
- 7 7X7" COLUMN
- 8 4" PRECAST CONCRETE CAP, COLOR SANTA FE BY DAVIS COLORS

- 9 FOOTING: RE STRUCTURAL
  - 10 ELECTRIC CONDUIT
- NOTE: STRUCTURAL ENGINEERING AND FOOTING BY OTHER, VERIFY WITH GEOTECH REPORT. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ALL PRECAST ELEMENTS TO OWNER'S REP FOR REVIEW.

# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO

SHEET 18 OF 32 SHEETS



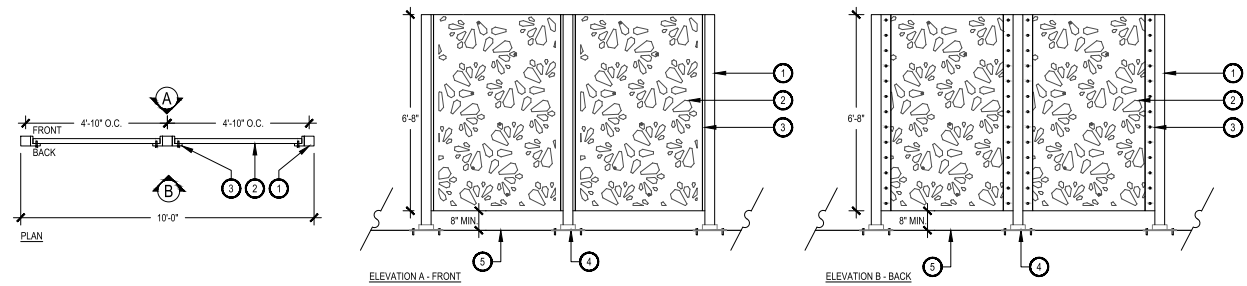
CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PDP SUBMITTAL | 10/17/21 | DK   |
| 2   | 2nd PDP SUBMITTAL | 06/29/22 | DK   |
| 3   | 3rd PDP SUBMITTAL | 06/29/22 | DK   |
| 4   | 4th PDP SUBMITTAL | 06/29/22 | DK   |
| 5   | 5th PDP SUBMITTAL | 11/17/23 | DK   |
| 6   | 6th PDP SUBMITTAL | 01/24/24 | DK   |
| 7   | 7th PDP SUBMITTAL | 02/27/24 | DK   |

Job Number | 19.1271  
Project Manager | DK  
Design By | BB  
Drawn By | MW  
Principal In Charge | DL

Sheet Number:

18

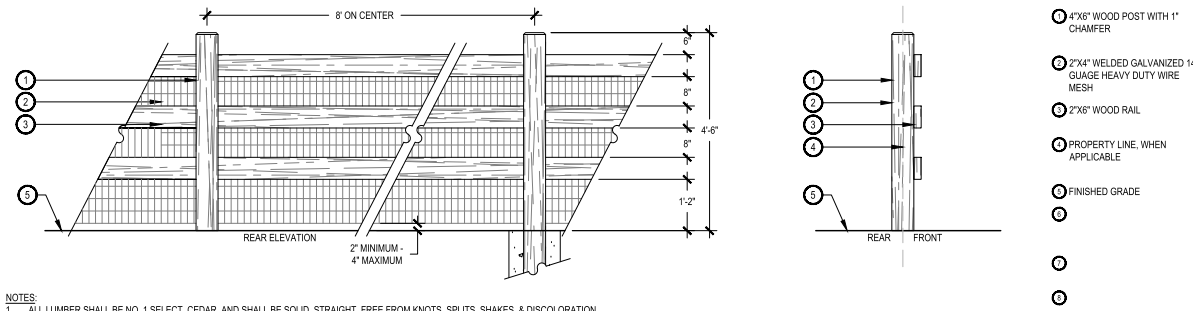


- ① 4" X 4" TUBE STEEL SUPPORT, INDUSTRY POWDERCOAT FINISH TO MATCH SCREEN PANEL
- ② PARASOLEIL - ANTIWEP SCREEN PANEL. BOLT TO TUBE STEEL PER MANUFACTURER'S RECOMMENDATIONS
- ③ L-BRACKET, WELD TO STEEL SUPPORT
- ④ STABILIZE SUPPORT POST TO STRUCTURAL SLAB WITH SURFACE MOUNT PER STRUCTURAL ENGINEER'S RECOMMENDATIONS
- ⑤ CONCRETE SLAB/POOL DECK. REFER TO LAYOUT PLANS

- NOTES:**
- NORRIS DESIGN HAS PROVIDED THE DETAIL FOR REFERENCE PURPOSE. THIS DETAIL HAS NOT BEEN ENGINEERED.
  - CONTRACTOR TO PROVIDE SHOP DRAWINGS AND CONFIRM LAYOUT PRIOR TO INSTALLATION.
  - FRONT SIDE TO ALWAYS FACE AMENITY SPACE.

### 1 UTILITY SCREEN

SCALE: 1/2" = 1'-0"



- NOTES:**
- ALL LUMBER SHALL BE NO. 1 SELECT, CEDAR, AND SHALL BE SOLID, STRAIGHT, FREE FROM KNOTS, SPLITS, SHAKES, & DISCOLORATION.
  - FRONT SIDE OF FENCE SHALL FACE PUBLIC RIGHT OF WAY.
  - ALL NAILS, FASTENERS, AND OTHER HARDWARE SHALL BE HOT DIPPED GALVANIZED. NAILS SHALL BE SHANK.
  - ALL EXPOSED LUMBER SHALL BE STAINED WITH A COMMERCIAL GRADE SEALANT. REFER TO MATERIAL SCHEDULE FOR COLOR.

### 2 3-RAIL CEDAR FENCE

SCALE: 3/4" = 1'-0"



# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO

SHEET 19 OF 32 SHEETS



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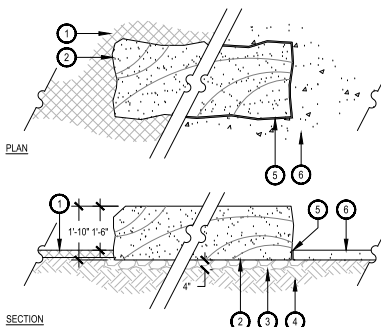
CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PIP SUBMITTAL | 10/17/21 | DK   |
| 2   | 2nd PIP SUBMITTAL | 02/26/22 | DK   |
| 3   | 3rd PIP SUBMITTAL | 04/27/22 | DK   |
| 4   | 4th PIP SUBMITTAL | 06/17/22 | DK   |
| 5   | 5th PIP SUBMITTAL | 11/11/22 | DK   |
| 6   | 6th PIP SUBMITTAL | 01/26/23 | DK   |
| 7   | 7th PIP SUBMITTAL | 02/27/23 | DK   |

|                     |         |
|---------------------|---------|
| Job Number          | 19.1271 |
| Project Manager     | DK      |
| Design By           | BB      |
| Drawn By            | MW      |
| Principal In Charge | DL      |

Sheet Number:

19



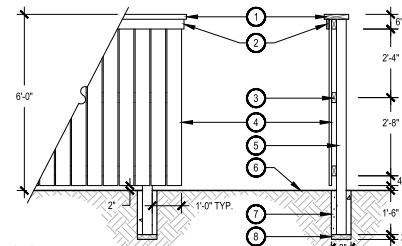
SECTION

NOTES:

- CONTACT OWNER'S REPRESENTATIVE TO SELECT STONES PRIOR TO DELIVERY.

### 1 SANDSTONE SLAB

SCALE: 1/2" = 1'-0"



NOTES:

- UNLESS OTHERWISE INDICATED, THE FENCE SHALL BE CENTERED ON THE PROPERTY LINE.
- ALL LUMBER SHALL BE ROUGH SAWN CEDAR, AND SHALL BE SOLID, STRAIGHT, FREE FROM KNOTS, SPLITS, SHAKES, AND DISCOLORATION.
- ALL HARDWARE SHALL BE HOT DIPPED GALVANIZED NAILS OR SCREWS, SIZED TO PENETRATE HALF WAY INTO THE SECURING MEMBER.
- REFER TO THE MATERIAL SCHEDULE, SHEET L-XXX, FOR HOW WOOD IS TO BE TREATED.
- ALL FENCE PANELS SHALL BE SET LEVEL WITH STEPS TO FOLLOW GRADE. THE MAXIMUM STEP SHALL BE 6". ADJUST POST SPACING AS NEEDED SO THERE IS NO GREATER THAN A 6" GAP FROM THE BOTTOM RAIL TO FINISHING GRADE.

### 3 6' CEDAR WOOD FENCE

SCALE: 1/2" = 1'-0"

- ADJACENT PLANTING BED, REFER TO PLAN
- SANDSTONE SLAB, REFER TO MATERIAL SCHEDULE, SHEET L-XXX. ALL SIDES SHALL HAVE A NATURAL BROKEN FACE, TOP FACE SHALL BE SET LEVEL. SET STONE PRIOR TO POURING HARDSCAPE, PROTECT STONE DURING POURING PROCESS
- COMPACTED AGGREGATE
- SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY
- 1/2" MAXIMUM CAULKED AND SEALED EXPANSION JOINT, COLOR TO MATCH CONCRETE
- ADJACENT CONCRETE FLATWORK, REFER TO PLAN



KEYSTONE RIDGE DESIGNS (OR APPROVED EQUAL)  
PRODUCT: SN01-3  
DESCRIPTION: SONANCE ONE LOOP BIKE RACK CAPACITY 3  
SIZE: 28" LENGTH, 6" WIDTH, 42" HEIGHT  
MATERIALS: POLYESTER POWDER COATED FULLY-WELDED COMMERCIAL-GRADE STEEL  
COLOR: BLACK  
SURFACE MOUNT

<http://www.keystoneridgedesigns.com/product.asp?product=1262>

NOTE:  
MOUNT AND INSTALL PER MANUFACTURER'S SPECIFICATIONS

CONTACT OWNER'S REP. FOR FINAL PLACEMENTS PRIOR TO SECURING

### 2 BIKE RACK

NTS

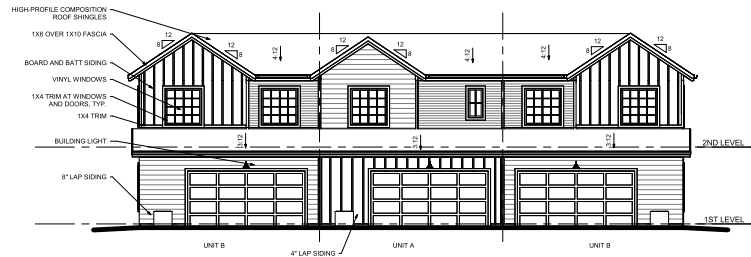
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CHECKED BY: JLM

# CANDELAS FILING NO. 1, AMENDMENT NO. 4 PRELIMINARY DEVELOPMENT PLAN

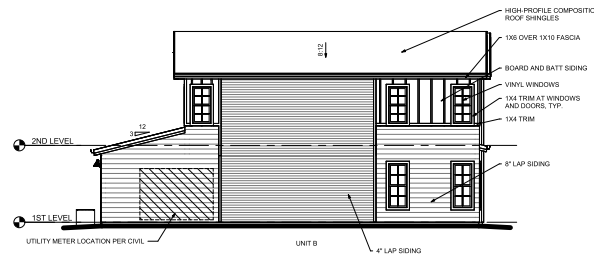
ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 20 OF 32 SHEETS

- NOTES:
- BUILDING HEIGHTS AND STEPPING SHOWN WILL VARY WITH LOT SPECIFIC GRADING AND SOIL STEPPING.
  - NO BUILDING SHALL EXCEED THE PROPOSED MAXIMUM BUILDING HEIGHT OF 30' AT MIDPOINT OF HIGHEST ROOF.
  - SEE PLAN FOR LOCATIONS OF BUILDING STYLES.

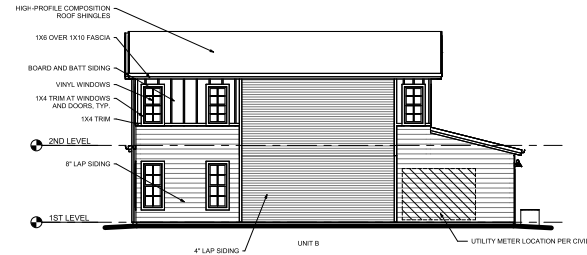
- FARMHOUSE CHARACTERISTICS:
- 8-12 GABLE ROOFS
  - ROOF PLANE BREAKS
  - WINDOW GRIDS
  - BOARD AND BATT SIDING
  - LAP SIDING
  - COVERED PORCHES
  - VERTICAL PROJECTIONS



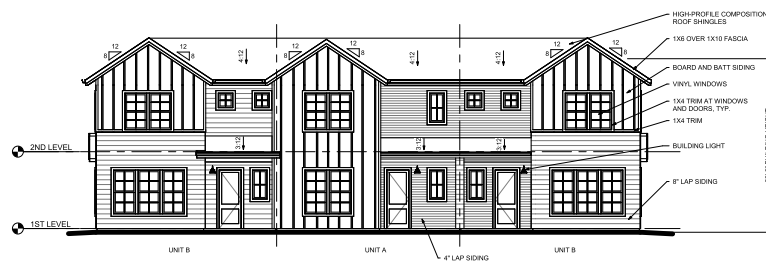
4 3-PLEX FARMHOUSE - REAR ELEVATION  
1/8" = 1'-0"



3 3-PLEX FARMHOUSE - LEFT ELEVATION  
1/8" = 1'-0"



2 3-PLEX FARMHOUSE - RIGHT ELEVATION  
1/8" = 1'-0"



1 3-PLEX FARMHOUSE - FRONT ELEVATION  
1/8" = 1'-0"



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CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
3-PLEX FARMHOUSE ELEVATIONS

| No. | Issue / Revision   | Date       | Name |
|-----|--------------------|------------|------|
| 1   | 1st PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 2   | 2nd PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 3   | 3rd PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 4   | 4th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 5   | 5th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 6   | 6th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 7   | 7th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 8   | 8th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 9   | 9th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 10  | 10th PDP SUBMITTAL | 11/11/2021 | JLM  |

Job Number: 201271  
Project Manager: JLM  
Design By: JLM  
Drawn By: JLM  
Principal in Charge: JLM  
The drawings shown herein are intended for use in the development of the project and are not to be used for any other purpose without the written consent of the architect. The architect assumes no responsibility for the accuracy of the information provided by the client or for the results of the use of the drawings for any purpose other than that for which they were prepared.

Number:  
20  
20 OF 32

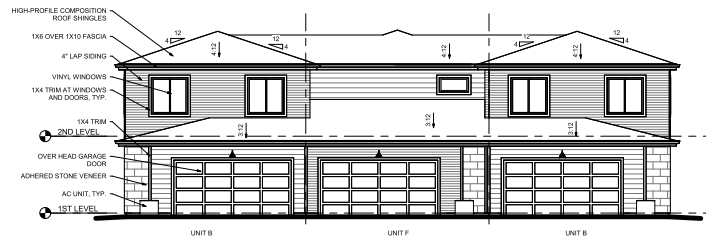
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CHECKED BY: JLM

# CANDELAS FILING NO. 1, AMENDMENT NO. 4 PRELIMINARY DEVELOPMENT PLAN

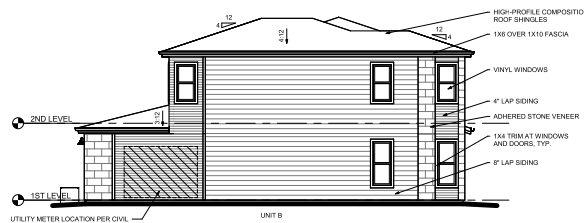
ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 21 OF 32 SHEETS

- NOTES:
- BUILDING HEIGHTS AND STEPPING SHOWN WILL VARY WITH LOT SPECIFIC GRADING AND SLAB STEPPING
  - NO BUILDING SHALL EXCEED THE PROPOSED MAXIMUM BUILDING HEIGHT OF 35' AT MIDPOINT OF HIGHEST ROOF
  - SEE PLAN FOR LOCATIONS OF BUILDING STYLES

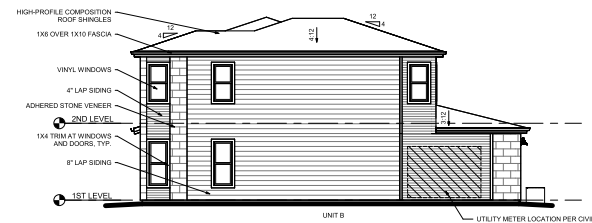
- PRAIRIE CHARACTERISTICS
- 4:12 HP ROOFS
  - ROOF PLANE BREAKS
  - STONE
  - LAP SIDING
  - COVERED PORCHES
  - VERTICAL PROJECTIONS



4 3-PLEX PRAIRIE - REAR ELEVATION  
1/8" = 1'-0"



3 3-PLEX PRAIRIE - LEFT ELEVATION  
1/8" = 1'-0"



2 3-PLEX PRAIRIE - RIGHT ELEVATION  
1/8" = 1'-0"



1 3-PLEX PRAIRIE - FRONT ELEVATION  
1/8" = 1'-0"



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CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
3-PLEX PRAIRIE ELEVATIONS

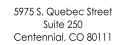
| No. | Issue / Revision   | Date       | Name |
|-----|--------------------|------------|------|
| 1   | 1st PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 2   | 2nd PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 3   | 3rd PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 4   | 4th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 5   | 5th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 6   | 6th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 7   | 7th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 8   | 8th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 9   | 9th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 10  | 10th PDP SUBMITTAL | 11/11/2021 | JLM  |

Job Number: 211271  
Project Manager: JLM  
Design By: JLM  
Drawn By: JLM  
Principal in Charge: JLM  
The drawings shown herein are intended for use in the project shown and are not to be used for any other project without the written consent of the architect. The architect is not responsible for the construction of the project shown herein.

Number:  
21  
21 OF 32

- PRAIRIE CHARACTERISTICS
- 4:12 HIP ROOFS
- ROOF PLANE BREAKS
- STONE
- LAP SIDING
- COVERED PORCHES
- VERTICAL PROJECTIONS

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 22 OF 32 SHEETS



CANDELAS FILING NO. 1,  
AMENDMENT NO. 4

PRELIMINARY  
DEVELOPMENT PLAN

4-PLEX PRAIRIE ELEVATIONS

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st POP SUBMITTAL | 12/17/22 | SM   |
| 2   | 2nd POP SUBMITTAL | 02/07/23 | SM   |
| 3   | 3rd POP SUBMITTAL | 04/19/23 | SM   |
| 4   | 4th POP SUBMITTAL | 06/17/23 | SM   |
| 5   | 5th POP SUBMITTAL | 11/17/23 | SM   |
| 6   | 6th POP SUBMITTAL | 01/09/24 | SM   |
| 7   | 7th POP SUBMITTAL | 02/21/24 | SM   |
| 8   | 8th POP SUBMITTAL | 03/27/24 | SM   |

|                     |    |
|---------------------|----|
| Job Number          | DK |
| Project Manager     | BB |
| Design By           | MW |
| Drawn By            |    |
| Principal In Charge | DL |

THE DESIGNS SHOWN HEREIN INCLUDE ALL TECHNICAL DRAWINGS, CALCULATIONS, SPECIFICATIONS, AND NOTATIONS. THESE DESIGNS ARE PREPARED BY THE ENGINEER AND ARE NOT TO BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN PERMISSION FROM MARTIN MARTIN, INC.

PLOT DATE: 11/11/2021 LAST SAVED BY: JLM  
DRAWING LOCATION: F:\Users\jlm\OneDrive\Drawings\CAO  
CHECKED BY: JLM

NOTES:  
• BUILDING HEIGHTS AND STEPPING SHOWN WILL VARY WITH LOT SPECIFIC GRADING AND TO-AS  
• STEPPING  
• NO BUILDING SHALL EXCEED THE PROPOSED MAXIMUM BUILDING HEIGHT OF 36' AT MIDPOINT OF HIGHEST ROOF  
• SEE PLAN FOR LOCATIONS OF BUILDING STYLE

FARMHOUSE CHARACTERISTICS  
• 8/12 GABLE ROOFS  
• ROOF PLANE BREAKS  
• WINDOW GRIDS  
• BOARD AND BATT SIDING  
• LAP SIDING  
• COVERED PORCHES  
• VERTICAL PROJECTIONS

# CANDELAS FILING NO. 1, AMENDMENT NO. 4 PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 23 OF 32 SHEETS

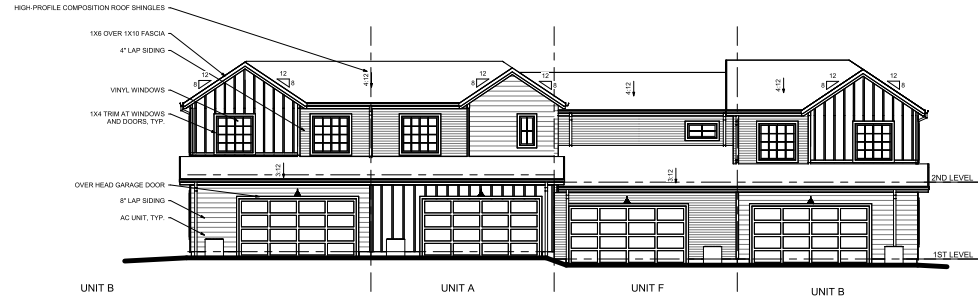


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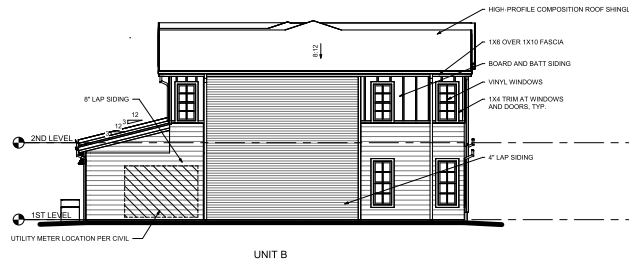
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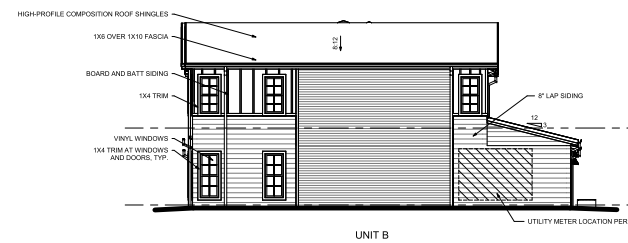
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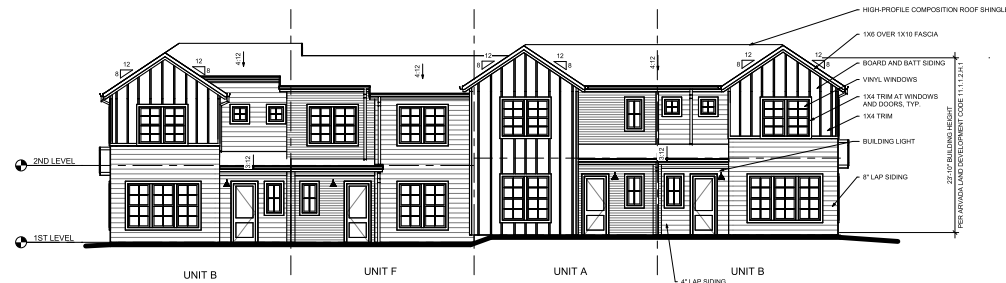
4 4-PLEX FARMHOUSE - REAR ELEVATION  
1/8" = 1'-0"



3 4-PLEX FARMHOUSE - LEFT ELEVATION  
1/8" = 1'-0"



2 4-PLEX FARMHOUSE - RIGHT ELEVATION  
1/8" = 1'-0"



1 4-PLEX FARMHOUSE - FRONT ELEVATION  
1/8" = 1'-0"

CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
4-PLEX FARMHOUSE ELEVATIONS

| No. | Issue / Revision   | Date       | Name |
|-----|--------------------|------------|------|
| 1   | 1st PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 2   | 2nd PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 3   | 3rd PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 4   | 4th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 5   | 5th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 6   | 6th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 7   | 7th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 8   | 8th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 9   | 9th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 10  | 10th PDP SUBMITTAL | 11/11/2021 | JLM  |

Job Number: 231271  
Project Manager: JLM  
Design By: JLM  
Drawn By: JLM  
Principal in Charge: JLM  
The drawings shown herein are intended for use in the development of the project. They are not to be used for any other purpose without the written consent of the architect. The architect is not responsible for the accuracy of the information provided by the client or for the results of the construction of the project. The architect is not responsible for the construction of the project.

