CITY OF PHOENIX, ARIZONA
OFFICE OF THE CITY ENGINEER
DESIGN AND CONSTRUCTION PROCUREMENT

REQUEST FOR QUALIFICATIONS

GLENROSA FLEET SHOP REPLACEMENT
ENGINEERING SERVICES
PW26700044

PROCUREPHX PRODUCT CATEGORY CODE 925000000
RFx 6000001593

REQUEST FOR QUALIFICATIONS

The City of Phoenix is seeking a qualified consultant team to provide engineering services for the relocation of the Fleet Services Shop to a new adjacent location. Services may include programming, design, and possible construction administration and inspection (CA&I). This project site is located at 4019 W. Glenrosa Avenue.

SECTION I – PROJECT DESCRIPTION

The building facility provides repairs and maintenance for the City of Phoenix's solid waste fleet of various waste trucks plus other fleet cars and trucks. A significant portion of the serviced vehicles are or will soon be fueled by compressed natural gas (CNG). The City has identified the existing maintenance facility, including both the light and heavy portions, as requiring either upgrades to the selected building systems to comply with current building code requirements; or construction of a new facility; which will allow service of CNG vehicles in all service areas of the building.

The remodeled and expanded facility is to include an 8-bay facility with warehouse, tire storage and repair, administrative, and support spaces comprising approximately 16,300 square feet. The fleet to be serviced includes garbage trucks, pickup trucks, cars, backhoes, street sweepers, and other miscellaneous City vehicles. Vehicle staging and circulation around and within the proposed facility is an important program requirement.

SECTION II – SCOPE OF WORK

Services to be provided are to be comprehensive for the remodeling and expansion of the existing facility and will include architectural programming & design, structural engineering, mechanical, plumbing and electrical engineering, civil engineering, as well as landscape architecture as required for the delivery of a complete project.

The project design shall consist of a phased construction, in order to accommodate owner continued operations and occupancy of the facility.

Use of UNIFIER, an Application Service Provider (ASP) web-based project management database, may be required. The following information provides a guideline for utilization. Any questions related to the requirements of UNIFIER should be directed to the Project Manager.

- The Consultant will be required to maintain all project records in electronic format.
- The City provides an ASP web-based project management database which the Consultant will be required to utilize in the fulfillment of the contract requirements.

- The Consultant shall provide a computerized networked office platform with broadband internet connectivity.
- UNIFIER training will be provided through the City of Phoenix to firms under contract**.**

SECTION III - PRE-SUBMITTAL MEETING

A pre-submittal meeting will be held at 9:00 a.m. on Thursday, May 2, 2024, at 200 W. Washington Street, City Hall Conference Room 5 West. At this meeting, City staff will discuss the scope of work, general project requirements, and respond to questions from the attendees. It is strongly recommended that interested consultants attend the pre-submittal meeting. Inquiries regarding the project scope outside of this pre-submittal meeting must be directed to the Contracts Specialist.

SECTION IV - STATEMENT OF QUALIFICATIONS EVALUATION CRITERIA

A Firm will be selected through a qualifications-based selection process based on the criteria below. Sub-criteria are listed in order of importance in relation to project services. City of Phoenix project experience is not required.

A. Design and Programming Experience of the Prime Firm (maximum 150 points)

Describe the experience and qualifications of the prime firm in providing design and programming services for similar projects. Identify projects the submitting firm has completed. For each project listed, provide:

1. Description of the project including scope and project owner
2. Role of the firm and explain how this relates to the services being solicited
3. Project's original contract value, final contract value, and reason for variance
4. Project's start date and completion date

B. Construction Administration and Inspection Experience of the Prime Firm (maximum 150 points)

Describe the experience and qualifications of the prime firm in CA&I services for similar projects. Identify projects the submitting firm has completed. Include assigned CA&I personnel if different from personnel performing design and programming services. For each project listed, provide:

1. Description of the project including scope and project owner
2. Role of the firm and explain how this relates to the services being solicited
3. Project's original contract value, final contract value, and reason for variance
4. Project's start date and completion date

C. Design and Programming Experience of the Key Personnel and Subconsultants (maximum 125 points)

Describe the experience and qualifications of the specific project team expected to be assigned to this project in providing design and programming services for similar projects. For each key person identified, list their length of time with the firm. List each key person's role in the projects provided. If a project selected for a key person is the same as one selected for the firm, provide just the project name and the role of the key person. For each project listed, provide:

1. Description of the project including scope and project owner
2. Role of the team or team member and explain how this relates to the services being solicited
3. Project's original contract value, final contract value, and reason for variance
4. Project's start date and completion date

D. Construction Administration and Inspection Experience of Key Personnel and Subconsultants (maximum 125 points)

Describe the experience and qualifications of the project team expected to be assigned to this project in providing CA&I services for similar projects. For each key person identified, list their length of time

with the firm. List each key person's role in the projects provided. If a project selected for a key person is the same as one selected for the firm, provide just the project name and the role of the key person. Include assigned CA&I personnel if different from personnel performing design and programming services. For each project listed, provide:

1. Description of the project including scope and project owner
2. Role of the team or team member and explain how this relates to the services being solicited
3. Project's original contract value, final contract value, and reason for variance
4. Project's start date and completion date

E. Project Understanding and Approach (maximum 300 points)

Describe your firm's understanding of the City's need for this project, including important considerations such as project issues and challenges. Describe the team's approach to the project, including important considerations such as scope, schedule, and budget.

