EAGLE MOUNTAIN CONSTRUCTION

3100 North Caden Ct.
Flagstaff, Arizona 86004

Mass Earthwork • Utilities • Concrete • Paving
AZROC #315942 & 315943

928-526-2587
www.emcaz.com

April 2, 2019

City of Flagstaff
Attn: Eli Reisner
211 W. Aspen Ave
Flagstaff, AZ 86001

RE: **DESIGN PHASE SCOPE AND FEE PROPOSAL**

Eagle Mountain Construction ("EMC") appreciates the opportunity to provide this Design Phase Scope and Fee Proposal to the City of Flagstaff for the Coconino Estates Improvements CMAR. We believe the project team assembled, combined with thoughtful planning and execution, will provide an excellent product for the City of Flagstaff, and a positive experience for the stakeholders of Coconino Estates and the surrounding areas.

SCOPE OF SERVICES:

TASK 1 – KICKOFF MEETING

- Project kick off and coordination meeting with the Design Team: EMC will work with the City of Flagstaff and Peak Engineering to discuss project goals and critical success factors. The purpose is to develop a strategy for design reviews, design changes, budgeting updates and PR issues that may arise during the design phase.

TASK 2 – CARDNO, INC. SUE MAPPING

- EMC will contract with Cardno, Inc. to work with Peak Engineering and the entire design team for base mapping and SUE mapping operations. Cardno will perform utility records research, utility investigations, and potholing services. Cardno will also be responsible for acquiring inverts on manholes, storm drains and water vale nut elevations. The information they generate will be incorporated into the Project base map provided by Peak, to be utilized by Peak and the design team to help with the design and assist in construction operations during the construction phase. Cardno will provide copies of the documents from their utility records research, sealed pothole exhibits, sealed plan(s) and an AutoCAD file with this data and linework on the City's coordinate system, datum, and Project base map. The information will also include location and size of water and sewer services from the main to the customer's side.

TASK 3 – COORDINATION MEETINGS

- (1) Design documents utility coordination meeting with Cardno, COF and Peak
- (33) Design Coordination meetings with the City and Peak Engineering to discuss design stage progress, issues and constructability resolutions.
- (5) Design Comment and Resolution and cost model review meetings with COF and Peak: Final design comments will be provided by EMC to help with finalizing the design. Discuss design budgets and possible options to mitigate construction costs
- (7) Coordination meetings with FUSD (3), Flagstaff Junior Academy (1), NAIPTA (1), and ADOT (2) – EMC will participate in discussions with the prior mentioned entities along with the City of Flagstaff and Peak.
- (4) Design Meetings with City of Flagstaff Departments, including Water Services (1), Stormwater (2) and Traffic (1).
- (2) Coordination meetings with APS – EMC will participate in discussions with APS along with the City of Flagstaff and Peak.
- (2) Coordination meetings with USACE, USACE Design Engineer, Peak, and COF to discuss improvements at the Beal Street bridge.

TASK 4 – DESIGN REVIEW

- EMC will internally review and comment on the 30%, 60%, Final 1 and Final 2 for both south and north phases of the design plans. EMC will evaluate constructability and cost saving tactics and provide comments and a Cost Models to the design team and City of Flagstaff. EMC will participate reviewing the cost models provided and discuss design and construction budgets and possible options to mitigate construction costs.

TASK 5 – PUBLIC OUTREACH

- EMC will contract with Beta PR to help facilitate and coordinate public relations efforts. Working with Beta PR, Peak and the City, EMC will help organize and facilitate Public outreach meetings and other forms of information distribution. EMC will attend 3 Community Public Meetings, near the 30% design (1), near construction commencement for the south phase (1), and near construction commencement for the north phase (1), bringing visual aids and proposed phasing to help educate the public and address any questions or concerns that they might have.

- Beta PR Services will Include the following tasks:

  BPR Task 1 – **Project Fliers Design and Production -** BetaPr will design and produce four (4) project fliers. The initial flier will introduce the project to the public, open lines of communication and provide a time frame for the first public meeting. Three (3) additional fliers will serve as public meeting invitations and general project information pieces.

  BPR Task 2 – **Project Flier Mailing -** Project fliers will be mailed to fully saturate areas in and around the project corridors (see Figure 1). Fliers will be mailed directly to property owner's addresses generated from the Coconino County Assessor's website. Initial mailing activities will be performed immediately after City Council's award of contract. Additional mailing activities will be performed to notify stakeholders of the three design phase public meetings.

  BPR Task 3 – **Outreach to Project Corridor Businesses and Residents –** In addition to the mailed fliers, BetaPr will hand-deliver the project fliers to each business and resident along the project corridors. Initial outreach will be performed immediately after City Council's award of contract. Additional outreach activities will be performed to notify stakeholders of the three design phase public meetings.

  BPR Task 4 – **Attend Kickoff and Progress Meetings -** BetaPr will attend the kickoff meeting to review the project schedule, establish communication protocols, and identify City and team contacts. Staff will attend three additional progress meetings, one prior to each public meeting.

  BPR Task 5 – **Facilitate Public Meetings -** BetaPr will facilitate three public meetings, including producing meeting materials, assisting with presentations, and meeting set-up and take-down. After the meetings are complete, a summary report will be provided to the team compiling all comments and input received. The City of Flagstaff will be responsible for the public meeting locations and any associated venue rental fees.

  BPR Task 6 – **Project Hotline Maintenance and Public Issues Log -** BetaPr will establish and maintain a project hotline. Hotline calls will be answered by BetaPr staff during the course of the project. All caller issues, questions, or concerns will be directed to the project team for response. A Public Issues Log documenting all project hotline calls, project-specific emails received, and the nature of those inquiries will be recorded as part of the log.

  BPR Task 7 – **eNews Release and Database Development -** BetaPr will develop and release an eNews prior to each public meeting. Distribution will include the interested party database generated from hotline calls, emails received, and requests received via stakeholder outreach. The project database will be updated to include any new interested party contacts for future eNews communications during construction.

  BPR Task 8 – **Web Page Updates -** Web updates will be developed and provided to the City of Flagstaff to upload to their existing project-dedicated web page prior to each public meeting.

TASK 6 – PROJECT MASTER SCHEDULE AND CONSTRUCTION MANAGEMENT PLAN

- EMC will develop the and provide an update of the Project Master Schedule at each stage and phase of the design and will include Peak's Design Schedule. Coinciding with Project Master Schedule development is the Construction Management Plan, which will include items such as the construction phasing plan and residential/neighborhoods access plan. These will all be utilized in the Community Public Meetings as well.

TASK 7 – COST MODELS

- EMC will provide cost models that coordinate with the different design stages at 30%, 60%, Final 1 for the south phase and 30%, 60%, Final 1 and Final 2 stage of the north phase. These will be utilized in the review process to determine cost and time saving options. Once the review of the south phase Final 1 design plans is complete, the south phase GMP will be developed. Once the review of the north phase Final 2 design plans is complete, the north phase GMP will be developed.

TASK 8 – SUBCONTRACTOR AND SUPPLIER PROCUREMENT

- EMC will develop the cost models and in later design stages, begin bid solicitations and subcontractor procurement. These bids are analyzed and then recommendations will be made to the City of Flagstaff.

