



## CITY COUNCIL REGULAR MEETING

Tuesday, October 03, 2023, at 7:00 PM  
Council Chambers, Main Floor of City Hall Building & Online  
110 S. Center Street, Santaquin, UT 84655

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### MEETINGS HELD IN PERSON & ONLINE

The public is invited to participate as outlined below:

- **In Person** – The meeting will be held in the Council Chambers on the Main Floor in the City Hall Building
  - **YouTube Live** – Some public meetings will be shown live on the Santaquin City YouTube Channel, which can be found at <https://bit.ly/2P7ICfQ> or by searching for Santaquin City Channel on YouTube.
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### ADA NOTICE

If you are planning to attend this Public Meeting and due to a disability need assistance in understanding or participating in the meeting, please notify the City Office ten or more hours in advance and we will, within reason, provide what assistance may be required.

## AGENDA

### ROLL CALL

### PLEDGE OF ALLEGIANCE

### INVOCATION / INSPIRATIONAL THOUGHT

### DECLARATION OF POTENTIAL CONFLICTS OF INTEREST

### CONSENT AGENDA (MINUTES, BILLS, ITEMS)

#### Minutes

- [1.](#) 09-05-2023 City Council Work Session Minutes
- [2.](#) 09-05-2023 City Council Regular Meeting Minutes

#### Bills

- [3.](#) City Expenditures from 09-16-2023 to 09-29-2023 in the amount of \$1,347,027,71

### PUBLIC FORUM, BID OPENINGS, AWARDS, AND APPOINTMENTS

#### Recognitions

- [4.](#) Employee of the Month: McKinzie Bradshaw
5. Recognition: Sergeant Mike Wall and K9 Bud

#### Public Forum

### FORMAL PUBLIC HEARING

6. Public Hearing: Update to the Sanitary Sewer Impact Fee Facilities Plan (IFFP) & Impact Fee Analysis (IFA)

**Ordinance**

- 7. Ordinance 10-01-2023 - Ratification of Adoption of Sanitary Sewer Impact Fee Facilities Plan (IFFP) & Impact Fee Analysis (IFA)

**FORMAL PUBLIC HEARING**

- 8. Public Hearing: Updates to the Parks, Recreation, Trails & Open Space Impact Fee Facilities Plan (IFFP) & Impact Fee Analysis (IFA)

**Ordinance**

- 9. Ordinance 10-02-2023 - Ratification of Adoption of Parks, Recreation, Trails, & Open Space Impact Fees Facilities Plan (IFFP) & Impact Fee Analysis (IFA)

**BUILDING PERMIT & BUSINESS LICENSE REPORT**

**NEW BUSINESS**

**Resolution**

- 10. Resolution 10-01-2023 - Purchase & Acquisition of Real Property

**Discussion & Possible Action**

- 11. Discussion & Possible Action: Vistas West Phase 6 Plat Amendment
- 12. Discussion & Possible Action: Fire Ladder Truck Order & Financing

**REPORTS OF OFFICERS, STAFF, BOARDS, AND COMMITTEES**

**REPORTS BY MAYOR AND COUNCIL MEMBERS**

**EXECUTIVE SESSION** (May be called to discuss the character, professional competence, or physical or mental health of an individual)

**EXECUTIVE SESSION** (May be called to discuss the pending or reasonably imminent litigation, and/or purchase, exchange, or lease of real property)

**ADJOURNMENT**

**CERTIFICATE OF MAILING/POSTING**

The undersigned duly appointed City Recorder for the municipality of Santaquin City hereby certifies that a copy of the foregoing Notice and Agenda may be found at [www.santaquin.org](http://www.santaquin.org), in three physical locations (Santaquin City Hall, Zions Bank, Santaquin Post Office), and on the State of Utah’s Public Notice Website, <https://www.utah.gov/pmn/index.html>. A copy of the notice may also be requested by calling (801)754-1904.

BY:   
Amalie R. Ottley, City Recorder





## CITY COUNCIL WORK SESSION MEETING

Tuesday, September 5<sup>th</sup> at 5:30 PM  
Court Room/Council Chambers (2<sup>nd</sup> floor) and Online

### MINUTES

Mayor Olson called the meeting to order at 5:30 p.m.

#### ROLL CALL

Councilors present included Councilors Adcock, Hathaway, Montoya, and Siddoway.

Councilor Mecham was excused from the meeting.

Others present included City Recorder Amalie Ottley, City Manager Norm Beagley, Assistant City Manager Norm Beagley, Legal Counsel Brett Rich, Community Services Director John Bradley.

Various members of the public attended the meeting.

#### PLEDGE OF ALLEGIANCE

Councilor Montoya led the Pledge of Allegiance.

#### INVOCATION/INSPIRATIONAL THOUGHT

Community Services Director John Bradley offered an invocation.

#### DISCUSSION ITEMS

##### 1. Discussion Regarding Access Requirements on Main Street and Other Areas of Town

Mayor Olson expressed his concern regarding the limited access for businesses along Main Street and in the business district areas of town. He asked the Council if having strict access requirements in City Code is hurting individuals and businesses coming in to Santaquin. Councilor Adcock inquired if the City Code is reflective of State Road requirements. Manager Beagley discussed the City Code requirement for businesses along Main Street to have two access due to safety concerns, traffic flow, and fire code, etc. He clarified that as current residential properties may turn into businesses one day, there are fundamental guidelines that are determined by engineering, the State of Utah (UDOT), safety, and the Manual on Uniform Traffic Control Devices (MUTCD). Mayor Olson suggested that the code be looked at more closely to consider possible one way in/out driveways. Councilor Montoya expressed concern about unsafe traffic in front of the businesses. Assistant Manager Bond recommended that the Development Review Committee (DRC) first look at the possibilities of a code change regarding access requirements. Because the DRC Board consists of Public Safety, Engineering, as well as Building and Planning personnel, an in-depth analysis of the code and any changes can take place among technical staff. Assistant Manager Bond referenced section 10.48.050 of the City Code citing average daily trips (ADT) as a reasonable determination for land use and access points requirements. Councilor Hathaway

added with the growth that Santaquin has experienced in business and traffic that codes should continue to be updated so that businesses can come in on Main Street without problems imposed on them by the City. Mayor Olson asked that staff look at the code through the DRC and the Planning Commission so that recommendations may be made to the City Council to determine if code changes need to be made in consideration of access requirements for businesses on Main Street as well as other areas of town.

## **2. Prospector View Park & Trails Update**

Manager Beagley presented an update on the bike park and trail systems at Prospector View Park. Manager Beagley discussed how funds and grants were applied to the park restrooms and bridge design and construction. He added that hundreds of hours have been donated by members of the community to build, clear, and clean trails. He presented the signage at the park and where it's placed. He added that solar powered parking lot lights were donated to the project. He discussed the design and materials for the bridge construction. Mayor Olson and Manager Beagley discussed where, on the backside of the parking lot, hydroseed has been placed to maintain the slope and stability of the landscape. Director Bradley has kept track of donated time on the trails and at the park adding up to over 1,000 hours donated to move it along and help in matching grant funds. Mayor Olson and Manager Beagley also discussed an easement donated by the Kester family that allows for connections between City property and State Forestry property. Manager Beagley presented photos of signage that include rules and hours and specific trail markings indicating level of difficulty and trail names. Mayor Olson and Manager Beagley pointed out specific naming of the trails on a trail map and where they lead to Theodore Ahlin Pond and other areas along the east bench. Manager Beagley indicated that grant funds will be applied for in the future to further outfit the park. Mayor Olson asked that the Council and staff members consider ways to promote Santaquin by using videos of the Canyon and bike trails. Councilor Montoya expressed her opinion that she felt left out throughout the process and appreciated the update provided by Manager Beagley. Mayor Olson spoke of his updates every meeting and the work that he has put into the trails himself by working on the excavator to hand build many of the trails. Councilor Montoya expressed her support of Mayor Olson and the work that has gone into the park. Councilor Hathaway asked about the parking lot at Theodore Ahlin Pond. Director Bradley indicated that the parking lot at the pond will be worked on by the Public Works Department in the coming weeks.

## **3. Orchard Days Report**

Community Services Director John Bradley updated the Council on the Orchard Days celebration. He stated that the parking lot was adjusted so there were more parking spaces for people to attend. He added that the family activities were more centrally focused and located at Centennial Park so that families didn't have to travel back and forth across town as much. He stated that the Children's Parade was re-routed in consideration of safety for the kids participating in the parade. He commended all those who worked hard to make events happen in the course of so much rain the week before the festivities. He addressed changes to the car show and possibly changing the parade route to Center Street.

## **ADJOURNMENT**

Councilor Montoya motioned to adjourn the Work Session Meeting. Councilor Siddoway seconded the motion.

Councilor Adcock                      Yes

Councilor Hathaway	Yes
Councilor Mecham	Absent
Councilor Montoya	Yes
Councilor Siddoway	Yes

Motion passed unanimously in the affirmative. The meeting was adjourned at 6:50 p.m.

ATTEST:

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**Daniel M. Olson, Mayor**

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**Amalie R. Ottley, City Recorder**

DRAFT



## REGULAR CITY COUNCIL MEETING

Tuesday, September 5 at 7:00 PM  
Court Room/Council Chambers (2<sup>nd</sup> floor) and Online

### MINUTES

Mayor Olson called the meeting to order at 7:00 p.m.

#### ROLL CALL

Councilors present included Councilors Adcock, Hathaway, Montoya and Siddoway.

Councilor Mecham was excused from the meeting.

Others present included City Recorder Amalie Ottley, City Manager Norm Beagley, Assistant City Manager Jason Bond, Legal Counsel Brett Rich, Finance Director Shannon Hoffman, and Fire Chief Ryan Lind.

Various members of the public attended the meeting.

#### PLEDGE OF ALLEGIANCE

Bryan Mecham led the Pledge of Allegiance.

#### INVOCATION/INSPIRATIONAL THOUGHT

Councilor Adcock offered an inspirational thought.

#### DECLARATION OF POTENTIAL CONFLICTS OF INTEREST

No members of the City Council expressed any conflict of interest.

#### CONSENT AGENDA (MINUTES, BILLS, ITEMS)

1. August 15, 2023 Regular City Council Minutes
2. City Expenditures from 08/12/2023 to 09/01/2023 in the amount of \$670,068.42.
3. Out of State Training Request – Fire & EMS Department National Fire Academy Training.

Councilor Adcock inquired about line items on the budget regarding billing for the Fall Rural Water Conference. Manager Beagley clarified that billing for the conference was correctly billed in separate accounts.

Fire Chief Lind discussed what is entailed in the National Fire Academy Training in Maryland.

Councilor Adcock made a motion to approve the consent agenda items 1 through 3. Councilor Montoya seconded the motion.

Councilor Adcock                      Yes

Councilor Hathaway	Yes
Councilor Mecham	Absent
Councilor Montoya	Yes
Councilor Siddoway	Yes

The motion passed unanimously.

## RECOGNITIONS

### 4. Volunteer of the Month – Chad Holman

Cauleen Olson recognized Chad Holman as Volunteer of the Month by reading the following statement,

*“Chad Holman is our September 2023 Volunteer of the Month and was nominated by our Community Services Department. John Bradley, our Community Services Director stated, “Chad loves to be active in the community and can often be seen riding his bicycle around town. He has volunteered with the Recreation Department for over seven years. He’s helped with the Easter Egg Hunt, Orchard Days Family Night and recently with Adaptive Tball. He has also helped move bleachers for the department and worked on Prospector View Park and Trailhead. Chad is known for his smiling face and his willingness to help out where possible. The Santaquin Community Services Department staff are all very pleased to recognize Chad at this time.”*

*Chad has lived in Santaquin his entire life. He is the son of Doug and Cathi Holman. He is the assistant manager at Classic Car Wash in Santaquin and loves working with his boss BreAnna Nixon. Chad enjoys hanging out with his friends, riding his bike to Payson and hiking. His best friend is Kathy Hanson, and he enjoys helping her in her yard. When asked if he would accept this recognition, he happily stated, “This is the best thing that has ever happened to me. I would be happy to accept.”*

*Chad will be recognized at the Santaquin City Council meeting on September 5th at 7 pm. Thank you, Chad, for all the years of dedicated volunteer service you have given our community. You are appreciated and loved.”*

Chad thanked everyone who came to the meeting to support him and expressed his love of helping everyone in Santaquin City. Mayor Olson expressed his gratitude to Chad for all that he does for the residents of Santaquin City.

## PUBLIC FORUM

Dora Hunter attended the meeting and wished to address the Council in the Public Forum. She thanked Mayor Olson, the City Council, and staff for their efforts to work with D.R. Horton to take care of flooding in her neighborhood.

Miss Santaquin, Allie Blake, spoke to the Council about the last year in which she has served the community. She enjoyed working with the elementary schools and senior citizens. She mentioned many events that she had the opportunity to help with. She also reported on the upcoming Miss Santaquin Pageant scholarship competition.

## BUILDING PERMIT & BUSINESS LICENSE REPORT

Assistant City Manager Bond presented the Building Permit Report. 126 residential units have been issued building permits in the current calendar year. In comparison, 20 single and multi-family

residential units have been built in the current fiscal year. (July 1, 2023 – June 30, 2024) 6 new business licenses were issued in the last two weeks.

## **NEW BUSINESS**

### **5. Resolution 09-01-2023 – Establishment of the Fee Schedule for Santaquin City**

Manager Beagley introduced Resolution 09-01-2023 Establishment of the Fee Schedule which updates fees for services in the Police and EMS/Fire Departments.

Councilor Montoya made a motion to approve Resolution 09-01-2023 Establishing the Fee Schedule for Santaquin City. Councilor Hathaway seconded the motion.

Councilor Adcock	Yes
Councilor Hathaway	Yes
Councilor Mecham	Absent
Councilor Montoya	Yes
Councilor Siddoway	Yes

The motion passed unanimously.

### **6. Resolution 09-02-2023 - Water Line Easements to Central Utah Water Conservancy District to Allow for Central Utah Project Water Pipeline Installation and Maintenance within Santaquin City Property & Rights-of-Way**

Mayor Olson and Manager Beagley introduced Resolution 09-02-2023 Water Line Easements to Central Utah Water Conservancy District to Allow for Central Utah Project Water Pipeline Installation and Maintenance within Santaquin City Property & Rights-of-Way. The resolution covers easements for two additional properties that were dedicated to the City to facilitate the Central Utah Project Water Pipeline. Councilor Adcock inquired where the water pipeline is located and if it will impact City streets. Manager Beagley indicated where on the northwest side of town the parcels are located and stated that one parcel is a water retention basin and the other will be located near a City street in the future. Manager Beagley added that the pipeline is anticipated to be operational in the irrigation season of 2026.

Councilor Adcock made a motion to approve Resolution 09-02-2023 - Water Line Easements to Central Utah Water Conservancy District to Allow for Central Utah Project Water Pipeline Installation and Maintenance within Santaquin City Property & Rights-of-Way. Councilor Siddoway seconded the motion.

Councilor Adcock	Yes
Councilor Hathaway	Yes
Councilor Mecham	Absent
Councilor Montoya	Yes
Councilor Siddoway	Yes

The motion passed unanimously.

### **7. Resolution 09-03-2023 – Agreement for Supplemental Law Enforcement Services**

Police Chief Rodney Hurst presented Resolution 09-03-2023 Approving an Agreement for Supplemental Law Enforcement Services. The agreement will cover instances where outside agencies ask the Police Department for security or traffic control at events. Chief Hurst provided examples of events such as college football or basketball games.

Councilor Siddoway made a motion to approve Resolution 09-03-2023 an Agreement for Supplemental Law Enforcement Services. Councilor Adcock seconded the motion.

Councilor Adcock	Yes
Councilor Hathaway	Yes
Councilor Mecham	Absent
Councilor Montoya	Yes
Councilor Siddoway	Yes

The motion passed unanimously.

### **CONVENE OF THE COMMUNITY DEVELOPMENT AND RENEWAL AGENCY BOARD MEETING**

Councilor Montoya made a motion to convene a Board Meeting for the Santaquin City Community Development & Renewal Agency. Councilor Hathaway seconded the motion.

Councilor Adcock	Yes
Councilor Hathaway	Yes
Councilor Mecham	Absent
Councilor Montoya	Yes
Councilor Siddoway	Yes

The motion passed unanimously.

The CDRA meeting began at 7:31 p.m.

### **8. Resolution 09-01-2023 CDA – Approval of the Proposed Assignment of a Real Property Purchase Agreement**

Manager Beagley introduced Resolution 09-01-2023 CDA – Approval of the Proposed Assignment of a Real Property Purchase Agreement which allows for the transfer of the contract name from Greenhalgh Construction Inc. to Greenhalgh Construction Holdings LLC.

Board Member Adcock made a motion to approve Resolution 09-01-2023 CDA - Approval of the Proposed Assignment of a Real Property Purchase Agreement. Board Member Hathaway seconded the motion.

Board Member Montoya	Yes
Board Member Adcock	Yes
Board Member Siddoway	Yes
Board Member Mecham	Absent
Board Member Hathaway	Yes

The motion passed unanimously.

Board Member Hathaway made a motion to end the Board Meeting for the Santaquin City Community Development & Renewal Agency and enter back into the Regular City Council Meeting. Board Member Montoya seconded the motion.

Board Member Montoya	Yes
Board Member Adcock	Yes
Board Member Siddoway	Yes
Board Member Mecham	Absent
Board Member Hathaway	Yes

The motion passed unanimously.

The CDRA meeting ended at 7:33 p.m.

The Regular City Council Meeting reconvened at 7:33 p.m.

#### **REPORTS BY STAFF AND COUNCIL MEMBERS**

Assistant Manager Bond addressed items on upcoming Development Review Committee and Planning Commission meetings.

Manager Beagley discussed the upcoming City Hall Building dedication and open house on September 9<sup>th</sup>, 2023. He added that some City offices will be closed on Monday, September 11<sup>th</sup> to allow employees to move out of the Public Safety Building and into the new City Hall Building. Manager Beagley discussed the ongoing Main Street Widening Project. Councilor Hathaway inquired about the status of the new Murdock Ford site at the south end of town. Manager Beagley indicated that they have conducted soil tests and are working on their site separate from any City involvement.

Councilor Hathaway let Council members know that some letters have fallen off of the new rodeo sign, but the company is going to repair it.

Councilor Siddoway had nothing to report.

Councilor Adcock spoke of working with local HAM Radio users in the area and the ability to coordinate with local emergency staff.

Councilor Montoya spoke of the upcoming Miss Santaquin Scholarship Pageant. She stated she was very impressed with those that have applied for Miss Santaquin. She added that she worked with the Community Development department to hire a new Senior Lunch Coordinator, Sarah Miller. She thanked Judy and Val Robbins for their dedication to the Senior Citizen program and the members of the community. She updated everyone on the activities and the upcoming elections for the Youth City Council. Councilor Montoya expressed her appreciation to Annette Bott for her dedication to the Santaquin Chieftain Museum.

Manager Beagley added that an upcoming Emergency Preparedness Fair put on by the Payson/Santaquin Area Chamber of Commerce on Saturday, September 16<sup>th</sup> from 8:00 a.m. to Noon at Payson City Hall.



Mayor Olson discussed the Utah League of Cities and Towns Fall Conference at which he and other council members will attend. He also discussed the ongoing efforts to reopen the Santaquin Canyon road as well as closures that will be happening during construction. Mayor Olson also updated Council on upcoming volunteer efforts at Prospector View Park for the mountain bike trails.

**EXECUTIVE SESSION**

Councilor Montoya made a motion to enter into an Executive Session to discuss the character, professional competence, or physical or mental health of an individual. Councilor Siddoway seconded the motion.

Councilor Adcock	Yes
Councilor Hathaway	Yes
Councilor Mecham	Absent
Councilor Montoya	Yes
Councilor Siddoway	Yes

The motion passed unanimously.

The Executive Session began at 8:00 p.m.

Present at the Executive Session: Mayor Dan Olson, City Manager Norm Beagley, Assistant City Manager Jason Bond, Legal Counsel Brett Rich, Councilor Betsy Montoya, Councilor Art Adcock, Councilor Jeff Siddoway, Councilor David Hathaway.

Councilor Siddoway made a motion to end the Executive Session. Councilor Hathaway seconded the motion.

Councilor Adcock	Yes
Councilor Hathaway	Yes
Councilor Mecham	Absent
Councilor Montoya	Yes
Councilor Siddoway	Yes

The motion passed unanimously.

The Executive session ended at 8:45 p.m.

**EXECUTIVE SESSION**

Councilor Montoya made a motion to enter into an Executive Session to discuss the pending or reasonably imminent litigation, and/or purchase, exchange, or lease of real property. Councilor Siddoway seconded the motion.

Councilor Adcock	Yes
Councilor Hathaway	Yes
Councilor Mecham	Absent
Councilor Montoya	Yes

Councilor Siddoway                      Yes

The motion passed unanimously.

The Executive Session began at 8:47 p.m.

Present at the Executive Session: Mayor Dan Olson, City Manager Norm Beagley, Assistant City Manager Jason Bond, Legal Counsel Brett Rich, Councilor Betsy Montoya, Councilor Art Adcock, Councilor Jeff Siddoway, Councilor David Hathaway.

Councilor Siddoway made a motion to end the Executive Session. Councilor Hathaway seconded the motion.

Councilor Adcock                      Yes  
Councilor Hathaway                      Yes  
Councilor Mecham                      Absent  
Councilor Montoya                      Yes  
Councilor Siddoway                      Yes

The motion passed unanimously.

The Executive session ended at 9:35 p.m.

**ADJOURNMENT**

Councilor Montoya made a motion to adjourn the meeting. Councilor Siddoway seconded the motion.

Councilor Adcock                      Yes  
Councilor Hathaway                      Yes  
Councilor Mecham                      Absent  
Councilor Montoya                      Yes  
Councilor Siddoway                      Yes

The motion passed unanimously.

The meeting adjourned at 9:36 p.m.

ATTEST:

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**Daniel M. Olson, Mayor**

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**Amalie R. Ottley, City Recorder**

SANTAQUIN CITY CORPORATION  
Check Register  
CHECKING - ZIONS - 09/16/2023 to 09/29/2023

Payee Name	Payment Date	Amount	Description	Ledger Account
A DEZIGN	9/21/2023	\$536.40	PT UNIFORMS	7657244 - UNIFORMS
ACE RENTS INC.	9/21/2023	\$253.54	Rental of a Trencher	5140360 - EQUIPMENT RENTAL
ANY HOUR SERVICES	9/28/2023	\$153.00	Refund of permit # SQ23-000283 due to customer canceling purchase contract	1032210 - BUILDING PERMITS
BIG O' TIRES - SANTAQUIN	9/21/2023	\$122.98	Bleacher Tire (Rodeo Use Only)	6240260 - RODEO EXPENSE
BIRRELL BOTTLING COMPANY	9/21/2023	\$150.60	Pepsi Drink Product	6140484 - SNACK SHACK FOOD
BLAKE, ALLI	9/21/2023	\$121.44	Miss Santaquin dresses	6440200 - PAGEANT EXPENSES
BOND, JASON	9/28/2023	\$14.77	Blue tape for City Hall	1043240 - SUPPLIES
BOND, JASON	9/28/2023	\$110.20	Jason Bond Mileage for ULCT	1043230 - EDUCATION, TRAINING & TRAVEL
		\$124.97		
BRADSHAW, MCKINZIE	9/28/2023	\$234.56	Uniform Pants	1054240 - SUPPLIES
CARQUEST AUTO PARTS STORES	9/28/2023	\$26.38	v-belt for dump truck	1060250 - EQUIPMENT MAINTENANCE
CARQUEST AUTO PARTS STORES	9/28/2023	-\$26.38	v-belt return	1060250 - EQUIPMENT MAINTENANCE
CARQUEST AUTO PARTS STORES	9/28/2023	\$54.82	Engine 145 Antifreeze and wiperblades	7657250 - FIRE - EQUIPMENT MAINTENANCE
CARQUEST AUTO PARTS STORES	9/28/2023	\$7.45	Windshield Washer parts 2016Ambo	7657252 - EMS - EQUIPMENT MAINTENANCE
CARQUEST AUTO PARTS STORES	9/28/2023	\$33.48	TRUCK 141 ITEMS	7657250 - FIRE - EQUIPMENT MAINTENANCE
CARQUEST AUTO PARTS STORES	9/28/2023	\$39.98	Coolant for mowers	1077300 - CEMETERY GROUNDS MAINTENANCE
CARQUEST AUTO PARTS STORES	9/28/2023	\$19.72	Steering Wheel Cover for Build. Inspector 2013 Ford F-150 (Jon H. Truck)	1068250 - EQUIPMENT MAINT
CARQUEST AUTO PARTS STORES	9/28/2023	-\$4.93	CREDIT for Steering Wheel Cover for Build. Inspector 2013 Ford F-150 (Jon H. Truck)	1068250 - EQUIPMENT MAINT
		\$150.52		
CHEMTECH-FORD, INC	9/21/2023	\$105.00	Effluent testing	5240310 - PROFESSIONAL & TECHNICAL SVCS
CHEMTECH-FORD, INC	9/21/2023	\$150.00	Water testing	5140310 - PROFESSIONAL & TECHNICAL SVCS
CHEMTECH-FORD, INC	9/21/2023	\$150.00	Water testing	5140310 - PROFESSIONAL & TECHNICAL SVCS
CHEMTECH-FORD, INC	9/28/2023	\$105.00	effluent testing	5240310 - PROFESSIONAL & TECHNICAL SVCS
CHEMTECH-FORD, INC	9/28/2023	\$30.00	Scenic Ridge Bac-T Water Testing	1022450-860 - (INSP)Scenic Ridge
		\$540.00		
CHILD SUPPORT SERVICES/ORS	9/29/2023	\$534.46	Garnishment - Child Support	1022420 - GARNISHMENTS
CIVICPLUS, LLC	9/28/2023	\$2,640.00	Municode Annual Self-Publishing Software License Renewal	4340115 - MUNICODE
CODALE ELECTRIC SUPPLY	9/28/2023	\$327.16	light bulbs for library	1051300 - BUILDINGS & GROUND MAINTENANCE
COLONIAL LIFE & COLONIAL LIFE &	9/28/2023	\$388.18	Employee Paid Supplemental Life Insurance - 9/23	1022505 - SUPPLEMENTAL
	9/28/2023	\$388.18	Employee Paid Supplemental Life Insurance - 10/23	1022505 - SUPPLEMENTAL
		\$776.36		
CORPORATE TRADITIONS	9/21/2023	\$50.00	September Pat on Back""	1043480 - EMPLOYEE RECOGNITIONS
CORPORATE TRADITIONS	9/21/2023	\$25.00	October 2023 Employee of the Month	1043480 - EMPLOYEE RECOGNITIONS
		\$75.00		
CR MULCH, LLC	9/28/2023	\$2,000.00	mulch for entryway	1070300 - PARKS GROUNDS SUPPLIES
CUSTOM SIGNWORKS, LLC	9/28/2023	\$640.00	Trail Signage Sign Names	5740733 - PROSPECTOR VIEW PARK
DEAN'S QUALITY TRANSMISSIONS	9/28/2023	\$385.34	Truck repairs	5240250 - EQUIPMENT MAINTENANCE
DEAN'S QUALITY TRANSMISSIONS	9/28/2023	\$385.35	Truck repairs	5140250 - EQUIPMENT MAINTENANCE
DEAN'S QUALITY TRANSMISSIONS	9/28/2023	\$385.35	Truck repairs	5440250 - EQUIPMENT MAINTENANCE
		\$1,156.04		

DEPT OF GOVERNMENT OPERATIONS-FUEL NETWORK	9/28/2023	\$119.75	Fuel - Administration - August 2023	1043260 - FUEL
DEPT OF GOVERNMENT OPERATIONS-FUEL NETWORK	9/28/2023	\$124.30	Fuel - Engineering - August 2023	1048260 - FUEL
DEPT OF GOVERNMENT OPERATIONS-FUEL NETWORK	9/28/2023	\$261.54	Fuel - Community Services - August 2023	6740260 - FUEL
DEPT OF GOVERNMENT OPERATIONS-FUEL NETWORK	9/28/2023	\$346.12	Fuel - EMS - August 2023	7657260 - FUEL
DEPT OF GOVERNMENT OPERATIONS-FUEL NETWORK	9/28/2023	\$374.49	Fuel - Building Inspection - August 2023	1068260 - FUEL
DEPT OF GOVERNMENT OPERATIONS-FUEL NETWORK	9/28/2023	\$459.24	Fuel - Public Works - August 2023	1060260 - FUEL
DEPT OF GOVERNMENT OPERATIONS-FUEL NETWORK	9/28/2023	\$459.24	Fuel - Public Works - August 2023	1077260 - FUEL
DEPT OF GOVERNMENT OPERATIONS-FUEL NETWORK	9/28/2023	\$459.24	Fuel - Public Works - August 2023	1077260 - FUEL
DEPT OF GOVERNMENT OPERATIONS-FUEL NETWORK	9/28/2023	\$459.24	Fuel - Public Works - August 2023	5440260 - FUEL
DEPT OF GOVERNMENT OPERATIONS-FUEL NETWORK	9/28/2023	\$459.25	Fuel - Public Works - August 2023	5140260 - FUEL
DEPT OF GOVERNMENT OPERATIONS-FUEL NETWORK	9/28/2023	\$459.25	Fuel - Public Works - August 2023	5240260 - FUEL
DEPT OF GOVERNMENT OPERATIONS-FUEL NETWORK	9/28/2023	\$2,097.55	Fuel - Fire - August 2023	7657260 - FUEL
DEPT OF GOVERNMENT OPERATIONS-FUEL NETWORK	9/28/2023	\$7,112.54	Fuel - Police - August 2023	1054260 - FUEL
		\$13,191.75		
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat G Lot 137 Landscape bond release	1022450-417 - (BOND-LANDSCAPE)[Plat G-Lot 137] FOOTHILL VILLAGE
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat G Lot 140 Landscape bond release	1022450-449 - (BOND-LANDSCAPE)[Plat G-Lot 140]FOOTHILL VILLAGE
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat G Lot 145 Landscape bond release	1022450-386 - (BOND-LANDSCAPE)[Plat G-Lot 145] FOOTHILL VILLAGE
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat H Lot 173 Landscape bond release	1022450-554 - (BOND-LANDSCAPING)[Plat H-Lot 173]FOOTHILL VILLAGE
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat H Lot 176 Landscape bond release	1022450-566 - (BOND-LANDSCAPING)[Plat H-Lot176]FOOTHILL VILLAGE
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat H Lot 177 Landscape bond release	1022450-567 - (BOND-LANDSCAPING)[Plat H-Lot177]FOOTHILL VILLAGE
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat H Lot 183 Landscape bond release	1022450-568 - (BOND-LANDSCAPING)[Plat H-Lot183]FOOTHILL VILLAGE
DR HORTON - BOND RELEASES	9/28/2023	\$25,000.00	Foothill Village Plat H Lot 191, 172, 192, 193, 189Landscape bond release	1022450-612 - (BND-LDSP[172,188-89,191-93.254-56,273,285]FHV
DR HORTON - BOND RELEASES	9/28/2023	\$65,000.00	Foothill Village Plat H Lot 174 - 175, 179 - 182, 184 - 188, 190 Landscape bond release	1022450-586 - (BOND-LANDSCAPE)[Plat Varies-Lot Varies]FOOTHILL V
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 264 Landscape bond release	1022450-677 - (BOND-LANDSCAPE)[Plat K-Lot 264]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 274 Landscape bond release	1022450-630 - (BOND-LANDSCAPE)[Plat K- Lot 274]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 275 Landscape bond release	1022450-631 - (BOND-LANDSCAPE)[Plat K- Lot 275]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 276 Landscape bond release	1022450-628 - (BOND-LANDSCAPE)[Plat K- Lot 276]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 277 Landscape bond release	1022450-654 - (BOND-LANDSCAPE)[Plat K-Lot 277]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 278 Landscape bond release	1022450-655 - (BOND-LANDSCAPE)[Plat K-Lot 278]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 279 Landscape bond release	1022450-672 - (BOND-LANDSCAPE)[Plat K-Lot 279]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 280 Landscape bond release	1022450-673 - (BOND-LANDSCAPE)[Plat K-Lot 280]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 281 Landscape bond release	1022450-653 - (BOND-LANDSCAPE)[Plat K-Lot 281]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 283 Landscape bond release	1022450-651 - (BOND-LANDSCAPE)[Plat K-Lot283]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 286 Landscape bond release	1022450-652 - (BOND-LANDSCAPE)[Plat K-Lot 286]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 287 Landscape bond release	1022450-629 - (BOND-LANDSCAPE)[Plat K- Lot 287]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 288 Landscape bond release	1022450-650 - (BOND-LANDSCAPE)[Plat K-Lot288]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 289 Landscape bond release	1022450-674 - (BOND-LANDSCAPE)[Plat K-Lot 289]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 290 Landscape bond release	1022450-675 - (BOND-LANDSCAPE)[Plat K-Lot 290]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat K Lot 293 Landscape bond release	1022450-676 - (BOND-LANDSCAPE)[Plat K-Lot 293]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$10,000.00	Foothill Village Plat K Lot 273 and 285 Landscape bond release	1022450-612 - (BND-LDSP[172,188-89,191-93.254-56,273,285]FHV
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat L Lot 237 Landscape bond release	1022450-555 - (BOND-LANDSCAPING)[Plat L-Lot 237]FOOTHILL VILLAGE
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat L Lot 238 Landscape bond release	1022450-556 - (BOND-LANDSCAPING)[Plat L-Lot 238]FOOTHILL VILLAGE
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat L Lot 239 Landscape bond release	1022450-557 - (BOND-LANDSCAPING)[Plat L-Lot 239]FOOTHILL VILLAGE
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat R Lot 245 Landscape bond release	1022450-558 - (BOND-LANDSCAPING)[Plat R-Lot 245]FOOTHILL VILLAGE
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat R Lot 246 Landscape bond release	1022450-559 - (BOND-LANDSCAPING)[Plat R-Lot 246]FOOTHILL VILLAGE
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat R Lot 257 Landscape bond release	1022450-658 - (BOND-LANDSCAPE)[Plat R-Lot 257]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat R Lot 258 Landscape bond release	1022450-656 - (BOND-LANDSCAPE)[Plat R-Lot 258]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat R Lot 259 Landscape bond release	1022450-657 - (BOND-LANDSCAPE)[Plat R-Lot 259]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat R Lot 260 Landscape bond release	1022450-684 - (BOND-LANDSCAPE)[Plat R-Lot 260]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat R Lot 261 Landscape bond release	1022450-685 - (BOND-LANDSCAPE)[Plat R-Lot 261]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat R Lot 262 Landscape bond release	1022450-686 - (BOND-LANDSCAPE)[Plat R-Lot 262]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat R Lot 263 Landscape bond release	1022450-659 - (BOND-LANDSCAPE)[Plat R-Lot 263]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$15,000.00	Foothill Village Plat R Lot 254 - 256 Landscape bond release	1022450-612 - (BND-LDSP[172,188-89,191-93.254-56,273,285]FHV
DR HORTON - BOND RELEASES	9/28/2023	\$35,000.00	Foothill Village Plat R Lot 247 - 256 Landscape bond release	1022450-586 - (BOND-LANDSCAPE)[Plat R-Lot 259]FOOTHILL V
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat X Lot 469 Landscape bond release	1022450-704 - (BOND-LANDSCAPE)[Plat X-Lot 469]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat X Lot 471 Landscape bond release	1022450-711 - (BOND-LANDSCAPE)[Plat X-Lot 471]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat X Lot 471 Landscape bond release	1022450-769 - (BOND-LANDSCAPE)[Plat X-Lot 488]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat X Lot 472 Landscape bond release	1022450-712 - (BOND-LANDSCAPE)[Plat X-Lot 472]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat X Lot 475 Landscape bond release	1022450-742 - (BOND-LANDSCAPE)[Plat X-Lot 475]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat X Lot 476 Landscape bond release	1022450-743 - (BOND-LANDSCAPE)[Plat X-Lot 476]Foothill Village



DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat P Lot 323 Landscape bond release	1022450-889 - (BOND-LANDSCAPE)[Plat P-Lot 323]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat P Lot 324 Landscape bond release	1022450-890 - (BOND-LANDSCAPE)[Plat P-Lot 324]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat P Lot 325 Landscape bond release	1022450-891 - (BOND-LANDSCAPE)[Plat P-Lot 325]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$30,000.00	Foothill Village Plat P Lot 326 and Plat O lots 327 thru 331 Landscape bond release	1022450-892 - (BOND-LANDSCAPE)[Plat P-Lot 326]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat Y Lot 510 Landscape bond release	1022450-866 - (BOND-LANDSCAPE)[Plat Z-Lot 510]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat Y Lot 511 Landscape bond release	1022450-867 - (BOND-LANDSCAPE)[Plat Z-Lot 511]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat Y Lot 512 Landscape bond release	1022450-868 - (BOND-LANDSCAPE)[Plat Z-Lot 512]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat Y Lot 513 Landscape bond release	1022450-869 - (BOND-LANDSCAPE)[Plat Z-Lot 513]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat Y Lot 514 Landscape bond release	1022450-883 - (BOND-LANDSCAPE)[Plat Z-Lot 514]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat Y Lot 515 Landscape bond release	1022450-884 - (BOND-LANDSCAPE)[Plat Z-Lot 515]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat Y Lot 516 Landscape bond release	1022450-885 - (BOND-LANDSCAPE)[Plat Z-Lot 516]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat Y Lot 517 Landscape bond release	1022450-886 - (BOND-LANDSCAPE)[Plat Z-Lot 517]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat Y Lot 518 Landscape bond release	1022450-887 - (BOND-LANDSCAPE)[Plat Z-Lot 518]Foothill Village
DR HORTON - BOND RELEASES	9/28/2023	\$5,000.00	Foothill Village Plat Y Lot 607 Landscape bond release	1022450-810 - (BOND-LANDSCAPE)[Plat Y-Lot607]Foothill Village
		\$765,000.00		
EFTPS	9/19/2023	\$5,301.60	Medicare Tax	1022210 - FICA PAYABLE
EFTPS	9/19/2023	\$12,542.23	Federal Income Tax	1022220 - FEDERAL WITHHOLDING PAYABLE
EFTPS	9/19/2023	\$22,668.22	Social Security Tax	1022210 - FICA PAYABLE
		\$40,512.05		
FIRST SOURCE FUELS	9/21/2023	\$1,671.89	Fuel for onsite tanks	5440260 - FUEL
FIRST SOURCE FUELS	9/21/2023	\$1,671.90	Fuel for onsite tanks	1060260 - FUEL
FIRST SOURCE FUELS	9/21/2023	\$1,671.90	Fuel for onsite tanks	1070260 - FUEL
FIRST SOURCE FUELS	9/21/2023	\$1,671.90	Fuel for onsite tanks	1077260 - FUEL
FIRST SOURCE FUELS	9/21/2023	\$1,671.90	Fuel for onsite tanks	5140260 - FUEL
FIRST SOURCE FUELS	9/21/2023	\$1,671.90	Fuel for onsite tanks	5240260 - FUEL
FIRST SOURCE FUELS	9/21/2023	\$200.48	Def for 10 wheeler	1060240 - SUPPLIES
		\$10,231.87		
FLEETPRIDE	9/28/2023	\$105.79	Brakes for dump truck	1060250 - EQUIPMENT MAINTENANCE
FORENSIC NURSING SERVICES LLC	9/21/2023	\$65.00	blood/urine refusal 23SQ03405	1054311 - PROFESSIONAL & TECHNICAL
FORENSIC NURSING SERVICES LLC	9/28/2023	\$100.00	Post Accident Drug Testing	1043310 - PROFESSIONAL & TECHNICAL
FORENSIC NURSING SERVICES LLC	9/28/2023	\$130.00	Blood/Urine/Triage 23SQ03568	1054311 - PROFESSIONAL & TECHNICAL
		\$295.00		
FP MAILING SOLUTIONS	9/21/2023	\$183.72	Mailing Machine Lease (2)	1043310 - PROFESSIONAL & TECHNICAL
FP MAILING SOLUTIONS	9/28/2023	\$104.85	Postage Meter - 110 S Center St	1043310 - PROFESSIONAL & TECHNICAL
		\$288.57		
GENEVA ROCK	9/28/2023	\$234.38	1 rock for center street road shouldering"	1060240 - SUPPLIES
GOLDING, BRAYDON	9/21/2023	\$18.50	Witness Fee	1042310 - PROFESSIONAL & TECHNICAL
GOUDY, KEELA	9/21/2023	\$56.40	Reimbursement for Keela Goudy Miss. Santaquin	6440200 - PAGEANT EXPENSES
GOUDY, KEELA	9/28/2023	\$314.65	Miss Santaquin Pageant	6440200 - PAGEANT EXPENSES
		\$371.05		
GRAY MATTER SYSTEMS, LLC	9/21/2023	\$800.00	Subscription for WINN 911	4340614 - PUBLIC WORKS SOFTWARE
HENRY SCHEIN	9/21/2023	\$283.30	EMS Supplies SPLINTS	7657242 - EMS - SUPPLIES
HENRY SCHEIN	9/21/2023	\$1,048.88	EMS Supplies, Airway, IV Medications	7657242 - EMS - SUPPLIES
HENRY SCHEIN	9/28/2023	\$123.52	EMS Bags	7657242 - EMS - SUPPLIES
HENRY SCHEIN	9/28/2023	\$208.00	Disposable Gloves for Police	1054240 - SUPPLIES
HENRY SCHEIN	9/28/2023	\$26.00	IV Drip Sets 60gtts	7657242 - EMS - SUPPLIES
HENRY SCHEIN	9/28/2023	\$188.50	Disposable Splints	7657242 - EMS - SUPPLIES
HENRY SCHEIN	9/28/2023	\$378.10	Disposable Splints	7657242 - EMS - SUPPLIES
		\$2,256.30		
HOFFMAN, SHANNON	9/21/2023	\$152.24	Power Strips & Mounting for Fin Office move in @ New City Hall	4140704-003 - NEW CITY HALL - FF&E

HONEY BUCKET	9/21/2023	\$80.00	Cemetery portable	1070300 - PARKS GROUNDS SUPPLIES
HORROCKS ENGINEERS, INC	9/21/2023	\$54,405.50	NRCS Funded East Bench Final Design.	4140816-02 - NRCS - 6 ADDITIONAL DEBRIS BASINS
INGRAM BOOK GROUP	9/21/2023	\$938.48	Books	7240210 - BOOKS, SUBSCRIPTIONS & MEMBERSHIPS
INGRAM BOOK GROUP	9/21/2023	\$148.96	books	7240210 - BOOKS, SUBSCRIPTIONS & MEMBERSHIPS
INGRAM BOOK GROUP	9/21/2023	\$74.92	books	7240210 - BOOKS, SUBSCRIPTIONS & MEMBERSHIPS
		\$1,162.36		
JACOBS, KADE JACKSON	9/21/2023	\$1,000.00	little buckaroo judge	6240260 - RODEO EXPENSE
KC LOWHAM	9/28/2023	\$302.60	Lowham Uniform Boots for SWAT	1054240 - SUPPLIES
KELLSI NELL SPERRY DBA STING VOLLEYBALL CLUB	9/28/2023	\$400.00	Volleyball Clinic	6140665 - YOUTH SPORTS
LES OLSON COMPANY	9/28/2023	\$736.48	Copy Machine Maintenance & Usage Charges	4340300 - COPIER CONTRACT
LEXIPOL LLC	9/21/2023	\$6,816.77	Annual LE Policy Manual & DTB's 10/1/23-9/30/24	1054311 - PROFESSIONAL & TECHNICAL
LINGO	9/28/2023	\$188.52	Landline for PS Facility - Elevator & Emergency	4340240 - TELEPHONE & INTERNET
LOCAL BUILDING AUTHORITY OF SANTAQUIN CITY UTAH	9/21/2023	\$1,750.00	Tranfer Fund to LBA - Annual Trustee Fees	1090884 - TRANSFER TO LBA
MACEYS - SANTAQUIN	9/28/2023	\$10.77	Senior food	7540480 - FOOD
MACEYS - SANTAQUIN	9/28/2023	\$129.77	Celebration Supplies	1054240 - SUPPLIES
MACEYS - SANTAQUIN	9/28/2023	\$15.33	Treats for Santaquin University	1043240 - SUPPLIES
MACEYS - SANTAQUIN	9/28/2023	\$63.67	water	1060240 - SUPPLIES
MACEYS - SANTAQUIN	9/28/2023	\$63.67	water	1070300 - PARKS GROUNDS SUPPLIES
MACEYS - SANTAQUIN	9/28/2023	\$63.67	water	5140240 - SUPPLIES
MACEYS - SANTAQUIN	9/28/2023	\$63.67	water	5440240 - SUPPLIES
MACEYS - SANTAQUIN	9/28/2023	\$63.68	water	5240240 - SUPPLIES
		\$474.23		
MAVERICK ROCK, LLC	9/21/2023	\$177.04	rock for tables	5740733 - PROSPECTOR VIEW PARK
MEMORIAL ART MONUMENT	9/21/2023	\$150.00	Vase replacement Margaret Humphrey	1077620 - MONUMENT REPAIRS
MITY-LITE, INC.	9/28/2023	\$63,301.00	Tables & Chairs	4140704-003 - NEW CITY HALL - FF&E
MONTOYA, BETSY	9/19/2023	\$48.51	Meal Per Diem - ULCT Conference	1041230 - EDUCATION, TRAINING & TRAVEL
MOUNTAIN ALARM	9/21/2023	\$53.40	Alarm Monitoring (public safety)	1051300 - BUILDINGS & GROUND MAINTENANCE
MOUNTAIN ALARM	9/21/2023	\$140.00	Alarm monitoring new city hall	1051300 - BUILDINGS & GROUND MAINTENANCE
MOUNTAIN ALARM	9/21/2023	\$839.80	Panic Button install	4140704-003 - NEW CITY HALL - FF&E
MOUNTAIN ALARM	9/21/2023	\$31.33	Alarm Monitoring 110 South Center	1051300 - BUILDINGS & GROUND MAINTENANCE
		\$1,064.53		
MOUNTAINLAND SUPPLY	9/21/2023	\$4,310.72	Meters	5140242 - METERS & MXU'S
MOUNTAINLAND SUPPLY	9/21/2023	\$4,310.72	Meters	5440242 - METERS & MXU'S
MOUNTAINLAND SUPPLY	9/21/2023	\$4,310.73	Meters	5240242 - METERS & MXU'S
MOUNTAINLAND SUPPLY	9/21/2023	\$940.28	Hydrant parts	5140240 - SUPPLIES
MOUNTAINLAND SUPPLY	9/21/2023	\$31.94	Meter parts	5140240 - SUPPLIES
MOUNTAINLAND SUPPLY	9/21/2023	\$29.33	PI parts	5440240 - SUPPLIES
MOUNTAINLAND SUPPLY	9/28/2023	\$90.67	locking valve box	5140240 - SUPPLIES
MOUNTAINLAND SUPPLY	9/28/2023	\$165.00	facet parts for seniors kitchen	4140704-003 - NEW CITY HALL - FF&E
		\$14,189.39		
MURDOCK FORD	9/28/2023	\$7,241.00	new f-150	4241058 - VEHICLE PURCHASES
NIELSEN & SENIOR, ATTORNEYS	9/28/2023	\$23,361.73	Criminal Prosecution - September 2023	1043331 - LEGAL
NIELSEN & SENIOR, ATTORNEYS	9/28/2023	\$9,836.85	General Civil - September 2023	1043331 - LEGAL
		\$33,198.58		

OPENDOORS LABS, INC (RENTAL)+	9/28/2023	\$84.15	Refund: 150902 - OPENDOORS LABS, INC (RENTAL)+	5113110 - ACCOUNTS RECEIVABLE
OUT OF THE WOODS ENTERPRISES INC	9/28/2023	\$390.00	Rodeo Crane for Video Screen	6240260 - RODEO EXPENSE
PACE, BRYLEE	9/28/2023	\$314.65	Miss Santaquin Pageant	6440200 - PAGEANT EXPENSES
PAYSON AUTO SUPPLY - NAPA	9/28/2023	\$81.55	Chainsaw filters	1060250 - EQUIPMENT MAINTENANCE
PAYSON AUTO SUPPLY - NAPA	9/28/2023	\$14.75	spark plug for chain saws	1070300 - PARKS GROUNDS SUPPLIES
		\$96.30		
PAYSON LOCK & KEY	9/28/2023	\$75.00	Narc Room Lock movement	7657242 - EMS - SUPPLIES
PRECISION CONCRETE CUTTING	9/28/2023	\$10,006.77	Safe sidewalk project	1060495 - SIDEWALK REPAIR & REPLACE
PROCESS CURIOSITY	9/28/2023	\$11,000.00	museum master plan payment 2	6640720 - RAP TAX EXPENSE
PROVSTGAARD, LACEY MICHELLE	9/21/2023	\$4,400.83	Contract Pay	6840120 - SALARIES & WAGES (PART TIME)
QUICKSCORES LLC	9/21/2023	\$287.00	sport tournament scheduling software	6140665 - YOUTH SPORTS
REVCO	9/21/2023	\$682.51	Copy Machine Lease - New City Hall	4340300 - COPIER CONTRACT
ROCKY MOUNTAIN POWER	9/21/2023	\$18.66	1026 E MAIN STREET	1070270 - UTILITIES
ROCKY MOUNTAIN POWER	9/21/2023	\$15.12	1250 S CANYON ROAD	5440273 - UTILITIES
ROCKY MOUNTAIN POWER	9/21/2023	\$5.69	80 E 770 N	1060270 - UTILITIES - STREET LIGHTS
ROCKY MOUNTAIN POWER	9/21/2023	\$19.65	154 E 950 S	1060270 - UTILITIES - STREET LIGHTS
ROCKY MOUNTAIN POWER	9/21/2023	\$39.01	1005 S RED BARN	1060270 - UTILITIES - STREET LIGHTS
ROCKY MOUNTAIN POWER	9/21/2023	\$61.17	415 TRAVERTINE WAY	1060270 - UTILITIES - STREET LIGHTS
ROCKY MOUNTAIN POWER	9/28/2023	\$15.51	1000 N CENTER PARK	1070270 - UTILITIES
ROCKY MOUNTAIN POWER	9/28/2023	\$543.31	1213 N CENTER ST - PUBLIC WORKS BLDG	1051270 - UTILITIES
ROCKY MOUNTAIN POWER	9/28/2023	\$1,046.58	10 W GINGER GOLD ROAD (LIFT STATION)	5240270 - UTILITIES
ROCKY MOUNTAIN POWER	9/28/2023	\$11,889.34	1215 N CENTER	5240500 - WRF - UTILITIES
ROCKY MOUNTAIN POWER	9/28/2023	\$22.96	115 W 860 N - STRONGBOX	1060270 - UTILITIES - STREET LIGHTS
ROCKY MOUNTAIN POWER	9/28/2023	\$27.57	1269 S RED CLIFF DRIVE	1060270 - UTILITIES - STREET LIGHTS
ROCKY MOUNTAIN POWER	9/28/2023	\$31.60	1230 South Bluff ST.	1060270 - UTILITIES - STREET LIGHTS
ROCKY MOUNTAIN POWER	9/28/2023	\$49.87	1595 S LONGVIEW ROAD	1060270 - UTILITIES - STREET LIGHTS
ROCKY MOUNTAIN POWER	9/28/2023	\$130.30	759 South Badger way	1060270 - UTILITIES - STREET LIGHTS
		\$13,916.34		
SANTAQUIN CITY UTILITIES	9/29/2023	\$200.00	Cemetery	1022350 - UTILITIES PAYABLE
SANTAQUIN CITY UTILITIES	9/29/2023	\$765.00	Utilities	1022350 - UTILITIES PAYABLE
SANTAQUIN CITY UTILITIES	9/28/2023	\$120.00	Utility Assistance Program - September	5221600 - SEWER FUND DONATIONS
		\$1,085.00		
SANTAQUIN MARKET ACE	9/21/2023	\$19.76	Cleaning Supplies	1051240 - SUPPLIES
SANTAQUIN MARKET ACE	9/21/2023	\$19.76	Lime a way for Pump Maintenance E141	7657250 - FIRE - EQUIPMENT MAINTENANCE
SANTAQUIN MARKET ACE	9/21/2023	\$53.99	Orchard Days VIP Dinner Supplies	6240260 - RODEO EXPENSE
SANTAQUIN MARKET ACE	9/21/2023	\$17.96	Windshield Wiper Fluid x 4	1054240 - SUPPLIES
SANTAQUIN MARKET ACE	9/21/2023	\$31.49	trimmer string	1070300 - PARKS GROUNDS SUPPLIES
SANTAQUIN MARKET ACE	9/21/2023	\$16.17	Hole punch for irrigation hose	1070300 - PARKS GROUNDS SUPPLIES
SANTAQUIN MARKET ACE	9/21/2023	\$4.13	Supplies (black tape)	1070300 - PARKS GROUNDS SUPPLIES
SANTAQUIN MARKET ACE	9/21/2023	\$17.99	Breakroom Supplies	1043240 - SUPPLIES
SANTAQUIN MARKET ACE	9/21/2023	\$21.58	tools for parks truck	1070300 - PARKS GROUNDS SUPPLIES
		\$202.83		
SCHNEIDER ELECTRIC USA Inc	9/28/2023	\$504.69	Ballast repair	5240550 - WRF - EQUIPMENT MAINTENANCE
SELECTHEALTH, INC	9/28/2023	\$68,514.26	Health Insurance Premiums - October 2023	1022500 - HEALTH INSURANCE
SIDDONS MARTIN EMERGENCY GROUP LLC	9/28/2023	\$243.38	Valve repair kit T-141 Intake Relief	7657250 - FIRE - EQUIPMENT MAINTENANCE



SKM INC	9/21/2023	\$150.00	Sewer SCADA Maint.	5240310 - PROFESSIONAL & TECHNICAL SVCS
SKM INC	9/21/2023	\$445.00	Water SCADA Maint.	5140310 - PROFESSIONAL & TECHNICAL SVCS
		\$595.00		
SMART FIELD	9/21/2023	\$883.00	Flag Football Field Painting	1070300 - PARKS GROUNDS SUPPLIES
SMASH ATHLETICS, INC	9/21/2023	\$124.00	Adult Award Shirts	6140670 - ADULT SPORTS
SMASH ATHLETICS, INC	9/28/2023	\$243.00	Uniform Shirts, McKinzie & Jenna	1054240 - SUPPLIES
		\$367.00		
SO UT VALLEY ANIMAL SHELTER	9/21/2023	\$100.00	Dog Licenses x 4	1054350 - UTAH COUNTY ANIMAL SHELTER
SORENSON, NIKKI	9/21/2023	\$406.26	Miss Santaquin Program Booklets	6440200 - PAGEANT EXPENSES
SPRINT SOLUTIONS, INC	9/21/2023	\$59.15	Jared's phone	1068280 - TELEPHONE
SPRINT SOLUTIONS, INC	9/21/2023	\$74.15	Gregg's phone	5240280 - TELEPHONE
		\$133.30		
STAKER PARSON COMPANIES	9/21/2023	\$663.59	Road patching	4540200 - ROAD MAINTENANCE
STAKER PARSON COMPANIES	9/21/2023	\$1,385.09	Road patching	4540200 - ROAD MAINTENANCE
STAKER PARSON COMPANIES	9/21/2023	\$1,526.28	Patching	4540200 - ROAD MAINTENANCE
STAKER PARSON COMPANIES	9/28/2023	\$1,142.65	Road Patching	1062240 - SUPPLIES
STAKER PARSON COMPANIES	9/28/2023	\$508.13	road patching	1060240 - SUPPLIES
STAKER PARSON COMPANIES	9/28/2023	\$1,030.00	road base for road shouldering	1060240 - SUPPLIES
		\$6,255.74		
STAPLES	9/21/2023	\$8.72	11X17 paper	1048240 - SUPPLIES
STAPLES	9/21/2023	\$89.28	Garbage Cans for New City Hall	4140704-003 - NEW CITY HALL - FF&E
STAPLES	9/21/2023	\$130.90	Office Supplies	1043240 - SUPPLIES
STAPLES	9/21/2023	\$45.53	Hanging file baskets for utility lobby - New City Hall	4140704-003 - NEW CITY HALL - FF&E
STAPLES	9/28/2023	\$100.17	Drawer Organizers for New City Hall	4140704-003 - NEW CITY HALL - FF&E
STAPLES	9/28/2023	\$124.73	General Office Supplies	1043240 - SUPPLIES
STAPLES	9/28/2023	-\$66.78	Return of drawer organizers	1043240 - SUPPLIES
STAPLES	9/28/2023	\$64.83	Cardstock/Colored Paper/Post it notes	6140335 - MISC SUPPLIES
		\$497.38		
STEVE REGAN CO. - SRC CORP	9/28/2023	\$201.00	Archery Fencing	6640720 - RAP TAX EXPENSE
STEVENS, JOSHUA & SARAH *	9/28/2023	\$124.96	Refund: 1020633 - STEVENS, JOSHUA & SARAH *	5113110 - ACCOUNTS RECEIVABLE
SUMMIT CREEK RODEO CLUB	9/28/2023	\$3,125.00	roping club	6240260 - RODEO EXPENSE
SYMBOL ARTS, LLC	9/28/2023	\$45.75	Victim Advocate Badge, B. Wilkes	1054240 - SUPPLIES
TELEFLEX	9/21/2023	\$1,115.50	EZ-IO NEEDLES	7657242 - EMS - SUPPLIES
THATCHER COMPANY	9/28/2023	\$8,151.00	Chlorine	5140240 - SUPPLIES
THATCHER COMPANY	9/28/2023	-\$2,450.00	chlorine bottle return	5140240 - SUPPLIES
		\$5,701.00		
THE CLASSIC CAR WASH OF SANTAQUIN LLC	9/21/2023	\$150.00	August 2023 Car Wash	1054250 - EQUIPMENT MAINTENANCE
THE CLASSIC CAR WASH OF SANTAQUIN LLC	9/28/2023	\$20.80	August Car Washes for Building Inspection Vehicles	1068250 - EQUIPMENT MAINT
THE CLASSIC CAR WASH OF SANTAQUIN LLC	9/28/2023	\$14.40	car wash for trucks	5140240 - SUPPLIES
		\$185.20		
THE PENWORTHY COMPANY	9/28/2023	\$160.71	books	7240210 - BOOKS, SUBSCRIPTIONS & MEMBERSHIPS
TRYON, ERIK	9/21/2023	\$1,430.44	Erik Tryon Contract Pay	6840120 - SALARIES & WAGES (PART TIME)
TWO TWENTY TEES	9/21/2023	\$512.50	5k Runner Series Shirts	6240251 - COMMUNITY EVENTS EXPENSE
UTAH CORRECTIONAL INDUSTRIES	9/21/2023	\$2,200.00	Fire prevention items	7657230 - FIRE - EDUCATION, TRAINING & TRAVEL

UTAH COUNTY LODGE #31	9/29/2023	\$234.00	FOP Dues (Ut County Lodge #31)	1022425 - FOP DUES
UTAH LANDSCAPING ROCK	9/28/2023	\$1,684.76	Landscape rock	4140704-003 - NEW CITY HALL - FF&E
UTAH LANDSCAPING ROCK	9/28/2023	\$1,159.65	landscape rock	4140704-003 - NEW CITY HALL - FF&E
UTAH LANDSCAPING ROCK	9/28/2023	\$816.02	landscape rock	4140704-003 - NEW CITY HALL - FF&E
UTAH LANDSCAPING ROCK	9/28/2023	\$861.56	Landscape rock	4140704-003 - NEW CITY HALL - FF&E
UTAH LANDSCAPING ROCK	9/28/2023	\$888.70	landscape rock	4140704-003 - NEW CITY HALL - FF&E
		\$5,410.69		
UTAH STATE RETIREMENT	9/28/2023	\$25.56	URS Correction - Ethan Carroll - Final Payroll	5240130 - EMPLOYEE BENEFITS
UTAH STATE RETIREMENT	9/28/2023	\$25.56	URS Correction - Ethan Carroll - Final Payroll	5440130 - EMPLOYEE BENEFITS
UTAH STATE RETIREMENT	9/28/2023	\$34.07	URS Correction - Ethan Carroll - Final Payroll	5140130 - EMPLOYEE BENEFITS
UTAH STATE RETIREMENT	9/28/2023	\$85.19	URS Correction - Ethan Carroll - Final Payroll	1048130 - EMPLOYEE BENEFITS
UTAH STATE RETIREMENT	9/26/2023	\$32.19	Retirement	1022300 - RETIREMENT PAYABLE
UTAH STATE RETIREMENT	9/26/2023	\$52.00	401K	1022300 - RETIREMENT PAYABLE
UTAH STATE RETIREMENT	9/26/2023	\$5.00	Traditional IRA	1022300 - RETIREMENT PAYABLE
UTAH STATE RETIREMENT	9/26/2023	\$387.01	Retirement Loan Payment	1022325 - RETIREMENT LOAN PAYMENT
UTAH STATE RETIREMENT	9/26/2023	\$1,065.00	Roth IRA	1022300 - RETIREMENT PAYABLE
UTAH STATE RETIREMENT	9/26/2023	\$1,100.67	457	1022300 - RETIREMENT PAYABLE
UTAH STATE RETIREMENT	9/26/2023	\$1,411.88	401K - Tier 1 Parity	1022300 - RETIREMENT PAYABLE
UTAH STATE RETIREMENT	9/26/2023	\$4,990.22	401K	1022300 - RETIREMENT PAYABLE
UTAH STATE RETIREMENT	9/26/2023	\$26,902.75	Retirement	1022300 - RETIREMENT PAYABLE
		\$36,117.10		
UTAH VALLEY HOME BUILDERS ASSOCIATION	9/21/2023	\$300.00	Home Builders Association Membership Fees	1043210 - BOOKS,SUBSCRIPTIONS,MEMBERSHIP
VERIZON WIRELESS	9/28/2023	\$464.45	PD Phones	1054280 - TELEPHONE
VERIZON WIRELESS	9/28/2023	\$680.17	PD Jetpacks	1054340 - CENTRAL DISPATCH FEES
VERIZON WIRELESS	9/28/2023	\$130.55	Fire/EMS Phones	7657280 - TELEPHONE
VERIZON WIRELESS	9/28/2023	\$120.05	Comm Dev Jetpacks	1068280 - TELEPHONE
VERIZON WIRELESS	9/28/2023	\$40.01	GPS Data Collector	1048280 - TELEPHONE
VERIZON WIRELESS	9/28/2023	\$209.48	Pub Works PI Monitor	5140240 - SUPPLIES
		\$1,644.71		
VICTORY CHEER UNIFORMS, LLC	9/21/2023	\$419.99	Fit Kit for Cheer Uniforms	6840807 - TUMBLING/GYMNASTICS
WALL CONSULTANT GROUP	9/28/2023	\$8,025.00	Progress payment for MAG funded grid network study	4540210 - PROFESSIONAL SERVICES
WALMART BRC - GE CAPITAL RETAIL BANK	9/28/2023	\$533.55	Senior Food	7540480 - FOOD
WAXIE SANITARY SUPPLY	9/21/2023	\$94.59	garbage can lids for new building	4140704-003 - NEW CITY HALL - FF&E
WAXIE SANITARY SUPPLY	9/21/2023	\$934.49	Cleaning supplies	1051240 - SUPPLIES
WAXIE SANITARY SUPPLY	9/28/2023	\$235.98	trash cans for new senior kitchen	4140704-003 - NEW CITY HALL - FF&E
WAXIE SANITARY SUPPLY	9/28/2023	\$176.18	Mechanical sweepers for rec offices	1051240 - SUPPLIES
		\$1,441.24		
WILKERSON, KENT	9/21/2023	\$26.34	Restitution - Case #231500036	1022430 - COURT FINES AND FORFEITURES
WPA ARCHITECTURE, PC	9/21/2023	\$10,389.60	Santaquin City Hall Architectural Design Services During Construction	4140704-002 - NEW CITY HALL - ARCHITECTURAL SERVICES
WPA ARCHITECTURE, PC	9/21/2023	\$350.00	Santaquin Fire Station 142 Preliminary Design Work	5840725 - STATION 142 PROJECT
		\$10,739.60		
ZENON ENVIROMENTAL CORPORATION (VEOLIA)	9/28/2023	\$112,961.00	Membrane Replacement Contract	5240730 - CAPITAL PROJECTS
ZIONS BANK-CASH	9/21/2023	\$50.00	Start up cash for Seniors Lunch	7540240 - SUPPLIES
ZIONS BANK-CASH	9/21/2023	\$100.00	Additional Cash Drawer money for PD	5440240 - SUPPLIES
		\$150.00		
ZIONS FIRST NATIONAL BANK	9/21/2023	\$2,500.00	Trustee Admin Fees - 2021 Wtr Rev & Ref Bond	5440825 - DEBT SERVICE - TRUSTEE FEES
<b>TOTAL:</b>		\$1,347,027.71		



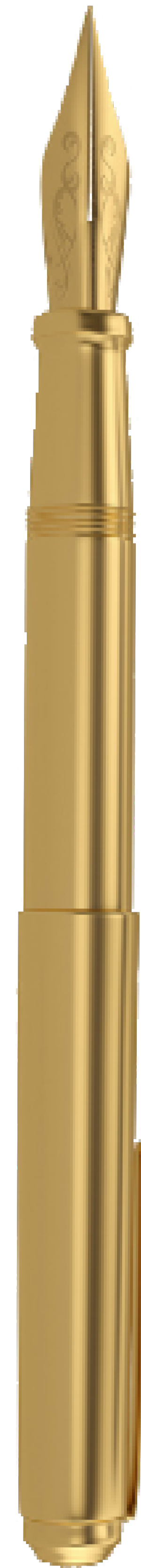


# EMPLOYEE OF THE MONTH

**MCKINZIE BRADSHAW**



EXCELLENCE



**OCTOBER 2023**



## ORDINANCE 10-01-2023

**AN ORDINANCE RATIFYING APPROVAL OF A SEWER COLLECTION AND TREATMENT MASTER PLAN (“MASTER PLAN”), IMPACT FEE FACILITY PLAN (“IFFP”), AND IMPACT FEE ANALYSIS (“IFA”), PROVIDING FOR CODIFICATION, CORRECTION OF SCRIVENER’S ERRORS, SEVERABILITY, AND AN EFFECTIVE DATE.**

**WHEREAS**, Santaquin City (the “City”) is a political subdivision of the State of Utah, authorized and organized under applicable provisions of Utah law; and

**WHEREAS**, Santaquin has experienced significant growth in the past and anticipates more growth in the future; and

**WHEREAS**, a Master Plan, IFFP, & IFA are necessary for the management of wastewater within the community, and Santaquin anticipates needing to expand its sewer collection and treatment systems and facilities as future growth occurs; and

**WHEREAS**, the City commissioned J-U-B Engineers, Inc. to prepare a Sewer System Master Plan, IFFP, & IFA to establish long term plans for management of wastewater collection and treatment infrastructure in the City; and

**WHEREAS**, the Santaquin City Council held a public hearing during their October 3, 2023 meeting, which hearing was preceded by the posting of public notice in at least three public places within the City limits of Santaquin City in accordance with Section 10-9a-205 of the Utah State Code.