A Feasibility Study for the project is appended to this Request for Qualification - Exhibit B.

F. Staffing Information for Key Personnel (maximum 150 points)

Provide the following:

1. Team's availability and commitment to the project, including subconsultants
2. Team's plan to maintain continuity of the proposed services
3. Organization chart showing key personnel, current professional licenses or certifications, and assigned roles for Design, Programming and CA&I Services for the project
4. Identify the location of the lead firm's principal office and the home office location of key staff on this project

G. Reference Check (maximum 21 points*)

Use the form provided (Exhibit A) to obtain at least three references. It is preferred no more than one be a City of Phoenix project. If your firm has not completed prior projects with other agencies, you will not be penalized. It is recommended there be references outside the City of Phoenix.

*These points are in addition to the 1,000 points for the SOQ.

SECTION V - SUBMITTAL REQUIREMENTS

New Submittal Process: Firms interested in this project must submit a Statement of Qualifications (SOQ) via email to julie.b.smith@phoenix.gov.

Submittal requirements are as follows:

☑ **Vendor Information: All firms must be registered in the City's Vendor Management System prior to submitting a proposal. For new firms, the City will send an email to your firm with a vendor number within two business days of submitting the request. The vendor number should be included on the cover of the SOQ. Information on how to register with the City is available at:**
https://www.phoenix.gov/financesite/Pages/EProc-help.aspx

If your firm is already registered with the City of Phoenix's ProcurePHX system, please visit https://eprocurement.phoenix.gov/irj/portal to login and access the electronic solicitation.

☑ **The product category code for this RFQ is 925000000 and the RFx number is 6000001593.**

☑ **Submittals:**

- Submittals must be emailed to Julie.b.smith@phoenix.gov by the submittal due date and time.
- Submit only one SOQ electronically, in .PDF format only, addressing all evaluation criteria. No hard copies will be accepted.

- Clearly display the firm name, vendor number, project title, and project number on the cover of the SOQ.
- A maximum of **12 pages** is permitted to address all content in the SOQ submittal. ***(Maximum page limit includes evaluation criteria and all additional content. It does not include information sheet.)***
- Submit the Statement of Qualifications electronically via email to Julie.b.smith@phoenix.gov by **12:00 noon, Phoenix time, on Friday, May 17, 2024.**
- Upload one complete version of the SOQ addressing all the criteria. Upload format is .PDF.
- Page size must meet requirements of 8½" x 11".
- Font size must not be less than 10 point.
- Content count:
  - ✓ Each side of a page containing evaluation criteria and additional content will be counted toward the maximum page limit noted above.
  - ✓ Pages that have project photos, charts and/or graphs will be counted towards the maximum page limit noted above.
  - ✓ Front and back covers, information sheet, Table of Contents pages, and divider (tab) pages **will NOT** be counted toward the maximum page limit noted above, unless they include evaluation criteria and additional content that could be considered by the selection panel.

☑ **Information Sheet:** Provide an information sheet that includes project title, project number, RFx number, **legal firm name (not a trade name)**, address, phone number, vendor number, and the name, title, email address and signature of your contact person for the project. Do not include any additional information.

☑ **Evaluation Criteria:** Address the SOQ evaluation criteria.

☑ **Additional Content:** Resumes and other information may be included (*content shall be included within the permitted maximum page limit*).

Note: All pages exceeding the specified maximum page limit will be removed from the submittal and not considered in evaluating a submitted SOQ.

SECTION VI – GROUNDS FOR DISQUALIFICATION

The following **will be grounds for disqualification,** and will be strictly enforced:

- Emailing submittal to the wrong contract specialist.
- Violating the "Contact with City Employees" policy contained in this RFQ.

SECTION VII - SELECTION PROCESS AND SCHEDULE

Interested firms will submit a SOQ. The firm will be selected through a qualifications-based selection process. A selection panel will evaluate each SOQ per the criteria set forth in Section IV above.

The City will select a firm based on the SOQs received; no formal interviews will be conducted. The City may conduct a due diligence review on the firm receiving the highest evaluation.

The City expects to create a final list of at least one, but not more than three firms for this project. The City will enter into negotiations with the selected firm and execute a contract upon completion of negotiation of fees, contract terms, and City Council approval.

The following tentative schedule has been prepared for this project.

Pre-submittal meeting	May 2, 2024
SOQs due	May 17, 2024
Scope Meeting	June 2024

If the City is unsuccessful in negotiating a contract with the best-qualified firm, the City may then negotiate with the next most qualified firm until a contract is executed, or the City may decide to terminate the selection process. Once a contract is executed with the successful firm, the procurement is complete.