TASK 9 – GMP DEVELOPMENT

- EMC will take the cost models at the Final 1 design stage for the south phase and the Final 2 design stage for the north phase and develop the final GMP as well as all documents required for Council approval.

Deliverables to the City of Flagstaff:

1. Cardno, Inc. management and SUE mapping product
2. Comments and constructability reviews for 30%, 60%, and Final 1 design docs for both phases and Final 2 design docs for the north phase.
3. Subconsultant (Beta PR) coordination for Public Outreach
4. Costs Models for 30%, 60%, Final 1 for both phases and Final 2 of the north phase
5. Final GMP Documents for both south and north phases
6. Project Master Schedule
7. Project Management Plan

We propose to bill on a lump sum percent complete per task basis unless otherwise noted as an allowance. Allowances would be invoiced on a time and materials basis. Allowances are to be as authorized by the City's PM. Please refer to the attached Fee Proposal detail summary for hour totals. We propose a contract time period of 470 calendar days.

Thank you,

Eagle Mountain Construction

Marco Spagnuolo
CEO

Eagle Mountain Construction
3100 N. Caden Ct. - Flagstaff, AZ 86004
AZ ROC 315942, 315943

CMAR Design Phase Fee Proposal

To: City of Flagstaff
Project: Coconino Estates Improvements CMAR
Date: 4/9/2019
Rev #: 4

TASK	ITEM DESCRIPTION	Project Director Hrs.	Project Manager Hrs.	Super-intendent Hrs.	Scheduler Hrs.	Direct Hrs.	Direct Labor Total	Consultants & Misc.	TOTAL
	Hourly Rate :	*$ 105.00*	*$ 95.00*	*$ 65.00*	*$ 45.00*				
1.0	**Project Kick-Off Meeting 2-12-19**								
1.1	Kick-Off Meeting #1	4.0	4.0	4.0		12.0	$ 1,060.00	$ -	$ 1,060.00
	SUBTOTAL:	**4.0**	**4.0**	**4.0**	**0.0**	**12.0**	**$ 1,060.00**	**$ -**	**$ 1,060.00**
2.0	**Cardno SUE Mapping**								
2.1	Cardno Sue Mapping	0.0	0.0	0.0		0.0	$ -	$ 65,817.00	$ 65,817.00
2.2	Traffic Control Sub							$ 3,000.00	$ 3,000.00
	SUBTOTAL:	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**$ -**	**$ 68,817.00**	**$ 68,817.00**
3.0	**Coordination Meetings**								
	SOUTH PHASE								
3.1	30% Design Documents Utility Coordination Meeting w/ Cardno, COF and Peak (1)	4.0	4.0	4.0		12.0	$ 1,060.00	$ -	$ 1,060.00
3.2	30% Design Coordination w/ COF and Peak (5)	8.0	20.0	8.0		36.0	$ 3,260.00	$ -	$ 3,260.00
3.3	30% Design Comment and Resolution and cost model review with COF and Peak (1)	4.0	4.0	4.0		12.0	$ 1,060.00	$ -	$ 1,060.00
3.4	30% Stakeholder and Public Involvement meeting with COF Water Services(1)	2.0	4.0	2.0		8.0	$ 720.00	$ -	$ 720.00
3.5	30% Stakeholder and Public Involvement meeting with COF Stormwater(2)	2.0	4.0	2.0		8.0	$ 720.00	$ -	$ 720.00
3.6	30% Stakeholder and Public Involvement meeting with COF Traffic (1)	2.0	4.0	2.0		8.0	$ 720.00	$ -	$ 720.00
3.7	30% Stakeholder and Public Involvement meeting with ADOT (2)	2.0	4.0	2.0		8.0	$ 720.00	$ -	$ 720.00
3.8	30% Stakeholder and Public Involvement meeting with APS (2)	2.0	4.0	2.0		8.0	$ 720.00	$ -	$ 720.00
3.9	30% Stakeholder and Public Involvement meeting with NAIPTA (1)	2.0	4.0	2.0		8.0	$ 720.00	$ -	$ 720.00
3.10	30% Stakeholder and Public Involvement meeting with FUSD (3)	4.0	6.0	4.0		14.0	$ 1,250.00	$ -	$ 1,250.00
3.11	30% Stakeholder and Public Involvement meeting with FJA (1)	2.0	2.0	2.0		6.0	$ 530.00	$ -	$ 530.00
3.12	60% Design Coordination w/ COF and Peak (6)	12.0	24.0	4.0		40.0	$ 3,800.00	$ -	$ 3,800.00
3.13	60% Design Comment and Resolution and cost model review with COF and Peak (1)	4.0	4.0	4.0		12.0	$ 1,060.00	$ -	$ 1,060.00
3.14	Final 1 Design Coordination w/ COF and Peak (6)	12.0	24.0	4.0		40.0	$ 3,800.00	$ -	$ 3,800.00
3.15	Final 1 Design Comment and Resolution and cost model review with COF and Peak (1)	4.0	4.0	2.0		10.0	$ 930.00	$ -	$ 930.00
3.16	Final 2 Design coordination with COF and Peak (2)	4.0	8.0	4.0		16.0	$ 1,440.00	$ -	$ 1,440.00
	NORTH PHASE								
3.17	60% Design Coordination w/ COF and Peak (6)	8.0	12.0	4.0		24.0	$ 2,240.00	$ -	$ 2,240.00
3.18	60% Design Comment and Resolution and cost model review with COF and Peak (1)	4.0	4.0	4.0		12.0	$ 1,060.00	$ -	$ 1,060.00
3.19	Final 1 Design Coordination w/ COF and Peak (6)	8.0	12.0	4.0		24.0	$ 2,240.00	$ -	$ 2,240.00
3.20	Final 1 Design Comment and Resolution and cost model review with COF and Peak (1)	4.0	4.0	2.0		10.0	$ 930.00	$ -	$ 930.00
3.21	Final 2 Design coordination with COF and Peak (2)	4.0	8.0	4.0		16.0	$ 1,440.00	$ -	$ 1,440.00
3.22	Coordination Mtgs with USACE, Peak and COF (2)	8.0	8.0	4.0		20.0	$ 1,860.00	$ -	$ 1,860.00
	SUBTOTAL:	**106.0**	**172.0**	**74.0**	**0.0**	**352.0**	**$ 32,280.00**	**$ -**	**$ 32,280.00**
4.0	**Design Review**								
4.1	30% Design Review (South Phase)	4.0	8.0	4.0		16.0	$ 1,440.00	$ -	$ 1,440.00
4.2	60% Design Review (South Phase)	4.0	8.0	8.0		20.0	$ 1,700.00	$ -	$ 1,700.00
4.3	Final 1 Design Review (South Phase)	4.0	4.0	4.0		12.0	$ 1,060.00	$ -	$ 1,060.00
4.4	30% Design Review (North Phase)	4.0	4.0	4.0		12.0	$ 1,060.00	$ -	$ 1,060.00
4.5	60% Design Review (North Phase)	4.0	4.0	8.0		16.0	$ 1,320.00	$ -	$ 1,320.00
4.6	Final 1 Design Review (North Phase)	4.0	4.0	4.0		12.0	$ 1,060.00	$ -	$ 1,060.00
4.7	Final 2 Design Review (North Phase)	4.0	4.0	4.0		12.0	$ 1,060.00	$ -	$ 1,060.00
	SUBTOTAL:	**28.0**	**36.0**	**36.0**	**0.0**	**100.0**	**$ 8,700.00**	**$ -**	**$ 8,700.00**
5.0	**Public Outreach Meetings**								
5.1	Public Outreach Meeting (3)	9.0	16.0	12.0		37.0	$ 3,245.00	$ -	$ 3,245.00
5.3	Beta PR - Scope Services	0.0	0.0	0.0		0.0	$ -	$ 15,790.00	$ 15,790.00
	SUBTOTAL:	**9.0**	**16.0**	**12.0**	**0.0**	**37.0**	**$ 3,245.00**	**$ 15,790.00**	**$ 19,035.00**
6.0	**Project Master Schedule and Constuction Management Plan**								
6.1	30% CMAR Project Master Schedule (South and North Phase)	16.0	24.0	24.0	8.0	72.0	$ 5,880.00	$ -	$ 5,880.00
6.2	60% CMAR Project Master Schedule (South and North Phase)	4.0	8.0	16.0	8.0	36.0	$ 2,580.00	$ -	$ 2,580.00
6.3	Final 1 CMAR Project Master Schedule (South and North Phase)	4.0	8.0	16.0	4.0	32.0	$ 2,400.00	$ -	$ 2,400.00
6.4	Finalized CMAR Project Master Schedule (South and North Phase)	4.0	8.0	8.0	4.0	24.0	$ 1,880.00	$ -	$ 1,880.00
	SUBTOTAL:	**28.0**	**48.0**	**64.0**	**24.0**	**164.0**	**$ 12,740.00**	**$ -**	**$ 12,740.00**
7.0	**Cost Modeling**								
7.1	30% Cost Model (South Phase)	24.0	8.0	2.0		34.0	$ 3,410.00	$ -	$ 3,410.00
7.2	60% Cost Model (South Phase)	40.0	16.0	2.0		58.0	$ 5,850.00	$ -	$ 5,850.00
7.3	Final 1 Cost Model (South Phase)	16.0	8.0	2.0		26.0	$ 2,570.00	$ -	$ 2,570.00
7.4	30% Cost Model (North Phase)	24.0	8.0	2.0		34.0	$ 3,410.00	$ -	$ 3,410.00
7.5	60% Cost Model (North Phase)	32.0	16.0	2.0		50.0	$ 5,010.00	$ -	$ 5,010.00
7.6	Final 1 Cost Model (North Phase)	16.0	8.0	2.0		26.0	$ 2,570.00	$ -	$ 2,570.00
7.7	Final 2 Cost Model (North Phase)	8.0	4.0	2.0		14.0	$ 1,350.00	$ -	$ 1,350.00
	SUBTOTAL:	**160.0**	**68.0**	**14.0**	**0.0**	**242.0**	**$ 24,170.00**	**$ -**	**$ 24,170.00**
8.0	**Subcontractor & Supplier Procurement**								
8.1	Sub & Supplier Scoping	24.0	40.0	4.0		68.0	$ 6,580.00	$ -	$ 6,580.00
8.2	Bid Solicitation	8.0	16.0	2.0		26.0	$ 2,490.00	$ -	$ 2,490.00
8.3	Bid Analysis & Recommendation	4.0	8.0	4.0		16.0	$ 1,440.00	$ -	$ 1,440.00
	SUBTOTAL:	**36.0**	**64.0**	**10.0**	**0.0**	**110.0**	**$ 10,510.00**	**$ -**	**$ 10,510.00**
9.0	**GMP Development Docs for Council Approval**								
9.1	GMP Development Docs	8.0	40.0	0.0		48.0	$ 4,640.00	$ -	$ 4,640.00
9.2	Final Schedule & Phasing Plan to City Council	8.0	24.0	0.0		32.0	$ 3,120.00	$ -	$ 3,120.00
	SUBTOTAL:	**16.0**	**64.0**	**0.0**	**0.0**	**80.0**	**$ 7,760.00**	**$ -**	**$ 7,760.00**
	TOTAL:	**387**	**472**	**214**	**24**	**1097**	**$ 100,465.00**	**$ 84,607.00**	**$ 185,072.00**