Number:  
**23**  
23 OF 32

PLOT DATE: 11/11/2024 LAST SAVED BY: JLM  
DRAWING LOCATION: F:\Users\jlm\OneDrive\Projects\6-Plex Prairie\6-Plex Prairie.dwg  
CHECKED BY: JLM

- NOTES:
- BUILDING HEIGHTS AND STEPPING SHOWN WILL VARY WITH LOT SPECIFIC DRAWINGS AND SLOPE STEPPING
  - NO BUILDING SHALL EXCEED THE PROPOSED MAXIMUM BUILDING HEIGHT OF 35' AT MIDPOINT OF HIGHEST ROOF
  - SEE PLAN FOR LOCATIONS OF BUILDING STYLES

- PRAIRIE CHARACTERISTICS:
- 4-12/16 ROOFS
  - ROOF PLANE BREAKS
  - STONE
  - LAP SIDING
  - CORNER PORCHES
  - VERTICAL PROJECTIONS

# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 24 OF 32 SHEETS

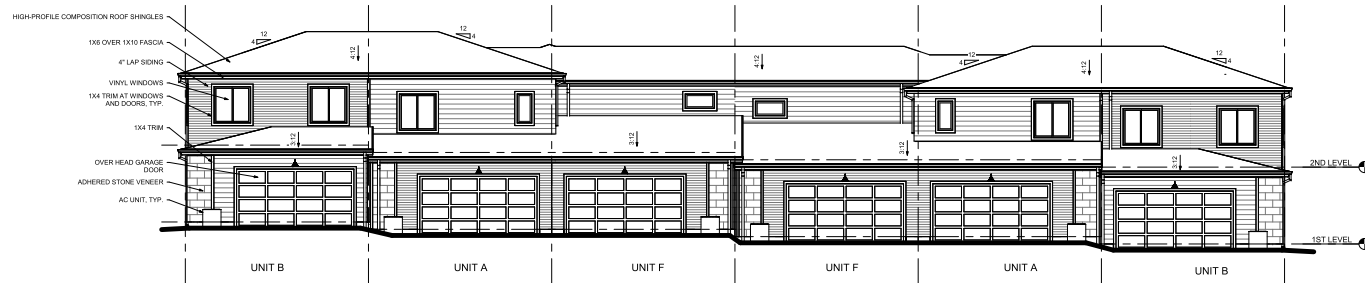


Godden|Sudik  
ARCHITECTS  
SEE WHAT COULD BE  
303.455.4437  
www.goddensudik.com

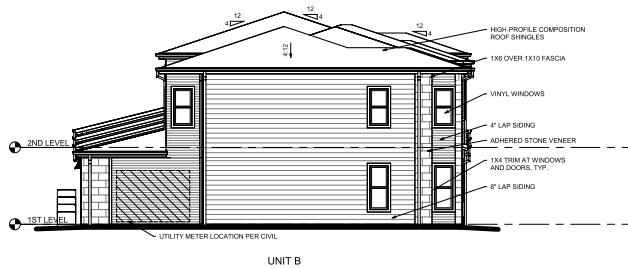
5975 S. Quebec Street  
Suite 250  
Centennial, CO 80111



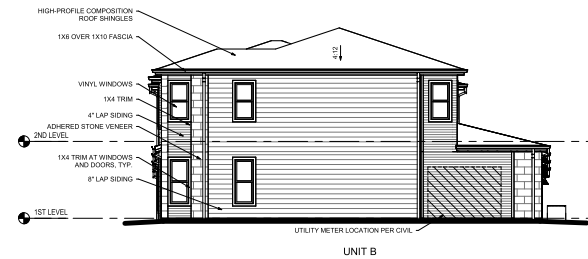
1101 Hancock Street  
Denver, Colorado 80204  
P 303.862.1166  
www.norris-design.com



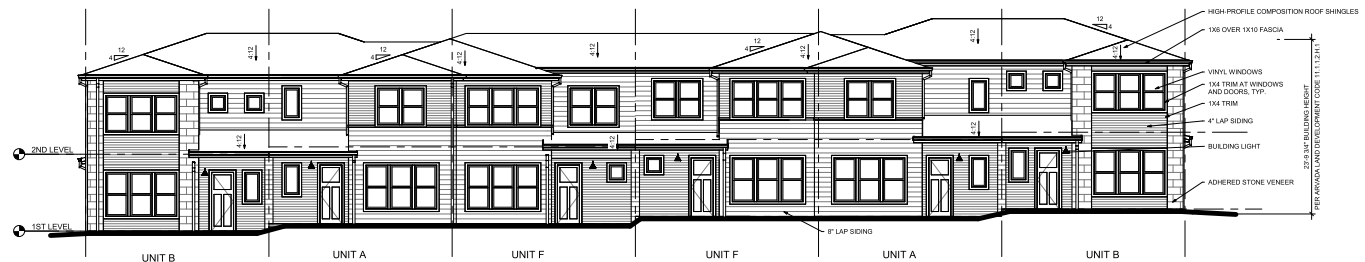
4 6-PLEX PRAIRIE - REAR ELEVATION  
1/8" = 1'-0"



3 6-PLEX PRAIRIE - LEFT ELEVATION  
1/8" = 1'-0"



2 6-PLEX PRAIRIE - RIGHT ELEVATION  
1/8" = 1'-0"



1 6-PLEX PRAIRIE - FRONT ELEVATION  
1/8" = 1'-0"

CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
6-PLEX PRAIRIE ELEVATIONS

| No. | Issue / Revision  | Date       | Name |
|-----|-------------------|------------|------|
| 1   | 1st PDP SUBMITTAL | 11/11/2024 | JLM  |
| 2   | 2nd PDP SUBMITTAL | 11/11/2024 | JLM  |
| 3   | 3rd PDP SUBMITTAL | 11/11/2024 | JLM  |
| 4   | 4th PDP SUBMITTAL | 11/11/2024 | JLM  |
| 5   | 5th PDP SUBMITTAL | 11/11/2024 | JLM  |
| 6   | 6th PDP SUBMITTAL | 11/11/2024 | JLM  |
| 7   | 7th PDP SUBMITTAL | 11/11/2024 | JLM  |
| 8   | 8th PDP SUBMITTAL | 11/11/2024 | JLM  |

Job Number: 241271  
Project Manager: JLM  
Design By: JLM  
Drawn By: JLM  
Principal In Charge: JLM  
The drawings shown herein are intended for use in the development of the project. They are not to be used for any other purpose without the written consent of Godden|Sudik Architects. The drawings are the property of Godden|Sudik Architects and shall remain their property. No part of these drawings may be reproduced without the written consent of Godden|Sudik Architects.

Number:  
**24**  
24 OF 32



PLOT DATE: 11/11/2021 LAST SAVED BY: JLM  
DRAWING LOCATION: F:\Users\jlm\OneDrive\Drawings\CAO  
CHECKED BY: JLM

- NOTES:
- BUILDING HEIGHTS AND STEPPING SLOPES SHALL VARY WITH LOT SPECIFIC GRADING AND SLAB STEERING
  - NO BUILDING SHALL EXCEED THE PROPOSED MAXIMUM BUILDING HEIGHT OF 36' AT ANY POINT OF THE HIGHEST ROOF
  - SEE PLAN FOR LOCATIONS OF BUILDING STYLES

- FARMHOUSE CHARACTERISTICS
- 8/12 GABLE ROOFS
  - ROOF PLANE BREAKS
  - WINDOW ORDS
  - BOARD AND BATT SIDING
  - LAP SIDING
  - COVERED PORCHES
  - VERTICAL PROJECTIONS

# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 25 OF 32 SHEETS

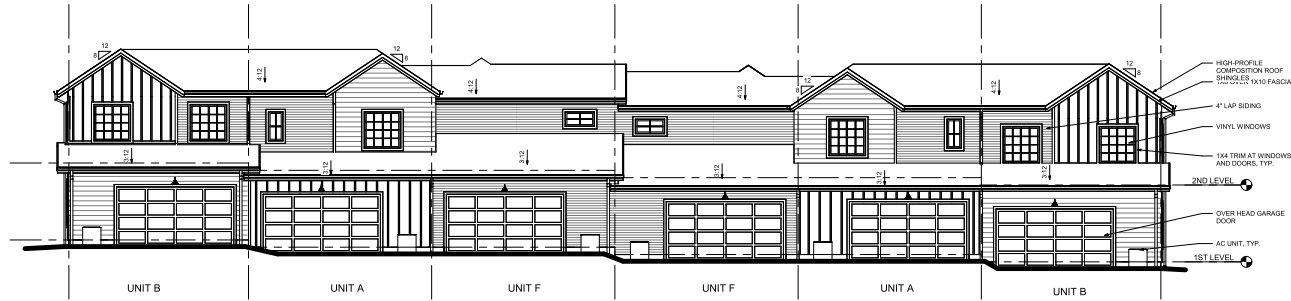


Godden|Sudik  
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SEE WHAT COULD BE  
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www.goddensudik.com

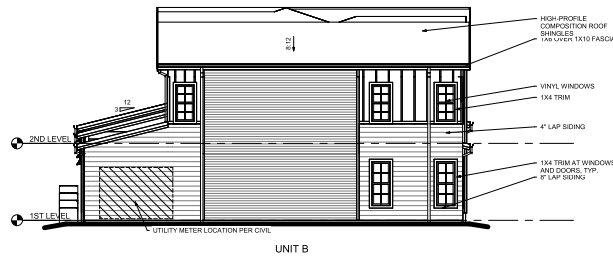
5975 S. Quebec Street  
Suite 250  
Centennial, CO 80111



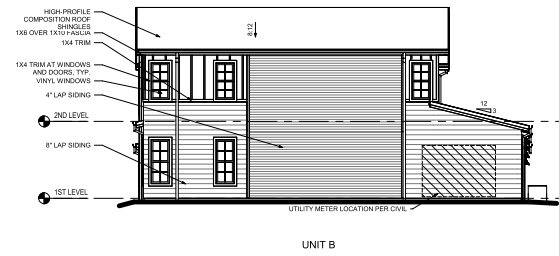
1101 Benbow Street  
Denver, Colorado 80204  
P 303.862.1166  
www.norris-design.com



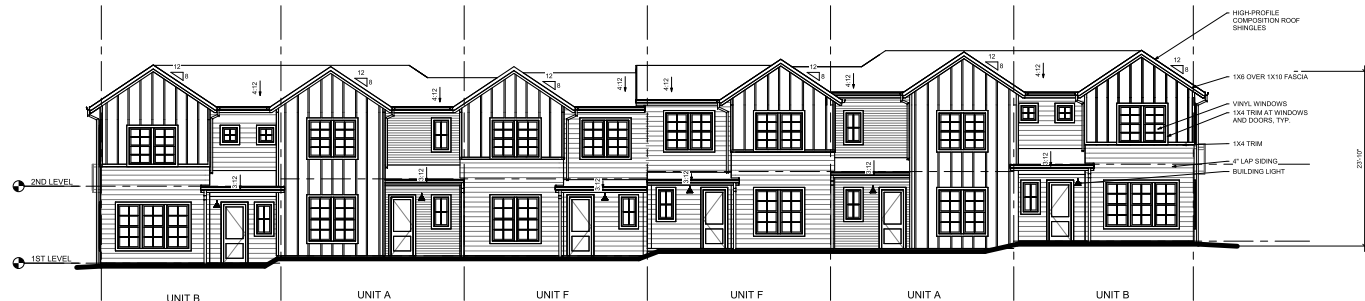
4 6-PLEX FARMHOUSE - REAR ELEVATION  
1/8" = 1'-0"



3 6-PLEX FARMHOUSE - LEFT ELEVATION  
1/8" = 1'-0"



2 6-PLEX FARMHOUSE - RIGHT ELEVATION  
1/8" = 1'-0"



1 6-PLEX FARMHOUSE - FRONT ELEVATION  
1/8" = 1'-0"

CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
6-PLEX FARMHOUSE ELEVATIONS

| No. | Issue / Revision   | Date       | Name |
|-----|--------------------|------------|------|
| 1   | 1st PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 2   | 2nd PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 3   | 3rd PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 4   | 4th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 5   | 5th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 6   | 6th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 7   | 7th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 8   | 8th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 9   | 9th PDP SUBMITTAL  | 11/11/2021 | JLM  |
| 10  | 10th PDP SUBMITTAL | 11/11/2021 | JLM  |

Job Number: 251271  
Project Manager: JLM  
Design By: JLM  
Drawn By: JLM  
Principal in Charge: JLM  
The design is shown as a preliminary plan and is not to be used for construction without the approval of the City of Arvada. The design is subject to change without notice. The design is not to be used for construction without the approval of the City of Arvada. The design is not to be used for construction without the approval of the City of Arvada.

Number:  
25  
25 OF 32

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 26 OF 32 SHEETS ☐

5975 S. Quebec Street  
Suite 250  
Centennial, CO 80111



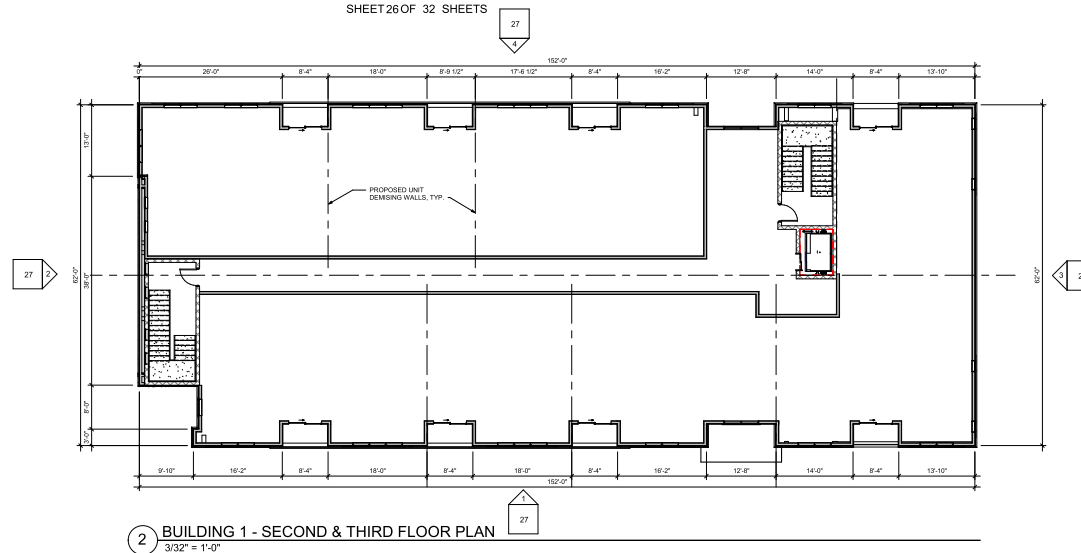
**MARTIN/MARTIN**  
CONSULTING ENGINEERS

1400 AMISTO CANYON AVENUE, FARMINGTON, COLORADO 80415

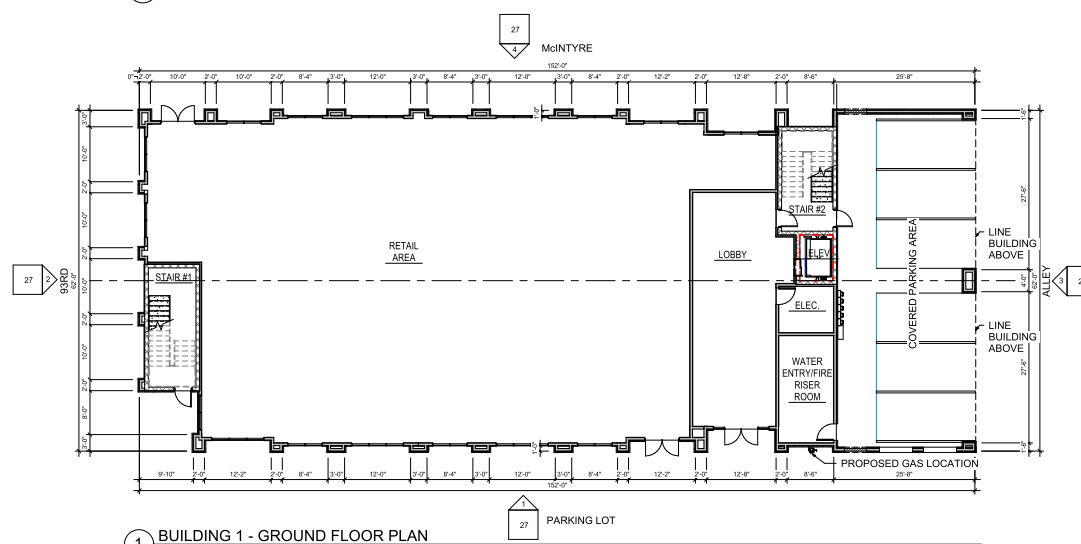
  
**NORRIS DESIGN**  
 Planning | Landscape Architecture | Branding

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[www.normie-design.com](http://www.normie-design.com)

CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
BUILDING 1 - PLANS



2 BUILDING 1 - SECOND & THIRD FLOOR PLAN  
3/32" = 1'-0"



1 BUILDING 1 - GROUND FLOOR PLAN  
3/32" = 1'-0"

| Job Number          | 19-1271 | Rev. | Issue / Revision   | Date     | Name |
|---------------------|---------|------|--------------------|----------|------|
| Project Manager     | TK      |      | 2nd COPY SUBMITTAL | 02/27/19 | TK   |
| Design By           | BB      |      | 3rd COPY SUBMITTAL | 03-13-19 | BB   |
| Drawn By            |         |      | 4th COPY SUBMITTAL | 03-13-19 | BB   |
| Principal in Charge | UL      |      | 5th COPY SUBMITTAL | 03-13-19 | UL   |
|                     |         |      | 6th COPY SUBMITTAL | 03-13-19 | UL   |
|                     |         |      | 7th COPY SUBMITTAL | 03-13-19 | UL   |
|                     |         |      | 8th COPY SUBMITTAL | 03-13-19 | UL   |

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26

26 OF 32

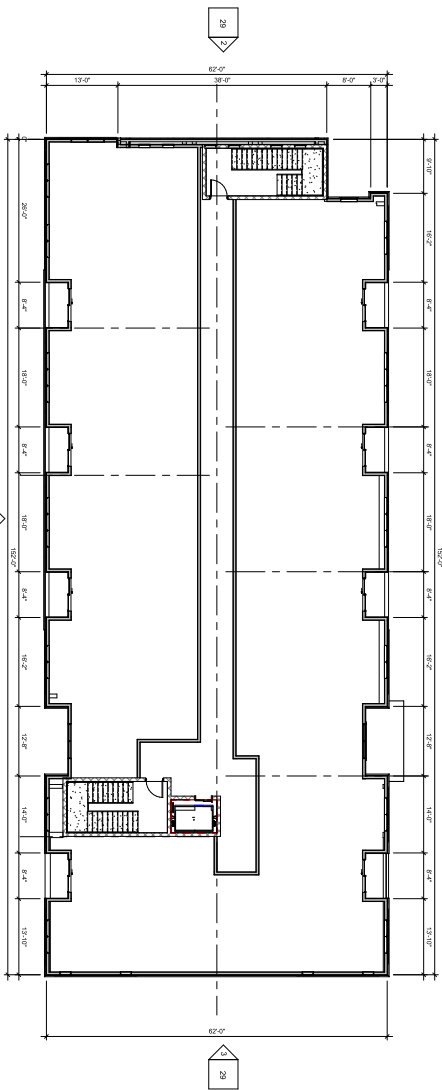


# CANDELAS FILING NO. 1, AMENDMENT NO. 4

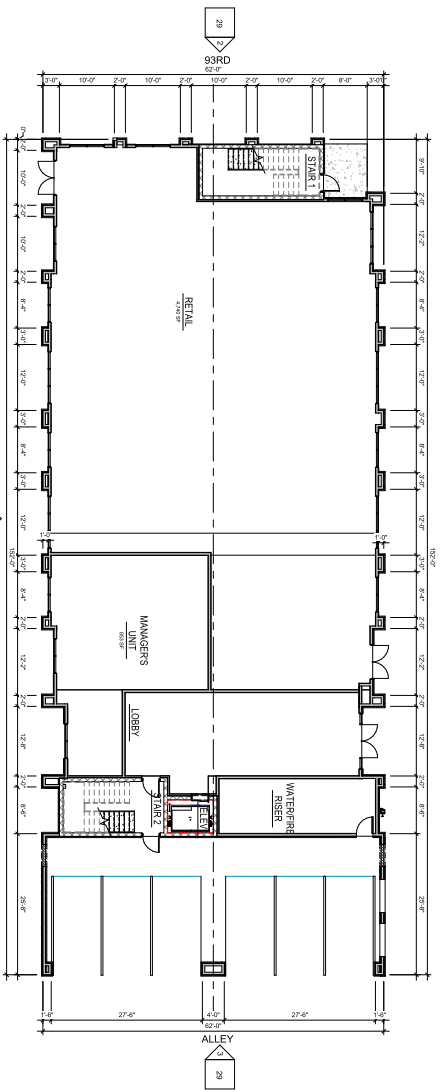
## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 28 OF 32 SHEETS

28



2 BUILDING 2 - SECOND & THIRD FLOOR PLAN  
3/32" = 1'-0"



1 BUILDING 2 - GROUND FLOOR PLAN  
3/32" = 1'-0"



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ARCHITECTS  
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ARVADA, CO 80005  
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303.431.6100 MARTINMARTIN.COM

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Denver, Colorado 80202  
PH: 303.733.1188  
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## CANDELAS FILING NO. 1, AMENDMENT NO. 4

### PRELIMINARY DEVELOPMENT PLAN

#### BUILDING 2 - PLANS

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PDP SUBMITTAL | 12/15/20 | MS   |
| 2   | 2nd PDP SUBMITTAL | 02/15/21 | MS   |
| 3   | 3rd PDP SUBMITTAL | 04/15/21 | MS   |
| 4   | 4th PDP SUBMITTAL | 06/15/21 | MS   |
| 5   | 5th PDP SUBMITTAL | 08/15/21 | MS   |
| 6   | 6th PDP SUBMITTAL | 10/15/21 | MS   |
| 7   | 7th PDP SUBMITTAL | 12/15/21 | MS   |
| 8   | 8th PDP SUBMITTAL | 02/15/22 | MS   |

|                     |         |
|---------------------|---------|
| Job Number          | 18-1271 |
| Project Manager     | DK      |
| Design By           | BB      |
| Drawn By            | MW      |
| Principal In Charge | DL      |

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## SHEET 29 OF 32 SHEETS

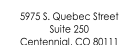


**OVERALL DESIGN:**  
THE MIXED-USE BUILDING IS MODELED ON THE TRADITIONAL STYLING OF THE AREA, BUT MODERNLY FOUND AROUND THE CANDELABER DESIGN. WHILE PRAIRIE STYLE TYPICALLY RELIES ON LOW PITCHED ROOFS, THIS BUILDING INCORPORATES A FLAT ROOF WITH A MODERN TOUCHES SUCH AS PARAPET ROOFS. THE BUILDING IS A MIX OF MATERIALS, INCLUDING MASONRY AND GLASS TO BRING IN THE TRADITIONAL STYLING OF THE AREA. THE BUILDING IS PRAIRIE ARCHITECTURE. WARM MATERIALS AND COLORS ARE INCORPORATED THROUGHOUT THE BUILDING. THE VARIOUS MATERIALS USED ARE: STONE, VENEER, THE COLOR PALETTE IS BASED ON THE LOCAL STONE. THE BUILDING OVERHELM THE SURROUNDING ARCHITECTURE.

**ARTICULATION:**  
TO PROVIDE THE REQUIRED ARTICULATION THE BUILDING INCORPORATES A RHYTHM OF GLASS AND STONE PLASTERS OFFSET 2-2". THIS PROVIDES THE BUILDING WITH A RHYTHM. THE UPPER LOOPS CONTAIN STEPPED BACKS AT EACH SECOND AND THIRD FLOOR BALCONY SPACES PROVIDED IN EACH OF THE UPPER LOOPS. THE BUILDING PROVIDES VARIOUS HEIGHTS TO ACCENTUATE THE



BUILDING HEIGHT: PER ARVADA DEVELOPMENT CODE BUILDING HEIGHT IS MEASURED AS THE VERTICAL DISTANCE BETWEEN THE POINT OF MEASUREMENT ON THE GROUND TO THE HIGHEST POINT OF COPING OF A FLAT ROOF



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CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
BUILDING 2 - ELEVATIONS

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PDP SUBMITTAL | 12/17/23 | DM   |
| 2   | 2nd PDP SUBMITTAL | 02/25/23 | DM   |
| 3   | 3rd PDP SUBMITTAL | 06/14/23 | DM   |
| 4   | 4th PDP SUBMITTAL | 06/17/23 | DM   |
| 5   | 5th PDP SUBMITTAL | 11/11/23 | DM   |
| 6   | 6th PDP SUBMITTAL | 01/08/23 | DM   |
| 7   | 7th PDP SUBMITTAL | 02/17/23 | DM   |
| 8   | 8th PDP SUBMITTAL | 03/11/23 |      |

|                     |          |
|---------------------|----------|
| Job Number          | 191,1271 |
| Project Manager     | DK       |
| Design By           | BB       |
| Drawn By            | MW       |
| Principal in Charge | DL       |

Number:

29

PLOT DATE: Thursday, March 30, 2023 10:38 AM LAST SAVED BY: JESSIE  
DRAWING LOCATION: C:\Users\jessie\OneDrive\Studio Lighting\2019-2023-037 Candeo Tr-Pointe\1-E-SitePhotometric 2019-2023-037 Filing B.dwg

# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO

SHEET 30 OF 32 SHEETS

1

### SITE LIGHTING PHOTOMETRIC - WEST

SCALE: 1" = 30'-0"

#### PHOTOMETRY PLAN GENERAL NOTES:

- VALUES SHOWN ARE MAINTAINED HORIZONTAL ILLUMINANCE VALUES MEASURED AT GRADE.
- SITE LIGHTING DESIGN HAS BEEN COMPLETED TO PRODUCE EVEN ILLUMINATION OF PARKING AND PAVED AREAS WITH MINIMAL GLARE ONTO ADJACENT PROPERTIES.
- ALL LIGHT FIXTURES SHALL BE FULLY SHIELDED AND DIRECT LIGHT DOWNWARDS.
- THERE WILL BE NO OFF-SITE GLARE ALLOWED.

SITE LIGHTING DESIGN HAS BEEN COMPLETED TO CONFORM TO CITY OF ARVADA EXTERIOR LIGHTING STANDARDS

#### LIGHTING CALCULATION STATISTICS SUMMARY:

|                        | AVERAGE | MAXIMUM | MINIMUM | MAX/MIN | Avg/Min |
|------------------------|---------|---------|---------|---------|---------|
| OVERALL SITE LIT AREAS | 1.06    | 7.16    | 0.06    | NA      | NA      |
| PARKING/PAVED AREAS    | 1.96    | 4.96    | 0.46    | 12.3:1  | 3.8:1   |

TAKEN FROM CENTER OF DRIVE AISLE



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Denver, Colorado 80204  
P: 303.655.1100  
www.norris-design.com

CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
SITE LIGHTING PHOTOMETRIC WEST

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PDP SUBMITTAL | 12/17/21 | OK   |
| 2   | 2nd PDP SUBMITTAL | 02/25/22 | OK   |
| 3   | 3rd PDP SUBMITTAL | 04/17/22 | OK   |
| 4   | 4th PDP SUBMITTAL | 11/17/22 | OK   |
| 5   | 5th PDP SUBMITTAL | 01/09/23 | OK   |
| 6   | 6th PDP SUBMITTAL | 02/07/23 | OK   |

Job Number: 19.1.1271  
Project Manager: JMB  
Design By: JMB  
Drawn By: JMB  
Principal in Charge: JMB  
The second shown sheet includes ALL TECHNICAL DRAWINGS  
A 30' x 42' sheet of paper containing all of the drawings  
in this set. For more information, please contact  
JESSIE@NORRISDESIGN.COM or 303.655.1100

Sheet Number:  
30

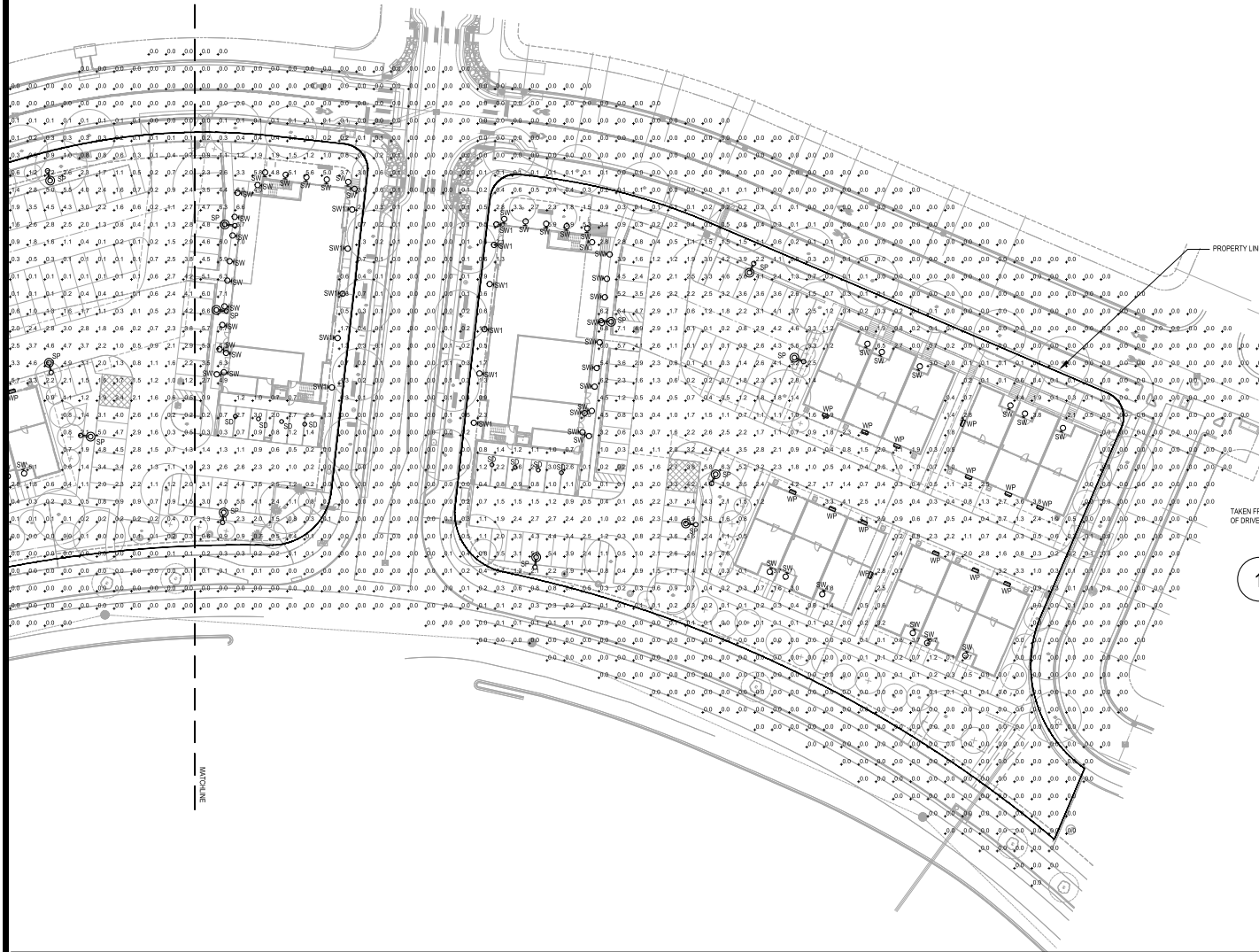


PLOT DATE: Thursday, March 30, 2023 10:38 AM LAST SAVED BY: JESSI  
DRAWING LOCATION: C:\Users\jessie\OneDrive\Studio Lighting\2019\2019-037 Candeas Tr-Pontre\1-E-SitePhotometric 2019-037 Filing Bldg

# CANDELAS FILING NO. 1, AMENDMENT NO. 4

## PRELIMINARY DEVELOPMENT PLAN

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 31 OF 32 SHEETS



### LIGHTING CALCULATION STATISTICS SUMMARY:

|                         | AVERAGE | MAXIMUM | MINIMUM | MAXMIN | AUGMIN |
|-------------------------|---------|---------|---------|--------|--------|
| OVERALL SITE LIT AREAS: | 1.0fc   | 7.1fc   | 0.0fc   | NA     | NA     |
| PARKING/PAVED AREAS:    | 0.9fc   | 2.9fc   | 0.2fc   | 12.5f  | 4.5f   |

### 1 SITE LIGHTING PHOTOMETRIC - EAST

SCALE: 1" = 30'-0"

#### PHOTOMETRY PLAN GENERAL NOTES:

- VALUES SHOWN ARE MAINTAINED HORIZONTAL ILLUMINANCE VALUES MEASURED AT GRADE.
- SITE LIGHTING DESIGN HAS BEEN COMPLETED TO PRODUCE EVEN ILLUMINATION OF PARKING AND PAVED AREAS WITH MINIMAL GLARE ONTO ADJACENT PROPERTIES.
- ALL LIGHT FIXTURES SHALL BE FULLY SHIELDED AND DIRECT LIGHT DOWNWARDS.
- THERE WILL BE NO OFF-SITE GLARE ALLOWED.