All submitting firms will be notified of selection outcome for this project. The status of a selection on this project will be posted on the City of Phoenix's "Tabulations, Awards, and Recommendations" website:

http://solicitations.phoenix.gov/awards

The selected Consultant should expect to comply with the Arizona State Statutes Title 34 and City of Phoenix Design and Construction Procurement's contract provisions.

SECTION VIII – GENERAL INFORMATION

Citywide Capital Improvement Projects. Consulting and contractor services supporting the City's Capital Improvement Projects are procured under the authority of the City Engineer, currently located within the Street Transportation Department. Design and Construction Procurement coordinates the citywide consulting and construction contracting procurement processes.

Changes to Request for Qualifications. ***Any changes to this Request for Qualifications (RFQ) will be in the form of a Notification.*** The City of Phoenix shall not be held responsible for any oral instructions. Notifications are available on both the Current Opportunities and ProcurePHX webpage.

It shall be the responsibility of the registered RFQ holder to determine, prior to the submittal of the Statement of Qualifications, if a Notification has been issued. Registered RFQ holders may refer to the web page or call the Contracts Specialist (listed below) to ascertain if a Notification has been issued for this project.

Alternate Format. For more information or a copy of this publication in an alternate format, contact the Contracts Specialist (listed below) - Voice or TTY 711. Requests will only be honored if made within the first week of the advertising period.

Release of Project Information/Public Records Request. The City shall provide the release of all public information concerning the project, including selection announcements and contract awards. Those desiring to release information to the public must receive prior written approval from the City. To submit a Public Records Request, visit phoenix.gov/prr.

City Rights. The City of Phoenix reserves the right to reject any or all Statements of Qualifications, to waive any informality or irregularity in any Statement of Qualifications received, and to be the sole judge of the merits of the respective Statements of Qualifications received.

Contact with City Employees. This policy is intended to create a level playing field for all Proposers, assure that contracts are awarded in public, and protect the integrity of the selection process. **OFFERORS THAT VIOLATE THIS POLICY WILL BE DISQUALIFIED.**

Beginning on the date the RFQ is issued and until the date the contract is awarded or the RFQ withdrawn, all persons or entities that respond to the RFQ, including their authorized employees, agents, representatives, proposed partner(s), subcontractor(s), joint venture(s), member(s), or any of their lobbyists or attorneys (collectively the Proposer), will refrain from any direct or indirect contact with any person (other than the designated Contract Specialist) who may play a part in the selection process, including members of the evaluation panel, the City Manager, Assistant City Manager, Deputy City Managers, Department heads, the Mayor and other members of the Phoenix City Council. As long as the RFQ solicitation is not discussed, Proposers may continue to conduct business with the City and discuss business that is unrelated to this RFQ solicitation with City staff.

Commencing on the date and time a solicitation is published, potential or actual proposers (including their representatives) will only discuss matters associated with the solicitation with the Mayor, any members of City Council, the City Manager, any Deputy City Manager, or any department director directly associated with the solicitation (including in each case their assigned staff, except for the designated procurement officer) at a public meeting, posted under the Arizona Revised Statutes, until the resulting contract(s) are

awarded or all offers or responses are rejected and the solicitation is cancelled without any announcement by the procurement officer of the City's intent to reissue the same or a similar solicitation.

Proposers may discuss their proposal or the RFQ solicitation with the Mayor or one or more members of the Phoenix City Council, provided such meetings are scheduled through the Contract Specialist (listed below), conducted in person at 200 W. Washington, Phoenix, Arizona 85003, and are posted as open meetings with the City Clerk at least twenty-four (24) hours prior to the scheduled meetings. The City Clerk will be responsible for posting the meetings. The posted notice shall identify the participants and the subject matter, as well as invite the public to participate.

Conflict of Interest. The City reserves the right to disqualify any Proposer on the basis of any real or apparent conflict of interest that is disclosed by the proposal submitted or any other data available to the City. This disqualification is at the sole discretion of the City. Any Proposer submitting a proposal herein waves any right to object now or at any future time, before any body or agency, including but not limited to, the City Council of the City of Phoenix or any court.

Protest Procedures. Firms responding to disqualification or a procurement outcome are referred to the Code of the City of Phoenix Chapter 2, Article XII, Section 2-187 to 2-190.4, which governs protest procedures utilized throughout the selection process. The procedures may be reviewed through the City of Phoenix website at:

http://www.codepublishing.com/az/phoenix/

A copy of the Protest Policy is also available online at:

https://www.phoenix.gov/streets/procurement-opportunities

Questions - Questions pertaining to this selection process or contract issues should be directed to the Contracts Specialist, Julie B. Smith at (602) 534-2418 or email julie.b.smith@phoenix.gov.

EXHIBIT A
CONSULTANT REFERENCE CHECK INSTRUCTIONS, FORM, AND SAMPLE LETTER

The attached Consultant Performance Evaluation Form is to be provided to the agencies or entities for which your firm has recently provided services relevant to those requested for this project. Provide the evaluation form to the Owner, or the Owner's representative directly responsible for oversight of the project to complete and submit to the email box listed below.

The first three references submitted will be accepted and the scores utilized as part of the evaluation process. Each reference check is worth up to 7 points for a total of up to 21 points available.