19621 N. 23rd Drive
Suite 150
Phoenix, AZ 85027
602-977-8000 (phone)
www.cardno.com

March 29, 2019

Eagle Mountain Construction Co.
Attn: Jason Woods
3100 N. Caden Ct.
Flagstaff, AZ 86004
Email: Reid.Kaiser@hdrinc.com
Phone: 775-229-5509

RE: Coconino Estates Improvements Phase 1
Flagstaff, Arizona
Subsurface Utility Engineering (SUE) – Scope of Services
Cardno Proposal No. 16104-19-0010

Dear Mr. Woods:

Thank you for the opportunity to propose on this project. Our experience providing subsurface utility engineering for State DOTs, counties, municipalities, and various public works departments will enable us to successfully complete this utility investigation and meet the program and project goals. The combination of our resources and experience will provide you with the confidence that Cardno is the right choice to complete the project on time and on budget. For more information please visit www.cardno.com.

Our Scope of Services is further detailed in the project understanding section of this proposal. This proposal has been prepared based upon the "Coconino Estates Improvements Phase 1 Scoping Document E-OUTLINE With Comments 2-33-2019" and email correspondence. We have provided you with a Time and Material Fee to complete the specific items described within the Scope of Services. We respectfully request any comments or questions you may have.

Thank you again for this opportunity. We are committed to giving you the quality and service that you expect from Cardno.

Sincerely,

Cardno, Inc.

Robert Ramsey, P.E, LEED AP
Business Unit Manager – UES West
Phone: 602.320.8121
Email: robert.e.ramsey@cardno.com