SITE LIGHTING DESIGN HAS BEEN COMPLETED TO CONFORM TO CITY OF ARVADA EXTERIOR LIGHTING STANDARDS



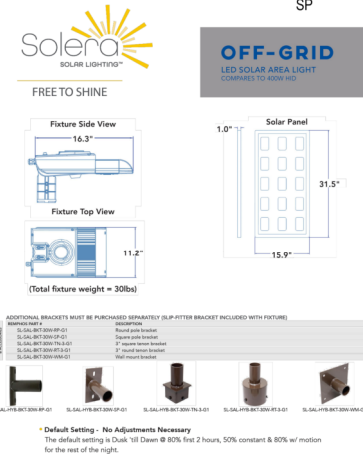
CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
SITE LIGHTING PHOTOMETRIC EAST

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 1st PDP SUBMITTAL | 12/17/21 | OK   |
| 2   | 2nd PDP SUBMITTAL | 02/25/22 | OK   |
| 3   | 3rd PDP SUBMITTAL | 04/17/22 | OK   |
| 4   | 4th PDP SUBMITTAL | 05/17/22 | OK   |
| 5   | 5th PDP SUBMITTAL | 07/06/23 | OK   |
| 6   | 6th PDP SUBMITTAL | 07/06/23 | OK   |
| 7   | 7th PDP SUBMITTAL | 07/06/23 | OK   |
| 8   | 8th PDP SUBMITTAL | 07/06/23 | OK   |

Sheet Number:

31

PLOT DATE: Thursday, March 30, 2023 10:38 AM LAST SAVED BY: JESSI  
PROGRAMMING LOCATION: C:\Users\jessi\Dropbox\Studio Lightning\2019\2019-037 Candela Tri-Point\E-Site\Photometric 2019-037 Filing 9.dwg

[illegible]

STUDIO LIGHTNING  
63 SUNSET DR.  
BAILEY, CO 80421  
303.242.1572

# CANDELAS FILING NO. 1, AMENDMENT NO. 4 PRELIMINARY PLAT

A REPLAT OF BLOCKS 10 , 21, AND 22 OF CANDELAS FILING NO. 1 AND BLOCK 9C OF CANDELAS FILING NO. 1 AMENDMENT 2.  
ALL BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 1 OF 3 SHEETS

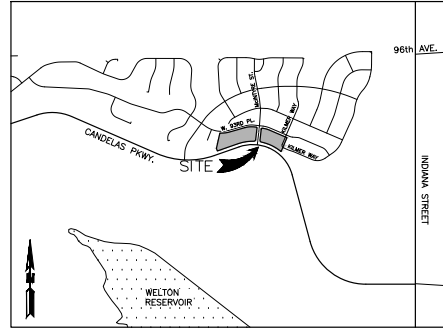
## LEGAL DESCRIPTION AND DEDICATION:

THE UNDERSIGNED, BEING THE OWNERS OF PARCELS OF LAND BEING A REPLAT OF BLOCKS 10, 21, AND 22 OF CANDELAS FILING NO. 1 AND BLOCK 9C OF CANDELAS FILING 1 AMENDMENT 2 LOCATED IN THE NORTH HALF OF SECTION 24, IN TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF ARVADA, COUNTY OF JEFFERSON, STATE OF COLORADO, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BLOCKS 10, 21, AND 22 OF CANDELAS FILING NO. 1 AS RECORDED AT RECEPTION NO. 2011039877 AND BLOCK 9C OF CANDELAS FILING NO. 1 AMENDMENT NO. 2 AS RECORDED AT RECEPTION NO. 2016039683

SAID PARCELS CONTAIN A TOTAL OF 5.44 ACRES (237,158 SQ. FT.) MORE OR LESS.

HAVE LAID OUT, PLATTED, AND SUBDIVIDED THE ABOVE DESCRIBED LAND, UNDER THE NAME AND STYLE OF CANDELAS FILING NO. 1, AMENDMENT NO. 4, AND HEREBY DEDICATE TO THE CITY OF ARVADA IN FEE SIMPLE, EXCEPT THOSE OF PRIOR RECORD, THE STREET(S) AND PUBLIC WAY(S) AS SHOWN IN THE PLAT, AND GRANTS TO THE CITY OF ARVADA SUCH EASEMENTS AS ARE CREATED HEREBY AND DEPICTED OR, BY NOTE, REFERENCED HEREON, ALONG WITH THE RIGHT TO INSTALL, MAINTAIN, AND OPERATE MAINS, TRANSMISSION LINES, SERVICE LINES, AND APPURTENANCES, EITHER DIRECTLY OR THROUGH THE VARIOUS APPLICABLE SERVICE PROVIDERS AS MAY BE NECESSARY TO ACCOMPLISH THE INTENDED PURPOSES OF SUCH EASEMENT. UNLESS MORE NARROWLY DEFINED BY NOTE HEREON, UTILITY SHALL MEAN SEWER, WATER, DRAINAGE, ELECTRICITY, GAS, TELEPHONE, CABLE AND OTHER TELECOMMUNICATION FACILITIES.



VICINITY MAP

NOT TO SCALE

## SHEET INDEX

- 1 COVER SHEET
- 2 PLAT SHEET
- 3 PLAT SHEET

## NOTES:

1. BASIS OF BEARING:  
BEARINGS ARE BASED ON THE PLATTED BEARING OF N89°40'D11"W ALONG THE NORTH LINE OF THE NORTHEAST QUARTER OF SECTION 24, AS SHOWN ON THE CIMARRON MINOR SUBDIVISION AS RECORDED AT RECEPTION NO. 2007042670, AND AS DETERMINED BY MONUMENTS BEING A FOUND 3-1/4" ALUMINUM CAP AT THE NORTHEAST CORNER OF SECTION 24 AND A FOUND 3-1/4" ALUMINUM CAP ON A 3" ALUMINUM PIPE AT THE NORTH QUARTER CORNER OF SECTION 24, WITH ALL BEARINGS HEREIN RELATIVE THERETO.
2. UTILITY EASEMENTS ARE HEREBY GRANTED AS EIGHT (8) FEET WIDE ALONG ALL REAR LOT LINES, FIVE (5) FEET WIDE ALONG THE SIDE OF LOTS (EXCEPT LOT LINES THROUGH ATTACHED UNITS), EIGHT (8) FEET WIDE ALONG BOTH SIDES OF ALL STREETS, AND SIX (6) FEET WIDE ALONG BOTH SIDES OF ALL ALLEYS. UTILITY MEANS SEWER, WATER, ELECTRICITY, TELEPHONE, CABLE AND OTHER TELECOMMUNICATIONS FACILITIES. THOSE EASEMENTS ALONG BOTH SIDES OF STREETS ARE RESERVED EXCLUSIVELY FOR THE USE OF GAS MAINS. OTHER UTILITIES SHALL HAVE THE RIGHT TO CROSS AT APPROXIMATELY RIGHT ANGLES BUT IN NO EVENT SHALL ANY PERMANENT STRUCTURE BE ALLOWED IN THE AREA RESERVED FOR GAS MAINS; PROVIDED HOWEVER, CONCRETE DRIVES, SIDEWALKS, AND UTILITIES ARE PERMISSIBLE AS LONG AS THEY CROSS AT SUBSTANTIALLY RIGHT ANGLES. ALL SIDE AND REAR LOT LINE EASEMENTS ARE FOR UTILITY AND DRAINAGE PURPOSES. NO RETAINING WALLS, FENCES, SHRUBS, TREES OR OTHER OBSTRUCTIONS MAY BE PLACED WITHIN THE EASEMENTS THAT WILL OBSTRUCT THE FLOW OF DRAINAGE IN SAID EASEMENTS. NO TREES, SHRUBS OR OTHER PLANTS SHALL BE PLANTED, NOR SHALL ANY BUILDING, FENCE, STRUCTURE OR IMPROVEMENTS BE CONSTRUCTED OR INSTALLED WITHIN OR OVER ANY EASEMENT OR SO AS TO PREVENT OR UNREASONABLY INTERFERE WITH ANY PURPOSE FOR WHICH THE EASEMENT IS GRANTED. HOWEVER, WINDOW WELLS NOT EXCEEDING FIFTEEN (15) SQUARE FEET AND NOT ENCRoACHING MORE THAN THREE (3) FEET INTO A SIDE LOT EASEMENT, AND CANTILEVERS AND EAVES NOT ENCRoACHING MORE THAN TWO (2) FEET INTO A SIDE LOT EASEMENT ARE ALLOWED UNLESS OTHERWISE PROHIBITED BY LAND DEVELOPMENT CODE PROVISIONS, BUILDING CODE REGULATIONS OR OTHER LAW.
3. PROPERTY IS SUBJECT TO THE RIGHT OF THE PROPRIETOR OF A VEIN OR LODE TO EXTRACT OR REMOVE HIS ORE, SHOULD THE SAME BE FOUND TO PENETRATE OR INTERSECT THE PREMISES THEREBY GRANTED AND RIGHTS OF WAY FOR DITCHES AND CANALS AS RESERVED IN THE UNITED STATES PATENT RECORDED APRIL 7, 1892 IN BOOK 32 AT PAGE 323, AND ANY AND ALL ASSIGNMENTS THEREOF OR INTERESTS THEREIN.
4. ALL MINERALS AND MINERAL RIGHTS CONVEYED TO WINDY FLATS MINERALS, LLC, A COLORADO LIMITED LIABILITY COMPANY BY INSTRUMENT RECORDED SEPTEMBER 30, 2010 AT RECEPTION NO. 2010086272.
5. TRACTS A & E SHALL BE FOR EMERGENCY ACCESS, PUBLIC ACCESS, DRAINAGE, AND UTILITY PURPOSES AND SHALL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. UTILITY AND ACCESS EASEMENTS TO BE DEDICATED OVER TRACTS A & E WITH FINAL PLAT.
6. TRACTS B, C, F, G SHALL BE FOR OPEN SPACE, DRAINAGE, TRAIL, AND UTILITY PURPOSES AND SHALL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
7. TRACTS D & H SHALL BE FOR OPEN SPACE, MONUMENTATION AND SIGNAGE AND SHALL BE OWNED AND MAINTAINED BY THE CIMARRON METROPOLITAN DISTRICT.
8. ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVERED SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF CERTIFICATION SHOWN HEREON.
9. THIS REPLAT DOES NOT CONSTITUTE A TITLE OR OWNERSHIP SEARCH BY MARTIN/MARTIN INC. ALL OWNERSHIP EASEMENT AND PUBLIC RECORD INFORMATION USED IN THE PREPARATION OF THIS REPLAT WAS OBTAINED FROM COMMITMENT NO. ABC70622189-1 WITH AN EFFECTIVE DATE OF 11/03/2022 BY LAND TITLE GUARANTEE COMPANY.
10. BOUNDARY CORNERS OF SUBDIVISION ARE MONUMENTED WITH A #4 REBAR WITH CAP L.S. #23899, UNLESS SHOWN OTHERWISE.
11. (NR) INDICATES THE LOT LINE IS NON-RADIAL TO ITS RESPECTIVE CURVE.
12. ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND BOUNDARY MONUMENT OR ACCESSORY COMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.
13. ALL DIMENSIONS SHOWN ARE IN U.S. SURVEY FEET.

## SURVEYOR DISCLAIMER

THE CITY OF ARVADA IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE SURVEY DATA SHOWN HEREIN. THE CITY OF ARVADA'S REVIEW IS FOR GENERAL COMPLIANCE WITH ARVADA'S LAND DEVELOPMENT CODE. THE CITY OF ARVADA, THROUGH THE ACCEPTANCE OF THE PLAT/SITE PLAN, ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF PLAT/SITE PLAN. THE ACCURACY OF SURVEY INFORMATION INCLUDING BOUNDARY INFORMATION, MONUMENTATION, LOT LINES, ETC. IS THE SOLE RESPONSIBILITY OF THE LICENSED SURVEYOR NAMED HEREIN.

| TRACT USE TABLE |           |           |                                |           |
|-----------------|-----------|-----------|--------------------------------|-----------|
| TRACT           | AREA (SF) | AREA (AC) | OWNERSHIP/MAINTENANCE          | USE*      |
| A               | 36,989    | 0.849     | HOA                            | D/U/EA/PA |
| B               | 7,242     | 0.166     | HOA                            | OS/D/U/T  |
| C               | 44,049    | 1.011     | HOA                            | OS/D/U/T  |
| D               | 1,003     | 0.023     | CIMARRON METROPOLITAN DISTRICT | OS/M      |
| E               | 23,546    | 0.541     | HOA                            | D/U/EA/PA |
| F               | 5,631     | 0.129     | HOA                            | OS/D/U/T  |
| G               | 17,201    | 0.395     | HOA                            | OS/D/U/T  |
| H               | 250       | 0.006     | CIMARRON METROPOLITAN DISTRICT | OS/M      |

\* OS=OPEN SPACE; D=DRAINAGE; U=UTILITY; T=TRAIL; EA=EMERGENCY ACCESS; PA=PUBLIC ACCESS; M=MONUMENT

SHEET 1 OF 3

MARTIN/MARTIN  
CONSULTING ENGINEERS  
1089 WEST COLLAR AVENUE, LAKEWOOD, COLORADO 80225  
303.431.6100 MARTINMARTIN.COM

MAR. 31, 2023  
JAN. 01, 2023  
NOV. 16, 2022  
JUN. 17, 2022  
FEB. 25, 2022

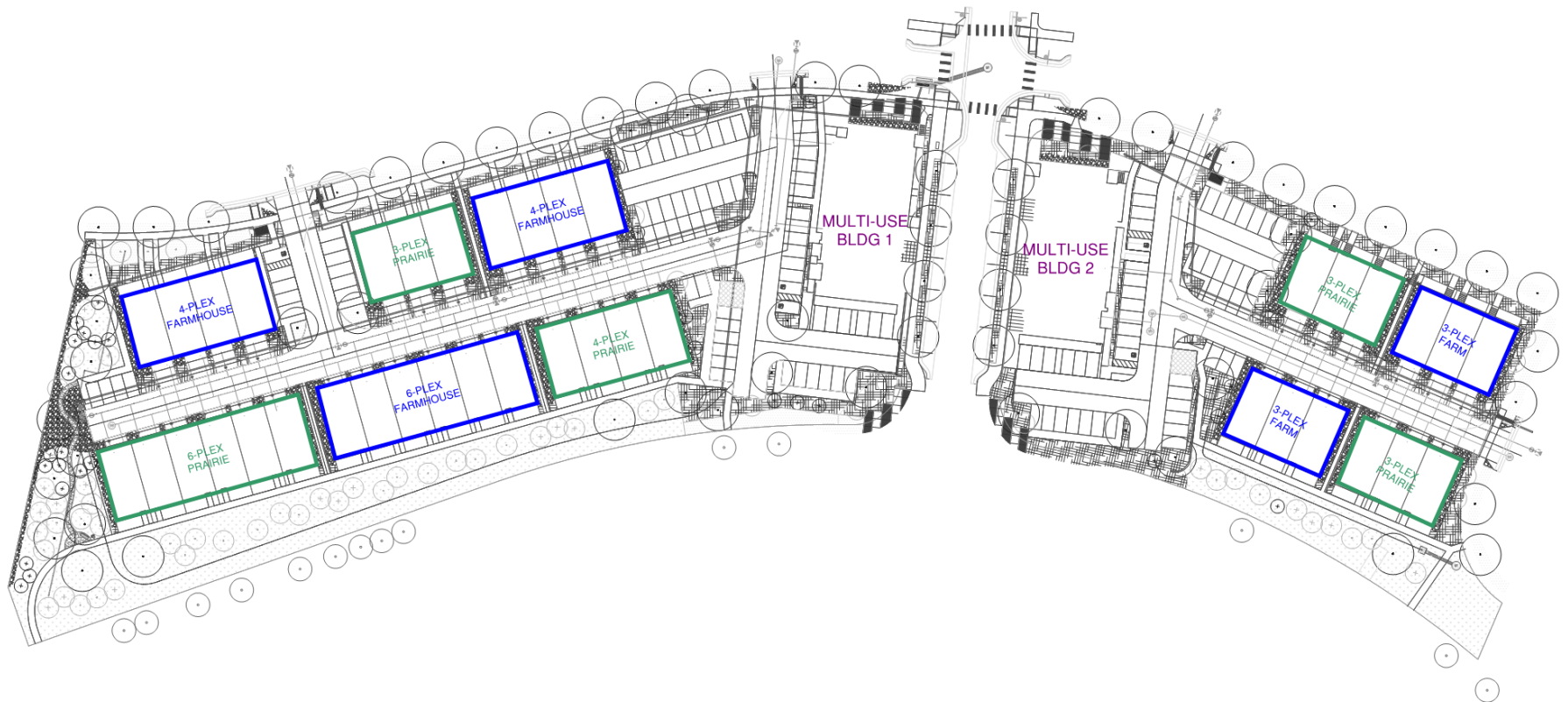
A REPLAT OF BLOCKS 10 , 21, AND 22 OF CANDELAS FILING NO. 1 AND BLOCK 9C OF CANDELAS FILING NO. 1 AMENDMENT 2.  
ALL BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO

MAR. 31, 2023  
JAN. 01, 2023  
NOV. 16, 2022  
JUN. 17, 2022  
FEB. 25, 2022

KEYMAP  
SCALE: 1"=300'

PLOT DATE: Thursday, March 23, 2023 11:15 AM LAST SAVED BY: MWOOD  
DRAWING LOCATION: G:\LOVATO\19.1271-Candelas F1 Townhomes\PLANS\PRELIMINARY PLAT\Amendment 4 (E)02-PLAT A4.dwg

SEE WHAT COULD BE



TRI POINTE CANUELAS  
TOWNHOMES

ELEVATION STYLE  
LOCATIONS

AMENDMENT 4

02/16/2023



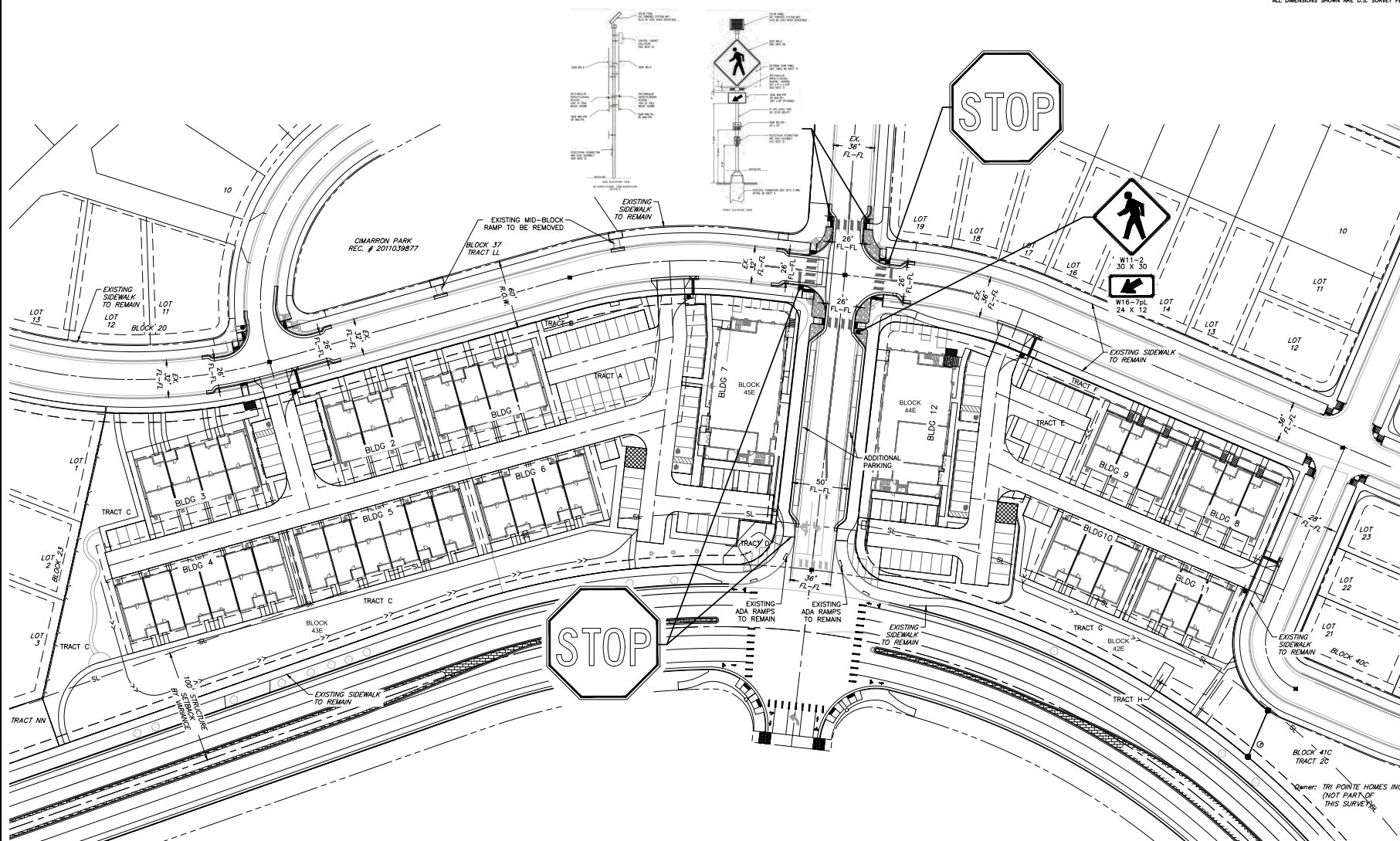
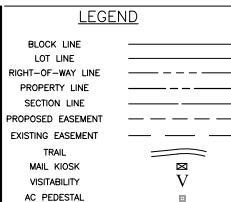
Godden|Sudik  
ARCHITECTS

303.455.4437

5975 S. QUEBEC ST., STE. 250  
CENTENNIAL, CO 80111



ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO



PLOT DATE: Thursday, November 10, 2022 9:54 AM LAST SAVED BY: MWOOD  
DRAWING LOCATION: G:\LOVATO\19.1271-Candelas F1 Townhomes\PLANS\EXHIBITS\Traffic Calming Exhibit.dwg



TRI Pointe  
HOMES



**MARTIN/MARTIN**  
CONSULTING ENGINEERS

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 3000 17th Avenue, Suite 100, Boulder, CO 80502  
 303.440.1100  
 www.norrisdesign.com

1101 Baymont Street  
Denver, Colorado 80202  
P 303.602.1900  
[www.radii-design.com](http://www.radii-design.com)

CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
TRAFFIC CALMING EXHIBIT

| No. | Issue / Revision  | Date     | Name |
|-----|-------------------|----------|------|
| 1   | 2nd TOP SUBMITTAL | 02/24/12 | DK   |
| 2   | 2nd TOP SUBMITTAL | 02/24/12 | DK   |
| 3   | 3rd TOP SUBMITTAL | 04/19/12 | DK   |
| 4   | 4th TOP SUBMITTAL | 04/19/12 | DK   |
| 5   | 5th TOP SUBMITTAL | 04/19/12 | DK   |