The form is to be completed by the agency or entity and uploaded to the (email box) at:
soq.referencechecks@phoenix.gov

The procurement identifier is:

6000001593

Attention: Julie B. Smith

Also attached is a sample performance evaluation cover letter that may be used when sending the reference check request.

Sample Consultant Performance Evaluation Cover Letter

Sample Cover Letter
Contact Name
Address of Reference

(Your Name) is responding to a Request for Qualifications (RFQ) from the City of Phoenix Office of the City Engineer's Design and Construction Procurement section.

The City is requesting reference information related to our past performance. As a part of the response submittal process, the City is requesting performance evaluations from agencies that our firm has performed services for either in the past or is currently receiving services.

I would appreciate your cooperation in completing the attached Consultant Performance Evaluation form and return by email the completed form by 12:00 pm Phoenix time on **May 17, 2024** to:

soq.referencechecks@phoenix.gov

Reference in Subject Line: RFx #6000001593

For questions, contact Julie B. Smith, Contracts Specialist at 602-534-2418.

Failure to submit the Consultant Performance Evaluation form by the above date will have a negative impact on the proposal we submit for this service. Your cooperation in submitting this form by this date is appreciated.

If you have any questions regarding this request, please contact (your name) at (your telephone number).

Sincerely,

INSTRUCTIONS FOR COMPLETING CONSULTANT PERFORMANCE EVALUATION

Evaluate the consultant's contract performance in each of the rating areas listed below. On the Consultant Performance Evaluation form, circle the rating from 1 to 4 that most closely matches your evaluation of the consultant's performance. Comments are not required but appreciated. **Every rating area must be scored.**

The Design and Construction Procurement section will use the information from this form to evaluate firms competing for contract award. **This completed form will become public record and upon request, will be released to the consultant or any other entity.**

Please submit the completed form to the address indicated on the bottom of the Consultant Performance Evaluation form. Thank you for your time and your cooperation.

GLENROSA FLEET SHOP REPLACEMENT – ENGINEERING SERVICES
RFx: 6000001593

CONSULTANT PERFORMANCE EVALUATION FOR _____

(firm name)

In the box below, provide the project title, contracted services provided by the firm, and start and completion date of services. This form is to be completed by the Owner, or the Owner's representative directly responsible for oversight of the project. The project services evaluated must be relevant to the services of this project. Every rating area must be scored.

RATINGS: Summarize the Consultant's performance and circle the number below that corresponds to the performance rating for each category. Please see the rating scale.

1 = Unsatisfactory (.25 pt.); 2 = Poor (.50 pt.); 3 = Good (.75 pt.); 4 = Excellent (1.0 pt.)

HOW WOULD YOU RANK THE BUSINESS RELATIONSHIP BETWEEN THE OWNER AND THE FIRM?	4 3 2 1	Comments:
WAS THE TEAM PRESENTED IN THE PROPOSAL THE TEAM THAT WORKED ON THE PROJECT TO COMPLETION?	4 3 2 1	Comments:
WAS STAFF PROACTIVE IN SOLVING PROBLEMS THAT MAY HAVE OCCURRED ON THE PROJECT?	4 3 2 1	Comments:
WAS THE CONTRACTED SCOPE OF SERVICES COMPLETED ON TIME AND WITHIN BUDGET?	4 3 2 1	Comments:
HOW WOULD YOU RATE THE QUALITY OF WORK PERFORMED BY THIS FIRM ON YOUR PROJECT?	4 3 2 1	Comments:
DID THE FIRM RECOMMEND EFFICIENCIES OR PROVIDE INNOVATIVE IDEAS OR SUGGESTIONS?	4 3 2 1	Comments:

WOULD YOU BE WILLING TO CONTRACT WITH THIS FIRM AGAIN? (YES = 1 point)	YES NO	Comments:
TOTAL SCORE		(MAXIMUM 7 POINTS)

Reference Evaluation Provided By:

Name and Title: _____

Agency/Organization: _____

Date: _____

Telephone Number: _____

*Email completed form by **May 17, 2024** by **12:00 pm Phoenix time** to:*

soq.referencechecks@phoenix.gov

***EMAIL SUBJECT LINE SHOULD REFERENCE RFx NUMBER 6000001593**

The document should reference the project number and firm for which the reference check is being submitted. If no project number is available, reference the service and firm for which the reference check is being submitted.

EXHIBIT B
FEASIBILITY REPORT

FLEET MAINTENANCE REPLACEMENT SHOP GLENROSA SERVICE YARD

City of Phoenix

COP Project PW26700044-1
GLA Project 23103

DRAFT

Feasibility Report

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18 September 2023

FLEET MAINTENANCE REPLACEMENT SHOP
GLENROSA SERVICE YARD
City of Phoenix

COP Project PW26700044-1
GLA Project 23103

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18 September 2023

FLEET MAINTENANCE REPLACEMENT SHOP
GLENROSA SERVICE YARD
City of Phoenix

COP Project PW26700044-1
GLA Project 23103

1.0 INTRODUCTION & GOALS

The proposed Glenrosa Service Yard replacement shop for maintenance of City of Phoenix fleet vehicles is an 8-bay facility with warehouse, tire storage and repair, administrative, and support spaces comprising approximately 16,300 square feet in one story facility. The fleet to be serviced includes garbage trucks, pickup trucks, cars, backhoes, street sweepers, and other miscellaneous city vehicles. Vehicle staging and circulation around and within the proposed facility is an important program requirement. A mezzanine for storage of light, bulky items is to be provided at the warehouse.