PROJECT UNDERSTANDING

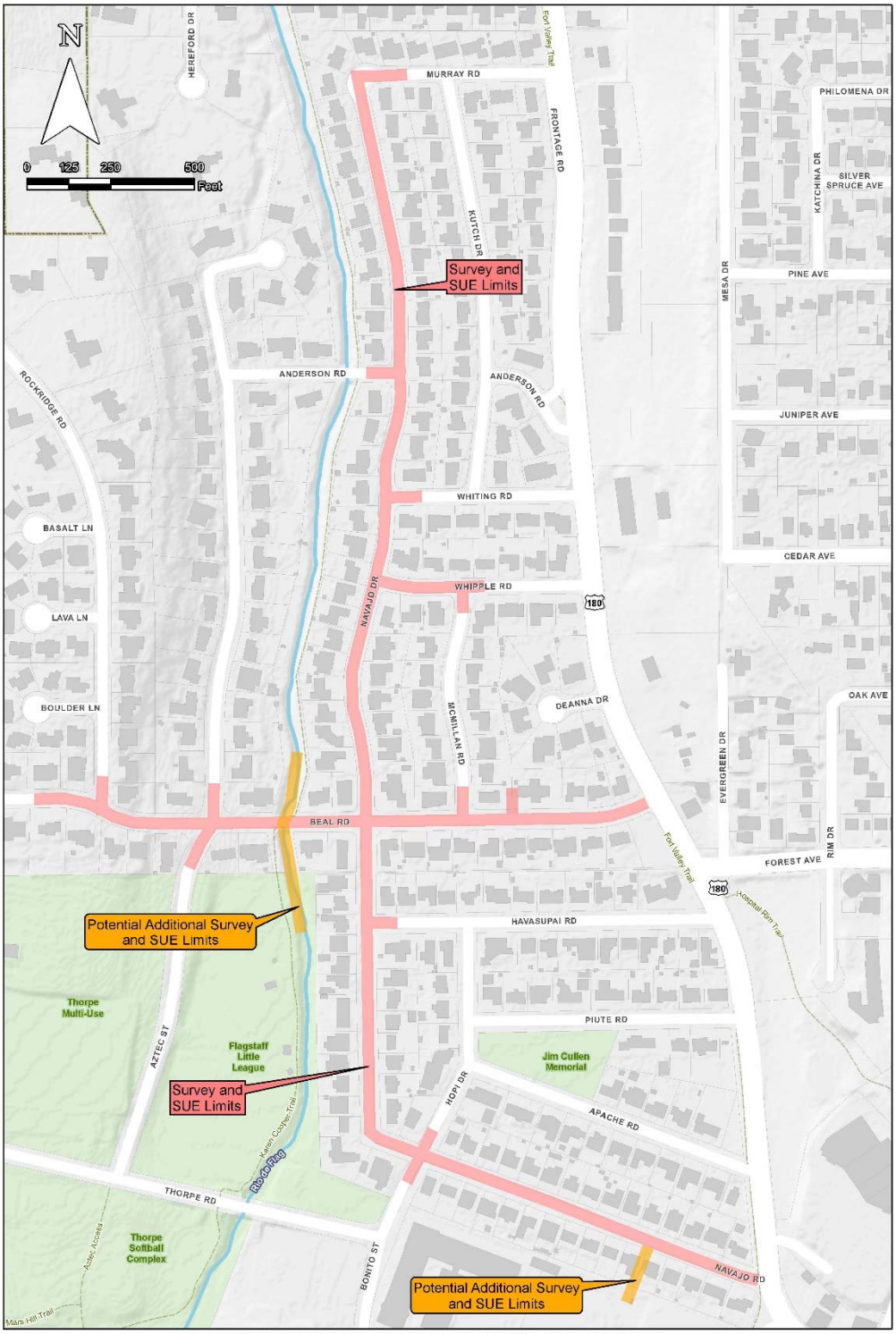
The Cardno team will complete ASCE 38 Quality Level D, C, B, & A Utility Mapping along the existing City of Flagstaff (COF) right of way of W. Beal Road from approximately 100 feet west of N. Rockridge Road to N. Fort Valley Road, along the existing COF right of way of N. Navajo Drive from N. Navajo Road to N. Murray Road, along the existing COF right of way of W. Whipple Road from N Navajo Drive to N McMillian Road, and along the existing COF right of way of N. Navajo Road from N. Navajo Drive to N. Fort Valley Road. The team will utilize the CI/ASCE 38 standard for collecting and depicting the existing utilities and build the highest quality utility map available. This process will include an iterative field investigation which will ultimately produce detailed drawings that are signed and sealed by a Professional Engineer in accordance with the requirements of the Standard.

Cardno's general workflow to our approach is outlined below:

1. Perform records research (Quality Level D);
2. Perform survey of existing Utility Appurtenances (Quality Level C)
3. Perform geophysical investigation (Quality Level B designating);
4. Perform survey of utility markings placed by our designators;
5. Complete utility mapping with depictions as outlined in the ASCE 38 standard;
6. QA/QC of our investigative findings based on existing records, maps and as-built information;
7. Complete QLA Test Holes as requested by the design team;
8. Provide mapping of the completed utility investigation findings – signed and sealed by a licensed engineer.

LIMITS OF INVESTIGATION

- The utility investigation will cover the existing City of Flagstaff (COF) right of way of W. Beal Road from approximately 100 feet west of N. Rockridge Road to N. Fort Valley Road, along the existing COF right of way of N. Navajo Drive from N. Navajo Road to N. Murray Road, along the existing COF right of way of W. Whipple Road from N Navajo Drive to N McMillian Road, and along the existing COF right of way of N. Navajo Road from N. Navajo Drive to N. Fort Valley Road as shown in the figure below. The investigation will also cover approximately 100 feet in all directions of the cross streets of the previous listed streets.
- The results of utility investigation and any survey work performed in conjunction with the investigation will be tied to the project datum as specified by the Peak Engineering and the design team.



COCONINO ESTATES IMPROVEMENTS PHASE I

Survey and SUE Limits Exhibit

Document Name: Survey and SUE Limits Date: 2/28/2019

PROJECT APPROACH

The Cardno team will complete a SUE mapping investigation in accordance with the CI/ASCE Standard 38: *Standard Guideline for the Collection and Depiction of Existing Subsurface Utilities*. ASCE 38 provides a nationally recognized, standard guideline for the collection and depiction of existing subsurface utility data. The quality level provides a professional opinion of the quality and reliability of the utility information. The four quality levels are as follows:

- Quality Level D (QLD): Record research of existing subsurface utilities within the project limits by contacting each utility owner and obtaining their available facility records. This process will substantiate necessary records that will be obtained and the mapping of untraceable (nonmetallic buried without trace wire) utilities that do not meet Quality Level C or B specifications. QLD mapping is based on information obtained from record drawings and includes utility type, ownership, size and material composition.
- Quality Level C (QLC): Inclusive of a QLD effort, the project team will provide QLC mapping of existing untraceable subsurface utilities by correlating surveyed surface evidence to the QLD utility records to obtain the utility location. QLC mapping includes utility type, ownership, size and material composition based on available record information.
- Quality Level B (QLB): Involves the use of QLC and QLD methods of utility investigation and the use of surface geophysical techniques under the direction of a Professional Engineer licensed in the State of Arizona to determine the existence and horizontal position of underground utilities. This activity is called “designating.” The information obtained in this manner is surveyed to project control. Two-dimensional (2D) mapping information is obtained.
- Quality Level A (QLA): Involves the use of QLB, QLC and QLD methods of investigation, plus the use of minimally intrusive excavation methods at critical points to determine the precise horizontal and vertical position of underground utilities, as well as the type, size, condition, material and other characteristics. The excavation and data documentation activity is called Locating "excavation of test holes". It is the highest level of utility certainty presently available. When surveyed and mapped, precise plan and profile information is available for making final design decisions at the test hole locations.

Cardno’s general approach is to perform a QLB investigation using all available geophysical means and methods to identify the location of the subsurface utilities within the project limits. Where QLB data is not able to be obtained, the utility will be show at QLC or QLD depending on available information and surface features.

The scope of services identified below provide for QLB mapping. The following tasks outline in detail our approach to the services to be rendered.