THE SECOND SHOWN BELOW ALL TECHNICAL REMARKS.  
 REMARKS ARE TO BE CORRECTED AND RE-SUBMITTED TO THE CHARGED BY PERSON.  
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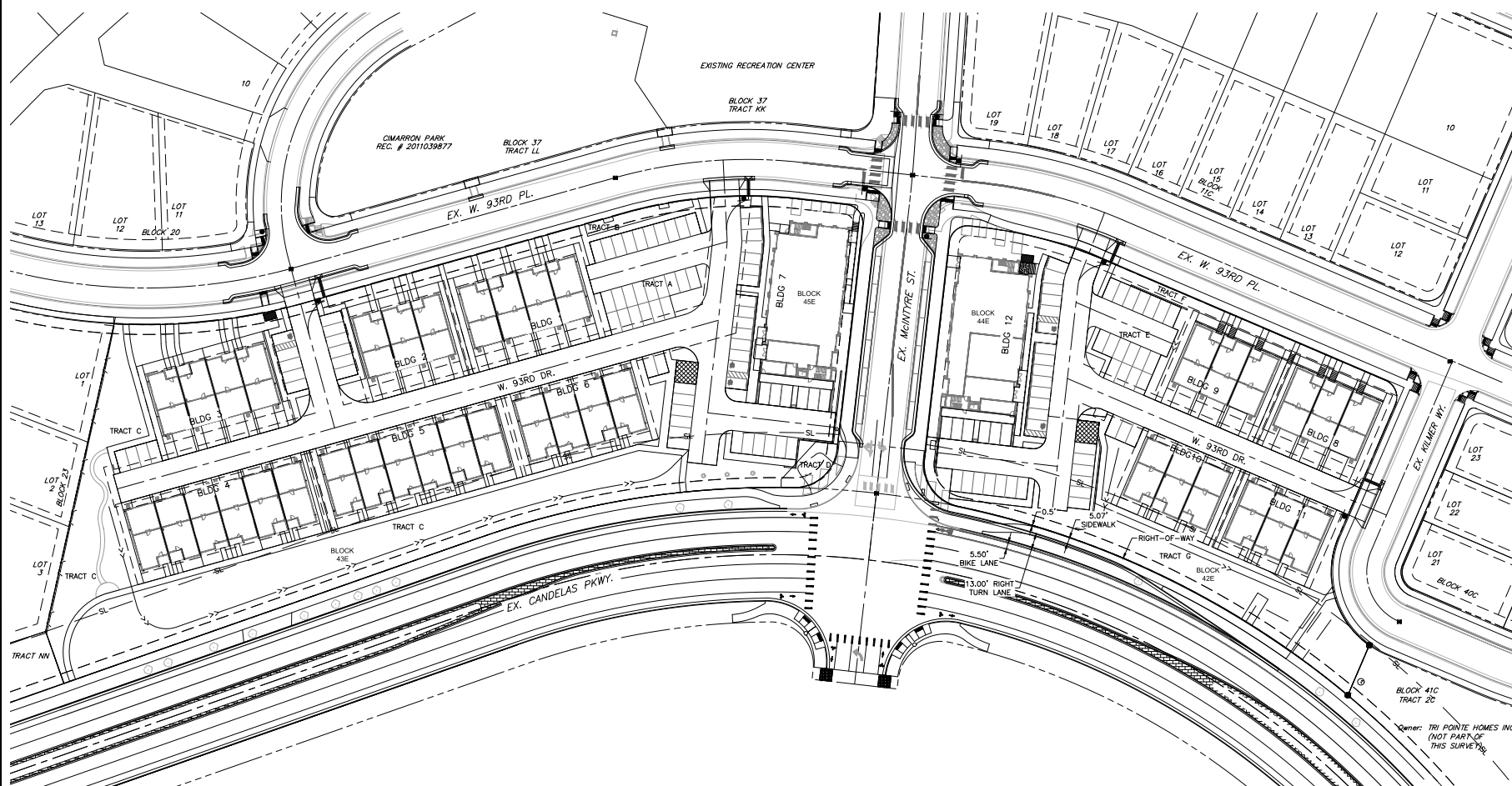
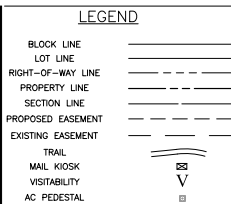
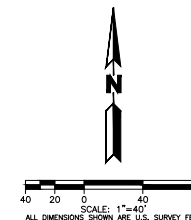
Sheet Number

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ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO

ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4

BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO



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P 303.602.1900  
[www.radii-design.com](http://www.radii-design.com)

CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
RIGHT TURN LANE AT MCINTYRE

| No. | Issue / Revision   | Date     | Name |
|-----|--------------------|----------|------|
| 1   | 2nd PAPER SUBMITAL | 02/22/23 | DK   |
| 2   | 3rd PAPER SUBMITAL | 02/22/23 | DK   |
| 3   | 3rd PAPER SUBMITAL | 04/11/23 | DK   |
| 4   | 4th PAPER SUBMITAL | 04/17/23 | DK   |
| 5   | 5th PAPER SUBMITAL | 05/01/23 | DK   |
| 6   | 6th PAPER SUBMITAL | 01/06/23 | DK   |
| 7   | 7th PAPER SUBMITAL | 01/06/23 | DK   |

Sheet Number

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PLOT DATE: Thursday, February 16, 2023 8:01 AM LAST SAVED BY: MWOOD  
DRAWING LOCATION: G:\LOVATO\19.1271-Candelas F1 Townhomes\PLANS\EXHIBITS\Right Trun Exhibit.dwg



## **SUMMARY MINUTES OF PLANNING COMMISSION ACTION HELD**

**April 18, 2023**

Planning Commission meeting minutes are not an exact transcript and represent key points and the basis of discussion.

1. **CALLED MEETING TO ORDER– By Michael P. Griffith at 6:15 P.M.**
2. **PLEDGE OF ALLEGIANCE**
3. **ROLL CALL OF MEMBERS**

Those present: Michael P. Griffith, Tim Knapp, Tom Aljinovich, Brandon Figliolino, Doug Magee, Steve Hannan, Andrew Gay

### **THOSE ABSENT**

None

**ALSO PRESENT:** Ryan Stachelski, Director of Community and Economic Development; Rob Smetana, City Planning Manager; Emily Grogg, Sr. Ass't. City Attorney; Josie Suk, Systems and Administrative Manager of Community and Economic Development; Liz Johnson, Manager of Communications and Marketing; Carol Ibanez, Sr. Planner; Shane Greenburg, Planner II; Jenny Wolfschlag, City Engineer; James "J.T." Pritts, Civil Engineer II; Dixielee Rodriguez, Recording Secretary.

4. **APPROVAL OF MINUTES**

February 7, 2023. The minutes stand approved as printed.

5. **GENERAL BUSINESS:**

None

6. **REPORTS**

None

7. **PUBLIC COMMENT**

There was no one wishing to speak. Public Comment was closed.

8. **PUBLIC HEARINGS**

**8.B DA2022-0093 - A Major Subdivision Preliminary Plat and Planned Unit Development (PUD) Development Plan for Candelas Filing No. 1, Amendment No. 4 ; generally located north of Candelas Parkway, east of Kilmer Way and South of W 93rd Place in the City of Arvada**

Before the hearing is opened, Mr. Griffith stated that he works for one of the consultants on this project; Kimley Horn. He has no involvement in the project aside from the Staff Report he has received from the City. Mr. Griffith stated that he can be fair and unbiased in his review of this project.

Ms. Grogg stated that the City Attorney's Office has reviewed this and finds no conflict of interest that requires recusal.

Mr. Griffith opened the public hearing.

Mr. Griffith asked staff to confirm that the required documents and notices were in order.

Ms. Ibanez confirmed that the published notices, affidavit of mailing and posting log were in order.

Mr. Griffith asked if there are any additional items received that need to be made a part of the permanent record?

Ms. Ibanez stated that there are no additional items.

Mr. Griffith entered into the record the staff report for DA2022-0093 posting of signs, affidavit of mailing, posting log and emailed public comments.

Ms. Ibanez introduced the project to the Planning Commission. Ms. Ibanez stated that the applicant is requesting a Major Subdivision Preliminary Plat for 39 units for sale townhomes and 33 for rent multi-family units above the two retail buildings. The mixed-use retail buildings are located at the entrance on both sides of McIntyre Street with an urban park.

Development for this property was previously presented twice prior to this development. In 2020, City Council denied the application for 57 townhomes since no retail development was proposed. Retail spaces were added to the development on June 2022. The City Council denied the application, indicating their major concerns The City Council wanted fewer residential units, increase the size of the retail space, add additional off-street and guest parking as well as provide additional safety improvements for pedestrians. This development plan before the Planning Commission addressed the recommendations from the City Council .

Applicant/Developer Daniel Glasco 5350 S Roselyn Street Suite 400, Greenwood Village, CO-TRI Point Home. He presented a summary regarding the various types of homes they build to include townhomes, duplexes and single-family homes ranging from 1,200 sq ft to just over 6,000 sq ft. In Arvada, they have constructed single family homes and are currently building townhomes on the west side of this project.

Marcus Pachner, 1480 Humboldt St. He provided an overview and stated that this is the last site in Candelas to be developed. The developer and team have spent a four year endeavor addressing the neighborhoods and City Council recommendations.

Bonnie Niziolek, Norris Design 1101 Bannock Street, Denver 80204 She discussed the revisions that Council recommended and presented the following: introduced the landscape on site which includes EV chargers; the number of parking spaces have been met with the addition of this site being a mixed-use, and proposed safety improvements. She also described the three story mixed use commercial on the 1st floor and residential units on the second and third floor. The addition of the single family, townhomes and commercial uses provide diversity in this area.

## **PUBLIC COMMENT**

### **IN OPPOSITION**

Anna Smith, 9540 Kendrick Way Arvada, stated how she drives down McIntyre every day and has concerns about parking. These townhomes do not have basements and garages will be used for storage and not cars. She is worried about safety and this applicant is not a commercial builder. She is not in favor of this project.

Teresa Kay, 15569 W 95th Pl., expressed her appreciation for all the work the teams have done. However, the number of units proposed will remove the beautiful views. She never knew retail was going to be a part of this community. Traffic is going to be bad. She appreciates the speed bumps being put in. She wants to know why the retail needs to be there? There are several retail stores in that area already. She is concerned about "what" is going to be on the site.

Erin Bott, 9364 Kilmer Way. stated her concerns. How big are the driveways? Size of driveways? Are the driveways 12' long? Not getting 2 parking spots in the space provided. She stated that on the east side of the site retail requires 20 spaces, and only has 16 spaces, the other 4 spaces are across the street.

Elizabeth Ashe, 15311 W 93rd Pl. stated that she is not fighting the build on, she just wants the right build. Stated that there is a lot of bike riding. Also, turning into McIntyre from Candelas Parkway is always backed up. She is concerned with the traffic and speed in the neighborhood.

### **IN FAVOR**

None

### **APPLICANT REBUTTAL**

Mr. Pachner expressed they have the same values brought up by public comments. There are over 64 spaces provided exceeding the Codes. He corrected that the total feet of the driveway spots are 19'4". The parking on the east side are shared parking spots. The development is intended for residents to walk to the retail and not use the parking. Garages are 25' wide normally they are 20' wide. He stated the HOA will enforce parking in garages. Curtis Rowe - 4582 S Ulster St. Suite 1500 Denver, CO 80237. He did the traffic study for this project and that the delay on turn to McIntyre is a level C (15 seconds). The proposed crosswalk at W 93rd and

McIntyre will increase awareness of pedestrian crossing. On-street parking on McIntyre creates a different environment and slows traffic down.

Ms. Niziolek stated that the proposed plans of the existing lanes on McIntyre are wider and provide street parking.

Mr. Griffith closed public comment.

## **QUESTIONS FROM THE COMMISSION**

Mr. Hannan asked staff about the original plan. What did we originally plan?

Ms. Ibanez stated the original plan goes back to 2005. and in 2019, townhomes with no commercial uses were proposed. The City Council denied it because there were no mixed uses. The original plans had building heights up to 50', but the Outline Development Plan (ODP) was amended reducing the height.

Mr. Hannan asked if the traffic study required a deceleration lane from Candelas to McIntyre? JT Pritts indicated that it was not warranted at this time. in the future there may be a need for it at a later time.

Mr. Hannan asked staff if we had problems with parking at Five Parks?

Mr. Pritts stated the parking at Five Parks is slightly different then this development which will have 12' lanes instead of 11' mitigating some of the possible issues.

Mr. Griffith asked if the parking from the project a year ago was in compliance? Is the current project in compliance with the code?

Ms. Ibanez indicated that they were in compliance with the previous and current plans.

Mr. Griffith asked what did the City Council want to see differently?

Ms. Ibanez explains that they wanted to see improvements for on and off street parking, reduction in townhome units, increase the retail building size, additional safety improvements of the neighborhood streets and crossings, guest parking spaces for townhomes, bike parking and trash. Ms. Ibanez stated that the developer has addressed all of those improvements.

Mr. Griffith stated his concerns with the safety of kids and people in this area.

Jenny Wolfschlag stated that Public Works has been working with Arvada Police to monitor concerns for the Candelas area. As of now, they have not seen any area that needs changes, but they are still monitoring it.

Mr. Griffith asked if they have done adequate study on the exit flow?

Ms. Wolfschlag states they do meet our criteria for exit.

Mr. Figliolino asked the applicant if the sidewalk goes all the way up to W 93rd PI?



Ms. Niziolek stated that the sidewalk does not connect all the way on the west side.

Mr. Figliolino stated that it looks like the park/community area was removed for parking.

Ms. Niziolek stated that they needed to add more parking and also have an area for landscaping.

Mr. Knapp asked about parking for tenants and employees?

Ms. Niziolek stated that the surface spaces will be for these uses and available as flexible parking spaces.

Mr. Knapp stated that we should have assigned parking for the tenants or this should be considered.

Ms. Niziolek stated that there are also spaces on McIntyre that are available.

Mr. Knapp inquired that previously they were having difficulty finding tenants for the retail. Has that changed?

Ms. Niziolek discussed that the key to getting tenants is to get the buildings built.

Mr. Pachner stated that the parking will be determined depending on what it is.

Mr. Knapp asked how many retail spots there will be?

Mr. Pachner stated that there is some flexibility of the retail spaces depending on the type and size needed.

Ms. Niziolek stated that the number of retail spaces will be based on tenants' uses. It can be one larger space or three smaller spaces. There is just over 10,000 sq. ft between the two buildings.

Mr. Magee asked staff what the allowed density is on this parcel?

Ms. Ibanez stated that the mixed-use buildings have no density requirement. The townhomes are going at 13.4 or 20 units per acre which meets the requirement for the ODP.

Mr. Magee asked if there could have been more units on the original plan?

Ms. Ibanez stated that yes, the density was much higher on the original plan. It was going to be up to 50' high.

Mr. Magee asked is there going to be an HOA?

Ms. Niziolek stated that yes this is what they are thinking when doing CC&R.

Ms. Ibanez added that other residential communities out there have HOA's.

Mr. Magee asked what the comments were from the 2nd meeting on this site, assuming they were similar to the concerns now?

Ms. Niziolek stated that the comments were very consistent for both meetings.

Mr. Magee asked if the developer is able to identify the contractor?

Mr. Pachner stated that yes we have a contractor, but cannot identify yet who they are. They are going under contract.

Mr. Aljinovich asked about the alley, stating that it is 24' wide. How big is it with the driveway?

Ms. Niziolek stated that the alley is 20' within the 30' utility easement, the 20' alley on the north side has just over a 19' drive space and the south side has just over a 6' drive space to accommodate another easement. So that gives 49' from garage to garage.

Mr. Aljinovich asked what does an emergency vehicle need?

Ms. Niziolek stated that there is an emergency vehicle study in detail in the packet.

Mr. Aljinovich asked if we solved the question of egress out of this area if there is a fire.

Ms. Wolfshlag stated that all residents have at least two points of access for egress.

Ms. Niziolek stated that there was a traffic study to accommodate higher density than what is needed.

Mr. Gay asked the developer to verify that the first plan had 57 townhomes, now we have 39 townhomes with 33 apartments that subsidize the retail.

Ms. Niziolek stated that was correct.

Mr. Gay stated that the townhomes have been turned 90 degrees no setback per city LDC.

Ms. Niziolek stated that the homes are not facing the street, that is why they are at 90 degrees to have a buffer zone.

Mr. Griffith asked about the number of units going from 75 to 72 with more concrete as before?

Ms. Niziolek there is more due to parking spaces but is mostly replacing previous number townhomes.

Greg Banks Landscape Architect 1101 Bannock St. stated that they exceed what the landscape requirement is now.

Ms. Niziolek stated the necessary landscape area is 20% and they are at 35%.

Mr. Griffith asked what is the percentage of the previous plan? We lost green space for parking spaces.

Ms. Niziolek stated that yes, there is more parking for new commercial and housing units.

Mr. Banks said that it exceeds landscape requirements.

Ms. Ibanez added that 32% was in the previous plan, only 20% was required.

Ms. Grogg stated the corrected pages for the motion are as follows: the first one is pages 8 through 9 and the second is 7 through 8. Ms. Grogg further added that this is not an opportunity to re-legislate the LDC and that if the objective standards are met, the appropriate evaluation is to look at the identified criteria in determining whether or not an application should be approved.

**13. MOTION: Agenda Item 8.B**

It was moved by Mr. Magee, DA2022-0093 – A Major Subdivision Preliminary Plat, for Candelas Filing No. 1 Amendment No. 4; located north of Candelas Pkwy, east of Kilmer Way, and south of W. 93rd Place be recommended to City Council for approval.

This motion is based on the finding of fact and approval criteria on Pages 8 to 9 of the Staff Report.

**DISCUSSION OF MOTION**

Mr. Hannan stated he has voted on this parcel four times. This time there is a very nice mix and he will be supporting it.

Mr. Knapp stated that he understands there is a financial balance but he still thinks there is an issue with parking even though you exceed what is required. He will be supporting it.

Mr. Figliolino wants to thank the applicant with their interactions with the public and to the public for speaking on this project.

Mr. Magee agrees with citizen input, helps with the design and he will be supporting this project.

Mr. Gay does support the application. The area is congested however the project does comply with LDC criteria and he will be supporting this.

Mr. Griffith thanked the community for coming out and the applicant and appreciates safety improvements and EV charging stations. He feels the plans as presented a year ago did a better job meeting criteria 4 than the current plans and that the design by committee changes directed to be made to the prior plans have resulted in a project that fails to meet the intention of the comprehensive plan and LDC as well as the previous iteration.

Those voting Yes: Griffith, Hannan, Knapp, Ajinovich, Magee, Figliolino, Gay

Those voting No:

Those absent: None

The motion carried: 7-0

**14. MOTION: Agenda Item 8.C**

It was moved by Mr. Magee, DA2022-0093 – A Planned Unit Development (PUD) Development Plan for Candelas Filing No. 1 Amendment No. 4; generally located north of Candelas Pkwy, east of Kilmer Way, and south of W. 93rd Place in the City of Arvada Colorado be recommended to City Council for approval.

This motion is based on the finding of fact and approval criteria on Page 7 & 8 of the Staff Report.

**DISCUSSION OF MOTION**

None

Those voting Yes: Griffith, Hannan, Knapp, Ajinovich, Magee, Figliolino, Gay

Those voting No:

Those absent: None

The motion carried: 7-0

**15. OTHER ITEMS**

Ms. Grogg states July 10th is the City Council meeting for this project at 6:15 pm.

Mr. Smetana mentioned that we have items on the agenda for the both May meetings.

Mr. Magee asked that we print the packets front and back and be sure not to mix documents.

**16. ADJOURNED at 8:30P.M.**

---

Michael P. Griffith, Chair

---

Tim Knapp, Secretary

---

Dixielee Rodriguez, Recording Secretary

---

# **CANDELAS FILING NO. 1 AMENDMENT NO. 4**

**PRELIMINARY PLAT & PRELIMINARY DEVELOPMENT PLAN**

---

# INTRODUCTION





# About Tri Pointe Homes



- A recognized leader in customer experience, innovative design, and environmentally responsible business practices, Tri Pointe builds premium homes and communities in **10 states and the District of Columbia**



- Founded in **2009**



- Have served more than **28,000** homeowners



- Established **330** beautiful neighborhoods

- Developed **15** master plan communities

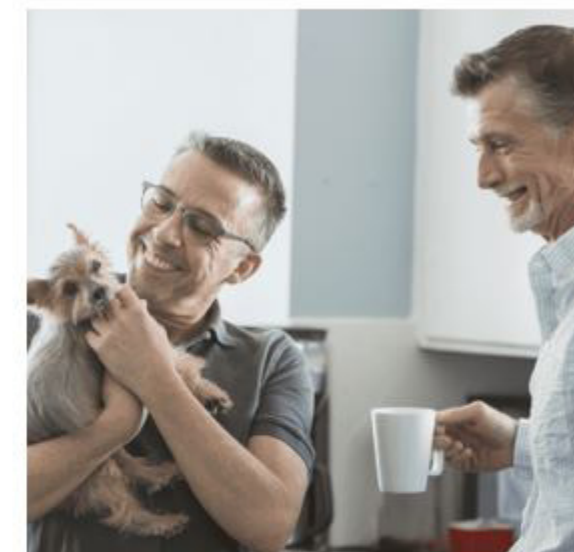


- Acknowledges the importance of **Environmental, Social and Governance (ESG)**



- Won over **270+** awards

- Tri Pointe Homes has been building in the City of Arvada at both the Leyden Rock Community and the Candelas Community for the past 8 years.









---

## CONTEXT







# CANDELAS FILING NO. 1

A REPLAT OF BLOCK 1 OF CIMARRON MINOR SUBDIVISION AND BLOCKS 1B AND 1C OF VAUXMONT MINOR SUBDIVISION NO. 2,  
ALL BEING SITUATED IN SECTION 22, THE NORTH HALF OF SECTION 23 AND THE NORTH HALF OF SECTION 24,  
TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF ARVADA, COUNTY OF JEFFERSON,  
STATE OF COLORADO

SHEET 2 OF 19

LEGEND

PROPOSED

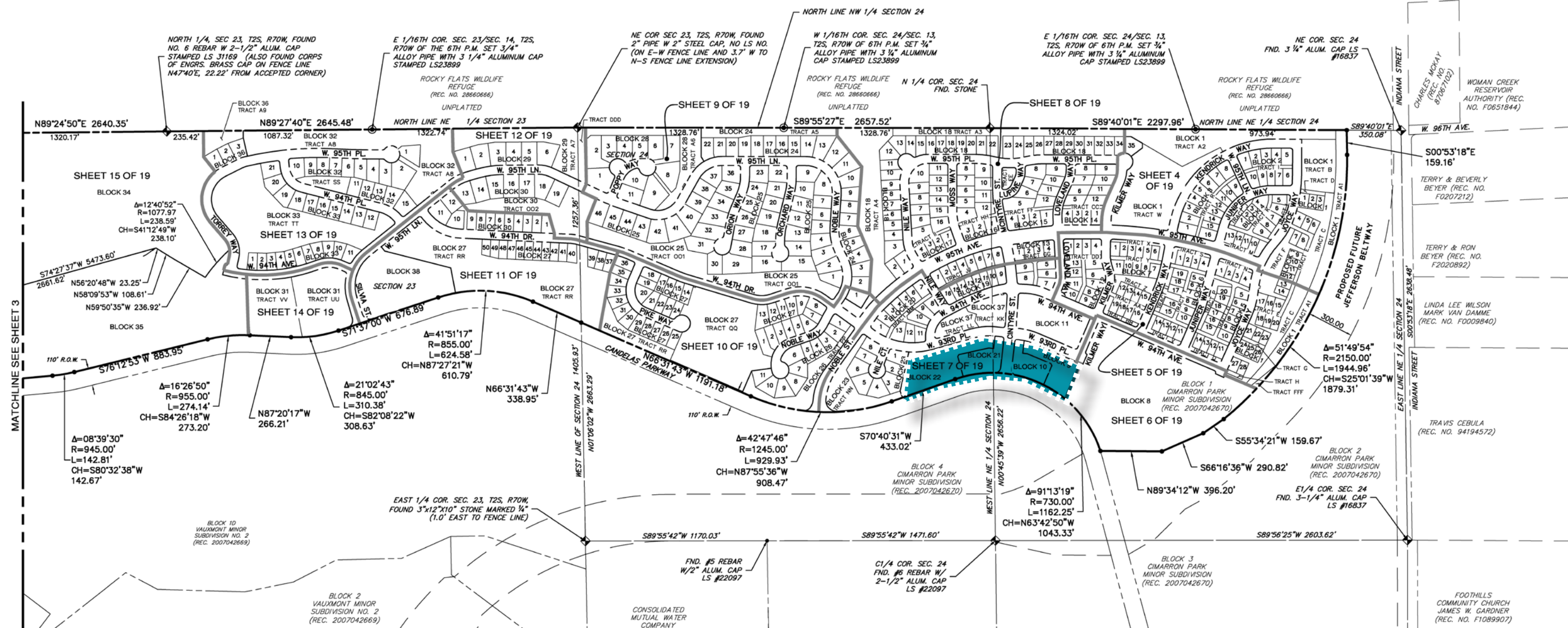
EXISTING

*DRIVE*

PROPERTY PIN  
SECTION CORNER  
1/16TH SEC. CORNER  
DESCRIPTIONS  
LOT LINE  
BLOCK LINE  
PROPOSED RIGHT-OF-WAY  
PROPERTY LINE  
SHEET DIVISION LINE



DRIVE





## MEETING HISTORY

## WHAT WE HEARD

## COMMUNITY COMPROMISE



- Community Meeting, May 28, 2020
- Planning COmmission, June 2, 2020
- **City Council, July 6, 2020**
- Individual meetings, November 2020
- Virtual Community Meeting March, 2021 and April, 2021

- Community Activation
- Neighborhood scale retail
- Assurance of retail uses
- Request town center, would be ok with some kind of temporary use
- Request town center, excited about temporary use

- Removed townhome units
- Introduced temporary activated retail space until commercial buyer comes in



- Metro District Board Meeting, May 19, 2021
- Multiple one on one community member meetings

- Metro District did not have enough in general budget to provide upkeep for temporary space. TRI Pointe working with mixed-use developer

- Added mixed-use buildings
- Ground floor retail spaces provided along McIntyre
- Amended Comprehensive Plan to Mixed Use: Residential Emphasis

# MEETING HISTORY

# WHAT WE HEARD

# COMMUNITY COMPROMISE



- Community Meeting, November 18, 2021
- Virtual Community Meeting, December 9, 2021
- Planning Commission, May 17, 2022
- **City Council, June 27, 2022**

- Implement mixed-use project at an appropriate density
- Increase parking
- Appropriate density
- Improve pedestrian and vehicular safety conditions

- Reduced home count
- Increased provided parking
- Added safety improvements
- Networked with numerous commercial developers to incorporate a mixed-used corridor on McIntyre



- City Staff Review, September 8, 2022
- **City Council approval of substantial change, September 19, 2022**
- Community Meeting, November 9, 2022
- Virtual Community Meeting, November 30, 2022
- Planning Commission, April 18, 2023
- Hybrid Community Meeting, August 2, 2023

- Revised plan is substantially different



## WHAT WE HEARD - CITY COUNCIL, JUNE 27, 2022

### HOUSING DENSITY & HEIGHT CONCERNS

Residential is too dense & building heights are out of scale

#### Solutions

- Removed 3 townhome units
- Allowed for increased parking (+10 parking spaces overall)
- Created larger buffer to western residences (~13' to ~35')
- Maximum height of townhomes reduced from 35' to 25'
- Maximum height of mixed-use buildings reduced from 45' to 40'
- Ground floor retail square footage increased from 8,328 sf to 10,743 sf (+2,415 sf)

### PARKING QUANTITY & TYPE CONCERNS

Not enough guest parking & competition for parking spaces

#### Solutions

- Guest surface spaces increased from 18 to 30 spaces, including parallel spaces on McIntyre Street
- EV Charging stations added, 2 parking stalls
- Bike parking has been increased from 8 spaces to 27 spaces

### PUBLIC SAFETY CONCERNS

Speed & increase of vehicular traffic

#### Solutions

- Proposed curb bumpouts to reduce crossing width for pedestrians and to slow vehicular traffic
- Proposed pedestrian crossing sign
- Proposed pedestrian crossing signs with flashing lights
- Proposed crosswalk striping

### OPERATIONS CONCERNS

Trash and snow storage locations are not well thought out & limited commercial area

#### Solutions

- Mixed-use trash enclosures relocated to be internal to the site
- Snow storage located at ends of drive aisles

### SUBSTANTIAL CHANGE APPROVAL

City Council approval of substantial change from previous concept on September 19, 2022, allowing for resubmittal