The City of Phoenix is converting a substantial portion of its solid waste fleet vehicles to compressed natural gas (CNG) fuel. The existing Glenrosa Fleet Maintenance Facility has been determined to be non-code compliant for CNG vehicle maintenance and is aging out.

This report describes the observations of GLA's architectural team lead by Jan Lorant, of its mechanical engineering consultant, Gregory S Piraino PE, and its electrical engineering consultant, William Bethrum PE, to discuss the specific code issues of CNG maintenance and recommended upgrades which should be installed in the new Glenrosa Fleet Maintenance Facility as they relate to maintenance of CNG vehicles, develops a list of key Architectural, Mechanical, Plumbing and Electrical features and appropriate utility provisions for a new facility.

1.1 EXISTING FACILITY DESCRIPTION

The City of Phoenix Glenrosa Solid Waste Fleet Maintenance Building is located at 4019 W Glenrosa Avenue in Phoenix, AZ. The building facility provides repairs and maintenance for the City of Phoenix's solid waste fleet of various waste trucks plus other fleet cars and trucks. A significant portion of the serviced vehicles are or will soon be fueled by Compressed Natural Gas (CNG). The City has identified the existing maintenance facility, including both the light and heavy portions of the facility, as requiring upgrades to selected building systems to comply with current building code requirements to allow service of CNG vehicles in all service areas of the building or construct a new facility with these required features. This report describes the upgrades to meet present building codes for CNG service shops, and the MPE features which would be necessary in a new ground up facility as designed by GLA Architects under this study.

1.2 LOCATION OF NEW FACILITY WITH RESPECT TO EXISTING CNG FACILITY

The new facility should be located 50' or more from the CNG station and situated so that the outside turning radius large truck (48') in and out of the vehicle bays can be accommodated.

2.0 EXECUTIVE SUMMARY of OBSERVATION FINDINGS & RECOMMENDATIONS

A review of the existing facility and preliminary code assessment identified upgrades required within the new facility as follows:

A) Provide infrared heating systems with rooftop mounted indirect fired heating systems ducted into the space below.

B) Provide a gas detection system for the facility that, upon positive detection, would interlock and provide shutdown of heating systems and other equipment within the service areas that may potentially present sources of ignition upon gas detection.

C) Configure evaporative coolers, ducts, and fans to provide an effective purge function after a CNG release is detected and add a control sequence which will include de-energizing the HVAC units, starting CNG emergency exhaust fans, and automatically opening garage doors.

D) Configure the existing Evaporative Coolers discharge air ductwork to function for both cooling, heating, and ventilating seasons for all occupied hours to utilize the NEC exception to requiring explosion-proof wiring continuous ventilation for the 18" zone at the ceiling space. Ductwork should extend supply air to floor level to enhance air distribution effectiveness and create more uniform flow patterns.

Discussions with City of Phoenix personnel indicated that the number of CNG fueled vehicles serviced will be increased and there is a desire that the entire facility accommodate CNG service capabilities with the sole exception of the tire shop which could remain to service conventional liquid fuels.

3.0 CODE ANALYSIS

For the purposes of this report it was assumed that the existing repair facility complies with the basic code requirements for a Major Repair Garage at the time of construction (i.e., they are "grandfathered" and are therefore in basic code compliance). This activity did not include verification of all aspects of the building for compliance with all new building codes and does focus on the CNG specific portions of these latest codes. CNG facilities are presently required to be designed and built to the NFPA, IFC, and IMC codes and standards listed below:

- **NFPA 30A (National Fire Protection Association)** – **Motor Fuel Dispensing Facilities and Repair Garages**
- **NFPA 52 – Vehicular Fuel Systems** - Provides the latest fire safety rules for compressed natural gas (CNG) fuel systems

- **NFPA 70 - (National Electrical Code – NEC)** – Provides a standard for the safe installation of electrical wiring and equipment.
- **International Fire Code (IFC) Section 2311.7 Repair Garages for Vehicles Fueled by Lighter-than-Air Fuels**
- **International Mechanical Code (IMC)**

The new building is to be designed in accordance with the 2018 edition of the International Building Code (IBC) as modified by the City of Phoenix. The following construction is recommended given the building's proposed size and function:

- **Type IIB Construction**
- **Fully sprinkled for fire protection**
- **Containment volume for potential lube cube leaks (based on largest cube size)**
- **2-hour separations at S-1 Storage classifications.**

4.0 PROPOSED DESIGN DISCUSSION

4.1 CODE COMPLIANT VENTILATION:

Code Compliance Requirements: one cubic foot per minute per twelve cubic feet of interior volume per IFC is required. HVAC outlets shall be arranged to provide supply air and exhaust system to provide uniform air movement to the extent practical. Inlets shall be uniformly arranged on exterior walls near floor level. Outlets shall be located at the high point of the room near the roof line. Ventilation shall be in continuous operation except when interlocked with gas detection or lighting circuits. Min ventilation of 1.0 cfm (cubic feet per minute) per NFPA 88A and IMC codes is required for garages.