**NOW, THEREFORE, BE IT ORDAINED** by the City Council of Santaquin City, State of Utah, as follows:

### **SECTION I. Ratification of Approval and Adoption**

Approval of the attached Master Plan, IFFP, & IFA are hereby ratified and adopted as the official Santaquin City Sewer Collection and Treatment Master Plan, IFFP, and IFA.

### **SECTION II. Codification, Inclusion in the Code, and Scrivener’s Errors**

It is the intent of the City Council that the provisions of this ordinance be made part of the Santaquin City Code as adopted, that sections of this ordinance may be re-numbered or re-lettered, and that the word ordinance may be changed to section, chapter, or other such appropriate word or phrase in order to accomplish such intent regardless of whether such inclusion in a code is accomplished. Typographical errors which do not affect the intent of this ordinance may be authorized by the City without need of public hearing by its filing a corrected or re-codified copy of the same with the City Recorder.

**SECTION III. Severability**

If any part of this ordinance or the application thereof to any person or circumstances shall, for any reason, be adjudged by a court of competent jurisdiction to be unconstitutional or invalid, such judgment shall not affect, impair or invalidate the remainder of this ordinance or the application thereof to other persons and circumstances, but shall be confined to its operation to the section, subdivision, sentence or part of the section and the persons and circumstances directly involved in the controversy in which such judgment shall have been rendered. It is hereby declared to be the intent of the City Council that this section would have been adopted if such invalid section, provisions, subdivision, sentence or part of a section or application had not been included.

**SECTION IV. Effective Date**

This ordinance shall become effective at 5:00 p.m. on Wednesday, October 4, 2023. Prior to that time, the City Recorder shall deposit a copy of this ordinance in the official records of the City and place a copy of this ordinance in three places within the City.

PASSED AND ADOPTED this 3<sup>rd</sup> day of October 2023

\_\_\_\_\_  
Daniel M. Olson, Mayor

Councilmember Art Adcock	Voted	___
Councilmember Elizabeth Montoya	Voted	___
Councilmember Lynn Mecham	Voted	___
Councilmember Jeff Siddoway	Voted	___
Councilmember David Hathaway	Voted	___

ATTEST:

\_\_\_\_\_  
Amalie R. Ottley, City Recorder

STATE OF UTAH                    )  
  ) ss.  
COUNTY OF UTAH                )

I, AMALIE R. OTTLEY, City Recorder of Santaquin City, Utah, do hereby certify and declare that the above and foregoing is a true, full, and correct copy of an ordinance passed by the City Council of Santaquin City, Utah, on the 3<sup>rd</sup> day of October 2023, entitled

**“AN ORDINANCE RATIFYING APPROVAL OF A SEWER COLLECTION AND TREATMENT MASTER PLAN (“MASTER PLAN”), IMPACT FEE FACILITY PLAN (“IFFP”), AND IMPACT FEE ANALYSIS (“IFA”), PROVIDING FOR CODIFICATION, CORRECTION OF SCRIVENER’S ERRORS, SEVERABILITY, AND AN EFFECTIVE DATE.”**

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Corporate Seal of Santaquin City Utah this 3<sup>rd</sup> day of October 2023.

\_\_\_\_\_  
Amalie R. Ottley  
Santaquin City Recorder

(SEAL)

AFFIDAVIT OF POSTING

STATE OF UTAH )  
 ) ss.  
COUNTY OF UTAH )

I, Amalie R. Ottley, City Recorder of Santaquin City, Utah, do hereby certify and declare that prior to the ordinance taking effect, I posted a short summary of the ordinance on the Utah Public Notice Website as required by Utah State Code 10-3-711(1)(b) as a Class A Notice.

I further certify that copies of the ordinance were posted online at [www.santaquin.org](http://www.santaquin.org), in three physical locations (Santaquin City Hall, Zions Bank, Santaquin Post Office), and on the State of Utah's Public Notice Website, <https://www.utah.gov/pmn/index.html>. A copy of the notice may also be requested by calling (801)754-1904.

\_\_\_\_\_  
Amalie R. Ottley  
Santaquin City Recorder

The foregoing instrument was acknowledged before me this \_\_\_ day of \_\_\_\_\_, 20\_\_, by AMALIE R.OTTLEY.

My Commission Expires:

\_\_\_\_\_  
Notary Public

Residing at Utah County

# SANTAQUIN CITY

## 2023 SANITARY SEWER SYSTEM IMPACT FEE FACILITIES PLAN



Prepared by:

**J-U-B ENGINEERS, INC.**

240 West Center Street, Suite 200

Orem, Utah 84057

(801) 226-0393

[www.jub.com](http://www.jub.com)

*Adopted by Santaquin City Council*

*on May 2, 2023*

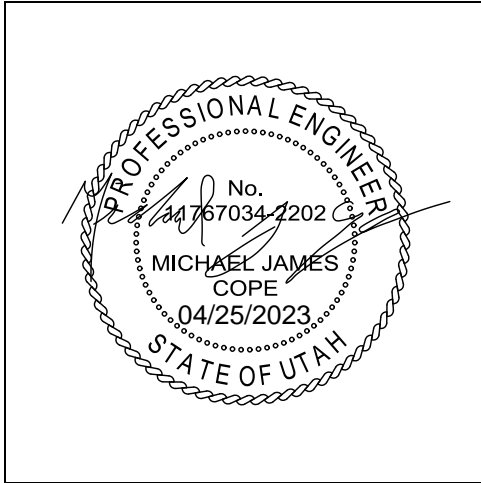


**J-U-B ENGINEERS, INC.**

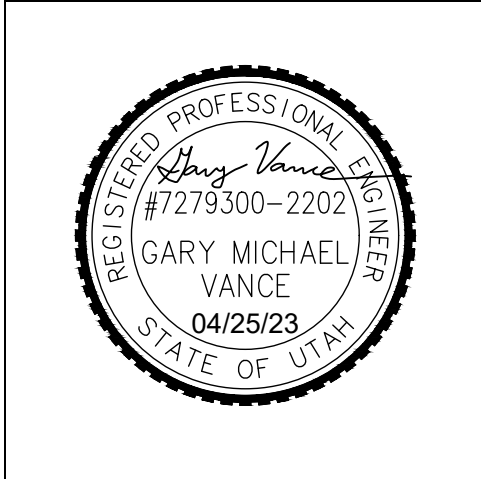
Item # 7.



# PROFESSIONAL ENGINEER CERTIFICATION



I, Michael J. Cope, do certify that this Master Plan & Capital Facilities Plan report was prepared under my charge, with the exception of the portions relating to wastewater treatment and effluent handling.



I, Gary Vance, do certify that the portions of this Master Plan & Capital Facilities Plan report relating to wastewater treatment and effluent handling were prepared under my charge.

**SANITARY SEWER IMPACT FEE FACILITIES PLAN**  
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## I. INTRODUCTION

### A. Purpose

The purpose of the Sanitary Sewer Impact Fee Facilities Plan (IFFP) is to fulfill the requirements established in Utah Code Title 11 Chapter 36a, the “Impact Fees Act” relative to impact fee facilities plans. Appendix A contains the Impact Fee Act (Enacted by Chapter 47, 2011 General Session).

### B. Background

The Sanitary Sewer Master Plan and Capital Facilities Plan (MP & CFP) is a document that establishes long term plans for Santaquin City’s sanitary sewer infrastructure. It also performs the following functions pertinent to the Impact Fee Facilities Plan:

1. Identifies the level of service
2. Distinguishes between system improvements and project improvements
3. Identifies system improvements, and their associated costs, that will be required in the future to accommodate future growth
4. Identifies cost sharing based on proportional historical, current, and projected future growth
5. Evaluates available funding sources
6. Recommends a schedule of project construction based on projected growth rates and prioritizes projects

This IFFP document extracts information from the 2023 Sanitary Sewer MP & CFP to provide the information that becomes the foundation for the Sanitary Sewer Impact Fee Analysis (IFA).

Appendix B contains the Sanitary Sewer MP & CFP by reference.

### C. Scope

The Sanitary Sewer IFFP takes results and documentation from the MP & CFP and supplements it to provide the basis needed to complete the Sanitary Sewer Impact Fee Analysis. It is intended that this document comply with the Utah Impact Fee Act as it currently exists.

## II. LEVEL OF SERVICE

### A. Level of Service from Sanitary Sewer Master Plan and Capital Facilities Plan

The level of service (LOS) criteria for the sanitary sewer system is defined as follows:

#### 1. Collection/Transmission

Santaquin City has chosen the following LOS: peak hour flow (or “q”) divided by full flow (or “Qfull”) of less than or equal to 85%, which corresponds to a flow depth of about 78%, and the pipe is not surcharged due to downstream capacity deficiencies. That depth is desirable because it provides a degree of protection against surcharging which causes overflows and lateral backups and contributes to odors and hydrogen sulfide generation.

If a pipe is located in an area without basements, then a peak hour flow level of service of up to 95% may be acceptable.

For pipes where buildout modeling indicates existing infrastructure will not meet the level of service, but there are no sewer laterals connected to the pipe or expected to connect to the pipe in the future, or the specific situation is not expected to create any operational or maintenance problems, the pipes will be placed on a watch list. As time passes, if it appears the pipes may become an operational or maintenance problem, improvements may be planned.

#### 2. Lift Station Facilities

The sewer lift station LOS relates to pump capacity and operation:

- Pumps must have a capacity to pump at least 100% of peak hour flow rate while maintaining a standby pump.
- The lift stations (excluding temporary ones) must have flow metering, backup power, variable frequency drive (VFD) motors if beneficial, and SCADA.

#### 3. Treatment

The LOS for treatment is for each component of the Water Reclamation Facility to have capacity to provide at least 100% of peak day or average day flow, as applicable.

#### 4. Storage

The LOS for storage is to maintain sufficient storage capacity to store Type 1 water discharged from the Water Reclamation Facility until it can be pumped into the City’s pressure irrigation system. The storage facilities shall have capacity to provide at least 100% of the total demand during the

non-irrigation season. This could be accomplished through above-ground storage ponds or through infiltration for later reuse.

The 2023 Sanitary Sewer MP & CFP in Appendix B contains additional information regarding the sanitary sewer system LOS established for Santaquin City.

**B. Service Areas**

Utah Code requires the impact fee enactment to establish one or more service areas within which impact fees will be imposed. The impact fee related costs identified in this document will be assessed to a single service area encompassing the entire service area of the Santaquin sanitary sewer system.

**III. EXISTING AND FUTURE SANITARY SEWER SYSTEM DEMANDS**

The Sanitary Sewer MP & CFP contains a detailed description of existing and future demands on the sanitary sewer system. It illustrates the impact of future development on the system. See Appendix B for more information.

**IV. EXISTING SYSTEM IMPROVEMENTS WITH RESERVE CAPACITY**

Shown on the following pages are system facilities that have reserve capacity available to accommodate future growth, as well as the proportion of the facilities' capacity that is available for future growth. This existing capacity will gradually be consumed as development occurs.

**A. Reserve Capacity of Collection/Transmission System**

We evaluated the capacity of all collection and transmission system pipelines with modeled flow that were deemed to be a system improvement according to the definition in the 2023 Sanitary Sewer MP & CFP and the Impact Fee Act. Most of these pipelines are at or over 8 inches in diameter. The process of determining reserve capacity in the collection/transmission system improvements, along with their estimated impact-fee-eligible costs, is as follows for each existing pipe segment that is a system improvement:

1. Identify the existing (2022), 2032, and buildout demand.

2. Calculate additional demand used between 2022 and 2032.
3. Identify the maximum demand. The maximum demand is typically the buildout demand; however, in some pipes, the maximum demand occurs in 2032. Most of the pipes still have capacity beyond the maximum demand, but we only count that portion of capacity that will actually get consumed for reserve capacity calculations. When the maximum demand in a pipe segment exceeds the pipe's full capacity, which indicates a need to upsize the pipe, the maximum demand for the existing pipe is taken as the pipe's full capacity.
4. Calculate the percentage of pipe capacity that will be used between 2022 and 2032 (result of Step 2 divided by the result of Step 3).
5. Calculate the estimated impact-fee-eligible cost for each pipe segment by multiplying the estimated project cost by the percentage of pipe capacity used between 2022 and 2032.

For the purposes of the 2023 Sanitary Sewer MP, CFP, & IFFP, buildout demands are estimated to occur in the year 2060. The master plan identifies 4,745 ERUs in 2022, 8,208 ERUs in 2032, and 19,691 ERUs at buildout. We therefore anticipate that 14,946 ERUs will be added between 2022 and buildout. We also anticipate that these ERUs of future growth will consume the portions of existing transmission/ distribution system pipe capacity over the next 38 years.

See Table C - 1 in Appendix C for a detailed tabulation of 2022, 2032, and buildout demand, reserve capacity, capacity to be consumed by 2032, historical costs, as well as impact fee eligible costs for each pipe with modeled flow. Table C - 2 in Appendix C contains similar data for pipes without modeled flow and assumes that the demand flows match adjacent pipes with modeled flow.

**B. Reserve Capacity of the Water Reclamation Facility**

The capacity, reserve capacity, and capacity to be consumed by 2032 by the WRF is summarized below in Table 1. These numbers are based on the 2023 Sanitary Sewer Master Plan and Capital Facilities Plan.



**Table 1. WRF Reserve Capacity Summary**

Description	Capacity (ERUs)	Existing (2022) ERUs	Additional ERUs 2022 to 2032	% Capacity Consumed 2022 to 2032 <sup>1</sup>	% of Original Construction Cost <sup>2</sup>	Estimated Impact-Fee-Eligible Cost <sup>3</sup>
<b>Original WRF Construction</b>						
Center Street Lift Station Upgrades (new pumps and parallel force mains)	4,524	4,745	3,463	No Remaining Capacity	3%	\$ -
Site Work, Yard Piping, Utilities	7,420	4,745	3,463	36%	6%	\$ 170,226
Headworks Building (including screens, building, and electrical)	8,920	4,745	3,463	39%	7%	\$ 213,874
BNR Process with 1 Train Down for Maintenance (including blowers, electrical, etc.)	3,710	4,745	3,463	No Remaining Capacity	20%	\$ -
Membrane Process with 1 Train Down for Maintenance (including membranes, blowers, permeate pumps, electrical, etc.)	4,014	4,745	3,463	No Remaining Capacity	12%	\$ -
Treatment Building	7,420	4,745	3,463	36%	32%	\$ 907,873
Dewatering Building	9,913	4,745	3,463	35%	3%	\$ 82,476
Screw Press and Electrical	3,400	4,745	3,463	No Remaining Capacity	3%	\$ -
Reclaimed Water Pump Station Pumps and Electrical	4,104	4,745	3,463	No Remaining Capacity	2%	\$ -
Reclaimed Water Pump Station Building	7,420	4,745	3,463	36%	2%	\$ 56,742
Offsite Piping (influent and reclaimed water piping)	6,051	4,745	3,463	22%	10%	\$ 169,837
<b>2019 WRF Phase 2 Upgrades</b>						
Screw Press Expansion	9,913	4,745	3,463	53%	30%	\$ 248,571
Membrane Expansion	5,352	4,745	3,463	45%	70%	\$ 494,862
<b>Total</b>						<b>\$ 2,344,461</b>

<sup>1</sup>If the Existing ERUs do not exceed the Capacity, the % Capacity Consumed 2022 to 2032 is calculated as the Additional ERUs 2022 to 2032 (or the remaining ERUs to reach capacity if they are less than the Additional ERUs 2022 to 2032) divided by the Capacity.

<sup>2</sup>Estimated percentage of the original construction cost by component.

<sup>3</sup>Estimated Impact-Fee-Eligible Cost is calculated as the total impact-fee-eligible cost multiplied by the % Capacity Consumed 2022 to 2032 and the % of Original Construction Cost.

Based on Table 1, there are some components of the WRF that have reserve capacity to accommodate future growth, and some components that have no remaining capacity.

Similar reserve capacity calculations are performed for other infrastructure with Historic Costs paid for by Santaquin City, and are located in Appendix D.

### C. Historic Costs

We used actual historic costs where available. Where they were not available, we estimated the year of construction of the facility, estimated what it would cost to construct the facility in 2022 (using the same method used to estimate the cost of future system improvements), and calculated an approximate historic cost of construction based on the ratio of the Engineering News Record (ENR) construction cost index (see Table D - 11 in Appendix D) between the year of construction and 2022. The reserve capacity to be consumed by 2032 is coupled with the actual or estimated historic cost to determine the impact fee eligible cost.

The total historic costs for transmission/distribution lines with modeled flow that are eligible for impact fee collection is \$601,356 (see Table C - 1 in Appendix C). Historical piping project costs are shown in Appendix D. There were about 33 miles of 6-inch and larger sanitary sewer mains that were not assigned modeled flows. Santaquin City paid for the installation of part of these pipes. We conservatively estimated their reserve capacity to be the same as the pipes with modeled flow that are located directly downstream. The total historic costs for the transmission/distribution lines without modeled flow that are eligible for impact fee collection is \$472,652 (see Table C - 2 in Appendix C).

The total construction cost for the WRF was \$18,380,688. The City's portion was \$7,869,642.80 for the WRF, plus an additional \$815,045 for the associated piping (see Table D - 2 in Appendix D). While some components of the WRF have reserve capacity to accommodate future growth, others have no remaining capacity (see Table 1). The impact fee eligible cost for the original portion of the WRF is \$1,601,028. The associated piping cost that is impact fee eligible is captured as part of the total for the transmission/distribution lines without modeled flow that is shown above.

The historical cost paid by Santaquin City for the 126 MG Winter Storage Pond #2 was \$1,247,683. Based on calculations shown in Table D - 5 in Appendix D, the impact fee eligible amount is 29.4% of the \$1,247,683, or \$367,121 (see Table D - 5).

The total construction cost for the public works facility was \$2,530,000. The City spread the cost between sanitary sewer, pressure irrigation, culinary water, and administration at 25% each. Thus, sanitary sewer was responsible for \$632,500. Based on calculations shown in Table D - 7 in Appendix D, the impact fee eligible amount is 23.17% of the \$632,500, or \$146,539 (see Table D - 7).

Table D - 9 in Appendix D summarizes other City Projects that were paid for by others. Table D - 10 in Appendix D calculates the percent of Projects S-01 and S-02 in Table 3 that will be used by 2032 for impact fee calculation purposes.

In addition to historic costs, Santaquin also paid for the master plan and capital facilities plan, portions of which were necessary for completing the impact fee facilities plan; the impact fee facilities plan; and the impact fee analysis. These costs totaled about \$73,050 and are impact fee eligible (see Table D - 12 in Appendix D).

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**Table 2. Summary of Historic Project Costs and Engineering Costs Related to Planning that are Eligible for Impact Fee Collection**

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	<b>Impact Fee Eligible Cost</b>
Transmission/Distribution Lines with Modeled Flow	\$ 601,356
Transmission/Distribution Lines without Modeled Flow	\$ 472,652
Wastewater Reclamation Facility	\$ 2,344,461
Winter Storage Pond #2	\$ 367,121
Public Works Building	\$ 146,539
MP/CFP, IFFP, IFA	\$ 73,050
<b>Total</b>	\$ 4,005,180

**V. FUTURE PROJECTS TO ACCOMMODATE GROWTH**

The 2023 Sanitary Sewer MP & CFP identifies which projects will be needed to accommodate future growth and determines at what point they will be needed. Given the growth rate contained in the master plan, it also calculates what year (or range of years, for later projects) Santaquin expects the projects to be needed.

Projects expected to be needed by 2032 to accommodate growth are listed in Table 3.

**Table 3. Sanitary Sewer Projects Needed to Accommodate Future Growth**

Project No.	Project Description	Estimated Total Cost (Rounded) <sup>1</sup>	Point at Which Project is Estimated to be Needed <sup>2</sup>		Land Developer (Project Improvements)	City Funds (Existing Deficiencies)	Impact Fees (System Improvements)	% Capacity Consumed by 2032	Current Impact-Fee-Eligible Cost
			ERUs	Year					
<b>Collection Projects</b>									
C-01	Install 18" Sewer Main Along Strawberry Canal Road from 400 East to 100 East	\$ 634,200	6,079	2027	\$ 339,450	\$ -	\$ 294,750	38%	\$ 110,683
C-02	Install 10" & 15" Pipe along 400 East from 530 North to Strawberry Canal Road and Remove Pipe on 530 North	\$ 843,900	6,079	2027	\$ 608,220	\$ -	\$ 235,680	44%	\$ 103,799
C-03 <sup>3</sup>	Install 8" Sewer Main from west to 14400 South (county) and Summit Ridge Pkwy	\$ 1,720,500	6,079	2027	\$ 1,720,500	\$ -	\$ -	31%	\$ -
C-04	Install 8" Sewer Main along Center Street from 100 South to Manhole at 70 South	\$ 50,000	7,294	2030	\$ -	\$ -	\$ 50,000	39%	\$ 19,417
C-05	Install 10" Sewer Main Parallel to Existing 18" Sewer Main along Railroad Tracks East of Storage Ponds from 14000 South (county) to Highway 6 - Flows from 14000 South (county) will be Diverted to the Parallel 10" Sewer Main	\$ 586,500	9,913	2037	\$ -	\$ -	\$ 586,500		
C-06	Install 8" Sewer Main along Strawberry Canal Road from 4800 West (county) to 400 East	\$ 813,800	9,913	2037	\$ 813,800	\$ -	\$ -		
C-07	Install 8" Sewer Main Along 350 West from 680 North to 700 North	\$ 50,000	12,808	2044	\$ -	\$ -	\$ 50,000		
C-08	Install 15" Sewer Main Along Railroad Tracks East of Summit Ridge from Vista Ridge Drive to Topaz Drive (excluding under railroad tracks)	\$ 464,400	13,277	2045	\$ -	\$ -	\$ 464,400		
C-09	Install 4" Force Main with Sewer Lift Station on 4800 West (county) and 12400 South (county)	\$ 1,819,500	13,277	2045	\$ -	\$ -	\$ 1,819,500		
C-10 <sup>4</sup>	Install 8" Sewer Main from SR-198 and 4400 West (county) to 12400 South and 4800 West (county)	\$ 2,127,800	13,277	2045	\$ 2,127,800	\$ -	\$ -		
C-11	Install 24" Sewer Main on Center Street to Lift Station	\$ 47,100	13,761	2046	\$ -	\$ -	\$ 47,100		
C-12 <sup>4</sup>	Install 8" Sewer Main Along 4800 West from 12800 South to 12400 South	\$ 697,500	13,761	2046	\$ 697,500	\$ -	\$ -		
C-13 <sup>4</sup>	Install 8" Sewer Main on Strawberry Canal Road from 6250 West to Center Street Lift Station	\$ 1,288,100	13,761	2046	\$ 1,288,100	\$ -	\$ -		
C-14	Install 8" Sewer Main along 100 West from 100 South to Manhole at 70 South, and add Manhole at Intersection of 100 West 100 South	\$ 48,900	14,778	2048	\$ -	\$ -	\$ 48,900		
C-15	Install 4" Force Main with Sewer Lift Station Northwest of Storage Ponds near Highway 6	\$ 1,257,200	14,778	2048	\$ -	\$ -	\$ 1,257,200		
C-16 <sup>4</sup>	Install 8" Sewer Main West of Storage Ponds to Highway 6 Lift Station (Project 15)	\$ 819,600	14,778	2048	\$ 819,600	\$ -	\$ -		
C-17	Install 8" Sewer Main along 400 East from 200 South to 140 South	\$ 72,100	15,862	2050	\$ -	\$ -	\$ 72,100		
C-18	Install 8" Sewer Main North of 400 North and East of 400 East for Development	\$ 1,371,800	15,862	2050	\$ 1,371,800	\$ -	\$ -		
C-19 <sup>3</sup>	Install 4" Force Main with Sewer Lift Station south of Genola near Highway 6	\$ 2,005,000	17,681	2055	\$ 2,005,000	\$ -	\$ -		
C-20	Install 8" Sewer Main along Center Street from 550 South to Manhole at 520 South	\$ 27,900	19,273	2059	\$ -	\$ -	\$ 27,900		
<b>Subtotal</b>		<b>\$ 16,745,800</b>			<b>\$ 11,791,770</b>	<b>\$ -</b>	<b>\$ 4,954,030</b>		<b>\$ 233,900</b>

**Table 3. Sanitary Sewer Projects Needed to Accommodate Future Growth (cont'd)**

Project No.	Project Name	Estimated Total Cost (Rounded) <sup>1</sup>	ERUs Served <sup>5</sup>	Anticipated Construction Year	ERUs Added by Project	Land Developer (Project Improvements)	City Funds (Existing Deficiencies)	Previously Collected Impact Fees (System Improvements)	Impact Fees (System Improvements)	% Capacity Consumed by 2032	Current Impact-Fee-Eligible Cost
<b>Treatment Projects</b>											
T-01 <sup>6</sup>	Upgrade Permeate Pumps	\$ 75,000	2,909	2023/2024	4,082	\$ -	\$ -	\$ 33,731	\$ 41,269	55%	\$ 22,709
T-02 <sup>6</sup>	Process Train #3 and New Biosolids Holding Tank- Convert Train 3 to BNR Process and Replace Solids Holding Tank and Pumps	\$ 4,221,000	3,710	2023/2024	7,420	\$ -	\$ -	\$ 588,692	\$ 3,632,308	47%	\$ 1,695,117
T-03 <sup>6</sup>	Reclaimed Water System Add 4th Pump	\$ 245,000	4,104	2023/2024	4,500	\$ -	\$ -	\$ 34,891	\$ 210,109	77%	\$ 161,679
T-04 <sup>6</sup>	Outfit Membrane Tank 5 and Flow Channel	\$ 2,463,000	4,014	2023/2024	5,352	\$ -	\$ -	\$ 336,338	\$ 2,126,662	65%	\$ 1,375,952
T-05 <sup>6</sup>	Center Street Lift Station & FM- Add Third Pump and Add Parallel Force Main	\$ 1,589,000	4,524	2023/2024	7,922	\$ -	\$ -	\$ 44,291	\$ 1,544,709	44%	\$ 675,200
T-06 <sup>7</sup>	Add Conveyors and Loadout Facility for Biosolids	\$ 600,000	--	2023/2024	7,169	\$ -	\$ -	\$ -	\$ 600,000	46%	\$ 276,988
T-07	Convert Backpulse Tank and Outfit Membrane Train 6	\$ 2,496,000	5,352	2025	6,690	\$ -	\$ -	\$ -	\$ 2,496,000	43%	\$ 1,065,406
T-08	Reclaimed Water System Add Parallel FM	\$ 2,581,000	6,051	2027	12,102	\$ -	\$ -	\$ -	\$ 2,581,000	18%	\$ 459,969
T-09 <sup>8</sup>	UV System Upgrades- Populate First Channel	\$ 479,000	3,750	2027	7,500	\$ -	\$ -	\$ 63,527	\$ 415,473	46%	\$ 191,824
T-10 <sup>7</sup>	Add Grit Removal System	\$ 2,025,000	--	2027	8,182	\$ -	\$ -	\$ -	\$ 2,025,000	26%	\$ 526,733
T-11	New 1.5 MGD AADF WRF	\$ 37,500,000	7,420	2031	8,314	\$ -	\$ -	\$ -	\$ 37,500,000	9%	\$ 3,552,426
T-12	Upsize Headworks Drum Screens	\$ 2,570,000	8,920	2035	8,360	\$ -	\$ -	\$ -	\$ 2,570,000		
T-13	Biosolids - when both screw presses are running 40 hrs/wk, expand building and add a 3rd screw press or a belt filter press for more capacity.	\$ 3,526,000	9,913	2037	8,446	\$ -	\$ -	\$ -	\$ 3,526,000		
T-14	UV System Upgrades- Populate Second Channel	\$ 1,220,000	15,004	2049	15,004	\$ -	\$ -	\$ -	\$ 1,220,000		
<b>Subtotal</b>		<b>\$ 61,590,000</b>				<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,101,470</b>	<b>\$ 60,488,530</b>		<b>\$10,004,003</b>
<b>Storage Projects</b>											
S-01	Winter Storage Pond- Convert Existing Treatment Lagoons	\$ 3,675,000	5,993	2027	1,212	\$ -	\$ -		\$ 3,675,000	100%	\$ 3,675,000
S-02	Winter Storage Pond- New Winter Storage Near Existing	\$ 31,633,000	7,205	2030	8,314	\$ -	\$ -		\$ 31,633,000	12%	\$ 3,813,193
<b>Subtotal</b>		<b>\$ 35,308,000</b>				<b>\$ -</b>	<b>\$ -</b>		<b>\$ 35,308,000</b>		<b>\$ 7,488,193</b>
<b>Total</b>		<b>\$113,643,800</b>				<b>\$ 11,791,770</b>	<b>\$ -</b>	<b>\$ 1,101,470</b>	<b>\$ 100,750,560</b>		<b>\$17,726,096</b>

<sup>1</sup>Costs are in 2022 dollars

<sup>2</sup>Project ERUs and years are estimates only. Actual timing will vary based on development.

<sup>3</sup>Project considered to be a project improvement as it serves land owned by a single property owner.

<sup>4</sup>Project anticipated to be completed by a developer. However, project also serves as a system improvement and could be paid for using impact fees if it is needed before the adjacent land develops.

<sup>5</sup>ERUs served prior to planned project.

<sup>6</sup>The City has been collecting impact fees to address the project need and has been monitoring existing demands and future needs to determine how much additional capacity will be needed as part of the improvement.

<sup>7</sup>Project need is due to growth, but there is not a specific number of ERUs that will trigger the project. Project will be completed when the City determines it is needed.

<sup>8</sup>Current UV disinfection system is working well and appears to have sufficient capacity despite having exceeded the ERUs. See Ultraviolet Light Disinfection in Appendix G.

For this IFFP, we have chosen the commonly accepted period of 10 years, which is supported by the following reasoning. Current legislation requires that collected impact fees be spent within six years. Impact fees, which are calculated in an IFA based on the IFFP, will be collected until the IFFP is updated, which should happen no less frequently than every five years. Therefore, impact fees based on this IFFP may be collected four years after its adoption. Those fees would need to be spent within six years thereafter, which would be 10 years from the date of IFFP adoption. Thus, projects as far as 10 years into the future are included in this IFFP.

**VI. SUMMARY OF COSTS ELIGIBLE FOR IMPACT FEE CALCULATION**

Table 4 provides a summary of the costs that are eligible for impact fee calculation.

**Table 4. Summary of Costs Eligible for Impact Fee Calculation**

Description	Current Impact-Fee-Eligible Cost
Existing System Reserve Capacity	\$ 4,005,180
Future System Improvements	\$ 17,726,096
<b>Total</b>	<b>\$ 21,731,276</b>

**VII. FUNDING FUTURE PROJECTS**

A. Consideration of Funding Sources

Section 302 (2) of the Impact Fee Act requires the City to “generally consider all revenue sources to finance the impacts on system improvements.” Such revenue sources include impact fees and anticipated or accepted dedications of system improvements. By considering all revenue sources, the City ensures fair and equitable treatment among users and concludes whether impact fees are the most appropriate method to fund the growth.

The Sanitary Sewer MP & CFP considered multiple revenue sources, including impact fees and anticipated dedication of system improvements. It establishes that impact fees are necessary to achieve an equitable allocation to the costs borne in the past and to be borne in the future, in comparison to the benefits already received and yet to be received.

B. Impact Fee Credit

The Impact Fee Act allows a "...credit against impact fees for any dedication of land for, improvement to, or new construction of, any system improvements provided by the developer if the facilities: (a) are system improvements; or (b)(i) are dedicated to the public; and (b)(ii) offset the need for an identified system improvement." The improvements do not necessarily need to be made in the proposed development. This plan does not contemplate a credit owed, and any credits given in the future would be negotiated between the developer and the City on a case-by-case basis as they arise.

**APPENDIX A - UTAH IMPACT FEE ACT**



## Chapter 36a Impact Fees Act

### Part 1 General Provisions

#### **11-36a-101 Title.**

This chapter is known as the "Impact Fees Act."

Enacted by Chapter 47, 2011 General Session

#### **11-36a-102 Definitions.**

As used in this chapter:

- (1)
  - (a) "Affected entity" means each county, municipality, local district under Title 17B, Limited Purpose Local Government Entities - Local Districts, special service district under Title 17D, Chapter 1, Special Service District Act, school district, interlocal cooperation entity established under Chapter 13, Interlocal Cooperation Act, and specified public utility:
    - (i) whose services or facilities are likely to require expansion or significant modification because of the facilities proposed in the proposed impact fee facilities plan; or
    - (ii) that has filed with the local political subdivision or private entity a copy of the general or long-range plan of the county, municipality, local district, special service district, school district, interlocal cooperation entity, or specified public utility.
  - (b) "Affected entity" does not include the local political subdivision or private entity that is required under Section 11-36a-501 to provide notice.
- (2) "Charter school" includes:
  - (a) an operating charter school;
  - (b) an applicant for a charter school whose application has been approved by a charter school authorizer as provided in Title 53G, Chapter 5, Part 6, Charter School Credit Enhancement Program; and
  - (c) an entity that is working on behalf of a charter school or approved charter applicant to develop or construct a charter school building.
- (3) "Development activity" means any construction or expansion of a building, structure, or use, any change in use of a building or structure, or any changes in the use of land that creates additional demand and need for public facilities.
- (4) "Development approval" means:
  - (a) except as provided in Subsection (4)(b), any written authorization from a local political subdivision that authorizes the commencement of development activity;
  - (b) development activity, for a public entity that may develop without written authorization from a local political subdivision;
  - (c) a written authorization from a public water supplier, as defined in Section 73-1-4, or a private water company:
    - (i) to reserve or provide:
      - (A) a water right;
      - (B) a system capacity; or
      - (C) a distribution facility; or
    - (ii) to deliver for a development activity:

- (A) culinary water; or
- (B) irrigation water; or
- (d) a written authorization from a sanitary sewer authority, as defined in Section 10-9a-103:
  - (i) to reserve or provide:
    - (A) sewer collection capacity; or
    - (B) treatment capacity; or
  - (ii) to provide sewer service for a development activity.
- (5) "Enactment" means:
  - (a) a municipal ordinance, for a municipality;
  - (b) a county ordinance, for a county; and
  - (c) a governing board resolution, for a local district, special service district, or private entity.
- (6) "Encumber" means:
  - (a) a pledge to retire a debt; or
  - (b) an allocation to a current purchase order or contract.
- (7) "Expense for overhead" means a cost that a local political subdivision or private entity:
  - (a) incurs in connection with:
    - (i) developing an impact fee facilities plan;
    - (ii) developing an impact fee analysis; or
    - (iii) imposing an impact fee, including any related overhead expenses; and
  - (b) calculates in accordance with a methodology that is consistent with generally accepted cost accounting practices.
- (8) "Hookup fee" means a fee for the installation and inspection of any pipe, line, meter, or appurtenance to connect to a gas, water, sewer, storm water, power, or other utility system of a municipality, county, local district, special service district, or private entity.
- (9)
  - (a) "Impact fee" means a payment of money imposed upon new development activity as a condition of development approval to mitigate the impact of the new development on public infrastructure.
  - (b) "Impact fee" does not mean a tax, a special assessment, a building permit fee, a hookup fee, a fee for project improvements, or other reasonable permit or application fee.
- (10) "Impact fee analysis" means the written analysis of each impact fee required by Section 11-36a-303.
- (11) "Impact fee facilities plan" means the plan required by Section 11-36a-301.
- (12) "Level of service" means the defined performance standard or unit of demand for each capital component of a public facility within a service area.
- (13)
  - (a) "Local political subdivision" means a county, a municipality, a local district under Title 17B, Limited Purpose Local Government Entities - Local Districts, a special service district under Title 17D, Chapter 1, Special Service District Act, or the Point of the Mountain State Land Authority, created in Section 11-59-201.
  - (b) "Local political subdivision" does not mean a school district, whose impact fee activity is governed by Section 11-36a-206.
- (14) "Private entity" means an entity in private ownership with at least 100 individual shareholders, customers, or connections, that is located in a first, second, third, or fourth class county and provides water to an applicant for development approval who is required to obtain water from the private entity either as a:
  - (a) specific condition of development approval by a local political subdivision acting pursuant to a prior agreement, whether written or unwritten, with the private entity; or

- (b) functional condition of development approval because the private entity:
  - (i) has no reasonably equivalent competition in the immediate market; and
  - (ii) is the only realistic source of water for the applicant's development.
- (15)
  - (a) "Project improvements" means site improvements and facilities that are:
    - (i) planned and designed to provide service for development resulting from a development activity;
    - (ii) necessary for the use and convenience of the occupants or users of development resulting from a development activity; and
    - (iii) not identified or reimbursed as a system improvement.
  - (b) "Project improvements" does not mean system improvements.
- (16) "Proportionate share" means the cost of public facility improvements that are roughly proportionate and reasonably related to the service demands and needs of any development activity.
- (17) "Public facilities" means only the following impact fee facilities that have a life expectancy of 10 or more years and are owned or operated by or on behalf of a local political subdivision or private entity:
  - (a) water rights and water supply, treatment, storage, and distribution facilities;
  - (b) wastewater collection and treatment facilities;
  - (c) storm water, drainage, and flood control facilities;
  - (d) municipal power facilities;
  - (e) roadway facilities;
  - (f) parks, recreation facilities, open space, and trails;
  - (g) public safety facilities;
  - (h) environmental mitigation as provided in Section 11-36a-205; or
  - (i) municipal natural gas facilities.
- (18)
  - (a) "Public safety facility" means:
    - (i) a building constructed or leased to house police, fire, or other public safety entities; or
    - (ii) a fire suppression vehicle costing in excess of \$500,000.
  - (b) "Public safety facility" does not mean a jail, prison, or other place of involuntary incarceration.
- (19)
  - (a) "Roadway facilities" means a street or road that has been designated on an officially adopted subdivision plat, roadway plan, or general plan of a political subdivision, together with all necessary appurtenances.
  - (b) "Roadway facilities" includes associated improvements to a federal or state roadway only when the associated improvements:
    - (i) are necessitated by the new development; and
    - (ii) are not funded by the state or federal government.
  - (c) "Roadway facilities" does not mean federal or state roadways.
- (20)
  - (a) "Service area" means a geographic area designated by an entity that imposes an impact fee on the basis of sound planning or engineering principles in which a public facility, or a defined set of public facilities, provides service within the area.
  - (b) "Service area" may include the entire local political subdivision or an entire area served by a private entity.
- (21) "Specified public agency" means:
  - (a) the state;

- (b) a school district; or
  - (c) a charter school.
- (22)
- (a) "System improvements" means:
    - (i) existing public facilities that are:
      - (A) identified in the impact fee analysis under Section 11-36a-304; and
      - (B) designed to provide services to service areas within the community at large; and
    - (ii) future public facilities identified in the impact fee analysis under Section 11-36a-304 that are intended to provide services to service areas within the community at large.
  - (b) "System improvements" does not mean project improvements.

Amended by Chapter 237, 2022 General Session

## Part 2 Impact Fees

### **11-36a-201 Impact fees.**

- (1) A local political subdivision or private entity shall ensure that any imposed impact fees comply with the requirements of this chapter.
- (2) A local political subdivision and private entity may establish impact fees only for those public facilities defined in Section 11-36a-102.
- (3) Nothing in this chapter may be construed to repeal or otherwise eliminate an impact fee in effect on the effective date of this chapter that is pledged as a source of revenues to pay bonded indebtedness that was incurred before the effective date of this chapter.

Enacted by Chapter 47, 2011 General Session

### **11-36a-202 Prohibitions on impact fees.**

- (1) A local political subdivision or private entity may not:
  - (a) impose an impact fee to:
    - (i) cure deficiencies in a public facility serving existing development;
    - (ii) raise the established level of service of a public facility serving existing development; or
    - (iii) recoup more than the local political subdivision's or private entity's costs actually incurred for excess capacity in an existing system improvement;
  - (b) delay the construction of a school or charter school because of a dispute with the school or charter school over impact fees; or
  - (c) impose or charge any other fees as a condition of development approval unless those fees are a reasonable charge for the service provided.
- (2)
  - (a) Notwithstanding any other provision of this chapter, a political subdivision or private entity may not impose an impact fee:
    - (i) on residential components of development to pay for a public safety facility that is a fire suppression vehicle;
    - (ii) on a school district or charter school for a park, recreation facility, open space, or trail;
    - (iii) on a school district or charter school unless:

- (A) the development resulting from the school district's or charter school's development activity directly results in a need for additional system improvements for which the impact fee is imposed; and
  - (B) the impact fee is calculated to cover only the school district's or charter school's proportionate share of the cost of those additional system improvements;
  - (iv) to the extent that the impact fee includes a component for a law enforcement facility, on development activity for:
    - (A) the Utah National Guard;
    - (B) the Utah Highway Patrol; or
    - (C) a state institution of higher education that has its own police force;
  - (v) on development activity on the state fair park, as defined in Section 63H-6-102; or
  - (vi) on development activity that consists of the construction of an internal accessory dwelling unit, as defined in Section 10-9a-530, within an existing primary dwelling.
- (b)
- (i) Notwithstanding any other provision of this chapter, a political subdivision or private entity may not impose an impact fee on development activity that consists of the construction of a school, whether by a school district or a charter school, if:
    - (A) the school is intended to replace another school, whether on the same or a different parcel;
    - (B) the new school creates no greater demand or need for public facilities than the school or school facilities, including any portable or modular classrooms that are on the site of the replaced school at the time that the new school is proposed; and
    - (C) the new school and the school being replaced are both within the boundary of the local political subdivision or the jurisdiction of the private entity.
  - (ii) If the imposition of an impact fee on a new school is not prohibited under Subsection (2)(b)
    - (i) because the new school creates a greater demand or need for public facilities than the school being replaced, the impact fee shall be based only on the demand or need that the new school creates for public facilities that exceeds the demand or need that the school being replaced creates for those public facilities.
- (c) Notwithstanding any other provision of this chapter, a political subdivision or private entity may impose an impact fee for a road facility on the state only if and to the extent that:
- (i) the state's development causes an impact on the road facility; and
  - (ii) the portion of the road facility related to an impact fee is not funded by the state or by the federal government.
- (3) Notwithstanding any other provision of this chapter, a local political subdivision may impose and collect impact fees on behalf of a school district if authorized by Section 11-36a-206.

Amended by Chapter 406, 2022 General Session

**11-36a-203 Private entity assessment of impact fees -- Charges for water rights, physical infrastructure -- Notice -- Audit.**

- (1) A private entity:
  - (a) shall comply with the requirements of this chapter before imposing an impact fee; and
  - (b) except as otherwise specified in this chapter, is subject to the same requirements of this chapter as a local political subdivision.
- (2) A private entity may only impose a charge for water rights or physical infrastructure necessary to provide water or sewer facilities by imposing an impact fee.

- (3) Where notice and hearing requirements are specified, a private entity shall comply with the notice and hearing requirements for local districts.
- (4) A private entity that assesses an impact fee under this chapter is subject to the audit requirements of Title 51, Chapter 2a, Accounting Reports from Political Subdivisions, Interlocal Organizations, and Other Local Entities Act.

Enacted by Chapter 47, 2011 General Session

**11-36a-204 Other names for impact fees.**

- (1) A fee that meets the definition of impact fee under Section 11-36a-102 is an impact fee subject to this chapter, regardless of what term the local political subdivision or private entity uses to refer to the fee.
- (2) A local political subdivision or private entity may not avoid application of this chapter to a fee that meets the definition of an impact fee under Section 11-36a-102 by referring to the fee by another name.

Enacted by Chapter 47, 2011 General Session

**11-36a-205 Environmental mitigation impact fees.**

Notwithstanding the requirements and prohibitions of this chapter, a local political subdivision may impose and assess an impact fee for environmental mitigation when:

- (1) the local political subdivision has formally agreed to fund a Habitat Conservation Plan to resolve conflicts with the Endangered Species Act of 1973, 16 U.S.C. Sec. 1531, et seq. or other state or federal environmental law or regulation;
- (2) the impact fee bears a reasonable relationship to the environmental mitigation required by the Habitat Conservation Plan; and
- (3) the legislative body of the local political subdivision adopts an ordinance or resolution:
  - (a) declaring that an impact fee is required to finance the Habitat Conservation Plan;
  - (b) establishing periodic sunset dates for the impact fee; and
  - (c) requiring the legislative body to:
    - (i) review the impact fee on those sunset dates;
    - (ii) determine whether or not the impact fee is still required to finance the Habitat Conservation Plan; and
    - (iii) affirmatively reauthorize the impact fee if the legislative body finds that the impact fee must remain in effect.

Enacted by Chapter 47, 2011 General Session

**11-36a-206 Prohibition of school impact fees.**

- (1) As used in this section, "school impact fee" means a charge on new development in order to generate revenue for funding or recouping the costs of capital improvements for schools or school facility expansions necessitated by and attributable to the new development.
- (2) Beginning March 21, 1995, there is a moratorium prohibiting a county, city, town, local school board, or any other political subdivision from imposing or collecting a school impact fee unless hereafter authorized by the Legislature by statute.
- (3) Collection of any fees authorized before March 21, 1995, by any ordinance, resolution or rule of any county, city, town, local school board, or other political subdivision shall terminate on May 1, 1996, unless hereafter authorized by the Legislature by statute.

Renumbered and Amended by Chapter 3, 2018 General Session

### **Part 3 Establishing an Impact Fee**

#### **11-36a-301 Impact fee facilities plan.**

- (1) Before imposing an impact fee, each local political subdivision or private entity shall, except as provided in Subsection (3), prepare an impact fee facilities plan to determine the public facilities required to serve development resulting from new development activity.
- (2) A municipality or county need not prepare a separate impact fee facilities plan if the general plan required by Section 10-9a-401 or 17-27a-401, respectively, contains the elements required by Section 11-36a-302.
- (3) A local political subdivision or a private entity with a population, or serving a population, of less than 5,000 as of the last federal census that charges impact fees of less than \$250,000 annually need not comply with the impact fee facilities plan requirements of this part, but shall ensure that:
  - (a) the impact fees that the local political subdivision or private entity imposes are based upon a reasonable plan that otherwise complies with the common law and this chapter; and
  - (b) each applicable notice required by this chapter is given.

Amended by Chapter 200, 2013 General Session

#### **11-36a-302 Impact fee facilities plan requirements -- Limitations -- School district or charter school.**

- (1)
  - (a) An impact fee facilities plan shall:
    - (i) identify the existing level of service;
    - (ii) subject to Subsection (1)(c), establish a proposed level of service;
    - (iii) identify any excess capacity to accommodate future growth at the proposed level of service;
    - (iv) identify demands placed upon existing public facilities by new development activity at the proposed level of service; and
    - (v) identify the means by which the political subdivision or private entity will meet those growth demands.
  - (b) A proposed level of service may diminish or equal the existing level of service.
  - (c) A proposed level of service may:
    - (i) exceed the existing level of service if, independent of the use of impact fees, the political subdivision or private entity provides, implements, and maintains the means to increase the existing level of service for existing demand within six years of the date on which new growth is charged for the proposed level of service; or
    - (ii) establish a new public facility if, independent of the use of impact fees, the political subdivision or private entity provides, implements, and maintains the means to increase the existing level of service for existing demand within six years of the date on which new growth is charged for the proposed level of service.
- (2) In preparing an impact fee facilities plan, each local political subdivision shall generally consider all revenue sources to finance the impacts on system improvements, including:

- (a) grants;
  - (b) bonds;
  - (c) interfund loans;
  - (d) impact fees; and
  - (e) anticipated or accepted dedications of system improvements.
- (3) A local political subdivision or private entity may only impose impact fees on development activities when the local political subdivision's or private entity's plan for financing system improvements establishes that impact fees are necessary to maintain a proposed level of service that complies with Subsection (1)(b) or (c).
- (4)
- (a) Subject to Subsection (4)(c), the impact fee facilities plan shall include a public facility for which an impact fee may be charged or required for a school district or charter school if the local political subdivision is aware of the planned location of the school district facility or charter school:
    - (i) through the planning process; or
    - (ii) after receiving a written request from a school district or charter school that the public facility be included in the impact fee facilities plan.
  - (b) If necessary, a local political subdivision or private entity shall amend the impact fee facilities plan to reflect a public facility described in Subsection (4)(a).
  - (c)
    - (i) In accordance with Subsections 10-9a-305(3) and 17-27a-305(3), a local political subdivision may not require a school district or charter school to participate in the cost of any roadway or sidewalk.
    - (ii) Notwithstanding Subsection (4)(c)(i), if a school district or charter school agrees to build a roadway or sidewalk, the roadway or sidewalk shall be included in the impact fee facilities plan if the local jurisdiction has an impact fee facilities plan for roads and sidewalks.

Amended by Chapter 200, 2013 General Session

**11-36a-303 Impact fee analysis.**

- (1) Subject to the notice requirements of Section 11-36a-504, each local political subdivision or private entity intending to impose an impact fee shall prepare a written analysis of each impact fee.
- (2) Each local political subdivision or private entity that prepares an impact fee analysis under Subsection (1) shall also prepare a summary of the impact fee analysis designed to be understood by a lay person.

Enacted by Chapter 47, 2011 General Session

**11-36a-304 Impact fee analysis requirements.**

- (1) An impact fee analysis shall:
  - (a) identify the anticipated impact on or consumption of any existing capacity of a public facility by the anticipated development activity;
  - (b) identify the anticipated impact on system improvements required by the anticipated development activity to maintain the established level of service for each public facility;
  - (c) subject to Subsection (2), demonstrate how the anticipated impacts described in Subsections (1)(a) and (b) are reasonably related to the anticipated development activity;
  - (d) estimate the proportionate share of:



- (i) the costs for existing capacity that will be recouped; and
  - (ii) the costs of impacts on system improvements that are reasonably related to the new development activity; and
- (e) based on the requirements of this chapter, identify how the impact fee was calculated.
- (2) In analyzing whether or not the proportionate share of the costs of public facilities are reasonably related to the new development activity, the local political subdivision or private entity, as the case may be, shall identify, if applicable:
- (a) the cost of each existing public facility that has excess capacity to serve the anticipated development resulting from the new development activity;
  - (b) the cost of system improvements for each public facility;
  - (c) other than impact fees, the manner of financing for each public facility, such as user charges, special assessments, bonded indebtedness, general taxes, or federal grants;
  - (d) the relative extent to which development activity will contribute to financing the excess capacity of and system improvements for each existing public facility, by such means as user charges, special assessments, or payment from the proceeds of general taxes;
  - (e) the relative extent to which development activity will contribute to the cost of existing public facilities and system improvements in the future;
  - (f) the extent to which the development activity is entitled to a credit against impact fees because the development activity will dedicate system improvements or public facilities that will offset the demand for system improvements, inside or outside the proposed development;
  - (g) extraordinary costs, if any, in servicing the newly developed properties; and
  - (h) the time-price differential inherent in fair comparisons of amounts paid at different times.

Enacted by Chapter 47, 2011 General Session

**11-36a-305 Calculating impact fees.**

- (1) In calculating an impact fee, a local political subdivision or private entity may include:
- (a) the construction contract price;
  - (b) the cost of acquiring land, improvements, materials, and fixtures;
  - (c) for services provided for and directly related to the construction of the system improvements, the cost for planning and surveying, and engineering fees;
  - (d) for a political subdivision, debt service charges, if the political subdivision might use impact fees as a revenue stream to pay the principal and interest on bonds, notes, or other obligations issued to finance the costs of the system improvements; and
  - (e) one or more expenses for overhead.
- (2) In calculating an impact fee, each local political subdivision or private entity shall base amounts calculated under Subsection (1) on realistic estimates, and the assumptions underlying those estimates shall be disclosed in the impact fee analysis.

Amended by Chapter 35, 2021 General Session

**11-36a-306 Certification of impact fee analysis.**

- (1) An impact fee facilities plan shall include a written certification from the person or entity that prepares the impact fee facilities plan that states the following:
- "I certify that the attached impact fee facilities plan:
- 1. includes only the costs of public facilities that are:
    - a. allowed under the Impact Fees Act; and
    - b. actually incurred; or

- c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
  - 2. does not include:
    - a. costs of operation and maintenance of public facilities; or
    - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; and
  - 3. complies in each and every relevant respect with the Impact Fees Act."
- (2) An impact fee analysis shall include a written certification from the person or entity that prepares the impact fee analysis which states as follows:  
"I certify that the attached impact fee analysis:
- 1. includes only the costs of public facilities that are:
    - a. allowed under the Impact Fees Act; and
    - b. actually incurred; or
    - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
  - 2. does not include:
    - a. costs of operation and maintenance of public facilities; or
    - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
  - 3. offsets costs with grants or other alternate sources of payment; and
  - 4. complies in each and every relevant respect with the Impact Fees Act."

Amended by Chapter 35, 2021 General Session

## **Part 4 Enactment of Impact Fees**

### **11-36a-401 Impact fee enactment.**

- (1)
  - (a) A local political subdivision or private entity wishing to impose impact fees shall pass an impact fee enactment in accordance with Section 11-36a-402.
  - (b) An impact fee imposed by an impact fee enactment may not exceed the highest fee justified by the impact fee analysis.
- (2) An impact fee enactment may not take effect until 90 days after the day on which the impact fee enactment is approved.

Enacted by Chapter 47, 2011 General Session

### **11-36a-402 Required provisions of impact fee enactment.**

- (1) A local political subdivision or private entity shall ensure, in addition to the requirements described in Subsections (2) and (3), that an impact fee enactment contains:
  - (a) a provision establishing one or more service areas within which the local political subdivision or private entity calculates and imposes impact fees for various land use categories;
  - (b)
    - (i) a schedule of impact fees for each type of development activity that specifies the amount of the impact fee to be imposed for each type of system improvement; or

- (ii) the formula that the local political subdivision or private entity, as the case may be, will use to calculate each impact fee;
  - (c) a provision authorizing the local political subdivision or private entity, as the case may be, to adjust the standard impact fee at the time the fee is charged to:
    - (i) respond to:
      - (A) unusual circumstances in specific cases; or
      - (B) a request for a prompt and individualized impact fee review for the development activity of the state, a school district, or a charter school and an offset or credit for a public facility for which an impact fee has been or will be collected; and
    - (ii) ensure that the impact fees are imposed fairly; and
  - (d) a provision governing calculation of the amount of the impact fee to be imposed on a particular development that permits adjustment of the amount of the impact fee based upon studies and data submitted by the developer.
- (2) A local political subdivision or private entity shall ensure that an impact fee enactment allows a developer, including a school district or a charter school, to receive a credit against or proportionate reimbursement of an impact fee if the developer:
- (a) dedicates land for a system improvement;
  - (b) builds and dedicates some or all of a system improvement; or
  - (c) dedicates a public facility that the local political subdivision or private entity and the developer agree will reduce the need for a system improvement.
- (3) A local political subdivision or private entity shall include a provision in an impact fee enactment that requires a credit against impact fees for any dedication of land for, improvement to, or new construction of, any system improvements provided by the developer if the facilities:
- (a) are system improvements; or
  - (b)
    - (i) are dedicated to the public; and
    - (ii) offset the need for an identified system improvement.

Enacted by Chapter 47, 2011 General Session

**11-36a-403 Other provisions of impact fee enactment.**

- (1) A local political subdivision or private entity may include a provision in an impact fee enactment that:
- (a) provides an impact fee exemption for:
    - (i) development activity attributable to:
      - (A) low income housing;
      - (B) the state;
      - (C) subject to Subsection (2), a school district; or
      - (D) subject to Subsection (2), a charter school; or
    - (ii) other development activity with a broad public purpose; and
  - (b) except for an exemption under Subsection (1)(a)(i)(A), establishes one or more sources of funds other than impact fees to pay for that development activity.
- (2) An impact fee enactment that provides an impact fee exemption for development activity attributable to a school district or charter school shall allow either a school district or a charter school to qualify for the exemption on the same basis.
- (3) An impact fee enactment that repeals or suspends the collection of impact fees is exempt from the notice requirements of Section 11-36a-504.

Enacted by Chapter 47, 2011 General Session

## **Part 5 Notice**

### **11-36a-501 Notice of intent to prepare an impact fee facilities plan.**

- (1) Before preparing or amending an impact fee facilities plan, a local political subdivision or private entity shall provide written notice of its intent to prepare or amend an impact fee facilities plan.
- (2) A notice required under Subsection (1) shall:
  - (a) indicate that the local political subdivision or private entity intends to prepare or amend an impact fee facilities plan;
  - (b) describe or provide a map of the geographic area where the proposed impact fee facilities will be located; and
  - (c) subject to Subsection (3), be posted on the Utah Public Notice Website created under Section 63A-16-601.
- (3) For a private entity required to post notice on the Utah Public Notice Website under Subsection (2)(c):
  - (a) the private entity shall give notice to the general purpose local government in which the private entity's private business office is located; and
  - (b) the general purpose local government described in Subsection (3)(a) shall post the notice on the Utah Public Notice Website.

Amended by Chapter 84, 2021 General Session

Amended by Chapter 344, 2021 General Session

### **11-36a-502 Notice to adopt or amend an impact fee facilities plan.**

- (1) If a local political subdivision chooses to prepare an independent impact fee facilities plan rather than include an impact fee facilities element in the general plan in accordance with Section 11-36a-301, the local political subdivision shall, before adopting or amending the impact fee facilities plan:
  - (a) give public notice, in accordance with Subsection (2), of the plan or amendment at least 10 days before the day on which the public hearing described in Subsection (1)(d) is scheduled;
  - (b) make a copy of the plan or amendment, together with a summary designed to be understood by a lay person, available to the public;
  - (c) place a copy of the plan or amendment and summary in each public library within the local political subdivision; and
  - (d) hold a public hearing to hear public comment on the plan or amendment.
- (2) With respect to the public notice required under Subsection (1)(a):
  - (a) each municipality shall comply with the notice and hearing requirements of, and, except as provided in Subsection 11-36a-701(3)(b)(ii), receive the protections of Sections 10-9a-205 and 10-9a-801 and Subsection 10-9a-502(2);
  - (b) each county shall comply with the notice and hearing requirements of, and, except as provided in Subsection 11-36a-701(3)(b)(ii), receive the protections of Sections 17-27a-205 and 17-27a-801 and Subsection 17-27a-502(2); and
  - (c) each local district, special service district, and private entity shall comply with the notice and hearing requirements of, and receive the protections of, Section 17B-1-111.

- (3) Nothing contained in this section or Section 11-36a-503 may be construed to require involvement by a planning commission in the impact fee facilities planning process.

Enacted by Chapter 47, 2011 General Session

**11-36a-503 Notice of preparation of an impact fee analysis.**

- (1) Before preparing or contracting to prepare an impact fee analysis, each local political subdivision or, subject to Subsection (2), private entity shall post a public notice on the Utah Public Notice Website created under Section 63A-16-601.
- (2) For a private entity required to post notice on the Utah Public Notice Website under Subsection (1):
- (a) the private entity shall give notice to the general purpose local government in which the private entity's primary business is located; and
  - (b) the general purpose local government described in Subsection (2)(a) shall post the notice on the Utah Public Notice Website.