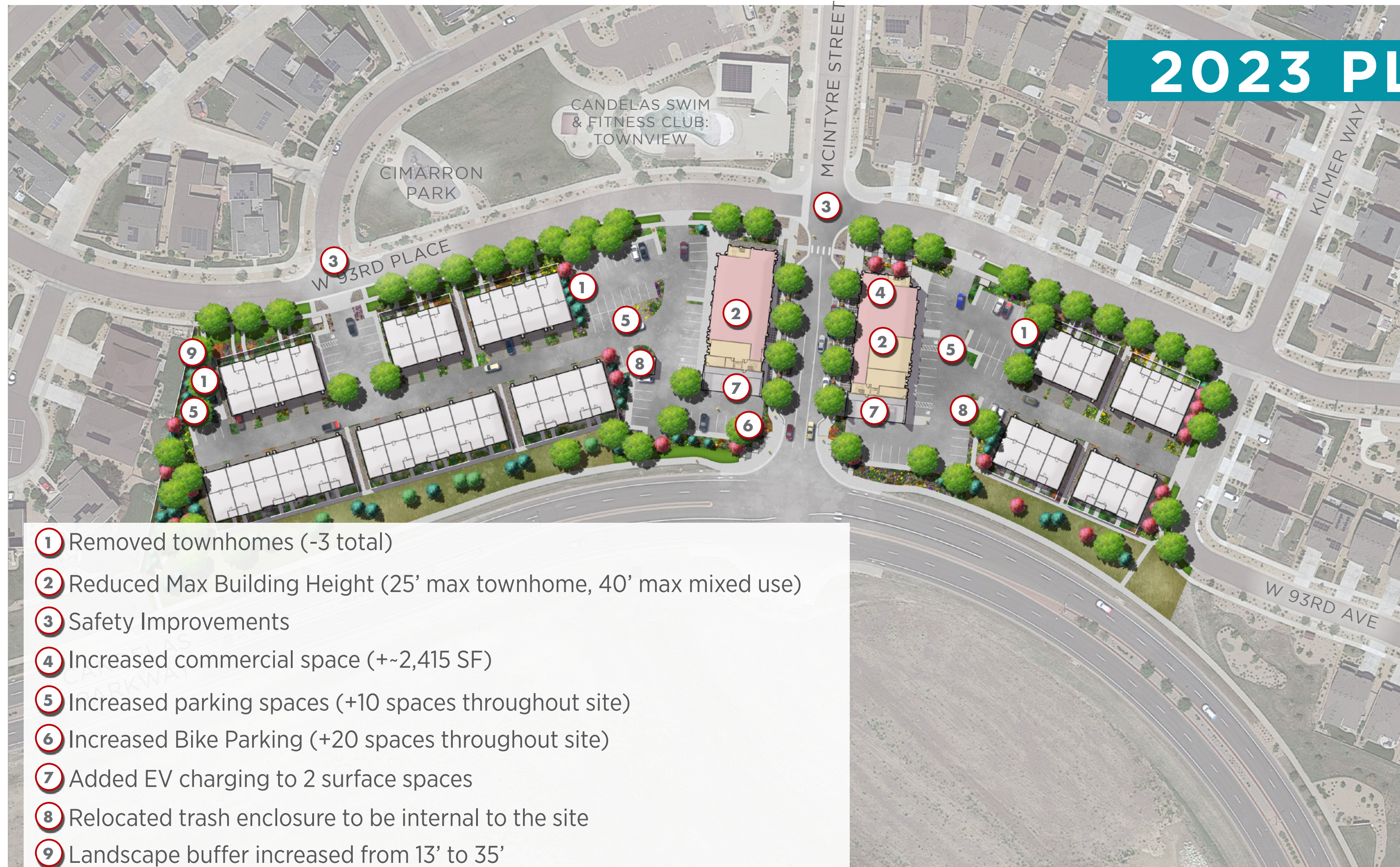
2023 PLAN



|            |                                 |
|------------|---------------------------------|
| Unit Count | 39 townhomes<br>33 multi-family |
| Site Area  | 5.44 ac                         |
| Density    | 13.24 du/ac                     |
| Open Space | 1.73 ac                         |



# 2023 PLAN



- ① Removed townhomes (-3 total)
- ② Reduced Max Building Height (25' max townhome, 40' max mixed use)
- ③ Safety Improvements
- ④ Increased commercial space (+~2,415 SF)
- ⑤ Increased parking spaces (+10 spaces throughout site)
- ⑥ Increased Bike Parking (+20 spaces throughout site)
- ⑦ Added EV charging to 2 surface spaces
- ⑧ Relocated trash enclosure to be internal to the site
- ⑨ Landscape buffer increased from 13' to 35'

PLAN EVOLUTION **WHAT WE DID**





| Use          | Required           | Provided                                 |
|--------------|--------------------|------------------------------------------|
| Townhome     | 2 per home = 78    | 78 Garage<br>34 Driveway (north lots)    |
| Multi-family | 2 per home = 66    | 66 Surface                               |
| Commercial   | 4 per 1000 SF = 44 | 44 Surface                               |
| Guest        | 0                  | 12 Parallel on McIntyre<br>18 Surface    |
| Total        | 188                | 252 (+34 Driveway, +30 Parallel/Surface) |
| Bike Parking | 16 Spaces          | 28 Spaces                                |

- Townhome Garage Parking
- Townhome Driveway Parking
- Multi-family Surface Parking
- Commercial Surface Parking
- Guest Parallel Parking on McIntyre
- Guest Surface Parking



PLAN EVOLUTION **WHAT WE DID**











## PROPOSED ARCHITECTURE



First floor:  
commercial uses  
and/or leasing

Second/third floor:  
residential uses

- 1 & 2 bedroom units from 700sf-1,200sf
- 4-sided Modern Prairie Style Architecture
- Storefront glazing creates activated streetscape
- Stepped parapet creates visual interest





- 
- 3 floor plans from 1,300sf-1,565sf
  - Prairie & Farmhouse elevation styles with a variety of color schemes
  - Mix of 2 bed/2.5 bath & 3 bed/2.5 bath plans
  - Street facing entries & covered outdoor patios
  - Stone, lap siding & board & batt siding



## SUMMARY





- 
- Candelas today is primarily single-family homes
  - Additional for-sale townhomes and for-rent multi-family homes provide additional housing diversity and much needed missing middle home options





## **APPROVAL CRITERIA**

---

### **LDC 8-3-8-3. - MAJOR SUBDIVISION PRELIMINARY PLAT**

B.Approval Criteria. A Major Subdivision Preliminary Plat may be approved only if the City Council finds that all of the following criteria have been met:

1. The subdivision is consistent with the Comprehensive Plan.
2. The subdivision is consistent with and implements the intent of the zoning district in which it is located. If the subject property is in a PUD zoning district, the subdivision is consistent with any previously approved PUD Outline Development Plan, PUD Preliminary Development Plan, and/or PUD Final Development Plan.
3. Adequate and sufficient public safety, transportation, utility facilities and services, recreation facilities, parks, and schools will, prior to development, be available to serve the subject property, while maintaining sufficient levels of service to existing development.
4. The subdivision will not result in significant adverse impacts on the natural environment or the use and enjoyment of adjoining property, including changes in air quality, water quality, noise levels, stormwater runoff, wildlife habitat, and/or natural vegetation, in that such impacts will be substantially avoided or mitigated by design.

---

### **LDC 8-3-8-3. - MAJOR SUBDIVISION PRELIMINARY PLAT**

5. The subdivision complies with all applicable regulations, standards, requirements, or plans of the federal or state governments and other general or special-purpose governmental entities with jurisdiction, involving (but not limited to) such matters as wetlands, water quality, erosion control, potable water, fire safety, or wastewater regulations.
6. The proposed subdivision complies with all applicable use, development, and design standards set forth in Chapter 2, Zoning Districts Chapter 4, Environmental and Site Design, and other applicable provisions of this Code, except to the extent the same are modified as may be provided in this LDC. Applicants shall avoid creating lots or patterns of lots in the subdivision that will make future compliance with such development and design standards difficult or infeasible.
7. The general layout of lots, roads, driveways, utilities, drainage facilities, and other services within the proposed subdivision is designed in a way that minimizes the amount of land disturbance, maximizes the amount of open space in the development, preserves existing trees/vegetation and riparian areas, protects critical wildlife habitat, and otherwise accomplishes the purposes and intent of this LDC.

---

## **LDC 8-3-10-6. - PUD DEVELOPMENT PLAN**

C.Approval Criteria. A PDP may be approved if it is demonstrated that:

1. The PUD Preliminary Development Plan is consistent with the Comprehensive Plan or reflects conditions that have changed since the adoption of the Comprehensive Plan.
2. The PUD Preliminary Development Plan is consistent with any previously approved Outline Development Plan in effect.
3. The PUD Preliminary Development Plan addresses a unique situation, confers a substantial benefit to the City, or incorporates creative site design such that it achieves the purposes set out in § 8.3.10.1 and represents an improvement in quality over what could have been accomplished through the application of the otherwise applicable district or development standards.
4. The PUD Preliminary Development Plan complies with all applicable intent of use, development, and design standards set forth in this Code that are not otherwise modified or waived.
5. To the extent reasonably feasible, the PUD Preliminary Development Plan provides for integration and connection with adjoining development through street connections, sidewalks, trails, and similar features; unless due to the nature of the uses that are allowable in the plan such connections are not desirable.



- 
6. Sufficient public safety, transportation, and utility facilities and services will, prior to development, be available to serve the subject property, while maintaining sufficient levels of service to existing development.
  7. The proposed uses (or groups of uses) are appropriately located and designed, both within the boundaries of the plan and in relation to adjacent uses, such that the foreseeable, material adverse impacts that may be created by the scale, design, and operating characteristics (e.g, hours of operation, traffic generation, lighting, noise, odor, dust, and other external impacts) of the uses are avoided or mitigated.
  8. If the application for plan approval is accompanied by an application for rezoning to the PUD zoning district, the rezoning application is concurrently approved.

## WHAT WE HEARD - CITY COUNCIL, JUNE 27, 2022

### HOUSING DENSITY & HEIGHT CONCERNS

Residential is too dense & building heights are out of scale

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**THANK YOU!**

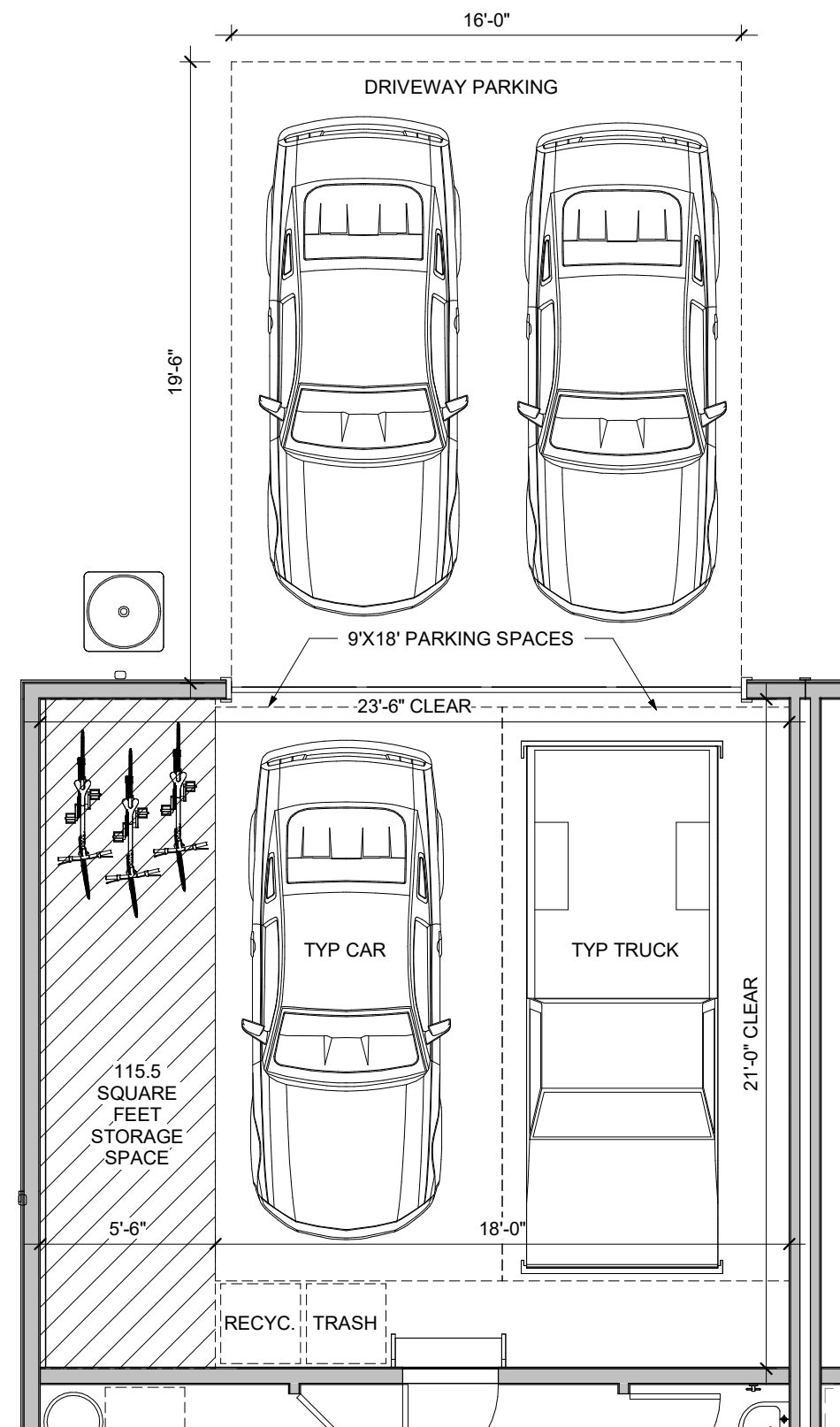


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## **ADDITIONAL INFORMATION**





1 TYPICAL GARAGE  
3/16" = 1'-0"

TRI POINTE CANDELAS  
TOWNHOMES

GARAGE EXHIBIT

A

08/03/23



Godden|Sudik  
ARCHITECTS

303.455.4437

5975 S. QUEBEC ST., STE. 250  
CENTENNIAL, CO 80111

| TABLE 4-5-2-2A: RESIDENTIAL LAND USE PARKING STANDARDS                 |                                            |
|------------------------------------------------------------------------|--------------------------------------------|
| LAND USE                                                               | MINIMUM REQUIRED PARKING                   |
| <b>STANDARD HOUSING TYPES</b>                                          |                                            |
| Single-Family Detached or Duplex                                       | 2 sp./du <sup>1</sup>                      |
| <b>Townhome</b>                                                        | <b>2.2 sp./du<sup>1</sup></b>              |
| <b>Multifamily and Multiplex</b>                                       | <b>efficiency units: 1.4 sp./du</b>        |
|                                                                        | <b>1 BR units: 1.6 sp./du</b>              |
|                                                                        | <b>2 BR units: 2.1 sp./du<sup>1</sup></b>  |
|                                                                        | <b>3+ BR units: 2.5 sp./du<sup>1</sup></b> |
| Multifamily, Affordable <sup>2</sup>                                   | efficiency units/1 BR units: 1.4 sp./du    |
|                                                                        | 2+ BR units: 2.0 sp./du <sup>1</sup>       |
| Multifamily, Senior <sup>3</sup>                                       | 1 sp./du                                   |
| <b>CLUSTERED HOUSING TYPES</b>                                         |                                            |
| Micro Home                                                             | 1.25 sp./du                                |
| Cottage                                                                | 2.25 sp./du                                |
| TABLE NOTES:                                                           |                                            |
| <sup>1</sup> Tandem spaces may be counted towards this requirement.    |                                            |
| <sup>2</sup> Projects that receive Low Income Housing Tax Credits      |                                            |
| <sup>3</sup> Age restricted projects for residents 62 years and older. |                                            |

TABLE 4-5-2-2C: HOSPITALITY, RECREATION, AND ENTERTAINMENT LAND USE PARKING STANDARDS  
TABLE 4-5-2-2D: COMMERCIAL LAND USE PARKING STANDARDS

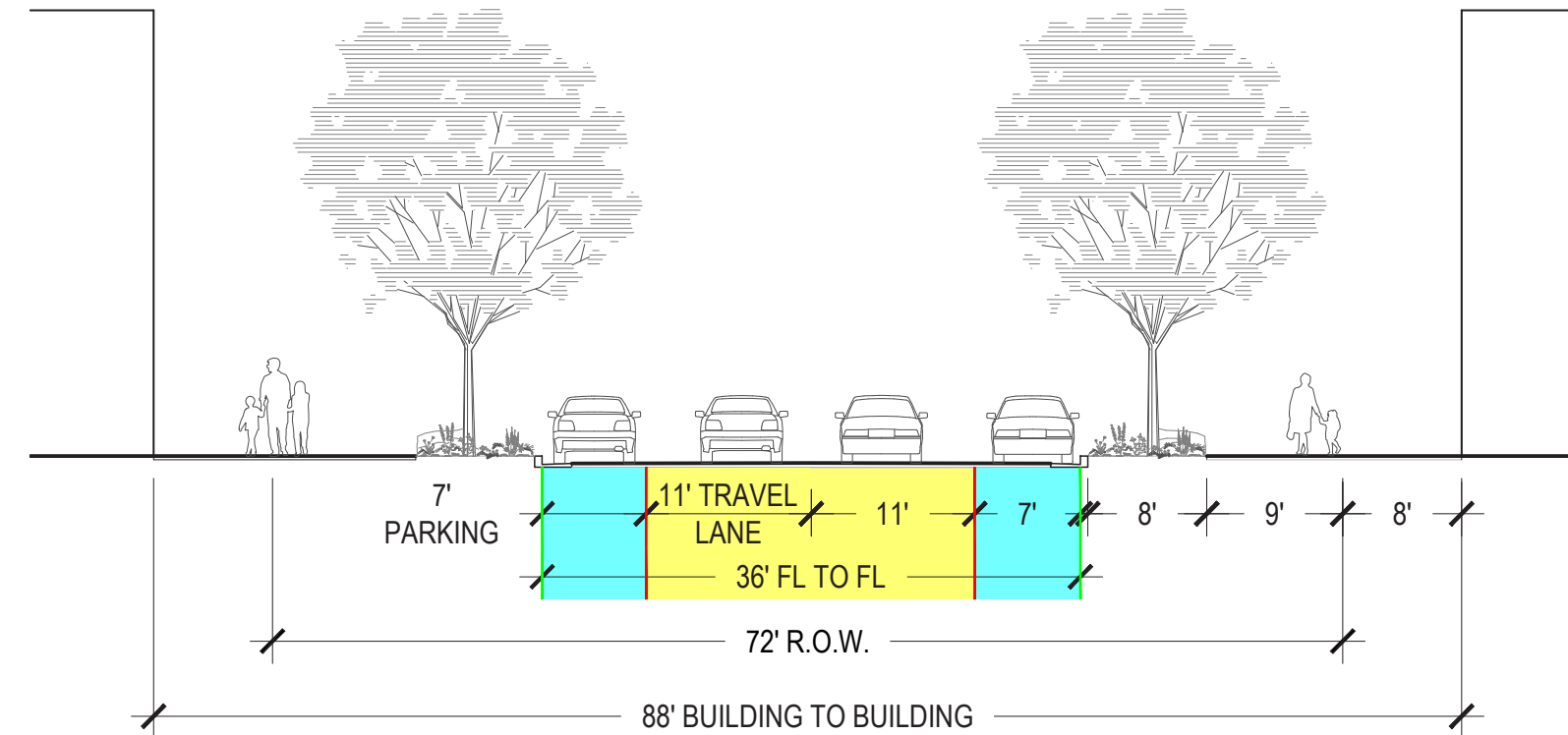
| LAND USE                                    | MINIMUM REQUIRED PARKING            |
|---------------------------------------------|-------------------------------------|
| Bar / Tavern / Night Club                   | 5 sp./1,000 s.f.                    |
| Brew Pub / Distillery Pub / Limited Winery  | 5 sp./1,000 s.f.                    |
| Restaurant                                  | Generally: 5 sp. / 1,000 sf.        |
| <b>Generally (Free-Standing Use)</b>        |                                     |
| Animal Day Care / Training                  | 4 sp. / 1,000 sf.                   |
| Art Studio / Makerspace                     | 2.5 sp. / 1,000 sf.                 |
| Auction House or Yard                       | 1 sp. / 250 sf. GFA used for office |
| Kennel                                      | 2.5 sp. / 1,000 sf.                 |
| Office, General, or Professional            | 3 sp. / 1,000 sf.                   |
| Retail Sales and Services, Type 1 or Type 2 | 4 sp. / 1,000 sf.                   |
| Workshop                                    | 2 sp. / 1,000 sf.                   |
| Veterinary Offices or Clinics               | 3 sp. / 1,000 sf.                   |

| TABLE 4-5-2-2D: COMMERCIAL LAND USE PARKING STANDARDS (CONT'D)                                                                                                 |                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| TABLE 4-5-2-2E: COMMUNITY, CIVIC, EDUCATIONAL, AND INSTITUTIONAL LAND USE PARKING STANDARDS                                                                    |                                  |
| LAND USE                                                                                                                                                       | MINIMUM REQUIRED PARKING         |
| <b>Commercial Centers (Combinations of Commercial Uses in Multi-Tenant Buildings Over 10,000 sf. in GFA), for uses identified in Tables 4-5-2-2C, D, and E</b> |                                  |
| <b>10,000 to 50,000 sf. GFA</b>                                                                                                                                | <b>4 sp. / 1,000 sf.</b>         |
| 50,001 to 250,000 sf. GFA                                                                                                                                      | 4 sp. / 1,000 sf. <sup>1</sup>   |
| 250,000+ sf. GFA                                                                                                                                               | 3.5 sp. / 1,000 sf. <sup>1</sup> |
| TABLE NOTES:                                                                                                                                                   |                                  |
| <sup>1</sup> The maximum number shall be 115 percent of minimum required.                                                                                      |                                  |
| Day Care, Adult or Child                                                                                                                                       | 2 sp. / 1,000 sf.                |
| Medical Office                                                                                                                                                 | 4 sp. / 1,000 sf.                |

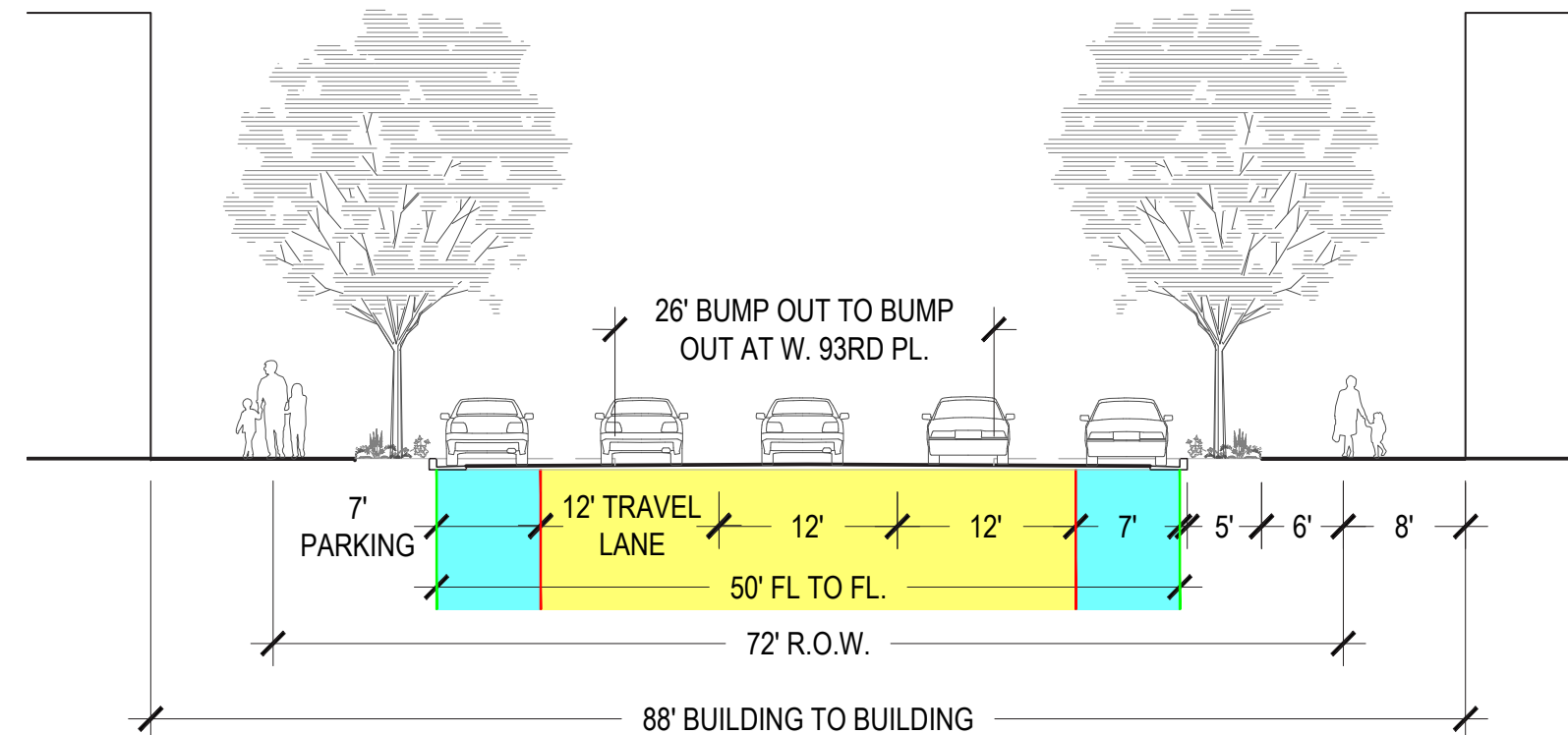
|                                        | Mixed Use | Townhomes |
|----------------------------------------|-----------|-----------|
| Lot Size                               | n/a       | 1,700 sf  |
| Lot Frontage                           | n/a       | 25'       |
| Lot Depth                              | n/a       | 68'       |
| Setbacks                               |           |           |
| - Living Area to Front Property Line   | 8'        | 8'        |
| - Covered Porch to Front Property Line | 8'        | 8'        |
| - Side Setback                         | n/a       | 0'        |
| - Rear Setback                         | n/a       | 6'        |
| - Minimum Distance Between Structures  | n/a       | 15'       |
| Setback to Candelas Parkway            | 50'       | n/a       |
| Setback to 93rd Place                  | 15'       | n/a       |
| Maximum Building Height                | 40'       | 25'       |
| Maximum Building Coverage              | 70%       | 80%       |