Existing Configuration: Evaporative coolers supply outdoor air into the spaces through registers located high in ceiling space. No active purge exhaust was observed, however there is an exhaust system removing air from close to the floor as is common in liquid fuel repair garages. The existing configuration does not introduce ventilation air on exterior walls at floor level and does not provide uniform ventilation and therefore it is not compliant with CNG applications. Operation of the evaporative cooler system is reported to be utilized only during cooling operations. While the system operates in cooling during the majority of the time, there are periods during non-cooling and heating during which code adequate ventilation air does not appear to be presently provided.

Existing Ventilation Rate: Ventilation rates during Evaporative Cooler operations appears to exceed the required ventilation rate for the space, however, during heating or when the ventilation system is turned off the space does not appear to be ventilated adequately per code.

Proposed Design: Provide roof mounted makeup air heaters, configure ducts for uniform air movement, provide (4-6) roof mounted exhaust fans. Provide exhaust purge and roll-up garage doors open upon detection of high CNG concentrations. Door louvers may be utilized to create a more cost-effective ventilation scheme and to better ventilate the shop.

4.2 GAS DETECTION

Code Compliance Requirements: If the ventilation system continuously operates, there are no requirements for natural gas detection systems for major repair garages that add CNG maintenance operations if the CNG is properly odorized. However, to achieve proper ventilation without continuous operation (which is very costly over time and should be avoided*) it is recommended to provide active exhaust interlocked to operate with detection of CH4 (methane). This configuration is also preferred for both operator safety, by providing visual and audible alarms during unintentional discharge of natural gas in the space as well as energy savings by reducing HVAC equipment run times during unoccupied periods. The gas detection system should be programmed to start (or ramp-up) the exhaust fans, activate the audible/visual alarm, and deactivate the normally operating HVAC equipment (dependent on season) and spark producing equipment when it senses a gas accumulation of 25% of the lower explosive limit.

Current Configuration: No current CH4 gas detection was observed to be present in the facility.

Proposed Design: Central Natural Gas detection system with a central monitor and remote sensors located high at interior ceiling high points. Upon detection over limit setpoint activate an alarm in the FMS (Facility Management System); Start Exhaust Purge Fans; Open roll-up garage doors; Shut down cooling system equipment (evaporative coolers) and heating equipment (rooftop makeup air units); and any spark producing equipment or equipment which may present sources of ignition.

* *Continuous ventilation operation would add approximately $35,000/yr in utility costs. As the cost of a gas detection system is approximately $100,000 a four-year payback to install the gas detection system is anticipated. The benefits of the gas detection and alarm system would be added safety as personnel would be alerted to a gas leak and electrical circuits would be shut down. For these reasons we recommend a gas detection system be installed*.

4.3 ELECTRICAL CLASSIFICATION DISCUSSION

Code Compliance Requirements: The codes have several requirements on classified locations for electrical equipment in typical repair garages. NFPA 30A requires that the space within 18 inches of the ceiling of a major CNG garage be classified as a Class 1, Division 2 classified location. All electrical equipment within that area must be suitable for that classification per NEC (National Electrical Code NFPA 70). The existing facility does not presently comply with this requirement and meeting this requirement would be prohibitively costly. There is an exception to this requirement if the facility has a continuous ventilation system compliant with code or if the facility is furnished with gas detection and electrical shunt trips and interlocks to turn off power. The ceiling area presently contains a significant amount of electrical conduit and other Components which are not Class 1, Division 2 compliant. Due to the extensive amount of work, it is a measure with significant cost associated with such rework.

Recommendation: the new facility be designed to locate all electrical conduit 24” below the ceiling and also utilize a gas detection and purge ventilation system strategy.

4.4 CLASSIFICATION DISCUSSION

Code Compliance Requirements: The IFC and NFPA 30 classify Repair Facilities as "Major" and "Minor." Generally, Major Facilities are identified as repair garages where work is performed on fuel systems and may require open flames or welding. Minor Facilities are identified as repair garages where work is not performed on fuel systems and is limited to exchange of parts and maintenance requiring no open flame or welding. In a shop of this nature operations producing sparks could occur within the garages as part of normal operations so we define the facility as a "Major" facility. The operator stated that welding work could be isolated to outdoor locations only.

Recommendations: While definition of these repair garages as "Minor" would provide a reduced complexity and cost path to meet code, the reality is that the operations performed at this facility are most accurately defined as "Major" and facility upgrades are therefore recommended to be consistent with a "Major" repair facility throughout this report. This is the safest and most accurate approach.

4.5 SHUNT TRIP BREAKER DISCUSSION

Deactivation of selected existing equipment in the event of a gas alarm is a common and a recommended practice. Electrical equipment such as welding outlets, lighting, and spark producing equipment can and ideally should be deactivated in the event of a gas alarm using shunt trip breakers. Detailed analysis of this would be provided during design. The new facility electrical design would feature use of shunt trip breakers.