Amended by Chapter 84, 2021 General Session  
Amended by Chapter 345, 2021 General Session

**11-36a-504 Notice of intent to adopt impact fee enactment -- Hearing -- Protections.**

- (1) Before adopting an impact fee enactment:
- (a) a municipality legislative body shall:
    - (i) comply with the notice requirements of Section 10-9a-205 as if the impact fee enactment were a land use regulation;
    - (ii) hold a hearing in accordance with Section 10-9a-502 as if the impact fee enactment were a land use regulation; and
    - (iii) except as provided in Subsection 11-36a-701(3)(b)(ii), receive the protections of Section 10-9a-801 as if the impact fee were a land use regulation;
  - (b) a county legislative body shall:
    - (i) comply with the notice requirements of Section 17-27a-205 as if the impact fee enactment were a land use regulation;
    - (ii) hold a hearing in accordance with Section 17-27a-502 as if the impact fee enactment were a land use regulation; and
    - (iii) except as provided in Subsection 11-36a-701(3)(b)(ii), receive the protections of Section 17-27a-801 as if the impact fee were a land use regulation;
  - (c) a local district or special service district shall:
    - (i) comply with the notice and hearing requirements of Section 17B-1-111; and
    - (ii) receive the protections of Section 17B-1-111;
  - (d) a local political subdivision shall at least 10 days before the day on which a public hearing is scheduled in accordance with this section:
    - (i) make a copy of the impact fee enactment available to the public; and
    - (ii) post notice of the local political subdivision's intent to enact or modify the impact fee, specifying the type of impact fee being enacted or modified, on the Utah Public Notice Website created under Section 63A-16-601; and
  - (e) a local political subdivision shall submit a copy of the impact fee analysis and a copy of the summary of the impact fee analysis prepared in accordance with Section 11-36a-303 on its website or to each public library within the local political subdivision.

- (2) Subsection (1)(a) or (b) may not be construed to require involvement by a planning commission in the impact fee enactment process.

Amended by Chapter 84, 2021 General Session  
Amended by Chapter 345, 2021 General Session

## **Part 6 Impact Fee Proceeds**

### **11-36a-601 Accounting of impact fees.**

A local political subdivision that collects an impact fee shall:

- (1) establish a separate interest bearing ledger account for each type of public facility for which an impact fee is collected;
- (2) deposit a receipt for an impact fee in the appropriate ledger account established under Subsection (1);
- (3) retain the interest earned on each fund or ledger account in the fund or ledger account;
- (4) at the end of each fiscal year, prepare a report that:
  - (a) for each fund or ledger account, shows:
    - (i) the source and amount of all money collected, earned, and received by the fund or ledger account during the fiscal year; and
    - (ii) each expenditure from the fund or ledger account;
  - (b) accounts for all impact fee funds that the local political subdivision has on hand at the end of the fiscal year;
  - (c) identifies the impact fee funds described in Subsection (4)(b) by:
    - (i) the year in which the impact fee funds were received;
    - (ii) the project from which the impact fee funds were collected;
    - (iii) the project for which the impact fee funds are budgeted; and
    - (iv) the projected schedule for expenditure; and
  - (d) is:
    - (i) in a format developed by the state auditor;
    - (ii) certified by the local political subdivision's chief financial officer; and
    - (iii) transmitted to the state auditor within 180 days after the day on which the fiscal year ends.

Amended by Chapter 394, 2017 General Session

### **11-36a-602 Expenditure of impact fees.**

- (1) A local political subdivision may expend impact fees only for a system improvement:
  - (a) identified in the impact fee facilities plan; and
  - (b) for the specific public facility type for which the fee was collected.
- (2)
  - (a) Except as provided in Subsection (2)(b), a local political subdivision shall expend or encumber an impact fee collected with respect to a lot:
    - (i) for a permissible use; and
    - (ii) within six years after the impact fee with respect to that lot is collected.
  - (b) A local political subdivision may hold the fees for longer than six years if it identifies, in writing:

- (i) an extraordinary and compelling reason why the fees should be held longer than six years;  
and
- (ii) an absolute date by which the fees will be expended.

Amended by Chapter 190, 2017 General Session

**11-36a-603 Refunds.**

- (1) A local political subdivision shall refund any impact fee paid by a developer, plus interest earned, when:
  - (a) the developer does not proceed with the development activity and has filed a written request for a refund;
  - (b) the fee has not been spent or encumbered; and
  - (c) no impact has resulted.
- (2)
  - (a) As used in this Subsection (2):
    - (i) "Affected lot" means the lot or parcel with respect to which a local political subdivision collected an impact fee that is subject to a refund under this Subsection (2).
    - (ii) "Claimant" means:
      - (A) the original owner;
      - (B) the person who paid an impact fee; or
      - (C) another person who, under Subsection (2)(d), submits a timely notice of the person's valid legal claim to an impact fee refund.
    - (iii) "Original owner" means the record owner of an affected lot at the time the local political subdivision collected the impact fee.
    - (iv) "Unclaimed refund" means an impact fee that:
      - (A) is subject to refund under this Subsection (2); and
      - (B) the local political subdivision has not refunded after application of Subsections (2)(b) and (c).
  - (b) If an impact fee is not spent or encumbered in accordance with Section 11-36a-602, the local political subdivision shall, subject to Subsection (2)(c):
    - (i) refund the impact fee to:
      - (A) the original owner, if the original owner is the sole claimant; or
      - (B) to the claimants, as the claimants agree, if there are multiple claimants; or
    - (ii) interplead the impact fee refund to a court of competent jurisdiction for a determination of the entitlement to the refund, if there are multiple claimants who fail to agree on how the refund should be paid to the claimants.
  - (c) If the original owner's last known address is no longer valid at the time a local political subdivision attempts under Subsection (2)(b) to refund an impact fee to the original owner, the local political subdivision shall:
    - (i) post a notice on the local political subdivision's website, stating the local political subdivision's intent to refund the impact fee and identifying the original owner;
    - (ii) maintain the notice on the website for a period of one year; and
    - (iii) disqualify the original owner as a claimant unless the original owner submits a written request for the refund within one year after the first posting of the notice under Subsection (2)(c)(i).
  - (d)

- (i) In order to be considered as a claimant for an impact fee refund under this Subsection (2), a person, other than the original owner, shall submit a written notice of the person's valid legal claim to the impact fee refund.
- (ii) A notice under Subsection (2)(d)(i) shall:
  - (A) explain the person's valid legal claim to the refund; and
  - (B) be submitted to the local political subdivision no later than 30 days after expiration of the time specified in Subsection 11-36a-602(2) for the impact fee that is the subject of the refund.
- (e) A local political subdivision:
  - (i) may retain an unclaimed refund; and
  - (ii) shall expend any unclaimed refund on capital facilities identified in the current capital facilities plan for the type of public facility for which the impact fee was collected.

Amended by Chapter 215, 2018 General Session

## **Part 7 Challenges**

### **11-36a-701 Impact fee challenge.**

- (1) A person or an entity residing in or owning property within a service area, or an organization, association, or a corporation representing the interests of persons or entities owning property within a service area, has standing to file a declaratory judgment action challenging the validity of an impact fee.
- (2)
  - (a) A person or an entity required to pay an impact fee who believes the impact fee does not meet the requirements of law may file a written request for information with the local political subdivision who established the impact fee.
  - (b) Within two weeks after the receipt of the request for information under Subsection (2)(a), the local political subdivision shall provide the person or entity with the impact fee analysis, the impact fee facilities plan, and any other relevant information relating to the impact fee.
- (3)
  - (a) Subject to the time limitations described in Section 11-36a-702 and procedures set forth in Section 11-36a-703, a person or an entity that has paid an impact fee that a local political subdivision imposed may challenge:
    - (i) if the impact fee enactment was adopted on or after July 1, 2000:
      - (A) subject to Subsection (3)(b)(i) and except as provided in Subsection (3)(b)(ii), whether the local political subdivision complied with the notice requirements of this chapter with respect to the imposition of the impact fee; and
      - (B) whether the local political subdivision complied with other procedural requirements of this chapter for imposing the impact fee; and
    - (ii) except as limited by Subsection (3)(c), the impact fee.
  - (b)
    - (i) The sole remedy for a challenge under Subsection (3)(a)(i)(A) is the equitable remedy of requiring the local political subdivision to correct the defective notice and repeat the process.



- (ii) The protections given to a municipality under Section 10-9a-801 and to a county under Section 17-27a-801 do not apply in a challenge under Subsection (3)(a)(i)(A).
  - (c) The sole remedy for a challenge under Subsection (3)(a)(ii) is a refund of the difference between what the person or entity paid as an impact fee and the amount the impact fee should have been if it had been correctly calculated.
- (4)
- (a) Subject to Subsection (4)(d), if an impact fee that is the subject of an advisory opinion under Section 13-43-205 is listed as a cause of action in litigation, and that cause of action is litigated on the same facts and circumstances and is resolved consistent with the advisory opinion:
    - (i) the substantially prevailing party on that cause of action:
      - (A) may collect reasonable attorney fees and court costs pertaining to the development of that cause of action from the date of the delivery of the advisory opinion to the date of the court's resolution; and
      - (B) shall be refunded an impact fee held to be in violation of this chapter, based on the difference between the impact fee paid and what the impact fee should have been if the local political subdivision had correctly calculated the impact fee; and
    - (ii) in accordance with Section 13-43-206, a local political subdivision shall refund an impact fee held to be in violation of this chapter to the person who was in record title of the property on the day on which the impact fee for the property was paid if:
      - (A) the impact fee was paid on or after the day on which the advisory opinion on the impact fee was issued but before the day on which the final court ruling on the impact fee is issued; and
      - (B) the person described in Subsection (3)(a)(ii) requests the impact fee refund from the local political subdivision within 30 days after the day on which the court issued the final ruling on the impact fee.
  - (b) A local political subdivision subject to Subsection (3)(a)(ii) shall refund the impact fee based on the difference between the impact fee paid and what the impact fee should have been if the local political subdivision had correctly calculated the impact fee.
  - (c) This Subsection (4) may not be construed to create a new cause of action under land use law.
  - (d) Subsection (4)(a) does not apply unless the cause of action described in Subsection (4)(a) is resolved and final.
- (5) Subject to the time limitations described in Section 11-36a-702 and procedures described in Section 11-36a-703, a claimant, as defined in Section 11-36a-603, may challenge whether a local political subdivision spent or encumbered an impact fee in accordance with Section 11-36a-602.

Amended by Chapter 215, 2018 General Session

**11-36a-702 Time limitations.**

- (1) A person or an entity that initiates a challenge under Subsection 11-36a-701(3)(a) may not initiate that challenge unless it is initiated within:
  - (a) for a challenge under Subsection 11-36a-701(3)(a)(i)(A), 30 days after the day on which the person or entity pays the impact fee;
  - (b) for a challenge under Subsection 11-36a-701(3)(a)(i)(B), 180 days after the day on which the person or entity pays the impact fee;
  - (c) for a challenge under Subsection 11-36a-701(5):

- (i) if the local political subdivision has spent or encumbered the impact fee, one year after the expiration of the time specified in Subsection 11-36a-602(2); or
  - (ii) if the local political subdivision has not yet spent or encumbered the impact fee, two years after the expiration of the time specified in Subsection 11-36a-602(2); or
  - (d) for a challenge under Subsection 11-36a-701(3)(a)(ii), one year after the day on which the person or entity pays the impact fee.
- (2) The deadline to file an action in district court is tolled from the date that a challenge is filed using an administrative appeals procedure described in Section 11-36a-703 until 30 days after the day on which a final decision is rendered in the administrative appeals procedure.

Amended by Chapter 215, 2018 General Session

**11-36a-703 Procedures for challenging an impact fee.**

- (1)
- (a) A local political subdivision may establish, by ordinance or resolution, or a private entity may establish by prior written policy, an administrative appeals procedure to consider and decide a challenge to an impact fee.
  - (b) If the local political subdivision or private entity establishes an administrative appeals procedure, the local political subdivision shall ensure that the procedure includes a requirement that the local political subdivision make its decision no later than 30 days after the day on which the challenge to the impact fee is filed.
- (2) A challenge under Subsection 11-36a-701(3)(a) is initiated by filing:
- (a) if the local political subdivision or private entity has established an administrative appeals procedure under Subsection (1), the necessary document, under the administrative appeals procedure, for initiating the administrative appeal;
  - (b) a request for arbitration as provided in Section 11-36a-705; or
  - (c) an action in district court.
- (3) The sole remedy for a successful challenge under Subsection 11-36a-701(1), which determines that an impact fee process was invalid, or an impact fee is in excess of the fee allowed under this act, is a declaration that, until the local political subdivision or private entity enacts a new impact fee study, from the date of the decision forward, the entity may charge an impact fee only as the court has determined would have been appropriate if it had been properly enacted.
- (4) Subsections (2), (3), 11-36a-701(3), and 11-36a-702(1) may not be construed as requiring a person or an entity to exhaust administrative remedies with the local political subdivision before filing an action in district court under Subsections (2), (3), 11-36a-701(3), and 11-36a-702(1).
- (5) The judge may award reasonable attorney fees and costs to the prevailing party in an action brought under this section.
- (6) This chapter may not be construed as restricting or limiting any rights to challenge impact fees that were paid before the effective date of this chapter.

Amended by Chapter 200, 2013 General Session

**11-36a-704 Mediation.**

- (1) In addition to the methods of challenging an impact fee under Section 11-36a-701, a specified public agency may require a local political subdivision or private entity to participate in mediation of any applicable impact fee.
- (2) To require mediation, the specified public agency shall submit a written request for mediation to the local political subdivision or private entity.

- (3) The specified public agency may submit a request for mediation under this section at any time, but no later than 30 days after the day on which an impact fee is paid.
- (4) Upon the submission of a request for mediation under this section, the local political subdivision or private entity shall:
  - (a) cooperate with the specified public agency to select a mediator; and
  - (b) participate in the mediation process.

Enacted by Chapter 47, 2011 General Session

**11-36a-705 Arbitration.**

- (1) A person or entity intending to challenge an impact fee under Section 11-36a-703 shall file a written request for arbitration with the local political subdivision within the time limitation described in Section 11-36a-702 for the applicable type of challenge.
- (2) If a person or an entity files a written request for arbitration under Subsection (1), an arbitrator or arbitration panel shall be selected as follows:
  - (a) the local political subdivision and the person or entity filing the request may agree on a single arbitrator within 10 days after the day on which the request for arbitration is filed; or
  - (b) if a single arbitrator is not agreed to in accordance with Subsection (2)(a), an arbitration panel shall be created with the following members:
    - (i) each party shall select an arbitrator within 20 days after the date the request is filed; and
    - (ii) the arbitrators selected under Subsection (2)(b)(i) shall select a third arbitrator.
- (3) The arbitration panel shall hold a hearing on the challenge no later than 30 days after the day on which:
  - (a) the single arbitrator is agreed on under Subsection (2)(a); or
  - (b) the two arbitrators are selected under Subsection (2)(b)(i).
- (4) The arbitrator or arbitration panel shall issue a decision in writing no later than 10 days after the day on which the hearing described in Subsection (3) is completed.
- (5) Except as provided in this section, each arbitration shall be governed by Title 78B, Chapter 11, Utah Uniform Arbitration Act.
- (6) The parties may agree to:
  - (a) binding arbitration;
  - (b) formal, nonbinding arbitration; or
  - (c) informal, nonbinding arbitration.
- (7) If the parties agree in writing to binding arbitration:
  - (a) the arbitration shall be binding;
  - (b) the decision of the arbitration panel shall be final;
  - (c) neither party may appeal the decision of the arbitration panel; and
  - (d) notwithstanding Subsection (10), the person or entity challenging the impact fee may not also challenge the impact fee under Subsection 11-36a-701(1) or Subsection 11-36a-703(2)(a) or (2)(c).
- (8)
  - (a) Except as provided in Subsection (8)(b), if the parties agree to formal, nonbinding arbitration, the arbitration shall be governed by the provisions of Title 63G, Chapter 4, Administrative Procedures Act.
  - (b) For purposes of applying Title 63G, Chapter 4, Administrative Procedures Act, to a formal, nonbinding arbitration under this section, notwithstanding Section 63G-4-502, "agency" means a local political subdivision.
- (9)

- (a) An appeal from a decision in an informal, nonbinding arbitration may be filed with the district court in which the local political subdivision is located.
  - (b) An appeal under Subsection (9)(a) shall be filed within 30 days after the day on which the arbitration panel issues a decision under Subsection (4).
  - (c) The district court shall consider de novo each appeal filed under this Subsection (9).
  - (d) Notwithstanding Subsection (10), a person or entity that files an appeal under this Subsection (9) may not also challenge the impact fee under Subsection 11-36a-701(1) or Subsection 11-36a-703(2)(a) or (2)(c).
- (10)
- (a) Except as provided in Subsections (7)(d) and (9)(d), this section may not be construed to prohibit a person or entity from challenging an impact fee as provided in Subsection 11-36a-701(1) or Subsection 11-36a-703(2)(a) or (2)(c).
  - (b) The filing of a written request for arbitration within the required time in accordance with Subsection (1) tolls all time limitations under Section 11-36a-702 until the day on which the arbitration panel issues a decision.
- (11) The person or entity filing a request for arbitration and the local political subdivision shall equally share all costs of an arbitration proceeding under this section.

Enacted by Chapter 47, 2011 General Session

**APPENDIX B – SANITARY SEWER  
MASTER PLAN & CAPITAL FACILITIES PLAN**

The 2023 Santaquin City Sanitary Sewer Master Plan and Capital Facilities Plan is incorporated herein by reference.

**APPENDIX C – DETAILS OF PIPES WITH RESERVE CAPACITY**

**Table C - 1. Existing Sanitary Sewer Pipes Reserve Capacity Detail**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Paid for by or Installed as part of:	Demand (gpm)			Max Demand Ever Used <sup>1</sup>	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
CDT-277	8	396	Future or Developer	Developer	0	23	290	290	8%	No	\$ -	\$ -
CDT-279	8	411	Future or Developer	Developer	0	23	290	290	8%	No	\$ -	\$ -
CDT-281	8	397	Future or Developer	Developer	0	23	290	290	8%	No	\$ -	\$ -
CDT-283	8	427	Future or Developer	Developer	0	23	290	290	8%	No	\$ -	\$ -
CDT-285	8	125	Future or Developer	Developer	0	23	290	290	8%	No	\$ -	\$ -
CDT-287	8	270	Future or Developer	Developer	23	290	290	290	92%	No	\$ -	\$ -
CDT-289	8	390	Future or Developer	Developer	23	290	290	290	92%	No	\$ -	\$ -
CDT-295	8	252	Future or Developer	Developer	105	125	125	125	16%	No	\$ -	\$ -
CDT-297	8	189	Future or Developer	Developer	24	290	290	290	92%	No	\$ -	\$ -
CDT-343	8	274	Future or Developer	Developer	0	295	295	295	100%	No	\$ -	\$ -
CDT-345	8	1,093	Future or Developer	Developer	0	296	296	296	100%	No	\$ -	\$ -
CDT-347	8	158	Future or Developer	Developer	0	295	295	295	100%	No	\$ -	\$ -
CDT-349	8	295	Future or Developer	Developer	0	295	295	295	100%	No	\$ -	\$ -
CDT-77	8	385	1995	Original System	136	181	232	232	19%	Yes	\$ 12,667	\$ 2,463
CDT-81	8	385	After 1996	Developer/IF	22	24	24	24	6%	No	\$ -	\$ -
CDT-83	8	403	After 1996	Developer/IF	22	23	24	24	3%	No	\$ -	\$ -
CDT-85	8	401	After 1996	Developer/IF	50	101	101	101	50%	No	\$ -	\$ -
CDT-89	8	376	After 1996	Developer/IF	21	69	69	69	69%	No	\$ -	\$ -
CDT-91	8	382	After 1996	Developer/IF	20	69	69	69	71%	No	\$ -	\$ -
CDT-93	8	401	After 1996	Developer/IF	21	69	69	69	70%	No	\$ -	\$ -
CDT-95	8	409	After 1996	Developer/IF	21	69	69	69	69%	No	\$ -	\$ -
CDT-97	8	424	After 1996	Developer/IF	21	69	69	69	70%	No	\$ -	\$ -
N100	8	396	After 1996	Future or Developer	83	105	125	125	17%	No	\$ -	\$ -
N102	8	228	After 1996	Future or Developer	83	105	125	125	17%	No	\$ -	\$ -
N104	8	246	After 1996	Future or Developer	83	105	125	125	17%	No	\$ -	\$ -
N106	8	314	After 1996	Future or Developer	83	105	125	125	18%	No	\$ -	\$ -
N108	8	96	After 1996	Future or Developer	83	105	125	125	17%	No	\$ -	\$ -
N120	8	406	After 1996	Developer/IF	26	28	28	28	7%	No	\$ -	\$ -
N172	8	400	After 1996	Future or Developer	0	33	35	35	94%	No	\$ -	\$ -
N174	8	290	After 1996	Developer/IF	87	118	118	118	27%	No	\$ -	\$ -
N176	8	298	After 1996	Developer/IF	88	117	117	117	25%	No	\$ -	\$ -
N178	8	289	After 1996	Developer/IF	87	117	117	117	25%	No	\$ -	\$ -
N180	8	299	After 1996	Developer/IF	87	117	117	117	26%	No	\$ -	\$ -
N184	8	388	After 1996	Future or Developer	0	72	300	300	24%	No	\$ -	\$ -
N186	8	391	After 1996	Future or Developer	0	72	300	200	36%	No	\$ -	\$ -
N188	8	159	After 1996	Future or Developer	0	72	300	245	29%	No	\$ -	\$ -
N225	8	375	After 1996	Future or Developer	36	36	36	36	0%	No	\$ -	\$ -
N227	8	23	After 1996	Future or Developer	35	35	35	35	0%	No	\$ -	\$ -
N229	8	213	After 1996	Future or Developer	35	35	35	35	0%	No	\$ -	\$ -
N266	8	309	After 1996	Developer/IF	86	118	118	118	27%	No	\$ -	\$ -
N280	8	181	After 1996	Future or Developer	0	0	0	0	0%	No	\$ -	\$ -
N286	8	226	After 1996	Future or Developer	4	4	4	4	0%	No	\$ -	\$ -
N288	8	186	After 1996	Future or Developer	5	5	5	5	0%	No	\$ -	\$ -
N290	8	103	After 1996	Future or Developer	19	19	19	19	0%	No	\$ -	\$ -
N292	8	298	After 1996	Future or Developer	19	19	19	19	0%	No	\$ -	\$ -
N294	8	212	After 1996	Future or Developer	35	35	35	35	0%	No	\$ -	\$ -
N296	8	528	After 1996	Future or Developer	35	35	35	35	0%	No	\$ -	\$ -

**Table C - 1. Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Paid for by or Installed as part of:	Demand (gpm)			Max Demand Ever Used <sup>1</sup>	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
N40	8	386	After 1996	Developer/IF	35.99	52	111	111	15%	No	\$ -	\$ -
N612	8	424	After 1996	Developer/IF	106	104	229	229	0%	No	\$ -	\$ -
N614	8	757	After 1996	Developer/IF	107	104	229	229	0%	No	\$ -	\$ -
N616	8	516	After 1996	Developer/IF	106	104	229	229	0%	No	\$ -	\$ -
N618	8	405	After 1996	Developer/IF	106	104	229	229	0%	No	\$ -	\$ -
N620	8	413	After 1996	Developer/IF	106	105	229	229	0%	No	\$ -	\$ -
N622	8	1,978	After 1996	Developer/IF	102	100	224	224	0%	No	\$ -	\$ -
N624	8	302	After 1996	Developer/IF	102	100	224	224	0%	No	\$ -	\$ -
N626	8	501	After 1996	Developer/IF	97	96	220	220	0%	No	\$ -	\$ -
N628	8	366	After 1996	Future or Developer	84	81	205	205	0%	No	\$ -	\$ -
N630	8	246	After 1996	Future or Developer	81	206	206	206	61%	No	\$ -	\$ -
N632	8	185	After 1996	Future or Developer	83	81	205	205	0%	No	\$ -	\$ -
N634	8	409	After 1996	Future or Developer	83	81	205	205	0%	No	\$ -	\$ -
N636	8	371	After 1996	Future or Developer	81	78	203	203	0%	No	\$ -	\$ -
N638	8	1,977	After 1996	Future or Developer	19	19	19	19	0%	No	\$ -	\$ -
N640	8	296	After 1996	Future or Developer	5	5	5	5	0%	No	\$ -	\$ -
N642	8	308	After 1996	Future or Developer	5	5	5	5	0%	No	\$ -	\$ -
N644	8	304	After 1996	Future or Developer	4	4	4	4	0%	No	\$ -	\$ -
N646	8	292	After 1996	Future or Developer	0	0	0	0	0%	No	\$ -	\$ -
N648	8	289	After 1996	Future or Developer	4	4	4	4	0%	No	\$ -	\$ -
N686	8	118	After 1996	Developer/IF	26	28	28	28	7%	No	\$ -	\$ -
N688	8	210	After 1996	Developer/IF	25	27	27	27	7%	No	\$ -	\$ -
N690	8	25	After 1996	Developer/IF	25	28	28	28	9%	No	\$ -	\$ -
N692	8	248	After 1996	Developer/IF	25	28	28	28	10%	No	\$ -	\$ -
N694	8	266	After 1996	Developer/IF	25	28	28	28	8%	No	\$ -	\$ -
UN19	8	191	1995	Original System	8	10	10	10	17%	Yes	\$ 6,279	\$ 1,046
XJ104	8	193	After 1996	Developer/IF	19	38	38	38	50%	No	\$ -	\$ -
XJ105	8	46	After 1996	Developer/IF	18	38	38	38	51%	No	\$ -	\$ -
XJ108	8	132	1995	Original System	51	144	144	144	65%	Yes	\$ 4,351	\$ 2,812
XJ109	8	296	1995	Original System	37	48	48	48	23%	Yes	\$ 9,726	\$ 2,244
XJ11	8	112	1995	Original System	145	191	242	242	19%	Yes	\$ 3,667	\$ 699
XJ111	8	301	1995	Original System	14	225	225	225	94%	Yes	\$ 9,878	\$ 9,263
XJ112	8	44	1995	Original System	125	293	293	293	57%	Yes	\$ 1,446	\$ 826
XJ114	8	293	1995	Original System	101	165	505	505	13%	Yes	\$ 9,611	\$ 1,222
XJ116	8	303	1995	Original System	29	44	44	44	35%	Yes	\$ 9,940	\$ 3,449
XJ121	8	82	1995	Original System	50	143	143	143	65%	Yes	\$ 2,701	\$ 1,755
XJ122	8	295	1995	Original System	37	47	47	47	23%	Yes	\$ 9,677	\$ 2,218
XJ130	8	366	1995	Original System	12	223	223	223	95%	Yes	\$ 12,020	\$ 11,369
XJ131	8	339	1995	Original System	126	292	292	292	57%	Yes	\$ 11,135	\$ 6,329
XJ133	8	297	1995	Original System	101	165	505	505	13%	Yes	\$ 9,759	\$ 1,247
XJ151	8	80	1995	Original System	50	144	144	144	65%	Yes	\$ 2,624	\$ 1,705
XJ152	8	176	1995	Original System	50	144	144	144	65%	Yes	\$ 5,799	\$ 3,785
XJ153	8	176	1995	Original System	24	32	32	32	26%	Yes	\$ 5,793	\$ 1,502
XJ156	8	250	1995	Original System	11	223	223	223	95%	Yes	\$ 8,226	\$ 7,809
XJ157	8	162	1995	Original System	123	288	288	288	57%	Yes	\$ 5,324	\$ 3,048
XJ158	8	275	1995	Original System	101	165	505	505	13%	Yes	\$ 9,036	\$ 1,145
XJ166	8	200	1995	Original System	51	144	144	144	65%	Yes	\$ 6,562	\$ 4,244
XJ167	8	233	1995	Original System	23	32	32	32	29%	Yes	\$ 7,644	\$ 2,219
XJ170	8	311	1995	Original System	9	221	221	221	96%	Yes	\$ 10,202	\$ 9,766
XJ175	8	195	1995	Original System	123	288	288	288	57%	Yes	\$ 6,413	\$ 3,669

**Table C - 1. Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Paid for by or Installed as part of:	Demand (gpm)			Max Demand Ever Used <sup>1</sup>	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
XJ18	8	148	1995	Original System	127.4	173	222	222	21%	Yes	\$ 4,878	\$ 1,011
XJ186	8	342	1995	Original System	101	165	505	505	13%	Yes	\$ 11,223	\$ 1,413
XJ188	8	406	1995	Original System	12	43	43	43	72%	Yes	\$ 13,341	\$ 9,570
XJ189	8	210	1995	Original System	17	24	24	24	29%	Yes	\$ 6,903	\$ 2,013
XJ191	8	302	1995	Original System	9	220	220	220	96%	Yes	\$ 9,924	\$ 9,513
XJ192	8	299	1995	Original System	119	284	284	284	58%	Yes	\$ 9,834	\$ 5,696
XJ196	8	305	1995	Original System	97	124	463	463	6%	Yes	\$ 10,006	\$ 587
XJ198	8	236	1995	Original System	17	24	24	24	29%	Yes	\$ 7,768	\$ 2,219
XJ201	8	316	1995	Original System	9	221	221	221	96%	Yes	\$ 10,371	\$ 9,949
XJ202	8	399	1995	Original System	12	43	43	43	71%	Yes	\$ 13,115	\$ 9,277
XJ206	8	404	1995	Original System	12	43	43	43	72%	Yes	\$ 13,283	\$ 9,524
XJ207	8	361	1995	Original System	119	284	284	284	58%	Yes	\$ 11,850	\$ 6,865
XJ210	8	289	1995	Original System	98	125	462	462	6%	Yes	\$ 9,496	\$ 559
XJ22	8	353	1995	Original System	128	173	223	223	20%	Yes	\$ 11,588	\$ 2,345
XJ220	8	12	1995	Original System	86	112	437	437	6%	Yes	\$ 396	\$ 24
XJ224	8	302	1995	Original System	12	43	43	43	72%	Yes	\$ 9,908	\$ 7,108
XJ228	8	311	1995	Original System	5	213	213	213	98%	Yes	\$ 10,203	\$ 9,976
XJ23	8	203	1995	Original System	118	163	211	211	21%	Yes	\$ 6,664	\$ 1,416
XJ230	8	276	1995	Original System	85	112	436	436	6%	Yes	\$ 9,053	\$ 551
XJ235	8	150	1995	Original System	116	276	276	276	58%	Yes	\$ 4,939	\$ 2,861
XJ24	8	413	1995	Original System	133	300	300	300	56%	Yes	\$ 13,567	\$ 7,563
XJ243	8	254	1995	Original System	85	112	436	436	6%	Yes	\$ 8,347	\$ 502
XJ244	8	451	1998	City Funds - Main Street	63	89	140	140	18%	Yes	\$ 38,147	\$ 7,045
XJ247	8	431	1998	City Funds - Main Street	63	89	140	140	19%	Yes	\$ 36,483	\$ 6,802
XJ248	8	402	1998	City Funds - Main Street	63	89	140	140	18%	Yes	\$ 34,033	\$ 6,173
XJ250	8	369	1998	City Funds - Main Street	63	89	140	140	19%	Yes	\$ 31,228	\$ 5,855
XJ255	8	87	1995	Original System	23	296	296	296	92%	Yes	\$ 2,868	\$ 2,646
XJ258	8	333	1995	Original System	0	0	206	206	0%	No	\$ 10,930	\$ -
XJ259	8	346	1995	Original System	334	307	340	340	0%	No	\$ 11,370	\$ -
XJ260	8	490	1995	Original System	335	306	340	340	0%	No	\$ 16,105	\$ -
XJ261	8	418	1995	Original System	334	307	341	341	0%	No	\$ 13,739	\$ -
XJ262	8	418	1995	Original System	335	315	432	432	0%	No	\$ 13,727	\$ -
XJ263	8	111	1995	Original System	334	306	340	340	0%	No	\$ 3,644	\$ -
XJ264	8	308	1995	Original System	321	288	273	321	0%	No	\$ 10,134	\$ -
XJ265	8	417	1995	Original System	335	315	432	432	0%	No	\$ 13,708	\$ -
XJ268	8	416	1995	Original System	318	285	261	318	0%	No	\$ 13,682	\$ -
XJ270	8	416	1995	Original System	318	285	261	318	0%	No	\$ 13,682	\$ -
XJ277	8	442	1995	Original System	117	276	276	276	58%	Yes	\$ 14,510	\$ 8,373
XJ280	8	110	After 1996	Developer/IF	60	82	82	82	27%	No	\$ -	\$ -
XJ281	8	401	After 1996	Developer/IF	59	82	82	82	27%	No	\$ -	\$ -
XJ282	8	364	1995	Original System	0	0	204	204	0%	No	\$ 11,964	\$ -
XJ283	8	94	1995	Original System	0	97	251	251	39%	Yes	\$ 3,087	\$ 1,189
XJ285	8	163	1995	Original System	0	0	272	272	0%	No	\$ 5,356	\$ -
XJ286	8	415	1995	Original System	18	67	67	67	72%	Yes	\$ 13,621	\$ 9,870
XJ289	8	135	1995	Original System	279	244	203	279	0%	No	\$ 4,435	\$ -
XJ298	8	403	1995	Original System	279	245	204	279	0%	No	\$ 13,231	\$ -
XJ299	8	302	1995	Original System	279	244	203	279	0%	No	\$ 9,907	\$ -
XJ30	8	149	1995	Original System	110	156	499	499	9%	Yes	\$ 4,881	\$ 445
XJ300	8	297	1995	Original System	251	216	169	251	0%	No	\$ 9,747	\$ -
XJ301	8	407	1995	Original System	251	216	170	251	0%	No	\$ 13,370	\$ -



**Table C - 1. Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Paid for by or Installed as part of:	Demand (gpm)			Max Demand Ever Used <sup>1</sup>	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
XJ302	8	260	1995	Original System	154.2	79	Disconnected	407	0%	No	\$ 8,553	\$ -
XJ303	8	278	After 1996	Developer/IF	60	82	82	82	27%	No	\$ -	\$ -
XJ304	8	240	1995	Original System	154	79	203	203	0%	No	\$ 7,886	\$ -
XJ307	8	243	After 1996	Developer/IF	59	81	81	81	27%	No	\$ -	\$ -
XJ308	8	401	1995	Original System	89	128	158	158	25%	Yes	\$ 13,177	\$ 3,321
XJ31	8	270	1995	Original System	132	300	300	300	56%	Yes	\$ 8,876	\$ 4,965
XJ311	8	194	1995	Original System	0	0	272	272	0%	No	\$ 6,382	\$ -
XJ312	8	308	1995	Original System	149	171	449	449	5%	Yes	\$ 10,121	\$ 496
XJ319	8	314	1995	Original System	18	67	67	67	73%	Yes	\$ 10,332	\$ 7,569
XJ326	8	299	1995	Original System	88	128	158	158	25%	Yes	\$ 9,826	\$ 2,492
XJ327	8	267	1995	Original System	133	155	128	155	14%	Yes	\$ 8,776	\$ 1,232
XJ328	8	287	1995	Original System	149	171	449	449	5%	Yes	\$ 9,439	\$ 473
XJ332	8	295	1995	Original System	133	155	128	155	14%	Yes	\$ 9,697	\$ 1,351
XJ335	8	244	1995	Original System	129	150	122	150	14%	Yes	\$ 8,013	\$ 1,145
XJ336	8	354	1995	Original System	128	150	122	150	14%	Yes	\$ 11,640	\$ 1,675
XJ337	8	270	1995	Original System	124	145	117	145	15%	Yes	\$ 8,876	\$ 1,297
XJ338	8	296	1995	Original System	123	145	117	145	15%	Yes	\$ 9,710	\$ 1,434
XJ339	8	402	1995	Original System	115	135	106	135	15%	Yes	\$ 13,197	\$ 2,030
XJ340	8	483	1995	Original System	115	136	106	136	16%	Yes	\$ 15,867	\$ 2,477
XJ346	8	355	1995	Original System	17	67	67	67	74%	Yes	\$ 11,664	\$ 8,621
XJ349	8	297	1995	Original System	63	77	247	247	6%	Yes	\$ 9,760	\$ 576
XJ350	8	295	1995	Original System	114	136	377	377	6%	Yes	\$ 9,694	\$ 555
XJ353	8	287	1995	Original System	88	128	158	158	25%	Yes	\$ 9,433	\$ 2,389
XJ355	8	297	1995	Original System	16	321	321	321	95%	Yes	\$ 9,744	\$ 9,254
XJ359	8	297	1995	Original System	58	131	131	131	56%	Yes	\$ 9,759	\$ 5,449
XJ362	8	401	1995	Original System	88	128	158	158	25%	Yes	\$ 13,160	\$ 3,332
XJ371	8	206	1995	Original System	16	321	321	321	95%	Yes	\$ 6,769	\$ 6,436
XJ374	8	394	1995	Original System	18	67	67	67	73%	Yes	\$ 12,941	\$ 9,504
XJ380	8	304	1995	Original System	39	43	89	89	5%	Yes	\$ 9,989	\$ 454
XJ383	8	351	1995	Original System	15	41	41	41	63%	Yes	\$ 11,533	\$ 7,284
XJ387	8	393	1995	Original System	80	120	148	148	27%	Yes	\$ 12,920	\$ 3,482
XJ391	8	302	1995	Original System	0	0	300	300	0%	No	\$ 9,908	\$ -
XJ392	8	378	1995	Original System	17	60	60	60	71%	Yes	\$ 12,434	\$ 8,852
XJ393	8	374	1995	Original System	12	15	41	41	6%	Yes	\$ 12,273	\$ 702
XJ405	8	353	1995	Original System	14	41	41	41	65%	Yes	\$ 11,599	\$ 7,524
XJ412	8	306	1995	Original System	0	0	300	300	0%	No	\$ 10,057	\$ -
XJ417	8	380	1995	Original System	79	119	148	148	27%	Yes	\$ 12,474	\$ 3,376
XJ418	8	347	1995	Original System	17	60	60	60	71%	Yes	\$ 11,386	\$ 8,105
XJ424	8	344	1995	Original System	14	41	41	41	65%	Yes	\$ 11,288	\$ 7,290
XJ430	8	305	After 1996	Developer/IF	0	0	300	300	0%	No	\$ -	\$ -
XJ437	8	328	After 1996	Developer/IF	79	119	147	147	27%	No	\$ -	\$ -
XJ439	8	339	1995	Original System	17	61	61	61	72%	Yes	\$ 11,125	\$ 7,984
XJ44	8	184	1995	Original System	75	79	316	316	1%	Yes	\$ 6,042	\$ 63
XJ445	8	200	After 1996	Developer/IF	15	41	41	41	63%	No	\$ -	\$ -
XJ45	8	337	1995	Original System	110	156	499	499	9%	Yes	\$ 11,073	\$ 1,008
XJ452	8	307	After 1996	Developer/IF	0	0	300	300	0%	No	\$ -	\$ -
XJ454	8	350	After 1996	Developer/IF	15	41	41	41	64%	No	\$ -	\$ -
XJ455	8	366	After 1996	Developer/IF	68	108	135	135	30%	No	\$ -	\$ -
XJ456	8	278	After 1996	Developer/IF	68	108	135	135	30%	No	\$ -	\$ -
XJ457	8	402	After 1996	Developer/IF	80	119	148	148	27%	No	\$ -	\$ -

**Table C - 1. Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Paid for by or Installed as part of:	Demand (gpm)			Max Demand Ever Used <sup>1</sup>	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
XJ46	8	217	1995	Original System	50.73	144	144	144	65%	Yes	\$ 7,123	\$ 4,610
XJ469	8	362	1995	Original System	67	108	434	434	9%	Yes	\$ 11,891	\$ 1,107
XJ47	8	267	1995	Original System	60	64	94	94	4%	Yes	\$ 8,774	\$ 351
XJ486	8	332	1995	Original System	68	108	434	434	9%	Yes	\$ 10,919	\$ 999
XJ49	8	64	1995	Original System	75	79	316	316	1%	Yes	\$ 2,102	\$ 25
XJ492	8	68	After 1996	Developer/IF	67	105	412	412	9%	No	\$ -	\$ -
XJ494	8	352	After 1996	Developer/IF	18	19	40	40	4%	No	\$ -	\$ -
XJ495	8	400	After 1996	Developer/IF	48	296	296	296	84%	No	\$ -	\$ -
XJ500	8	156	After 1996	Developer/IF	28	255	255	255	89%	No	\$ -	\$ -
XJ512	8	163	1995	Original System	67	106	412	412	9%	Yes	\$ 5,359	\$ 505
XJ513	8	16	1995	Original System	68	106	412	412	9%	Yes	\$ 515	\$ 47
XJ519	8	283	After 1996	Developer/IF	21	23	23	23	11%	No	\$ -	\$ -
XJ528	8	44	After 1996	Developer/IF	69	81	142	142	9%	No	\$ -	\$ -
XJ529	8	183	After 1996	Developer/IF	69	203	192	203	66%	No	\$ -	\$ -
XJ538	8	306	1995	Original System	0	0	300	300	0%	No	\$ 10,047	\$ -
XJ542	8	398	After 1996	Developer/IF	51	100	100	100	49%	No	\$ -	\$ -
XJ543	8	102	After 1996	Developer/IF	49	100	100	100	51%	No	\$ -	\$ -
XJ544	8	188	1995	Original System	24	65	163	163	25%	Yes	\$ 6,180	\$ 1,549
XJ545	8	400	After 1996	Developer/IF	5	6	6	6	14%	No	\$ -	\$ -
XJ552	8	177	1995	Original System	110	156	499	499	9%	Yes	\$ 5,824	\$ 529
XJ555	8	484	After 1996	Developer/IF	5	6	6	6	17%	No	\$ -	\$ -
XJ557	8	101	After 1996	Developer/IF	6	6	6	6	13%	No	\$ -	\$ -
XJ56	8	346	1995	Original System	133	300	300	300	56%	Yes	\$ 11,372	\$ 6,347
XJ561	8	60	1995	Original System	31	72	171	171	24%	Yes	\$ 1,976	\$ 473
XJ562	8	167	1995	Original System	75	79	316	316	1%	Yes	\$ 5,489	\$ 59
XJ565	8	158	1995	Original System	23	65	163	163	25%	Yes	\$ 5,184	\$ 1,308
XJ568	8	398	1995	Original System	75	79	316	316	1%	Yes	\$ 13,084	\$ 173
XJ57	8	263	1995	Original System	75	79	315	315	1%	Yes	\$ 8,625	\$ 111
XJ577	8	229	1995	Original System	8	10	10	10	13%	Yes	\$ 7,521	\$ 1,003
XJ58	8	320	1995	Original System	56	59	87	87	4%	Yes	\$ 10,498	\$ 371
XJ60	8	204	1995	Original System	50	144	144	144	65%	Yes	\$ 6,710	\$ 4,358
XJ606	8	328	1995	Original System	67	106	412	412	9%	Yes	\$ 10,781	\$ 1,006
XJ62	8	204	1995	Original System	51	143	143	143	65%	Yes	\$ 6,712	\$ 4,337
XJ622	8	307	After 1996	Developer/IF	0	65	78	78	83%	No	\$ -	\$ -
XJ623	8	310	After 1996	Developer/IF	0	78	225	225	35%	No	\$ -	\$ -
XJ624	8	310	After 1996	Developer/IF	0	77	225	225	34%	No	\$ -	\$ -
XJ625	8	311	After 1996	Developer/IF	0	77	225	225	34%	No	\$ -	\$ -
XJ626	8	293	After 1996	Developer/IF	0	76	224	224	34%	No	\$ -	\$ -
XJ627	8	301	After 1996	Developer/IF	0	77	225	225	34%	No	\$ -	\$ -
XJ64	8	295	1995	Original System	132	300	300	300	56%	Yes	\$ 9,677	\$ 5,414
XJ65	8	253	1995	Original System	75	78	316	316	1%	Yes	\$ 8,298	\$ 97
XJ655	8	400	After 1996	Developer/IF	26	27	27	27	5%	No	\$ -	\$ -
XJ66	8	185	1995	Original System	50	144	144	144	65%	Yes	\$ 6,074	\$ 3,956
XJ67	8	324	1995	Original System	56	59	87	87	4%	Yes	\$ 10,630	\$ 389
XJ686	8	285	After 1996	Developer/IF	85	117	230	230	14%	No	\$ -	\$ -
XJ687	8	208	After 1996	Developer/IF	85	117	229	229	14%	No	\$ -	\$ -
XJ7	8	338	1995	Original System	145	191	242	242	19%	Yes	\$ 11,112	\$ 2,085
XJ712	8	259	1995	Original System	136	181	232	232	19%	Yes	\$ 8,495	\$ 1,646
XJ713	8	331	1995	Original System	136	181	232	232	20%	Yes	\$ 10,868	\$ 2,130
XJ74	8	532	1995	Original System	50	144	144	144	65%	Yes	\$ 17,495	\$ 11,405
XJ75	8	132	After 1996	Developer/IF	19	37	37	37	48%	No	\$ -	\$ -
XJ750	8	62	After 1996	Developer/IF	14	41	41	41	65%	No	\$ -	\$ -

**Table C - 1. Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Paid for by or Installed as part of:	Demand (gpm)			Max Demand Ever Used <sup>1</sup>	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
XJ751	8	447	After 1996	Developer/IF	14.91	42	42	42	64%	No	\$ -	\$ -
XJ80	8	358	1995	Original System	75	79	316	316	1%	Yes	\$ 11,763	\$ 135
XJ81	8	296	1995	Original System	34	36	260	260	1%	Yes	\$ 9,715	\$ 63
XJ82	8	296	1995	Original System	34	36	260	260	1%	Yes	\$ 9,726	\$ 62
XJ83	8	316	1995	Original System	14	225	225	225	94%	Yes	\$ 10,371	\$ 9,718
XJ84	8	306	1995	Original System	14	225	225	225	94%	Yes	\$ 10,039	\$ 9,410
XJ850	8	379	After 1996	Developer/IF	50	50	53	53	0%	No	\$ -	\$ -
XJ86	8	268	1995	Original System	34	132	300	300	33%	Yes	\$ 8,806	\$ 2,892
XJ869	8	202	After 1996	Developer/IF	20	40	40	40	50%	No	\$ -	\$ -
XJ91	8	323	1995	Original System	57	59	87	87	2%	Yes	\$ 10,597	\$ 252
XJ92	8	296	1995	Original System	29	30	43	43	3%	Yes	\$ 9,727	\$ 252
XJ95	8	72	1995	Original System	147	213	574	574	12%	Yes	\$ 2,366	\$ 272
XJ96	8	276	1995	Original System	37	38	55	55	2%	Yes	\$ 9,065	\$ 199
XJ97	8	281	1995	Original System	37	38	55	55	2%	Yes	\$ 9,229	\$ 196
CDT-261	10	399	Future or Developer	Developer	242	115	87	242	0%	No	\$ -	\$ -
CDT-59	10	389	After 1996	Developer/IF	8	303	303	303	98%	No	\$ -	\$ -
CDT-61	10	288	After 1996	Developer/IF	6	303	303	303	98%	No	\$ -	\$ -
CDT-63	10	216	After 1996	Developer/IF	367	366	444	444	0%	No	\$ -	\$ -
CDT-65	10	106	After 1996	Developer/IF	367	366	444	444	0%	No	\$ -	\$ -
CDT-67	10	334	After 1996	Developer/IF	366	366	444	444	0%	No	\$ -	\$ -
CDT-69	10	302	After 1996	Developer/IF	367	367	444	444	0%	No	\$ -	\$ -
CDT-71	10	173	1995	Original System	7	302	302	302	98%	Yes	\$ 6,745	\$ 6,592
CDT-73	10	38	After 1996	Developer/IF	7	302	302	302	98%	No	\$ -	\$ -
CDT-75	10	397	After 1996	Developer/IF	358	358	434	434	0%	No	\$ -	\$ -
N110	10	261	After 1996	Developer/IF	60	185	238	238	52%	No	\$ -	\$ -
N112	10	130	After 1996	Developer/IF	184	239	239	239	23%	No	\$ -	\$ -
N114	10	298	After 1996	Developer/IF	186	240	240	240	22%	No	\$ -	\$ -
N116	10	226	After 1996	Developer/IF	60	185	238	238	53%	No	\$ -	\$ -
N118	10	213	After 1996	Developer/IF	60	257	539	539	37%	No	\$ -	\$ -
N278	10	572	1995	Original System	334	232	243	334	0%	No	\$ 22,354	\$ -
N668	10	405	After 1996	Developer/IF	366	366	444	444	0%	No	\$ -	\$ -
N672	10	274	After 1996	Developer/IF	358	357	433	433	0%	No	\$ -	\$ -
N674	10	321	After 1996	Developer/IF	42	48	48	48	13%	No	\$ -	\$ -
N676	10	322	After 1996	Developer/IF	43	48	48	48	10%	No	\$ -	\$ -
N678	10	113	After 1996	Developer/IF	42	49	49	49	14%	No	\$ -	\$ -
N680	10	317	After 1996	Developer/IF	41	42	49	49	2%	No	\$ -	\$ -
N684	10	151	After 1996	Developer/IF	292	292	358	358	0%	No	\$ -	\$ -
N696	10	282	After 1996	Developer/IF	59	257	539	539	37%	No	\$ -	\$ -
N698	10	207	After 1996	Developer/IF	311	311	380	380	0%	No	\$ -	\$ -
N704	10	238	After 1996	Developer/IF	311	311	380	380	0%	No	\$ -	\$ -
N706	10	37	After 1996	Developer/IF	311	310	380	380	0%	No	\$ -	\$ -
N708	10	1,004	After 1996	Developer/IF	317	316	385	385	0%	No	\$ -	\$ -
XJ12	10	400	1995	Original System	371	367	558	558	0%	No	\$ 15,648	\$ -
XJ14	10	340	1995	Original System	307	202	211	307	0%	No	\$ 13,294	\$ -
XJ15	10	299	1995	Original System	331	228	239	331	0%	No	\$ 11,689	\$ -
XJ16	10	317	1995	Original System	334	231	243	334	0%	No	\$ 12,377	\$ -
XJ17	10	281	1995	Original System	371	367	557	557	0%	No	\$ 10,988	\$ -
XJ21	10	424	1995	Original System	307	202	211	307	0%	No	\$ 16,582	\$ -
XJ267	10	419	1995	Original System	335	315	432	432	0%	No	\$ 16,360	\$ -
XJ269	10	420	1995	Original System	335	315	432	432	0%	No	\$ 16,398	\$ -
XJ271	10	288	1995	Original System	335	318	Disconnected	1700	0%	No	\$ 11,248	\$ -
XJ32	10	233	1995	Original System	304	197	206	304	0%	No	\$ 9,111	\$ -
XJ33	10	228	1995	Original System	242	134	112	242	0%	No	\$ 8,903	\$ -
XJ34	10	299	1995	Original System	242	114	87	242	0%	No	\$ 11,669	\$ -
XJ52	10	290	1995	Original System	242	115	87	242	0%	No	\$ 11,321	\$ -

**Table C - 1. Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Paid for by or Installed as part of:	Demand (gpm)			Max Demand Ever Used <sup>1</sup>	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
XJ53	10	329	1995	Original System	242.5	114	87	243	0%	No	\$ 12,862	\$ -
XJ541	10	398	1995	Original System	303	198	207	303	0%	No	\$ 15,539	\$ -
XJ6	10	195	After 1996	Developer/IF	7	302	302	302	98%	No	\$ -	\$ -
XJ61	10	322	1995	Original System	242	448	340	448	46%	Yes	\$ 12,587	\$ 5,786
XJ628	10	364	After 1996	Developer/IF	106	261	423	423	37%	No	\$ -	\$ -
XJ629	10	300	After 1996	Developer/IF	107	267	499	499	32%	No	\$ -	\$ -
XJ630	10	400	After 1996	Developer/IF	106	277	621	621	28%	No	\$ -	\$ -
XJ631	10	396	After 1996	Developer/IF	106	277	621	621	27%	No	\$ -	\$ -
XJ632	10	404	After 1996	Developer/IF	107	277	621	621	28%	No	\$ -	\$ -
XJ633	10	400	After 1996	Developer/IF	107	277	621	621	27%	No	\$ -	\$ -
XJ634	10	404	After 1996	Developer/IF	106	278	621	621	28%	No	\$ -	\$ -
XJ675	10	22	After 1996	Developer/IF	276	622	622	622	56%	No	\$ -	\$ -
XJ685	10	125	After 1996	Developer/IF	87	147	613	613	10%	No	\$ -	\$ -
XJ8	10	314	1995	Original System	293	292	358	301	0%	No	\$ 12,276	\$ -
XJ9	10	398	1995	Original System	293	292	358	358	0%	No	\$ 15,570	\$ -
N650	12	340	After 1996	Developer/IF	195	246	246	246	21%	No	\$ -	\$ -
N812	12	287	After 1996	Developer/IF	150	196	247	247	18%	No	\$ -	\$ -
XJ1	12	25	After 1996	Developer/IF	151	195	246	246	18%	No	\$ -	\$ -
XJ656	12	256	After 1996	Developer/IF	261	643	1969	1372	28%	No	\$ -	\$ -
XJ657	12	410	After 1996	Developer/IF	260	643	1969	1293	30%	No	\$ -	\$ -
XJ658	12	326	After 1996	Developer/IF	260	643	1968	1320	29%	No	\$ -	\$ -
XJ659	12	146	After 1996	Developer/IF	261	643	1969	1345	28%	No	\$ -	\$ -
XJ660	12	399	After 1996	Developer/IF	260	622	1947	1947	19%	No	\$ -	\$ -
XJ661	12	401	After 1996	Developer/IF	260	623	1945	1079	34%	No	\$ -	\$ -
XJ662	12	401	After 1996	Developer/IF	260	623	1946	1334	27%	No	\$ -	\$ -
XJ663	12	395	After 1996	Developer/IF	260	623	1947	1334	27%	No	\$ -	\$ -
XJ664	12	404	After 1996	Developer/IF	261	623	1941	1345	27%	No	\$ -	\$ -
XJ665	12	398	After 1996	Developer/IF	260	598	1915	1476	23%	No	\$ -	\$ -
XJ666	12	421	After 1996	Developer/IF	260	590	1809	1771	19%	No	\$ -	\$ -
XJ684	12	252	After 1996	Developer/IF	87	152	665	665	10%	No	\$ -	\$ -
CDT-269	15	372	Future or Developer	Developer	154	309	1144	1144	13%	No	\$ -	\$ -
CDT-273	15	393	Future or Developer	Developer	155	309	1144	1137	14%	No	\$ -	\$ -
CDT-291	15	403	Future or Developer	Developer	24	291	291	291	92%	No	\$ -	\$ -
CDT-293	15	243	Future or Developer	Developer	23	289	289	289	92%	No	\$ -	\$ -
XJ100	15	404	After 1996	Developer/IF	86	221	96	221	61%	No	\$ -	\$ -
XJ101	15	399	After 1996	Developer/IF	86	221	96	221	61%	No	\$ -	\$ -
XJ102	15	395	After 1996	Developer/IF	87	221	97	221	61%	No	\$ -	\$ -
XJ103	15	245	After 1996	Developer/IF	87	221	97	221	61%	No	\$ -	\$ -
XJ530	15	201	After 1996	Developer/IF	200	190	190	200	0%	No	\$ -	\$ -
XJ539	15	276	1995	Original System	236	442	331	442	47%	Yes	\$ 14,282	\$ 6,650
XJ667	15	424	After 1996	Developer/IF	259	590	1809	1809	18%	No	\$ -	\$ -
XJ668	15	246	After 1996	Developer/IF	261	590	1808	1570	21%	No	\$ -	\$ -
XJ669	15	399	After 1996	Developer/IF	155	314	1187	1187	13%	No	\$ -	\$ -
XJ670	15	211	After 1996	Developer/IF	154	309	1143	1143	14%	No	\$ -	\$ -
XJ671	15	196	After 1996	Developer/IF	154	309	1143	1143	14%	No	\$ -	\$ -
XJ672	15	187	After 1996	Developer/IF	153	310	1143	1143	14%	No	\$ -	\$ -
XJ673	15	116	After 1996	Developer/IF	154	310	1144	1144	14%	No	\$ -	\$ -
XJ674	15	400	After 1996	Developer/IF	154	309	1144	1144	14%	No	\$ -	\$ -
XJ676	15	146	After 1996	Developer/IF	261	591	1809	1809	18%	No	\$ -	\$ -
XJ677	15	233	After 1996	Developer/IF	154	310	1143	1143	14%	No	\$ -	\$ -
XJ678	15	305	After 1996	Developer/IF	86	151	665	665	10%	No	\$ -	\$ -
XJ679	15	294	After 1996	Developer/IF	87	151	664	664	10%	No	\$ -	\$ -
XJ68	15	143	1995	Original System	237	443	330	443	46%	Yes	\$ 7,371	\$ 3,424
XJ71	15	337	After 1996	Developer/IF	86	221	230	230	59%	No	\$ -	\$ -
XJ72	15	267	After 1996	Developer/IF	90	229	243	243	57%	No	\$ -	\$ -

**Table C - 1. Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Paid for by or Installed as part of:	Demand (gpm)			Max Demand Ever Used <sup>1</sup>	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
XJ77	15	285	After 1996	Developer/IF	90.67	230	243	243	57%	No	\$ -	\$ -
XJ78	15	155	After 1996	Developer/IF	92	230	243	243	57%	No	\$ -	\$ -
XJ79	15	204	1995	Original System	237	442	331	442	46%	Yes	\$ 10,553	\$ 4,898
XJ98	15	241	After 1996	Developer/IF	87	221	97	221	61%	No	\$ -	\$ -
XJ99	15	399	After 1996	Developer/IF	86	221	96	221	61%	No	\$ -	\$ -
CDT-11	18	78	After 1996	Developer/IF	772	1371	3592	3592	17%	No	\$ -	\$ -
CDT-13	18	401	2013	2013 WRF	773	1371	3588	3588	17%	Yes	\$ 37,874	\$ 6,312
CDT-135	18	403	After 1996	Future or Developer	2584	3069	6073	6073	8%	No	\$ -	\$ -
CDT-15	18	176	2013	2013 WRF	773	1371	3585	3585	17%	Yes	\$ 16,646	\$ 2,778
CDT-17	18	92	2013	2013 WRF	770	1368	3586	3586	17%	Yes	\$ 8,652	\$ 1,444
CDT-19	18	75	2013	2013 WRF	773	1372	3585	3585	17%	Yes	\$ 7,128	\$ 1,190
CDT-21	18	263	2013	2013 WRF	770	1369	3582	3582	17%	Yes	\$ 24,821	\$ 4,156
CDT-23	18	41	2013	2013 WRF	771	1369	3584	3584	17%	Yes	\$ 3,828	\$ 639
CDT-25	18	302	2013	2013 WRF	770	1367	3586	3586	17%	Yes	\$ 28,546	\$ 4,750
CDT-27	18	132	2013	2013 WRF	774	1372	3585	3585	17%	Yes	\$ 12,462	\$ 2,080
CDT-29	18	274	2013	2013 WRF	770	1370	3586	3586	17%	Yes	\$ 25,899	\$ 4,338
CDT-31	18	258	2013	2013 WRF	772	1371	3585	3585	17%	Yes	\$ 24,375	\$ 4,068
CDT-33	18	240	2013	2013 WRF	774	1373	3583	3583	17%	Yes	\$ 22,626	\$ 3,782
CDT-35	18	62	2013	2013 WRF	770	1370	3583	3583	17%	Yes	\$ 5,815	\$ 973
CDT-37	18	223	2013	2013 WRF	770	1372	3585	3585	17%	Yes	\$ 21,025	\$ 3,528
CDT-39	18	60	2013	2013 WRF	770	1368	3587	3587	17%	Yes	\$ 5,653	\$ 942
CDT-41	18	115	2013	2013 WRF	772	1372	3585	3585	17%	Yes	\$ 10,830	\$ 1,813
CDT-43	18	112	2013	2013 WRF	773	1371	2882	2882	21%	Yes	\$ 10,603	\$ 2,198
CDT-45	18	81	2013	2013 WRF	772	1371	2880	2868	21%	Yes	\$ 7,658	\$ 1,600
CDT-47	18	118	2013	2013 WRF	770	1336	2881	1994	28%	Yes	\$ 11,161	\$ 3,170
CDT-49	18	50	2013	2013 WRF	771	1335	2880	2880	20%	Yes	\$ 4,757	\$ 932
CDT-51	18	153	2013	2013 WRF	771	1338	2879	2879	20%	Yes	\$ 14,445	\$ 2,847
CDT-53	18	352	2013	2013 WRF	772	1335	2878	2878	20%	Yes	\$ 33,246	\$ 6,510
CDT-55	18	200	After 1996	Developer/IF	434	1017	2880	2880	20%	No	\$ -	\$ -
CDT-57	18	400	After 1996	Developer/IF	435	1015	2881	2881	20%	No	\$ -	\$ -
N201	18	328	After 1996	Developer/IF	1409	2068	4827	4827	14%	No	\$ -	\$ -
N203	18	350	After 1996	Developer/IF	1442	2102	4863	4863	14%	No	\$ -	\$ -
N205	18	347	After 1996	Developer/IF	1445	2100	4861	4861	13%	No	\$ -	\$ -
N207	18	144	After 1996	Developer/IF	480	1171	1171	1171	59%	No	\$ -	\$ -
N209	18	149	After 1996	Developer/IF	481	1172	1172	1172	59%	No	\$ -	\$ -
N211	18	144	After 1996	Future or Developer	480	1172	1172	1172	59%	No	\$ -	\$ -
N213	18	159	After 1996	Future or Developer	480	1171	1171	1171	59%	No	\$ -	\$ -
N221	18	159	After 1996	Developer/IF	1492	2579	6041	4416	25%	No	\$ -	\$ -
N369	18	207	2013	2013 WRF	770	1369	3591	3591	17%	Yes	\$ 19,497	\$ 3,249
N370	18	396	2013	2013 WRF	771	1372	3589	3589	17%	Yes	\$ 37,349	\$ 6,252
N371	18	400	2013	2013 WRF	772	1369	3587	3587	17%	Yes	\$ 37,734	\$ 6,289
N373	18	226	2013	2013 WRF	770	1352	2879	2693	22%	Yes	\$ 21,292	\$ 4,599
N374	18	396	2013	2013 WRF	768	1335	2881	2881	20%	Yes	\$ 37,343	\$ 7,339
N710	18	899	2013	2013 WRF	1303	1952	4592	4592	14%	Yes	\$ 84,856	\$ 11,983
N716	18	1,177	2013	2013 WRF	1296	1941	4579	4579	14%	Yes	\$ 111,157	\$ 15,654
N808	18	188	After 1996	Developer/IF	918	1561	3834	3079	21%	No	\$ -	\$ -
N810	18	277	After 1996	Developer/IF	917	1561	3835	3835	17%	No	\$ -	\$ -
N814	18	189	2013	2013 WRF	1295	1942	4585	4585	14%	Yes	\$ 17,870	\$ 2,523
N816	18	103	2013	2013 WRF	1298	1951	4590	4590	14%	Yes	\$ 9,720	\$ 1,382
N818	18	205	2013	2013 WRF	1304	1952	4591	4591	14%	Yes	\$ 19,364	\$ 2,736
N820	18	235	2013	2013 WRF	1303	1951	4593	4593	14%	Yes	\$ 22,224	\$ 3,135
N822	18	65	After 1996	Developer/IF	1441	2099	4866	4866	14%	No	\$ -	\$ -
XJ635	18	89	After 1996	Developer/IF	436	1015	2657	2657	22%	No	\$ -	\$ -
XJ636	18	98	After 1996	Developer/IF	435	1018	2653	2653	22%	No	\$ -	\$ -
XJ637	18	401	After 1996	Developer/IF	433	1019	2653	2653	22%	No	\$ -	\$ -

**Table C - 1. Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Paid for by or Installed as part of:	Demand (gpm)			Max Demand Ever Used <sup>1</sup>	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C					
							D	E	F	G	H	
							= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"	
XJ638	18	399	After 1996	Developer/IF	432.2	1017	2653	2653	22%	No	\$ -	\$ -
XJ639	18	396	After 1996	Developer/IF	433	1019	2655	2655	22%	No	\$ -	\$ -
XJ640	18	377	After 1996	Developer/IF	435	1019	2655	2655	22%	No	\$ -	\$ -
XJ641	18	279	After 1996	Developer/IF	433	1018	2653	2653	22%	No	\$ -	\$ -
XJ642	18	245	After 1996	Developer/IF	433	1018	2629	2629	22%	No	\$ -	\$ -
XJ643	18	306	After 1996	Developer/IF	432	1016	2630	2630	22%	No	\$ -	\$ -
<b>Total</b>											<b>\$2,565,036</b>	<b>\$ 601,356</b>

<sup>1</sup>For pipe segments that have a demand that exceeds the existing pipe capacity, the Max Demand Ever Used is taken as the existing pipe capacity.