SCOPE OF WORK

A Professional Engineer licensed in the State of Arizona (Consultant) shall oversee, document, stamp and seal a Subsurface Utility Engineering (SUE) investigation of the project area to determine existing utility conditions within the project limits. As part of the SUE investigation for this project the Consultant will work on the following tasks:

QLD Utility Records Research

The Cardno team shall perform the following activities as part of their research effort on this project:

- Conduct a full reconnaissance and utility records research to aid in the identification of Utility Owners that may have facilities on, or be affected by, the SUE project.
- Collect all applicable utility facility records available through Utility Owner(s), such as one-call notification, service maps, as-built drawings, standard drawings, service plats, construction plans from prior projects, local government or Agency permit exhibit drawings, and oral histories gained through interviews with Utility Owner officials and authorities.
- Compile a list of all utility companies contacted for information. Note information received with contact information for each response and note non-response if applicable.
- Attempt to identify all known and unknown utilities, except as noted above, within the project area at QLB and depict those utilities at the actual achieved utility Quality Level.
- All documents collected and all utility company contacts (including contact info) will be provided to the client

➢ Perform QLC, QLB Investigation

The Cardno team will conduct the following:

- While conducting survey of the QLB designating marks as identified below, Cardno will review the survey of existing visible surface utility appurtenances conducted by the Prime Consultant for the project and their team (Peak Engineering) and correlate the information provided to the QLD utility records to obtain the utility location. This effort will update the information and mapping to QLC, and all data will be incorporated into the CAD file and final PDF deliverable.
- Utilize geophysical utility locating techniques to determine the true horizontal position of conductive utilities within the project area. The project team will provide QLB mapping of existing traceable (metallic or nonmetallic buried with trace wire) subsurface utilities utilizing a variety of geophysical locating equipment to detect, verify and designate the location of subsurface utilities from above ground. Once designated (horizontally positioned), verified utilities are marked using appropriate pink paint and flagging which is the standard industry color for temporary markings. This field information is then surveyed and mapped into a digitized CAD file compatible with the project design files.
- Cardno will utilize a full suite of geophysical equipment appropriate to existing site conditions for locating the type of utility being investigated. Utilities detected that were not identified by the records research will be termed “undocumented” and depicted on the plans as “unknown” utilities.
- Cardno will use a complimentary suite of geophysical tools in an attempt to determine the location of undocumented utilities but cannot guarantee finding all undocumented utilities. Electromagnetic depths will not be recorded during this investigation.
- As an additional step, Cardno will use inductive scanning techniques in critical areas to attempt to designate the presence of conductive undocumented utilities. QLA Test Holes may be necessary to confirm the existence of undocumented utilities in areas of potential conflicts.
- GPR NOTE: Cardno will conduct an investigation of the project site using Ground Penetrating Radar (GPR) equipment in an effort to detect larger non-metallic utilities. However, the degree of success of a GPR investigation is based entirely on the composition of the soils and the depth and scale of subsurface targets. Electrically non-conductive soils, such as quartz sands, typically allow for the study of phenomena to depths greater than 15 feet. Electrically conductive soils, such as clay, moist silt or saline soils, typically preclude the investigation of targets deeper than 3-6 feet. A determination of a maximum attainable depth of investigation requires on-site resistive site calibration of the GPR equipment. Subsequently, due to the unknown receptiveness of specific site soils to the passage of radar energy, conclusive results cannot be guaranteed from GPR.
- QLB depiction will be attempted on all mainline utilities included within Cardno’s geophysical investigation, with the exception of sewer, storm drain, and possibly non-metallic water which will be depicted at QLC or QLD dependent upon existing physical appurtenances associated with these lines; utilities that cannot be designated at QLB but have existing physical appurtenances in the field will be depicted at QLC; utilities which cannot be designated at QLB and for which there are no visible physical appurtenances will be depicted at QLD per record.
- Locating and identifying individual utility services to homes and buildings will include water, sewer, electrical, communications and natural gas only when they are serviced directly from the City of Flagstaff ROW. Underground storage tanks (USTs), septic fields, traffic loop systems and landscape irrigation are excluded.
- Invert information and, where possible, pipe size/material will be collected at Storm and Sewer Manholes as well as Storm Drain Catch Basins and Drop inlets, where accessible from the surface, and shown on the structure diagrams. The alignment of the sewer pipes will be shown on the drawing based on a combination of record information received, results of the invert investigation, surveyed MH’s/CB’s and professional judgment. If confined space entry is required to obtain information of offset or excessively deep pipes, extra costs will be incurred and will be discussed with the client in advance.
- Collect top of nut elevations on water valves throughout the project limits. If valves are full of water or debris Cardno will notify the client whom will then be responsible for having the valves box cleaned out for further investigation.

➢ Perform Overhead Utility Survey

The Cardno team will research and document overhead utilities within the project limits as follows:

- Pole locations; Ownership and type of utility if available; All data will be incorporated into the CAD drawing and final PDF deliverable. Survey of Pole locations will be completed by Peak Engineering and the prime survey team.

➢ Perform CCTV Investigation

The Cardno team will conduct a CCTV investigation of all sanitary sewer lines throughout the project limits:

- The Cardno team will complete a conventional CCTV investigation, daily reports will follow the NASCO format and standards.
- All sewer laterals encountered during the mainline investigation will also be investigated using CCTV via side launching sondes and video capabilities. The laterals will also be located using a sonde attached to the side launching CCTV apparatus, such that the horizontal position can be determined and mapped/painted on the ground surface. The field markings will be surveyed and processed into the project utility base file.
- CCTV work will be completed and a QA/QC review of all CCTV deliverables against the SUE mapping will be completed. Cardno will provide the client with a QA/QC'd copy of all CCTV reports, videos, and accompanying information.

➢ Perform QLA Test Holes (Potholes) per the QLA ASCE 38 Standard

The Cardno team will complete 25 test holes (assumed) on this project at identified conflict locations as follows:

- Cardno can assist the client in determining the critical points based on their design to identify the test hole locations along with an accompanying test hole number.
- Will provide traffic control plans and protection in accordance with the City of Flagstaff specifications and permit requirements. This item will be subcontracted to a local certified traffic control company if required, and permits for all work are assumed to be waived by the City.
- Cardno will obtain required permits (no cost permits), contact state one-call notification system (Blue Stake), and submit one-call tickets prior to excavation.
- Cardno will use the compressed air & vacuum excavation method at critical points to measure and record the precise horizontal and vertical position of underground utilities, as well as the type, size, condition, material and other characteristics. Standard hole size is 12"x12" hole with a depth up to 6 feet deep.
- Backfill of excavated test holes will be in accordance with City of Flagstaff standards (if applicable).
- The test hole information will be documented on the Cardno Testhole Data Report and then surveyed. The client will receive the reports and a CAD file with the surveyed test hole locations. The testhole reports will be signed and sealed by an Arizona Registered Professional Engineer (licensed with the AZ Board of Technical Registration).

Notes:

- Prior to beginning the QLA test hole work, Cardno will need to receive a list of all requested test holes with accompanying N&E coordinates
- Each test hole will be assigned a unique ID number and will be marked for survey.
- If rock or concrete is encountered during the excavation and Cardno is not able to excavate through our normal excavation procedures, Client will be immediately notified of the field conditions. Excavation in rock or excavation to a depth greater than 12 feet is considered beyond the scope of this proposal and can be estimated for the Client on a case by case basis.
- Dry test holes over QL D or C utilities will be billed at a rate equal of the test hole rate. Extra wide test holes (larger than 18 inches in width) will be billed at 150% of the test hole rate. Any hole excavated over 6' in depth will be charged $75 per foot.
- Test Holes in which two utilities are found at a separation of more than 18" on center will be billed as two separate test holes. Test Holes which are requested at locations of the crossing of two utilities will be billed as two separate test holes with the overall hole width exceeding 15".