## EXISTING SECTION - LOOKING TOWARDS W. 93RD PL.



## PROPOSED SECTION - LOOKING TOWARDS W. 93RD PL.







PROPOSED NEIGHBORHOOD PLAN BUS STOP LOCATION



3/11  
6:48 AM





3/28  
7:00 PM





3/30  
7:00 PM





4/1  
7:00 AM



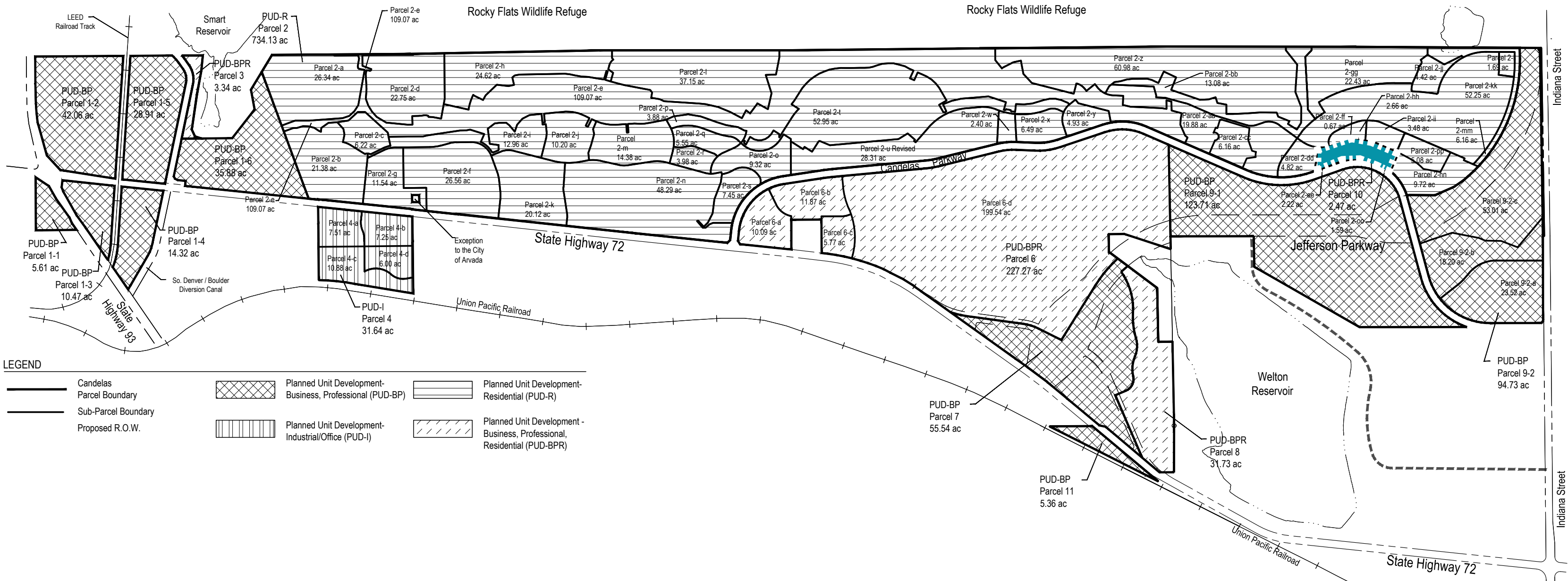
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## ODP COMPLIANCE



| Filing                         | Unit Count | Area      | Density    |
|--------------------------------|------------|-----------|------------|
| Approved Filings               | 1,847      |           |            |
| Filing No. 1, Amendment No. 4* | 72         |           |            |
| Total                          | 1,919      |           |            |
| Allowed in ODP Amendment 6     | 1,950      | 734.13 ac | 2.66 du/ac |

\* Includes minor modification to parcels 2-EE, 2-FF, 2-OO, 10



| Parcel | Maximum Height Allowed in ODP | Maximum Height Allowed in PDP |
|--------|-------------------------------|-------------------------------|
| 2-ee   | 35'                           | 25'                           |
| 2-ff   | 35'                           | 25'                           |
| 2-oo   | 35'                           | 25'                           |
| 10     | 50'                           | 40'                           |

| Parcel | Use - ODP                                 | Use - PDP                                 |
|--------|-------------------------------------------|-------------------------------------------|
| 2-ee   | MF - TND                                  | SFA                                       |
| 2-ff   | MF - TND                                  | SFA                                       |
| 2-oo   | MF - TND                                  | SFA                                       |
| 10     | Commercial / Retail /<br>Res-Multi-family | Commercial / Retail /<br>Res-Multi-family |



**PARK/CITY DEDICATED LAND - REQUIRED:**

| Use     | Unit Count | Multiplier | Population | Acres Required |
|---------|------------|------------|------------|----------------|
| TH / MF | 72         | 1.87       | 135        | 1.35           |

**PARK / CITY DEDICATED LAND - PROVIDED:**

| Tract/<br>Block | Use   | Acres |
|-----------------|-------|-------|
| n/a             | n/a   | 0.00  |
|                 | Total | 0.00  |

**PARKS SUMMARY: ODP PARCEL 2**

- Parks are provided on a community-wide basis
- Overall park land dedication exceeds what is required
- 52.54 AC Total Required Park Area
- 70.66 AC Provided Park Area (+18.06 AC, +134%)





**OPEN SPACE - REQUIRED:**

| Use     | Area | Multiplier | Acres<br>Required |
|---------|------|------------|-------------------|
| TH / MF | 5.44 | 0.20       | 1.09              |

**OPEN SPACE - PROVIDED:**

| Tract/<br>Block | Use        | Acres |
|-----------------|------------|-------|
| Tract B         | Open Space | 0.166 |
| Tract C         | Open Space | 1.011 |
| Tract D         | Open Space | 0.023 |
| Tract F         | Open Space | 0.129 |
| Tract G         | Open Space | 0.395 |
| Tract H         | Open Space | 0.006 |
|                 | Total      | 1.730 |

**OPEN SPACE SUMMARY: ODP PARCEL 2**

- Open space is provided on a community-wide basis
- Overall open space exceeds what is required
- 53.61 AC Total Required Open Space
- 234.19 AC Provided Open Space  
(+180.58 AC, +436%)







### **OPEN SPACE #1**

- Trail network
- Gathering areas
- Shelter

### **COMMUNITY CENTER/PARK #2**

- Open lawn area
- Play structure
- Park shelter

### **PUBLIC PARK #3**

- Open lawn area
- Play structure
- Park shelter

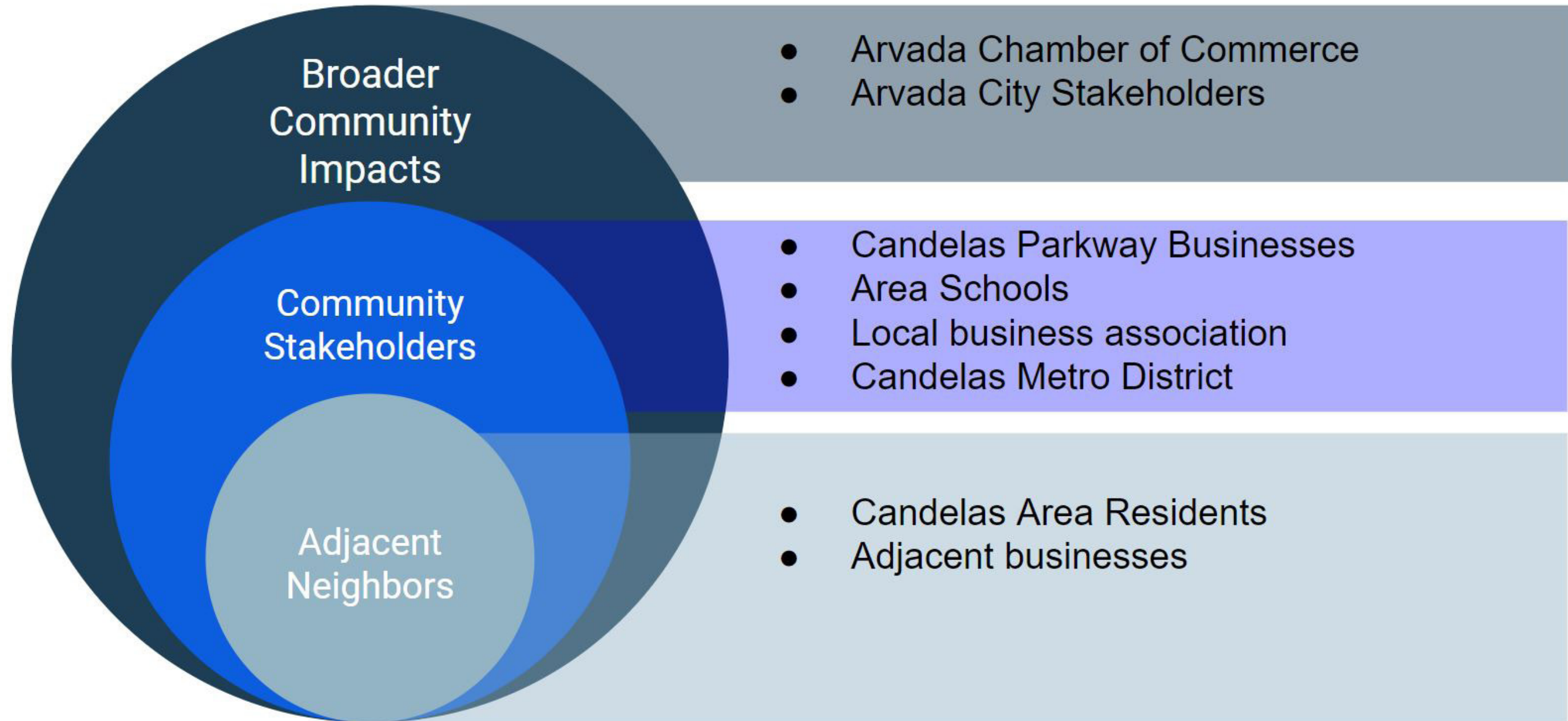
### **PUBLIC PARK #4**

- Open lawn area
- Play structure
- Park shelter





## COMMUNITY OUTREACH



---

**46**

Requests sent  
to meet with  
neighbors

**58**

Individual  
meetings

**180**

Participated in  
our community  
meetings

**1148+**

Community  
members  
notified



# 2020 PLAN

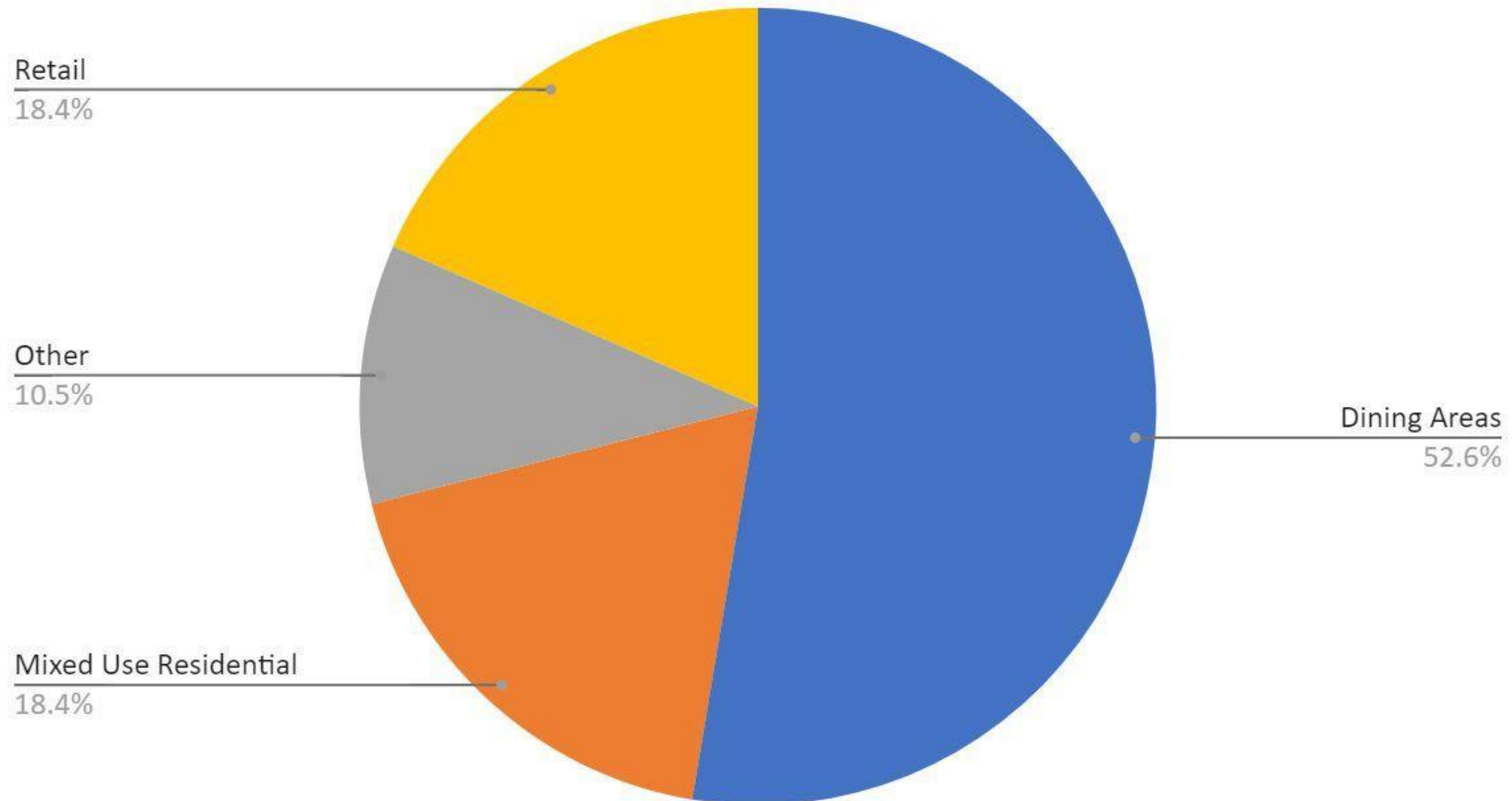


PLAN EVOLUTION 2020 PLAN

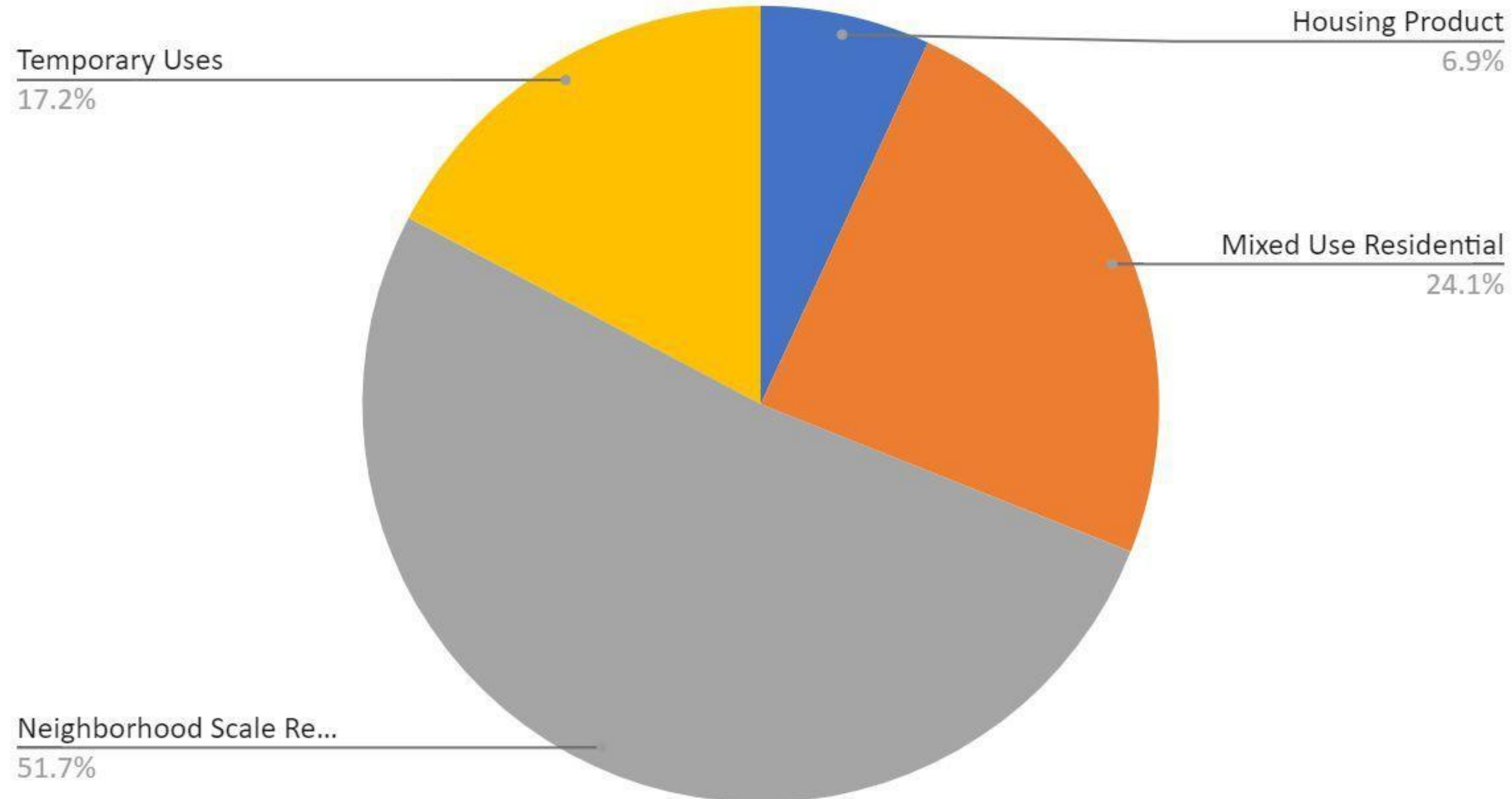




What permanent uses would you like to see?



## What is your top Priority









# 2021 PLAN



|            |                                 |
|------------|---------------------------------|
| Unit Count | 42 townhomes<br>33 multi-family |
| Site Area  | 5.44 ac                         |
| Density    | 13.79 du/ac                     |
| Open Space | 1.82 ac                         |



# 2022 PLAN





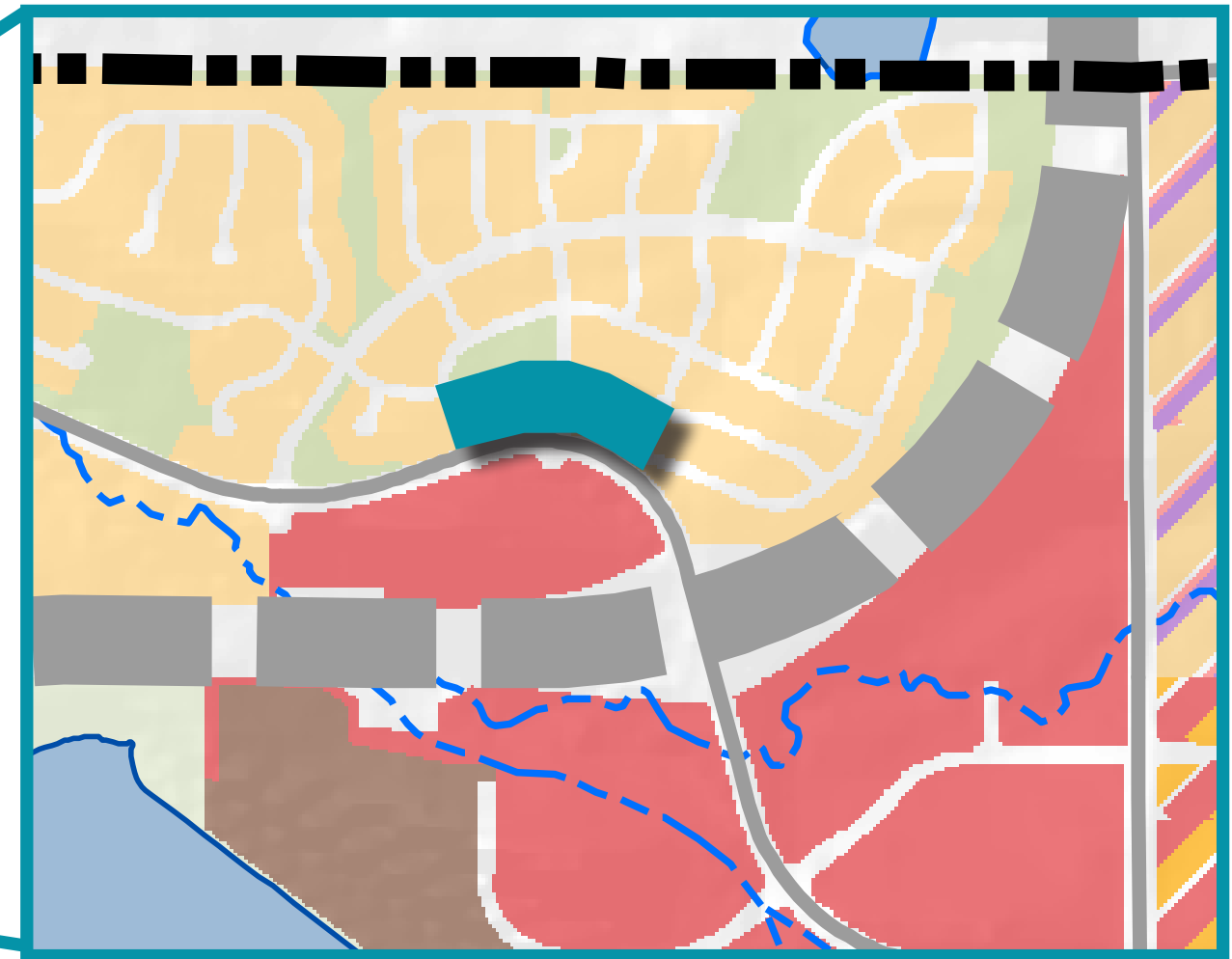
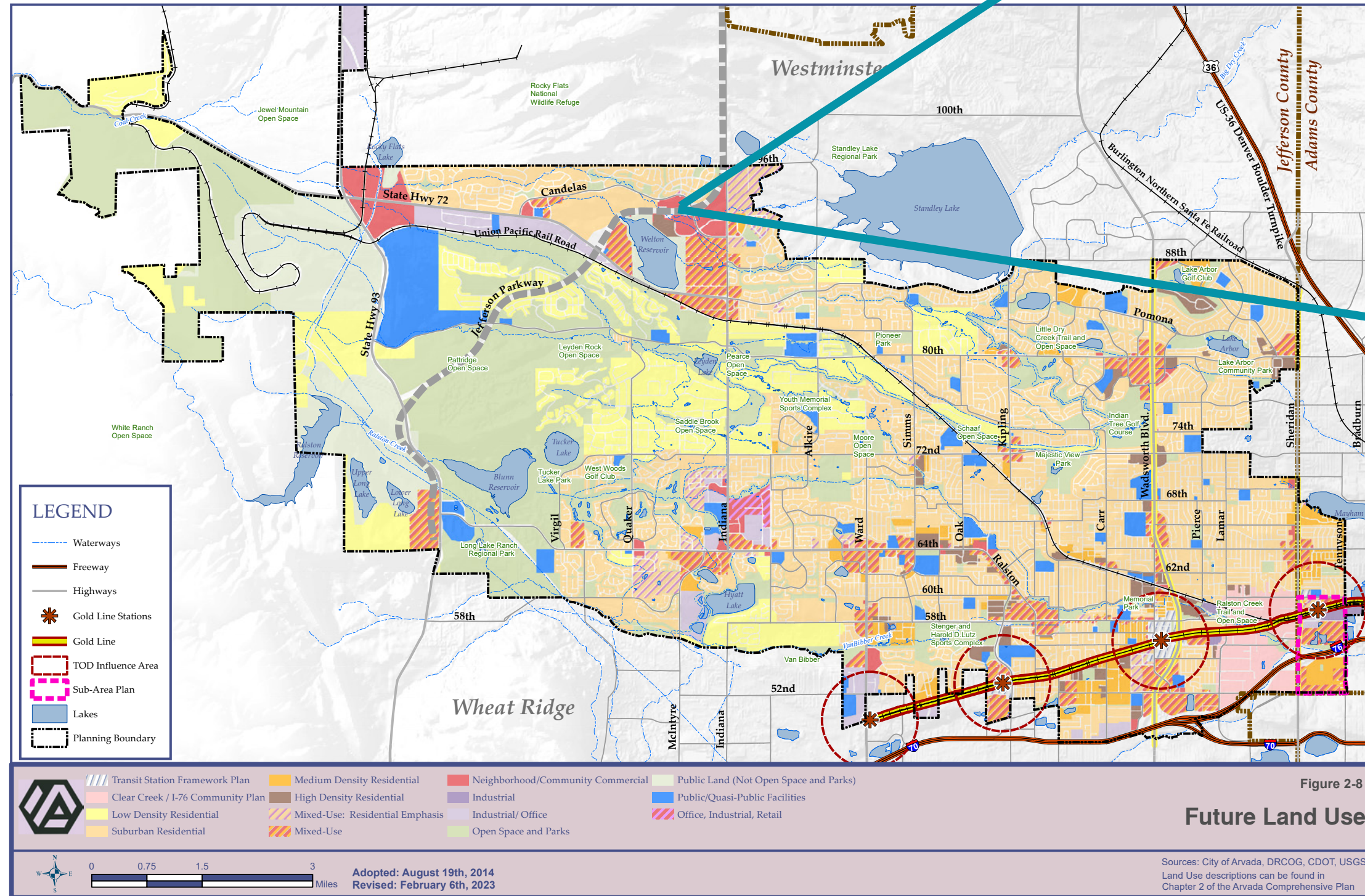
# 2022 PLAN



First floor:  
commercial uses  
and/or leasing

Second/third floor:  
residential uses





- Converted land use designation from Suburban Residential to Mixed Use: Residential Emphasis
- Amendment was approved June 2022 to accommodate mixed-use buildings and guarantee the neighborhood retail component.



CANDELAS FILING NO. 1, AMENDMENT NO. 4  
PRELIMINARY DEVELOPMENT PLAN  
ALL OF CANDELAS FILING NO. 1 AMENDMENT NO. 4  
BEING SITUATED IN THE NORTH HALF OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE SIXTH PRINCIPAL MERIDIAN  
CITY OF ARVADA, COUNTY OF JEFFERSON  
STATE OF COLORADO  
SHEET 6 OF 31 SHEETS



1101 Bannock Street  
Denver, Colorado 80204  
P 303.862.1166  
www.norris-design.com

CANDELAS FILING NO. 1,  
AMENDMENT NO. 4  
PRELIMINARY  
DEVELOPMENT PLAN  
EMERGENCY ACCESS &  
SNOW STORAGE PLAN

| No. | Issue / Revision | Date     | Name |
|-----|------------------|----------|------|
| 1   | 1st PDP SUBMITAL | 12/17/21 | DK   |
| 2   | 2nd PDP SUBMITAL | 02/25/22 | DK   |
| 3   | 3rd PDP SUBMITAL | 04/15/22 | DK   |
| 4   | 4th PDP SUBMITAL | 06/17/22 | DK   |
| 5   | 5th PDP SUBMITAL | 11/17/22 | DK   |

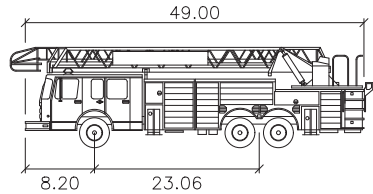
|                     |         |
|---------------------|---------|
| Job Number          | 19.1271 |
| Project Manager     | DK      |
| Design By           | BB      |
| Drawn By            | MW      |
| Principal in Charge | DL      |

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Sheet Number:

6

PER THE ARVADA FIRE SITE DEVELOPMENT GUIDE-APRIL 2020, "FIRE ACCESS ROADS SHALL PROVIDE A MINIMUM INSIDE TURNING RADIUS OF TWENTY-SIX (26) FEET THREE (3) INCHES AND AN OUTSIDE TURNING RADIUS OF AT LEAST FORTY-SEVEN (47) FEET SIX (6) INCHES". PLEASE SEE THE ANNOTATED TURNING RADIUS BELOW THAT DO NOT MEET THIS CRITERIA, HOWEVER THE TURNING EXHIBIT SHOWS THAT NAVIGATION IS POSSIBLE.