**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
778	6	97	After 1996	XJ116	29	44	44	44	35%	No	\$ -	\$ -
829	6	178	1998	XJ250	63	89	140	140	19%	Yes	\$ 13,258	\$ 2,486
830	6	73	1998	XJ250	63	89	140	140	19%	Yes	\$ 5,479	\$ 1,027
1223	6	14	1998	XJ250	63	89	140	140	19%	Yes	\$ 1,016	\$ 190
831	6	180	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
911	6	29	After 1996	N203	1442	2102	1850	2102	31%	No	\$ -	\$ -
922	6	29	After 1996	N203	1442	2102	1850	2102	31%	No	\$ -	\$ -
929	6	144	After 1996	N203	1442	2102	1850	2102	31%	No	\$ -	\$ -
936	6	136	After 1996	N203	1442	2102	1850	2102	31%	No	\$ -	\$ -
941	6	114	After 1996	N203	1442	2102	1850	2102	31%	No	\$ -	\$ -
944	6	77	After 1996	N203	1442	2102	1850	2102	31%	No	\$ -	\$ -
947	6	103	After 1996	N203	1442	2102	1850	2102	31%	No	\$ -	\$ -
949	6	129	After 1996	N203	1442	2102	1850	2102	31%	No	\$ -	\$ -
777	8	60	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
1213	8	322	After 1996	XJ684	87	152	665	665	10%	No	\$ -	\$ -
1215	8	322	After 1996	XJ684	87	152	665	665	10%	No	\$ -	\$ -
776	8	102	After 1996	XJ687	85	117	229	229	14%	Yes	\$ -	\$ -
1116	8	537	2010	XJ500	28	255	255	255	89%	Yes	\$ 22,057	\$ 19,664
1117	8	842	2010	N40	36	52	111	111	15%	Yes	\$ 34,542	\$ 5,080
115	8	76	1998	XJ250	63	89	140	140	19%	Yes	\$ 6,418	\$ 1,203
122	8	310	1998	XJ250	63	89	140	140	19%	Yes	\$ 26,209	\$ 4,914
131	8	317	1998	XJ250	63	89	140	140	19%	Yes	\$ 26,813	\$ 5,027
374	8	207	After 1996	XJ684	87	152	665	665	10%	No	\$ -	\$ -
375	8	303	After 1996	XJ684	87	152	665	665	10%	No	\$ -	\$ -
376	8	396	After 1996	XJ684	87	152	665	665	10%	No	\$ -	\$ -
377	8	397	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
378	8	402	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
379	8	196	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
380	8	124	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
381	8	271	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
382	8	113	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
383	8	200	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
384	8	402	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
385	8	399	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
386	8	200	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -

**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
387	8	200	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
388	8	400	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
389	8	299	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
390	8	147	After 1996	XJ687	85	117	229	229	14%	No	\$ -	\$ -
391	8	64	After 1996	XJ684	87	152	665	665	10%	No	\$ -	\$ -
1152	8	263	After 1996	N40	36	52	111	111	15%	No	\$ -	\$ -
1153	8	140	After 1996	N40	36	52	111	111	15%	No	\$ -	\$ -
1212	8	322	After 1996	XJ684	87	152	665	665	10%	No	\$ -	\$ -
1214	8	322	After 1996	XJ684	87	152	665	665	10%	No	\$ -	\$ -
1	8	259	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
2	8	309	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
3	8	323	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
4	8	205	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
5	8	353	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
6	8	264	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
7	8	291	After 1996	XJ577	8	10	10	10	13%	No	\$ -	\$ -
8	8	188	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
9	8	209	After 1996	XJ577	8	10	10	10	13%	No	\$ -	\$ -
10	8	299	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
11	8	97	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
12	8	230	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
13	8	396	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
14	8	328	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
15	8	97	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
16	8	330	After 1996	XJ577	8	10	10	10	13%	No	\$ -	\$ -
17	8	167	After 1996	XJ577	8	10	10	10	13%	No	\$ -	\$ -
18	8	166	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
19	8	128	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
20	8	162	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
21	8	237	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
22	8	145	After 1996	XJ60	50	144	144	144	65%	No	\$ -	\$ -
23	8	401	After 1996	XJ545	5	6	6	6	14%	No	\$ -	\$ -
24	8	132	After 1996	XJ545	5	6	6	6	14%	No	\$ -	\$ -
25	8	235	After 1996	XJ545	5	6	6	6	14%	No	\$ -	\$ -
26	8	144	After 1996	CDT-81	22	24	24	24	6%	No	\$ -	\$ -
34	8	244	After 1996	CDT-81	22	24	24	24	6%	No	\$ -	\$ -
35	8	330	After 1996	CDT-81	22	24	24	24	6%	No	\$ -	\$ -
37	8	269	After 1996	CDT-81	22	24	24	24	6%	No	\$ -	\$ -
40	8	318	After 1996	CDT-81	22	24	24	24	6%	No	\$ -	\$ -
41	8	338	After 1996	CDT-81	22	24	24	24	6%	No	\$ -	\$ -
42	8	237	After 1996	CDT-81	22	24	24	24	6%	No	\$ -	\$ -
62	8	234	After 1996	CDT-81	22	24	24	24	6%	No	\$ -	\$ -
63	8	288	After 1996	CDT-81	22	24	24	24	6%	No	\$ -	\$ -
64	8	48	After 1996	CDT-81	22	24	24	24	6%	No	\$ -	\$ -
65	8	227	After 1996	CDT-81	22	24	24	24	6%	No	\$ -	\$ -



**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C					
							= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"	
66	8	317	After 1996	CDT-81	22	24	24	24	6%	No	\$ -	\$ -
72	8	400	After 1996	CDT-85	50	101	101	101	50%	No	\$ -	\$ -
73	8	256	After 1996	CDT-81	22	24	24	24	6%	No	\$ -	\$ -
74	8	167	After 1996	CDT-85	50	101	101	101	50%	No	\$ -	\$ -
152	8	293	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
153	8	347	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
157	8	309	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
158	8	307	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
159	8	122	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
163	8	54	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
164	8	309	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
171	8	313	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
172	8	306	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
173	8	279	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
174	8	425	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
175	8	178	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
177	8	113	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
181	8	427	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
200	8	266	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
206	8	271	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
219	8	445	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
232	8	236	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
233	8	382	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
234	8	496	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
235	8	294	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
241	8	235	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
245	8	373	After 1996	XJ299	279	244	203	279	0%	No	\$ -	\$ -
246	8	210	After 1996	XJ299	279	244	203	279	0%	No	\$ -	\$ -
247	8	250	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
249	8	77	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
250	8	417	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
251	8	285	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
254	8	262	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
255	8	403	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
256	8	273	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
257	8	109	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
258	8	428	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
259	8	399	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
260	8	80	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
264	8	135	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
265	8	206	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
266	8	245	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
267	8	263	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
268	8	220	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
269	8	100	After 1996	XJ457	80	119	148	148	27%	No	\$ -	\$ -

**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
270	8	287	After 1996	XJ457	80	119	148	148	27%	No	\$ -	\$ -
271	8	223	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
272	8	91	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
273	8	401	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
274	8	362	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
275	8	212	After 1996	XJ457	80	119	148	148	27%	No	\$ -	\$ -
276	8	211	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
277	8	398	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
279	8	400	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
280	8	279	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
281	8	401	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
282	8	213	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
286	8	234	After 1996	N40	36	52	111	111	15%	No	\$ -	\$ -
287	8	189	After 1996	N40	36	52	111	111	15%	No	\$ -	\$ -
288	8	258	After 1996	N40	36	52	111	111	15%	No	\$ -	\$ -
289	8	259	After 1996	N40	36	52	111	111	15%	No	\$ -	\$ -
290	8	293	After 1996	N698	311	311	380	380	0%	No	\$ -	\$ -
291	8	228	After 1996	N698	311	311	380	380	0%	No	\$ -	\$ -
292	8	237	After 1996	N698	311	311	380	380	0%	No	\$ -	\$ -
293	8	254	After 1996	N698	311	311	380	380	0%	No	\$ -	\$ -
294	8	400	After 1996	N698	311	311	380	380	0%	No	\$ -	\$ -
295	8	207	After 1996	N698	311	311	380	380	0%	No	\$ -	\$ -
296	8	193	After 1996	N698	311	311	380	380	0%	No	\$ -	\$ -
297	8	220	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
298	8	269	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
299	8	236	After 1996	XJ371	16	321	321	321	95%	No	\$ -	\$ -
300	8	149	After 1996	XJ371	16	321	321	321	95%	No	\$ -	\$ -
301	8	304	After 1996	XJ519	21	23	23	23	11%	No	\$ -	\$ -
302	8	111	After 1996	XJ519	21	23	23	23	11%	No	\$ -	\$ -
303	8	139	After 1996	XJ519	21	23	23	23	11%	No	\$ -	\$ -
305	8	179	After 1996	XJ577	8	10	10	10	13%	No	\$ -	\$ -
306	8	460	After 1996	N698	311	311	380	380	0%	No	\$ -	\$ -
307	8	196	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
308	8	66	After 1996	XJ105	18	38	38	38	51%	No	\$ -	\$ -
309	8	436	After 1996	XJ105	18	38	38	38	51%	No	\$ -	\$ -
310	8	346	After 1996	XJ105	18	38	38	38	51%	No	\$ -	\$ -
311	8	472	After 1996	XJ105	18	38	38	38	51%	No	\$ -	\$ -
312	8	417	After 1996	XJ105	18	38	38	38	51%	No	\$ -	\$ -
313	8	394	After 1996	XJ105	18	38	38	38	51%	No	\$ -	\$ -
314	8	206	After 1996	XJ105	18	38	38	38	51%	No	\$ -	\$ -
315	8	151	After 1996	XJ539	236	442	331	442	47%	No	\$ -	\$ -
316	8	383	After 1996	N698	311	311	380	380	0%	No	\$ -	\$ -
317	8	405	After 1996	N698	311	311	380	380	0%	No	\$ -	\$ -
318	8	120	After 1996	N698	311	311	380	380	0%	No	\$ -	\$ -
319	8	177	After 1996	XJ30	110	156	499	499	9%	No	\$ -	\$ -

**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
320	8	300	After 1996	XJ30	110	156	499	499	9%	No	\$ -	\$ -
321	8	278	After 1996	XJ577	8	10	10	10	13%	No	\$ -	\$ -
322	8	354	After 1996	XJ577	8	10	10	10	13%	No	\$ -	\$ -
323	8	139	After 1996	N698	311	311	380	380	0%	No	\$ -	\$ -
324	8	381	After 1996	XJ561	31	72	171	171	24%	No	\$ -	\$ -
325	8	402	After 1996	XJ561	31	72	171	171	24%	No	\$ -	\$ -
326	8	208	After 1996	XJ562	75	79	316	316	1%	No	\$ -	\$ -
327	8	399	After 1996	XJ562	75	79	316	316	1%	No	\$ -	\$ -
328	8	539	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
329	8	170	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
330	8	348	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
331	8	229	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
332	8	351	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
333	8	220	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
334	8	247	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
335	8	268	After 1996	XJ18	127	173	222	222	21%	No	\$ -	\$ -
336	8	239	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
337	8	227	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
338	8	296	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
339	8	328	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
340	8	152	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
341	8	216	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
342	8	241	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
343	8	335	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
344	8	391	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
345	8	250	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
346	8	89	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
347	8	317	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
348	8	269	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
349	8	183	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
350	8	190	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
351	8	277	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
352	8	304	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
353	8	72	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
354	8	630	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
355	8	289	After 1996	CDT-97	21	69	69	69	70%	No	\$ -	\$ -
356	8	330	After 1996	CDT-97	21	69	69	69	70%	No	\$ -	\$ -
357	8	220	After 1996	CDT-97	21	69	69	69	70%	No	\$ -	\$ -
358	8	348	After 1996	CDT-97	21	69	69	69	70%	No	\$ -	\$ -
359	8	128	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
360	8	149	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
361	8	401	After 1996	XJ21	307	202	211	307	0%	No	\$ -	\$ -
362	8	402	After 1996	XJ21	307	202	211	307	0%	No	\$ -	\$ -
363	8	278	After 1996	XJ21	307	202	211	307	0%	No	\$ -	\$ -
364	8	400	After 1996	XJ21	307	202	211	307	0%	No	\$ -	\$ -

**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C					
								D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
365	8	144	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
366	8	351	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
367	8	307	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
368	8	205	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
369	8	146	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
370	8	238	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
371	8	332	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
372	8	307	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
373	8	141	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
401	8	165	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
402	8	269	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
403	8	233	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
404	8	137	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
405	8	172	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
406	8	162	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
407	8	205	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
408	8	113	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
409	8	119	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
410	8	235	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
411	8	86	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
412	8	158	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
413	8	156	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
414	8	174	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
415	8	217	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
416	8	190	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
417	8	438	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
418	8	334	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
419	8	93	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
420	8	174	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
421	8	160	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
422	8	153	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
423	8	180	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
424	8	158	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
425	8	235	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
426	8	149	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
427	8	298	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
428	8	134	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
429	8	146	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
430	8	391	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
431	8	341	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
432	8	324	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
433	8	219	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
434	8	90	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
435	8	55	After 1996	XJ454	15	41	41	41	64%	No	\$ -	\$ -
444	8	170	After 1996	N694	25	28	28	28	8%	No	\$ -	\$ -

**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
445	8	178	After 1996	N694	25	28	28	28	8%	No	\$ -	\$ -
446	8	154	After 1996	N694	25	28	28	28	8%	No	\$ -	\$ -
459	8	283	After 1996	XJ21	307	202	211	307	0%	No	\$ -	\$ -
460	8	300	After 1996	XJ21	307	202	211	307	0%	No	\$ -	\$ -
461	8	125	After 1996	XJ21	307	202	211	307	0%	No	\$ -	\$ -
462	8	439	After 1996	XJ21	307	202	211	307	0%	No	\$ -	\$ -
463	8	128	After 1996	XJ21	307	202	211	307	0%	No	\$ -	\$ -
464	8	170	After 1996	XJ21	307	202	211	307	0%	No	\$ -	\$ -
465	8	253	After 1996	XJ21	307	202	211	307	0%	No	\$ -	\$ -
466	8	403	After 1996	XJ561	31	72	171	171	24%	No	\$ -	\$ -
467	8	132	After 1996	XJ21	307	202	211	307	0%	No	\$ -	\$ -
468	8	348	After 1996	XJ21	307	202	211	307	0%	No	\$ -	\$ -
469	8	196	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
470	8	125	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
471	8	214	After 1996	XJ11	145	191	242	242	19%	No	\$ -	\$ -
472	8	86	After 1996	CDT-71	7	302	302	302	98%	No	\$ -	\$ -
473	8	63	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
474	8	139	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
475	8	70	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
476	8	116	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
477	8	330	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
478	8	91	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
479	8	169	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
480	8	45	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
481	8	310	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
482	8	326	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
483	8	221	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
484	8	83	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
485	8	211	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
486	8	81	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
487	8	269	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
488	8	169	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
489	8	262	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
490	8	137	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
491	8	400	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
492	8	397	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
493	8	321	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
513	8	131	After 1996	XJ869	20	40	40	40	50%	No	\$ -	\$ -
514	8	400	After 1996	XJ869	20	40	40	40	50%	No	\$ -	\$ -
515	8	110	After 1996	N694	25	28	28	28	8%	No	\$ -	\$ -
516	8	94	After 1996	N694	25	28	28	28	8%	No	\$ -	\$ -
517	8	407	After 1996	N694	25	28	28	28	8%	No	\$ -	\$ -
518	8	294	After 1996	N694	25	28	28	28	8%	No	\$ -	\$ -
519	8	159	After 1996	N694	25	28	28	28	8%	No	\$ -	\$ -
520	8	95	After 1996	N694	25	28	28	28	8%	No	\$ -	\$ -

**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C					
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
521	8	186	After 1996	N694	25	28	28	28	8%	No	\$ -	\$ -
522	8	74	After 1996	N266	86	118	118	118	27%	No	\$ -	\$ -
532	8	77	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
533	8	109	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
534	8	383	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
535	8	375	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
536	8	248	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
537	8	311	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
538	8	65	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
539	8	175	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
540	8	49	After 1996	N688	25	27	27	27	7%	No	\$ -	\$ -
541	8	96	After 1996	N688	25	27	27	27	7%	No	\$ -	\$ -
702	8	1,204	After 1996	N266	86	118	118	118	27%	No	\$ -	\$ -
703	8	1,639	After 1996	N110	60	185	238	238	52%	No	\$ -	\$ -
704	8	447	After 1996	N110	60	185	238	238	52%	No	\$ -	\$ -
705	8	1,746	After 1996	N110	60	185	238	238	52%	No	\$ -	\$ -
706	8	135	After 1996	N110	60	185	238	238	52%	No	\$ -	\$ -
767	8	184	After 1996	XJ7	145	191	242	242	19%	No	\$ -	\$ -
782	8	655	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
783	8	417	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
784	8	415	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
785	8	186	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
786	8	440	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
787	8	286	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
788	8	178	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
791	8	121	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
792	8	598	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
793	8	281	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
794	8	183	After 1996	N688	25	27	27	27	7%	No	\$ -	\$ -
797	8	124	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
798	8	175	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
799	8	371	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
800	8	352	After 1996	XJ656	261	643	1969	1969	19%	No	\$ -	\$ -
801	8	314	After 1996	N110	60	185	238	238	52%	No	\$ -	\$ -
910	8	310	After 1996	N203	1442	2102	1850	2102	31%	No	\$ -	\$ -
1055	8	613	After 1996	CDT-89	21	69	69	69	69%	No	\$ -	\$ -
1056	8	427	After 1996	CDT-89	21	69	69	69	69%	No	\$ -	\$ -
1057	8	1,364	After 1996	CDT-89	21	69	69	69	69%	No	\$ -	\$ -
1058	8	733	After 1996	XJ500	28	255	255	255	89%	No	\$ -	\$ -
1059	8	312	After 1996	N203	1442	2102	1850	2102	31%	No	\$ -	\$ -
1063	8	267	After 1996	XJ500	28	255	255	255	89%	No	\$ -	\$ -
1064	8	193	After 1996	XJ500	28	255	255	255	89%	No	\$ -	\$ -
1067	8	297	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
1068	8	407	After 1996	N672	358	357	433	433	0%	No	\$ -	\$ -
1091	8	152	After 1996	N110	60	185	238	238	52%	No	\$ -	\$ -

**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
1096	8	672	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
1097	8	175	After 1996	N672	358	357	433	433	0%	No	\$ -	\$ -
1098	8	373	After 1996	XJ850	50	50	53	53	0%	No	\$ -	\$ -
1099	8	258	After 1996	N110	60	185	238	238	52%	No	\$ -	\$ -
1100	8	545	After 1996	N110	60	185	238	238	52%	No	\$ -	\$ -
1101	8	261	After 1996	XJ299	279	244	203	279	0%	No	\$ -	\$ -
1102	8	261	After 1996	XJ299	279	244	203	279	0%	No	\$ -	\$ -
1103	8	108	After 1996	XJ299	279	244	203	279	0%	No	\$ -	\$ -
1104	8	326	After 1996	XJ299	279	244	203	279	0%	No	\$ -	\$ -
1105	8	94	After 1996	XJ299	279	244	203	279	0%	No	\$ -	\$ -
1106	8	137	After 1996	XJ299	279	244	203	279	0%	No	\$ -	\$ -
1107	8	216	After 1996	XJ299	279	244	203	279	0%	No	\$ -	\$ -
1108	8	212	After 1996	XJ299	279	244	203	279	0%	No	\$ -	\$ -
1109	8	228	After 1996	XJ492	67	105	412	412	9%	No	\$ -	\$ -
1110	8	238	After 1996	XJ492	67	105	412	412	9%	No	\$ -	\$ -
1111	8	182	After 1996	XJ869	20	40	40	40	50%	No	\$ -	\$ -
1112	8	1,060	After 1996	XJ869	20	40	40	40	50%	No	\$ -	\$ -
1113	8	147	After 1996	XJ869	20	40	40	40	50%	No	\$ -	\$ -
1114	8	913	After 1996	XJ869	20	40	40	40	50%	No	\$ -	\$ -
1115	8	445	After 1996	XJ869	20	40	40	40	50%	No	\$ -	\$ -
1118	8	256	After 1996	N40	36	52	111	111	15%	No	\$ -	\$ -
1119	8	543	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
1120	8	334	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
1121	8	376	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
1122	8	433	After 1996	XJ750	14	41	41	41	65%	No	\$ -	\$ -
1123	8	832	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
1124	8	312	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
1125	8	283	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
1126	8	448	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
1127	8	323	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
1128	8	308	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
1129	8	128	After 1996	XJ439	17	61	61	61	72%	No	\$ -	\$ -
1130	8	663	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
1131	8	325	After 1996	CDT-89	21	69	69	69	69%	No	\$ -	\$ -
1132	8	397	After 1996	CDT-89	21	69	69	69	69%	No	\$ -	\$ -
1133	8	327	After 1996	CDT-89	21	69	69	69	69%	No	\$ -	\$ -
1134	8	987	After 1996	CDT-85	50	101	101	101	50%	No	\$ -	\$ -
1135	8	34	After 1996	CDT-89	21	69	69	69	69%	No	\$ -	\$ -
1136	8	118	After 1996	N203	1442	2102	1850	2102	31%	No	\$ -	\$ -
1137	8	171	After 1996	N203	1442	2102	1850	2102	31%	No	\$ -	\$ -
1138	8	177	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -
1139	8	583	After 1996	CDT-71	7	302	302	302	98%	No	\$ -	\$ -
1140	8	357	After 1996	CDT-71	7	302	302	302	98%	No	\$ -	\$ -
1142	8	194	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
1143	8	158	After 1996	N680	41	42	49	49	2%	No	\$ -	\$ -

**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C					
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
1149	8	105	After 1996	XJ869	20	40	40	40	50%	No	\$ -	\$ -
1151	8	387	After 1996	N40	36	52	111	111	15%	No	\$ -	\$ -
1154	8	290	After 1996	XJ307	59	81	81	81	27%	No	\$ -	\$ -
1155	8	59	After 1996	XJ281	59	82	82	82	27%	No	\$ -	\$ -
1156	8	166	After 1996	XJ281	59	82	82	82	27%	No	\$ -	\$ -
1157	8	92	After 1996	XJ281	59	82	82	82	27%	No	\$ -	\$ -
1159	8	482	After 1996	N612	106	104	229	229	0%	No	\$ -	\$ -
1173	8	230	After 1996	N40	36	52	111	111	15%	No	\$ -	\$ -
1194	8	129	After 1996	N266	86	118	118	118	27%	No	\$ -	\$ -
1209	8	217	After 1996	XJ541	303	198	207	303	0%	No	\$ -	\$ -
1210	8	219	After 1996	XJ712	136	181	232	232	19%	No	\$ -	\$ -
1211	8	219	After 1996	XJ712	136	181	232	232	19%	No	\$ -	\$ -
1216	8	14	After 1996	XJ7	145	191	242	242	19%	No	\$ -	\$ -
1217	8	14	After 1996	XJ7	145	191	242	242	19%	No	\$ -	\$ -
1230	8	11	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
1231	8	11	After 1996	XJ380	39	43	89	89	5%	No	\$ -	\$ -
1238	8	19	After 1996	XJ299	279	244	203	279	0%	No	\$ -	\$ -
1239	8	19	After 1996	XJ299	279	244	203	279	0%	No	\$ -	\$ -
27	8	247	1995	XJ86	34	132	300	300	33%	Yes	\$ 8,113	\$ 2,664
28	8	230	1995	XJ86	34	132	300	300	33%	Yes	\$ 7,570	\$ 2,486
29	8	241	1995	XJ86	34	132	300	300	33%	Yes	\$ 7,907	\$ 2,596
30	8	264	1995	XJ86	34	132	300	300	33%	Yes	\$ 8,659	\$ 2,843
31	8	291	1995	XJ92	29	30	43	43	3%	Yes	\$ 9,554	\$ 247
32	8	282	1995	XJ97	37	38	55	55	2%	Yes	\$ 9,280	\$ 197
33	8	255	1995	XJ97	37	38	55	55	2%	Yes	\$ 8,379	\$ 178
36	8	294	1995	XJ82	34	36	260	260	1%	Yes	\$ 9,644	\$ 62
38	8	307	1995	XJ92	29	30	43	43	3%	Yes	\$ 10,088	\$ 261
39	8	300	1995	XJ97	37	38	55	55	2%	Yes	\$ 9,842	\$ 209
43	8	245	1995	XJ122	37	47	47	47	23%	Yes	\$ 8,063	\$ 1,848
44	8	243	1995	XJ122	37	47	47	47	23%	Yes	\$ 7,993	\$ 1,832
45	8	240	1995	XJ122	37	47	47	47	23%	Yes	\$ 7,883	\$ 1,806
46	8	302	1995	XJ82	34	36	260	260	1%	Yes	\$ 9,907	\$ 63
47	8	241	1995	XJ122	37	47	47	47	23%	Yes	\$ 7,915	\$ 1,814
48	8	235	1995	XJ82	34	36	260	260	1%	Yes	\$ 7,711	\$ 49
49	8	267	1995	XJ82	34	36	260	260	1%	Yes	\$ 8,774	\$ 56
50	8	430	1995	XJ131	126	292	292	292	57%	Yes	\$ 14,143	\$ 8,038
51	8	221	1995	XJ92	29	30	43	43	3%	Yes	\$ 7,246	\$ 187
52	8	297	1995	XJ92	29	30	43	43	3%	Yes	\$ 9,760	\$ 252
53	8	266	1995	XJ92	29	30	43	43	3%	Yes	\$ 8,753	\$ 226
54	8	300	1995	XJ133	101	165	505	505	13%	Yes	\$ 9,859	\$ 1,259
55	8	170	1995	XJ133	101	165	505	505	13%	Yes	\$ 5,582	\$ 713
56	8	132	1995	XJ116	29	44	44	44	35%	Yes	\$ 4,350	\$ 1,509
57	8	105	1995	XJ97	37	38	55	55	2%	Yes	\$ 3,434	\$ 73
58	8	300	1995	XJ116	29	44	44	44	35%	Yes	\$ 9,857	\$ 3,420
59	8	310	1995	XJ116	29	44	44	44	35%	Yes	\$ 10,199	\$ 3,538



**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
60	8	299	1995	XJ97	37	38	55	55	2%	Yes	\$ 9,808	\$ 209
61	8	395	1995	XJ97	37	38	55	55	2%	Yes	\$ 12,963	\$ 276
67	8	315	1995	XJ122	37	47	47	47	23%	Yes	\$ 10,335	\$ 2,368
68	8	314	1995	XJ82	34	36	260	260	1%	Yes	\$ 10,318	\$ 66
69	8	305	1995	XJ92	29	30	43	43	3%	Yes	\$ 10,022	\$ 259
70	8	302	1995	XJ97	37	38	55	55	2%	Yes	\$ 9,924	\$ 211
71	8	306	1995	XJ116	29	44	44	44	35%	Yes	\$ 10,038	\$ 3,483
75	8	378	1995	XJ152	50	144	144	144	65%	Yes	\$ 12,427	\$ 8,110
76	8	217	1995	XJ167	23	32	32	32	29%	Yes	\$ 7,134	\$ 2,071
77	8	309	1995	XJ82	34	36	260	260	1%	Yes	\$ 10,137	\$ 65
78	8	287	1995	XJ82	34	36	260	260	1%	Yes	\$ 9,441	\$ 60
79	8	236	1995	XJ82	34	36	260	260	1%	Yes	\$ 7,763	\$ 50
80	8	242	1995	XJ167	23	32	32	32	29%	Yes	\$ 7,936	\$ 2,304
81	8	315	1995	XJ122	37	47	47	47	23%	Yes	\$ 10,334	\$ 2,368
82	8	447	1995	XJ175	123	288	288	288	57%	Yes	\$ 14,680	\$ 8,400
83	8	221	1995	XJ122	37	47	47	47	23%	Yes	\$ 7,255	\$ 1,663
84	8	301	1995	XJ92	29	30	43	43	3%	Yes	\$ 9,893	\$ 256
85	8	449	1995	XJ92	29	30	43	43	3%	Yes	\$ 14,758	\$ 382
86	8	186	1995	XJ116	29	44	44	44	35%	Yes	\$ 6,104	\$ 2,118
87	8	302	1995	XJ116	29	44	44	44	35%	Yes	\$ 9,907	\$ 3,437
88	8	333	1995	XJ116	29	44	44	44	35%	Yes	\$ 10,942	\$ 3,796
89	8	306	1995	XJ97	37	38	55	55	2%	Yes	\$ 10,039	\$ 214
90	8	347	1995	XJ97	37	38	55	55	2%	Yes	\$ 11,398	\$ 243
91	8	166	1995	XJ97	37	38	55	55	2%	Yes	\$ 5,446	\$ 116
92	8	449	1995	XJ186	101	165	505	505	13%	Yes	\$ 14,768	\$ 1,860
93	8	287	1995	XJ82	34	36	260	260	1%	Yes	\$ 9,430	\$ 60
94	8	308	1995	XJ92	29	30	43	43	3%	Yes	\$ 10,104	\$ 261
95	8	304	1995	XJ116	29	44	44	44	35%	Yes	\$ 9,990	\$ 3,466
96	8	304	1995	XJ97	37	38	55	55	2%	Yes	\$ 9,989	\$ 213
97	8	256	1995	XJ198	17	24	24	24	29%	Yes	\$ 8,396	\$ 2,399
98	8	291	1995	XJ82	34	36	260	260	1%	Yes	\$ 9,546	\$ 61
99	8	235	1995	XJ198	17	24	24	24	29%	Yes	\$ 7,719	\$ 2,206
100	8	397	1995	XJ82	34	36	260	260	1%	Yes	\$ 13,050	\$ 83
101	8	255	1995	XJ201	9	221	221	221	96%	Yes	\$ 8,367	\$ 8,026
102	8	247	1995	XJ201	9	221	221	221	96%	Yes	\$ 8,112	\$ 7,782
103	8	286	1995	XJ116	29	44	44	44	35%	Yes	\$ 9,399	\$ 3,261
104	8	457	1995	XJ116	29	44	44	44	35%	Yes	\$ 15,029	\$ 5,214
105	8	297	1995	XJ210	98	125	462	462	6%	Yes	\$ 9,753	\$ 574
106	8	254	1995	XJ210	98	125	462	462	6%	Yes	\$ 8,330	\$ 490
107	8	172	1995	XJ92	29	30	43	43	3%	Yes	\$ 5,648	\$ 146
108	8	264	1995	XJ220	86	112	437	437	6%	Yes	\$ 8,670	\$ 519
109	8	303	1995	XJ92	29	30	43	43	3%	Yes	\$ 9,940	\$ 257
110	8	315	1995	XJ92	29	30	43	43	3%	Yes	\$ 10,359	\$ 268
111	8	301	1995	XJ97	37	38	55	55	2%	Yes	\$ 9,890	\$ 210
112	8	407	1995	XJ97	37	38	55	55	2%	Yes	\$ 13,382	\$ 285

**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C					
							= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"	
113	8	105	1995	XJ97	37	38	55	55	2%	Yes	\$ 3,435	\$ 73
114	8	213	1995	XJ220	86	112	437	437	6%	Yes	\$ 6,997	\$ 418
116	8	221	1995	XJ224	12	43	43	43	72%	Yes	\$ 7,259	\$ 5,208
117	8	266	1995	XJ116	29	44	44	44	35%	Yes	\$ 8,740	\$ 3,032
118	8	376	1995	XJ224	12	43	43	43	72%	Yes	\$ 12,347	\$ 8,857
119	8	278	1995	XJ220	86	112	437	437	6%	Yes	\$ 9,119	\$ 545
120	8	353	1995	XJ82	34	36	260	260	1%	Yes	\$ 11,583	\$ 74
121	8	424	1995	XJ210	98	125	462	462	6%	Yes	\$ 13,941	\$ 820
123	8	207	1995	XJ235	116	276	276	276	58%	Yes	\$ 6,794	\$ 3,936
124	8	366	1995	XJ92	29	30	43	43	3%	Yes	\$ 12,026	\$ 311
125	8	44	1995	XJ235	116	276	276	276	58%	Yes	\$ 1,429	\$ 828
126	8	405	1995	XJ97	37	38	55	55	2%	Yes	\$ 13,309	\$ 283
127	8	251	1995	XJ82	34	36	260	260	1%	Yes	\$ 8,231	\$ 53
128	8	433	1995	XJ82	34	36	260	260	1%	Yes	\$ 14,240	\$ 91
129	8	149	1995	XJ97	37	38	55	55	2%	Yes	\$ 4,901	\$ 104
130	8	379	1995	XJ97	37	38	55	55	2%	Yes	\$ 12,442	\$ 265
132	8	208	1995	XJ92	29	30	43	43	3%	Yes	\$ 6,836	\$ 177
133	8	346	1995	XJ92	29	30	43	43	3%	Yes	\$ 11,353	\$ 294
134	8	324	1995	XJ116	29	44	44	44	35%	Yes	\$ 10,658	\$ 3,698
135	8	361	1995	XJ116	29	44	44	44	35%	Yes	\$ 11,846	\$ 4,110
136	8	182	1995	XJ82	34	36	260	260	1%	Yes	\$ 5,964	\$ 38
137	8	252	1995	XJ97	37	38	55	55	2%	Yes	\$ 8,287	\$ 176
138	8	177	1995	XJ97	37	38	55	55	2%	Yes	\$ 5,808	\$ 124
139	8	165	1995	XJ116	29	44	44	44	35%	Yes	\$ 5,432	\$ 1,885
140	8	335	1995	XJ277	117	276	276	276	58%	Yes	\$ 11,024	\$ 6,361
141	8	204	1995	XJ92	29	30	43	43	3%	Yes	\$ 6,715	\$ 174
142	8	280	1995	XJ82	34	36	260	260	1%	Yes	\$ 9,184	\$ 59
143	8	387	1995	XJ97	37	38	55	55	2%	Yes	\$ 12,726	\$ 271
144	8	369	1995	XJ97	37	38	55	55	2%	Yes	\$ 12,120	\$ 258
145	8	356	1995	XJ92	29	30	43	43	3%	Yes	\$ 11,682	\$ 302
146	8	444	1995	XJ92	29	30	43	43	3%	Yes	\$ 14,602	\$ 378
147	8	186	1995	XJ116	29	44	44	44	35%	Yes	\$ 6,120	\$ 2,123
148	8	398	1995	XJ116	29	44	44	44	35%	Yes	\$ 13,061	\$ 4,532
149	8	231	1995	XJ116	29	44	44	44	35%	Yes	\$ 7,590	\$ 2,633
150	8	342	1995	XJ116	29	44	44	44	35%	Yes	\$ 11,238	\$ 3,899
151	8	165	1995	XJ116	29	44	44	44	35%	Yes	\$ 5,418	\$ 1,880
154	8	287	1995	XJ92	29	30	43	43	3%	Yes	\$ 9,430	\$ 244
155	8	300	1995	XJ97	37	38	55	55	2%	Yes	\$ 9,862	\$ 210
156	8	293	1995	XJ116	29	44	44	44	35%	Yes	\$ 9,611	\$ 3,334
160	8	143	1995	XJ97	37	38	55	55	2%	Yes	\$ 4,701	\$ 100
161	8	151	1995	XJ92	29	30	43	43	3%	Yes	\$ 4,945	\$ 128
162	8	189	1995	XJ116	29	44	44	44	35%	Yes	\$ 6,211	\$ 2,155
165	8	459	1995	XJ326	88	128	158	158	25%	Yes	\$ 15,074	\$ 3,823
166	8	290	1995	XJ298	279	245	204	279	0%	Yes	\$ 9,541	\$ -
167	8	315	1995	XJ298	279	245	204	279	0%	Yes	\$ 10,335	\$ -

**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
168	8	316	1995	XJ299	279	244	203	279	0%	Yes	\$ 10,370	\$ -
169	8	243	1995	XJ299	279	244	203	279	0%	Yes	\$ 7,998	\$ -
170	8	270	1995	XJ299	279	244	203	279	0%	Yes	\$ 8,884	\$ -
176	8	196	1995	XJ298	279	245	204	279	0%	Yes	\$ 6,441	\$ -
178	8	351	1995	XJ439	17	61	61	61	72%	Yes	\$ 11,534	\$ 8,277
179	8	288	1995	XJ299	279	244	203	279	0%	Yes	\$ 9,450	\$ -
180	8	97	1995	XJ298	279	245	204	279	0%	Yes	\$ 3,174	\$ -
182	8	297	1995	XJ299	279	244	203	279	0%	Yes	\$ 9,743	\$ -
183	8	234	1995	XJ299	279	244	203	279	0%	Yes	\$ 7,693	\$ -
184	8	298	1995	XJ298	279	245	204	279	0%	Yes	\$ 9,777	\$ -
185	8	220	1995	XJ632	107	277	621	621	28%	Yes	\$ 7,225	\$ 1,988
186	8	293	1995	XJ332	133	155	128	155	14%	Yes	\$ 9,611	\$ 1,339
187	8	298	1995	XJ299	279	244	203	279	0%	Yes	\$ 9,804	\$ -
188	8	200	1995	XJ371	16	321	321	321	95%	Yes	\$ 6,584	\$ 6,261
189	8	317	1995	XJ298	279	245	204	279	0%	Yes	\$ 10,429	\$ -
190	8	257	1995	XJ371	16	321	321	321	95%	Yes	\$ 8,441	\$ 8,026
191	8	243	1995	XJ332	133	155	128	155	14%	Yes	\$ 7,982	\$ 1,112
192	8	243	1995	XJ332	133	155	128	155	14%	Yes	\$ 7,985	\$ 1,112
193	8	285	1995	XJ632	107	277	621	621	28%	Yes	\$ 9,354	\$ 2,573
194	8	169	1995	XJ337	124	145	117	145	15%	Yes	\$ 5,559	\$ 812
195	8	295	1995	XJ337	124	145	117	145	15%	Yes	\$ 9,677	\$ 1,414
196	8	300	1995	XJ337	124	145	117	145	15%	Yes	\$ 9,852	\$ 1,440
197	8	403	1995	XJ380	39	43	89	89	5%	Yes	\$ 13,250	\$ 602
198	8	150	1995	XJ439	17	61	61	61	72%	Yes	\$ 4,926	\$ 3,535
199	8	363	1995	XJ439	17	61	61	61	72%	Yes	\$ 11,928	\$ 8,560
201	8	294	1995	XJ298	279	245	204	279	0%	Yes	\$ 9,661	\$ -
202	8	300	1995	XJ299	279	244	203	279	0%	Yes	\$ 9,858	\$ -
203	8	263	1995	XJ380	39	43	89	89	5%	Yes	\$ 8,642	\$ 393
204	8	176	1995	XJ380	39	43	89	89	5%	Yes	\$ 5,779	\$ 263
205	8	225	1995	XJ380	39	43	89	89	5%	Yes	\$ 7,377	\$ 335
207	8	437	1995	XJ439	17	61	61	61	72%	Yes	\$ 14,343	\$ 10,293
208	8	125	1995	XJ439	17	61	61	61	72%	Yes	\$ 4,107	\$ 2,948
209	8	286	1995	XJ299	279	244	203	279	0%	Yes	\$ 9,398	\$ -
210	8	202	1995	XJ299	279	244	203	279	0%	Yes	\$ 6,634	\$ -
211	8	275	1995	XJ299	279	244	203	279	0%	Yes	\$ 9,032	\$ -
212	8	303	1995	XJ298	279	245	204	279	0%	Yes	\$ 9,957	\$ -
213	8	313	1995	XJ298	279	245	204	279	0%	Yes	\$ 10,289	\$ -
214	8	317	1995	XJ380	39	43	89	89	5%	Yes	\$ 10,418	\$ 474
215	8	289	1995	XJ380	39	43	89	89	5%	Yes	\$ 9,511	\$ 432
216	8	116	1995	XJ380	39	43	89	89	5%	Yes	\$ 3,816	\$ 173
217	8	242	1995	XJ380	39	43	89	89	5%	Yes	\$ 7,967	\$ 362
218	8	280	1995	XJ380	39	43	89	89	5%	Yes	\$ 9,192	\$ 418
220	8	146	1995	XJ439	17	61	61	61	72%	Yes	\$ 4,789	\$ 3,437
221	8	154	1995	XJ439	17	61	61	61	72%	Yes	\$ 5,044	\$ 3,620
222	8	396	1995	XJ371	16	321	321	321	95%	Yes	\$ 12,996	\$ 12,358

**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
223	8	208	1995	XJ371	16	321	321	321	95%	Yes	\$ 6,847	\$ 6,511
224	8	398	1995	XJ371	16	321	321	321	95%	Yes	\$ 13,075	\$ 12,433
225	8	151	1995	XJ371	16	321	321	321	95%	Yes	\$ 4,953	\$ 4,710
226	8	298	1995	XJ393	12	15	41	41	6%	Yes	\$ 9,775	\$ 559
227	8	149	1995	XJ380	39	43	89	89	5%	Yes	\$ 4,898	\$ 223
228	8	333	1995	XJ380	39	43	89	89	5%	Yes	\$ 10,942	\$ 497
229	8	280	1995	XJ299	279	244	203	279	0%	Yes	\$ 9,184	\$ -
230	8	239	1995	XJ380	39	43	89	89	5%	Yes	\$ 7,845	\$ 357
231	8	287	1995	XJ298	279	245	204	279	0%	Yes	\$ 9,431	\$ -
236	8	312	1995	XJ439	17	61	61	61	72%	Yes	\$ 10,251	\$ 7,357
237	8	325	1995	XJ439	17	61	61	61	72%	Yes	\$ 10,685	\$ 7,668
238	8	303	1995	XJ439	17	61	61	61	72%	Yes	\$ 9,945	\$ 7,137
239	8	278	1995	XJ439	17	61	61	61	72%	Yes	\$ 9,120	\$ 6,545
240	8	304	1995	XJ393	12	15	41	41	6%	Yes	\$ 9,973	\$ 571
242	8	361	1995	XJ439	17	61	61	61	72%	Yes	\$ 11,876	\$ 8,523
243	8	402	1995	XJ439	17	61	61	61	72%	Yes	\$ 13,222	\$ 9,489
244	8	399	1995	XJ439	17	61	61	61	72%	Yes	\$ 13,123	\$ 9,418
248	8	272	1995	XJ298	279	245	204	279	0%	Yes	\$ 8,922	\$ -
252	8	166	1995	XJ439	17	61	61	61	72%	Yes	\$ 5,454	\$ 3,914
253	8	185	1995	XJ439	17	61	61	61	72%	Yes	\$ 6,062	\$ 4,351
261	8	399	1995	XJ298	279	245	204	279	0%	Yes	\$ 13,117	\$ -
262	8	342	1995	XJ439	17	61	61	61	72%	Yes	\$ 11,239	\$ 8,065
263	8	102	1995	XJ298	279	245	204	279	0%	Yes	\$ 3,345	\$ -
278	8	351	1995	XJ439	17	61	61	61	72%	Yes	\$ 11,534	\$ 8,278
283	8	332	1995	XJ439	17	61	61	61	72%	Yes	\$ 10,916	\$ 7,834
284	8	306	1995	XJ439	17	61	61	61	72%	Yes	\$ 10,053	\$ 7,214
285	8	201	1995	XJ439	17	61	61	61	72%	Yes	\$ 6,615	\$ 4,747
304	8	118	1995	XJ122	37	47	47	47	23%	Yes	\$ 3,882	\$ 890
1161	8	146	1995	XJ202	12	43	43	43	71%	Yes	\$ 4,809	\$ 3,402
1162	8	259	1995	XJ289	279	244	203	279	0%	Yes	\$ 8,520	\$ -
1163	8	246	1995	XJ299	279	244	203	279	0%	Yes	\$ 8,067	\$ -
1164	8	258	1995	XJ298	279	245	204	279	0%	Yes	\$ 8,481	\$ -
1165	8	291	1995	XJ332	133	155	128	155	14%	Yes	\$ 9,562	\$ 1,332
1166	8	299	1995	XJ337	124	145	117	145	15%	Yes	\$ 9,825	\$ 1,436
1167	8	414	1995	XJ336	128	150	122	150	14%	Yes	\$ 13,587	\$ 1,955
1248	8	484	1997	XJ577	8	10	10	10	13%	No	\$ -	\$ -
1250	8	328	2000	N40	36	52	111	111	15%	No	\$ -	\$ -
1251	8	116	2000	N40	36	52	111	111	15%	No	\$ -	\$ -
1252	8	386	2000	N40	36	52	111	111	15%	No	\$ -	\$ -
1253	8	68	2000	N40	36	52	111	111	15%	No	\$ -	\$ -
1254	8	211	2000	N40	36	52	111	111	15%	No	\$ -	\$ -
1255	8	149	2017	N694	25	28	28	28	8%	No	\$ -	\$ -
1256	8	144	2017	N694	25	28	28	28	8%	No	\$ -	\$ -
1257	8	156	2017	N694	25	28	28	28	8%	No	\$ -	\$ -
1258	8	159	2017	N694	25	28	28	28	8%	No	\$ -	\$ -

**Table C - 2. Non-Modeled Existing Sanitary Sewer Pipes Reserve Capacity Detail (cont'd)**

Pipe Segment ID	Dia (in)	Segment Length (ft)	Year Built	Reference Pipe <sup>1</sup>	Demand (gpm)			Max Demand Ever Used	Proportion of Max Capacity Ever Used 2022 to 2032	Impact Fee Eligible?	Estimated Project Cost	Estimated Impact Fee-Eligible Cost
					2022	2032	2060					
					A	B	C	D	E	F	G	H
								= Max (A, B, and C)	= (B - A) / D			= (E x G) if F is "Yes"
1259	8	144	2017	N694	25	28	28	28	8%	No	\$ -	\$ -
1260	8	347	2017	N694	25	28	28	28	8%	No	\$ -	\$ -
1261	8	350	2017	N694	25	28	28	28	8%	No	\$ -	\$ -
1262	8	328	2017	N694	25	28	28	28	8%	No	\$ -	\$ -
1263	8	217	2017	N694	25	28	28	28	8%	No	\$ -	\$ -
1264	8	200	2017	N694	25	28	28	28	8%	No	\$ -	\$ -
1265	8	176	2017	N694	25	28	28	28	8%	No	\$ -	\$ -
1266	8	80	2017	N694	25	28	28	28	8%	No	\$ -	\$ -
1267	8	82	2017	N694	25	28	28	28	8%	No	\$ -	\$ -
1268	8	132	2017	N694	25	28	28	28	8%	No	\$ -	\$ -
1269	8	388	1994	XJ198	17	24	24	24	29%	Yes	\$ 12,751	\$ 3,643
1270	8	159	1994	XJ198	17	24	24	24	29%	Yes	\$ 5,209	\$ 1,488
1000000	10 FM	4,305	1995	Lift Station	1478	1713	1713 <sup>2</sup>	1713	14%	Yes	\$ 168,282	\$ 23,105
<b>Total</b>											\$2,121,147	\$ 472,652

<sup>1</sup>First downstream modeled pipe.

<sup>2</sup>The maximum peak hour flow of the existing 10" force main is 1,713 gpm (see Table G- 3 in Appendix G). Peak hour flows in 2032 and 2060 exceed the maximum peak hour flows of the pipe.

## APPENDIX D - HISTORIC COSTS

The following tables show a summary of projects with known historical costs.

The Santaquin City sanitary sewer system was installed in 1994 when the City installed miles of sewer pipe. The project was funded 47% from grants and the other 53% was paid in cash or bonded for by the City. Table D - 1 through Table D - 4 show how costs per foot for different pipe diameters were calculated for various projects the City paid for. These costs were used in Table C - 1 and Table C - 2.

**Table D - 1. Historic Cost Paid by Santaquin City for Original Sanitary Sewer System Project**

Original System Historical Project Cost <sup>1</sup>	\$ 6,751,908
Impact Fee Eligible Cost <sup>2</sup>	\$ 3,681,927

<sup>1</sup>Cost includes Center Street Lift Station and 52 MG Winter Storage Ponds

<sup>2</sup>Recorded costs paid for by City

Diameter	Approximate Pipe Length from GIS (ft)	Present Day Unit Cost (per LF)	Present Day Cost	Percent of Total	Impact Fee Eligible Cost	Impact Fee Eligible Cost (per LF)
8	98,007	\$ 186	\$ 18,229,214	88.4%	\$ 3,254,154	\$ 33
10	6,793	\$ 204	\$ 1,385,820	6.7%	\$ 247,387	\$ 36
15	530	\$ 246	\$ 130,265	0.6%	\$ 23,254	\$ 44
10 FM	4,315	\$ 204	\$ 880,228	4.3%	\$ 157,132	\$ 36
Total	109,644		\$ 20,625,527		\$ 3,681,927	

**Table D - 2. Historic Cost Paid by Santaquin City for the 2013 WRF Project (Gravity Piping Only)**

a	2013 WRF Historical Project Cost	\$ 18,380,688	
b	Piping Portion	\$ 1,725,000	
c	Impact Fee Eligible Cost <sup>2</sup>	\$ 8,684,688	
d	Impact Fee Eligible Pipe Portion	\$ 815,045	= (b/a) x c

<sup>2</sup>Recorded costs paid for by City

Diameter	Approximate Pipe Length from GIS (ft)	Present Day Unit Cost (per LF)	Present Day Cost	Percent of Total	Impact Fee Eligible Cost	Impact Fee Eligible Cost (per LF)
10	309	\$ 204	\$ 63,006	2.6%	\$ 21,240	\$ 36
18	8,470	\$ 278	\$ 2,354,702	97.4%	\$ 793,805	\$ 38
Total	8,779		\$ 2,417,708		\$ 815,045	

**Table D - 3. Historic Cost Paid by Santaquin City for the 900 South & Center Street Project**

Historical Project Cost	Unknown
Impact Fee Eligible Cost <sup>1</sup>	\$ 56,601

<sup>1</sup>Recorded costs paid for by City

Diameter	Approximate Pipe Length from GIS (ft)	Present Day Unit Cost (per LF)	Present Day Cost	Percent of Total	Impact Fee Eligible Cost	Impact Fee Eligible Cost (per LF)
8	1,379	\$ 186	\$ 256,497	100%	\$ 56,601	\$ 41
Total	1,379		\$ 256,497		\$ 56,601	

**Table D - 4. Historic Cost Paid by Santaquin City for the Main Street & I-15 Project**

Historical Project Cost	Unknown
Impact Fee Eligible Cost <sup>1</sup>	\$ 219,788

<sup>1</sup>Estimated based on estimated 2022 costs with a 1998 ENR Construction Index reduction.

Diameter	Approximate Pipe Length from GIS (ft)	Present Day Unit Cost (per LF)	Present Day Cost	Percent of Total	Impact Fee Eligible Cost <sup>1</sup>	Impact Fee Eligible Cost (per LF)
6	275	\$ 178	\$ 48,895	10%	\$ 22,078	\$ 80.38
8	2,354	\$ 186	\$ 437,847	90%	\$ 197,709	\$ 83.99
Total	2,629		\$486,741		\$ 219,788	

<sup>1</sup>Reduced using ENR Construction Index factor of 2.197 for 1998 construction year (see Table D-7)

**Table D - 5. Historic Cost Paid by Santaquin City for the Winter Storage Ponds**

a	% of Pond #2 Used in 2022	70.6%	
b	% of Pond #2 Used in 2032	100%	
c	% Impact Fee Eligible	29.4%	[1-a]
d	Historical Project Cost <sup>1</sup>	\$ 1,247,683	
e	Impact Fee Eligible Cost	\$ 367,121	[c*d]

<sup>1</sup>Based on City records

**Table D - 6. Historic Cost Paid by Santaquin City for Sewer Improvements at Summit Ridge**

Historical Project Cost	Unknown
Impact Fee Eligible Cost <sup>1</sup>	\$ 1,049,547

<sup>1</sup>Recorded costs paid by the developer to be reimbursed by the City

Diameter	Approximate Pipe Length from GIS (ft)	Present Day Unit Cost (per LF)	Present Day Cost	Percent of Total	Impact Fee Eligible Cost <sup>1</sup>	Impact Fee Eligible Cost (per LF)
10	3,120	\$ 204.00	\$ 636,462	19%	\$ 202,184	\$ 64.80
12	3,842	\$ 222.00	\$ 852,964	26%	\$ 270,960	\$ 70.52
15	3,848	\$ 246.00	\$ 946,580	29%	\$ 300,698	\$ 78.15
18	3,122	\$ 278.00	\$ 867,903	26%	\$ 275,705	\$ 88.31
Total	13,932		3,303,909		1,049,547	

**Table D - 7. Historic Costs Paid by Santaquin City for the Public Works Facility**

a	2022 ERUs	4,745	
b	2032 ERUs	8,208	
c	Buildout ERUs	19,691	
d	2022 to Buildout Growth	14,946	[c-a]
e	2022 to 2032 Growth	3,463	[b-a]
f	10-year growth responsibility	23.17%	[e/d]
g	Historical Project Cost <sup>1</sup>	\$ 2,530,000	
h	Sanitary Sewer Portion <sup>2</sup>	\$ 632,500	[g*0.25]
i	Impact Fee Eligible Cost	\$ 146,539	[f*h]

<sup>1</sup>Based on City records

<sup>2</sup>City records indicate a cost-sharing of 25% each between sanitary sewer, parks, culinary water, and secondary water



**Table D - 8. Historic Costs Paid by Santaquin City for the 2019 WRF Phase 2 Upgrades**

a	Engineering	\$	146,200	
b	FKC Screw Press	\$	249,770	
c	GE/Suez Membranes	\$	578,000	
d	Construction	\$	584,339	
e	Impact Fee Eligible Cost <sup>1</sup>	\$	1,558,309	= a + b + c + d

<sup>1</sup>Recorded costs paid for by City

**Table D - 9. City Projects Paid for by Others**

Project Description	Year Constructed	Funding Source
Land Application Pump (New)	2009	Developer/Impact Fee Funded
100 West (Pole Canyon Road) Sewer (900 South to 1200 South)	2015	Developer/Impact Fee Funded

**Table D - 10. Winter Storage Pond Storage Summary**

Table Row		Storage (MG)	
<b>Existing Storage</b>			
a	Pond #1 Storage	52	
b	Pond #2 Storage	126	
c	Total Existing Storage	178	= a + b
<b>2022 Storage Needs</b>			
d	2022 WRF Wintertime Effluent	176	
e	Wintertime Evaporation and Losses	35	
f	2022 Storage Demand	141	= d - e
g	Remaining Storage	37	= c - f
h	% of Pond #1 Used	100%	
i	% of Pond #2 Used	70.6%	= (f - a) / b
<b>2032 Storage Needs</b>			
j	2032 WRF Wintertime Effluent	304	
k	Wintertime Evaporation and Losses	60	
l	2032 Storage Demand	244	= j - k
m	Remaining Storage	-66	= c - l
n	% of Pond #1 Used	100%	
o	% of Pond #2 Used	152%	= (l - a) / b
<b>Additional Storage Project in Year 2027 to Meet LOS</b>			
p	Existing Storage in 2027	178	
q	Convert Existing Treatment Lagoons	36	
r	Total Storage in 2027	214	= p + q
<b>Additional Storage Project in Year 2030 to Meet LOS</b>			
s	Existing Storage in 2030	214	
t	Proposed Winter Storage Pond	247	
u	Total Storage in 2030	461	= s + t
<b>% of Proposed Winter Storage Pond Used by 2032</b>			
v	% of Pond #1 Used	100%	
w	% of Pond #2 Used	100%	
x	% Converted Treatment Lagoons Used	100%	
y	% Proposed Winter Storage Pond Used	12%	= (l - s) / u

Table D - 11 shows the Engineering News Record Construction Cost Index, which is an index based on labor, steel, concrete and lumber in 20 major cities in the United States.

**Table D - 11. Engineering News Record Construction Cost Index History**

Construction Year	Index Cost	Ratio to 2022 to Construction Year	Construction Year	Index Cost	Ratio to 2022 to Construction Year	Construction Year	Index Cost	Ratio to 2022 to Construction Year
2022	13007	1.000	1988	4519	2.878	1954	628	20.712
2021	12133	1.072	1987	4406	2.952	1953	600	21.678
2020	11466	1.134	1986	4295	3.028	1952	569	22.859
2019	11281	1.153	1985	4195	3.101	1951	543	23.954
2018	11062	1.176	1984	4146	3.137	1950	510	25.504
2017	10737	1.211	1983	4066	3.199	1949	477	27.268
2016	10338	1.258	1982	3825	3.400	1948	461	28.214
2015	10036	1.296	1981	3535	3.679	1947	413	31.494
2014	9806	1.326	1980	3237	4.018	1946	346	37.592
2013	9547	1.362	1979	3003	4.331	1945	308	42.230
2012	9308	1.397	1978	2776	4.685	1944	299	43.501
2011	9070	1.434	1977	2576	5.049	1943	290	44.851
2010	8799	1.478	1976	2401	5.417	1942	276	47.126
2009	8570	1.518	1975	2212	5.880	1941	258	50.414
2008	8310	1.565	1974	2020	6.439	1940	242	53.747
2007	7966	1.633	1973	1895	6.864	1939	236	55.114
2006	7751	1.678	1972	1753	7.420	1938	236	55.114
2005	7446	1.747	1971	1581	8.227	1937	235	55.348
2004	7115	1.828	1970	1381	9.418	1936	206	63.140
2003	6694	1.943	1969	1269	10.250	1935	196	66.361
2002	6538	1.989	1968	1155	11.261	1934	198	65.691
2001	6343	2.051	1967	1074	12.111	1933	170	76.511
2000	6221	2.091	1966	1019	12.764	1932	157	82.846
1999	6059	2.147	1965	971	13.395	1931	181	71.861
1998	5920	2.197	1964	936	13.896	1930	203	64.073
1997	5826	2.233	1963	901	14.436	1929	207	62.835
1996	5620	2.314	1962	872	14.916	1928	207	62.835
1995	5471	2.377	1961	847	15.356	1927	206	63.140
1994	5408	2.405	1960	824	15.785	1926	208	62.533
1993	5210	2.497	1959	797	16.320	1925	207	62.835
1992	4985	2.609	1958	759	17.137	1924	215	60.497
1991	4835	2.690	1957	724	17.965	1923	214	60.780
1990	4727.8	2.751	1956	692	18.796	1922	174	74.752
1989	4615	2.818	1955	660	19.707	1921	202	64.390

Table D - 12 details the engineering and financial costs related to planning for impact fee collection. These costs include modeling, master planning, capital facilities planning, and impact fee facilities plan (by J-U-B Engineers), and an impact fee analysis (by Zions Bank Public Finance).

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**Table D - 12. Engineering/Financial Costs Related to Planning that are Eligible for Impact Fee Collection**

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	Cost
Master Plan & Capital Facilities Plan	\$ 58,650
Impact Fee Facilities Plan	\$ 7,200
Impact Fee Analysis	\$ 7,200
Total	\$ 73,050

## APPENDIX E – IMPACT FEE FACILITIES PLAN CERTIFICATION

As required by Section 11-36a-306 of the Impact Fee Act, J-U-B Engineers, Inc. provides the following statement:

“I certify that the attached impact fee facilities plan:

1. includes only the costs of public facilities that are:
  - a. allowed under the Impact Fees Act; and
  - b. actually incurred; or
  - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
  - a. costs of operation and maintenance of public facilities; or
  - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; and
3. complies in each and every relevant respect with the Impact Fees Act.”

J-U-B Engineers, Inc.



Sanitary Sewer Impact Fee Analysis



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## EXECUTIVE SUMMARY

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Santaquin City (“City”) commissioned J-U-B to update the City Sanitary Sewer Master Plan, Impact Fee Facilities Plan (“IFFP”) and Zions Public Finance, Inc. (ZPFI) to draft a Sanitary Sewer Impact Fee Analysis (“IFA”) in accordance with Utah law. An impact fee is a payment of money imposed upon new development activity to mitigate the impact of new development on public infrastructure.

The recommended impact fee structure presented in this analysis has been prepared to satisfy the Impact Fees Act, Utah Code Ann. § 11-36a-101 et. seq., and represents the maximum impact fees that the City may assess. The City will be required to use revenue sources other than impact fees to fund any projects identified in the IFFP that constitute repair and replacement, cure any existing deficiencies, or increase the level of service for existing users.

### Sewer System Overview

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#### Level of Service – Equivalent Residential Unit

Level of service (LOS) defines the sewer demands that a new residential user, expressed as an Equivalent Residential Unit (ERU), will typically require and should pay for through impact fees. Impact fee law prohibits the use of impact fees to increase the LOS above the current service levels. At times, a sewer system may need to increase the LOS to cure an existing deficiency, but projects that fix deficiencies must be paid for through non-impact fee revenues and a credit must be provided to the impact fee payer. The City intends to maintain existing service levels as described in more detail in the body of this analysis and as taken from the IFFP.

In 2022 the City served 4,745 ERUs and is anticipated to grow to approximately 8,208 ERUs by 2032, for an increase of 3,463 ERUs over the 10-year period. A residential unit is equated to one ERU and non-residential properties are charged based on meter size.

### Sewer Service Area

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The Service Area covers the entire City of Santaquin for the purpose of calculating impact fees.

### Existing Excess Capacity

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The IFFP identifies total excess capacity of \$3,932,129 that will be consumed by the added capacity from new development over the next 10 years. These are costs of existing improvements based on actual costs at the time the improvements were acquired.

### New Construction Costs

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The IFFP identifies a total of \$17,726,095 in new construction costs over the next 10 years in 2023 dollars, which adjusts to \$20,381,905 based on construction year costs.

### Wastewater Impact Fee Calculation

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The impact fee calculation shown in Table 1 below results in a gross fee of \$5,403.46 per ERU before credits are made for the City’s three outstanding sewer bonds.