DELIVERABLES /SCHEDULE

- The Cardno team will work closely with the project team to provide deliverables in a timeframe consistent with the overall project schedule. An estimated schedule and duration of tasks is listed below. An estimated time line for QLA test holes is below.
  - QLA Test Hole Permit approval and TC: 2 weeks
  - Set holes call in 811: 4 working days
  - QLA Investigation: 7 working days
  - QLA Test Hole Deliverable Preparation and QAQC: 4 working days

DELIVERABLES

- SUE plan set and CAD drawing showing the location of the utilities within the project area. The drawing will depict utilities within the investigation area at the achieved ASCE 38 Quality Level and a 24" x 36" PDF plan set will be signed and stamped by a licensed Professional Engineer.
- Pertinent QLA utility test hole data will be presented in scanned electronic format on our standard "Test Hole Data Summary" and individual "Test Hole Data Report" forms sealed by an Arizona Registered Professional Engineer (licensed with the AZ Board of Technical Registration) that includes the depth, horizontal coordinates, vertical elevation, size, and material composition of the utility line exposed at each test hole.
- Cardno will provide the client with a QA/QC'd copy of all CCTV reports, videos, and accompanying information.
- Cardno will provide the client with all documents collected during the QLD utility records research efforts
- Cardno will provide the client with the list of all utility companies (including contact information) contacted during the SUE investigation

ASSUMPTIONS

- Eagle Mountain will provide the following:
  - Existing topographic survey which will include above ground surface utility appurtenances
  - Survey control
  - Existing right-of-way mapping
  - A list of all active water meters servicing properties throughout the project limits
  - List of all requested test holes with accompanying N&E coordinates
  - Any previously collected utility records, points of contact, as-built plans, and electronic files will be made available for Cardno's use during the utility investigation.
  - Any and all CAD files of the design provided by others will be accurate and suitable for use by Cardno. Cardno assumes that these files are approved and that they are the most current and up-to-date files available, including any and all approved addendums. ROW and/or boundary work will not be completed by Cardno as part of this scope and fee. Any ROW or boundary line work that Cardno is asked to incorporate into our plans will need to be provided to Cardno for its use. If this information is unable to be provided, it will not be included or shown on the SUE utility plans prepared and submitted by Cardno.
  - This Scope of Services has been detailed to ensure we are providing the services desired and agreed to by the client and Cardno. Services not specifically listed are assumed to be excluded from Cardno's scope.
  - An estimated contingency line item for additional investigation is included for sections along Rio De Flag and Water Line tying into the Flagstaff High School. This will not be billed or start execution without prior notice from the client.
- Other assumptions:
  - City of Flagstaff will waive all permit fees and therefore have been assumed at zero cost
  - Sanitary Sewer lines do not require cleaning in order to complete the CCTV investigation. Cost to clean out the lines have not been included in this proposal.

PROJECT ESTIMATE

For the services outlined Cardno proposes compensation for the estimated fee identified below.

Cardno

Coconino Estates Improvements
Subsurface Utility Engineering
Cardno Proposal

PROJECT ESTIMATE			
SUE Quality Level "D, C & B" Designating/Mapping			
*Quality Level "D, C, & B" Designating Subsurface Utilities	40 hours @	$280.00 per hour	$11,200.00
		Subtotal	**$11,200.00**
SUE Quality Level "A" Test Hole Excavation			
*Quality Level "A" Test Hole Estimate	25 holes @	$630.00 per hole	$15,750.00
*Contingency	Extra Depth/Width and/or Concrete Work		$1,000.00
		Subtotal	**$16,750.00**
CCTV Investigation			
CCTV Investigation of Sanitary Sewer	Lump Sum		$7,800.00
CCTV Investigation of Sanitary Sewer Laterals	150 Laterals @	$78.00 per lateral	$11,700.00
		Subtotal	**$19,500.00**
Professional Services			
*Project Manager	2 hours @	$157.00 per hour	$314.00
*Project Engineer	8 hours @	$132.00 per hour	$1,056.00
*SUE Supervisor	16 hours @	$120.00 per hour	$1,920.00
*CAD Technician	36 hours @	$96.00 per hour	$3,456.00
*Admin	2 hours @	$69.00 per hour	$138.00
		Subtotal	**$6,884.00**
Misc., Permits & Maintenance of Traffic			
Permits: (assumes "zero" cost)	No Cost on Project		$0.00
Maintenance of Traffic Set-ups, Traffic Plan Preparation & Traffic Plan Permit Submittals	No Cost on Project		$0.00
Slurry Backfill (estimated)	Estimated (Billed Cost + 10%)		$2,500.00
Contingency Mapping (billed at rates above, will not execute without prior authorization)	Estimated		$3,000.00
		Subtotal	**$5,500.00**
		TOTAL	**$59,834.00**

*** Proposal estimate only, the cost may vary plus or minus do to unknown field conditions & municipalities requirements**
Note: Off duty police officers are not included in this proposal, if required per the permit restrictions a change order will be required.
Note: Permits are assumed to be at no cost due to being a City project. Traffic control plans, barricade setups, etc, are assumed to be at zero cost and will be covered by Eagle Mountain Construction.

Cardno will not exceed the estimated fee without prior authorization from Client. An invoice will be prepared upon completion for the actual work completed up to the estimated budget amount. We appreciate this opportunity to provide professional SUE and Surveying services for this project. Should you have any questions or require additional information, please do not hesitate to call.

Sincerely,

Cardno, Inc.

Robert Ramsey, P.E, LEED AP
Business Unit Manager – UES West
Phone: 602.320.8121
Email: robert.e.ramsey@cardno.com

AGREEMENT

This Agreement sets forth the following terms and conditions for retention of Cardno, Inc. ("Cardno") to provide consulting services to Eagle Mountain (hereinafter referred to as "CLIENT") in connection with the subject project.