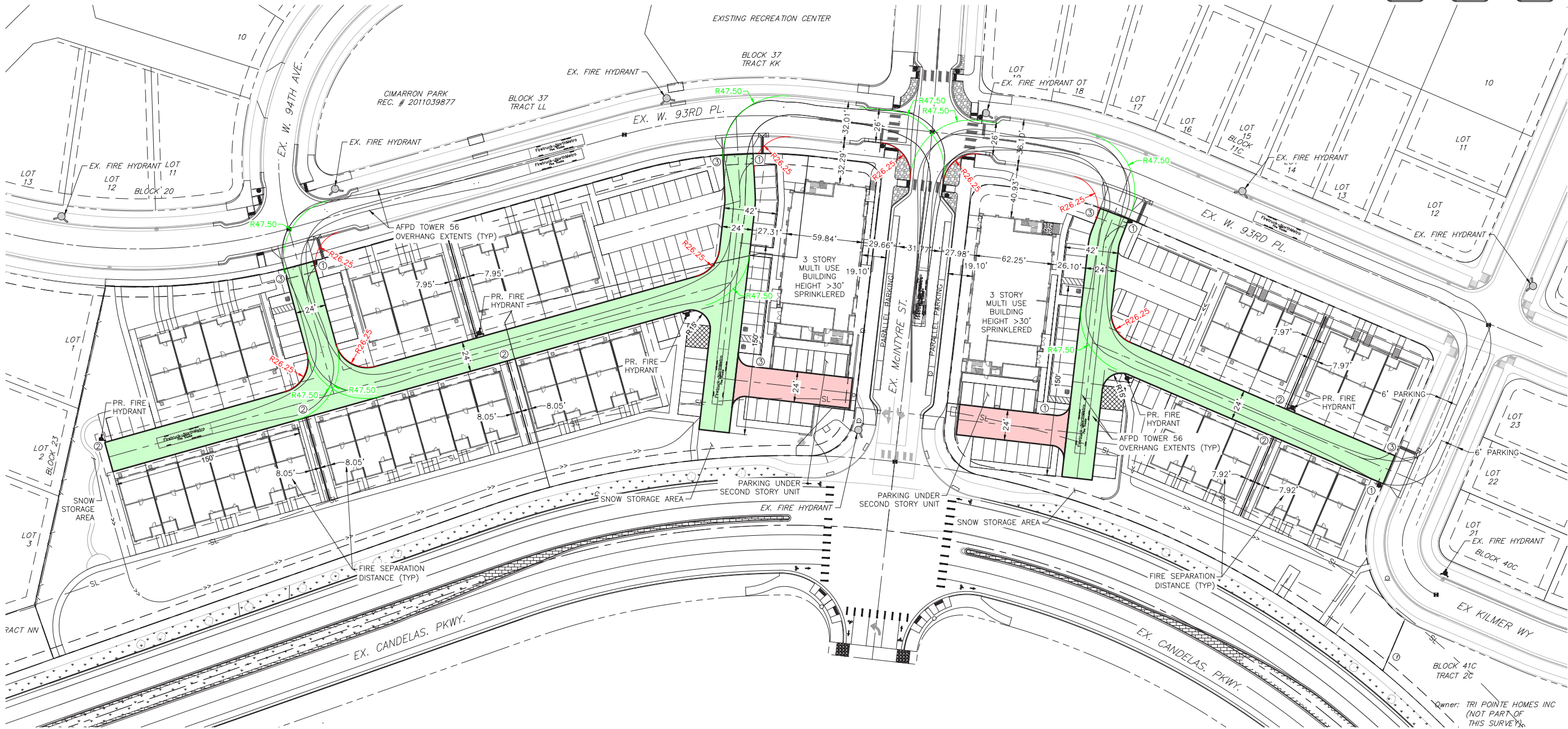
Arvada Fire

|                   |         |
|-------------------|---------|
| Width             | feet    |
| Track             | : 10.20 |
| Lock to Lock Time | : 8.00  |
| Steering Angle    | : 11.0  |
|                   | : 40.0  |

LEGEND:

|  |                     |
|--|---------------------|
|  | EMERGENCY ACCESS    |
|  | NO EMERGENCY ACCESS |
|  | FIRE HYDRANT        |

TRAFFIC SIGN LEGEND:

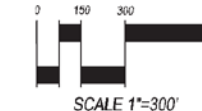




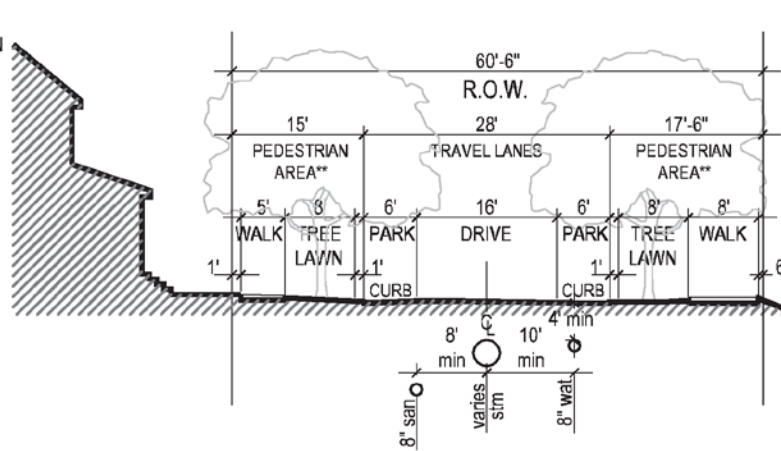
A REPLAT OF A PORTION OF BLOCK 1, BLOCKS 2 THROUGH 7, AND TRACT DDD, BLOCK 29 OF CANDELAS FILING NO. 1,  
ALL BEING SITUATED IN THE NORTHEAST ONE QUARTER OF SECTION 24, TOWNSHIP 2 SOUTH, RANGE 70 WEST OF THE  
SIXTH PRINCIPAL MERIDIAN, CITY OF ARVADA, COUNTY OF JEFFERSON, STATE OF COLORADO  
SHEET 2 OF 9 SHEETS



- \* TYPICAL CROSS SECTIONS ARE NOT PROVIDED IN THIS PLAN SET.



### 3 Local Street w/ 8' Trail



NOTE:  
\*\*PEDESTRIAN AREAS INCLUDE ALL NON-MOTORIZED TRAIL USES.

CANDELAS FILING NO. 1  
AMENDMENT NO. 1  
FINAL DEVELOPMENT PLAN  
TYPICAL SECTIONS

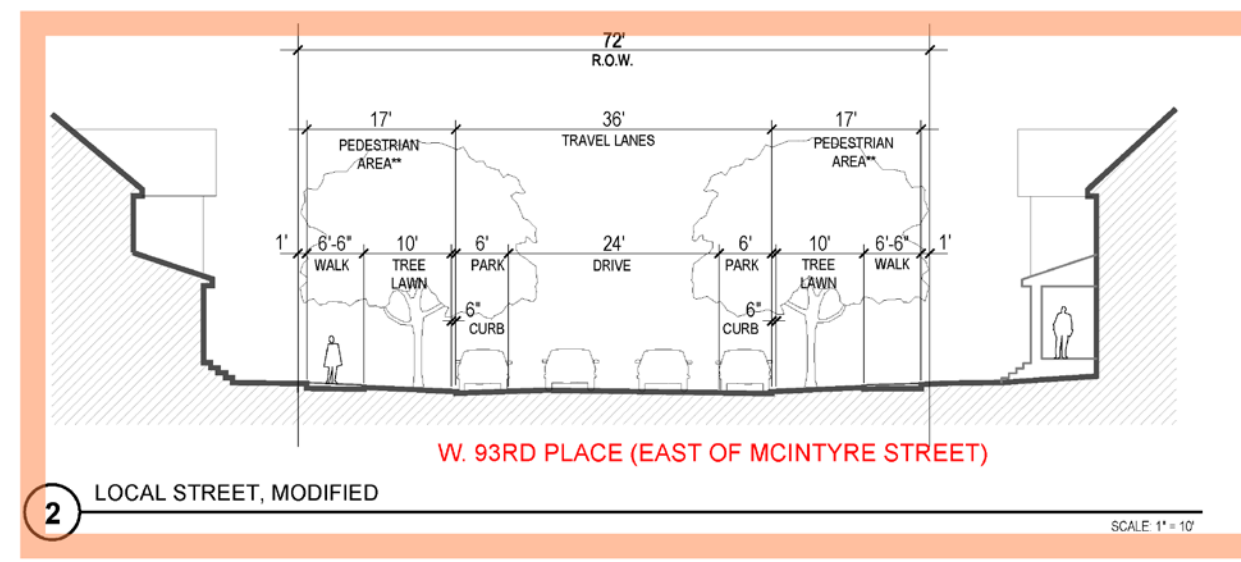
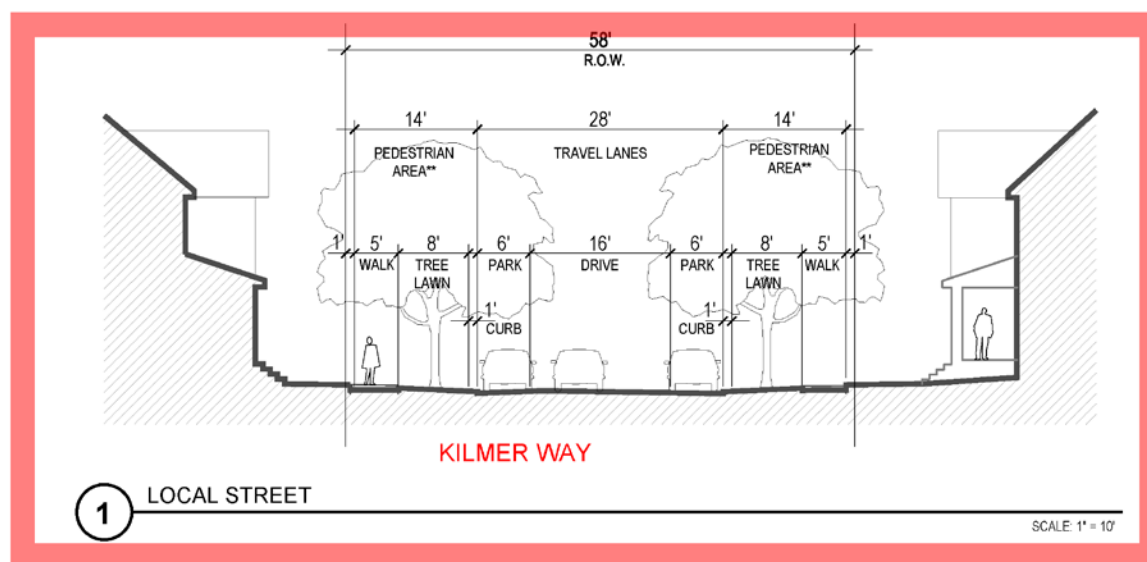
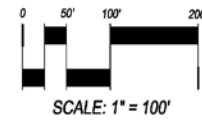
StampSheet Number:



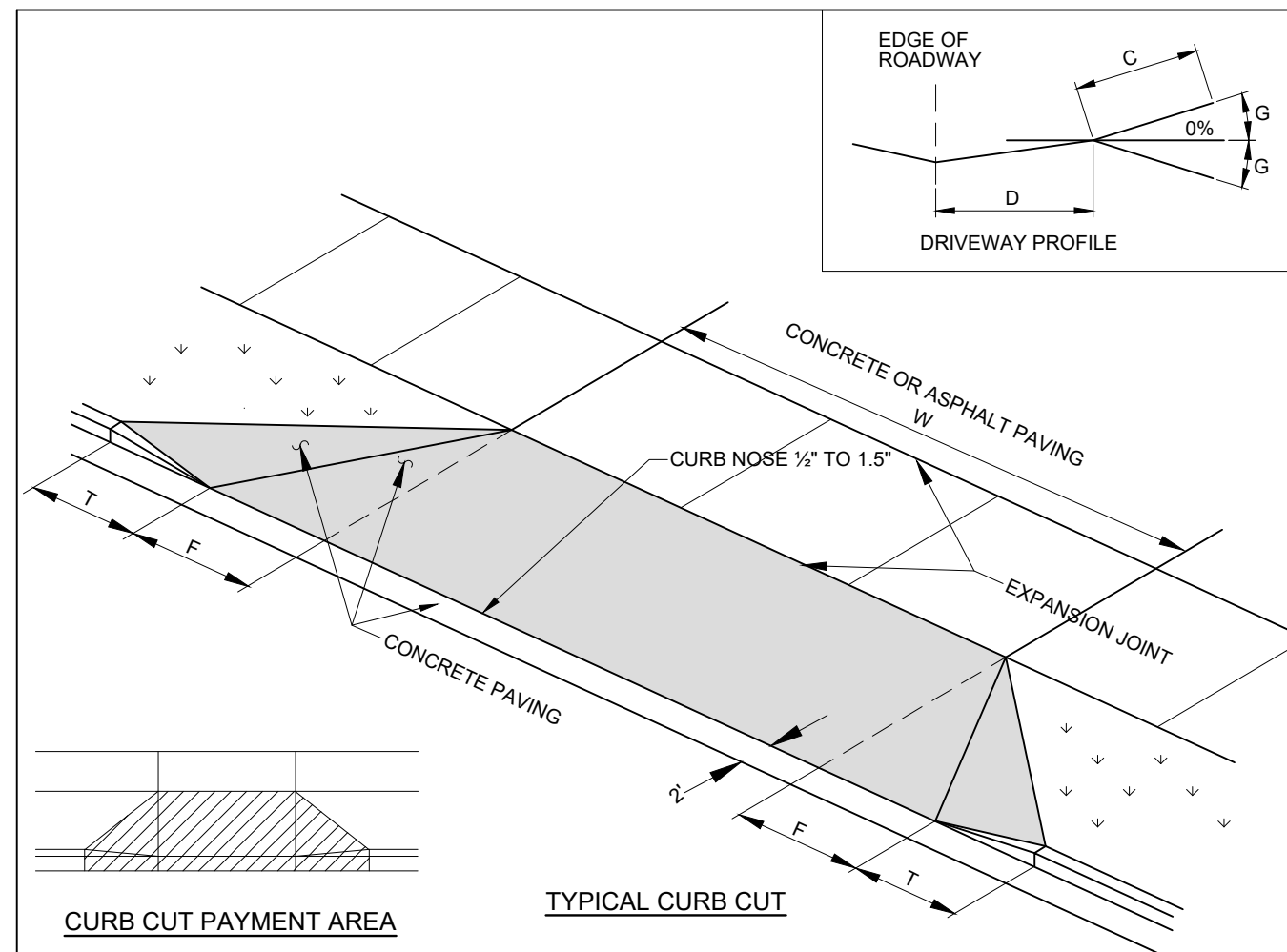
## FINAL DEVELOPMENT PLAN

SHEET 2 OF 17

 DEVELOPMENT BOUNDARY  
 LOCAL STREET  
 (RE: SECTION 1 BELOW)  
 LOCAL STREET, MODIFIED  
 (RE: SECTION 2 BELOW)



| Job Number: 12345.C.01                                                                                                                                                                                                                                                                                                                  |                          |            |        |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------|--------|--|
| Project Manager: JB/RB                                                                                                                                                                                                                                                                                                                  |                          |            |        |  |
| Design By                                                                                                                                                                                                                                                                                                                               |                          |            |        |  |
| Drawn By JB/RB                                                                                                                                                                                                                                                                                                                          |                          |            |        |  |
| Principal in Charge SM/BN                                                                                                                                                                                                                                                                                                               |                          |            |        |  |
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| No.                                                                                                                                                                                                                                                                                                                                     | Issue / Revision         | Date       | Name   |  |
| 1                                                                                                                                                                                                                                                                                                                                       | FDP-01                   | 10/12/2015 | FDP-01 |  |
| 2                                                                                                                                                                                                                                                                                                                                       | FDP-02 PER CITY COMMENTS | 12/23/2015 | FDP-02 |  |
| 3                                                                                                                                                                                                                                                                                                                                       | FDP-03 PER CITY COMMENTS | 03/14/2016 | FDP-03 |  |
| 4                                                                                                                                                                                                                                                                                                                                       | FDP-04 PER CITY COMMENTS | 04/20/2016 | FDP-04 |  |



| STREET TYPE    |  | WIDTH OF THROAT W |            | D     | F  | T  | FLARE | TRANSITION | MAXIMUM DRIVEWAY GRADE CHANGE G |                   |                    |
|----------------|--|-------------------|------------|-------|----|----|-------|------------|---------------------------------|-------------------|--------------------|
|                |  | SINGLE FAMILY     | OTHER USES |       |    |    |       |            | DESIRABLE                       | ABSOLUTE          | CONTROL DISTANCE C |
| MINOR OR LOCAL |  | 8'-30'            | 20'-30'    | 4'-6" | 0' | 5' |       |            | ± 6%                            | VEHICLE CLEARANCE | 10'                |
| COLLECTOR      |  | 12'-30'           | 20'-30'    | 7'    | 0' | 6' |       |            | ± 3%                            | ± 6%              | 10'                |
| PARKWAY        |  | 12'-30'           | 20'-30'    | 10'   | 4' | 6' |       |            | 0%                              | ± 3%              | 40'                |

## NOTES:

1. CONSTRUCTION JOINTS ARE REQUIRED AT EACH SIDE OF WARPED SECTION AND EVERY 10' ALONG THE DRIVE SECTION, AND SHALL ALIGN WITH SIDEWALK CONSTRUCTION JOINTS. SEE DETAIL 800-9 FOR CONSTRUCTION JOINT DETAILS.
2. THICKNESS SHALL BE 6".
3. FIBER MESH REINFORCED CONCRETE 3.5 LBS PER C.Y.
4. ALL CURB CUTS ON COLLECTOR AND PARKWAY STREETS OR ANY NON-SINGLE FAMILY RESIDENTIAL USE MUST BE APPROVED BY THE TRAFFIC ENGINEER.
5. WHERE SITE OR OTHER CONDITIONS WARRANT, THE TRAFFIC ENGINEER MAY REQUIRE AN ALTERNATE CURB CUT DESIGN.
6. FLARED SECTION OF CURB CUT SHALL NOT EXTEND BEYOND PROPERTY LINE.

|    |      |          |                                                                                                                                                                            |                                                               |
|----|------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| NO | DATE | REVISION |  <p>CITY OF<br/><b>ARVADA</b></p> <p>8101 Ralston Road<br/>Arvada, Colorado 80002</p> | <p><b>CURB CUT DESIGN<br/>DETACHED SIDEWALK</b></p>           |
|    |      |          |                                                                                                                                                                            |                                                               |
|    |      |          |                                                                                                                                                                            | <p><b>2022 ENGINEERING STANDARDS &amp; SPECIFICATIONS</b></p> |
|    |      |          |                                                                                                                                                                            |                                                               |
|    |      |          |                                                                                                                                                                            |                                                               |







| LAND USE CHART  |                                                |                                                |                                      |
|-----------------|------------------------------------------------|------------------------------------------------|--------------------------------------|
|                 | JUNE 2022 PLAN                                 | AUGUST 2022 PLAN                               | CHANGE                               |
| UNIT COUNT      | 42 TOWNHOMES                                   | 39 TOWNHOMES                                   | -3 UNITS                             |
|                 | 33 MULTIFAMILY                                 | 33 MULTIFAMILY                                 | 0 UNITS                              |
|                 | 75 TOTAL HOMES                                 | 72 TOTAL HOMES                                 | -3 UNITS                             |
| RETAIL SF       | 8,328 SF                                       | 10,743 SF                                      | 2,415 SF INCREASE                    |
| BUILDING HEIGHT | 35' MAXIMUM TOWNHOME HEIGHT                    | 25' MAXIMUM TOWNHOME HEIGHT                    | 10' REDUCTION                        |
|                 | 45' MAXIMUM MIXED USE HEIGHT                   | 40' MAXIMUM MIXED USE HEIGHT                   | 5' REDUCTION                         |
| PARKING         | 34 RETAIL SPACES (4.08/1,000 SF PARKING RATIO) | 44 RETAIL SPACES (4.10/1,000 SF PARKING RATIO) | + 10 SPACES                          |
|                 | 124 TOWNHOME SPACES (2.95 SPACES/UNIT)         | 112 TOWNHOME SPACES (2.97 SPACES/UNIT)         | - 12 SPACES (DUE TO LOSS OF 3 UNITS) |
|                 | 66 MULTI-FAMILY SPACES (2.0 SPACES/UNIT)       | 66 MULTI-FAMILY SPACES (2.0 SPACES/UNIT)       | 0 SPACES                             |
|                 | 18 GUEST SPACES                                | 30 GUEST SPACES                                | + 12 SPACES                          |
|                 | 242 TOTAL SPACES                               | 252 TOTAL SPACES                               | + 10 SPACES                          |
| BIKE PARKING    | 8 SPACES                                       | 28 SPACES                                      | + 20 SPACES                          |

LEGEND

MIXED-USE RESIDENTIAL SURFACE SPACES (34 EAST, 32 WEST, TOTAL = 66)

MIXED-USE RETAIL SURFACE SPACES (16 EAST, 28 WEST TOTAL = 44)

GUEST SURFACE SPACES (3 EAST, 15 WEST TOTAL = 18)

GUEST ON-STREET SPACES (MCINTYRE - 6 EAST, 6 WEST TOTAL = 12)

TOWNHOME GARAGE PARKING (EAST 24, WEST 54, TOTAL = 78)

TOWNHOME DRIVEWAY PARKING (EAST 12, WEST 22, TOTAL = 34)





PARKING SUMMARY

|                      | TOWNHOME UNITS | REQUIRED PARKING (2.0 SPACES/UNIT) | TOWNHOME SPACES PROVIDED | NOTES ON PROVIDED PARKING           |
|----------------------|----------------|------------------------------------|--------------------------|-------------------------------------|
| BLOCK 9C & 10 (EAST) | 12             | 24                                 | 36                       | 24 GARAGE, 12 DRIVEWAY (NORTH LOTS) |
| BLOCK 9C & 10 (WEST) | 27             | 54                                 | 80                       | 54 GARAGE, 22 DRIVEWAY (NORTH LOTS) |
| SUB-TOTAL            | 39             | 78                                 | 112                      | 78 GARAGE, 34 DRIVEWAY (NORTH LOTS) |

|                      | MIXED-USE UNITS | REQUIRED PARKING (2.0 SPACES/UNIT) | RESIDENT SPACES PROVIDED | NOTES ON PROVIDED PARKING   |
|----------------------|-----------------|------------------------------------|--------------------------|-----------------------------|
| BLOCK 9C & 10 (EAST) | 17              | 34                                 | 34                       | HEAD-IN, 1 EV, 1 ACCESSIBLE |
| BLOCK 9C & 10 (WEST) | 16              | 32                                 | 32                       | HEAD-IN, 1 EV               |
| SUB-TOTAL            | 33              | 66                                 | 66                       | HEAD-IN, 2 EV, 1 ACCESSIBLE |

|                      | RETAIL AREA (GROSS SF) | REQUIRED PARKING (4.0 SPACES/1000 SF) | RETAIL SPACES PROVIDED | NOTES ON PROVIDED PARKING |
|----------------------|------------------------|---------------------------------------|------------------------|---------------------------|
| BLOCK 9C & 10 (EAST) | 4,922                  | 20                                    | 16                     | HEAD-IN, 1 ACCESSIBLE     |
| BLOCK 9C & 10 (WEST) | 5,821                  | 24                                    | 28                     | HEAD-IN, 2 ACCESSIBLE     |
| SUB-TOTAL            | 10,743                 | 44                                    | 44                     | HEAD-IN, 3 ACCESSIBLE     |

|                      | GUEST SPACES REQUIRED | GUEST SPACES PROVIDED | NOTES ON PROVIDED PARKING           |
|----------------------|-----------------------|-----------------------|-------------------------------------|
| BLOCK 9C & 10 (EAST) | 0                     | 9                     | 6 PARALLEL ON MCINTYRE, 3 HEAD-IN   |
| BLOCK 9C & 10 (WEST) | 0                     | 21                    | 6 PARALLEL ON MCINTYRE, 15 HEAD-IN  |
| SUB-TOTAL            | 0                     | 30                    | 12 PARALLEL ON MCINTYRE, 18 HEAD-IN |

|                      | TOTAL SPACES REQUIRED | TOTAL SPACES PROVIDED | EXCESS SPACES TO CODE |
|----------------------|-----------------------|-----------------------|-----------------------|
| BLOCK 9C & 10 (EAST) | 78                    | 95                    | 17                    |
| BLOCK 9C & 10 (WEST) | 110                   | 157                   | 47                    |
| SUB-TOTAL            | 188                   | 252                   | 64                    |







## SUMMARY PLAN EVOLUTION





## PROPOSED NEIGHBORHOOD PLAN **URBAN AND LANDSCAPE DESIGN**





## **Candelas Hybrid Neighborhood Meeting**

### **8/1/2023**

Panelists: TPC, ND, TPH, MM, GS

Time: 6:00 pm

Location: Virtual and Candelas Parkview Swim Club

---

Marcus P started the presentation and walked through the development with Bonnie N. In that meeting, they discussed the development and the changes that have been made over the course of the project. After the presentation they opened it up to Q&A and discussions. The following discussions items were brought up during the Q&A portion.

#### **\*\*Main Concerns Discussed:\*\***

1. **\*\*Entry Site Commercial Development:\*\***
  - Traditionally developed first
  - Adjustment of mixed-use plan with retail ground floor and apartments above
  - Emphasis on non-residential usage
2. **\*\*Retail and Residential Balance:\*\***
  - Retail establishments on ground floor, apartments above
  - Concerns about residential and retail distribution
3. **\*\*Parking Area Update:\*\***
  - Walked through the parking counts
4. **\*\*Trash Collection Improvement:\*\***
  - Easy movement of trash cans in and out of enclosures
  - Enhancing convenience of trash collection
5. **\*\*South Side Drive-Way Issue:\*\***
  - There were a few of comments on the south side of the property asking for additional driveway parking. Additionally, the residents inquired about the addition of a right in, into McIntyre from Candelas,

but based on the traffic counts, there is no warrant for the right in and right out.

6. **\*\*Density and amenities:\*\***

- A few residents expressed their concern around the density proposed on the site. The team indicated from numerous community outreach meetings, the community has envisioned some kind of mixed use commercial space to act as a gateway to the neighborhood. The proposed development mirrors the comments that the developer has heard over the many years of community outreach.

7. **\*\*Traffic and Infrastructure:\*\***

- Proposed turn lane and signal on Candelas Parkway
- Addressing traffic concerns in relation to south development
- Need to manage parking on the road

8. **\*\*Storm Water Drainage:\*\***

- Mentioned existing problems with storm water drainage (off-site)

9. **\*\*Parking Restrictions Around Park:\*\***

- Proposal to implement a "no parking" zone around the park
- Specific focus on 93rd street

10. **\*\*Tree Removal for Icing Issue:\*\***

- Mentioned the idea of removing trees for addressing icing problem on McIntyre
- Need to consider alternative solutions

11 **\*\*Q&A Session:\*\***

- Confirm new residents (townhomes and apartments) pay into metro district for amenities access
- Clarified concerns about population increase
- Explained that overall current proposal has lower density than original Candelas master plan

- Desire for retail presence

12 Can we fix existing desire line walk in SE corner?

- Ok with this change, will review with City staff how to implement this.

---

Here is a summary of our proposed changes since our June 2022 Council hearing.