TABLE 1: PROPORTIONATE SHARE ANALYSIS

Summary	Amount
Existing Excess Capacity	\$1,135.47
Interest Cost on Existing Capacity	\$54.63
New Construction	\$4,192.26
Consultant Costs	\$21.09
Subtotal Gross Fee per ERU	\$5,403.46

The City has three outstanding sewer bonds and new development cannot be expected to pay a full impact fee and then pay for these same facilities again through outstanding bonds. Impact fees are calculated to pay for new development’s share of the outstanding bonds but do not cover the cost attributable to existing development. Because sewer rates will need to cover the portion of the bond attributable to existing development, new development will pay the full impact fee and increased sewer rates unless credits are made. **The average maximum fee from 2023 to 2027 is \$5,096.30 per ERU. While Table 2 shows maximum fees per year, the City has chosen to average fees over the 5-year period from 2023-2027. This results in a maximum fee of \$5,096.30 per ERU.**

TABLE 2: MAXIMUM FEE PER ERU BY YEAR

Credits for Outstanding Bond	TOTAL Bond Payments	Amount to be Credited	ERUs	Payment per ERU	NPV*	Maximum Amt per ERU
2023	\$511,722	\$245,151	4,898	\$50.05	\$368.58	\$5,034.87
2024	\$511,272	\$244,935	5,159	\$47.48	\$336.96	\$5,066.50
2025	\$511,792	\$245,184	5,430	\$45.15	\$306.33	\$5,097.13
2026	\$511,272	\$244,935	5,712	\$42.88	\$276.49	\$5,126.96
2027	\$511,722	\$245,151	6,079	\$40.33	\$247.44	\$5,156.02
2028	\$511,132	\$244,868	6,464	\$37.88	\$219.48	\$5,183.98
2029	\$511,512	\$245,050	6,869	\$35.67	\$192.57	\$5,210.88
2030	\$652,852	\$312,762	7,294	\$42.88	\$166.53	\$5,236.93
2031	\$744,742	\$356,784	7,739	\$46.10	\$131.97	\$5,271.48
2032	\$511,662	\$245,122	8,208	\$29.86	\$92.47	\$5,310.99
2033	\$126,852	\$60,771	8,527	\$7.13	\$67.23	\$5,336.23
2034	\$126,852	\$60,771	8,857	\$6.86	\$63.46	\$5,339.99
2035	\$126,852	\$60,771	9,198	\$6.61	\$59.78	\$5,343.68
2036	\$126,852	\$60,771	9,550	\$6.36	\$56.16	\$5,347.30
2037	\$126,852	\$60,771	9,913	\$6.13	\$52.60	\$5,350.85
2038	\$126,852	\$60,771	10,288	\$5.91	\$49.10	\$5,354.35
2039	\$126,852	\$60,771	10,675	\$5.69	\$45.65	\$5,357.81
2040	\$126,852	\$60,771	11,075	\$5.49	\$42.24	\$5,361.22
2041	\$126,852	\$60,771	11,488	\$5.29	\$38.86	\$5,364.59
2042	\$126,852	\$60,771	11,914	\$5.10	\$35.52	\$5,367.94
2043	\$126,852	\$60,771	12,354	\$4.92	\$32.19	\$5,371.26
2044	\$126,852	\$60,771	12,808	\$4.74	\$28.88	\$5,374.57
2045	\$126,852	\$60,771	13,277	\$4.58	\$25.58	\$5,377.87

Credits for Outstanding Bond	TOTAL Bond Payments	Amount to be Credited	ERUs	Payment per ERU	NPV*	Maximum Amt per ERU
2046	\$126,852	\$60,771	13,761	\$4.42	\$22.29	\$5,381.17
2047	\$126,852	\$60,771	14,261	\$4.26	\$18.98	\$5,384.47
2048	\$126,852	\$60,771	14,778	\$4.11	\$15.67	\$5,387.78
2049	\$126,852	\$60,771	15,311	\$3.97	\$12.34	\$5,391.11
2050	\$126,852	\$60,771	15,862	\$3.83	\$8.99	\$5,394.47
2051	\$126,852	\$60,771	16,211	\$3.75	\$5.61	\$5,397.85
2052	\$77,726	\$37,236	16,568	\$2.25	\$2.14	\$5,401.32

\*NPV = net present value discounted at 5 percent

All single-family and multi-family residential sewer fees will be charged based on one ERU (shown in Table 2 above). All non-residential development will be charged based on the meter sizes shown in Table 3 below.

TABLE 3: MAXIMUM IMPACT FEE PER METER SIZE

Meter Size	AWWA Ratio	Maximum Fee
3/4"	1.00	\$5,096.30
1"	1.67	\$8,510.81
1 1/2"	3.33	\$16,970.67
2"	5.33	\$27,163.26
3"	10	\$50,962.96
4"	16.67	\$84,955.26
6"	33.33	\$169,859.55
8"	53.33	\$271,785.47

Santaquin City recognizes the need for and is desirous of encouraging affordable housing. Therefore, in conformance with Utah Code, the City will not charge any impact fees on *internal* accessory dwelling units (ADUs). Further, the City will apply a ten percent reduction to *external* ADUs based on one ERU. The calculation for an external ADU is as follows:

$$\$5,096.30 \times (1-0.1) = \$4,586.67 \text{ per external dwelling unit}$$

### Summary of Fees

Single-Family and Multi-Family Residential (per ERU)	\$5,096.30
External Accessory Dwelling Unit (ADU)	\$4,586.67
Non-Residential – Based on Meter Size	

### Non-Standard Demand Adjustments

The City reserves the right under the Impact Fees Act (Utah Code Ann. § 11-36a-402(1)(c, d)) to assess an adjusted fee to respond to unusual circumstances and to ensure that the impact fees are assessed fairly. The impact fee ordinance should include a provision that permits adjustment of the fee for a development based upon studies and data submitted by the developer that indicate a more realistic and accurate impact upon the City’s infrastructure.

## CHAPTER 1: OVERVIEW OF THE SANITARY SEWER IMPACT FEES

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### Summary

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An impact fee is intended to recover the City's costs of building excess wastewater capacity from new residential or non-residential development rather than passing these growth-related costs on to existing users through rates.

The Utah Impact Fees Act allows only certain costs to be included in an impact fee so that only the fair cost of expansionary projects or existing unused capacity paid by the City is assessed through an impact fee. Eligible costs include future projects, historic costs of existing assets that still have capacity available to serve growth, future or outstanding debt related to these eligible projects, and certain professional expenses related to planning for growth. Project improvements that only serve a specific development or subdivision cannot be included. System improvements that cure a deficiency or enhance the Level of Service (LOS) cannot be included without an appropriate credit.

The impact fee analysis provides documentation of a fair comparison, or rational nexus, between the impact fee charged to new development and the demands that new growth will have on the system.

### Costs to be Included in the Impact Fee

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The impact fees proposed in this analysis are calculated based upon:

- Buy-in to existing excess capacity;
- New capital infrastructure that will serve new development; and
- Professional and planning expenses related to the construction of system improvements that will serve new development.

The costs that cannot be included in the impact fee are as follows:

- Projects that cure system deficiencies for existing users;
- Projects that increase the level of service above that which is currently provided;
- Operations and maintenance costs;
- Costs of facilities funded by grants or other funds that the City does not have to repay;
- Interest costs related to outstanding or future bonds that have been issued to fund non-impact fee eligible projects such as repair and replacement and curing deficiency; and
- Costs of reconstruction of facilities that do not have capacity to serve new growth.

### Utah Code Legal Requirements

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Utah law requires that entities prepare an Impact Fee Analysis (IFA) before enacting an impact fee. Utah law also requires that entities give notice of their intent to prepare and adopt an IFA. This IFA follows all legal requirements as outlined below. The City has retained Zions Public Finance, Inc. (ZPFI) to prepare this Impact Fee Analysis in accordance with legal requirements.

#### Notice of Intent to Prepare Impact Fee Analysis

A local political subdivision must provide written notice of its intent to prepare an IFA before preparing the Plan (Utah Code §11-36a-503). This notice must be posted on the Utah Public Notice website.

### Preparation of Impact Fee Analysis

Utah Code requires that each local political subdivision, before imposing an impact fee, prepare an impact fee analysis. (Utah Code 11-36a-304).

Section 11-36a-304 of the Utah Code outlines the requirements of an impact fee analysis:

- (1) An impact fee analysis shall:
  - (a) identify the anticipated impact on or consumption of any existing capacity of a public facility by the anticipated development activity;
  - (b) identify the anticipated impact on system improvements required by the anticipated development activity to maintain the established level of service for each public facility;
  - (c) demonstrate how the anticipated impacts described in subsections (1)(a) and (b) are reasonably related to the anticipated development activity;
  - (d) estimate the proportionate share of:
    - (i) the costs for existing capacity that will be recouped; and
    - (ii) the costs of impacts on system improvements that are reasonably related to the new development activity; and
  - (e) identify how the impact fee was calculated.
- (2) In analyzing whether or not the proportionate share of the costs of public facilities are reasonably related to the new development activity, the local political subdivision or private entity, as the case may be, shall identify, if applicable:
  - (a) the cost of each existing public facility that has excess capacity to serve the anticipated development resulting from the new development activity;
  - (b) the cost of system improvements for each public facility;
  - (c) other than impact fees, the manner of financing for each public facility, such as user charges, special assessments, bonded indebtedness, general taxes, or federal grants;
  - (d) the relative extent to which development activity will contribute to financing the excess capacity of and system improvements for each existing public facility, by such means as user charges, special assessments, or payment from the proceeds of general taxes;
  - (e) the relative extent to which development activity will contribute to the cost of existing public facilities and system improvements in the future;
  - (f) the extent to which the development activity is entitled to a credit against impact fees because the development activity will dedicate system improvements or public facilities that will offset the demand for system improvements, inside or outside the proposed development;

- (g) extraordinary costs, if any, in servicing the newly-developed properties; and
- (h) the time-price differential inherent in fair comparisons of amounts paid at different times.

Certification of Impact Fee Analysis

Utah Code states that an Impact Fee Analysis shall include a written certification from the person or entity that prepares the Impact Fee Analysis. This certification is included at the conclusion of this analysis.

## CHAPTER 2: IMPACT FROM GROWTH UPON THE CITY’S FACILITIES AND LEVEL OF SERVICE

*Utah Code 11-36a-304(1)(a)*

### Service Area

The service area includes all areas within the Santaquin City’s boundaries.

### Sewer Demands

The table below shows Equivalent Residential Unit (ERU) growth projections as obtained from the City’s IFFP.

TABLE 4: GROWTH IN DEMAND

Year	ERUs
2022	4,745
2023	4,898
2024	5,159
2025	5,430
2026	5,712
2027	6,079
2028	6,464
2029	6,869
2030	7,294
2031	7,739
2032	8,208
<b>Growth in ERUs, 2022-2032</b>	<b>3,463</b>

### Existing and Proposed LOS Analysis

Level of service defines how much of the sewer system a typical residential user, defined as an ERU, will require and can fairly fund through impact fee revenue. LOS is based upon historic observed sewer demands per ERU. Impact fee law prohibits the use of impact fees to increase the LOS above the current demands. At times, a wastewater system may need to increase a LOS to cure an existing deficiency, but projects that fix deficiencies must be paid for by non-impact fee revenues and a credit must be provided to the impact fee payer.

Proposed levels of service are to at least maintain existing service levels as set forth in the IFFP as follows:

- Collection/Transmission  
 Santaquin City has chosen the following LOS: peak hour flow (or “q”) divided by full flow (or “Qfull”) of less than or equal to 85%, which corresponds to a flow depth of about 78%, and the pipe is not surcharged due to downstream capacity deficiencies. That depth is desirable because it provides a degree of protection against surcharging which causes overflows and lateral backups and contributes to odors and hydrogen sulfide generation.

If a pipe is located in an area without basements, then a peak hour flow level of service of up to 95% may be acceptable. For pipes where buildout modeling indicates existing infrastructure will not meet the level of service, but there are no sewer laterals connected to the pipe or expected to connect to the pipe in the future, or the specific situation is not expected to create any operational or maintenance problems, the pipes will be placed on a watch list. As time passes, if it appears the pipes may become an operational or maintenance problem, improvements may be planned.

2. Lift Station Facilities

The sewer lift station LOS related to pump capacity and operation:

- Pumps must have a capacity to pump at least 100% of peak hour flow rate while maintaining a standby pump.
- The lift stations (excluding temporary ones) must have flow metering backup power, variable frequency drive (VFD) motors if beneficial, and SCADA.

3. Treatment

The LOS for treatment is for each component of the Water Reclamation Facility to have capacity to provide at least 100% of peak day or average day flow, as applicable.

4. Storage

The LOS for storage is to maintain sufficient storage capacity to store Type 1 water discharged from the Water Reclamation Facility until it can be pumped into the City’s pressure irrigation system. The storage facilities shall have capacity to provide at least 100% of the total demand during the non-irrigation season. This could be accomplished through above-ground storage ponds or through infiltration for later reuse.

**Excess Capacity**

The City has the right to increase the established LOS in the future by constructing facilities that will provide greater capacity per ERU, but such LOS increases cannot be funded through impact fees. If the proposed LOS is higher than the existing LOS, then a deficiency exists and will be cured through sources of funding other than impact fees.

With growth of 3,463 ERUs over the 10-year time frame of this study (2022-2032), the IFFP identifies \$3,932,129 of costs related to existing, excess capacity in the system that will be consumed by the added capacity demands of new development over the next 10 years.

TABLE 5: EXISTING EXCESS CAPACITY—COLLECTION SYSTEM

Existing Excess Capacity	Impact-Fee Eligible Actual Cost
Transmission/Distribution Lines with Modeled Flow	\$601,356
Transmission/Distribution Lines without Modeled Flow	\$472,652
Wastewater Reclamation Facility	\$2,344,461
Water Storage Pond #2	\$367,121
Public Works Building	\$146,539
<b>TOTAL</b>	<b>\$3,932,129</b>

Source: Santaquin City Sanitary Sewer Impact Fee Facilities Plan, March 2023

## CHAPTER 4: SYSTEM IMPROVEMENTS REQUIRED FROM DEVELOPMENT ACTIVITY

*Utah Code 11-36a-304(1)(b)(c)*

### Future 10-Year Wastewater Capital Projects

The City intends to build the following projects within the impact fee planning horizon to serve the demands of new growth.

**TABLE 6: IMPACT-FEE ELIGIBLE CAPITAL PROJECTS**

	<b>New Construction</b>	<b>Estimated Total Cost</b>	<b>Construction Year</b>	<b>Impact Fee Eligible</b>	<b>Impact-Fee Eligible Cost 10 Year</b>	<b>Construction Year Expense 10 Years</b>
C-01	Install 18" sewer main along Strawberry Canal Road from 400 East to 100 East	\$634,200	2027	\$294,750	\$110,683	\$124,574.69
C-02	Install 10" and 15" pipe along 400 East from 530 North to Strawberry Canal Road and remove pipe on 530 North	\$843,900	2027	\$235,680	\$103,799	\$116,826.69
C-03	Install 8" sewer main from west to 14400 South (county) and Summit Ridge Pkwy	\$1,720,500	2027		\$0	\$0.00
C-04	Install 8" sewer main along Center Street from 100 South to manhole at 70 South	\$50,000	2030	\$50,000	\$19,417	\$23,880.46
T-01	Upgrade Permeate pumps	\$75,000	2024	\$41,269	\$22,709	\$23,390.27
T-02	Process train #3 and new biosolids holding tank - convert train 3 to BNR process and replace solids holding tank and pumps	\$4,221,000	2024	\$3,632,308	\$1,695,117	\$1,745,970.51
T-03	Reclaimed water system add 4th pump	\$245,000	2024	\$210,109	\$161,679	\$166,529.37
T-04	Outfit membrane tank 5 and flow channel	\$2,463,000	2024	\$2,126,662	\$1,375,952	\$1,417,230.56
T-05	Center Street ift station & FM - add third pump and add parallel force main	\$1,589,000	2024	\$1,544,709	\$675,200	\$695,456.00
T-06	Add conveyors and loadout facility for biosolids	\$600,000	2024	\$600,000	\$276,988	\$285,297.64
T-07	Convert backpulse tank and outfit membrane train 6	\$2,496,000	2025	\$2,496,000	\$1,065,406	\$1,130,289.23
T-08	Reclaimed water system add parallel FM	\$2,581,000	2027	\$2,581,000	\$459,969	\$517,699.16
T-09	UV system upgrades - populate first channel	\$479,000	2027	\$415,473	\$191,824	\$215,899.60
T-10	Add grit removal system	\$2,025,000	2027	\$2,025,000	\$526,733	\$592,842.63
T-11	New 1.5 MGD AADF WRF	\$37,500,000	2031	\$37,500,000	\$3,552,426	\$4,500,106.97
S-01	Water storage pond - convert existing treatment lagoons	\$3,675,000	2027	\$3,675,000	\$3,675,000	\$4,136,244.88
S-02	Water storage pond - new water storage near existing	\$31,633,000	2030	\$31,633,000	\$3,813,193	\$4,689,746.41
	<b>TOTAL</b>	<b>\$92,830,600</b>			<b>\$17,726,095</b>	<b>\$20,381,985</b>

*Source: Santaquin City Sanitary Sewer Impact Fee Facilities Plan, March 2023; ZPFI*



The IFFP shows that \$1,101,470 of new project costs are needed to benefit existing users. A credit for this amount has been made later in the calculation of impact fees.

## CHAPTER 5: PROPORTIONATE SHARE ANALYSIS

The Impact Fees Act requires the Impact Fee Analysis to estimate the proportionate share of the future and historic cost of existing system improvements that benefit new growth and can be recouped through impact fees. The impact fee for existing assets must be based on the actual costs while the fees for construction of new facilities must be based on reasonable future costs of the system. This chapter will show that the proposed impact fee for system improvements is reasonably related to the impact on the wastewater system from future development activity.

### Maximum Legal Wastewater Impact Fee per ERU

#### Existing Projects with Excess Capacity

The existing excess capacity to be consumed over the next ten years is \$3,932,129 as shown in detail in Table 5. With projected growth of 3,463 ERUs over the next 10 years, the cost per ERU is \$1,135.47 for buy-in to the existing system.

TABLE 7: PROPORTIONATE SHARE ANALYSIS-EXCESS CAPACITY BUY-IN

Existing Excess Capacity	Amount
Actual Cost to Development 10 Years	\$3,932,129
Growth in ERUs, 2022-2032	3,463
<b>Cost per ERU</b>	<b>\$1,135.47</b>

The City currently has three outstanding sewer bonds, Series 2011A, Series 2011A2, and Series 2011B. Because there is excess capacity in the sewer system, and new development is buying into that excess capacity, it can also be charged for its fair share of interest costs.

TABLE 8: PRINCIPAL AND INTEREST COSTS ON REMAINING BOND PAYMENTS

Summary - 2023 - Expiration	Principal	Interest
Principal 2011A	\$3,087,000	\$150,770
Principal 2011A2	\$2,487,240	\$119,900
Principal 2011B	\$519,000	\$92,480
<b>TOTAL</b>	<b>\$6,093,240</b>	<b>\$363,150</b>

New development is responsible for 52 percent of the remaining interest costs<sup>1</sup> which results in total interest costs of \$54.63 per ERU.

TABLE 9: INTEREST COST ON OUTSTANDING BONDS

Interest Cost	Amount
Total Interest, 2023-2032	\$363,150
% to New Development, 10 Yrs	52%
Amount to New Development, 10 Yrs	\$189,176

<sup>1</sup> Calculated by dividing the cost of the two impact-fee eligible facilities that were paid for by the bond (Wastewater Reclamation Facility at a cost of \$2,344,461; and the Water Storage Pond #2 at a cost of \$367,121,) at a total cost of \$2,711,582 and dividing by the remaining principal payments on the bond (\$6,093,240) less the prior utility fund payment of \$887,965.11.

Interest Cost	Amount
Growth in ERUs, 2022-2032	3,463
<b>Interest Cost per ERU</b>	<b>\$54.63</b>

### New Construction

Table 6 summarizes the cost of future system improvements to be constructed within the next 10 years and what portion of these costs are attributable to 10-year growth. While total costs in Table 6 are shown as \$20,381,985, the City has a fund balance of \$5,864,172<sup>2</sup> that will be used for future construction costs, thereby reducing the new construction costs used in the calculation of impact fees to \$14,517,813.

TABLE 10: PROPORTIONATE SHARE ANALYSIS- NEW CONSTRUCTION

New Construction	
New Construction Costs	\$14,517,813
Growth in ERUs, 2022-2032	3,463
<b>Cost per ERU</b>	<b>\$4,192.26</b>

### Consultant Fees

The Impact Fees Act allows for fees charged to include the reimbursement of engineering and consultant costs incurred in the preparation of the IFFP and IFA.

TABLE 11: PROPORTIONATE SHARE ANALYSIS – CONSULTANT FEES

Description	Amount
Consultant Costs	\$73,050
Growth in ERUs, 2022-2032	3,463
<b>Cost per ERU</b>	<b>\$21.09</b>

### Summary of Gross Impact Fee

The gross impact fee is the impact calculated before credits for the outstanding bonds are taken into account.

TABLE 12: PROPORTIONATE SHARE ANALYSIS- GROSS IMPACT FEE PER ERU

Summary	
Existing Excess Capacity	\$1,135.47
Interest Cost on Existing Capacity	\$54.63
New Construction	\$4,192.26
Consultant Costs	\$21.09
<b>Subtotal Gross Fee per ERU</b>	<b>\$5,403.46</b>

The City has three outstanding sewer bonds and new development cannot be expected to pay a full impact fee and then pay for these same facilities again through outstanding bonds. Impact fees are calculated to

<sup>2</sup> Total fund balance as of March 2023 is \$6,965,642. However, \$1,101,470 of that amount has been collected to pay for the new construction projects that benefit recent existing development.

pay for new development’s share of the outstanding bonds but do not cover the cost attributable to existing development. Because sewer rates will need to cover the portion of the bond attributable to existing development, new development will pay the full impact fee and increased sewer rates unless credits are made. **The average maximum fee from 2023 to 2027 is \$5,096.30 per ERU. While Table 2 shows maximum fees per year, the City has chosen to average fees over the 5-year period from 2023-2027. This results in a maximum fee of \$5,096.30 per ERU.**

TABLE 13: MAXIMUM FEE PER ERU BY YEAR

Credits for Outstanding Bond	TOTAL Bond Payments	Amount to be Credited	ERUs	Payment per ERU	NPV*	Maximum Amt per ERU
2023	\$511,722	\$245,151	4,898	\$50.05	\$368.58	\$5,034.87
2024	\$511,272	\$244,935	5,159	\$47.48	\$336.96	\$5,066.50
2025	\$511,792	\$245,184	5,430	\$45.15	\$306.33	\$5,097.13
2026	\$511,272	\$244,935	5,712	\$42.88	\$276.49	\$5,126.96
2027	\$511,722	\$245,151	6,079	\$40.33	\$247.44	\$5,156.02
2028	\$511,132	\$244,868	6,464	\$37.88	\$219.48	\$5,183.98
2029	\$511,512	\$245,050	6,869	\$35.67	\$192.57	\$5,210.88
2030	\$652,852	\$312,762	7,294	\$42.88	\$166.53	\$5,236.93
2031	\$744,742	\$356,784	7,739	\$46.10	\$131.97	\$5,271.48
2032	\$511,662	\$245,122	8,208	\$29.86	\$92.47	\$5,310.99
2033	\$126,852	\$60,771	8,527	\$7.13	\$67.23	\$5,336.23
2034	\$126,852	\$60,771	8,857	\$6.86	\$63.46	\$5,339.99
2035	\$126,852	\$60,771	9,198	\$6.61	\$59.78	\$5,343.68
2036	\$126,852	\$60,771	9,550	\$6.36	\$56.16	\$5,347.30
2037	\$126,852	\$60,771	9,913	\$6.13	\$52.60	\$5,350.85
2038	\$126,852	\$60,771	10,288	\$5.91	\$49.10	\$5,354.35
2039	\$126,852	\$60,771	10,675	\$5.69	\$45.65	\$5,357.81
2040	\$126,852	\$60,771	11,075	\$5.49	\$42.24	\$5,361.22
2041	\$126,852	\$60,771	11,488	\$5.29	\$38.86	\$5,364.59
2042	\$126,852	\$60,771	11,914	\$5.10	\$35.52	\$5,367.94
2043	\$126,852	\$60,771	12,354	\$4.92	\$32.19	\$5,371.26
2044	\$126,852	\$60,771	12,808	\$4.74	\$28.88	\$5,374.57
2045	\$126,852	\$60,771	13,277	\$4.58	\$25.58	\$5,377.87
2046	\$126,852	\$60,771	13,761	\$4.42	\$22.29	\$5,381.17
2047	\$126,852	\$60,771	14,261	\$4.26	\$18.98	\$5,384.47
2048	\$126,852	\$60,771	14,778	\$4.11	\$15.67	\$5,387.78
2049	\$126,852	\$60,771	15,311	\$3.97	\$12.34	\$5,391.11
2050	\$126,852	\$60,771	15,862	\$3.83	\$8.99	\$5,394.47
2051	\$126,852	\$60,771	16,211	\$3.75	\$5.61	\$5,397.85
2052	\$77,726	\$37,236	16,568	\$2.25	\$2.14	\$5,401.32

Source: NPV = net present value discounted at 5 percent

All single-family and multi-family residential sewer fees will be charged based on one ERU (shown in Table 2 above). All non-residential development will be charged based on the meter sizes shown in Table 3 below.

TABLE 14: MAXIMUM IMPACT FEE PER METER SIZE, 2023-2027

Meter Size	AWWA Ratio	Maximum Fee
3/4"	1.00	\$5,096.30
1"	1.67	\$8,510.81
1 1/2"	3.33	\$16,970.67
2"	5.33	\$27,163.26
3"	10	\$50,962.96
4"	16.67	\$84,955.26
6"	33.33	\$169,859.55
8"	53.33	\$271,785.47

Santaquin City recognizes the need for and is desirous of encouraging affordable housing. Therefore, in conformance with Utah Code, the City will not charge any impact fees on *internal* accessory dwelling units (ADUs). Further, the City will apply a ten percent reduction to *external* ADUs based on one ERU. The calculation for an external ADU is as follows:

$$\$5,096.30 \times (1-0.1) = \$4,586.67$$

**Summary of Fees**

Single-Family and Multi-Family Residential (per ERU)	\$5,096.37
External Accessory Dwelling Unit (ADU)	\$4,586.67
Non-Residential – Based on Meter Size	

**Non-Standard Demand Adjustments**

The City reserves the right under the Impact Fees Act (Utah Code Ann. § 11-36a-402(1)(c, d)) to assess an adjusted fee to respond to unusual circumstances and to ensure that the impact fees are assessed fairly. The impact fee ordinance should include a provision that permits adjustment of the fee for a development based upon studies and data submitted by the developer that indicate a more realistic and accurate impact upon the City’s infrastructure.

## CERTIFICATION

---

Zions Public Finance, Inc. certifies that the attached impact fee analysis:

1. includes only the cost of public facilities that are:
  - a. allowed under the Impact Fees Act; and
  - b. actually incurred; or
  - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
  - a. costs of operation and maintenance of public facilities; or
  - b. cost for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
3. offset costs with grants or other alternate sources of payment; and
4. complies in each and every relevant respect with the Impact Fees Act.

## ORDINANCE 10-02-2023

**AN ORDINANCE RATIFYING APPROVAL OF A PARKS, RECREATION, TRAILS, AND OPEN SPACE MASTER PLAN (“MASTER PLAN”), IMPACT FEE FACILITY PLAN (“IFFP”), AND IMPACT FEE ANALYSIS (“IFA”), PROVIDING FOR CODIFICATION, CORRECTION OF SCRIVENER’S ERRORS, SEVERABILITY, AND AN EFFECTIVE DATE.**

**WHEREAS**, Santaquin City (the “City”) is a political subdivision of the State of Utah, authorized and organized under applicable provisions of Utah law; and

**WHEREAS**, Santaquin has experienced significant growth in the past and anticipates more growth in the future; and

**WHEREAS**, a Master Plan, IFFP, & IFA are necessary for the management of parks, recreation, trails, and open space within the community, and Santaquin anticipates needing to expand its parks, recreation, trails, and open space facilities as future growth occurs; and

**WHEREAS**, the City commissioned Blue Line Designs to prepare a Parks, Recreation, Trails, and Open Space Master Plan, IFFP, & IFA to establish long term plans for management of parks, recreation, trails, and open space in the City.

**WHEREAS**, the Santaquin City Council held a public hearing during their October 3, 2023 meeting, which hearing was preceded by the posting of public notice in at least three public places within the City limits of Santaquin City in accordance with Section 10-9a-205 of the Utah State Code.

**NOW, THEREFORE, BE IT ORDAINED** by the City Council of Santaquin City, State of Utah, as follows:

### **SECTION I. Ratification of Approval and Adoption**

Approval of the attached Master Plan, IFFP, & IFA are hereby ratified and adopted as the official Santaquin City Parks, Recreation, Trails, and Open Space Master Plan, IFFP, and IFA.

### **SECTION II. Codification, Inclusion in the Code, and Scrivener’s Errors**

It is the intent of the City Council that the provisions of this ordinance be made part of the Santaquin City Code as adopted, that sections of this ordinance may be re-numbered or re-lettered, and that the word ordinance may be changed to section, chapter, or other such appropriate word or phrase in order to accomplish such intent regardless of whether such inclusion in a code is accomplished. Typographical errors which do not affect the

intent of this ordinance may be authorized by the City without need of public hearing by its filing a corrected or re-codified copy of the same with the City Recorder.

**SECTION III. Severability**

If any part of this ordinance or the application thereof to any person or circumstances shall, for any reason, be adjudged by a court of competent jurisdiction to be unconstitutional or invalid, such judgment shall not affect, impair or invalidate the remainder of this ordinance or the application thereof to other persons and circumstances, but shall be confined to its operation to the section, subdivision, sentence or part of the section and the persons and circumstances directly involved in the controversy in which such judgment shall have been rendered. It is hereby declared to be the intent of the City Council that this section would have been adopted if such invalid section, provisions, subdivision, sentence or part of a section or application had not been included.

**SECTION IV. Effective Date**

This ordinance shall become effective at 5:00 p.m. on Wednesday, October 4, 2023. Prior to that time, the City Recorder shall deposit a copy of this ordinance in the official records of the City and place a copy of this ordinance in three places within the City.

PASSED AND ADOPTED this 3<sup>rd</sup> day of October 2023

\_\_\_\_\_  
Daniel M. Olson, Mayor

Councilmember Art Adcock	Voted	___
Councilmember Elizabeth Montoya	Voted	___
Councilmember Lynn Mecham	Voted	___
Councilmember Jeff Siddoway	Voted	___
Councilmember David Hathaway	Voted	___

ATTEST:

\_\_\_\_\_  
Amalie R. Ottley, City Recorder



STATE OF UTAH                    )  
  ) ss.  
COUNTY OF UTAH                )

I, AMALIE R. OTTLEY, City Recorder of Santaquin City, Utah, do hereby certify and declare that the above and foregoing is a true, full, and correct copy of an ordinance passed by the City Council of Santaquin City, Utah, on the 3<sup>rd</sup> day of October 2023, entitled

**“AN ORDINANCE RATIFYING APPROVAL OF A PARKS, RECREATION, TRAILS, AND OPEN SPACE MASTER PLAN (“MASTER PLAN”), IMPACT FEE FACILITY PLAN (“IFFP”), AND IMPACT FEE ANALYSIS (“IFA”), PROVIDING FOR CODIFICATION, CORRECTION OF SCRIVENER’S ERRORS, SEVERABILITY, AND AN EFFECTIVE DATE.”**

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Corporate Seal of Santaquin City Utah this 3<sup>rd</sup> day of October 2023.

\_\_\_\_\_  
Amalie R. Ottley  
Santaquin City Recorder

(SEAL)

AFFIDAVIT OF POSTING

STATE OF UTAH )  
 ) ss.  
COUNTY OF UTAH )

I, Amalie R. Ottley, City Recorder of Santaquin City, Utah, do hereby certify and declare that prior to the ordinance taking effect, I posted a short summary of the ordinance on the Utah Public Notice Website as required by Utah State Code 10-3-711(1)(b) as a Class A Notice.

I further certify that copies of the ordinance were posted online at [www.santaquin.org](http://www.santaquin.org), in three physical locations (Santaquin City Hall, Zions Bank, Santaquin Post Office), and on the State of Utah's Public Notice Website, <https://www.utah.gov/pmn/index.html>. A copy of the notice may also be requested by calling (801)754-1904.

\_\_\_\_\_  
Amalie R. Ottley  
Santaquin City Recorder

The foregoing instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_, by AMALIE R.OTTLEY.

My Commission Expires:

\_\_\_\_\_  
Notary Public

Residing at Utah County



# Santaquin City

## Parks, Recreation, Trails and Open Space Impact Fee Facilities Plan

July 18, 2023



ZIONS PUBLIC FINANCE, INC.

Item # 9.



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## Summary

### Background

Santaquin City (“City”) is experiencing increased demand on its parks, trails and recreation facilities from the residential growth that is rapidly occurring in the City. In order to maintain service levels, the City is updating its current Parks, Recreation, Trails and Open Space Impact Fees Master Plan to reflect current growth conditions, service levels and growth-related facility needs.

The City has determined that there is one service area citywide and that there is no excess capacity in any of the City’s parks, recreation, trails and open space facilities. Only residential development is considered to create demand for parks, recreation, trails and open space facilities and therefore only residential growth has been considered in the determination of impact fees.

Projections for population growth in the City are as follows:

TABLE 1: PROJECTED POPULATION GROWTH, 2023-2030

Year	Population
2023	17,253
2030	21,218
Population Growth, 2023-2030	<b>3,966</b>

*Source: Santaquin City; ZPFI*

### Identify the Existing and Proposed Levels of Service and Excess Capacity

*Utah Code 11-36a-302(1)(a)(i)(ii)(iii)*

The IFFP considers only *system* facilities in the calculation of impact fees. For the City, this has been determined to mean neighborhood and community parks and trail systems. Pocket parks are considered *project* improvements and have not been included in the calculation of impact fees.

Existing service levels are based on the current (2023) levels of service in the City for parks and trails. Existing and proposed service levels are shown in the table below. Proposed service levels are to *at least* maintain existing service levels.

TABLE 2: EXISTING AND PROPOSED SERVICE LEVELS

	Existing	Proposed	Excess Capacity
Parks - impact fee eligible land acres per 1,000 population	2.03	2.03	0
Parks - open space acres per 1000 population	6.96	6.96	0
Parks - impact fee eligible improvement acres per 1,000 population	8.97	8.97	0
Trails - asphalt linear feet (lf) per capita	1.50	1.50	0
Trails - concrete linear feet (lf) per capita	0.25	0.25	0

The City intends to at least maintain current service levels for parks and trails. Any increased service levels will be funded through means other than impact fees.

### Identify Demands Placed Upon Existing Public Facilities by New Development Activity at the Proposed Level of Service

*Utah Code 11-36a-302(1)(a)(iv)*

The table below shows the declining service levels that would occur in the City, due to population growth, if no new facilities are added. Each of these declining service levels is discussed in more detail in the body of this report.

**TABLE 3: IMPACTS TO SERVICE LEVELS DUE TO NEW DEVELOPMENT IF NO IMPROVEMENTS ARE MADE**

	<b>2023</b>	<b>2030 LOS</b>
Parks – land acres per 1000 population	2.03	1.65
Parks - open space per 1000 population	6.96	5.66
Parks - improvement acres per 1000 population	8.97	7.30
Trails – asphalt lf per capita	1.50	1.22
Trails – concrete lf per capita	0.25	0.20

### Identify How the Growth Demands Will Be Met

*Utah Code 11-36a-302(1)(a)(v)*

In order to maintain the existing level of service for parks and trails facilities, the City will need to spend over \$7 million by 2030.

**TABLE 4: NEW FACILITIES NEEDED TO MEET THE DEMANDS OF NEW GROWTH, 2023-2030**

<b>Facilities</b>	<b>Amount</b>
Parks	\$6,179,746
Trails - asphalt and concrete	\$851,377
<b>TOTAL</b>	<b>\$7,031,123</b>

### Consideration of Revenue Sources to Finance Impacts on System Improvements

*Utah Code 11-36a-302(2)*

This Impact Fee Facilities Plan includes a thorough discussion of all potential revenues sources for parks, recreation, trails and open space improvements. These revenue sources include grants, bonds, interfund loans, transfers from the General Fund, impact fees and anticipated or accepted dedications of system improvements.

## Utah Code Legal Requirements

Utah law requires that communities prepare an Impact Fee Facilities Plan (IFFP) before preparing an Impact Fee Analysis (IFA) and enacting an impact fee. Utah law also requires that communities give notice of their intent to prepare and adopt an IFFP. This IFFP follows all legal requirements as outlined below. The City has retained Zions Public Finance, Inc. (ZPFI) to prepare this Impact Fee Facilities Plan in accordance with legal requirements.

### *Notice of Intent to Prepare Impact Fee Facilities Plan*

A local political subdivision must provide written notice of its intent to prepare an IFFP before preparing the Plan (Utah Code §11-36a-501). This notice must be posted on the Utah Public Notice website. The City has complied with this noticing requirement for the IFFP by posting notice.

### *Preparation of Impact Fee Facilities Plan*

Utah Code requires that each local political subdivision, before imposing an impact fee, prepare an impact fee facilities plan. (Utah Code 11-36a-301).

Section 11-36a-302(a) of the Utah Code outlines the requirements of an impact fee facilities plan which is required to identify the following:

- (i) identify the existing level of service;
- (ii) establish a proposed level of service;
- (iii) identify any excess capacity to accommodate future growth at the proposed level of service;
- (iv) identify demands placed upon existing facilities by new development activity at the proposed level of service; and
- (v) identify the means by which the political subdivision or private entity will meet those growth demands.

Further, the proposed level of service may:

- (i) exceed the existing level of service if, independent of the use of impact fees, the political subdivision or private entity provides, implements, and maintains the means to increase the existing level of service for existing demand within six years of the date on which new growth is charged for the proposed level of service; or
- (ii) establish a new public facility if, independent of the use of impact fees, the political subdivision or private entity provides, implements, and maintains the means to increase the existing level of service for existing demand within six years of the date on which new growth is charged for the proposed level of service.

In preparing an impact fee facilities plan, each local political subdivision shall generally consider all revenue sources to finance the impacts on system improvements, including:

- (a) grants;
- (b) bonds;
- (c) interfund loans;
- (d) transfers from the General Fund;
- (e) impact fees; and



- (f) anticipated or accepted dedications of system improvements.

*Certification of Impact Fee Facilities Plan*

Utah Code states that an impact fee facilities plan shall include a written certification from the person or entity that prepares the impact fee facilities plan. This certification is included at the conclusion of this analysis.

**Existing Service Levels, Proposed Service Levels and Excess Capacity**

*Utah Code 11-36a-302(1)(a)(i)(ii)(iii)*

**Growth in Demand**

Impacts on parks and trails facilities will come from residential development only. Residential growth is projected as follows:

TABLE 5: HISTORICAL AND PROJECTED POPULATION GROWTH

Year	Population
2023	17,253
2024	17,770
2025	18,303
2026	18,852
2027	19,418
2028	20,000
2029	20,600
2030	21,218
<b>Population Growth, 2023-2030</b>	<b>3,966</b>

*Source: Santaquin City; ZPFI*

**Existing Service Levels**

**Parks**

City parks are shown in the table below. The property for some of these parks was donated to the City, or acquired with grant funds, therefore the property acquisition for some of these parks has not been included in the impact fee eligible LOS.

TABLE 6: IMPACT-FEE ELIGIBLE SYSTEM PARKS

Name	Location	Donated	Size (Acres)
Rodeo Arena	200 South 400 West	No	7.50
City Ball Complex	200 South 400 West	No	5.23
Centennial Park	200 South 400 West	No	6.25
City Center Park	200 South Center Street	No	3.50
Eastside Park	400 North Cherry Lane	Improvement and land dedicated with Eastside Estates Subdivision	3.00



Name	Location	Donated	Size (Acres)
Orchard Hills (Santaquin Meadows)	268 East 610 South	Property dedicated with Santaquin Meadows Subdivision	3.81
Orchard Cove Park	300 West Royal Land Drive	Property dedicated with Orchard Cove Subdivision	3.19
Sunset Trails Park	750 Summit Ridge Parkway	Property dedicated with Sunset Trails Subdivision	2.79
Theodore Ahlin Park	1200 South 100 West	Property Dedicated as part of Ahlin Property annexation	21.78
City Cemetery	400 South Center Street	No	12.60
Peter Rabbit Springs		Property Dedicated with Oak Summit Subdivision	32.64
Stone Hollow Park	350 South Summit Ridge Parkway	Property dedicated with Stone Hollow Subdivision	12.54
Highline Park	1200 North Center Street	Property Dedicated with Orchards Development	7.98
Harvest View Sports Park	1592 W Summit Ridge Parkway	Property Dedicated with Summit Ridge Annexation	34.98
Highland Drive Linear Park	Foothill Village Blvd and Highland Drive	Property Dedicated with Foothill Village	
Prospector View Trailhead		No	120
Summit Ridge Dog Park		Donated	
<b>Total Impact-Fee Eligible Land Acres</b>			<b>35.08</b>
<b>Total Open Space Acres</b>			<b>120</b>
<b>TOTAL Impact-Fee Eligible Improvement Acres</b>			<b>157.79</b>

Park improvements have been identified for each eligible park as shown in the table below. While the land for many of the parks shown in Table 6 above cannot be included because the land was donated or granted, in most cases the City has paid for the improvements at those parks. Therefore, those improvements can be included in the impact-fee eligible LOS. A summary of improvements is shown in Table 7.

TABLE 7: EXISTING PARK IMPROVEMENTS

Improvement	# of Units	Cost per Unit	Total Cost
Park Acres	35.08	\$350,000	\$12,278,000
Open Space Acres	120.00	\$10,000	\$1,200,000
Mowed Sq Ft.	1,988,374	\$2.25	\$4,473,841
Parking Stalls	533	\$2,000	\$1,066,000
Restrooms	9	\$150,000	\$1,350,000
Dry Restroom (Forest Service/Pit Toilet)	1	\$65,000	\$65,000
Pavilions - Small	6	\$25,000	\$150,000
Pavilions - Medium	2	\$75,000	\$150,000
Pavilions - Large	3	\$150,000	\$450,000
Picnic Tables	30	\$2,000	\$60,000
Playgrounds	5	\$175,000	\$875,000
Skate Park	0		\$0

Improvement	# of Units	Cost per Unit	Total Cost
Tennis Courts	2	\$140,000	\$280,000
Pickleball Courts	8	\$75,000	\$600,000
Basketball Courts	4	\$75,000	\$300,000
Soccer Fields	8	\$5,000	\$40,000
Softball Field	2	\$70,000	\$140,000
Baseball Field, Little League	3	\$75,000	\$225,000
Baseball Field, Standard	1	\$100,000	\$100,000
Splashpad	1	\$125,000	\$125,000
Sand Volleyball	1	\$25,000	\$25,000
Disc Golf Course	1	\$10,000	\$10,000
Cornhole courts	2	\$2,000	\$4,000
Concession Stand	3	\$100,000	\$300,000
Walking Paths linear feet (not counted in trails)	810	\$120	\$97,200
Sports Lighting			\$1,125,000
Recreation Center			\$1,394,162
<b>TOTAL</b>			<b>\$26,883,203</b>

### Trails

The City currently has 25,872 linear feet (lf) of impact-fee eligible asphalt trail miles and 4,279 linear feet of concrete trail miles. The cost for asphalt trails is \$120 per lf; the cost for concrete trails is \$140 per lf.

TABLE 8: EXISTING SYSTEM IMPACT-FEE ELIGIBLE TRAIL IMPROVEMENTS AND COSTS

Trail Cost Breakdown	Linear Feet	Cost per Linear Foot	Total Cost
Asphalt	25,872	\$120.00	\$3,104,640
Concrete	4,279	\$140.00	\$599,032
<b>TOTAL</b>	<b>30,151</b>		<b>\$3,703,672</b>

### Proposed Service Levels

The City has determined that its parks and trails are currently at capacity and that it desires to at least maintain existing service levels in the future, as new development occurs.

The City has recently completed a Parks and Trails Master Plan which identifies the need for future projects as follows:

TABLE 9: FUTURE PLANNED PARKS AND TRAILS

Park #	Name	Type	Acres
17	Cliff Park	Neighborhood	2.60
18	Flood Control Parcels Park	Multi-Use	7.26
19	Foothill Badger Way Park	Neighborhood	1.31
20	Foothill Village Linear Park	Multi-Use	11.59
21	Foothill Village Park	Neighborhood	1.25
22	Grey Cliffs Open Space	Natural Open Space	155.00
23	Highline Park	Neighborhood	7.98

Park #	Name	Type	Acres
24	Juniper Ridge Park	Neighborhood	4.81
25	Nebo School District Park	Community	18.07
26	Peter Rabbit Springs	Natural Open Space	32.65
27	Recreation Center Park	Community	31.33
28	Sage Meadows Park	Neighborhood	2.54
29	Sageberry Drive Park	Neighborhood	3.66
30	Santaquin Estates Debris Basin	Multi-Use	1.58
31	Stone Hollow Park	Community	166.68
32	Summit Creek Reservoir #2	Community	152.28
33	Summit Ridge Open Space	Natural Open Space	26.00
34	Sunset Park	Neighborhood	2.67

Source: Santaquin City Parks and Trails Master Plan

The City has also identified the need to acquire park land as it becomes available in various locations throughout the City.

### Identify Excess Capacity

The City has determined that there is currently no excess capacity in its parks or trails.

## Identify Demands Placed on Existing Public Facilities by New Development Activity at Proposed Level of Service and How Those Demands Will Be Met

Utah Code 11-36a-302(1)(a)(iv)(v)

### Demand Placed on Facilities by New Development Activity

#### Park Land

Existing park land (impact fee eligible) service levels would decline, due to new development activity, from the existing service level of 2.03 impact-fee eligible acres (land) per 1,000 persons to 1.65 per 1,000 persons if no improvements are made.

TABLE 10: PARK LAND IMPACTS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030

Year	Population	LOS with No New Improvements (Acres per 1,000 Persons)
2023	17,253	2.03
2024	17,770	1.97
2025	18,303	1.92
2026	18,852	1.86
2027	19,418	1.81
2028	20,000	1.75
2029	20,600	1.70

2030	21,218	1.65
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**Open Space**

Existing open spaced service levels would decline, due to new development activity, from the existing service level of 6.96 acres per 1,000 persons to 5.66 acres per 1,000 persons if no improvements are made.

**TABLE 11: OPEN SPACE IMPACTS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030**

Open Space	Population	Open Space Acres	Acres per 1,000 Population
2023	17,253	120	6.96
2024	17,770	120	6.75
2025	18,303	120	6.56
2026	18,852	120	6.37
2027	19,418	120	6.18
2028	20,000	120	6.00
2029	20,600	120	5.83
2030	21,218	120	5.66
<b>Growth 2023-2030</b>	<b>3,966</b>		

**Park Improvements**

Existing improved acre service levels would decline, due to new development activity, from the existing service level of 8.97 acres per 1,000 persons to 7.30 acres per 1,000 persons if no improvements are made.

**TABLE 12: PARK IMPROVEMENT IMPACTS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030**

Year	Population	Impact-Fee Eligible Improvement Acres	LOS - Acres per 1,000 Population
2023	17,253	154.79	8.97
2024	17,770	154.79	8.71
2025	18,303	154.79	8.46
2026	18,852	154.79	8.21
2027	19,418	154.79	7.97
2028	20,000	154.79	7.74
2029	20,600	154.79	7.51
2030	21,218	154.79	7.30

**Trails**

The existing level of service of 1.50 asphalt linear feet per capita will decline to 1.22 linear feet per capita if no new improvements are made.

**TABLE 13: ASPHALT TRAIL LINEAR FEET PER CAPITA SERVICE LEVEL IMPACTS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030**

Year	Population	LOS with No New Improvements (lf per capita)
2023	17,253	1.50
2024	17,770	1.46
2025	18,303	1.41
2026	18,852	1.37
2027	19,418	1.33

Year	Population	LOS with No New Improvements (lf per capita)
2028	20,000	1.29
2029	20,600	1.26
2030	21,218	1.22

The existing level of service of 0.25 concrete linear feet per capita will decline to 0.20 linear feet per capita if no new improvements are made.

TABLE 14: CONCRETE TRAIL LINEAR FEET PER CAPITA SERVICE LEVEL IMPACTS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030

Year	Population	LOS with No New Improvements (lf per capita)
2023	17,253	0.25
2024	17,770	0.24
2025	18,303	0.23
2026	18,852	0.23
2027	19,418	0.22
2028	20,000	0.21
2029	20,600	0.21
2030	21,218	0.20

### Identify the Means by Which the Political Subdivision Will Meet the Growth Demands

#### Park Land

In order to maintain current service levels, the City will need to invest over \$2.8 million in park land by 2030.

TABLE 13: PARK FACILITY NEEDS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030

Year	Population	Total Park Acres to Maintain Proposed LOS	Costs
2023	17,253	36.07	\$12,278,000
2024	17,770	37.09	\$12,646,340
2025	18,303	38.14	\$13,025,730
2026	18,852	39.21	\$13,416,502
2027	19,418	40.32	\$13,818,997
2028	20,000	41.46	\$14,233,567
2029	20,600	42.63	\$14,660,574
2030	21,218	43.83	\$15,100,391
<b>Growth 2023-2030</b>	<b>3,966</b>	<b>8.06</b>	<b>\$2,822,391</b>

#### Open Space

In order to maintain current service levels, the City will need to invest over \$275,000 in open space by 2030.

TABLE 14: OPEN SPACE NEEDS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030

Year	Population	Total Open Space Acres to Maintain Proposed LOS	Costs
2023	17,253	120.00	\$1,200,000
2024	17,770	123.60	\$1,236,000
2025	18,303	127.31	\$1,273,080
2026	18,852	131.13	\$1,311,272
2027	19,418	135.06	\$1,350,611
2028	20,000	139.11	\$1,391,129
2029	20,600	143.29	\$1,432,863
2030	21,218	147.58	\$1,475,849
<b>Growth 2023-2030</b>	<b>3,966</b>	<b>27.58</b>	<b>\$275,849</b>

### Park Improvements

In order to maintain current service levels, the City will need to invest nearly \$3.1 million in park improvements by 2030.

TABLE 15: PARK IMPROVEMENT NEEDS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030

Year	Population	Total Acres with Improvements to Maintain Proposed LOS	Costs
2023	17,253	154.79	\$13,405,203
2024	17,770	159.43	\$13,807,359
2025	18,303	164.22	\$14,221,579
2026	18,852	169.14	\$14,648,227
2027	19,418	174.22	\$15,087,674
2028	20,000	179.44	\$15,540,304
2029	20,600	184.83	\$16,006,513
2030	21,218	190.37	\$16,486,708
<b>Growth 2023-2030</b>	<b>3,966</b>	<b>35.58</b>	<b>\$3,081,506</b>

### Trails

In order to maintain current service levels, the City will need to invest an estimated \$851,377 in trail facilities by 2030, including asphalt and concrete trails.

TABLE 16: TRAIL FACILITY NEEDS FROM NEW DEVELOPMENT ACTIVITY, 2022-2030

Year	Population	Asphalt LF to Maintain LOS	Concrete LF to Maintain LOS	Asphalt Costs	Concrete Costs	TOTAL Trail Costs
2023	17,253	25,872	4,279	\$3,104,640	\$599,032	\$3,703,672
2024	17,770	26,648	4,407	\$3,197,779	\$617,003	\$3,814,782

Year	Population	Asphalt LF to Maintain LOS	Concrete LF to Maintain LOS	Asphalt Costs	Concrete Costs	TOTAL Trail Costs
2025	18,303	27,448	4,539	\$3,293,713	\$635,513	\$3,929,226
2026	18,852	28,271	4,676	\$3,392,524	\$654,578	\$4,047,102
2027	19,418	29,119	4,816	\$3,494,300	\$674,216	\$4,168,515
2028	20,000	29,993	4,960	\$3,599,129	\$694,442	\$4,293,571
2029	20,600	30,893	5,109	\$3,707,103	\$715,276	\$4,422,378
2030	21,218	31,819	5,262	\$3,818,316	\$736,734	\$4,555,049
<b>Increase, 2023-2030</b>	<b>3,966</b>	<b>5,947</b>	<b>984</b>	<b>\$713,676</b>	<b>\$137,702</b>	<b>\$851,377</b>

## Consideration of All Revenue Sources

*Utah Code 11-36a-302(2)*

### Grants

The City anticipates that future trail land will be acquired through easements and grants, as it has in the past, and has therefore not included any cost for trail land in the calculation of impact fees. The City is unaware of any potential grant sources for future parks and trails facilities. However, should it be the recipient of any such grants, it will then look at the potential to reduce impact fees.

While the City has been donated some park property in the past, it has no future indication of any gifts that will be received by the City. Further, the City has conservatively excluded any donated properties, or properties acquired through grant funds, from establishing its level of service used in the calculation of impact fees.

### Bonds

The City has no outstanding bonds for parks and trails facilities. While the City could issue bonds in the future in order to fund parks or trail facilities, no bonds are currently being contemplated and therefore no costs associated with bond issuance have been included in the calculation of impact fees.

### Transfer from General Fund

To the extent that the City is able to generate net revenues in its General Fund, it may choose to transfer all or a portion of the net revenues to the City’s capital fund for parks and trails. It is most likely that, if net revenues should be generated, they will be used to increase service levels and not to offset the capital costs associated with new development.

### Impact Fees

Because of the growth anticipated to occur in the City, impact fees are a viable means of allowing new development to pay for the impacts that it places on the existing system. This IFFP is developed in accordance with legal guidelines so that an Impact Fee Analysis for Parks, Recreation, and Trails may be prepared and the City may charge impact fees for Parks, Recreation, and Trails.

### Anticipated or Accepted Dedications of System Improvements

Any item that a developer funds must be included in the IFFP if a credit against impact fees is to be issued and must be agreed upon with the City before construction of the improvements.

## Certification

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Zions Bank Public Finance certifies that the attached impact fee facilities plan:

1. Includes only the costs of public facilities that are:
  - a. allowed under the Impact Fees Act; and
  - b. actually incurred; or
  - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
  
2. Does not include:
  - a. costs of operation and maintenance of public facilities; or
  - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
  
3. Complies in each and every relevant respect with the Impact Fees Act.





# Santaquin City

## Parks, Recreation, Trails and Open Space Impact Fee Analysis July 18, 2023



ZIONS PUBLIC FINANCE, INC.

Item # 9.



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## Summary of Impact Fee Analysis (IFA)

### Background

Santaquin City (“City”) is experiencing increased demand on its parks, trails, recreation and open space facilities from the rapid residential growth that is occurring in the City. In order to maintain service levels, the City has updated its current Parks, Trails, Recreation and Open Space Master Plan and Impact Fees to reflect current growth conditions, service levels and growth-related facility needs.

The City has determined that there is one service area citywide and that there is no excess capacity in any of the City’s parks, trails, recreation and open space facilities. Only residential development is considered to create demand for parks, trails and recreation facilities and therefore only residential growth has been considered in the determination of impact fees. The City has further decided not to include its recreation facilities in the calculation of impact fees.

Population projections are for growth of 3,966 persons by 2030.

TABLE 1: PROJECTED POPULATION GROWTH, 2023-2030

Year	Population
2023	17,253
2030	21,218
Population Growth, 2023-2030	<b>3,966</b>

*Source: Santaquin City; ZPFI*

This IFA is organized based on the legal requirements of Utah Code 11-36a-304.

### Impact on Consumption of Existing Capacity - Utah Code 11-36a-304(1)(a)

The IFFP considers only *system* facilities in the calculation of impact fees. For the City, this has been determined to mean neighborhood and community parks and trail systems. Pocket parks are considered *project* improvements and have not been included in the calculation of impact fees.

### Impact on System Improvements by Anticipated Development Activity - Utah Code 11-36a-304(1)(b)

The table below shows the declining service levels (LOS) that would occur in the City due to population growth if no new facilities are added.

TABLE 2: IMPACTS TO SERVICE LEVELS DUE TO NEW DEVELOPMENT IF NO IMPROVEMENTS ARE MADE

	2023	2030 LOS
Parks – land acres per 1000 population	2.03	1.65
Parks - open space acres per 1000 population	6.96	5.66
Parks - improvement acres per 1000 population	8.97	7.30
Trails – asphalt linear feet per capita	1.50	1.22
Trails – concrete linear feet per capita	0.25	0.20

**Relationship of Anticipated Impacts to Anticipated Development Activity - Utah Code 11-36a-304(1)(c)**

The demand placed on existing public park facilities by new development activity is attributable to population growth. The City has a 2023 population of 17,253 persons and as a result of anticipated development activity will grow to a projected 21,218 persons by 2030 – an increase of 3,966 persons. As growth occurs as a result of increased development activity, more parks and trails are needed to maintain existing service levels.

**Proportionate Share Analysis - Utah Code 11-36a-304(1)(d)(i)(ii)**

**Costs Reasonably Related to New Development Activity**

The cost of new system improvements required to maintain the service levels related to new development activity are based on the costs of system-wide park, open space and trail facilities, as well as the consultant fees for the preparation of the Impact Fee Facilities Plan and the Impact Fee Analysis.

The maximum cost calculated is \$1,411.72 per capita. However, the actual fee charged will be based on the average household size of a residential unit.

TABLE 3: SUMMARY OF MAXIMUM IMPACT FEE CALCULATION – PER CAPITA

Summary of Impact Fees	
Park Land and Improvements	\$1,488.67
Trails - Asphalt	\$179.95
Trails - Concrete	\$34.72
Consultant Cost	\$2.77
Fund Balance - Credit	(\$294.40)
<b>Cost per Capita</b>	<b>\$1,411.72</b>

The per capita cost is then multiplied by the average household size to arrive at the maximum impact fee that can be charged.

TABLE 4: MAXIMUM IMPACT FEE CALCULATION

Residential Unit Type	HH Size	Max Fee
Single-Family	3.89	\$5,491.58
Multi-Family	3.18	\$4,489.26
Overall HH Size	3.78	\$5,336.29

**Manner of Financing - Utah Code 11-36a-304(2)(c)(d)(e)(f)(g)(h)**

An impact fee is a one-time fee that is implemented by a local government on new development to help fund and pay for all or a portion of the costs of public facilities that are needed to serve new development. Additionally, impact fees allow new growth to share in the cost of existing facilities that have excess capacity.

## Impact Fee Credits

The Impact Fees Act requires credits to be paid back to development for future fees that may be paid to fund system improvements found in the IFFP so that new development is not charged twice. No future fees are anticipated and no credits have been made. Further, the City does not have any bonds currently outstanding for parks, open space or trails.

## Utah Code 11-36a

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*Preparation of Impact Fee Analysis.* Utah Code requires that “each local political subdivision... intending to impose an impact fee shall prepare a written analysis (Impact Fee Analysis or IFA) of each impact fee” (Utah Code 11-36a-303). This IFA follows all legal requirements as outlined below. Santaquin City has retained Zions Public Finance, Inc. (ZPFI) to prepare this Impact Fee Analysis in accordance with legal requirements.

Section 11-36a-304 of the Utah Code outlines the requirements of an impact fee analysis which is required to identify the following:

- anticipated impact on or consumption of any existing capacity of a public facility by the anticipated development activity;

- anticipated impact on system improvements required by the anticipated development activity to maintain the established level of service for each public facility;

- how anticipated impacts are reasonably related to the anticipated development activity

- the proportionate share of:

- costs for existing capacity that will be recouped; and

- costs of impacts on system improvement that are reasonably related to the new development activity; and

- how the impact fee was calculated

Further, in analyzing whether or not the proportionate share of the costs of public facilities are reasonably related to the new development activity, the local political subdivision or private entity, as the case may be, shall identify, if applicable:

- the cost of each existing public facility that has excess capacity to serve the anticipated development resulting from the new development activity;

- the cost of system improvements for each public facility;

- other than impact fees, the manner of financing for each public facility such as user charges, special assessments, bonded indebtedness, general taxes, or federal grants;



the relative extent to which development activity will contribute to financing the excess capacity of and system improvements for each existing public facility, by means such as user charges, special assessments, or payment from the proceeds of general taxes;

the relative extent to which development activity will contribute to the cost of existing public facilities and system improvements in the future;

the extent to which the development activity is entitled to a credit against impact fees because the development activity will dedicate system improvements or public facilities that will offset the demand for system improvements, inside or outside the proposed development;

extraordinary costs, if any in servicing the newly developed properties; and

the time-price differential inherent in fair comparisons of amounts paid at different times.

**Calculating Impact Fees.** Utah Code 11-36a-305 states that for purposes of calculating an impact fee, a local political subdivision or private entity may include the following:

construction contract price;

cost of acquiring land, improvements, materials, and fixtures;

cost for planning, surveying, and engineering fees for services provided for and directly related to the construction of the system improvements; and

for a political subdivision, debt service charges if the political subdivision might use impact fees as a revenue stream to pay the principal and interest on bonds, notes or other obligations issued to finance the costs of the system improvements.

Additionally, the Code states that each political subdivision or private entity shall base impact fee amounts on realistic estimates and the assumptions underlying those estimates shall be disclosed in the impact fee analysis.

**Certification of Impact Fee Analysis.** Utah Code 11-36a-306 states that an impact fee analysis shall include a written certification from the person or entity that prepares the impact fee analysis. This certification is included at the conclusion of this analysis.

**Impact Fee Enactment.** Utah Code 11-36a-202 states that a local political subdivision or private entity wishing to impose impact fees shall pass an impact fee enactment in accordance with Section 11-36a-402. Additionally, an impact fee imposed by an impact fee enactment may not exceed the highest fee justified by the impact fee analysts. An impact fee enactment may not take effect until 90 days after the day on which the impact fee enactment is approved.

**Notice of Intent to Prepare Impact Fee Analysis.** A local political subdivision must provide written notice of its intent to prepare an IFA before preparing the Analysis (Utah Code 11-36a-503(1)). This notice must be posted on the Utah Public Notice website. The City has complied with this noticing requirement for the IFA by posting notice.

# Impact Fee Analysis

Utah Code allows cities to include only system-wide parks for the purpose of calculating impact fees. Project-wide parks cannot be used to establish levels of service eligible to be maintained through impact fees. Based on input from the City and the consultants, a system-wide park is defined as a park that serves more than one local development area. System improvements in Santaquin include neighborhood and community parks, open space, and trail systems.

This IFA is organized based on the legal requirements of Utah Code 11-36a-304.

## 1 Impact on Consumption of Existing Capacity

*Utah Code 11-36a-304(1)(a): an impact fee analysis shall identify the anticipated impact on or consumption of any existing capacity of a public facility by the anticipated development activity*

### Demand Placed on Facilities by New Development Activity

#### Park Land

Existing park land (impact fee eligible) service levels would decline, due to new development activity, from the existing service level of 2.03 impact-fee eligible acres (land) per 1,000 persons to 1.65 per 1,000 persons if no improvements are made.

TABLE 5: PARK LAND IMPACTS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030

Year	Population	LOS with No New Improvements (Acres per 1,000 Persons)
2023	17,253	2.03
2024	17,770	1.97
2025	18,303	1.92
2026	18,852	1.86
2027	19,418	1.81
2028	20,000	1.75
2029	20,600	1.70
2030	21,218	1.65

#### Open Space

Existing open spaced service levels would decline, due to new development activity, from the existing service level of 6.96 acres per 1,000 persons to 5.66 acres per 1,000 persons if no improvements are made.

TABLE 6: OPEN SPACE IMPACTS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030

Open Space	Population	Open Space Acres	Acres per 1,000 Population
2023	17,253	120	6.96
2024	17,770	120	6.75

Open Space	Population	Open Space Acres	Acres per 1,000 Population
2025	18,303	120	6.56
2026	18,852	120	6.37
2027	19,418	120	6.18
2028	20,000	120	6.00
2029	20,600	120	5.83
2030	21,218	120	5.66
<b>Growth 2023-2030</b>	<b>3,966</b>		

**Park Improvements**

Existing improved acre service levels would decline, due to new development activity, from the existing service level of 8.97 acres per 1,000 persons to 7.30 acres per 1,000 persons if no improvements are made.