4.6 STANDBY POWER DISCUSSION

As the potential exists for the garage to remain operational in the event of a power outage, a backup generator for the maintenance areas should be considered. The generator power should be provided to the gas detection, ventilation systems, tools, and lighting to allow maintenance on the vehicles. Users in the space requested we consider a generator as part of this project if the budget allows. During new facility design a cost analysis would be provided for a decision to be made by City management.

4.7 LUBRICATION AND SERVICE EQUIPMENT INVENTORY FOR A REPLACEMENT NEW FACILITY

Storage of Lubricants and Fluids – Preferred quantities and features:

- ATF – 600 G cube with an air operated pump
- Antifreeze – 330 G tote
- Diesel Exhaust Fluid – 330 G tote
- Gear Lube – 55 G drum air operated pump
- Gear Oil – 55 G drum air operated pump
- Grease- pressurized dispense via portable cart
- Hydraulic Fluid – 1000 G Lube Cube with an air operated pump
- Motor Oil and their Grades – 15W40 600 G, 5W30 600 G, 15W40 Low Ash (CNG) 600G all with air operated pump dispensed. All Lube Cubes.

- Non-Corrosive Chemicals – aerosol cans kept in flammable lockers. New unopened cans in warehouse.
- Corrosive Chemicals- cans, kept in flammable lockers.
- Transmission Fluid – 600 G Lube Cube with an air operated pump
- Used Antifreeze Storage – two 150 G plastic drums.
- Used Oil Storage Tank – 1000 G Lube Cube with high level alarm. Drain tray on service bay side of wall.
- Windshield Washer Fluid – 1 G jugs kept in parts warehouse.

Overhead Reels- (2) Banks located centrally per plans:

- (9) reels: 15W40, 5W30, CNG, gear lube, grease, hydraulic, ATF, air, water. With drip pan below.
- (8) bay 120v overhead power reels
- Control Handles: Metered, Mechanical, Straight Flex, 90 degree for grease only.
- Manual tips, ¼ turn, Graco as base bid or equal.
- Inventory Tracking: Digital, no brand preference currently.

Vehicle exhaust system:
Overhead preferred with hoses, spring retractor, tailpipe cones and exhaust fans on roof for noise abatement. Hose capacity/diameter for solid fleet vehicles.

Welding:
All welding outdoors. 220v outlets between each bay on outside wall of Maintenance Shop.

Compressed Air:
Ingersoll Rand, CBV376611 – Max PSI 125, Max CFM 185, 200V 3 phase, 240 G Tank
3/8" and ½" hose reels in between each bay outside. Air reel located with lube reels inside.

Waste Oil Evacuation:
Diaphragm Pump Waste Oil Evacuator.

GENERAL ITEMS:
Battery Storage: Rack in the Warehouse provided by owner: count, group 24 through group 78.
Pits: no pits are anticipated.
Tire Shop: tire changer, balance and spreader
Waste Receptacles: galvanized garbage cans (12) oily waste cans (8).
Eye wash stations: at several locations to be determined once equipment layout is determined.
Outlets: 220v outlet for welders and parts washers.
Shop tools and equipment storage area: Welders, a/c machines, battery tester, stands, ladders etc. Special tool bins, bench stock storage area. Areas must be provided for all of these items.
Hydraulic hose machine and hose storage area.
Hydraulic press area.
Two dual post above ground vehicle lifts 20,000 LB. In auto bays
Two drive-on ground level truck lifts.
Water available outside every other bay.
Computer works in bays, at least 6 maybe 7.

4.8 HVAC VENTILATION CONSIDERATIONS:

A/C Cooling: at the offices areas, locker areas, break room and warehouse.

Evap Cooling and Fresh Air Supply Heating: in the vehicles bays - at least two coolers per bay – with continuous exhaust and CNG service area purge system per code.

5.0 UTILITY PROVISIONS

5.1 CITY WATER

This facility should require a 1.5" tap, water meter, and reduced pressure principal backflow preventer. A 2" type L copper line should run from the backflow to the building riser.

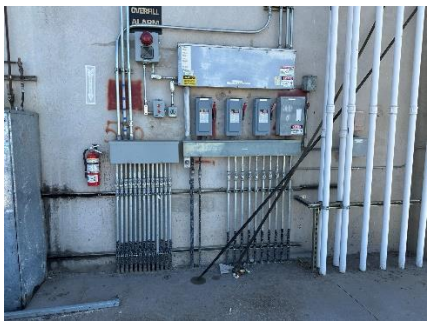
5.2 SANITARY SEWER

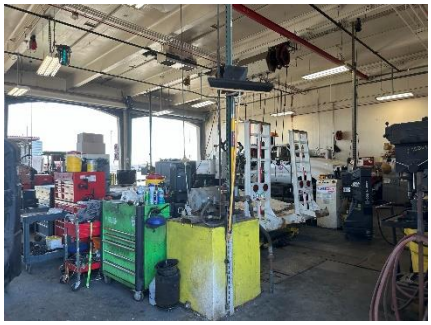
This facility requires a 4" tap and a 4" PVC line from the tap to building connection. A 1000g sand oil interceptor should be installed on the drains coming from the maintenance facility side trench drains before connecting to the sanitary sewer.