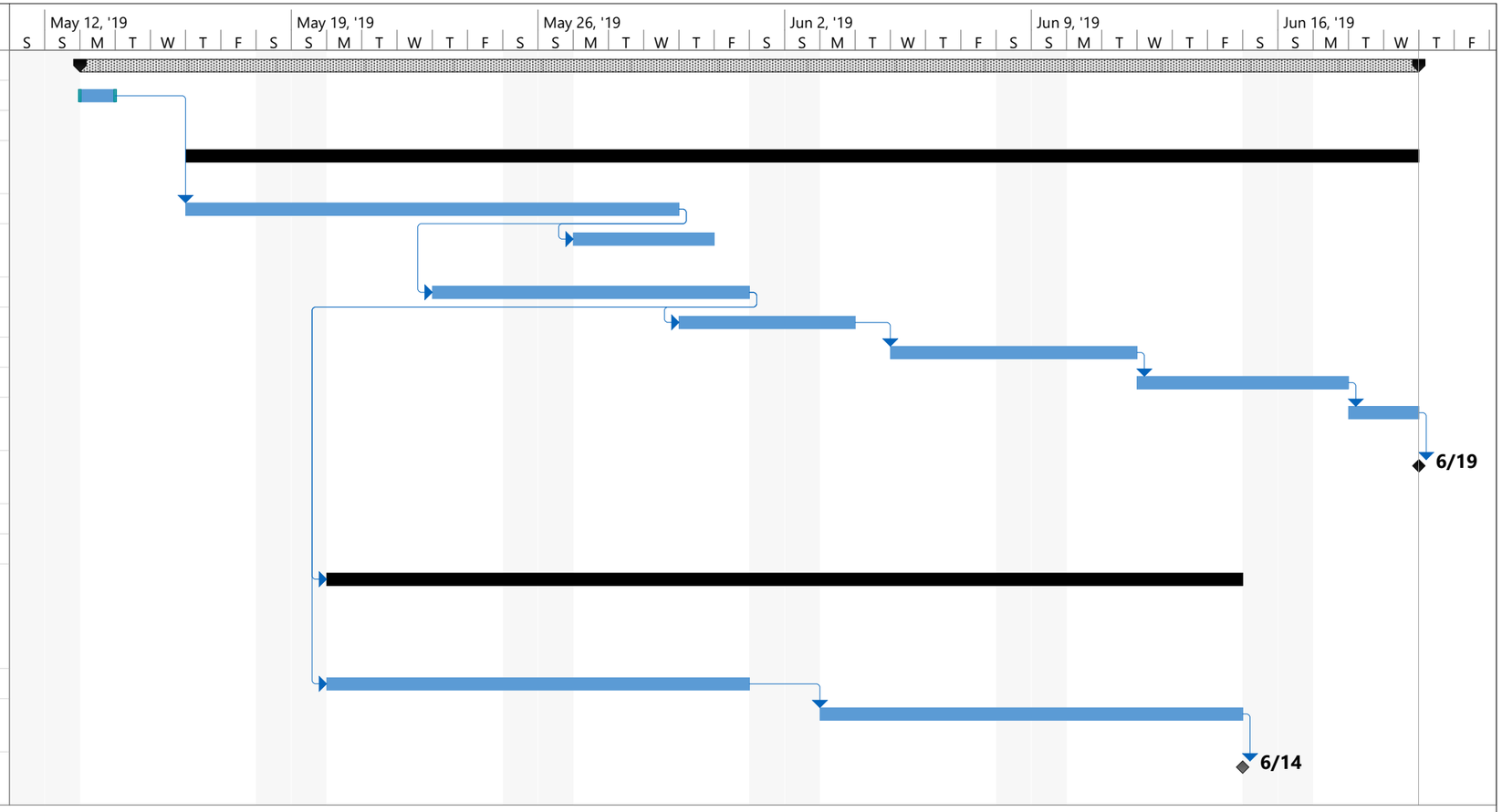
This Agreement consists of the following identified subparts, all of which are attached hereto and by this reference incorporated herein: SCOPE OF SERVICES, FEE SCHEDULE and GENERAL CONDITIONS.

The basis of Cardno's retention is described in the attached SCOPE OF SERVICES, COMPENSATION and GENERAL CONDITIONS. Client acknowledges they have read and agree to the Scope of Services, Fee Schedule and General Conditions as provided in the General Conditions. Any requested services which are in addition to the attached Scope of Services will be invoiced according to Cardno's standard schedule of rates or included in a contract addendum.

THIS IS A LEGALLY BINDING AGREEMENT APPROVED AND AGREED TO:

Approved for: *Eagle Mountain*	Approved for: *Cardno Inc.*
Signed:_____	Signed: _____
Name:_____	Name: _____
Title:_____	Title: _____
Date:_____	Date: _____

ID	Task Mode	Task Name	Duration	Start	Finish
1		CC Estates - SUE	28 days	Mon 5/13/19	Wed 6/19/19
2		NTP	1 day	Mon 5/13/19	Mon 5/13/19
3					
4		Subsurface Utility Engineering	25 days	Thu 5/16/19	Wed 6/19/19
5		Records Research	10 days	Thu 5/16/19	Wed 5/29/19
6		Supervisor Records/Review	4 days	Mon 5/27/19	Thu 5/30/19
7		Field Designating	7 days	Thu 5/23/19	Fri 5/31/19
8		Field Survey	3 days	Thu 5/30/19	Mon 6/3/19
9		CAD Data Processing	5 days	Wed 6/5/19	Tue 6/11/19
10		QA/QC Review	4 days	Wed 6/12/19	Mon 6/17/19
11		Address Review Comments	2 days	Tue 6/18/19	Wed 6/19/19
12		Submittal 100% ASCE 38-02 Mapping	0 days	Wed 6/19/19	Wed 6/19/19
13					
14					
15		CCTV Pipeline Inspection - Planning, Acquisition, and	20 days	Mon 5/20/19	Fri 6/14/19
16		Field Work	10 days	Mon 5/20/19	Fri 5/31/19
17		CCTV Reports	10 days	Mon 6/3/19	Fri 6/14/19
18		Submittal 100% CCTV	0 days	Fri 6/14/19	Fri 6/14/19



Project: Coconino Est. - SUE Sc
Date: Fri 3/8/19

Task	Project Summary	Manual Task	Start-only	Deadline	
Split	Inactive Task	Duration-only	Finish-only	Progress	
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress	
Summary	Inactive Summary	Manual Summary	External Milestone		

April 3, 2019

Mr. Marco Spagnuolo
Eagle Mountain Construction, Inc.
3100 North Caden Court
Flagstaff, AZ 86004

Re: Coconino Estates Improvements Phase 1 Project – Scope of Work and Estimate for Public Involvement Services

Mr. Spagnuolo:

Beta Public Relations (BetaPr) respectfully submits this scope and estimated fee for Public Involvement Services on the City of Flagstaff's Coconino Estates Improvements Phase 1 Project. The project consists of utility and roadway improvements along West Beal Road from North Rockridge Road to North Fort Valley Road, North Navajo Drive from West Murray Road to West Navajo Road, West Whipple Road from North Navajo Drive to North McMillan Road, and West Navajo Road from North Navajo Drive to North Fort Valley Road.

Due to the potential impacts to businesses and residents, proactive public involvement is crucial to gathering valuable input and managing perception of the project. Outreach to local businesses, residents, and stakeholders will require a creative and targeted approach, adopted early and maintained throughout the project. This approach will begin with a project flier distributed immediately after City Council's award of contract. Additional outreach activities will be performed to notify stakeholders of the three design phase public meetings. By connecting with an informed public, the project team will develop a consensus on how to best proceed in the design process and into construction.

Assuming a 12-month schedule, we have developed a comprehensive approach to public outreach for the Coconino Estates Neighborhood. Outlined below are the tasks associated with the design phase of the project and estimated costs. If necessary, we will adjust our estimate to accommodate the City's needs, or any changes to the scope of work.