TABLE 7: PARK IMPROVEMENT IMPACTS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030

Year	Population	Impact-Fee Eligible Improvement Acres	LOS - Acres per 1,000 Population
2023	17,253	154.79	8.97
2024	17,770	154.79	8.71
2025	18,303	154.79	8.46
2026	18,852	154.79	8.21
2027	19,418	154.79	7.97
2028	20,000	154.79	7.74
2029	20,600	154.79	7.51
2030	21,218	154.79	7.30

**Trails**

The existing level of service of 1.50 asphalt linear feet per capita will decline to 1.22 linear feet per capita if no new improvements are made.

TABLE 8: ASPHALT TRAIL LINEAR FEET PER CAPITA SERVICE LEVEL IMPACTS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030

Year	Population	LOS with No New Improvements (If per capita)
2023	17,253	1.50
2024	17,770	1.46
2025	18,303	1.41
2026	18,852	1.37
2027	19,418	1.33
2028	20,000	1.29
2029	20,600	1.26
2030	21,218	1.22

The existing level of service of 0.25 concrete linear feet per capita will decline to 0.20 linear feet per capita if no new improvements are made.





TABLE 9: CONCRETE TRAIL LINEAR FEET PER CAPITA SERVICE LEVEL IMPACTS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030

Year	Population	LOS with No New Improvements (lf per capita)
2023	17,253	0.25
2024	17,770	0.24
2025	18,303	0.23
2026	18,852	0.23
2027	19,418	0.22
2028	20,000	0.21
2029	20,600	0.21
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# 2

## Impact on System Improvements by Anticipated Development Activity

*Utah Code 11-36a-304(1)(b): an impact fee analysis shall identify the anticipated impact on system improvements required by the anticipated development activity to maintain the established level of service for each public facility;*

### Park Land

In order to maintain current service levels, the City will need to invest over \$2.8 million in park land by 2030.

TABLE 10: PARK FACILITY NEEDS FROM NEW DEVELOPMENT ACTIVITY, 2023-2030

Year	Population	Total Park Acres to Maintain Proposed LOS	Costs
2023	17,253	36.07	\$12,278,000
2024	17,770	37.09	\$12,646,340
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<b>Growth 2023-2030</b>	<b>3,966</b>	<b>8.06</b>	<b>\$2,822,391</b>

### Open Space

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<b>Growth 2023-2030</b>	<b>3,966</b>	<b>27.58</b>	<b>\$275,849</b>

### Park Improvements

In order to maintain current service levels, the City will need to invest nearly \$3.1 million in park improvements by 2030.

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<b>Growth 2023-2030</b>	<b>3,966</b>	<b>35.58</b>	<b>\$3,081,506</b>

**Trails**

In order to maintain current service levels, the City will need to invest an estimated \$851,377 in trail facilities by 2030, including asphalt and concrete trails.

TABLE 13: TRAIL FACILITY NEEDS FROM NEW DEVELOPMENT ACTIVITY, 2022-2030

Year	Population	Asphalt LF to Maintain LOS	Concrete LF to Maintain LOS	Asphalt Costs	Concrete Costs	TOTAL Trail Costs
2023	17,253	25,872	4,279	\$3,104,640	\$599,032	\$3,703,672
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<b>Increase, 2023-2030</b>	<b>3,966</b>	<b>5,947</b>	<b>984</b>	<b>\$713,676</b>	<b>\$137,702</b>	<b>\$851,377</b>

## Relationship of Anticipated Impacts to Anticipated Development

# 3

### Activity

*Utah Code 11-36a-304(1)(c): an impact fee analysis shall subject to Subsection (2), demonstrate how the anticipated impacts described in Subsections (1)(a) and (b) are reasonably related to the anticipated development activity;*

The demand placed on existing park and trail facilities by new development activity is attributed to population growth. The City has a 2023 population of 17,253 persons and as a result of anticipated development activity will grow to a projected 21,218 persons by 2030 – an increase of 3,966 persons. As growth occurs as a result of increased development activity, more parks and trails are needed to maintain existing service levels.

## Proportionate Share Analysis

# 4

*Utah Code 11-36a-304(1)(d)(i)(ii): an impact fee analysis shall estimate the proportionate share of costs for existing capacity that will be recouped; and the costs of impacts on system improvements that are reasonably related to the new development activity;*

### Costs for Existing Excess Capacity

The City has no parks, open space or trails facilities with excess capacity in 2023.

### Costs Reasonably Related to New Development Activity

The cost of new system improvements required to maintain the existing level of parks and trail services related to new development activity is based on the cost of system-wide park and trail facilities, as well as consultant fees for the preparation of the Impact Fee Facilities Plan and the Impact Fee Analysis.

The cost per capita for maintaining existing service levels for parks and open space is \$1,558.22.

TABLE 14: PER CAPITA COST TO MAINTAIN LOS FOR PARK LAND, OPEN SPACE AND IMPROVEMENTS

Description	Amount
<b>Park Land</b>	
2023 LOS Park Land Acres per 1000	2.033
Cost per Acre Land	\$350,000
Acres Needed, 2023-2030	8.06
Land Investment Required, 2023-2030	\$2,822,391
<b>Park Land Cost per Capita</b>	<b>\$711.66</b>
<b>Park Improvements</b>	
2023 Park Improvement Acres per 1000	8.97
Cost per Acre of Improvements	\$86,603
Improvement Acres Needed, 2023-2030	35.58
Improvement Investment Required, 2023-2030	\$3,081,506
<b>Improvement Cost per Capita</b>	<b>\$777.00</b>
<b>Open Space</b>	
2023 Open Space Acres per 1000	6.96
Cost per Acre	\$10,000
Open Space Acres Needed, 2023-2030	27.58

Description	Amount
Open Space Investment Required, 2023-2030	\$275,849
<b>Open Space Cost per Capita</b>	<b>\$69.56</b>
<b>TOTAL COST PER CAPITA</b>	<b>\$1,558.22</b>

The per capita cost to maintain the existing level of service for trails is \$214.67 for asphalt and concrete trails combined.

TABLE 15: PER CAPITA COST TO MAINTAIN LOS FOR TRAILS

TRAILS	Amount
<b>Asphalt</b>	
Asphalt Trails lf	25,872
2023 LOS - lf per capita	1.50
Cost per lf	\$120.00
Linear feet needed, 2023-2030	5,947
Investment Needed	\$713,676
<b>Cost per capita - Asphalt</b>	<b>\$179.95</b>
<b>Concrete</b>	
Concrete Trails lf	4,279
2023 LOS - lf per capita	0.2480
Cost per lf	\$140.00
Linear feet needed, 2023-2030	983.58
Investment Needed	\$137,702
<b>Cost per capita - Concrete</b>	<b>\$34.72</b>
<b>TOTAL TRAILS</b>	<b>\$214.67</b>

The Impact Fee Facilities Plan and Impact Fee Analysis consultant cost is \$2.77 per capita.

TABLE 16: PER CAPITA CONSULTANT COSTS

Description	Amount
Consultant Costs	\$11,000
Population Growth, 2023-2030	3,966
<b>Cost per Capita</b>	<b>\$2.77</b>

A credit must be made for the impact fee fund balance of nearly \$1.2 million that can be used to offset the costs associated with new development.

TABLE 17: FUND BALANCE CREDIT

Impact Fee Fund Balance	
Fund Balance	\$1,167,549.71
Growth, 2023-2030	3,966
<b>Credit per Capita</b>	<b>(\$294.40)</b>

The total cost is \$1,411.72 per capita.

TABLE 18: COST PER CAPITA

Summary of Impact Fees	
Park Land and Improvements	\$1,488.67
Trails - Asphalt	\$179.95
Trails - Concrete	\$34.72
Consultant Cost	\$2.77
Fund Balance - Credit	(\$294.40)
<b>Cost per Capita</b>	<b>\$1,411.72</b>

The per capita cost is then multiplied by the average household size to arrive at the maximum impact fee that can be charged.

TABLE 19: MAXIMUM ALLOWABLE IMPACT FEE

Residential Unit Type	HH Size	Max Fee
Single-Family	3.89	\$5,491.58
Multi-Family	3.18	\$4,489.26
Overall HH Size	3.78	\$5,336.29

## 5 Manner of Financing

*Utah Code 11-36a-304(2)(c)(d)(e)(f)(g)(h): an impact fee analysis shall identify, if applicable: other than impact fees, the manner of financing for each public facility such as user charges, special assessments, bonded indebtedness, federal taxes, or federal grants;*

An impact fee is a one-time fee that is implemented by a local government on new development to help fund and pay for all or a portion of the costs of public facilities that are needed to serve new development. These fees are usually implemented to help reduce the economic burden on local jurisdictions that are trying to deal with population and commercial growth within the area. As a matter of policy and legislative discretion, a City may choose to have new development pay the full cost of its share of new public facilities if the facilities would not be needed except to service new development. However, local governments may use other sources of revenue to pay for the new facilities required to service new development and use impact fees to recover the cost difference between the total cost and the other sources of revenue. Additionally, impact fees allow new growth to share in the cost of existing facilities that have excess capacity.

At the current time, no other sources of funding other than impact fees have been identified, but to the extent that any are identified and received in the future, then impact fees will be reduced accordingly.

Additional system-wide park land and recreation facility improvements beyond those funded through impact fees that are desired to maintain a higher proposed level of service will be paid for by the community through other revenue sources such as user charges, special assessments, GO bonds, general taxes, etc.

### Impact Fee Credits

The Impact Fees Act requires credits to be paid back to development for future fees that may be paid to fund system improvements found in the IFFP so that new development is not charged twice. Credits may also be paid back to developers who have constructed or directly funded items that are included in the IFFP or donated to the City in lieu of impact fees, including the dedication of land for system improvements. This situation does not apply to developer exactions or improvements required to offset density or as a condition for development. Any item for which a developer receives credit should be included in the IFFP and must be agreed upon with the City before construction begins.

In the situation that a developer chooses to construct facilities found in the IFFP in lieu of impact fees, the arrangement must be made through the developer and the City.

The standard impact fee can also be decreased to respond to unusual circumstances in specific cases in order to ensure that impact fees are imposed fairly. In certain cases, a developer may submit studies and data that clearly show a need for adjustment.

In order to meet the City's moderate income housing objectives, impact fees may be modified for moderate-income housing, although alternate sources of funding for the recreation facilities must be identified. Moderate income housing objectives are required by the State of Utah.

### Certification

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Zions Public Finance, Inc. certifies that the attached impact fee analysis:

1. includes only the costs of public facilities that are:
  - a. allowed under the Impact Fees Act; and
  - b. actually incurred; or
  - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
  - a. costs of operation and maintenance of public facilities; or
  - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
3. offsets costs with grants or other alternate sources of payment; and
4. complies in each and every relevant respect with the Impact Fees Act.



## RESOLUTION 10-01-2021

### A RESOLUTION AUTHORIZING THE ACQUISITION OF REAL PROPERTY LOCATED AT 188 S. CENTER STREET SANTAQUIN IN SUPPORT OF FUTURE SANTAQUIN CITY PARKS

**WHEREAS**, Santaquin City has plans to improve future park property south of the City's Museum and new City Hall; and

**WHEREAS**, The City Council has determined that it may be in the best interest of Santaquin City to negotiate for the acquisition of the adjacent property to the southeast of the City's Museum and new City Hall to provide additional acreage for the new parks facility which would allow for an additional community gathering (park) space; and

**WHEREAS**, Santaquin City Staff, at the direction of its Council, successfully negotiated the proposed purchase of certain property from the property owners (Mr. Dennis H & Roxanne B Lamb - Owners of 188 South Center Street – Utah County Parcel ID 09:065:0011 – 0.208419 acres of property) under certain terms which were agreeable to both parties per the attached State of Utah Real Estate Purchase Contract and Addendum Number 1;

**NOW THEREFORE**, be it resolved by the City Council of Santaquin City, that:

Section 1. The purchase of 0.208419 acres of property (188 South Center Street, Utah County Parcel ID No. 09:065:0011) for three hundred ninety thousand dollars (\$390,000.00) pursuant to the terms and conditions of the attached Real Estate Purchase Contract and Addendum Number 1 is approved and authorized.

Section 2. The Mayor is authorized to execute said Real Estate Purchase Contract and Addendum Number 1 and those documents necessary to finalize the purchase of said property.

Approved and adopted this 3rd day of October, 2023.

---

Daniel M. Olson, Santaquin City Mayor

Attest:

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Amalie R. Ottley, Santaquin City Recorder

Councilmember Art Adcock	Voted	___
Councilmember Elizabeth Montoya	Voted	___
Councilmember Lynn Mecham	Voted	___
Councilmember Jeff Siddoway	Voted	___
Councilmember David Hathaway	Voted	___

# REAL ESTATE PURCHASE CONTRACT

This is a legally binding Real Estate Purchase Contract ("REPC"). Utah law requires real estate licensees to use this form. Buyer and Seller, however, may agree to alter or delete its provisions or to use a different form. If you desire legal or tax advice, consult your attorney or tax advisor.

## EARNEST MONEY DEPOSIT

On this 30th day of September, 2023 ("Offer Reference Date") Santaquin City Corporation ("Buyer") offers to purchase from Dennis H & Roxanne B Lamb ("Seller") the Property described below and **agrees to deliver no later than four (4) calendar days after Acceptance (as defined in Section 23)**, an Earnest Money Deposit in the amount of \$5,000.00 in the form of a cashiers check. After Acceptance of the REPC by Buyer and Seller, and receipt of the Earnest Money by the Brokerage, the Brokerage shall have four (4) calendar days in which to deposit the Earnest Money into the Brokerage Real Estate Trust Account.

## OFFER TO PURCHASE

1. **PROPERTY:** Approximately 0.208419 acres of land located at 188 South Center Street

City of Santaquin, County of Utah, State of Utah, Zip 84655 Tax ID No. 09:065:0011 (the "Property"). Any reference below to the term "Property" shall include the Property described above, together with the Included Items and water rights/water shares, if any, referenced in Sections 1.1, 1.2 and 1.4.

1.1 **Included Items.** Unless excluded herein, this sale includes the following items if presently owned and in place on the Property: plumbing, heating, air conditioning fixtures and equipment; solar panels; ovens, ranges and hoods; cook tops; dishwashers; ceiling fans; water heaters; water softeners; light fixtures and bulbs; bathroom fixtures and bathroom mirrors; all window coverings including curtains, draperies, rods, window blinds and shutters; window and door screens; storm doors and windows; awnings; satellite dishes; all installed TV mounting brackets; all wall and ceiling mounted speakers; affixed carpets; automatic garage door openers and accompanying transmitters; security system; fencing and any landscaping.

1.2 **Other Included Items.** The following items that are presently owned and in place on the Property have been left for the convenience of the parties and are also included in this sale (check applicable box):  washers  dryers  refrigerators  microwave ovens  other (specify) \_\_\_\_\_

The above checked items shall be conveyed to Buyer under separate bill of sale with warranties as to title. In addition to any boxes checked in this Section 1.2 above, there  ARE  ARE NOT additional items of personal property Buyer intends to acquire from Seller at Closing by separate written agreement.

1.3 **Excluded Items.** The following items are excluded from this sale: Refrigerator, TV Mounting Rack, Redsg Drapes in Family Room, Living Room, Master Bedroom

1.4 **Water Service.** The Purchase Price for the Property shall include all water rights/water shares, if any, that are the legal source for Seller's current culinary water service and irrigation water service, if any, to the Property. The water rights/water shares will be conveyed or otherwise transferred to Buyer at Closing by applicable deed or legal instruments. The following water rights/water shares, if applicable, are specifically excluded from this sale: \_\_\_\_\_

## 2. PURCHASE PRICE.

2.1 **Payment of Purchase Price.** The Purchase Price for the Property is \$ 390,000.00. Except as provided in this Section, the Purchase Price shall be paid as provided in Sections 2.1(a) through 2.1(e) below. Any amounts shown in Sections 2.1(c) and 2.1(e) may be adjusted as deemed necessary by Buyer and the Lender (the "Lender").

- \$ 5,000.00 (a) **Earnest Money Deposit.** Under certain conditions described in the REPC, this deposit may become totally non-refundable.
- \$ \_\_\_\_\_ (b) **Additional Earnest Money Deposit** (see Section 8.4 if applicable)
- \$ \_\_\_\_\_ (c) **New Loan.** Buyer may apply for mortgage loan financing (the "Loan") on terms acceptable to Buyer: If an FHAVA loan applies, see attached FHAVA Loan Addendum.
- \$ \_\_\_\_\_ (d) **Seller Financing** (see attached Seller Financing Addendum)
- \$ 385,000.00 (e) **Balance of Purchase Price in Cash at Settlement**
- \$ 390,000.00 **PURCHASE PRICE. Total of lines (a) through (e)**

2.2 **Sale of Buyer's Property.** Buyer's ability to purchase the Property, to obtain the Loan referenced in Section 2.1(c) above, and/or any portion of the cash referenced in Section 2.1(e) above [] IS [] IS NOT conditioned upon the sale of real estate owned by Buyer. If checked in the affirmative, the terms of the attached subject to sale of Buyer's property addendum apply.

## 3. SETTLEMENT AND CLOSING.

3.1 **Settlement.** Settlement shall take place no later than the Settlement Deadline referenced in Section 24(d), or as otherwise mutually agreed by Buyer and Seller in writing. "Settlement" shall occur only when all of the following have been completed: (a) Buyer and Seller have signed

Page 1 of 6 pages Buyer's Initials DML Date 9/30/23 Seller's Initials DLZ Date 9/30/23  
RJ 9/30/23

Item # 10.



and delivered to each other or to the escrow/closing office all documents required by the REPC, by the Lender, by the title insurance and escrow/closing offices, by written escrow instructions (including any split closing instructions, if applicable), or by applicable law; (b) any monies required to be paid by Buyer or Seller under these documents (except for the proceeds of any Loan) have been delivered by Buyer or Seller to the other party, or to the escrow/closing office, in the form of cash, wire transfer, cashier's check, or other form acceptable to the escrow/closing office.

**3.2 Closing.** For purposes of the REPC, "Closing" means that: (a) Settlement has been completed; (b) the proceeds of any new Loan have been delivered by the Lender to Seller or to the escrow/closing office; and (c) the applicable Closing documents have been recorded in the office of the county recorder ("Recording"). The actions described in 3.2 (b) and (c) shall be completed no later than four calendar days after Settlement.

**3.3 Possession.** Except as provided in Section 6.1(a) and (b), Seller shall deliver physical possession of the Property to Buyer as follows:  Upon Recording;  \_\_\_\_\_ Hours after Recording;  **31 Calendar Days after Recording.** Any contracted rental of the Property prior to or after Closing, between Buyer and Seller, shall be by separate written agreement. Seller and Buyer shall each be responsible for any insurance coverage each party deems necessary for the Property including any personal property and belongings. The provisions of this Section 3.3 shall survive Closing.

**4. PRORATIONS / ASSESSMENTS / OTHER PAYMENT OBLIGATIONS.**

**4.1 Prorations.** All prorations, including, but not limited to, homeowner's association dues, property taxes for the current year, rents, and interest on assumed obligations, if any, shall be made as of the Settlement Deadline referenced in Section 24(d), unless otherwise agreed to in writing by the parties. Such writing could include the settlement statement. The provisions of this Section 4.1 shall survive Closing.

**4.2 Special Assessments.** Any assessments for capital improvements as approved by the homeowner's association ("HOA") (pursuant to HOA governing documents) or as assessed by a municipality or special improvement district, prior to the Settlement Deadline shall be paid for by:  Seller  Buyer  Split Equally Between Buyer and Seller  Other (explain) \_\_\_\_\_  
The provisions of this Section 4.2 shall survive Closing.

**4.3 Fees/Costs/Payment Obligations.**

**(a) Escrow Fees.** Unless otherwise agreed to in writing, Seller and Buyer shall each pay their respective fees charged by the escrow/closing office for its services in the settlement/closing process. The provisions of this Section 4.3(a) shall survive Closing.

**(b) Rental Deposits/Prepaid Rents.** Rental deposits (including, but not limited to, security deposits, cleaning deposits and prepaid rents) for long term lease or rental agreements, as defined in Section 6.1(a), and short-term rental bookings, as defined in Section 6.1(b), not expiring prior to Closing, shall be paid or credited by Seller to Buyer at Settlement. The provisions of this Section 4.3(b) shall survive Closing.

**(c) HOA/Other Entity Fees Due Upon Change of Ownership.** Some HOA's, special improvement districts and/or other specially planned areas, under their governing documents charge a fee that is due to such entity as a result of the transfer of title to the Property from Seller to Buyer. Such fees are sometimes referred to as transfer fees, community enhancement fees, HOA reinvestment fees, etc. (collectively referred to in this section as "change of ownership fees"). Regardless of how the change of ownership fee is titled in the applicable governing documents, if a change of ownership fee is due upon the transfer of title to the Property from Seller to Buyer, that change of ownership fee shall, at Settlement, be paid for by:  Seller  Buyer  Split Equally Between Buyer and Seller  Other (explain) \_\_\_\_\_  
The provisions of this Section 4.3(c) shall survive Closing.

**(d) Utility Services.** Buyer agrees to be responsible for all utilities and other services provided to the Property after the Settlement Deadline. The provisions of this Section 4.3(d) shall survive Closing.

**(e) Sales Proceeds Withholding.** The escrow/closing office is authorized and directed to withhold from Seller's proceeds at Closing, sufficient funds to pay off on Seller's behalf all mortgages, trust deeds, judgments, mechanic's liens, tax liens and warrants. The provisions of this Section 4.3(e) shall survive Closing.

**5. CONFIRMATION OF AGENCY DISCLOSURE.** Buyer and Seller acknowledge prior written receipt of agency disclosure provided by their respective agent that has disclosed the agency relationships confirmed below. At the signing of the REPC:

Seller's Agent(s) N/A, represent(s)  Seller  both Buyer and Seller as Limited Agent(s);

Seller's Agent(s) Utah Real Estate License Number(s): N/A

Seller's Brokerage N/A, represents  Seller  both Buyer and Seller as Limited Agent;

Seller's Brokerage Utah Real Estate License Number: N/A

Buyer's Agent(s) N/A, represent(s)  Buyer  both Buyer and Seller as Limited Agent(s);

Buyer's Agent(s) Utah Real Estate License Number(s): N/A

Buyer's Brokerage N/A, represents  Buyer  both Buyer and Seller as a Limited Agent.

Buyer's Brokerage Utah Real Estate License Number: N/A

**6. TITLE & TITLE INSURANCE.**

**6.1 Title to Property.** Seller represents that Seller has fee title to the Property and will convey marketable title to the Property to Buyer at Closing by general warranty deed. Buyer does agree to accept title to the Property subject to the contents of the Commitment for Title Insurance (the "Commitment") provided by Seller under Section 7, and as reviewed and approved by Buyer under Section 8.

**(a) Long-Term Lease or Rental Agreements.** Buyer agrees to accept title to the Property subject to any long-term tenant lease or rental agreements (meaning for periods of thirty (30) or more consecutive days) affecting the Property not expiring prior to Closing. Buyer also agrees to accept title to the Property subject to any existing rental and property management agreements affecting the Property not expiring prior to Closing.

*WHL*

*9/30/23*

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*9/30/23  
9/30/23*



The provisions of this Section 6.1(a) shall survive Closing.

**(b) Short-Term Rental Bookings.** Buyer agrees to accept title to the Property subject to any short-term rental bookings (meaning for periods of less than thirty (30) consecutive days) affecting the Property not expiring prior to Closing. The provisions of this Section 6.1(b) shall survive Closing.

**6.2 Title Insurance.** At Settlement, Seller agrees to pay for and cause to be issued in favor of Buyer, through the title insurance agency that issued the Commitment (the "Issuing Agent"), the most current version of the *ALTA Homeowner's Policy of Title Insurance* (the "*Homeowner's Policy*"). If the *Homeowner's Policy* is not available through the Issuing Agent, Buyer and Seller further agree as follows: (a) Seller agrees to pay for the *Homeowner's Policy* if available through any other title insurance agency selected by Buyer; (b) if the *Homeowner's Policy* is not available either through the Issuing Agent or any other title insurance agency, then Seller agrees to pay for, and Buyer agrees to accept, the most current available version of an *ALTA Owner's Policy of Title Insurance* ("*Owner's Policy*") available through the Issuing Agent.

**7. SELLER DISCLOSURES.** No later than the Seller Disclosure Deadline referenced in Section 24(a), Seller shall provide to Buyer the following documents in hard copy or electronic format which are collectively referred to as the "Seller Disclosures":

- (a) a written Seller property condition disclosure for the Property, completed, signed and dated by Seller as provided in Section 10.3;
- (b) a *Lead-Based Paint Disclosure & Acknowledgement* for the Property, completed, signed and dated by Seller (only if the Property was built prior to 1978);
- (c) a Commitment for Title Insurance as referenced in Section 6.1;
- (d) a copy of any restrictive covenants (CC&R's), rules and regulations affecting the Property;
- (e) a copy of the most recent minutes, budget and financial statement for the homeowners' association, if any;
- (f) a copy of any long-term tenant lease or rental agreements affecting the Property not expiring prior to Closing;
- (g) a copy of any short-term rental booking schedule (as of the Seller Disclosure Deadline) for guest use of the Property after Closing;
- (h) a copy of any existing property management agreements affecting the Property;
- (i) evidence of any water rights and/or water shares referenced in Section 1.4;
- (j) written notice of any claims and/or conditions known to Seller relating to environmental problems and building or zoning code violations;
- (k) In general, the sale or other disposition of a U.S. real property interest by a foreign person is subject to income tax withholding under the *Foreign Investment in Real Property Tax Act of 1980* (FIRPTA). A "foreign person" includes a non-resident alien individual, foreign corporation, partnership, trust or estate. If FIRPTA applies to Seller, Seller is advised that Buyer or other qualified substitute may be legally required to withhold this tax at Closing. In order to avoid closing delays, if Seller is a foreign person under FIRPTA, Seller shall advise Buyer in writing; and
- (l) Other (specify) \_\_\_\_\_

**8. BUYER'S CONDITIONS OF PURCHASE.**

**8.1 DUE DILIGENCE CONDITION.** Buyer's obligation to purchase the Property:  IS  IS NOT conditioned upon Buyer's Due Diligence as defined in this Section 8.1(a) below. This condition is referred to as the "Due Diligence Condition." If checked in the affirmative, Sections 8.1(a) through 8.1(c) apply; otherwise they do not.

**(a) Due Diligence Items.** Buyer's Due Diligence shall consist of Buyer's review and approval of the contents of the Seller Disclosures referenced in Section 7, and any other tests, evaluations and verifications of the Property deemed necessary or appropriate by Buyer, such as: the physical condition of the Property; the existence of any hazardous substances, environmental issues or geologic conditions; the square footage or acreage of the land and/or improvements; the condition of the roof, walls, and foundation; the condition of the plumbing, electrical, mechanical, heating and air conditioning systems and fixtures; the condition of all appliances; the costs and availability of homeowners' insurance and flood insurance, if applicable; water source, availability and quality; the location of property lines; regulatory use restrictions or violations; fees for services such as HOA dues, municipal services, and utility costs; convicted sex offenders residing in proximity to the Property; and any other matters deemed material to Buyer in making a decision to purchase the Property. Unless otherwise provided in the REPC, all of Buyer's Due Diligence shall be paid for by Buyer and shall be conducted by individuals or entities of Buyer's choice. Seller agrees to cooperate with Buyer's Due Diligence. Buyer agrees to pay for any damage to the Property resulting from any such inspections or tests during the Due Diligence.

**(b) Buyer's Right to Cancel or Resolve Objections.** If Buyer determines, in Buyer's sole discretion, that the results of the Due Diligence are unacceptable, Buyer may either: (i) no later than the Due Diligence Deadline referenced in Section 24(b), cancel the REPC by providing written notice to Seller, whereupon the Earnest Money Deposit shall be released to Buyer without the requirement of further written authorization from Seller; or (ii) no later than the Due Diligence Deadline referenced in Section 24(b), resolve in writing with Seller any objections Buyer has arising from Buyer's Due Diligence.

**(c) Failure to Cancel or Resolve Objections.** If Buyer fails to cancel the REPC or fails to resolve in writing with Seller any objections Buyer has arising from Buyer's Due Diligence, as provided in Section 8.1(b), Buyer shall be deemed to have waived the Due Diligence Condition, and except as provided in Sections 8.2(a) and 8.3(b)(i), the Earnest Money Deposit shall become non-refundable.

**8.2 APPRAISAL CONDITION.** Buyer's obligation to purchase the Property  IS  IS NOT conditioned upon the Property appraising for not less than the Purchase Price. This condition is referred to as the "Appraisal Condition." If checked in the affirmative, Sections 8.2(a) and 8.2(b) apply; otherwise they do not.

**(a) Buyer's Right to Cancel.** If after completion of an appraisal by a licensed appraiser, Buyer receives written notice from the Lender or the appraiser that the Property has appraised for less than the Purchase Price (a "Notice of Appraised Value"), Buyer may cancel the REPC by providing written notice to Seller (with a copy of the Notice of Appraised Value) no later than the Financing & Appraisal Deadline referenced in Section 24(c); whereupon the Earnest Money Deposit shall be released to Buyer without the requirement of further written authorization from Seller.

**(b) Failure to Cancel.** If the REPC is not cancelled as provided in this section 8.2, Buyer shall be deemed to have waived the Appraisal

Page 3 of 6 pages    Buyer's Initials WJL    Date 9/30/23    Seller's Initials JHL    Date 9/30/23  
RLB    9/30/23



Condition, and except as provided in Sections 8.1(b) and 8.3(b)(i), the Earnest Money Deposit shall become non-refundable.

**8.3 FINANCING CONDITION. (Check Applicable Box)**

(a)  **No Financing Required.** Buyer's obligation to purchase the Property **IS NOT** conditioned upon Buyer obtaining financing. If checked, Section 8.3(b) below does NOT apply.

(b)  **Financing Required.** Buyer's obligation to purchase the Property **IS** conditioned upon Buyer obtaining the Loan referenced in Section 2.1(c). This Condition is referred to as the "Financing Condition." If checked, Sections 8.3(b)(i), (ii) and (iii) apply; otherwise they do not. If the REPC is not cancelled by Buyer as provided in Sections 8.1(b) or 8.2(a), then Buyer agrees to work diligently and in good faith to obtain the Loan.

(i) **Buyer's Right to Cancel Before the Financing & Appraisal Deadline.** If Buyer, in Buyer's sole discretion, is not satisfied with the terms and conditions of the Loan, Buyer may, after the Due Diligence Deadline referenced in Section 24(b), if applicable, cancel the REPC by providing written notice to Seller no later than the Financing & Appraisal Deadline referenced in Section 24(c); whereupon \$5,000.00 of Buyer's Earnest Money Deposit shall be released to Seller without the requirement of further written authorization from Buyer, and the remainder of Buyer's Earnest Money Deposit shall be released to Buyer without further written authorization from Seller.

(ii) **Buyer's Right to Cancel After the Financing & Appraisal Deadline.** If after expiration of the Financing & Appraisal Deadline referenced in Section 24(c), Buyer fails to obtain the Loan, meaning that the proceeds of the Loan have not been delivered by the Lender to the escrow/closing office as required under Section 3.2, then Buyer shall not be obligated to purchase the Property and Buyer or Seller may cancel the REPC by providing written notice to the other party.

(iii) **Earnest Money Deposit(s) Released to Seller.** If the REPC is cancelled as provided in Section 8.3(b)(ii), Buyer agrees that all of Buyer's Earnest Money Deposit, or Deposits, if applicable (see Section 8.4 below), shall be released to Seller without the requirement of further written authorization from Buyer. Seller agrees to accept, as Seller's exclusive remedy, the Earnest Money Deposit, or Deposits, if applicable, as liquidated damages. Buyer and Seller agree that liquidated damages would be difficult and impractical to calculate, and the Earnest Money Deposit, or Deposits, if applicable, is a fair and reasonable estimate of Seller's damages in the event Buyer fails to obtain the Loan.

**8.4 ADDITIONAL EARNEST MONEY DEPOSIT.** If the REPC has not been previously canceled by Buyer as provided in Sections 8.1, 8.2 or 8.3, as applicable, then no later than the Due Diligence Deadline, or the Financing & Appraisal Deadline, whichever is later, Buyer:  **WILL**  **WILL NOT** deliver to the Buyer's Brokerage, an Additional Earnest Money Deposit in the amount of \$ N/A. The Earnest Money Deposit and the Additional Earnest Money Deposit, if applicable, are sometimes referred to herein as the "Deposits". The Earnest Money Deposit, or Deposits, if applicable, shall be credited toward the Purchase Price at Closing.

**9. ADDENDA.** There  **ARE**  **ARE NOT** addenda to the REPC containing additional terms. If there are, the terms of the following addenda are incorporated into the REPC by this reference:  **Addendum No. One**  **Seller Financing Addendum**  **FHA/VA Loan Addendum**  **Other (specify) See ADDM #1**.

**10. HOME WARRANTY PLAN / AS-IS CONDITION OF PROPERTY.**

**10.1 Home Warranty Plan.** A one-year Home Warranty Plan  **WILL**  **WILL NOT** be included in this transaction. If included, the Home Warranty Plan shall be ordered by  **Buyer**  **Seller** and shall be issued by a company selected by  **Buyer**  **Seller**. The cost of the Home Warranty Plan shall not exceed \$ \_\_\_\_\_ and shall be paid for at Settlement by  **Buyer**  **Seller**.

**10.2 Condition of Property/Buyer Acknowledgements.** Buyer acknowledges and agrees that in reference to the physical condition of the Property: (a) Buyer is purchasing the Property in its "As-Is" condition without expressed or implied warranties of any kind; (b) Buyer shall have, during Buyer's Due Diligence as referenced in Section 8.1, an opportunity to completely inspect and evaluate the condition of the Property; and (c) if based on the Buyer's Due Diligence, Buyer elects to proceed with the purchase of the Property, Buyer is relying wholly on Buyer's own judgment and that of any contractors or inspectors engaged by Buyer to review, evaluate and inspect the Property. The provisions of Section 10.2 shall survive Closing.

**10.3 Condition of Property/Seller Acknowledgements.** Seller acknowledges and agrees that in reference to the physical condition of the Property, Seller agrees to: (a) disclose in writing to Buyer defects in the Property known to Seller that materially affect the value of the Property that cannot be discovered by a reasonable inspection by an ordinary prudent Buyer; (b) carefully review, complete, and provide to Buyer a written Seller property condition disclosure as stated in Section 7(a); (c) deliver the Property to Buyer in substantially the same general condition as it was on the date of Acceptance, as defined in Section 23, ordinary wear and tear excepted; (d) deliver the Property to Buyer in broom-clean condition and free of debris and personal belongings; and (e) repair any Seller or tenant moving-related damage to the Property at Seller's expense. The provisions of Section 10.3 shall survive Closing.

**11. FINAL PRE-SETTLEMENT WALK-THROUGH INSPECTION.** No earlier than seven (7) calendar days prior to Settlement, and upon reasonable notice and at a reasonable time, Buyer may conduct a final pre-Settlement walk-through inspection of the Property to determine only that the Property is "as represented," meaning that the items referenced in Sections 1.1, 1.2 and 8.1(b)(ii) ("the items") are respectively present, repaired or corrected as agreed. The failure to conduct a walk-through inspection or to claim that an item is not as represented shall not constitute a waiver by Buyer of the right to receive, on the date of possession, the items as represented.

**12. CHANGES DURING TRANSACTION.** Seller agrees that except as provided in Section 12.5 below, from the date of Acceptance until the date of Closing the following additional items apply:

**12.1 Alterations/Improvements to the Property.** No substantial alterations or improvements to the Property shall be made or undertaken without prior written consent of Buyer.

**12.2 Financial Encumbrances/Changes to Legal Title.** No further financial encumbrances to the Property shall be made, and no changes in

*[Handwritten initials]*

*9/30/23*

*DHL  
RLO*

*9/30/23  
9/30/23*



the legal title to the Property shall be made without the prior written consent of Buyer.

**12.3 Property Management Agreements.** No changes to any existing property management agreements shall be made and no new property management agreements may be entered into without the prior written consent of Buyer.

**12.4 Long-Term Lease or Rental Agreements.** No changes to any existing tenant lease or rental agreements shall be made and no new long-term lease or rental agreements, as defined in Section 6.1(a), may be entered into without the prior written consent of Buyer.

**12.5 Short-Term Rental Bookings.** If the Property is made available for short-term rental bookings as defined in Section 6.1(b), Seller **MAY NOT** after the Seller Disclosure Deadline continue to accept short-term rental bookings for guest use of the property without the prior written consent of Buyer.

**13. AUTHORITY OF SIGNERS.** If Buyer or Seller is a corporation, partnership, trust, estate, limited liability company or other entity, the person signing the REPC on its behalf warrants his or her authority to do so and to bind Buyer and Seller.

**14. COMPLETE CONTRACT.** The REPC together with its addenda, any attached exhibits, and Seller Disclosures (collectively referred to as the "REPC"), constitutes the entire contract between the parties and supersedes and replaces any and all prior negotiations, representations, warranties, understandings or contracts between the parties whether verbal or otherwise. The REPC cannot be changed except by written agreement of the parties.

**15. MEDIATION.** Any dispute relating to the REPC arising prior to or after Closing:  SHALL  **MAY AT THE OPTION OF THE PARTIES** first be submitted to mediation. Mediation is a process in which the parties meet with an impartial person who helps to resolve the dispute informally and confidentially. Mediators cannot impose binding decisions. The parties to the dispute must agree before any settlement is binding. The parties will jointly appoint an acceptable mediator and share equally in the cost of such mediation. If mediation fails, the other procedures and remedies available under the REPC shall apply. Nothing in this Section 15 prohibits any party from seeking emergency legal or equitable relief, pending mediation. The provisions of this Section 15 shall survive Closing.

**16. DEFAULT.**

**16.1 Buyer Default.** If Buyer defaults, Seller may elect one of the following remedies: (a) cancel the REPC and retain the Earnest Money Deposit, or Deposits, if applicable, as liquidated damages; (b) maintain the Earnest Money Deposit, or Deposits, if applicable, in trust and sue Buyer to specifically enforce the REPC; or (c) return the Earnest Money Deposit, or Deposits, if applicable, to Buyer and pursue any other remedies available at law.

**16.2 Seller Default.** If Seller defaults, Buyer may elect one of the following remedies: (a) cancel the REPC, and in addition to the return of the Earnest Money Deposit, or Deposits, if applicable, Buyer may elect to accept from Seller, as liquidated damages, a sum equal to the Earnest Money Deposit, or Deposits, if applicable; or (b) maintain the Earnest Money Deposit, or Deposits, if applicable, in trust and sue Seller to specifically enforce the REPC; or (c) accept a return of the Earnest Money Deposit, or Deposits, if applicable, and pursue any other remedies available at law. If Buyer elects to accept liquidated damages, Seller agrees to pay the liquidated damages to Buyer upon demand.

**17. ATTORNEY FEES AND COSTS/GOVERNING LAW.** In the event of litigation or binding arbitration arising out of the transaction contemplated by the REPC, the prevailing party shall be entitled to costs and reasonable attorney fees. However, attorney fees shall not be awarded for participation in mediation under Section 15. This contract shall be governed by and construed in accordance with the laws of the State of Utah. The provisions of this Section 17 shall survive Closing.

**18. NOTICES.** Except as provided in Section 23, all notices required under the REPC must be: (a) in writing; (b) signed by the Buyer or Seller giving notice; and (c) received by the Buyer or the Seller, or their respective agent, or by the brokerage firm representing the Buyer or Seller, no later than the applicable date referenced in the REPC.

**19. NO ASSIGNMENT.** The REPC and the rights and obligations of Buyer hereunder, are personal to Buyer. The REPC may not be assigned by Buyer without the prior written consent of Seller. Provided, however, the transfer of Buyer's interest in the REPC to any business entity in which Buyer holds a legal interest, including, but not limited to, a family partnership, family trust, limited liability company, partnership, or corporation (collectively referred to as a "Permissible Transfer"), shall not be treated as an assignment by Buyer that requires Seller's prior written consent. Furthermore, the inclusion of "and/or assigns" or similar language on the line identifying Buyer on the first page of the REPC shall constitute Seller's written consent only to a Permissible Transfer.

**20. INSURANCE & RISK OF LOSS.**

**20.1 Insurance Coverage.** As of Closing, Buyer shall be responsible to obtain casualty and liability insurance coverage on the Property in amounts acceptable to Buyer and Buyer's Lender, if applicable.

**20.2 Risk of Loss.** If prior to Closing, any part of the Property is damaged or destroyed by fire, vandalism, flood, earthquake, or act of God, the risk of such loss or damage shall be borne by Seller; provided however, that if the cost of repairing such loss or damage would exceed ten percent (10%) of the Purchase Price referenced in Section 2, either Seller or Buyer may elect to cancel the REPC by providing written notice to the other party, in which instance the Earnest Money Deposit, or Deposits, if applicable, shall be returned to Buyer.

**21. TIME IS OF THE ESSENCE.** Time is of the essence regarding the dates set forth in the REPC. Extensions must be agreed to in writing by all parties. Unless otherwise explicitly stated in the REPC: (a) performance under each Section of the REPC which references a date shall absolutely be required by 5:00 PM Mountain Time on the stated date; and (b) the term "days" and "calendar days" shall mean calendar days and shall be counted beginning on the day following the event which triggers the timing requirement (e.g. Acceptance). Performance dates and times referenced herein shall not be binding upon title companies, lenders, appraisers and others not parties to the REPC, except as otherwise agreed to in writing by such non-party.

*[Handwritten initials]*

*9/30/23*

*RAZ  
RZB*

*9/30/23  
9/30/23*

**22. ELECTRONIC TRANSMISSION AND COUNTERPARTS.** The REPC may be executed in counterparts. Signatures on any of the Documents, whether executed physically or by use of electronic signatures, shall be deemed original signatures and shall have the same legal effect as original signatures.

**23. ACCEPTANCE.** "Acceptance" occurs **only** when **all** of the following have occurred: (a) Seller or Buyer has signed the offer or counteroffer where noted to indicate acceptance; and (b) Seller or Buyer or their agent has communicated to the other party or to the other party's agent that the offer or counteroffer has been signed as required.

**24. CONTRACT DEADLINES.** Buyer and Seller agree that the following deadlines shall apply to the REPC:

- (a) Seller Disclosure Deadline October 10, 2023 (Date)
- (b) Due Diligence Deadline October 17, 2023 (Date)
- (c) Financing & Appraisal Deadline October 17, 2023 (Date)
- (d) Settlement Deadline October 20, 2022 (Date)

**25. OFFER AND TIME FOR ACCEPTANCE.** Buyer offers to purchase the Property on the above terms and conditions. If Seller does not accept this offer by: 10:00  AM  PM Mountain Time on 10-02-2023 (Date), this offer shall lapse; and the Brokerage shall return any Earnest Money Deposit to Buyer.

[Signature] 9/30/23  
(Buyer's Signature) (Date)

\_\_\_\_\_  
(Buyer's Signature) (Date)

**ACCEPTANCE/COUNTEROFFER/REJECTION**

**CHECK ONE:**

- ACCEPTANCE OF OFFER TO PURCHASE:** Seller Accepts the foregoing offer on the terms and conditions specified above.
- COUNTEROFFER:** Seller presents for Buyer's Acceptance the terms of Buyer's offer subject to the exceptions or modifications as specified by the attached ADDENDUM No \_\_\_\_\_
- REJECTION:** Seller rejects the foregoing offer.

[Signature] 9/30/23 4:35pm [Signature] 9/30/23 4:27pm  
(Seller's Signature) (Date) (Time) (Seller's Signature) (Date) (Time)

THIS FORM APPROVED BY THE UTAH REAL ESTATE COMMISSION AND THE OFFICE OF THE UTAH ATTORNEY GENERAL, EFFECTIVE SEPTEMBER 1, 2017. AS OF JANUARY 1, 2018, IT WILL REPLACE AND SUPERSEDE THE PREVIOUSLY APPROVED VERSION OF THIS FORM.

Buyer's Initials DMO

Date 9/30/23

Seller's Initials JAR

Date 9/30/23



**ADDENDUM NO. ONE  
TO  
REAL ESTATE PURCHASE CONTRACT**

**THIS IS AN  ADDENDUM  COUNTEROFFER** to that REAL ESTATE PURCHASE CONTRACT (the "REPC") with an Offer Reference Date of September 30, 2023, including all prior addenda and counteroffers, between Santaquin City Corporation as Buyer, and Dennis H And Roxanne B Lamb as Seller, regarding the Property located at 188 South Center Street (UT County Parcel Serial Number 09:065:0011). The following terms are hereby incorporated as part of the REPC:

**Buyer's purchase of the Property is contingent upon acceptable results from a complete Phase I Environmental Site Assessment report. Buyer agrees to order and pay for all costs associated to the Phase I Environmental Site Assessment report as part of and during the Due Diligence period.**

**Buyer's offer to purchase the Property is contingent upon approval by the Santaquin City Council during an official open public meeting as part of and during the Due Diligence period.**

To the extent the terms of this ADDENDUM modify or conflict with any provisions of the REPC, including all prior addenda and counteroffers, these terms shall control. All other terms of the REPC, including all prior addenda and counteroffers, not modified by this ADDENDUM shall remain the same.  Seller  Buyer shall have until 10:00  AM  PM Mountain Time on October 2, 2023 (Date), to accept the terms of this ADDENDUM in accordance with the provisions of Section 23 of the REPC. Unless so accepted, the offer as set forth in this ADDENDUM shall lapse.

*Dennis H Lamb* 9/30/23  
 Buyer  Seller Signature (Date) (Time)

\_\_\_\_\_  
 Buyer  Seller Signature (Date) (Time)

**ACCEPTANCE/COUNTEROFFER/REJECTION**

CHECK ONE:

**ACCEPTANCE:**  Seller  Buyer hereby accepts the terms of this ADDENDUM.

**COUNTEROFFER:**  Seller  Buyer presents as a counteroffer the terms of attached ADDENDUM NO. \_\_\_\_\_.

*Dennis H Lamb* 9/30/23 4:30 pm *Roxanne B Lamb* 9/30/23 4:27 pm  
 (Signature) (Date) (Time) (Signature) (Date) (Time)

**REJECTION:**  Seller  Buyer rejects the foregoing ADDENDUM.

\_\_\_\_\_  
 (Signature) (Date) (Time) (Signature) (Date) (Time)

THIS FORM APPROVED BY THE UTAH REAL ESTATE COMMISSION AND THE OFFICE OF THE UTAH ATTORNEY GENERAL, EFFECTIVE JANUARY 1, 2020. IT REPLACES AND SUPERSEDES ALL PREVIOUSLY APPROVED VERSIONS OF THIS FORM.



# MEMO



To: Mayor and City Council

From: Ryan Harris, Senior Planner

Date: September 29, 2023

RE: **The Vistas West at Summit Ridge Phase 6 Amendment**

Zone: PC
Size: 1.64 Acres
Lots: 3

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The proposed plat amendment is amending three lots within The Vistas West at Summit Ridge Phase 1 subdivision. The original subdivision was recorded on June 15, 2023. In the past month, the developer submitted building permits for lots 25, 26 and 27. The Building Department started their review and realized there were some issues with the three lots. The planter strip and sidewalk are located on private property. The approved road cross section for the West View Cove cul-de-sac shows a 32' right-of-way being dedicated to the city and a 11' planter/sidewalk easement. The easement would include the planter strip and the sidewalk. The recorded plat doesn't show the 11' easement, which means the sidewalk is located on private property without an easement.

Staff discussed the issue with the developer and decided the best way to move forward is to dedicate to the city the 11' area where the easement was supposed to be. It is standard practice to have the planter strip and sidewalk within the city right-of-way. This plat amendment accomplishes the right-of-way dedication. All zoning requirements for lot frontage and lot size are being met.

**Recommended Motion:** "Motion to approve The Vistas West at Summit Ridge Phase 6 Plat Amendment."

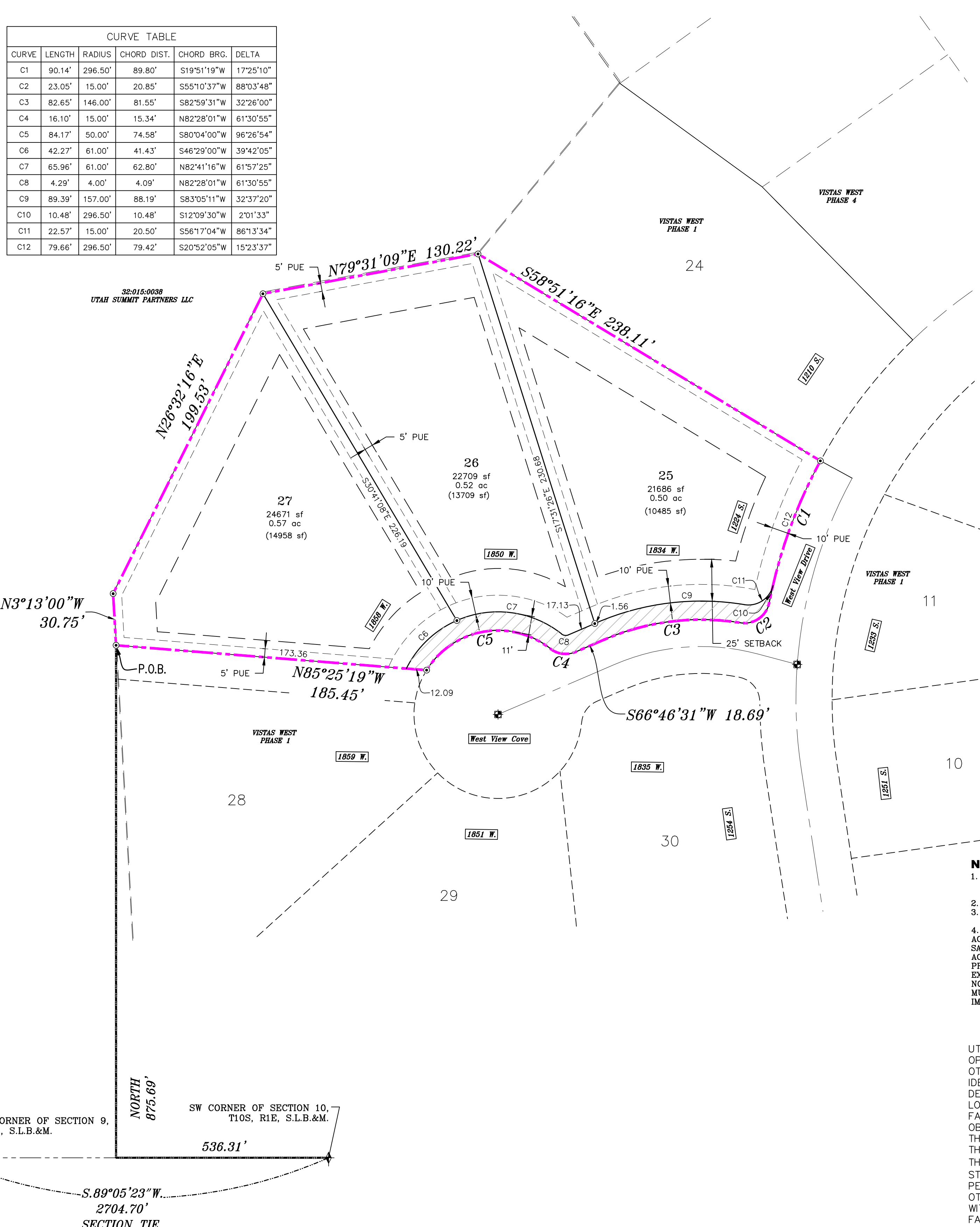
**Attachments:**

1. Plat Amendment
2. Original Plat

# THE VISTAS WEST @ SUMMIT RIDGE PHASE 6

AN AMENDMENT OF LOTS 25, 26 AND 27 OF VISTAS WEST @ SUMMIT RIDGE PHASE 1

CURVE TABLE					
CURVE	LENGTH	RADIUS	CHORD DIST.	CHORD BRG.	DELTA
C1	90.14'	296.50'	89.80'	S19°51'19"W	17°25'10"
C2	23.05'	15.00'	20.85'	S55°10'37"W	88°03'48"
C3	82.65'	146.00'	81.55'	S82°59'31"W	32°26'00"
C4	16.10'	15.00'	15.34'	N82°28'01"W	61°30'55"
C5	84.17'	50.00'	74.58'	S80°04'00"W	96°26'54"
C6	42.27'	61.00'	41.43'	S48°29'00"W	39°42'05"
C7	65.96'	61.00'	62.80'	N82°41'16"E	61°57'25"
C8	4.29'	4.00'	4.09'	N82°28'01"W	61°30'55"
C9	89.39'	157.00'	88.19'	S83°05'11"W	32°37'20"
C10	10.48'	296.50'	10.48'	S12°09'30"W	2°01'33"
C11	22.57'	15.00'	20.50'	S56°17'04"W	86°13'34"
C12	79.66'	296.50'	79.42'	S20°52'05"W	152°3'37"



32-016-0038  
UTAH SUMMIT PARTNERS LLC

N3°13'00"W  
30.75'

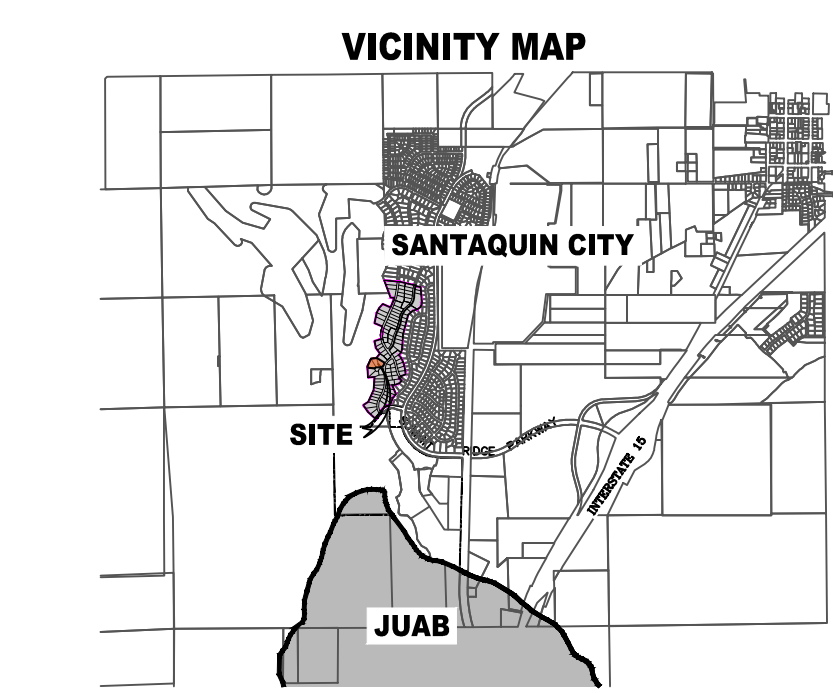
N85°25'19"W  
185.45'

NORTH  
875.69'

SW CORNER OF SECTION 10,  
T10S, R1E, S1B&M

536.31'

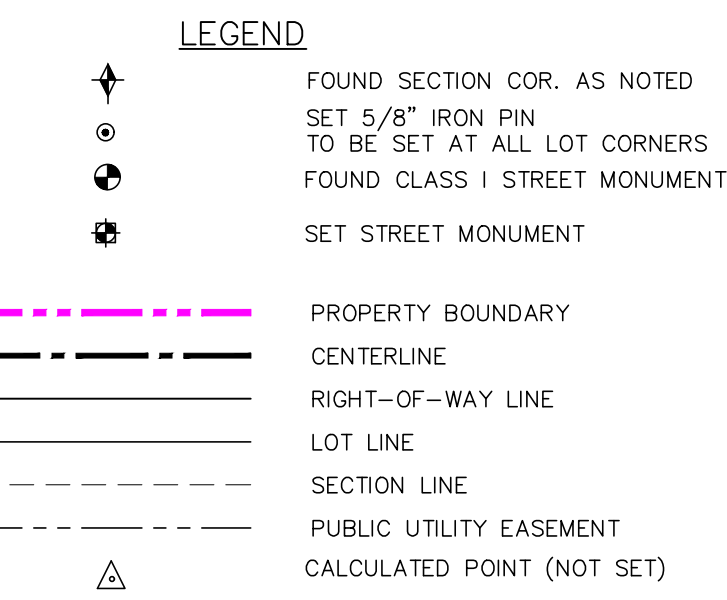
S.89°05'23"W  
2704.70'  
SECTION TIE



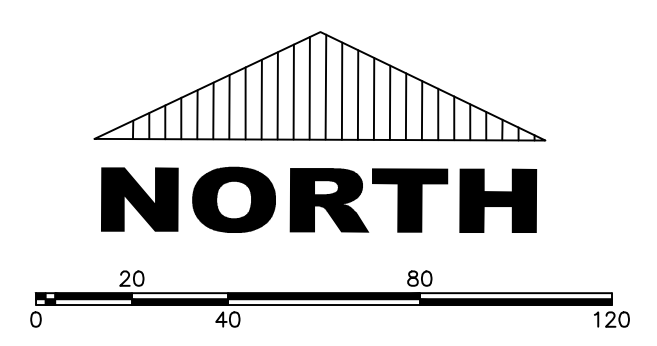
AREA BREAKDOWN	
TOTAL PLAT ACREAGE	1.64 ACRES
TOTAL LOT ACREAGE	1.58 ACRES
TOTAL ROW ACREAGE	.06 ACRES
TOTAL OPEN SPACE	ACRES
ZONE	PC - PLANNED COMMUNITY
DENSITY	1.83 / DU
NUMBER OF LOTS	3 LOTS

**PROJECT DEVELOPER**  
Michael House  
LGI Homes, Inc. | Land Development Manager, UT  
Email: michael.house@lghomes.com  
Cell: 702-347-0640

**PROJECT ENGINEER & SURVEYOR**  
REGION ENGINEERING & SURVEYING  
1776 NORTH STATE STREET #110  
OREM, UTAH 84057  
PH - 801.376.2245



**BASIS OF BEARING**  
THE BASIS OF BEARING FOR THE VISTAS @ SUMMIT RIDGE IS ON THE SECTION LINE BETWEEN THE SW CORNER OF SECTION 10 AND THE S 1/4 CORNER OF SECTION 19, T10S, R1E, S1B&M WITH THE BEARING BEING S89°05'23"W ALONG SAID LINE.



(24"x36")  
SCALE 1" = 40'  
(11"x17")  
SCALE 1" = 80'

**DOMINION ENERGY ACCEPTANCE**  
DOMINION APPROVES THIS PLAT SOLELY FOR THE PURPOSE OF CONFIRMING THAT THE PLAT CONTAINS PUBLIC UTILITY EASEMENTS. DOMINION MAY REQUIRE OTHER EASEMENTS IN ORDER TO SERVE THIS DEVELOPMENT. THIS APPROVAL DOES NOT CONSTITUTE ACCEPTANCE, APPROVAL OR ACKNOWLEDGMENT OF ANY TERMS CONTAINED IN THE PLAT, INCLUDING THOSE SET FORTH IN THE OWNERS DEDICATION AND THE NOTES AND DOES NOT CONSTITUTE A GUARANTEE OF PARTICULAR TERMS OF NATURAL GAS SERVICE. FOR FURTHER INFORMATION PLEASE CONTACT DOMINION'S RIGHT OF WAY DEPARTMENT AT 1-800-366-8532.

APPROVED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_  
DOMINION ENERGY COMPANY  
BY- \_\_\_\_\_  
TITLE- \_\_\_\_\_

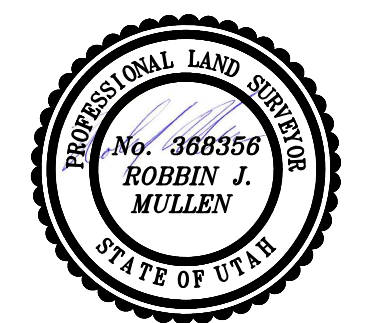
- NOTES:**
- ... TYPE II MONUMENT (ALUMINUM CAP AND REBAR) TO BE SET. #5 REBAR & CAP TO BE SET AT ALL LOT CORNERS. NAIL AND BRASS WASHER TO BE SET IN TOP OF CURB @ PROJECTION OF SIDE LOT LINES.
  - XXXXX - PROPOSED RESIDENTIAL ADDRESS
  - (XXXX S.F.) AREA IN PARENTHESIS DENOTES BULDABLE AREA
  - THIS PROPERTY IS LOCATED IN AN AGRICULTURAL COMMUNITY IN WHICH NORMAL AGRICULTURAL USES AND ACTIVITIES ARE COMMON AND PART OF THE IDENTITY OF SANTAQUIN CITY. IT CAN BE ANTICIPATED THAT SUCH AGRICULTURAL USES AND ACTIVITIES MAY NOW OR IN THE FUTURE BE CONDUCTED NEAR THIS PROPERTY. PROPERTY OWNERS NEED TO UNDERSTAND AND ACKNOWLEDGE THAT THEY MAY EXPERIENCE ANNOYANCE OR INCONVENIENCE WHICH MAY RESULT FROM SUCH NORMAL AGRICULTURAL USES AND ACTIVITIES. ADDITIONALLY, PROPERTY OWNERS MUST REFRAIN FROM TRESPASSING ON PRIVATE PROPERTY WHICH CAN NEGATIVELY IMPACT THE INTEGRITY OF AGRICULTURAL LANDS AND BUSINESSES.

**UTILITIES APPROVAL**  
UTILITIES SHALL HAVE THE RIGHT TO INSTALL, MAINTAIN AND OPERATE THEIR EQUIPMENT ABOVE AND BELOW GROUND AND ALL OTHER RELATED FACILITIES WITHIN THE PUBLIC UTILITY EASEMENTS IDENTIFIED ON THIS PLAT MAP AS MAY BE NECESSARY OR DESIRABLE IN PROVIDING UTILITY SERVICES WITHIN AND WITHOUT THE LOTS IDENTIFIED HEREIN, INCLUDING THE RIGHT OF ACCESS TO SUCH FACILITIES AND THE RIGHT TO REQUIRE REMOVAL OF ANY OBSTRUCTIONS INCLUDING STRUCTURES, TREES AND VEGETATION THAT MAY BE PLACED WITHIN THE PUE. THE UTILITY MAY REQUIRE THE LOT OWNER TO REMOVE ALL STRUCTURES WITHIN THE PUE AT THE OWNER'S EXPENSE, OR THE UTILITY MAY REMOVE SUCH STRUCTURES AT THE OWNER'S EXPENSE. AT NO TIME ANY PERMANENT STRUCTURES BE PLACED WITHIN THE PUE OR ANY OTHER OBSTRUCTIONS WITH INTERFERES WITH THE USE OF THE PUE WITH OUT THE PRIOR WRITTEN APPROVAL OF THE UTILITIES WITH FACILITIES IN THE PUE.

ROCKY MTN POWER \_\_\_\_\_  
CENTRACOM \_\_\_\_\_  
CENTURY LINK \_\_\_\_\_

**Surveyor's Certificate**  
I, ROBBIN J. MULLEN DO HEREBY CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR, AND THAT I HOLD CERTIFICATE NO. 368356 AS PRESCRIBED UNDER THE LAWS OF THE STATE OF UTAH. I FURTHER CERTIFY BY AUTHORITY OF THE OWNERS, I HAVE MADE A SURVEY OF SAID TRACT OF LAND SHOWN ON THIS PLAT AND DESCRIBED BELOW, AND HAVE SUBDIVIDED SAID TRACT OF LAND INTO LOTS, STREETS, AND EASEMENTS AND THAT THE SAME HAS BEEN CORRECTLY SURVEYED AND STAKED ON THE GROUND AS SHOWN ON THIS PLAT AND THAT THIS IS TRUE AND CORRECT.