5.3 ELECTRICAL EVALUATION AND UTILITY PLANNING (VUS#300415)

1) **Existing conditions:** The existing building service is rated 600A, 208/120V, 3 phase, 4 wire, and provides 216kVA of power to the existing facility. Per SRP, the electric utility, the peak 12-month demand is 57.6kW or 72kVA, approximately 33% of service rating. The service entrance and generator appear to be in fair condition. The downstream electrical equipment is a combination of newer and older equipment, some of which has reached the end of its useful life. Lighting consists of fluorescent fixtures. The equipment observed is common for facilities of this type and age.








2) **Proposed maintenance facility code requirements:** The design of the new facility will be governed by the National Electrical Code (NFPA 70), including Art. 500, 501 for hazardous area classification and Art. 511 commercial repair garages, including special area classification boundaries for lighter-than-air gases. Other NFPA standards also govern the proposed flammables and combustible materials which will be present in the new facility.

3) **Proposed service and electrical distribution:** An 800A, 208/120V service is proposed for the new facility which assumes that maintenance equipment and mechanical equipment can all be served by 208/120V, which is common for this size facility. Although not anticipated, should 480V be needed to serve any equipment, a 480/277V service could be provided (400 amp) to serve the facility. SRP has three phase, primary serving the existing facility and has three phase primaries present in the surrounding areas. Therefore, either a 208V or 480V, 3 phase service may be provided. A new SRP pad mounted transformer would be required adjacent to the new facility. The electrical service, electrical panels, and transformers (as applicable) shall be located in a dedicated electrical room which will be considered a meter room for utility compliance purposes. Specific requirements can include fire rating, ventilation, and specific access requirements.

4) **Proposed building and owner loads:** In addition to mechanical, plumbing, lighting, and receptacle loads for the facility, power shall be provided for specific user loads including lifts, compressors, cord reels, and welders. Interior power distribution shall be specified as single conductors in EMT conduit. Where subject to hazardous area classification, wiring methods and device locations will be adapted for the proper area classification locations and ratings.

5) **Data room, low voltage utilities:** It is anticipated that incoming communication will enter the data or electrical room underground and terminate at a telephone mounting board.

6) **Emergency Power:** A backup generator is recommended to provide backup power to the site for lighting, ventilation, and other owner power needs.

7) **Uninterruptible Power:** UPS systems are not anticipated for this project with exception of smaller units protecting individual IT components.

8) **Grounding:** A ground electrode system is required by NEC and will terminate in the electrical room at a ground bus.

9) **Surge protection:** Surge protective devices (SPDs) will be added to panelboards and the service to protect sensitive equipment.

10) **Emergency lighting:** Interior and exterior emergency lighting shall be supplied with battery packs. Interior lighting shall comply with IBC levels for minimum fc along paths of egress. A backup generator may supply additional lighting if needed by owner.

11) **Site lighting** shall be environmentally sensitive, full cutoff, to minimize light pollution and light spill at property lines. Total wattage shall be within limits of energy code in force. Site lighting will consist of poles (as needed) and wall mounted luminaires, and building mounted luminaires with emergency battery packs at building exits. Site lighting will be controlled via programmable lighting controller with photocell and astronomical timeclock programming. Exterior controls will be per IECC version in force.

12) **Interior Lighting:** Interior power density shall be limited to values allowed by IECC in areas modified. LED lamps shall be utilized throughout. Fixtures will be specified to minimize fixture types

throughout the facility. Maintenance bays shall utilize high bay LED fixtures rated for Class I locations when necessary. Occupancy sensors shall be utilized throughout to minimize energy use. Daylight harvesting shall be utilized in areas with access to sufficient natural light. Night lights will be strategically located such that building users entering after hours do not enter areas of total darkness. The proposed lighting controls will allow users to have simple manual or automatic control of area lighting while allowing users to control light output where needed.

13) **Lighting Controls and IECC Requirements:** A distributed lighting control system shall be utilized. A lighting controller will be utilized for the exterior lighting circuits. The system shall comply with energy code (IECC).

14) **Fire Alarm:** A fire alarm system may be installed at owner's option or when triggered by codes in force. The main fire alarm control panel will be located in the electrical room and the remote annunciator located in the lobby or building entrance. All wire will be installed in conduit where required by code. The fire alarm panel shall be connected to a central station. Duct smoke detectors (as applicable) and area smoke detectors will provide code required smoke detection coverage.

15) **PV System:** Provisions for a future solar photovoltaic (PV) system shall be provided if / when requested by ownership.

16) **Security systems:** Interior and exterior cameras, card readers, and other security system devices and equipment shall be located as coordinated with owner's IT representative(s) and users. Rough in and 120VAC control power shall be provided as part of the electrical contractor's scope.

17) **Site electrical:** Power and controls may be provided for site electrical loads. Provision for current or future EV charging stations may be provided by way of underground power and control conduits routed to interior electrical panels (requirements to be confirmed with owner).