Project Scope	Estimated Cost
Task 1 – Project Fliers Design and Production BetaPr will design and produce four project fliers. The initial flier will introduce the project to the public, open lines of communication, and provide a time frame for the first public meeting. Three additional fliers will serve as public meeting invitations and general project information pieces.	$2,180.00

Task 2 – **Project Flier Mailings** Project fliers will be mailed to fully saturate areas in and around the project corridors (see Figure 1). Fliers will be mailed directly to property owner's addresses generated from the Coconino County Assessor's website. Initial mailing activities will be performed immediately after City Council's award of contract. Additional mailing activities will be performed to notify stakeholders of the three design phase public meetings.	$560.00
Task 3 – **Outreach to Project Corridor Businesses and Residents** In addition to the mailed fliers, BetaPr will hand-deliver the project fliers to each business and resident along the project corridors. Initial outreach will be performed immediately after City Council's award of contract. Additional outreach activities will be performed to notify stakeholders of the three design phase public meetings.	$2,980.00
Task 4 – **Attend Kickoff and Progress Meetings** BetaPr will attend the kickoff meeting to review the project schedule, establish communication protocols, and identify City and team contacts. Staff will attend three additional progress meetings, one prior to each public meeting.	$540.00
Task 5 – **Facilitate Public Meetings** BetaPr will facilitate three public meetings, including producing meeting materials, assisting with presentations, and meeting set-up and take-down. After the meetings are complete, a summary report will be provided to the team compiling all comments and input received. The City of Flagstaff will be responsible for the public meeting locations and any associated venue rental fees.	$3,480.00
Task 6 – **Project Hotline Maintenance and Public Issues Log** BetaPr will establish and maintain a project hotline. Hotline calls will be answered by BetaPr staff during the course of the project. All caller issues, questions, or concerns will be directed to the project team for response. A Public Issues Log documenting all project hotline calls, project-specific emails received, and the nature of those inquiries will be recorded as part of the log.	$520.00
Task 7 – **eNews Release and Database Development** BetaPr will develop and release an eNews prior to each public meeting. Distribution will include the interested party database generated from hotline calls, emails received, and requests received via stakeholder outreach. The project database will be updated to include any new interested party contacts for future eNews communications during construction.	$340.00
Task 8 – **Web Page Updates** Web updates will be developed and provided to the City of Flagstaff to upload to their existing project-dedicated web page prior to each public meeting.	$240.00
Total Estimated Labor Expenses	**$10,840.00**

Direct Expenses	Estimated Cost
Project flier printing – 3,000 pieces* x $0.50 per piece (750 per mailing) ** Includes mailings, door to door distribution, and supplying copies to project team.*	$1,500.00
Postage – 1,888 pieces* x $0.55 per piece (472 notifications per mailing) ** Includes property owner's addresses generated from the Coconino County Assessor's website.*	$1,038.40
Website domain and email service – $8.00 per month x 12 months	$96.00
Community meeting visual aids – Printing and reproduction	$400.00
Direct mail provider (eNews) and hotline phone service – $40 per month x 12 months	$480.00
Total Estimated Direct Expenses	**$3,514.40**

Total Estimated Project Cost $14,354.40

Thank you for the opportunity to work on this project. If you have any questions regarding the scope of work, feel free to contact me at (928) 440-5080. We look forward to working with Eagle Mountain Construction, Inc. to provide effective public involvement support for the Coconino Estates Improvements Phase 1 Project.

Sincerely,

Bryce Snyder
Principal
BetaPr

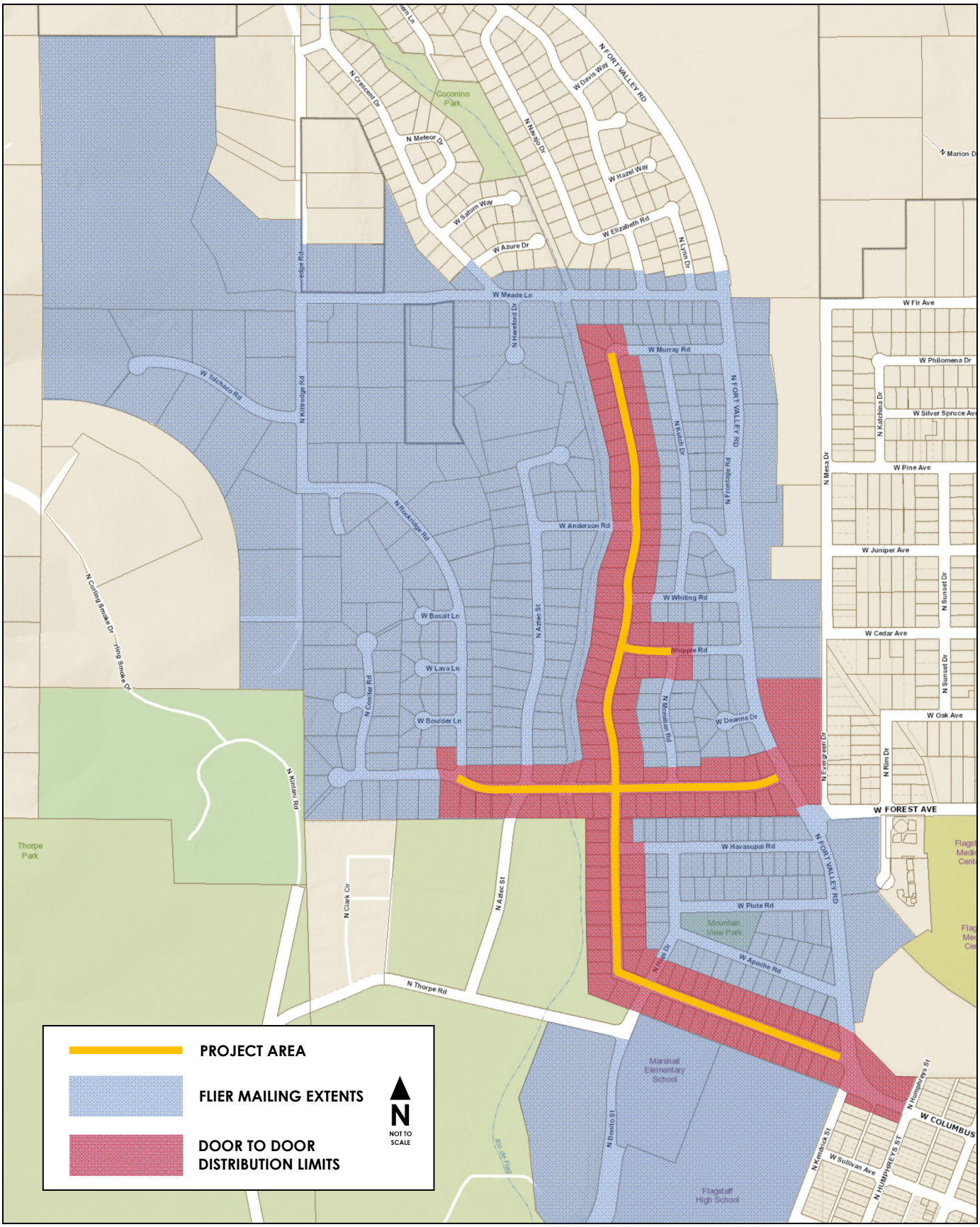


Figure 1. Project Flier Distribution Map