**Boundary Description**  
VISTAS WEST - PHASE 6  
BEGINNING AT A POINT ON A LINE THAT IS S.89°05'23"W, A DISTANCE OF 536.31 FEET ALONG THE SECTION LINE AND NORTH 875.69 FEET FROM THE SOUTHWEST CORNER OF SECTION 10, TOWNSHIP 10 SOUTH, RANGE 1 EAST, SALT LAKE BASE & MERIDIAN;  
THENCE, N 03° 13' 00" W FOR A DISTANCE OF 30.75 FEET TO A POINT ON A LINE.  
THENCE, N 26° 32' 16" E FOR A DISTANCE OF 199.53 FEET TO A POINT ON A LINE.  
THENCE, N 79° 31' 09" E FOR A DISTANCE OF 130.22 FEET TO A POINT ON A LINE.  
THENCE, S 58° 51' 16" E FOR A DISTANCE OF 238.11 FEET TO THE BEGINNING OF A NON-TANGENTIAL CURVE,  
SAID CURVE TURNING TO THE LEFT THROUGH 17° 25' 09.9", HAVING A RADIUS OF 296.50 FEET, AND WHOSE LONG CHORD BEARS S 19° 51' 19" W FOR A DISTANCE OF 89.80 FEET TO THE BEGINNING OF A NON-TANGENTIAL CURVE.  
SAID CURVE TURNING TO THE RIGHT THROUGH 88° 03' 47.7", HAVING A RADIUS OF 15.00 FEET, AND WHOSE LONG CHORD BEARS S 55° 10' 37" W FOR A DISTANCE OF 20.85 FEET TO THE BEGINNING OF A NON-TANGENTIAL CURVE.  
SAID CURVE TURNING TO THE LEFT THROUGH AN ANGLE OF 32° 25' 59.9", HAVING A RADIUS OF 146.00 FEET, AND WHOSE LONG CHORD BEARS S 82° 59' 31" W FOR A DISTANCE OF 81.55 FEET.  
THENCE, S 66° 46' 31" W FOR A DISTANCE OF 18.69 FEET TO THE BEGINNING OF A CURVE,  
SAID CURVE TURNING TO THE RIGHT THROUGH 61° 30' 55.3", HAVING A RADIUS OF 15.00 FEET, AND WHOSE LONG CHORD BEARS N 82° 28' 01" W FOR A DISTANCE OF 15.34 FEET TO THE BEGINNING OF A NON-TANGENTIAL CURVE.  
SAID CURVE TURNING TO THE LEFT THROUGH AN ANGLE OF 86° 28' 54.2", HAVING A RADIUS OF 50.00 FEET, AND WHOSE LONG CHORD BEARS S 80° 04' 00" W FOR A DISTANCE OF 74.58 FEET TO A POINT OF INTERSECTION WITH A NON-TANGENTIAL LINE.  
THENCE N 85° 25' 19" W A DISTANCE OF 185.45 FEET TO THE POINT OF BEGINNING  
CONTAINING 1.64 ACRES OF LAND AND 3 LOTS



September 28, 2023  
DATE  
**OWNERS DEDICATION**  
KNOW ALL MEN BY THESE PRESENTS THAT WE, ALL OF THE UNDERSIGNED OWNERS OF ALL OF THE PROPERTY DESCRIBED IN THE SURVEYOR'S CERTIFICATE HEREON AND SHOWN ON THIS MAP, HAVE CAUSED THE SAME TO BE SUBDIVIDED INTO LOTS, BLOCKS, STREETS AND EASEMENTS AND DO HEREBY DEDICATE THE STREETS AND OTHER PUBLIC AREAS AS INDICATED HEREON FOR PERPETUAL USE OF THE PUBLIC.  
IN WITNESS WHEREOF WE HAVE HERETO SET OUR HANDS THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, A.D. 20\_\_\_\_  
SURVEYOR (See Seal Below)

**LIMITED COMPANY ACKNOWLEDGEMENT**  
STATE OF UTAH  
COUNTY OF UTAH  
ON THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, A.D. 20\_\_\_\_ PERSONALLY APPEARED BEFORE ME \_\_\_\_\_ THE SIGNER OF THE FOREGOING INSTRUMENT, WHO DULY ACKNOWLEDGED TO ME THAT (S)HE IS THE \_\_\_\_\_ OF A LIMITED COMPANY, AND IS AUTHORIZED TO EXECUTE THE FOREGOING AGREEMENT IN ITS BEHALF AND THAT HE OR SHE EXECUTED IT IN SUCH CAPACITY.  
MY COMMISSION EXPIRES \_\_\_\_\_ A NOTARY PUBLIC COMMISSIONED IN UTAH  
NOTARY ADDRESS \_\_\_\_\_ PRINTED FULL NAME OF NOTARY \_\_\_\_\_

**ACCEPTANCE BY LEGISLATIVE BODY**  
THE \_\_\_\_\_ COUNTY OF UTAH, APPROVES THIS SUBDIVISION AND HEREBY ACCEPTS THE DEDICATION OF ALL STREETS, EASEMENTS, AND OTHER PARCELS OF LAND INTENDED FOR PUBLIC PURPOSES FOR THE PERPETUAL USE OF THE PUBLIC THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, A.D. 20\_\_\_\_

APPROVED MAYOR OF SANTAQUIN \_\_\_\_\_  
ATTEST: \_\_\_\_\_  
ENGINEER (See Seal Below) \_\_\_\_\_ CLERK-RECORDER (See Seal Below) \_\_\_\_\_

## THE VISTAS WEST @ SUMMIT RIDGE PHASE 6

AN AMENDMENT OF LOTS 25, 26 AND 27 OF VISTAS WEST @ SUMMIT RIDGE PHASE 1

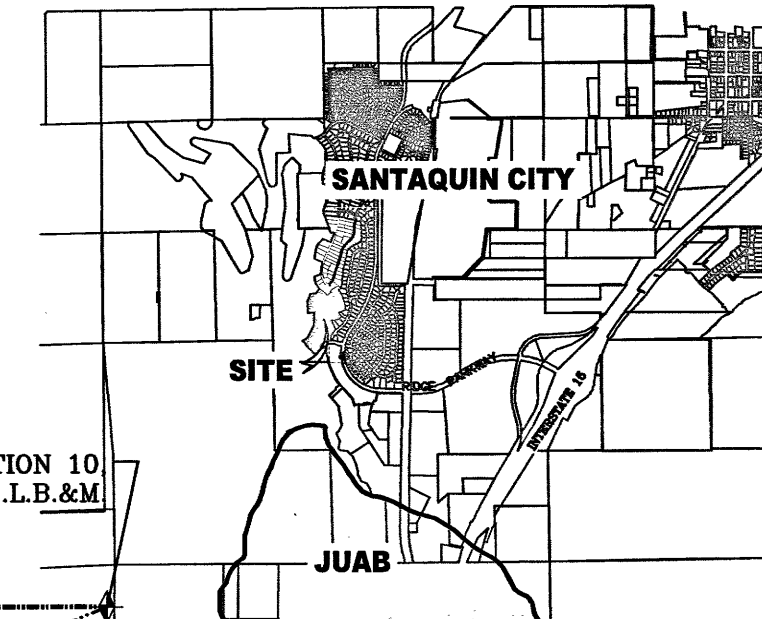
UTAH COUNTY, UTAH  
SCALE: 1" = 40 FEET

NOTARY PUBLIC SEAL	CITY-COUNTY ENGINEER SEAL	COUNTY-RECORDER SEAL
--------------------	---------------------------	----------------------

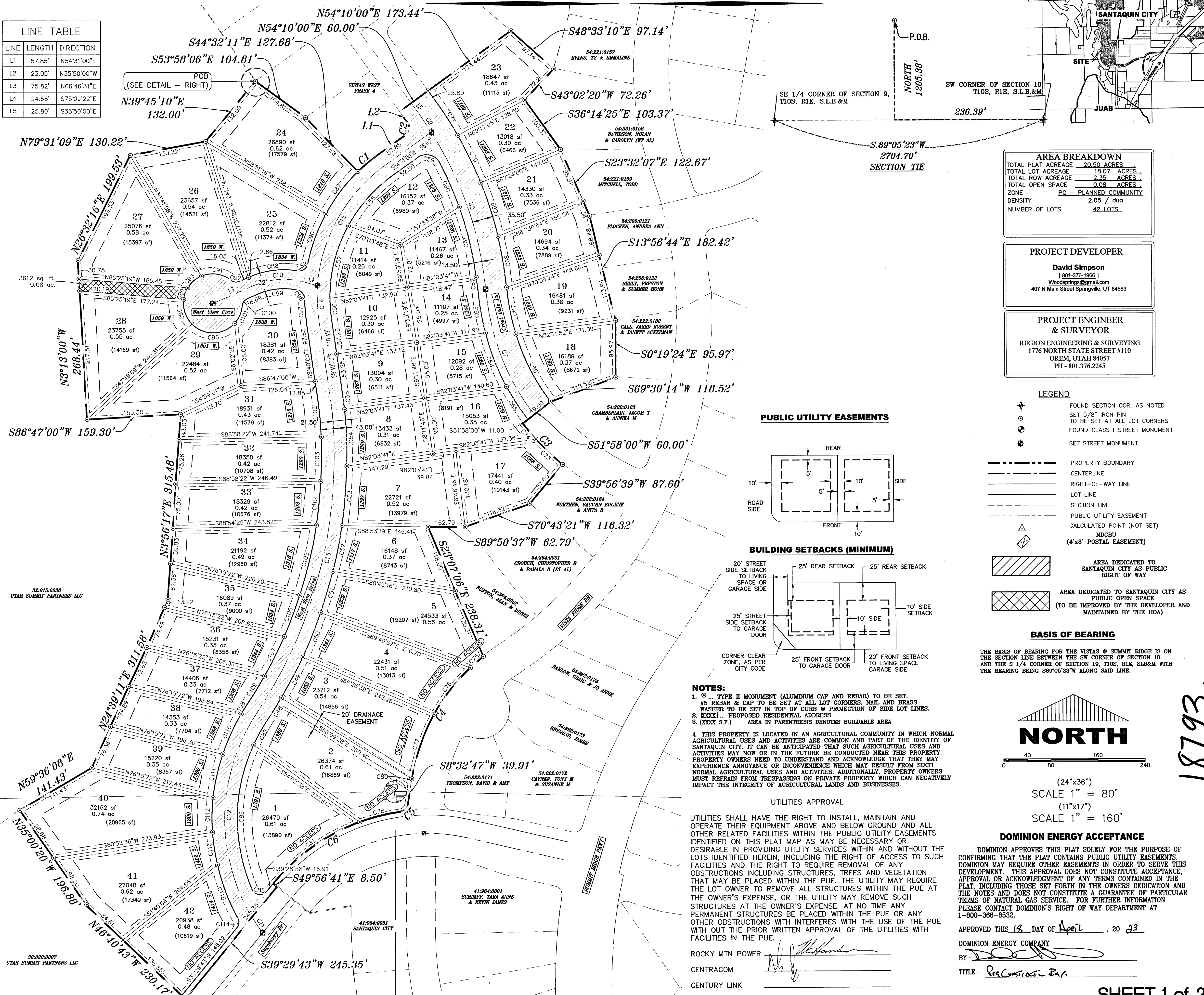


THE VISTAS WEST @ SUMMIT RIDGE PHASE 1

VICINITY MAP



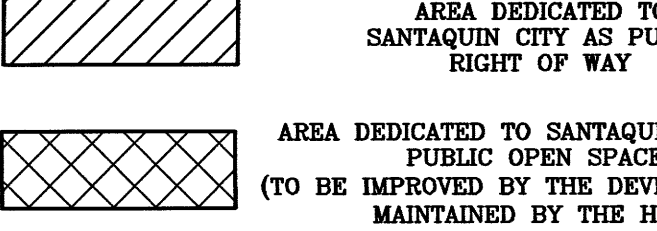
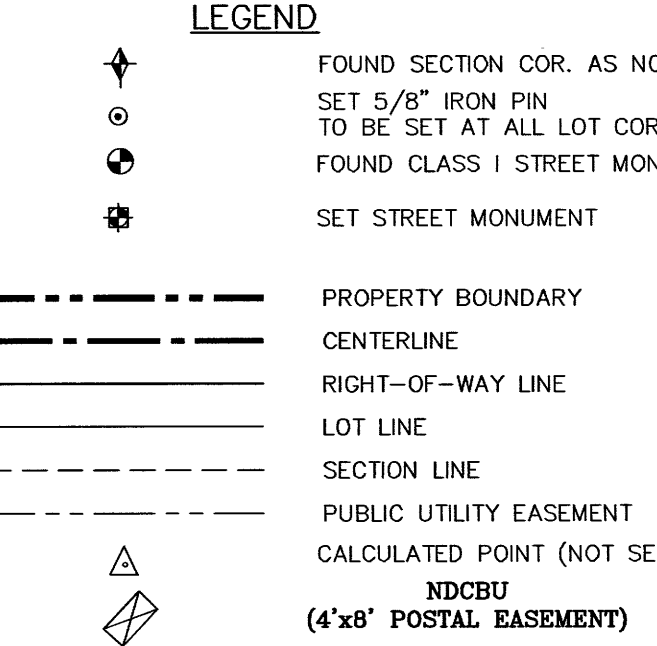
LINE TABLE with columns for LINE, LENGTH, and DIRECTION. Lists lines L1 through L5 with their respective measurements.



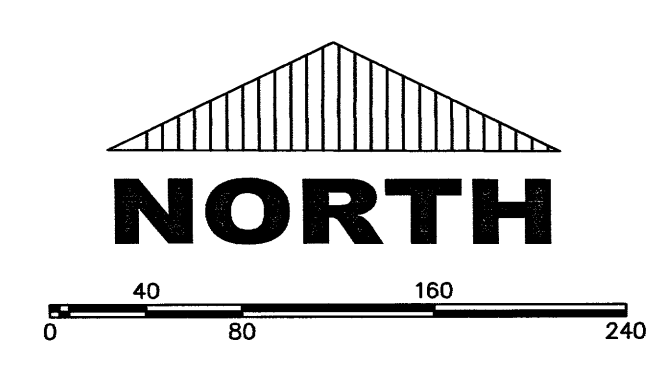
AREA BREAKDOWN table showing: TOTAL PLAT ACREAGE 20.50 ACRES, TOTAL LOT ACREAGE 18.07 ACRES, TOTAL ROW ACREAGE 2.35 ACRES, TOTAL OPEN SPACE 0.08 ACRES, ZONE PC - PLANNED COMMUNITY, DENSITY 2.05 / ACR, NUMBER OF LOTS 42 LOTS.

PROJECT DEVELOPER: David Simpson, 801-376-1966, Woodsprings@gmail.com, 407 N Main Street Springville, UT 84663

PROJECT ENGINEER & SURVEYOR: REGION ENGINEERING & SURVEYING, 1776 NORTH STATE STREET #110, OREM, UTAH 84057, PH - 801.376.2245



DOMINION ENERGY ACCEPTANCE: DOMINION APPROVES THIS PLAT SOLELY FOR THE PURPOSE OF CONFIRMING THAT THE PLAT CONTAINS PUBLIC UTILITY EASEMENTS...



DOMINION ENERGY ACCEPTANCE: DOMINION APPROVES THIS PLAT SOLELY FOR THE PURPOSE OF CONFIRMING THAT THE PLAT CONTAINS PUBLIC UTILITY EASEMENTS...

APPROVED THIS 18 DAY OF April, 2023. DOMINION ENERGY COMPANY BY: [Signature]

UTILITIES APPROVAL: UTILITIES SHALL HAVE THE RIGHT TO INSTALL, MAINTAIN AND OPERATE THEIR EQUIPMENT ABOVE AND BELOW GROUND...

ROCKY MTN POWER, CENTRACOM, CENTURY LINK. TITLE: RESUBDIVISION E.P.C.

Surveyor's Certificate

I, ROBBIN J. MULLEN DO HEREBY CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR, AND THAT I HOLD CERTIFICATE NO. 368356 AS PRESCRIBED UNDER THE LAWS OF THE STATE OF UTAH...

Boundary Description

BEGINNING AT A POINT ON A LINE THAT IS S.89°05'23\"/>



DATE: 03/24/2023. SURVEYOR: Robbin J. Mullen. OWNERS DEDICATION: Adam Archer, LGT HOMES-UTAH, LLC.

KNOW ALL MEN BY THESE PRESENTS THAT WE, ALL OF THE UNDERSIGNED OWNERS OF ALL OF THE PROPERTY DESCRIBED IN THE SURVEYOR'S CERTIFICATE HEREON AND SHOWN ON THIS MAP, HAVE CAUSED THE SAME TO BE SUBDIVIDED INTO LOTS, BLOCKS, STREETS AND EASEMENTS AND DO HEREBY DEDICATE THE STREETS AND OTHER PUBLIC AREAS AS INDICATED HEREON FOR PERPETUAL USE OF THE PUBLIC.

IN WITNESS WHEREOF WE HAVE HERETOBY SET OUR HANDS THIS 17th DAY OF April, A.D. 2023. [Signatures]

LIMITED COMPANY ACKNOWLEDGEMENT: STATE OF UTAH, COUNTY OF UTAH, S.S. ON THIS 17 DAY OF April, A.D. 2023...

ACCEPTANCE BY LEGISLATIVE BODY: THE CITY COUNCIL OF SANTAQUIN, COUNTY OF UTAH, APPROVES THIS SUBDIVISION AND HEREBY ACCEPTS THE DEDICATION OF ALL STREETS, EASEMENTS, AND OTHER PARCELS OF LAND...

APPROVED MAYOR OF SANTAQUIN: [Signature]. ATTEST: [Signature]. NOTARY PUBLIC: ALEC BRITTE, 2015 MAIN ST, SALT LAKE CITY, UT.

THE VISTAS WEST @ SUMMIT RIDGE PHASE 1. UTILITY APPROVAL: UTILITIES SHALL HAVE THE RIGHT TO INSTALL, MAINTAIN AND OPERATE THEIR EQUIPMENT...

APPROVED THIS 18 DAY OF April, 2023. DOMINION ENERGY COMPANY BY: [Signature]. TITLE: RESUBDIVISION E.P.C.

UTILITIES APPROVAL: UTILITIES SHALL HAVE THE RIGHT TO INSTALL, MAINTAIN AND OPERATE THEIR EQUIPMENT ABOVE AND BELOW GROUND...

ROCKY MTN POWER, CENTRACOM, CENTURY LINK. TITLE: RESUBDIVISION E.P.C.

APPROVED THIS 18 DAY OF April, 2023. DOMINION ENERGY COMPANY BY: [Signature]. TITLE: RESUBDIVISION E.P.C.

UTILITIES APPROVAL: UTILITIES SHALL HAVE THE RIGHT TO INSTALL, MAINTAIN AND OPERATE THEIR EQUIPMENT...

ROCKY MTN POWER, CENTRACOM, CENTURY LINK. TITLE: RESUBDIVISION E.P.C.



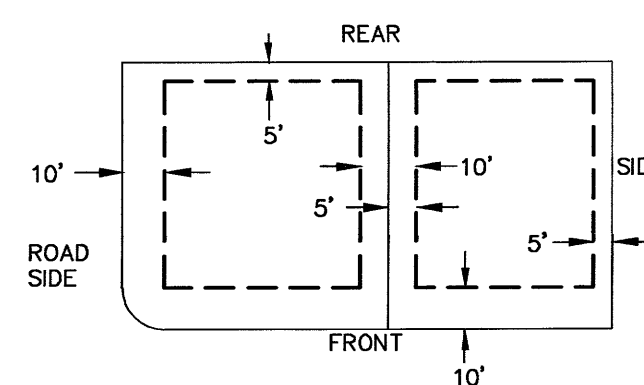
# THE VISTAS WEST @ SUMMIT RIDGE PHASE 1

CURVE TABLE					
CURVE	LENGTH	RADIUS	CHORD DIST.	CHORD BRG.	DELTA
C1	43.40'	296.50'	43.36'	N50°19'24"E	8°23'13"
C2	23.65'	15.00'	21.28'	N9°20'30"E	90°21'00"
C3	96.98'	430.00'	96.77'	S44°29'39"E	12°55'18"
C4	249.43'	330.00'	243.53'	S30°11'58"W	43°18'23"
C5	19.29'	15.00'	17.99'	S45°22'17"W	73°40'17"
C6	253.52'	340.00'	247.69'	S60°51'25"W	42°43'19"
C7	230.85'	405.50'	227.74'	S21°05'05"E	32°37'03"
C8	283.69'	605.07'	281.10'	S19°10'50"E	26°51'47"
C9	34.01'	605.07'	34.00'	S34°13'20"E	3°13'13"
C10	86.37'	130.00'	84.79'	N85°48'34"E	38°04'06"
C11	32.33'	320.00'	32.32'	S34°04'52"E	5°47'21"
C12	363.38'	320.00'	344.17'	S12°02'40"W	65°03'44"
C13	579.15'	780.00'	565.94'	S12°36'16"W	42°32'33"
C14	62.24'	275.00'	62.11'	S2°10'58"E	12°58'06"
C15	241.02'	275.00'	233.38'	S29°24'33"W	50°12'55"
C17	46.94'	298.50'	46.89'	S29°22'15"W	9°00'35"
C18	45.57'	801.50'	45.56'	S32°14'49"W	3°15'27"
C19	78.06'	801.50'	78.03'	S27°49'41"W	5°34'49"
C20	81.28'	801.50'	81.24'	S22°07'58"W	5°48'37"
C21	72.72'	801.50'	72.69'	S16°37'42"W	5°11'54"
C22	79.04'	801.50'	79.00'	S11°12'15"W	5°39'00"
C23	101.17'	801.50'	101.10'	S4°45'48"W	7°13'56"
C24	95.52'	801.50'	95.47'	S2°16'02"E	6°49'43"
C25	41.76'	801.50'	41.76'	S7°10'27"E	2°59'07"
C26	37.89'	253.50'	37.85'	S4°23'08"E	8°33'46"
C27	127.49'	253.50'	126.15'	S14°18'14"W	28°48'56"
C28	114.17'	253.50'	113.21'	S41°36'51"W	25°48'19"
C29	44.43'	26.00'	39.22'	N76°31'46"W	97°54'27"
C30	81.26'	591.69'	81.20'	N23°38'21"W	7°52'09"
C31	122.85'	591.69'	122.63'	N13°45'23"W	11°53'47"

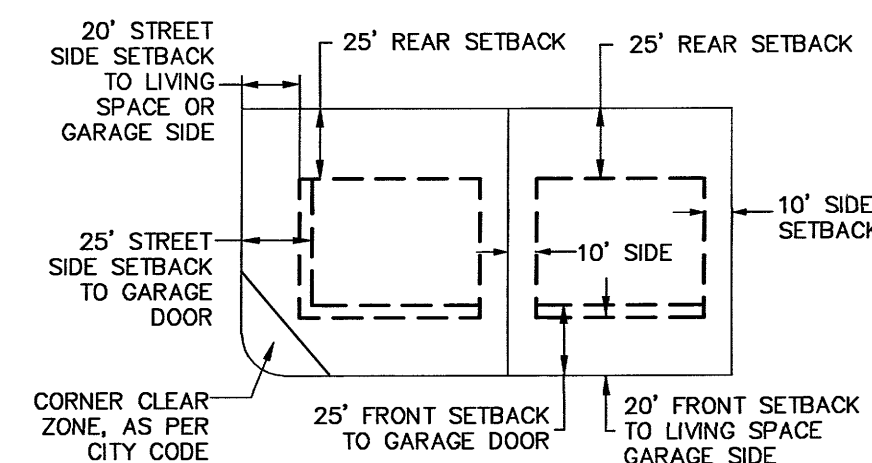
CURVE TABLE					
CURVE	LENGTH	RADIUS	CHORD DIST.	CHORD BRG.	DELTA
C32	21.01'	591.69'	21.01'	N6°47'27"W	2°02'05"
C33	74.13'	419.00'	74.03'	N9°50'40"W	10°08'13"
C34	97.99'	419.00'	97.77'	N21°36'47"W	13°24'01"
C35	66.56'	419.00'	66.49'	N32°51'49"W	9°06'04"
C36	129.25'	370.00'	128.59'	S27°19'30"E	20°00'51"
C37	80.99'	370.00'	80.83'	S11°02'49"E	12°32'31"
C38	87.43'	640.50'	87.36'	S9°36'11"E	7°49'15"
C39	95.41'	640.50'	95.32'	S17°46'51"E	8°32'05"
C40	89.23'	640.50'	89.16'	S26°02'22"E	7°58'56"
C41	64.87'	640.50'	64.84'	S32°55'56"E	5°48'10"
C42	62.39'	430.00'	62.34'	S46°47'54"E	8°18'48"
C43	34.58'	430.00'	34.57'	S40°20'15"E	4°36'30"
C44	29.35'	330.00'	29.34'	S49°18'17"W	5°05'46"
C45	100.15'	330.00'	99.76'	S38°03'46"W	17°23'16"
C46	116.19'	330.00'	115.59'	S19°16'55"W	20°10'26"
C47	71.20'	340.00'	71.07'	S76°13'08"W	11°59'53"
C48	3.74'	330.00'	3.74'	S8°52'15"W	0°38'55"
C49	182.32'	340.00'	180.14'	S54°51'28"W	30°43'26"
C50	46.94'	298.50'	46.89'	S29°22'15"W	9°00'35"
C51	30.67'	15.00'	25.60'	N81°55'50"W	117°08'54"
C52	251.23'	298.50'	243.88'	N0°45'17"E	48°13'21"
C53	90.90'	296.50'	90.54'	S37°20'50"W	17°33'54"
C54	82.65'	146.00'	81.55'	S82°59'31"W	32°26'00"
C55	23.05'	15.00'	20.85'	S65°10'37"W	88°03'48"
C56	90.14'	296.50'	89.80'	S19°51'19"W	17°25'10"
C57	52.71'	50.00'	50.30'	N81°54'37"W	60°24'08"
C58	16.10'	15.00'	15.34'	N82°28'01"W	61°30'55"
C59	31.46'	50.00'	30.94'	S49°51'56"W	36°02'47"
C60	20.89'	50.00'	20.73'	S19°52'32"W	23°56'02"
C61	45.36'	50.00'	43.82'	S18°04'55"E	51°58'52"

CURVE TABLE					
CURVE	LENGTH	RADIUS	CHORD DIST.	CHORD BRG.	DELTA
C62	81.63'	50.00'	72.86'	N89°09'26"E	93°32'26"
C63	43.20'	296.50'	43.16'	S47°29'34"E	8°20'54"
C64	20.44'	15.00'	18.90'	S39°21'46"E	78°05'19"
C65	69.28'	114.00'	68.21'	N84°11'03"E	34°49'03"
C66	16.10'	15.00'	15.34'	N36°01'04"E	61°30'55"
C67	32.40'	50.00'	31.84'	N23°49'25"E	37°07'37"
C68	81.47'	758.50'	81.43'	S5°35'23"E	6°09'15"
C69	75.03'	758.50'	75.00'	S0°19'17"W	5°40'04"
C70	75.03'	758.50'	75.00'	S5°59'20"W	5°40'04"
C71	121.52'	758.50'	121.39'	S13°24'45"W	9°10'46"
C72	75.03'	758.50'	75.00'	S20°50'10"W	5°40'04"
C73	75.03'	758.50'	75.00'	S26°30'14"W	5°40'04"
C74	14.94'	341.50'	14.94'	S32°37'19"W	2°30'26"
C75	60.07'	758.50'	60.06'	S31°36'24"W	4°32'17"
C76	75.15'	341.50'	75.00'	S25°03'50"W	12°36'31"
C77	75.15'	341.50'	75.00'	S12°27'19"W	12°36'31"
C78	58.57'	341.50'	58.50'	S1°14'15"W	9°49'38"
C79	55.78'	341.50'	55.72'	S8°21'20"E	9°21'32"
C80	17.99'	15.00'	16.93'	S5°08'01"W	68°43'23"
C81	96.52'	341.50'	96.20'	S21°07'55"E	16°11'37"

### PUBLIC UTILITY EASEMENTS



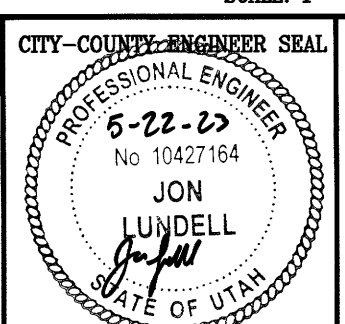
### BUILDING SETBACKS (MINIMUM)



## THE VISTAS WEST @ SUMMIT RIDGE PHASE 1

UTAH COUNTY, UTAH

SCALE: 1" = 80 FEET

NOTARY PUBLIC SEAL _____ _____	CITY-COUNTY ENGINEER SEAL  JON LUNDELL No. 10427164 STATE OF UTAH	COUNTY-RECORDER SEAL ENT 38722:2023 Map 4 18793 ANDREA ALLEN UTAH COUNTY RECORDER 2023 Jun 15 9:19 am FEE 184.00 BY TR RECORDED FOR SANTAQUIN CITY CORPORATION
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This form approved by Utah County and the municipalities therein.

18793 202



# SANTAQUIN CITY FIRE & EMS DEPARTMENT

Fire Chief Ryan Lind  
firechief@santaquin.org

Phone: 801-754-3211

Cell: 385-329-6271

---

To: Mayor Olson, City Council Members  
From: Chief Ryan Lind  
Date: September 26, 2023  
RE: Ladder Truck Order

Mayor Olson, and City Council Members, I would like to propose placing an order for a new 107' aerial ladder truck for Santaquin Fire and EMS. This vehicle is needed in our department and community as we experience growth in both residential, as well as commercial occupancies.

Placing an order for this vehicle now will allow us to take delivery of this vehicle in 36-38 months. As with any vehicle, the cost of this vehicle is only rising. Both manufacturers that quoted us a price for a vehicle indicated a potential price increase of 5-7% before the end of this calendar year.

Much like the snowplow truck that was approved and ordered almost 3 years ago, the lead time for this vehicle is also increasing each month.

This ladder truck is designed to last our department 20 years and is also on the state contract pricing, which allows us some savings.

I have included four quotes for this vehicle, each showing the potential savings by prepaying some of the costs. These options include a 13% prepayment with \$23,321.76 in savings. A 25% prepayment option with \$68,513.88 in savings. A 50% prepayment option with \$140,003.41 savings. Along with the zero-down option with no prepayment savings.

This vehicle is not a new concept and is something that has been proposed for the last four years in our budget meetings. This ladder truck is also included in our Public Safety Master Plan and for which we are currently collecting impact fees. With the long lead times, and prices only increasing, now is the time to order the vehicle and lock the price in and delivery in three years.

Thank you for your consideration on this matter.

Please let me know if you have any questions.

Siddons Martin Emergency Group, LLC  
 7285 S. 700 West  
 Midvale, UT 84047  
 Business Number 221B



August 22, 2023

Ryan Lind, Fire Chief  
 SANTAQUIN CITY FIRE DEPARTMENT &  
 AMBULANCE  
 275 W MAIN ST  
 SANTAQUIN, UT 84655

**Proposal For: 2026 Santaquin 107' Tandem Ladder**

Siddons-Martin Emergency Group, LLC is pleased to provide the following proposal to SANTAQUIN CITY FIRE DEPARTMENT & AMBULANCE. Unit will comply with all specifications attached and made a part of this proposal. Total price includes delivery FOB SANTAQUIN CITY FIRE DEPARTMENT & AMBULANCE and training on operation and use of the apparatus.

Description	Amount												
<p><b>Qty. 1 - 1089 - Pierce-Custom Enforcer Aerial - 107'</b>  <b>(Unit Price - \$1,717,656.00)</b>            Delivery within 33-34 months of order date            QUOTE # - SMEG-0005838-0</p>	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="border-top: 1px solid black;">Vehicle Price</td> <td style="text-align: right; border-top: 1px solid black;">\$1,717,656.00</td> </tr> <tr> <td><b>1089 - UNIT TOTAL</b></td> <td style="text-align: right;"><b>\$1,717,656.00</b></td> </tr> <tr> <td colspan="2" style="padding: 10px 0 10px 20px;"> </td> </tr> <tr> <td style="border-top: 1px solid black;">SUB TOTAL</td> <td style="text-align: right; border-top: 1px solid black;">\$1,717,656.00</td> </tr> <tr> <td style="border-top: 1px solid black;">Straight Purchase</td> <td style="text-align: right; border-top: 1px solid black;">\$0.00</td> </tr> <tr> <td style="border-top: 3px double black;"><b>TOTAL</b></td> <td style="text-align: right; border-top: 3px double black;"><b>\$1,717,656.00</b></td> </tr> </table>	Vehicle Price	\$1,717,656.00	<b>1089 - UNIT TOTAL</b>	<b>\$1,717,656.00</b>			SUB TOTAL	\$1,717,656.00	Straight Purchase	\$0.00	<b>TOTAL</b>	<b>\$1,717,656.00</b>
Vehicle Price	\$1,717,656.00												
<b>1089 - UNIT TOTAL</b>	<b>\$1,717,656.00</b>												
SUB TOTAL	\$1,717,656.00												
Straight Purchase	\$0.00												
<b>TOTAL</b>	<b>\$1,717,656.00</b>												

Price guaranteed for 60 days unless 2024 Paccar engines sell out.

**Additional:** 'NOTE: Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.'

**Taxes:** Tax is not included in this proposal. In the event that the purchasing organization is not exempt from sales tax or any other applicable taxes and/or the proposed apparatus does not qualify for exempt status, it is the duty of the purchasing organization to pay any and all taxes due. Balance of sale price is due upon acceptance of the apparatus at the factory.

**Late Fee:** A late fee of .033% of the sale price will be charged per day for overdue payments beginning ten (10) days after the payment is due for the first 30 days. The late fee increases to .044% per day until the payment is received. In the event a prepayment is received after the due date, the discount will be reduced by the same percentages above increasing the cost of the apparatus.

**Cancellation:** In the event this proposal is accepted and a purchase order is issued then cancelled or terminated by Customer before completion, Siddons-Martin Emergency Group may charge a cancellation fee. The following charge schedule based on costs incurred may be applied:

- (A) 10% of the Purchase Price after 30 calendar days of order accepted and entered by manufacturer;
- (B) 20% of the Purchase Price after completion of the approval drawings;
- (C) 30% of the Purchase Price upon any material requisition.

The cancellation fee will increase accordingly as costs are incurred as the order progresses through engineering and into manufacturing. Siddons-Martin Emergency Group endeavors to mitigate any such costs through the sale of such product to another purchaser; however, the customer shall remain liable for the difference between the purchase price and, if applicable, the sale price obtained by Siddons-Martin Emergency Group upon sale of the product to another purchaser, plus any costs incurred by Siddons-Martin to conduct such sale.

**Acceptance:** In an effort to ensure the above stated terms and conditions are understood and adhered to, Siddons-Martin Emergency Group, LLC requires an authorized individual from the purchasing organization sign and date this proposal and include it with any purchase order. Upon signing of this proposal, the terms and conditions stated herein will be considered binding and accepted by the Customer. The terms and acceptance of this proposal will be governed by the laws of the state of Utah. No additional terms or conditions will be binding upon Siddons-Martin Emergency Group, LLC unless agreed to in writing and signed by a duly authorized officer of Siddons-Martin Emergency Group, LLC.

Sincerely,



**Chad Frisby**

I, \_\_\_\_\_, the authorized representative of SANTAQUIN CITY FIRE DEPARTMENT & AMBULANCE, agree to purchase the proposed and agree to the terms of this proposal and the specifications attached hereto.

\_\_\_\_\_  
Signature & Date



# Option List

9/26/2023

<b>Customer:</b>	Santaquin City Fire Department	<b>Bid Number:</b>	1089
<b>Representative</b>	Frisby, Chad	<b>Job Number:</b>	
<b>Organization:</b>	Siddons-Martin Emergency Group	<b>Number of Units:</b>	1
<b>Requirements Manager:</b>		<b>Bid Date:</b>	05/22/2023
<b>Description:</b>	Santaquin Aerial	<b>Stock Number:</b>	
<b>Body:</b>	Aerial, HD Ladder 107' ASL Tandem, PUC, Alum Body	<b>Price Level:</b>	46 (Current: 46)
<b>Chassis:</b>	Enforcer Chassis, Aerials, Tandem Axle, Ascendant/LSL, PUC-NG	<b>Lane:</b>	Lane 1

Line	Option	Type	Option Description	Qty
1	0766640		Boiler Plates, Aerial 107' ASL Fire Department/Customer - Santaquin Fire Department Operating/In conjunction W-Service Center - Operating Miles - 50 Miles Number of Fire Dept/Municipalities - 2 Bidder/Sales Organization - Siddons Martin Delivery - Delivery representative Dealership/Sales Organization, Service - Siddons Martin	1
2	0018180		Single Source Compliance, Aerials	1
3	0584456		Manufacture Location, Appleton, Wisconsin	1
4	0584452		RFP Location: Appleton, Wisconsin	1
5	0588609		Vehicle Destination, US	1
6	0791096	SP	Build My Pierce™ Truck Fill in Blank - Booked with 517 Options and 6 SPs	1
7	0610784		Comply NFPA 1901 Changes Effective Jan 1, 2016, With Exceptions	1
8	0533351		Quint Fire Apparatus	1
9	0588612		Vehicle Certification, Aerial w/Pump	1
10	0681278		Agency, Apparatus Certification, Aerial w/Pump, U.L.	1
11	0891947		Certification, Vehicle Inspection Program, NFPA 1901	1
12	0000114		Inspection Trip(s) Qty, - 02 Fill in Blank - Pre-construction at factory with 3 department members and Final inspection at factory also with 3 department members	2
13	0000000	STF	Purchase Order Submitted	1
14	0787514		Consortium, NASPO ValuePoint	1
15	0537375		Unit of Measure, US Gallons	1
16	0030006		Bid Bond Not Requested	1
17	0816849		Performance Bond, Not Requested	1
18	0000007		Approval Drawing	1
19	0002928		Electrical Diagrams	1
20	0889374		Enforcer Chassis, Aerials, Tandem Axle, Ascendant/LSL, PUC-NG	1
21	0000110		Wheelbase Wheelbase - 250.5"	1
22	0000070		GVW Rating GVW rating - 68,000#	1
23	0729280		Frame Rails, 13.38 x 3.50 x .375, Enforcer	1
24	0889469		Frame Liner, "C/Inv L" 12.50" x 3.00" x .25", AXT/Vel/Imp/Enf, 56" QVal	1
25	0629940		Axle, Front, Oshkosh TAK-4, Non Drive, 22,800 lb, Enforcer	1
26	0010427		Suspension, Front TAK-4, 22,800 lb, Qtm/AXT/Imp/Vel/Enf/SFR	1
27	0087572		Shock Absorbers, KONI, TAK-4, Qtm/AXT/Imp/Vel/DCF/Enf	1
28	0000322		Oil Seals, Front Axle	1
29	0899438		Tires, Front, Goodyear, Armor MAX MSA, 425/65R22.50, 20 ply	1
30	0019611		Wheels, Front, Alcoa, 22.50" x 12.25", Aluminum, Hub Pilot	1
31	0728355		Axle, Rear, Meritor RT58-185, 58,000 lb, Enforcer	1
32	0544244		Top Speed of Vehicle, 60 MPH/96 KPH	1
33	0759266		Suspen, Rear, Ultimaax 58,000 lb, Rubber	1
34	0000485		Oil Seals, Rear Axle	1
35	0627528		Tires, Rear, Goodyear, G751 MSA, 315/80R22.50, LRL, Tandem	1
36	0623324		Wheels, Rear, Accuride, 22.50" x 9.00", Aluminum, Hub Pilot, Tandem	1
37	0568081		Tire Balancing, Counteract Beads	1

Item # 12.



Line	Option	Type	Option Description	Qty
38	0620569		Tire Pressure Monitoring, RealWheels, AirSecure, Valve Cap, Tandem Axle Qty, Tire Pressure Ind - 10	1
39	0801909		Lug Nut, Covers, Chrome	1
40	0003245		Axle Hub Covers w/center hole, S/S, Front Axle	1
41	0013241		Axle Hub Covers, Rear, S/S High Hat (Tandem)	1
42	0002045		Mud Flap, Front and Rear, Pierce Logo	1
43	0760600		Chains, Onspot, Automatic Tire, Custom, Extreme Duty Application	1
44	0601010		Chocks, Wheel, SAC-44-E, Folding, Aerials Qty, Pair - 01	1
45	0601009		Mounting Brackets, Chocks, SAC-44-E, Folding, Horizontal, Aerials Qty, Pair - 01 Location, Wheel Chocks - Left Side Rear Tire, Forward	1
46	0593759		ESC/ABS/ATC Wabco Brake System, Tandem Rear Axle, 2010	1
47	0030185		Brakes, Knorr/Bendix 17", Disc, Front, TAK-4	1
48	0000730		Brakes, Meritor, Cam, Rear, 16.50 x 7.00"	1
49	0735527		Air Compressor, Brake, Wabco 26.8 CI, Paccar	1
50	0601345		Brake Reservoirs, 8,616 Cubic Inch Minimum Capacity, Saber FR/Enforcer	1
51	0617092		Air Dryer, Wabco System Saver 1200, With Wet Tank, Heated,Saber FR/Enforcer	1
52	0000790		Brake Lines, Nylon	1
53	0000854		Air Inlet, w/Disconnect Coupling Location, Air Coupling(s) - a) DS Step Well, Forward Qty, Air Coupling (s) - 1	1
54	0070810		All Wheel Lockup (Aerial/Tanker Chassis)	1
55	0811018	SP	Engine, Paccar MX13, 510HP, 1850 lb-ftW/OBD, EPA 2024, Enforcer, BMP/HDR/STK	1
56	0001244		High Idle w/Electronic Engine, Custom	1
57	0735687		Engine Brake, Fully Integrated, Paccar MX13 Engine Switch, Engine Brake - MX13	1
58	0644227		Clutch, Fan, Air Actuated, Saber FR/Enforcer	1
59	0644573		Air Intake, Water & Ember Screen, Saber FR/Enforcer	1
60	0814375		Exhaust System, Horizontal, Right Side Exhaust, Diffuser - Aluminized Steel (Standard) Exhaust, Material/Finish - Aluminized Steel (Standard) Location, Diffuser Termination - 2.00" Past Rub Rail (Standard) Tip, Exhaust - Straight Tip (Standard)	1
61	0788765		Radiator, Saber FR/Enforcer	1
62	0001090		Cooling Hoses, Rubber	1
63	0001125		Fuel Tank, 65 Gallon, Left Side Fill	1
64	0001129		Lines, Fuel	1
65	0889521		DEF Tank, 7.3 Gallon, LS Fill, Under Cab, Paccar, Lift Up Fill Dr, Spring, ENF Door, Material & Finish, DEF Tank - Polished Stainless	1
66	0552793		Not Required, Fuel Priming Pump	1
67	0552712		Not Required, Shutoff Valve, Fuel Line	1
68	0699437		Cooler, Chassis Fuel, Not Req'd.	1
69	0690880		No Selection Required From This Category	1
70	0887546		Trans, Allison 6th Gen, 4000 EVS P, w/Prognostics, Imp/Vel/SFR/Enf	1
71	0625331		Transmission, Shifter, 6-Spd, Push Button, 4000 EVS	1
72	0517604		Transmission Programming, Park to Neutral, PUC	1
73	0684459		Transmission Oil Cooler, Modine, External	1
74	0565656		Fluid, 4000/4500 Series Transmission, TranSynd synthetic, IPOS, Custom	1
75	0001375		Driveline, Spicer 1810	1
76	0734211		Steering, Sheppard M110 w/Tilt, TAK-4, Paccar Pump, w/Cooler, Paccar	1
77	0802950		Steering Wheel, 4 Spoke w/Wiper Control, Saber FR/Enforcer	1
78	0690274		Logo/Emblem, on Dash Text, Row (1) One - Santaquin Text, Row (2) Two - Fire Text, Row (3) Three - Department	1
79	0012245		Bumper, 19" Extended, Saber FR/Enforcer	1
80	0640197		Tray, Hose, Center, 19" Bumper, Outside Air Horns Grating, Bumper extension - Grating, Rubber Capacity, Bumper Tray - 20) 125' of 1.75"	1

Line	Option	Type	Option Description	Qty
81	0790381		Cover, Aluminum Treadplate, Drop Down Bumper, Reinforced	1
			Stay arm, Tray Cover - a) Mech Stay Arm	
82	0614646		No Lift & Tow Package, Imp/Vel, AXT, SFR/Enf	1
83	0002270		Tow Hooks, Chrome	1
84	0678603		Bumper, Center Section Hinged, Single D-Ring	1
85	0787314		Cab, Enforcer, 8410 w/Notch, PUC	1
86	0747442		Engine Tunnel, X12, MX13, Enforcer	1
87	0610508		Rear Wall, Interior, Adjustable Seating, Not Available	1
88	0632103		Rear Wall, Exterior, Cab, Saber FR/Enforcer	1
			Material, Exterior Rear Wall - Aluminum Treadplate	
89	0644201		Cab Lift, Elec/Hyd, Saber FR/Enforcer	1
90	0695930		Grille, Bright Finished, Front of Cab, Enforcer	1
91	0002224		Scuffplates, S/S At Cab Door Jambs, 4-Door Cab	1
			Material Trim/Scuffplate - c) S/S, Polished	
92	0647932		Not Required, Trim, S/S Band, Across Cab Face, AXT/Saber/Enforcer	1
93	0087357		Molding, Chrome on Side of Cab	1
94	0521669		Mirrors, Retractable, West Coast Style, Htd/Rmt, w/Htd/Rmt Convex	1
95	0648172		Door, Full Height, Saber FR/Enforcer 4-Door Cab, Raised Roof	1
			Key Model, Cab Doors - 751	
			Cab, Exterior Door Handle, Finish - 4-Door, Chrome/Black	
96	0655543		Door Panel, Brushed Stainless Steel, Saber/Enforcer 4-Door Cab	1
97	0630636		Controls, Electric Roll-Up Windows, 4dr, 4 Driver Controls, Saber FR/Enforcer	1
98	0638310		Steps, 4-Door Cab, Saber FR/Enforcer	1
			Step Well Material - Aluminum Treadplate	
99	0770194		Handrail, Exterior, Knurled, Alum, 4-Door Cab	1
100	0892638		Lights, Cab & Crw Cab Acs Stps, P25, LED w/Bezel, 6lts	1
			Color, Trim - Chrome Housing	
101	0583698		Fenders, S/S on cab, Extra Wide, Saber/Enf	1
102	0621815		No Windows, Side of Crew Cab, 84" Enforcer	1
103	0779033		Not Required, Windows Rear of Crew Cab, Saber FR/Enforcer	1
104	0722796		Dash, Poly, Saber FR/Enforcer	1
105	0750824		Cab Interior, Vinyl Headliner, Saber FR/Enforcer, CARE	1
			Color, Cab Interior Vinyl/Fabric - Endure Vinyl - Black	
			Engine Tunnel Cover - Dark Silver Gray Endure Vinyl	
			Cab Interior Rear Wall Material - Painted Aluminum	
106	0753903		Cab Interior, Paint Color, Saber FR/Enforcer	1
			Color, Cab Interior Paint - i) fire smoke gray	
107	0888673		Floor, Rubber Padded, Cab & Crew Cab, Blister, UL-LX, Enforcer PUC-NG	1
108	0722696		HVAC, Enforcer, CARE	1
			HVAC System, Filter Access - Removable Panel	
			Auxiliary Cab Heater - Both	
			HVAC System, Control Loc. - Panel Position #12	
			Plenum Cover Material - Formed Plastic	
109	0639675		Sun Visor, Smoked Lexan, AXT, Imp/Vel, Saber FR/Enforcer	1
			Sun Visor Retention - No Retention	
110	0634328		Grab Handles, Driver and Officer Door Posts, Saber FR/Enforcer	1
111	0583938		Lights, Engine Compt, Custom, Auto Sw, Wln 3SC0CDCR, 3" LED, Trim	1
			Qty, - 01	
112	0631830		Fluid Check Access, Saber FR/Enforcer, Arrow XT	1
			Latch, Door, Storage - Lift and Turn Latch, Flush	
113	0583042		Side Roll and Frontal Impact Protection	1
114	0622617		Seating Capacity, 6 Seats	1
115	0636955		Seat, Driver, Pierce PSV, Air Ride, High Back, Safety, Saber FR/Enforcer	1
116	0621633		Seat, Officer, Pierce PSV, Air Ride, SCBA, Safety, Slides, Saber FR/Enforcer	1
117	0002517		Not Required, Radio Compartment	1
118	0757997		Cabinet, Rear Facing, LS, 23 W x 40.25 H x 26.75 D, Lap, Ext Acc, SFR/Enf	1
			Light, Short Cabinet - Pierce, Exterior, Left Side	
			Scuffplate, Material/Finish - S/S, Brushed	
			Material Finish, Shelf - Painted - Cab Interior	
			Shelf/Tray, Cabinet - (2) Shelves, Adjustable, 1.25" Up-Turned Lip	
			Door, Cab Exterior Cabinet - Double Pan, Locking #751	
			Door, Exterior Stop - Bumper	
			Door, Cab Interior Cabinet - Lap, IB, (2) Lever, Non-Locking	

Line	Option	Type	Option Description	Qty
118			Louvers, Cabinet - 0-No Louvers	
119	0102783		Not Required, Seat, Rr Facing C/C, Center	1
120	0767457		Cabinet, Rear Facing, RS, 22 W x 43 H x 26.75 D, Lap, Ext Acc, SFR/Enf	1
			Light, Short Cabinet - Pierce, Interior, Right Side	
			Scuffplate, Material/Finish - S/S, Brushed	
			Material Finish, Shelf - Painted - Cab Interior	
			Shelf/Tray, Cabinet - (2) Shelves, Adjustable, 1.25" Up-Turned Lip	
			Door, Cab Exterior Cabinet - Double Pan, Non-Locking	
			Door, Exterior Stop - Bumper	
			Door, Cab Interior Cabinet - Lap, IB, (2) Lever, Non-Locking	
			Louvers, Cabinet - 0-No Louvers	
121	0632946		Seat, Forward Facing C/C, DS Outboard, Pierce PSV, SCBA, Foldup, Safety, SFR/Enf	1
122	0635957		Seat, Forward Facing C/C, Center, (2) Pierce PSV, SCBA, Safety, Saber FR/Enf	1
123	0632873		Seat, Forward Facing C/C, PS Outboard, Pierce PSV, SCBA, Foldup, Safety, SFR/Enf	1
124	0566653		Upholstery, Seats In Cab, Turnout Tuff	1
			Color, Cab Interior Vinyl/Fabric - c) Black	
125	0543991		Bracket, Air Bottle, Hands-Free II, Cab Seats	5
			Qty, - 05	
126	0603866		Seat Belt, Dual Retractor, ReadyReach, Saber FR/Enforcer	1
			Seat Belt Color - Red	
127	0602464		Helmet Storage, Provided by Fire Department, NFPA 2016	1
128	0647644		Lights, Dome, FRP Dual LED 6 Lts	1
			Color, Dome Lt - Red & White	
			Color, Dome Lt Bzl - Black	
			Control, Dome Lt White - Door Switches	
			Control, Dome Lt Color - Lens Switch	
129	0896451		Enhanced Software for Cab and Crew Cab Dome Lts	1
130	0727913		Spotlight, Golight/RadioRay, Model 20**4GT, LED, 2 Lts	1
			Location - one on each side of cab	
			Color, GoLt - White	
			Bracket, Spotlight - No Bracket	
131	0650030		Controller, Spotlight, Golight, Wired Dash Mount, 2 Lts	1
132	0804993	SP	Location, Spotlight Controller, Engine Tunnel, Location	1
			Location 1 - two switches located on engine tunnel, one on each side for the officer and driver	
133	0602622		Portable Hand Light, Provided by Fire Department, Quint NFPA 2016 Classification	1
134	0603606		Cab Instruments, Ivory Gauges, Chrome Bezels, Enf MUX	1
			Emergency Switching - Individual Switches	
135	0509511		Air Restriction Indicator, Imp/Vel, AXT, Dash CF, Enf MUX	1
136	0543751		Light, Do Not Move Apparatus	1
			Alarm, Do Not Move Truck - Pulsing Alarm	
137	0509042		Messages, Open Dr/DNMT, Color Dsply,	1
138	0611683		Switching, Cab Instrument Lower Console & Overhead, Membrane, Enforcer WiFi MUX	1
139	0802946		Wiper Control, 2-Speed w/Intermittent, Steering Wheel, Left Pod, SFR/Enf	1
140	0731813		Hour Meter, Aerial, Included in Information Centers, ASL, AAT, ASP	1
141	0002615		Switch, Aerial 12V Master	1
142	0002617		PTO switch, w/light - aerial	1
143	0548004		Wiring, Spare, 15 A 12V DC 1st	2
			Qty, - 02	
			12vdc power from - Battery direct	
			Wire termination - Butt Splice	
			Location, Spare Wiring - Officer Dash	
144	0814201		Vehicle Information Center, 7" Color Display, Touchscreen, MUX, CL714	1
			System Of Measurement - US Customary	
145	0814219		Vehicle Information Center, 7" Color Display, MUX,Additional, Touchscreen, CL714	1
			Qty, - 01	
			System Of Measurement - US Customary	
			Location, CZ Displays - Engine Tunnel Right Side	
146	0734854		Collision Mitigation, Not Requested	1
147	0606247		Vehicle Data Recorder w/CZ Display Seat Belt Monitor	1

Line	Option	Type	Option Description	Qty
148	0808297		Intercom, Firecom 5100D Single Radio, 1 Wireless Base Station, 1-5 Wireless Location - behind officer seat	1
149	0006240		Cable, Radio to Intercom Interface, Firecom, 1 Radio Radio, First Two-Way Make - Motorola High Power	1
150	0602027		Radio, First, Two-Way Model - Motorola APX 7500 HP Headset, Firecom, Wireless, UHW-503 Under Helmet, Intercom Only Qty, - 04	4
151	0602376		Location - crew cab Headset, Firecom, Wireless, UHW-505 Under Helmet, Radio Transmit Qty, - 02	2
152	0736417		Location, Headset - Driver Seat and Officer Seat Install Customer Provided Two-Way Radio(s), Single Remote Head Location - behind officer seat Qty, - 02	2
153	0696439		Fill in Blank - overhead Antenna Mount, Custom Chassis, Cable Routed to Instrument Panel Area Qty, - 01	1
154	0816158		Location, Antenna Mount - Right Side Camera, Pierce, LS Mux, RS, LS, R, Cameras, AHD Color - 1) black	1
155	0814861		Camera System Audio - Not Provided Camera, Switcher, Pierce, 4 channel, AHD, CVBS	1
156	0747005		Video, Drivers Display to Passenger Display, Isolator, Mux Location - RS, LS, and rear cameras Qty, Video Cable - 3	1
157	0890416		Pierce Command Zone, Advanced Electronics & Control System, Enforcer, WiFi CZT Color, Antenna - Black Antenna Module Housings - Black Housing with Power and Status Ind	1
158	0896456		Prognostics, Electrical System	1
159	0624253		Electrical System, Enforcer MUX	1
160	0079166		Batteries, (4) Stryten/Exide Grp 31, 950 CCA ea, Threaded Stud	1
161	0008621		Battery System, Single Start, All Custom Chassis	1
162	0002698		Battery Compartment, Saber/Enforcer	1
163	0812383		Charger, Sngl Sys, Kussmaul, Chief 091-266-12-40	1
164	0814869		Location, Cab, Charger, Behind Driver Seat	1
165	0016857		Shoreline, 20A 120V, Kussmaul Auto Eject, 091-55-20-120, Super Qty, - 01 Color, Kussmaul Cover - b) red Shoreline Connection - Battery Charger	1
166	0026800		Shoreline Location Location, Shoreline(s) - DS Cab Side	1
167	0647729		Alternator, 320 amp, Delco Remy 40SI	1
168	0092582		Load Manager/Sequencer, MUX Enable/Disable Hi-Idle - e)High Idle enable	1
169	0783157		Headlights, Rect LED, JW Spkr Evo 2, Heat, AXT/DCF/Enf/Imp/Sab/Vel Color, Headlight Bez - Chrome Bezel	1
170	0802935		Light, Directional, WIn M62T* LED, Cmn Bzl, Above Headlights, Sab/Enf Color, Lens, LED's - Clear Color, Q Bezel and Trim - Polished Chrome Flash Pattern, Directional Lts - Steady On (Arrow)	1
171	0620054		Light, Directional/Marker, Intermediate, Weldon 9186-8580-29 LED 2lts	1
172	0735474		Lights, Clearance/Marker/ID, Front, P25 LED 7 Lts, Saber FR/Enforcer Light Guard - No Guards	1
173	0647899		Lights, Directional/Marker, Cab Front Side, Weldon 9186-8580-29 LED, Sab/Enf	1
174	0511569		Lights, Clearance/Marker/ID, Rear, P25 LED 7Lts Light Guard - Without Guard	1
175	0602938		Light, Marker End Outline, Rubber Arm, LED Marker Lamp, Rear Body Qty, Lights, Pair - 1	1
176	0804514		Lights, Tail, WIn M62BTT* Red Stop/Tail & M62T* Amber Dir Arw For Hsg Color, Lens, LED's - Clear Flash Pattern, Directional Lts - Steady On (Arrow)	1
177	0806466		Lights, Backup, WIn M62BU, LED, For Tail Lt Housing	1

Line	Option	Type	Option Description	Qty
178	0889577		Bracket, License Plate & Light, P25 LED, Stainless Brkt Color, Trim - Chrome Housing	1
179	0556842		Bezels, Wln, (2) M6 Chrome Pierce, For mtg (4) Wln M6 lights	1
180	0589905		Alarm, Back-up Warning, PRECO 1040	1
181	0750196	SP	Light, Accent, Amdor AY-LB-12HB012, LED, Each Location - Grill Qty, - 01 Control, Light - headlights	1
182	0769420		Lights, Perimeter Cab, Amdor AY-LB-12HW020 LED 4Dr	1
183	0769572		Lights, Perimeter Pump House, Amdor AY-LB-12HW020 LED 2lts	1
184	0615864		Lights, Perimeter Body, Truck-Lite 44308C LED 1lt, Turntable Access Control, Perimeter Lts - Parking Brake Applied	1
185	0896454		Enhanced Software for Perimeter Lts	1
186	0776357		Light, Visor, Wln, 12V P*H2* Pioneer, Cnt Feature, 1st Qty, - 01 Location, driver's/passenger's/center - Centered Color, Wln Lt Housing - White Paint Control, Scene Lts - Cab Sw Panel DS and Cab Sw Panel PS Scene Light Optics - Flood/Spot	1
187	0893377		Lights, Wln, M9LZC Gradient, 12 VDC, 2nd Location - LS cab high centered between doors Qty, - 01 Control, Scene Lts - PS Scene Lts Color, Trim - Chrome Trim	1
188	0893380		Lights, Wln, M9LZC Gradient, 12 VDC, 1st Location - RS cab high centered between doors Qty, - 01 Control, Scene Lts - DS Scene Lts Color, Trim - Chrome Trim	1
189	0893374		Lights, Wln, M9LZC Gradient, 12 VDC, 1st Location - Each side of rear body high Qty, - 02 Control, Scene Lts - Rear Scene Controls Color, Trim - Chrome Trim	2
190	0888885		Lights, Wln, PSL2B* Pioneer, 12 VDC, 1st Location - Over LS3 Qty, - 01 Color, Wln Lt Housing - White Paint Control, Scene Lts - DS Scene Lts Scene Light Optics - Flood/Spot	1
191	0888882		Lights, Wln, PSL2B* Pioneer, 12 VDC, 2nd Location - Over RS4 Qty, - 01 Color, Wln Lt Housing - White Paint Control, Scene Lts - PS Scene Lts Scene Light Optics - Flood/Spot	1
192	0898617		Lights, Hose Bed, Sides, Dual Strips, 45 Ends Control, Hose Bed Lts - Park Brk	1
193	0709438		Lights, Walk Surf, FRP Flood, LED	1
194	0788426		Aerial, HD Ladder 107' ASL Tandem, PUC, Alum Body	1
195	0554269		Body Skirt Height, 18"	1
196	0618437		Tank, Water, 500 Gallon, Poly, Ascendant TA, PAL, 3" Notch, HB on Side, PUC	1
197	0003405		Overflow, 4.00" Water Tank, Poly	1
198	0028107		Not Required, Foam Cell Modification	1
199	0003429		Not Required, Direct Tank Fill	1
200	0751577		Hose Bed, Aluminum, Trough Style, 2G Aerial Location, driver's/passenger's/center - Right Side Door, Material & Finish, Access - smooth aluminum Latch, Door, Access - lift and turn latch	1
201	0723547		Painted Hose Bed/Cargo Area Paint Color, Hose Bed Interior - Match Lower Body	1
202	0003491		Hose Bed Capacity 1000' of 5.00", Ascendant, PAP, PAL	1
203	0591017		Hose Restraint, Hose Bed, Aerial, Front Velcro Strap, Top	1