### **\*\*Substantial Changes Proposed:\*\***

1. **\*\*Increased commercial:\*\***

- Revised mixed use floor plans to increase commercial SF

2. **\*\*Parking Quantity:\*\***

- Introduced surface parking options
- Enhanced parking variety

3. **\*\*Safety Enhancements:\*\***

- Implemented safety improvements
- Crosswalks, pedestrian signs, and flashing lights

4. **\*\*Parking and Height Adjustments:\*\***

- Removed 3 townhome units for increased parking and setbacks
- Reduced maximum building height for townhomes and mixed use buildings

5. **\*\*Parking and Charging Infrastructure:\*\***

- Added a total of 10 parking spaces
- Included 20 bike parking spaces
- Introduced EV charging facilities

6. **\*\*Trash Enclosure Relocation:\*\***

- Relocated trash enclosure internally



7. **\*\*Landscape Buffer Increase:\*\***

- Increased landscape buffer from 13 ft to 35 ft on west side

8. **\*\*Parking Code Compliance:\*\***

- Addressed parking code shortfall
- Walk through through larger garages and usage regulation

---

**\*\*Upcoming Action Items:\*\***

- Community members urged to review emails for August 14th hearing at City Council

---

**\*\*Adjournment:\*\***

Arvada City Council:

Thank you for this opportunity to provide comments on this proposed development in our neighborhood. I am an original owner in Candelas, live two blocks from the project site(s) and drive past it every day. Since this is the primary entrance and 'gateway' to our neighborhood, I am very interested in what is planned and the impression it provides, as well as the impact and safety once constructed.

First of all, I am very happy that the developer has found a partner to provide the mixed-use component that was promised when we decided to build our home in Candelas. I've taken a look at the documentation that the developer has provided and have a few requests and suggestions that I think will benefit both the developer and the community. Please consider the following as you review this Development Application (in no particular order):

**Deceleration Lane:** Although traffic and speeds along Candelas are moderate now, they will only increase as buildout continues. Even so, when slowing down to turn onto McIntyre from the east, following vehicles often are bearing down on you. Although traffic studies may not reflect it, this leads to making the turn onto McIntyre quickly and often wide. Since there will be more traffic and pedestrians at this entrance as a result of the development, for safety I strongly suggested that the City require a deceleration lane be added from westbound Candelas Pkwy to northbound McIntyre St to allow turning traffic to slow to make this turn.

**McIntyre St. Width:** I'm glad to see that McIntyre will be widened and on-street parking is considered. However, widening by 7' on each side for a parking width seems too narrow for most vehicles. It seems that a standard parking space is closer to 10' wide.

**Outdoor Seating:** Hopefully the retail space will include a coffee shop or restaurant. Providing for outdoor patio seating space in the site plan would be desirable. Can this be made a requirement of approval?

**Second Floor Retail:** The development plan calls for retail/restaurant to be located only on the 1st floor only. It seems appropriate to allocate some of the 2nd floor space for retail/restaurant use as well. In turn, this would reduce the number of multi-family (apartment) units from thirty-three, which seems to be too many apartments and more than the market would bear for in this neighborhood.

**McIntyre St. & 93rd Pl. Intersection:** The retail establishments will bring new traffic to the neighborhood. Customers leaving the businesses will want to turn around to return to Candelas Parkway. A roundabout at McIntyre & 93rd, similar to those recently installed east of Olde Town on Grandview, would help with traffic calming and allow traffic to turn around and return to Candelas Pkwy to exit rather than continuing north on McIntyre or west on 93rd through the residential areas to exit.

**Townhome Style:** The style shown in the drawings appears mundane. A more modern look, blending with the style of the multi-use buildings, would be more desirable.

**Private Outdoor Space:** The townhomes don't appear to include any private outdoor space, such as balconies or patios. Coloradans value outdoor spaces. I suggest that the architecture be modified to

incorporate balconies and/or roof-top decks to provide individual outdoor space as a condition of approval. If roof-top decks were included, they should be oriented such that they don't look into the adjacent single-family homes.

Storage: Unless the townhomes have basements, garages will tend to fill with storage, pushing the occupant's cars to the driveways, visitor parking spaces or adjacent streets. Incorporation of basements in the townhome design would reduce this overflow of parking and add value to the home.

Interior Residential Parking: It appears that there will not be sufficient guest parking within the development. If I understand the parking count correctly, there will be 18 guest spaces for 144 dwelling units (TH and MF). I would expect something closer to 0.5 guest spaces per DU, or around 72 guest parking spaces.

On-street Parking (93rd Pl.): If insufficient interior parking is provided, guests will park along 93rd Pl. Parking time limits, or resident only permits for on-street parking should be considered, especially east of McIntyre St. where existing residences front on the street.

Sidewalk Connection: The drawings show a sidewalk connection from Kilmer to Candelas Pkwy at the southeast corner of the development. I suggest the alignment be shifted to the eastern edge of the development, consistent with the footpath that has been worn through this area from current use.

Thank you for considering my input and for your hard work for the City.

Keith Bushdiecker

15617 W 95th Ave Arvada, CO 80007



## REPORT TO CITY COUNCIL WORKSHOP

AGENDA ITEM  
11.A.

TO: THE HONORABLE CITY COUNCIL

DATE: August 14, 2023

SUBJECT: Update on Water and Wastewater System Development Charges

### **Report in Brief**

PRESENTER: Sharon Israel, Director of Utilities

At this time, the City's water and sewer infrastructure does not have enough capacity to serve all development contemplated by the City's Comprehensive Plan. Water and Sewer System Development Charges (SDCs or tap fees) provide critical financial resources to support infrastructure projects that will add system capacity and enable planned development to proceed as the market demands.

This workshop will provide an update on a revised model and recommendations for updating system development charges with an effective date of October 1, 2023. The City team will be presenting findings from the review of the previously adopted SDCs and a recommendation for updates.

### **Background**

The City is growing, and along with that growth is an increasing demand on infrastructure. Recent master planning work has determined that water and sewer infrastructure do not have the additional capacity needed to serve all planned development. Also, the City's enterprise funds do not have sufficient funding to support all of the much needed reinvestment and capacity projects identified in recent master plans. Updates to rates, bimonthly service fees, and issuing bonds comprise a financial strategy for the City's water, sewer, and stormwater utilities to implement the findings of the master plans. The revenue will fund critical projects for both reinvestment and capacity.

On October 17, 2022 City Council passed an ordinance to adopt updated SDCs for new development. The proposal increased SDCs for the first time since 2017 for water and since 2011 for sewer. The SDCs adopted were developed by a consulting firm, LSA Advisors, which has expertise in utility rate-setting, financial modeling, and SDCs development. The ordinances established the effective date of July 1, 2023 for the new charges.

Earlier this year, the City team consulted with experts regarding the System Development Charges adopted in October of last year. Some additional quality checks and modifications to the basis of the calculations for these charges were needed. Based on this finding, the City team recommended delaying the implementation date of adjusted charges by three months. On June 5, 2023, the City Council passed ordinance R23-054, A Resolution Directing City Staff Not to Collect System Development Charges Under the Fee Schedule Set Forth in Ordinance No. 4819, and Instead Continue Collecting System Development Charges Under the Current Fee Schedule Until September 30, 2023.

Over the past few months, a review of SDCs passed in October 2022 has been completed by a second external consultant, FCS Group. This work has resulted in recommendations for some changes to the financial model and assumptions used to develop SDCs.

This workshop will review updated SDCs recommended for implementation on October 1, 2023 based on FCS Group's financial analysis and modeling. The City team will be available for discussion and questions.



### **Strategic Alignment**

Setting System Development Charges aligns with the following Strategic Result within the Infrastructure Priority Area of the City Council Strategic Plan:

*Update the water, sewer, and stormwater master plans.*

In addition, setting System Development Charges aligns with the following Principle stated within the Infrastructure Priority Area:

*Provides the community with a safe, reliable, high-quality water supply, drainage system, and wastewater disposal services for full city build-out, as defined by the Comprehensive Plan. This includes maintaining utility rates at the lowest practical levels with accurate billing that supports replacement of aging infrastructure in order to maintain robust utility systems.*

### **Next Steps**

The City team will prepare an ordinance with updated System Development Charges for the City Council's consideration and approval. The first and second readings of the ordinance will be scheduled before September 30, with an effective date of October 1, 2023.

Prepared by:

Christine Gray, Utilities Business Manager

Reviewed by:

Approved by:

|                                          |          |
|------------------------------------------|----------|
| Sharon Israel, Director of Utilities     | 8/7/2023 |
| Bryan Archer, Director of Finance        | 8/8/2023 |
| Jessica Morales, Assistant City Attorney | 8/8/2023 |
| Tammy Hedlund, Legal Specialist          | 8/8/2023 |
| Rachel Morris, City Attorney             | 8/8/2023 |
| Don Wick, Deputy City Manager            | 8/8/2023 |
| Lorie Gillis, City Manager               | 8/9/2023 |

Enclosure, exhibits & attachments required to support the report

# **Proposed 2023 Water and Wastewater System Development Charges**

City Council Workshop  
August 14, 2023  
Utilities Department



# What Are System Development Charges (SDCs)?

- An SDC is a charge on development projects to connect to the City's water and wastewater systems
- SDC revenues pay for City projects that add capacity and certain related bond obligations. City projects include:
  - Growth-related wastewater pipeline projects
  - Upsizing system components to add capacity
  - Gross Reservoir Expansion

# SDC Updates Align with the City Council Strategic Plan

## **[SR3] By 12/23**

update water, sewer, stormwater master plans and develop an implementation plan to address and prioritize findings.

## **COMPLETE**

### **[M3A] By 12/21**

complete the Sewer and Stormwater Master Plans.

## **COMPLETE**

### **[M3B] By 12/22**

complete the Water Master Plan.

## **[M3C] By 12/23**

actions including conceptual project and operational changes to utilities programs necessary to implement the Master Plans are included in the 10-year CIP and performance budget.





# 2022: A Roadmap for Funding Infrastructure Needs was Adopted

## 1 - Road Map

- Per Road Map
- Adjust rate/service fee revenue 12-14%/year
- Adjust System Development Charges per Road Map

### Recommended:

- Keeps risk of failure at or below industry standard
- Supports Level of Service for existing customers and planned development

## 2 - Extended Schedule

- Extend project delivery from 8 to 20 years
- Adjust rate/service fee revenue - between 7-14%/year
- Adjust System Development Charges 25% in 2023 and 25% in 2024, more in out years

### Not Recommended:

- Project costs increase
- Risk of failure higher for longer time period
- Slows pace of planned development

## 3 - Existing Model

- No Action - Pause action on unfunded projects
- Adjust rate/service fee revenue per 10-year model - 7%/year
- Adjust system development Charges 25% in 2023 and 25% in 2024

### Not Recommended:

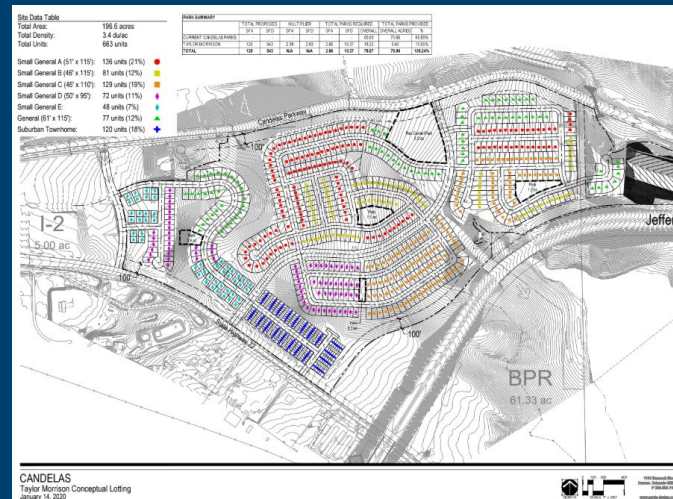
- Risk of failure above industry standard
- Does not support Level of Service
- Slows pace of planned development

# Funding Philosophy: Reinvestment and Increasing Capacity



## Aging Infrastructure

Reinvestment in existing assets reaching the end of their useful life.



## Capacity Limitations

Expansion of treatment and storage facilities is needed to serve planned development.

# SDC Timeline

- **2021 & 2022:** City team began developing a financial strategy to support Utilities master plan findings. Consultant LSA Advisors was hired to create an updated SDC model.
- **October 2022:** City Council adopted SDCs for 2023, with an implementation date of July 2023.
- **2023:** City severed relationship with consultant LSA Advisors over concerns raised about approach used to develop adopted SDCs. City team hired a different consultant (FCS Group) to perform verification work. In June, City Council voted to delay the 2023 implementation until October 1, 2023 to allow for continued SDC verification work.
- **Tonight:** The City team and FCS Group are presenting updated SDCs for consideration.
- **September-October 2023:** Ordinances and public hearing.

# What Are Major Changes?

- Updated model removes all infrastructure contributions from the calculation. Therefore no infrastructure discounts will be applied.
- Discount for development projects that contributed water supply.
  - These will last until the contributed water is fully used. Once exhausted, the discounts will no longer apply.
- Assumptions in Sewer SDC model

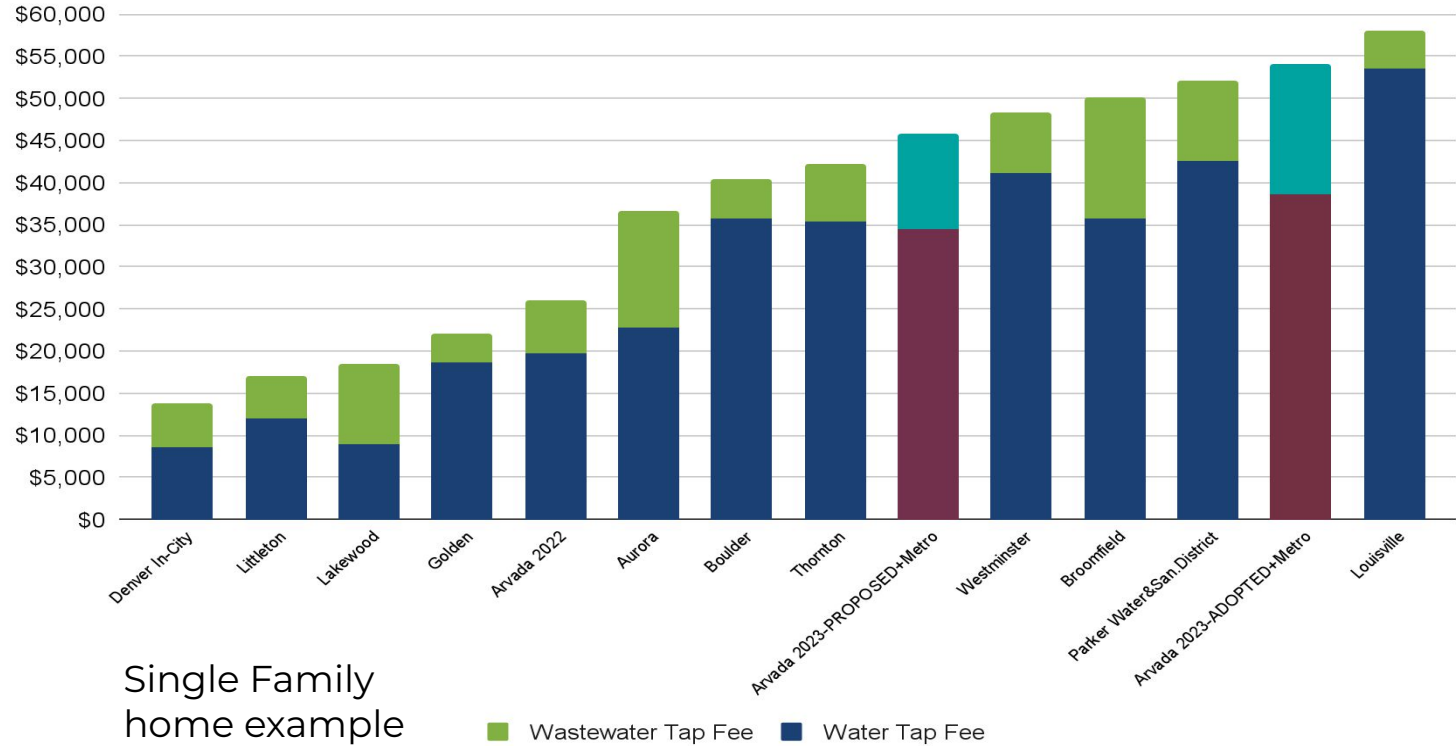


# Proposed 2023 Arvada SDCs- Component Breakdown

| Single Family Equivalent | Water Supplies | Infrastructure | Parks SDC | 2023 Metro SDC | Total    | Difference from Currently Adopted |
|--------------------------|----------------|----------------|-----------|----------------|----------|-----------------------------------|
| Water                    | \$23,620       | \$9,870        | \$1,000   | N/A            | \$34,490 | -\$4110                           |
| Sewer                    | N/A            | \$6,240        | N/A       | \$5,120        | \$11,360 | -\$4160                           |
| Total                    | \$23,620       | \$16,110       | \$1,000   | \$5,120        | \$45,850 | -\$8270                           |



# Proposed 2023 SDCs - Combined with Comparison



# Proposed 2023 Arvada SDCs- Component Breakdown for Development Projects that Contributed Water Supply

| <b>Single Family Equivalent</b> | <b>Water Supply</b> | <b>Infrastructure</b> | <b>Parks SDC</b> | <b>2023 Metro SDC</b> | <b>Total</b>    |
|---------------------------------|---------------------|-----------------------|------------------|-----------------------|-----------------|
| <b>Water</b>                    | \$0                 | \$9,870               | \$1,000          | N/A                   | \$10,870        |
| <b>Sewer</b>                    | N/A                 | \$6,240               | N/A              | \$5,120               | \$11,360        |
| <b>Total</b>                    | <b>\$0</b>          | <b>\$16,110</b>       | <b>\$1,000</b>   | <b>\$5,120</b>        | <b>\$22,230</b> |

# Next Steps

- Provide City team with direction
- Return to City Council on 8/21 for 1st reading
- Return to City Council on 9/11 for 2nd reading and public hearing
- October 1, 2023 effective date



End - Thank You.



## REPORT FROM CITY COUNCIL

AGENDA ITEM  
13.A.

DATE: August 14, 2023

SUBJECT: Council Committee Reports

### Report in Brief

City Council members are appointed to various committees and boards as set out on the attached listing. As meetings are held, individual council members will report back to the full City Council any relevant discussions and issues that occurred.

Prepared by:  
Chris Koch, CCO Admin

|               |                                                                                                                                                                                                                                                                                                                                                                  |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marc Williams | Arvada Municipal Court/Judicial Committee<br>Arvada City Attorney Committee<br>Arvada Urban Renewal Authority<br>E-470 Authority (alternate)<br>Jefferson Parkway Public Highway Authority<br>Northwest Parkway Authority (Associate Member) (alternate)<br>Urban Drainage and Flood Control District<br>West Connect Coalition<br>*Metro Mayors Caucus          |
| Bob Fifer     | Adams County Regional Economic Partnership (ACREP)<br>Apex Coordinating Committee<br>Arvada City Attorney Committee<br>Arvada Transportation Committee<br>Denver Regional Council of Governments (Alternate)<br>Jefferson County R-1 Schools Coordinating Committee<br>Jeffco Transportation Action & Advisory Group (JEFFTAAG)<br>Smart City Advisory Committee |
| David Jones   | E-470 Authority (alternate)<br>Jefferson County Community Corrections Board<br>Jefferson County R-1 Schools Coordinating Committee<br>Jefferson Economic Development Council (JEDC)<br>Jefferson Parkway Public Highway Authority<br>Northwest Parkway Authority (Associate Member) (alternate)<br>West Connect Coalition (alternate)                            |

|                |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| John Marriott  | Adams County Regional Economic Partnership (ACREP) (alternate)<br>Apex Coordinating Committee<br>Arvada Economic Development Association Board<br>Arvada Municipal Court/Judicial Committee<br>Arvada Parks Advisory Committee<br>Arvada Visitors Center Committee (alternate)<br>CML Policy Committee<br>Olde Town Business Improvement (BID) District<br>Rocky Mountain Metropolitan Airport Community Noise Roundtable |
| Randy Moorman  | Arvada Audit Committee<br>Arvada Sustainability Advisory Committee<br>CML Policy Committee<br>Rocky Flats Stewardship Council                                                                                                                                                                                                                                                                                             |
| Lauren Simpson | Arvada Audit Committee<br>Arvada Center for the Arts and Humanities<br>Arvada Fire Protection District Coordinating Committee<br>Arvada Visitors Center Committee<br>Olde Town Business Improvement (BID) District (alternate)                                                                                                                                                                                            |
| Lisa Smith     | Arvada Chamber of Commerce Government Affairs Committee<br>Arvada Fire Protection District Coordinating Committee<br>Denver Regional Council of Governments<br>Jefferson County Community Corrections Board (alternate)<br>Jeffco Transportation Action & Advisory Group (JEFFTAAG) (alternate)<br>Smart City Advisory Committee                                                                                          |

\*asterisked committees are not appointed by Council



## REPORT TO CITY COUNCIL

AGENDA ITEM  
14.A.

TO: THE HONORABLE CITY COUNCIL

DATE: August 14, 2023

SUBJECT: Review of Future Workshops and Presentations

### **Report in Brief**

The City Manager's Office maintains a list of upcoming workshops and presentations to be scheduled for City Council meetings. During City Manager Reports, at the end of City Council business meetings, City Manager, Lorie Gillis, will review with City Council the tentative schedule and make any adjustments necessary.

Prepared by:  
Chris Koch, CCO Admin

Reviewed by:

Approved by:

Rachel Morris, City Attorney 8/1/2023

Lorie Gillis, City Manager 8/2/2023

Enclosure, exhibits & attachments required to support the report



## 2023 CITY COUNCIL WORKSHOPS, STUDY SESSIONS, PRESENTATIONS AND RETREATS (TENTATIVE)

| <b>WORKSHOPS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Date           | Lead         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------|
| <b>Pavement Management Program</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Aug 28</b>  | PW           |
| <b>Regional Homelessness</b><br>The City Manager's Office will update the Council on the progress of the City's immediate and intermediate goals, as well as to update the Council regarding the Jefferson County regional efforts of the homelessness strategy.                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Aug 28</b>  | CMO          |
| <b>Water, Sewer, Stormwater Rates and Fees@ Business Meeting</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Sept 18</b> | Utilities    |
| <b>Bond Project Update</b><br>Public Works will provide the City Council with an update on the bond projects for streets and utilities. There are two street projects. The first project is Ralston Road Phase 2 (Yukon Street to Garrison Street). The second project is W. 72nd Avenue (Swadley Court to Kipling Street). The utility bonds were issued in December 2022 and an update on the spending plan for each fund will be presented.                                                                                                                                                                                                                   | <b>Sept 25</b> | PW           |
| <b>Budget Workshop – Work System Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Sept 25</b> | Fin          |
| <b>2024 Water/Sewer/Stormwater Rates and Fees</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Sept 25</b> | Utilities    |
| <b>Water Infrastructure for Fire Protection</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Oct 9</b>   | Utilities    |
| <b>Budget Workshop – Pay Plan</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Oct 9</b>   | Fin          |
| <b>Traffic Calming</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Oct 9</b>   | PW           |
| <b>Bond Project Update</b><br>Public Works will provide the City Council with an update on the bond projects for streets and utilities. There are two street projects. The first project is Ralston Road Phase 2 (Yukon Street to Garrison Street). The second project is W. 72nd Avenue (Swadley Court to Kipling Street). The utility bonds were issued in December 2022 and an update on the spending plan for each fund will be presented.                                                                                                                                                                                                                   | <b>Dec 11</b>  | PW           |
| <b>Infrastructure Annual Report</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Dec 11</b>  | Utilities/PW |
| <b>2024</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                |              |
| <b>Sustainability</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Jan 22</b>  |              |
| <b>Athletic Field Programming</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Jan 22</b>  | VCN          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |              |
| <b>PRESENTATIONS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |              |
| <b>STUDY SESSIONS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |              |
| <b>Lake Arbor Pool @4:00</b><br>This study session will be held on site a the Lake Arbor pool                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Sept 18</b> | CMO          |
| <b>BID and Chamber funding</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>TBD</b>     |              |
| <b>WORKSHOP TBD's</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |              |
| <b>Smart Meters Update</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>TBD</b>     | Utilities    |
| <b>Capital Campaign Update and strategy discussion</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>TBD</b>     |              |
| <b>Budget and Fiscal Policy Update</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>TBD</b>     | Fin          |
| <b>Financial resiliency recommendations</b><br>Provide City Council an update on the OSE's SR9: By 12/2024 based on long-term financial projections and updated master plans, develop financial resiliency recommendations to ensure adequate and ongoing investment in city infrastructure and core services. This workshop will present the summary of long range unfunded needs by work systems.<br><br>Next Steps will be<br>[M9B] By 12/2023 develop a city-wide consolidated level of service summary.<br>[M9C] By 12/2023 prepare an exhaustive list of funding source opportunities for closing identified infrastructure and core service funding gaps. | <b>TBD</b>     | Fin          |
| <b>Fleet Electrification</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>TBD</b>     | Utilities    |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------|
| <b>Council Retreat Update</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>TBD</b> | <b>CMO</b>        |
| <b>Pre-Sentencing/One Small Step</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>TBD</b> | <b>Courts</b>     |
| <b>Meyers Pool</b><br>Provide City Council an update on the VCN's SR3: By 12/2025 develop a maintenance and reinvestment plan to ensure a sustainable, resilient and beautiful community of parks, trails, open space and medians in alignment with our diverse, changing and growing community and VCN's SR3 Milestone [M3H] By 7/2024 replace Meyer's Pool with a new 50 meter natatorium.                                                                                                                                                                                                                                                                                   | <b>TBD</b> | <b>CMO</b>        |
| <b>Financial Scenarios for Street Maintenance Deficit/Options for Increasing Maintenance Funds</b><br>Engage City Council in a discussion around the current street maintenance needs and how the City might fund them. This will include revenue enhancements, future allocations and expenditure realignments.                                                                                                                                                                                                                                                                                                                                                               | <b>TBD</b> | <b>PW/Fin/CMO</b> |
| <b>Fiber Master Plan</b><br>The Fiber Master Plan which is also called Arvada Fiber Optic Network (AFON), was first presented to City Council 4/10/2017. City Councils had set a strategic goal to build a fiber network to enable high speed/real-time connectivity to city facilities and assets in order to enhance city operations. This workshop is intended to brief City Council as to the progress of the AFON build out. Updates are intended to cover conduit installation progress, fiber installation progress, current co-locate opportunities, IGA member updates, and connections to current assets (city buildings, traffic, signals, utilities, radio, etc.). | <b>TBD</b> | <b>PW</b>         |
| <b>Problem Properties</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>TBD</b> | <b>P.D.</b>       |
| <b>Activation of Historical Assets</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>TBD</b> | <b>VCN</b>        |
| <b>Customer Service Philosophy</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>TBD</b> | <b>CMO</b>        |
| <b>Ask Arvada Update</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>TBD</b> | <b>CMO</b>        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                   |
| <b>COUNCIL JOINT MEETINGS/DINNERS:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                   |
| Denver Water Board<br>Apex Board<br>AURA Board<br>Arvada Center Board—Per Coop Agreement - Annually after October 1 of each year<br>Jefferson Parkway Meeting with Jeffco and Broomfield<br>Council Annual Retreat                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |                   |