Line	Option	Type	Option Description	Qty
204	0515525		Not Required, Running Boards, PUC	1
205	0735594		Turntable Steps-Morton Cass, Swing Down, LS only, Ascend TA, PAL, PAP, Handhld Cut Out	1
206	0889980		Step, Flip - No Flip Step Lights, Step (3), P25 LED, One Side Control, Scene Lts - Aerial master	1
207	0690023		Wall, Rear, Smooth Aluminum	1
208	0029503		Tow Eyes (2), Painted Lower Job Color, Aerial	1
209	0013641		Construction, Compt, Alum, Ascendant Tandem, PAL	1
210	0063695		Compt, LS F/H F/D, Roll Drs, w/o Chute, Ascendant Tandem, 105', 100 HAL Hinge Location - Rear of Body Door, Material & Finish, Stabilizer - Polished Stainless Steel Latch, Door, Access - SouthCo C2 chrome raised	1
211	0063727		Compt, LS Turntable, F/H F/D, Roll Dr & Lift Dr, Ascendant Tandem, 105'	1
212	0023672		Compt, IPO Stairs, Not Required, LS	1
213	0063733		Compt, RS F/H, Roll Drs, Ascendant Tandem, 105 HDL, 100 HAL Hinge Location - Rear of Body Door, Material & Finish, Stabilizer - Polished Stainless Steel Latch, Door, Access - lift and turn latch, flush	1
214	0035382		Compt, RS Turntable, F/H, Roll Dr & Lift Dr, Ascendant Tandem, 105 HDL	1
215	0023680		Compt, IPO Stairs RS, Roll-up Door	1
216	0601969		Doors, Gortite Rollup/Lap, Aluminum, Side Compartments, 105'HDL/Ascendant Tandem Qty, Door Accessory - 06 Color, Roll-up Door, Gortite - Painted to Match Lower Body Latch, Roll-up Door, Gortite - Non-Locking Liftbar	6
217	0540787		Stabilizer Compartment, Modified for 18" Stabilizer Penetration	1
218	0556162		Not Req'd, Compt Blister in Front of Rear Axle	1
219	0018820		Bumper, Rear, 5" w/Treadplate Cover, Ascendant Tandem, PAP, PAL, RMAP	1
220	0603711		Guard, Drip Pan, S/S, Rollup Door, Aerial Qty, Door Accessory - 09 Location, Door Guard/Drip Pan - LS1, LS2 Over Wheel, LS3, LS4, RS1, RS2, RS3 Over Wheel, RS4 and RS5	9
221	0603083		Lights, Compt, Pierce LED, Dual Light Strips, Each Side Dr, Ascend TA, 75' HAL, PAP, HDL Qty, - 09 Location, Compartment Lights - All Body Compts	9
222	0603420		Shelf Tracks, Painted, Aerial Qty, Shelf Track - 06 Location, Shelf Track - LS1, LS3, LS4, RS1, RS3 and RS4	6
223	0600289		Shelves, Adj, 500 lb Capacity, Full Width/Depth, Predefined Locations, Aerial Qty, Shelf - 11 Material Finish, Shelf - Painted - Spatter Gray Location, Shelves/Trays, Predefined - RS2-Centered, RS1-Lower Third, RS3-Lower Third, RS3-Upper Third, RS1-Upper Third, RS4-Upper Third Left of Partition, RS4-Lower Third Left of Partition, LS1-Lower Third, LS3-Lower Third, LS3-Upper Third and LS1-Upper Third	11
224	0603763		Tray, Floor Mounted, Slide-Out, 500lb, 2.00" Sides, 2G Aerial Qty, - 02 Location, Tray Slide-Out, Floor Mounted - RS1 and LS1 Material Finish, Tray - Painted - Spatter Gray	2
225	0540317		Toolboard, Swing-out, Alum, .188", Peg Board Qty - 1 Location, Pivot - Front Mounting, Toolboard - Adjustable Frt-back Hole Diameter, Pegboard/Toolboard - .203" diameter Finish, Pegboard/Toolboard - Painted - Spatter Gray Location, Toolboard - LS2 - Full Height/Width	1
226	0673867		Toolboard, Swing-out, Alum, .188", Peg Board, 3G, Add'l Qty - 1 Location, Pivot - Back Mounting, Toolboard - Stationary Hole Diameter, Pegboard/Toolboard - .203" diameter Finish, Pegboard/Toolboard - Painted - Spatter Gray Location, Toolboard - LS2 - Full Height/Width	1

Line	Option	Type	Option Description	Qty
227	0726457		Partition, Vertical Compt, Predefined Locations Qty, Partition - 01 Location, Partition/Toolboard, Predefined - RS3- 12.00" From Forward Door Frame Material Finish, Partition - Painted - Spatter Gray	1
228	0004016		Rub Rail, Aluminum Extruded, Side of Body	1
229	0802978		Fender Crowns, Rear, S/S, w/Removable Fender Liner, Aerial, 2G, Two Pair Material Finish, Fender Liner - Painted Lower Body	1
230	0519849		Not Required, Hose, Hard Suction	1
231	0592112		No Handrails Req'd @ Side Pump Panel, Enclosed Pump Module	1
232	0802986		Compt, Air Bottle, Between Tandems, Four (4) Bottles, w/ Straps, Bolt-In, Aerial Qty, Air Bottle Comp - 2 Door Finish, Fender Compt - Polished Location, Fender Compt - LS and RS Latch, Air Bottle Compt - Southco C2 Chrome Raised, Pair Insert, Air Bottle Compt - Rubber Matting Door Type - drop down with support cable	2
233	0804426		Compt, Air Bottle, Single, Round, Fender, Bolt-In, Tandem Aerials Qty, Air Bottle Comp - 2 Door Finish, Fender Compt - Polished Location, Fender Compt - Single - RS Fwd and Single - RS Rear Latch, Air Bottle Compt - Southco C2 Chrome Raised Insert, Air Bottle Compt - Rubber Matting	2
234	0806235		Compt, Air Bottle, Single, Round, Fender, Tri Door w/DEF, Bolt-In,Tandem Aerials Qty, Air Bottle Comp - 1 Door Finish, Fender Compt - Polished Location, Fender Compt - Single - LS Fwd - DEF Combo - Triangular Dr Latch, Air Bottle Compt - Southco C2 Chrome Raised Insert, Air Bottle Compt - Rubber Matting	1
235	0805714		Compt, Air Bottle, Single, Round, Fender, Tri Door w/Fuel,Bolt-In,Tandem Aerials Qty, Air Bottle Comp - 1 Door Finish, Fender Compt - Polished Location, Fender Compt - Single - RS Rear - Fuel Fill Combo - Triangular Dr Latch, Air Bottle Compt - Flush Lift & Turn Insert, Air Bottle Compt - Rubber Matting	1
236	0004218		Ladder, 35' Duo-Safety 1200A 2-Sect Qty, - 1	1
237	0004222		Ladder, 24' Duo-Safety 900A 2-Section Qty, - 01 Location, Extension Ladder - torque box	1
238	0004232		Ladder, (2) 16' Duo-Safety 875A Roof	1
239	0004233		Ladder, 14' Duo-Safety Fresno 701 Qty, - 1	1
240	0004246		Ladder, 10' Duo-Safety Folding, 585A Qty, - 01 Location, Folding Ladder Aerial - torque box	1
241	0042207		Ladders Stored in Torque Box, Gortite Roll, Ascendant TA, PAL, PAP Color, Roll-up Door, Gortite - Satin finish Latch, Roll-up Door, Gortite - Non-Locking, Rear	1
242	0602100		Lights, Torque Box Ladder Storage, Pierce LED Strip Lights, 2 Lts	1
243	0656741		Ladder, Little Giant, Provided by Fire Department Location - floor of RS3 Qty, - 01	1
244	0802285		Little Giant/Werner/Wall Ladder Storage, Horizontal In Compartment Ladder, Make/Model - Little Giant Classic Model 17 Location Within Compartment - floor of RS5 Location, Compartment, Predefined - RS5 Configuration, BB/Stokes/LG - Horizontal	1
245	0775907		Pike Pole, 12' DUO Safety, Fiberglass Qty, - 02	2
246	0789564		Pike Pole, 8' DUO Safety, Fiberglass, Aerial Qty, - 02	2

Line	Option	Type	Option Description	Qty
247	0789566		Pike Pole, 6' DUO Safety, Fiberglass, Aerial	1
			Qty, - 01	
248	0789586		Pike Pole, 3' DUO Safety, Fiberglass, w/D Handle	2
			Qty, - 02	
249	0770578		Pike Pole Tubes, in Torque Box/Ladder Storage, ABS	6
			Qty, - 06	
250	0024388		No Steps Required, Front Of Body	1
251	0553873		Pump Operators Panel & Module, Aluminum, Control Zone, Ascendant/PAL/PAP PUC	1
252	0520016		Not Required, Pumphouse Structure, PUC	1
253	0889383		Pump, Pierce, 2000 GPM, Single Stage, PUC-NG	1
254	0515822		Seal, Mechanical, Silicon Carbide, PUC Pump	1
255	0889382		Gear Case, Integrated Pump Transmission, PUC-NG, Paccar	1
256	0721196		Pumping Mode, Pump and Roll/Stationary, Basic, MUX, PUC	1
257	0515829		Pump Shift, Sure-Shift	1
258	0515833		Transmission Lock-up, Not Req'd, Park to Neutral, Pump, PUC	1
259	0515835		Auxiliary Cooling System, PUC	1
260	0014486		Not Required, Transfer Valve, Single Stage Pump	1
261	0746501		Valve, Relief Intake, Elkhart	1
			Qty - 1	
			Pressure Setting - 125 psig	
			Intake Relief Valve Control - Behind Right Side Pump Panel	
262	0724463		Controller, Pressure, Pierce LCD, PUC	1
			Pressure Governor Throttle Control - Clockwise	
			Pressure Governor Default Mode - No Mode/Default Press Setting	
263	0072153		Primer, Trident, Air Prime, Air Operated	1
264	0780359		Manuals, Pump, (2) Total, Electronic Copies, Pierce PUC Pump	1
265	0602496		Plumbing, Stainless Steel and Hose, Single Stage Pump, PUC	1
266	0089437		Plumbing Without Foam System	1
267	0517852		Inlets, 6.00" - 1250-2000 GPM, Pierce PUC Pump	1
268	0014650		Pump Suction Tube(s), Short, All	1
269	0729794		Valve, Ball Intake, TFT, AXD/AXE Series, 1 Electric, 1 Manual	1
			Hand Wheel Shaft - F (Front Crank)	
			Connection, Inlet, Side B - 3ST (5.0" Swivel Storz) with a cap	
			Connection, Outlet, Side A - NX (6.0" Threaded Swivel)	
			Ball Intake Valve - AXD (Left)	
			Relief Valve, Ball Intake - Standard	
270	0004646		Cap, Main Pump Inlet, Long Handle, NST, VLH	1
271	0084610		Valves, Akron 8000 series- All	1
272	0520002		Valve, Inlet(s) Recessed, Side Cntrl, PUC	1
			Qty, Inlets - 1	
273	0004700		Control, Inlet, at Valve	1
274	0004660		Inlet (1), Left Side, 2.50"	1
275	0029147		Not Required, Inlet, Right Side	1
276	0521137		Anode, Zinc, Pair, Pump Inlets, PUC	1
277	0092569		No Rear Inlet (Large Dia) Requested	1
278	0064116		No Rear Inlet Actuation Required	1
279	0092696		Not Required, Cap, Rear Inlet	1
280	0009648		No Rear Intake Relief Valve Required on Rear Inlet	1
281	0092568		No Rear Auxiliary Inlet Requested	1
282	0723049		Valve, .75" Bleeder, Aux. Side Inlet, "T" Swing Handle	1
283	0687424		Tank to Pump, (1) 3.00" Valve, 4.00" Plumbing, 3.00" Tank Outlet, Aerial PUC	1
284	0595508		Outlet, Tank Fill, 1.50", PUC	1
285	0766941		Control, Outlets, Swing Handle, Elec Right Outlets Akron 9335 w/Press Disp, PUC	1
286	0516755		Outlet, Left Side, 2.50" (2), PUC	1
287	0055095		Not Required, Elbow, Left Side Outlets, 2.50"	1
288	0092570		Not Required, Outlets, Left Side Additional	1
289	0035094		Not Required, Elbow, Left Side Outlets, Additional	1
290	0766761		Outlet, Right Side, 2.50", (1), Electric Akron 9335 Controller, PUC	1
			Qty, Discharges - 01	
291	0021134		Not Required, Elbow, Right Side Outlets	1
292	0092571		Not Required, Outlets, Right Side Additional	1



Line	Option	Type	Option Description	Qty
293	0089584		Not Required, Elbow, Right Side Outlets, Additional	1
294	0766992		Outlet, Right Side, 4" w/4" Valve, Akron 9335 Elec Controller, PUC	1
295	0527969		Cap, Large Dia Outlet, 4.00", IPO Elbow	1
296	0649939		Outlet, Front, 1.50" w/2" Plumbing	1
			Fitting, Outlet - 1.50" NST with 90 degree swivel	
			Drain, Front Outlet - Automatic	
			Location, Front, Single - in center bumper tray	
297	0092575		Not Required, Outlet, Rear	1
298	0045099		Not Required, Elbow, Rear Outlets	1
299	0092574		Not Required, Outlet, Rear, Additional	1
300	0085695		Not Required, Elbow, Rear Outlets, Large, Additional	1
301	0092573		Not Required, Outlet, Hose Bed/Running Board Tray	1
302	0752097		Caps/Plugs for 1.00" to 3.00" Discharges/Inlets, Chain	1
303	0723042		Valve, 0.75" Bleeder, Discharges, "T" Swing Handle	1
304	0029106		Not Required, Deluge Outlet	1
305	0029302		No Monitor Requested	1
306	0029304		No Nozzle Req'd	1
307	0029107		No Deluge Mount	1
308	0527482		Waterway Outlet & Control, PUC	1
309	0739945		Crosslay Module, Full Width, Boom Compartment, Roll Up Doors, Aerial, PUC	1
310	0749510		Doors, Crosslay, Roll-up Gortite, Each End, Full Height, PUC	1
			Color, Roll-up Door, Gortite - Painted to Match Lower Body	
			Latch, Roll-up Door, Gortite - Non-Locking Liftbar	
			Drip Pan - Drip Pan Not Required	
311	0750916		Crosslays, (2) 1.50", W/Poly Trays, PUC	1
			Crosslay/Deadlay/Speedlay Capacity 1 - 200' of 1.75" double jacket hose	
312	0750900		Crosslay, (1) 2.50", W/Poly Trays, PUC	1
			Crosslay/Deadlay/Speedlay Capacity 1 - 200' of 2.50" double jacket hose	
313	0015216		Reel, Booster, Aluminum - Over Pump, Right Side	1
314	0011060		Switch, Reel Rewind - One at Pump Panel	1
315	0005300		Hose, Booster - 150' of 1.00"/800 PSI	1
316	0005244		Capacity, Hose Reel 200' of 1"	1
317	0007074		Nozzle, Elkhart S-200 1.00"	1
318	0044333		Not Required, Foam System	1
319	0012126		Not Required, CAF Compressor	1
320	0552517		Not Required, Refill, Foam Tank	1
321	0042573		Not Required, Foam System Demonstration	1
322	0045465		Not Required, Foam Tanks	1
323	0091110		Not Required, Foam Tank Drain	1
324	0091079		Not Required, Foam Tank #2	1
325	0091112		Not Required, Foam Tank #2 Drain	1
326	0738072		Approval Dwg, Pump Panel(s), Not Required	1
327	0032479		Pump Panel Configuration, Control Zone	1
328	0579545		Step, Slide-Out/Fold-Out, Pump Operator Platform, Aerial PUC	1
329	0667186		Light, Slide-Out Pump Operator Step, On Scene Solutions Access LED, Short Step	1
330	0516975		Material, Pump Panels, Operators Brushed Stainless, Sides Brushed Stainless, PUC	1
331	0516978		Pump and Plumbing Access, Simple Tilt Service, PUC	1
332	0618458		Light, Pump Compt, WIn 3SC0CDCR LED White, PUC	1
			Qty, - 01	
333	0516983		Gauges, Engine, Included With Pierce Pressure Controller, PUC	1
334	0005601		Throttle, Engine, Incl'd w/Press Controller	1
335	0739224		Indicator Light @ Pump Panel, Throttle Ready, Incl w/Pressure Gov/Throttle,Green	1
336	0549333		Indicators, Engine, Included with Pressure Controller	1
337	0511078		Gauges, 4.00" Master, Class 1, 30"-0-600psi	1
338	0511100		Gauge, 2.00" Pressure, Class 1, 30"-0-400psi	1
339	0517009		Gauge, Water Level, Pierce, In pressure Controller, w/Mini Slave, PUC	1
			Activation, Water Level G - pg) pump in gear	
340	0604028		Water Level Gauge, FRC, MaxVision WLA280-A00 Programmable Remote Display	2
			Location - Each side of cab near rear as high as possible	
			Qty, - 02	
			Activation, Water Level G - pg) pump in gear	

Line	Option	Type	Option Description	Qty
341	0006774		Not Required, Foam Level Gauge	1
342	0653081		Light, Pump Operator & Panel, Side Ctrl, PUC, 60354C LED Cab & LED OH Chr Cvr	1
343	0606694		Air Horns, (2) Hadley, 6" Round, eTone, In Bumper	1
344	0606835		Location, Air Horns, Bumper, Each Side, Outside Frame, Outboard (Pos #1 & #7)	1
345	0757092		Control, Air Horn, Multi Select	1
346	0757084		Control, Air Horn, Horn Ring	1
347	0525667		Siren, WIn 295SLSA1, 100 or 200 Watt	1
348	0510206		Location, Elect Siren, Recessed Overhead In Console	1
			Location, Elec Siren - Overhead, DS Center Sw Pnl	
349	0076156		Control, Elec Siren, Head Only	1
350	0601306		Speaker, (1) WIn, SA315P, w/Pierce Polished Stainless Steel Grille, 100 watt	1
			Connection, Speaker - siren head	
351	0601565		Location, Speaker, Frt Bumper, Recessed, Center (Pos 4)	1
352	0895310		Siren, Federal Q2B	1
			Finish, Q2B Siren - Chrome	
353	0006095		Siren, Mechanical, Mounted Above Deckplate	1
			Location, Siren, Mech - a) Left	
354	0748305		Control, Mech Siren, Multi Select	1
355	0748282		Control Mech Siren, Ft Sw LS	1
356	0740391		Sw, Siren Brake, Momentary Chrome Push Button, RS	1
357	0746353		Not Required, Warning Lights Intensity	1
358	0605610		Lightbar, WIn, Freedom IV-Q, 2-21.5", RRRRR RRRRR, 30 Deg	1
			Filter, Whl Freedom Ltbrs - No Filters	
359	0016380		No Additional Lights Req'd, Side Zone Upper	1
360	0540384		Lights, Front Zone, WIn M6*C LED, Clear Lens, in Common Bzl	1
			Color, Lt DS Front - Red	
			Color, Lt PS Front - Red	
361	0653937		Flasher, Headlight Alternating	1
			Headlt flash deactivation - a)w/high beam	
362	0642225		Lights, Side Zone Lower, WIn M7*C, M6*C, M6*C, Clear Lens, 6lts	1
			Location, Lights Mid - on cab behind crew door, one each side	
			Location, Lights Rear - one each side of body between dually's	
			Location, Lights Front Side - b)each side bumper	
			Color, Light, Mid Side - Red	
			Flange Kit, 4pr - w/3 pr flange kits	
			Color, Lt Side Front - Red	
			Color, Lt Side Rear - Red	
363	0896616		Lights, Door Interior Flash, 4 Dr Cab, Weldon 8401-0000-20 Strip Light	1
			Control, Door Int Flash - Park Brake	
			Location, Light, Door Int Flash - Door Pan	
364	0815847		Connectors, Door Interior Flash, All Cabs, Weatherproof	1
365	0672937		Lights, Side, WIn WIONSMC* LED, Chrome Flange, Mounted In Rub Rail, 1st	4
			Location, Lights - each side in the forward and rearward rub rail	
			Qty, - 04	
			Color, Lights, Warning - gla) red	
			Control, Light - f) emerg master	
366	0540783		Lights, Rear Zn Lwr, WIn M6*C LED	1
			Color, Lt DS Rear - r) DS Rear Lt Red	
			Color, Lt PS Rear - r) PS Rear Lt Red	
367	0088745		Light, Rear Zone Up, WIn L31HRFN LED Beacon, Red LED	1
			Color, Dome, Rear Warning - j) both domes clear	
368	0006551		Not Required, Lights, Rear Upper Zone Blocking	1
369	0791501		Light, Traffic Directing, WIn TAL65, 36" Long LED, Aerials	1
			Activation, Traffic Dir L - Not Connected	
370	0530074		Location, Traf Dir Lt, On Top of Body Below Turntable w/Trdplt Box	1
371	0530282		Location, Traf Dir Lt Controller, Overhead Switch Panel DS Right End	1
372	0006646		Electrical System, 120/240VAC, General Design	1
373	0729601		Generator, Harrison 6kW MSV 120/240V, Hydraulic, Digital Volt, Hz, Hour, Meter	1
			Generator Interlocks - Parking Brake	
374	0517171		Location, Hydraulic Generator, Cargo Area, Front of Body, PRM/PUC	1
			Location, Generator - Cargo area LS rear	
375	0016752		Starting Sw, Truck Engine Powered Gen, Cab Sw Pnl	1

Line	Option	Type	Option Description	Qty
376	0016757		Not Required, Remote Start, Generator	1
377	0016740		Not Required, Fuel System	1
378	0016767		Not Required, Oil Drain Extension, Generator	1
379	0036738		Circuit Breaker Panel, Included With PTO Generator Location, Circuit Breaker Panel - LS3, Left Wall High	1
380	0016771		Not Required, Routing Exhaust, Generator	1
381	0006825		Reel, Elect Cable, Hannay, 1600, (3) Wire Qty, Cord Reels - 1 Reel Guide - a) Nylatron guide Finish, Reel - Painted Job Color Matching Lower Body Location, Electric Cord Reel - Above Pump With Generator, 1 Reel	1
382	0016828		Cord, Electric, 10/3 Black, 3 Wire Lengths of Elect Cord - 1 Feet of Black Cord - d)200 Connection, Cord - Hubbell 30A 120V Twst Lock	1
383	0781579		Receptacle, 15/20A 120V 3-Pr 3-Wr, NEMA 5-20R SB Dup, 1st, Interior Cab Qty, - 02 Location 1 - one behind the officers seat and one behind the drivers seat AC Power Source - Shoreline Cover, Receptacle - Interior SS Wall Plate(s)	2
384	0779722		Receptacle, 15/20A 120V 3-Pr 3-Wr, NEMA 5-20R SB Dup, 1st, Interior Body Qty, - 03 Location 1 - LS3, RS3, RS4 AC Power Source - Generator Cover, Receptacle - Interior SS Wall Plate(s)	3
385	0782817		Receptacle, 30A 240V 3-Pr 3-Wr TL, L6-30R Wtrprf 1st Location, Receptacles - In LS1 on forward wall behind door above bottom shelf Qty, - 01 AC Power Source - Generator Cover, Receptacle - Interior Flip Up Cover(s)	1
386	0519934		Not Required, Brand, Hydraulic Tool System	1
387	0649753		Not Required, PTO Driven Hydraulic Tool System	1
388	0755095		Aerial, 107' ASL Tandem, 750/500 Tip, 50 MPH	1
389	0000042		Boom Support, Rear of the Chassis Cab	1
390	0762413		Light, Boom Support, Amdor AY-LB-12HW012, 12" LED	1
391	0799573		Boom Support Compt Included w/PUC Xlay Module Picked Separately, PUC	1
392	0680822		Boom Panel, Not Required	1
393	0526886		Indicator, Extension, Inside Handrails Only, Every 10' Color - 1) black	1
394	0723719		Steps, Folding, Four, Aerial Device, Trident Coating, Step - black Light, Aerial Device Folding Step - no integrated light Finish, Aerial Device Folding Step - bright finish	1
395	0688232		Rung Covers, Aerial Device Rung Cover Color - Black	1
396	0772833		Brackets Only, Axe/Pig Tool, PAC 1004, 6lb or 8lb, Aerial Fly Section Color - 1) black	1
397	0623645		Aerial Stability Test, Max Tip Options	1
398	0728972		Box, Stokes/Ladder Storage,w/Cover,Base Section,In Place of Boom Panel,w/Door Sw Qty, - 02 Finish - Painted, Job Color Latch, Door, Storage - Butterfly Latch, Pair Location, Aerial Device - each side Ladder, Make/Model - Duo-Safety 775-A Roof 10' Louvers - no louvers Size, Stokes Basket, Predefined - 83"L x 25"W x 8"H	2
399	0678641		Brackets Only, Pike Pole, Aerial Fly Section Qty, - 01 Pike Pole Make/Model - Duo-Safety 8' Pike Pole	1
400	0601972		Lights, Turntable Walkway, P25, LED	1
401	0601949		Light, Turntable Console, TecNiq T-10, LED Strip Light	1

Line	Option	Type	Option Description	Qty
402	0682164		Cover, Around Aerial Rotation Bearing	1
			Material - treadplate	
403	0814217		Control Stations, ASL Tandem Axle, MUX, Color Display, CL714	1
404	0792976		Stabilizers, Ascendant Tandem, Rear Mount Steel, 16' Spread, 18" Pen, MUX	1
			Material, Stabilizer Pad - Composite	
405	0729051		Stabilizer Pan and Trim Material	1
			Stabilizer Panels - polished stainless steel	
			Stabilizer Trim - polished stainless steel	
406	0809974		Door, Stabilizer Control Box, MUX Aerials	1
			Latch, Door, Storage - Southco C2 Chrome Raised	
			Hinge Location - Outboard	
			Door, Material & Finish, Stabilizer - Smooth aluminum	
407	0615058		Stabilizer Placement, Cameras w/Command Zone Color Display, 1 Set	1
408	0793039		Hydraulic System, Ascendant Tandem Axle	1
409	0793037		Swivels, D-Series w/Encoder, ASL-Tandem/Tiller, MUX (28 Collector Rings)	1
410	0805186		Electrical System, ASL Tandem Axle, MUX, 10/8 Cable	1
411	0804781		Aerial Scene Lts Separated into Aerial Tip Category and Aerial Tracking Category	1
412	0803462		Lights, Tip, WIn MP** LED, 2lts	1
			Color, WIn Lt Housing - White Paint	
			Scene Lt Optics LH Fly - Spot Left	
			Scene Lt Optics RH Fly - Spot Right	
			Mount, WIn II - Universal Bail MP**	
413	0802753		Lights, Tracking, WIn MP** LED, 2lts	1
			Location, Sw, Arl DC Lts - w) 1 location	
			Color, WIn Lt Housing - White Paint	
			Scene Lt Optics LH Base - Left Spot	
			Scene Lt Optics RH Base - Right Spot	
			Mount, WIn II - Universal Bail MP**	
414	0618906		Lighting, Rung, LED, TecNiq, 4 Section, Base, Lower/Upper Mid, Fly, 3 Colors RWB	1
			Control, Aerial Rung Lighting - Turntable Sw w/Aerial Mstr and Turntable	
			Sw w/Master Batt Sw	
415	0540743		Lights, Stabilizer Warn (2) Sets, WIn M6*C LED, Clear Lens	1
			Color, Lt Rr Stabilzr Pan - r) Pan Light Red	
			Color, Lt Fr Stabilzr Pan - r) Pan Light Red	
416	0068703		Lights, Grote Supernova LED, Stabilizer Beam, (1) Set	1
417	0762388		Lights, Stabilizer Scene, (2) sets, Amdor AY-LB-12HW012, LED	1
418	0006929		Not Required, 120v To Tip	1
419	0737181		Intercom, 2-Way Fire Research ICA910 Hands Free	1
420	0805281	SP	Camera System, Pierce, Mux, Wireless Fixed Camera, Egress to Turntable Display	1
421	0540895		Not Required, Breathing Air to Tip, Aerial Ladder	1
422	0024742		Not Required, Mask, Breathing Air To Tip	1
423	0126600		Raised Pedestal, 3.00", Rear Mount Aerials, AXT, Velocity, Impel, Enf	1
424	0604457		Lifting Eye Assembly, Rope Rescue Attachment, ASL, LSL	1
425	0791128		Hitch Receiver, 10,000 lb, LS/RS, Under Body Sides, Ascendant TA, PAP/PAL	1
426	0536374		Turntable Access, ManSaver Bars, Red	1
427	0624672		Waterway, High Flow, 1500 GPM, ASL	1
428	0787803	SP	Monitor, Akron 3480 StreamMaster II Electric w/Extended Vertical Travel, Stowed RS	1
			Nozzle, Monitor 1 PAL - Akron 5178 Electric 1500 gpm	
429	0805802		Wireless Monitor Remote Control, Model 6047, w/Charger, Akron	1
			Wireless Remote Frequency, Akron - 900 MHz (300 feet range)	
430	0010758		Flow Meter, Waterway, PAL, 110' Ascendant, MUX	1
431	0004836		Inlet, 5.00" at Rear w/ Pump, Ascendant Tandem, PAP, PAL	1
432	0673128		Quick-Lock Waterway Locking System, 100' HDL, 105' HDL, ASL	1
433	0518550		Outlet, 2.50" Auxiliary, LHS, Aerial Tip	1
434	0047897		Tools, Aerial	1
435	0668583		Manuals and Training, 4 Consecutive Days, Ascendant Ladder, PAL	1
436	0007150		Bag of Nuts and Bolts	1
			Qty, Bag Nuts and Bolts - 1	
437	0602497		NFPA Required Loose Equipment, Quint, NFPA 2016, Provided by Fire Department	1
438	0519913		Not Required, Soft Suction Hose	1
439	0027023		No Strainer Required	1
440	0602534		Extinguisher, Dry Chemical, Quint NFPA 2016, Provided by Fire Department	1

Line	Option	Type	Option Description	Qty
441	0602352		Extinguisher, 2.5 Gal. Pressurized Water, Quint, NFPA 2016, Provided by Fire Dept	1
442	0007482		Not Required, Crowbars	1
443	0007484		Not Required, Claw Tools	1
444	0602883		Axe, Flathead, Quint NFPA 2016, Provided by Fire Department	1
445	0602670		Axe, Pickhead, Quint NFPA 2016, Provided by Fire Department	1
446	0007494		Not Required, Sledgehammers	1
447	0741569		Paint Process / Environmental Requirements, Appleton	1
448	0709566		Paint, Two-Tone Color, Enforcer	1
			Paint Color, Upper Area, Predefined - #10 White	
			Shield, Cab - Standard Shield	
			Paint Color, Lower Area, Predefined - #90 Red	
			Paint Break, Cab - Standard Two-Tone Cab Break	
449	0709845		Paint, Single Color, Body	1
			Paint, Body - Match Lower Cab	
450	0646901		Paint Chassis Frame Assy, With Liner, E-Coat, Standard	1
			Paint Color, Frame Assembly, Predefined - Standard Black	
451	0693797		No Paint Required, Aluminum Front Wheels	1
452	0693792		No Paint Required, Aluminum Rear Wheels	1
453	0733739		Paint, Axle Hubs	1
			Paint, Axle Hub - Lower Job Color	
454	0007230		Compartment, Painted, Spatter Gray	1
455	0782203		Aerial Ladder Paint, ASL-Tandem, LSL, E-Coat	1
			Paint Color, Aerial Device - Red 90	
			Paint Color, Egress - #10 white	
			Paint Color, Turntable - Black 101	
			Paint Color, Boom Support - black 101	
			Paint Color, Cylinders - black 101	
			Paint Color, Aerial Control Console - black 101	
456	0544129		Reflective Band, 1"-6"-1"	1
			Color, Reflect Band - A - e) black	
			Color, Reflect Band - B - p) black	
			Color, Reflect Band - C - za) black	
457	0007356		Reflective across Cab Face	1
458	0583454		Stripe, Chevron, Rear, Diamond Grade, Aerial	1
			Color, Rear Chevron DG - fluorescent yellow green	
459	0598754		Stripe, Reflective/Diamond Grade, 4.00" on Stabilizers	1
			Color, Reflect Band - A - p) fluorescent yellow green diamond grade	
460	0065687		Stripe, Reflective, Cab Doors Interior	1
			Color, Reflective - a) white	
461	0027372		Lettering Specifications, (GOLD STAR Process)	1
462	0685690		Lettering, Printed Effect Gold Leaf, 3.00", (41-60)	1
			Outline, Lettering - Outline and Shade	
463	0769753		Emblem, American Flag Painted on Cab Grille, All Custom Chassis	1
464	0888441	SP	Build My Pierce™	1
465	0772003		Manual, Fire Apparatus Parts, USB Flash Drive, Custom	1
			Qty, - 01	
466	0772037		Manual, Chassis Service, USB Flash Drive, Custom	1
			Qty, - 01	
467	0773381		Manual, Chassis Operation, (1) USB Flash Drive, Custom	1
468	0030008		Warranty, Basic, 1 Year, Apparatus, WA0008	1
469	0735523		Warranty, Engine, Paccar MX13, 5 Year	1
470	0684953		Warranty, Steering Gear, Sheppard M110, 3 Year WA0201	1
471	0596017		Warranty, Frame, 50 Year, Custom Chassis, WA0013	1
472	0595698		Warranty, Axle, 3 Year, TAK-4, WA0050	1
473	0733305		Warranty, Tandem Axle, 5 Year, Meritor, General Service, WA0384	1
474	0652758		Warranty, ABS Brake System, 3 Year, Meritor Wabco, WA0232	1
475	0019914		Warranty, Structure, 10 Year, Custom Cab, WA0012	1
476	0744240		Warranty, Paint, 10 Year, Cab, Pro-Rate, WA0055	1
477	0524627		Warranty, Electronics, 5 Year, MUX, WA0014	1
478	0695416		Warranty, Pierce Camera System, WA0188	1
479	0647720		Warranty, Pierce LED Strip Lights, WA0203	1
480	0046369		Warranty, 5-year EVS Transmission, Standard Custom, WA0187	1

Line	Option	Type	Option Description	Qty
481	0685945		Warranty, Transmission Cooler, WA0216	1
482	0688798		Warranty, Water Tank, Lifetime, UPF, Poly Tank, WA0195	1
483	0596025		Warranty, Structure, 10 Year, Body, WA0009	1
484	0693127		Warranty, Gortite, Roll-up Door, 6 Year, WA0190	1
485	0889364		Warranty, Pump, Pierce, PUC-NG, 7 Year Parts, 1 Year Labor, WA0390	1
486	0648675		Warranty, 10 Year S/S Pumbing, WA0035	1
487	0641372		Warranty, Foam System, Not Available	1
488	0006999		Warranty, Structure, 20 Year, Aerial Device, WA0052	1
489	0687388		Warranty, Swivels, 5 Year, Aerial Device, WA0197	1
490	0685727		Warranty, Hydraulic System and Components, 3 Year/5 Year, WA0200	1
491	0687327		Warranty, Waterway, 10 Year, Aerial Device, WA0198	1
492	0595860		Warranty, Paint, 4 Year, Aerial Device, Pro-Rated, WA0047	1
493	0725636		Warranty, Harrison Generator, 2 Year	1
494	0595820		Warranty, Paint, 10 Year, Body, Pro-Rate, WA0057	1
495	0595421		Warranty, Goldstar, 3 Year, Apparatus, WA0018	1
496	0683627		Certification, Vehicle Stability, CD0156	1
497	0807819		Certification, Engine Installation, Enf, Paccar MX13, 2024	1
498	0686786		Certification, Power Steering, CD0098	1
499	0892691		Certification, Cab Integrity, Saber FR/Enforcer, CD0189	1
500	0631973		Certification, Cab Door Durability, Saber FR/Enforcer, CD0137	1
501	0631978		Certification, Windshield Wiper Durability, Saber FR/Enforcer, CD0132	1
502	0631974		Certification, Electric Window Durability, Saber FR/Enforcer, CD0133	1
503	0631977		Certification, Seat Belt Anchors and Mounting, Saber FR/Enforcer, CD0134	1
504	0735949		Certification, Cab HVAC System Performance, SFR/Enf, CD0165/CD0167/CD0174/CD0175	1
505	0545073		Amp Draw Report, NFPA Current Edition	1
506	0002758		Amp Draw, NFPA/ULC Radio Allowance	1
507	0799248		Appleton/Florida BTO	1
508	0000049		Ascendant BODY	1
509	0000012		PIERCE CHASSIS	1
510	0735525		PACCAR MX13 ENGINE	1
511	0046396		EVS 4000 Series TRANSMISSION	1
512	0520324		PIERCE PUMP, PUC	1
513	0020009		POLY TANK	1
514	0028047		NO FOAM SYSTEM	1
515	0020006		SIDE CONTROL	1
516	0020007		AKRON VALVES	1
517	0020015		ABS SYSTEM	1
518	0755453		AERIAL BASE	1



# Turning Performance Analysis

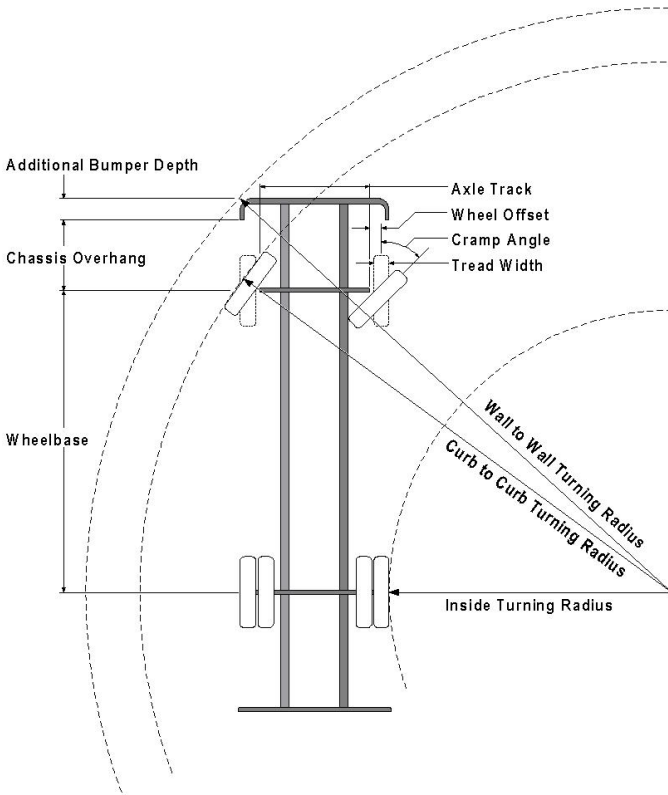
08/07/2023

**Bid Number:** 1089

**Chassis:** Enforcer Chassis, Aerials, Tandem Axle, Ascendant/LSL, PUC-NG

**Department:** Santaquin City Fire Department

**Body:** Aerial, HD Ladder 107' ASL Tandem, PUC, Alum Body



**Parameters:**

*Inside Cramp Angle:	45°
Axle Track:	82.92 in.
Wheel Offset:	4.68 in.
Tread Width:	16.3 in.
Chassis Overhang:	65.95 in.
Additional Bumper Depth:	19 in.
Front Overhang:	84.95 in.
Wheelbase:	264.5 in.

**Calculated Turning Radii:**

Inside Turn:	20 ft. 0 in.
Curb to curb:	37 ft. 5 in.
Wall to wall:	41 ft. 10 in.

Category	Option	Description
Aerial Devices	0755095	Aerial, 107' ASL Tandem, 750/500 Tip, 50 MPH
Axle, Front, Custom	0629940	Axle, Front, Oshkosh TAK-4, Non Drive, 22,800 lb, Enforcer
Wheels, Front	0019611	Wheels, Front, Alcoa, 22.50" x 12.25", Aluminum, Hub Pilot
Bumpers	0012245	Bumper, 19" Extended, Saber FR/Enforcer
Tires, Front	0899438	Tires, Front, Goodyear, Armor MAX MSA, 425/65R22.50, 20 ply

**Notes:**

\*Actual Inside cramp angle may be less than shown.

Curb to Curb turning radius calculated for 9.00 inch curb.

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**Definitions:**

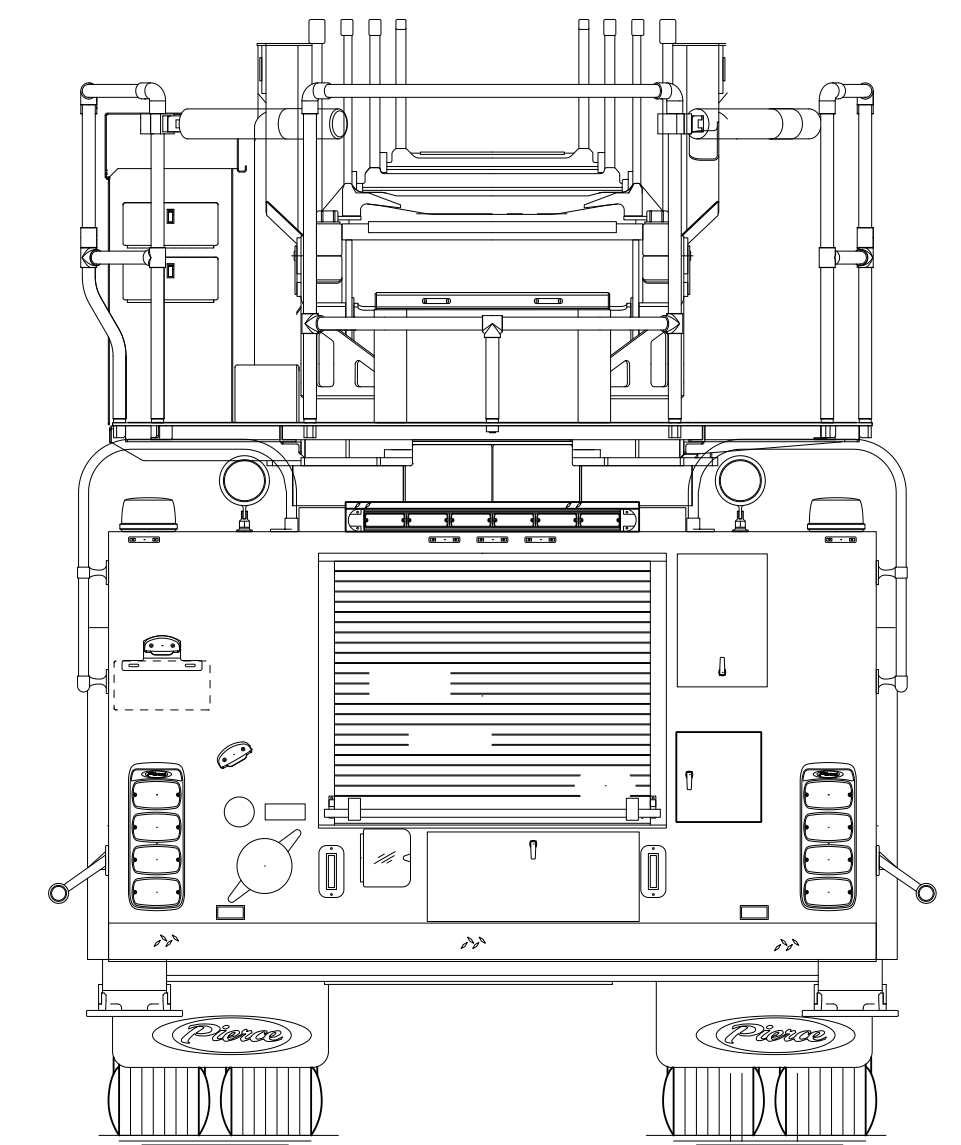
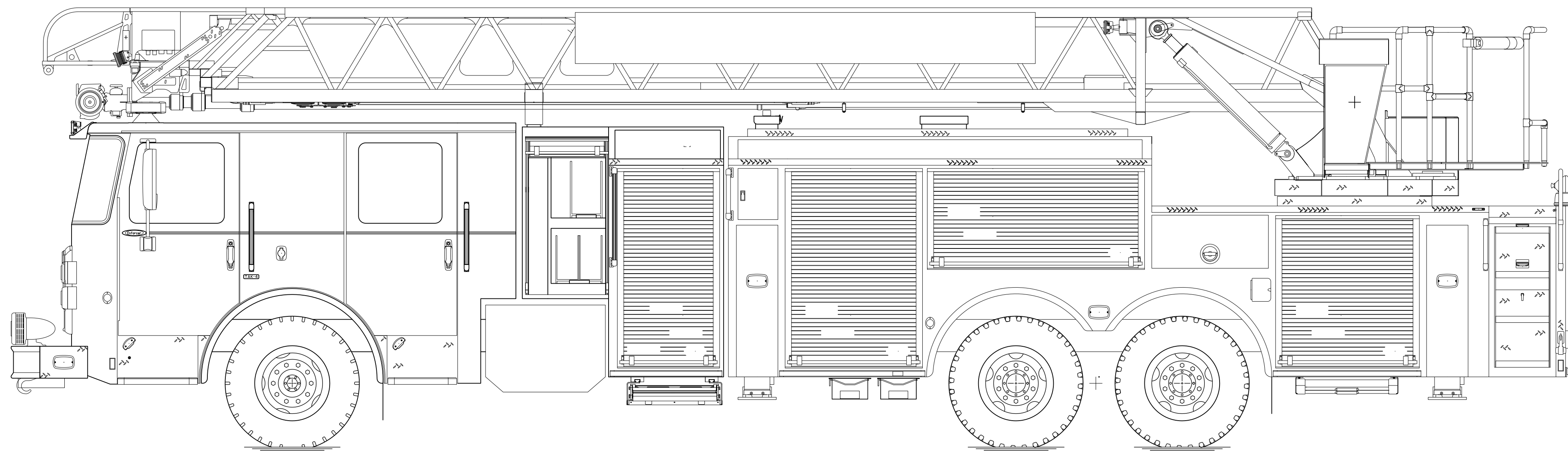
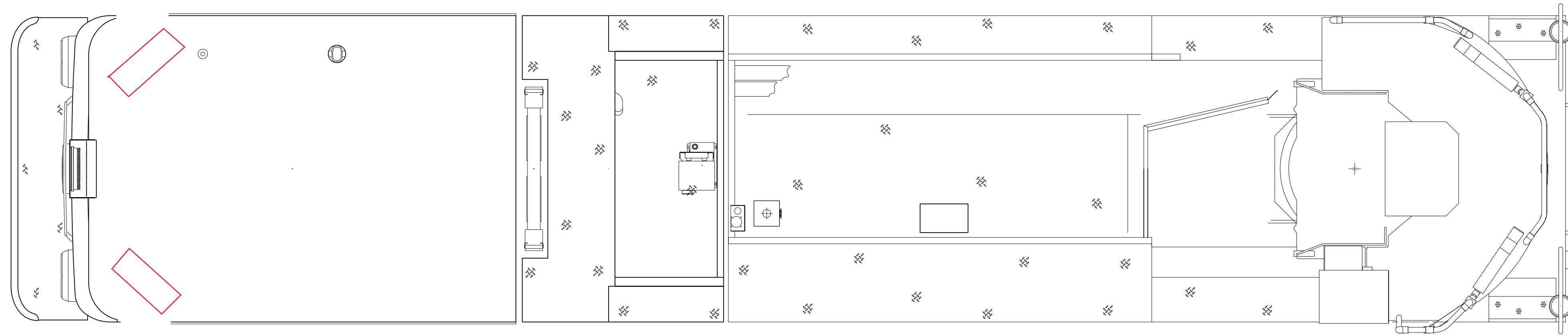
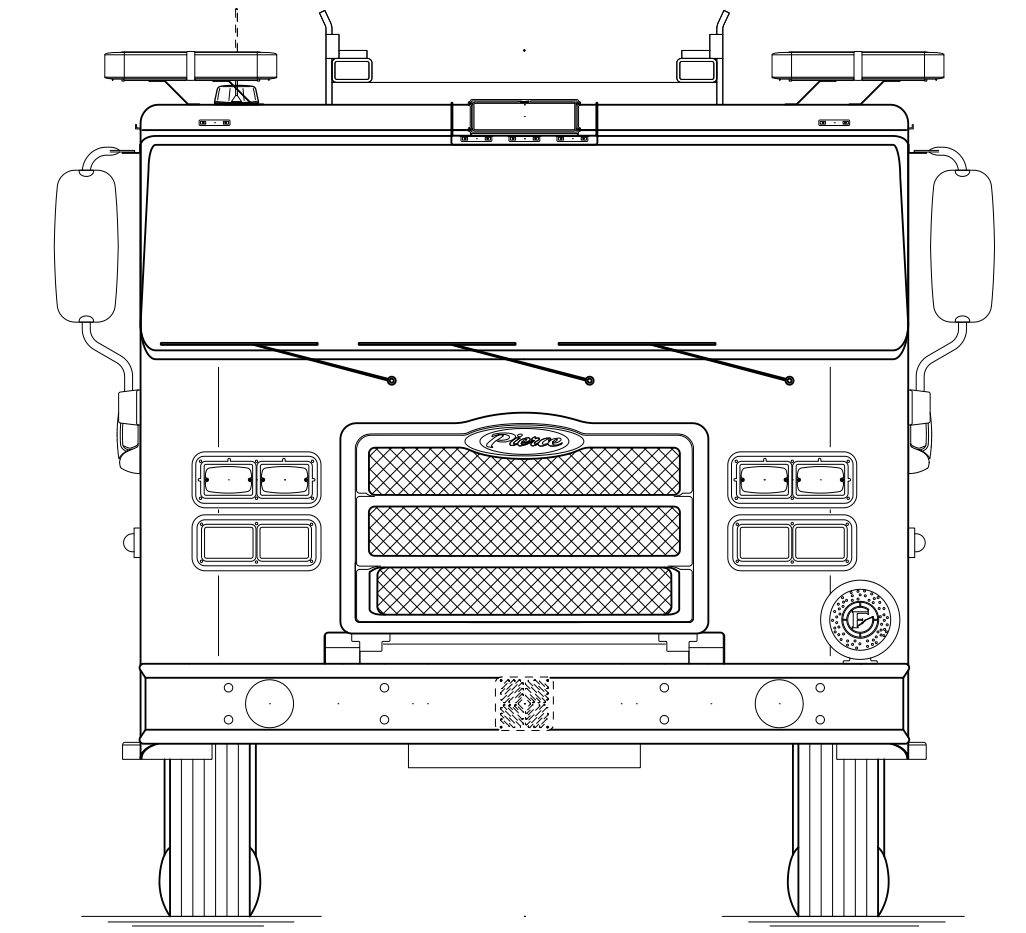
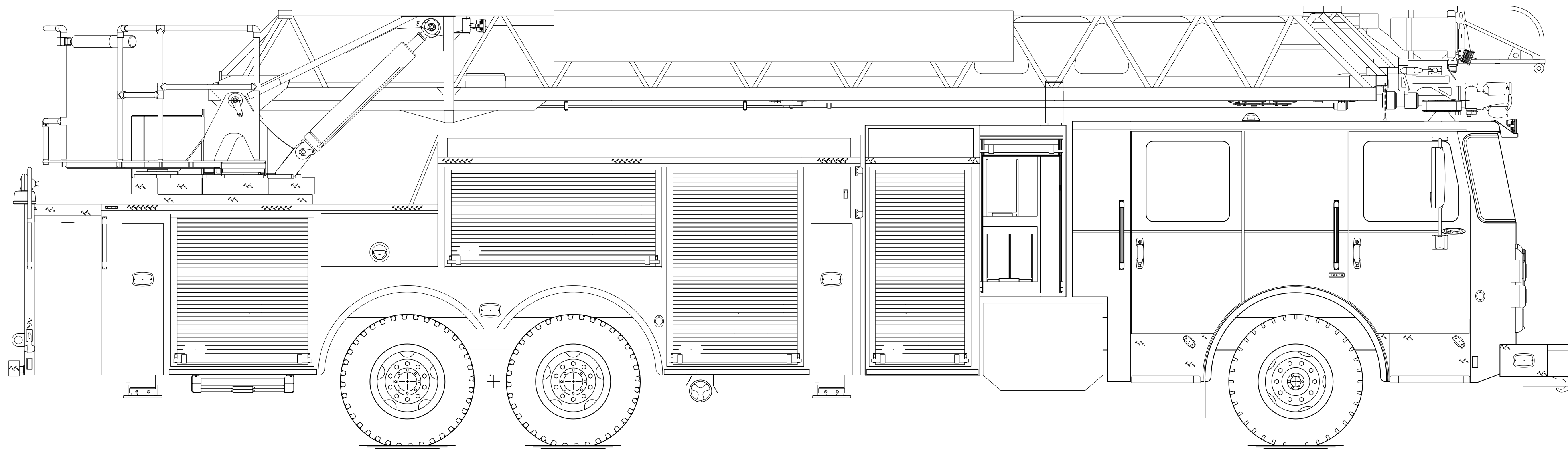
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Inside CrampAngle	Maximum turning angle of the front inside fire.
Axle Track	King-pin to King-pin distance of front axle.
Wheel Offset	Offset from the center line of the wheel to the King-pin.
Tread Width	Width of the tire tread.
Chassis Overhang	Distance of the center line of the front axle to the front edge of the cab. This does not include the bumper depth.
Additional Bumper Wheel	Depth that the bumper assembly adds to the front overhang.
Wheelbase	Distance between the center lines of the vehicles front and rear axles.
Inside Turning Radius	Radius of the smallest circle around which the vehicle can turn.
Curb to Curb Turning Radius	Radius of the smallest circle around which the vehicle's tires can turn. This measures assumes a curb height of 9 inches.
Wall to Wall Turning Radius	Radius of the smallest circle around which the vehicle's tires can turn. This measures takes into account any front overhang due to chassis , bumper extensions and or aerial devices.









NOTE  
LAYOUT AND SIZES PROVIDED BY CUSTOMERS  
MAY VARY DUE TO AVAILABLE WORKING SPACE.

COLOR LEGEND	
PINK	LETTERING (VINYL OR REFLECTIVE)
ORANGE	STRIPING (VINYL OR REFLECTIVE)
GREEN	GOLD LEAF
YELLOW	CUSTOMER FURNISHED PRODUCT

**CUSTOMER APPROVAL**

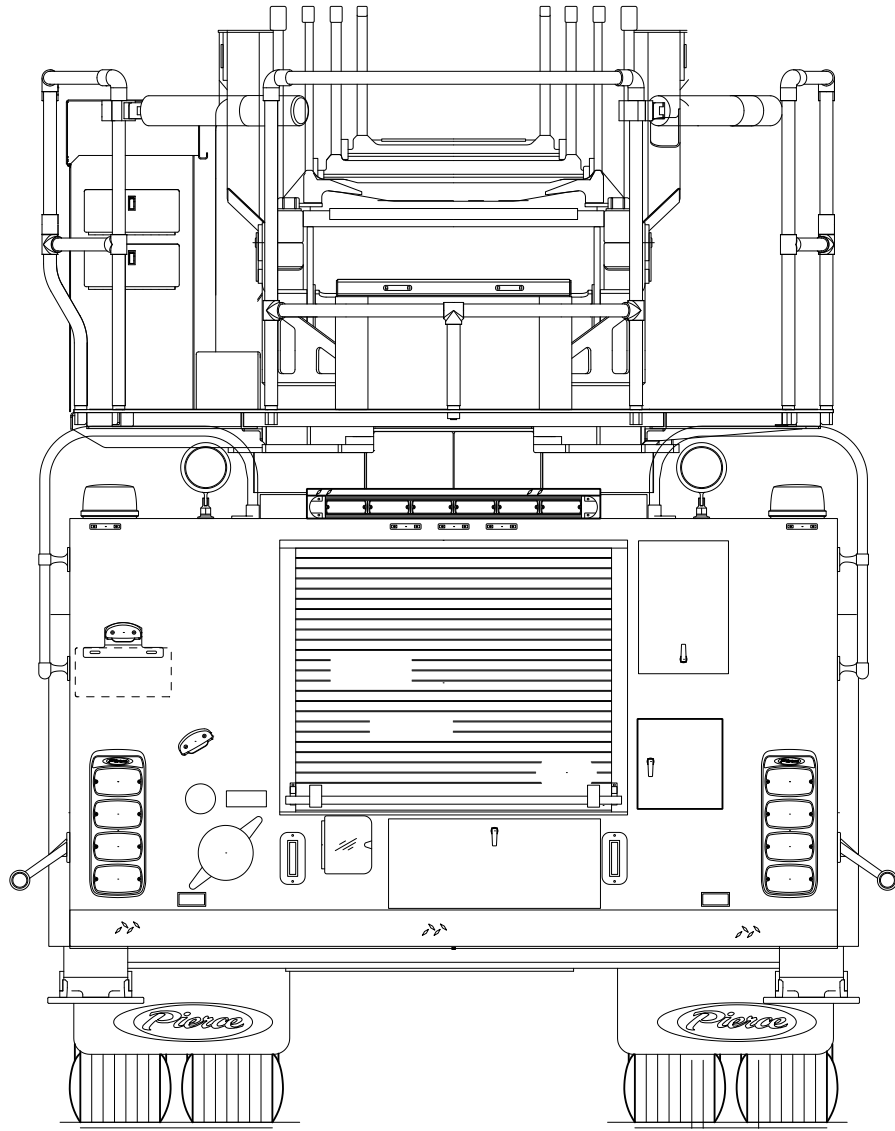
APPROVED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_

REV	DATE	BY	CH



TITLE LETTERING, STRIPING, AND PAINTING INSTRUCTIONS  
FOR Santaquin Aerial  
DWG NO. LSP-LP

JOB NO.	-
SCALE	1:24
DATE	
DRAWN BY	-
CHECKED BY	-
SHEET SIZE	D
SHEET NO.	1



**CUSTOMER APPROVAL**

APPROVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

NOTE: PLEASE REVIEW CHEVRON COVERAGE AND DOOR MATERIAL PER PULSE OPTIONS. NON-RELATED OR NON-CRITICAL MINOR DEVIATIONS MAY EXIST.



**MANUFACTURING INC.**

JOB NO.

-

SCALE

1:24

DRAWN BY

-

DATE

15FEB23

TITLE

CHEVRON DRAWING

-

FOR

Santaquin Aerial

-

DWG NO.

CHEVRON-CD

SHEET SIZE

A

SHEET NO.

Item # 12.



# Electrical Analysis

8/7/2023

**Bid #:** 1089 **Job #:**  
**Desc:** Santaquin Aerial **Sales Rep:** Frisby, Chad  
**Customer:** Santaquin City Fire Department **Organization:** Siddons-Martin Emergency Group  
**Option:** Pierce Command Zone, Advanced Electronics & Control System, Enforcer, WiFi CZT **Type:** Multiplexed

Option	Description	Type*	Minimum Load	Intermittent Load	Total Connected
0001244	High Idle w/Electronic Engine, Custom		0.00	1.20	0.00
0002617	PTO switch, w/light - aerial		0.00	0.00	0.08
0006825	Reel, Elect Cable, Hannay, 1600, (3) Wire		0.00	36.00	0.00
0015216	Reel, Booster, Aluminum - Over Pump, Right Side		0.00	36.00	0.00
0072153	Primer, Trident, Air Prime, Air Operated		0.00	0.01	0.00
0079166	Batteries, (4) Stryten/Exide Grp 31, 950 CCA ea, Threaded Stud		0.00	3.00	0.00
0543751	Light, Do Not Move Apparatus		0.00	0.80	0.00
0549333	Indicators, Engine, Included with Pressure Controller		0.00	0.35	0.00
0583938	Lights, Engine Compt, Custom, Auto Sw, WIn 3SC0CDCR, 3"		0.00	0.30	0.00
0589905	Alarm, Back-up Warning, PRECO 1040		0.00	0.50	0.00
0593759	ESC/ABS/ATC Wabco Brake System, Tandem Rear Axle, 2010		0.00	6.00	0.00
0602622	Portable Hand Light, Provided by Fire Department, Quint NFPA		0.00	0.50	0.00
0604028	Water Level Gauge, FRC, MaxVision WLA280-A00 Programmable		0.00	0.00	0.00
0618458	Light, Pump Compt, WIn 3SC0CDCR LED White, PUC		0.00	0.36	0.00
0630636	Controls, Electric Roll-Up Windows, 4dr, 4 Driver Controls, Saber		0.00	26.00	0.00
0644201	Cab Lift, Elec/Hyd, Saber FR/Enforcer		0.00	180.00	0.00
0672937	Lights, Side, WIn WIONSMC* LED, Chrome Flange, Mounted In		0.00	0.00	4.00
0727913	Spotlight, Golight/RadioRay, Model 20**4GT, LED, 2 Lts		0.00	0.00	7.40
0735687	Engine Brake, Fully Integrated, Paccar MX13 Engine		0.00	0.42	0.00
0750196	Light, Accent, Amdor AY-LB-12HB012, LED, Each		0.00	0.00	0.18
0802935	Light, Directional, WIn M62T* LED, Cmn Bzl, Above Headlights,		0.00	1.50	0.00
0804781	Aerial Scene Lts Separated into Aerial Tip Category and Aerial		0.00	0.00	0.00
0806466	Lights, Backup, WIn M62BU, LED, For Tail Lt Housing		0.00	3.20	0.00
0808297	Intercom, Firecom 5100D Single Radio, 1 Wireless Base Station,		0.00	0.00	0.50
0816158	Camera, Pierce, LS Mux, RS, LS, R, Cameras, AHD		0.00	1.20	0.00
0888882	Lights, WIn, PSL2B* Pioneer, 12 VDC, 2nd		0.00	0.00	6.00
0888885	Lights, WIn, PSL2B* Pioneer, 12 VDC, 1st		0.00	0.00	6.00
0895310	Siren, Federal Q2B		0.00	100.00	0.00
0896616	Lights, Door Interior Flash, 4 Dr Cab, Weldon 8401-0000-20 Strip		0.00	0.64	0.00
0548004	Wiring, Spare, 15 A 12V DC 1st	Load Managed	0.00	0.00	30.00
0618906	Lighting, Rung, LED, TecNiq, 4 Section, Base, Lower/Upper Mid,	Load Managed	0.00	0.00	20.00
0722696	HVAC, Enforcer, CARE	Load Managed	0.00	0.00	100.00
0776357	Light, Visor, WIn, 12V P*H2* Pioneer, Cnt Feature, 1st	Load Managed	0.00	0.00	13.00
0893374	Lights, WIn, M9LZC Gradient, 12 VDC, 1st	Load Managed	0.00	0.00	12.00
0893377	Lights, WIn, M9LZC Gradient, 12 VDC, 2nd	Load Managed	0.00	0.00	6.00
0893380	Lights, WIn, M9LZC Gradient, 12 VDC, 1st	Load Managed	0.00	0.00	6.00
0002615	Switch, Aerial 12V Master	NFPA	0.08	0.00	0.00
0002758	Amp Draw, NFPA/ULC Radio Allowance	NFPA	5.00	0.00	0.00
0010758	Flow Meter, Waterway, PAL, 110' Ascendant, MUX	NFPA	0.50	0.00	0.00
0023680	Compt, IPO Stairs RS, Roll-up Door	NFPA	0.90	0.00	0.90
0035382	Compt, RS Turntable, F/H, Roll Dr & Lift Dr, Ascendant Tandem,	NFPA	2.70	0.00	2.70
0063695	Compt, LS F/H F/D, Roll Drs, w/o Chute, Ascendant Tandem,	NFPA	2.70	0.00	2.70
0063727	Compt, LS Turntable, F/H F/D, Roll Dr & Lift Dr, Ascendant	NFPA	1.80	0.00	1.80
0063733	Compt, RS F/H, Roll Drs, Ascendant Tandem, 105 HDL, 100 HAL	NFPA	3.60	0.00	3.60
0068703	Lights, Grote Supernova LED, Stabilizer Beam, (1) Set	NFPA	1.60	0.00	0.00
0088745	Light, Rear Zone Up, WIn L31HRFN LED Beacon, Red LED	NFPA	3.20	4.80	0.00
0092582	Load Manager/Sequencer, MUX	NFPA	0.56	0.56	0.00

\* UDMC = User Defined Mission Critical, LM = User Defined Load Managed, S = Electrical Amperage Supply



# Electrical Analysis

8/7/2023

**Bid #:** 1089 **Job #:**  
**Desc:** Santaquin Aerial **Sales Rep:** Frisby, Chad  
**Customer:** Santaquin City Fire Department **Organization:** Siddons-Martin Emergency Group  
**Option:** Pierce Command Zone, Advanced Electronics & Control System, Enforcer, WiFi CZT **Type:** Multiplexed

Option	Description	Type*	Minimum Load	Intermittent Load	Total Connected
0511569	Lights, Clearance/Marker/ID, Rear, P25 LED 7Lts	NFPA	0.50	0.00	0.00
0516983	Gauges, Engine, Included With Pierce Pressure Controller, PUC	NFPA	0.30	0.00	0.00
0517009	Gauge, Water Level, Pierce, In pressure Controller, w/Mini Slave,	NFPA	1.23	0.00	0.00
0525667	Siren, Wln 295SLSA1, 100 or 200 Watt	NFPA	1.56	14.06	0.00
0540384	Lights, Front Zone, Wln M6*C LED, Clear Lens, in Common Bzl	NFPA	1.80	2.70	0.00
0540743	Lights, Stabilizer Warn (2) Sets, Wln M6*C LED, Clear Lens	NFPA	3.60	5.40	0.00
0540783	Lights, Rear Zn Lwr, Wln M6*C LED	NFPA	1.80	2.70	0.00
0601949	Light, Turntable Console, TecNiq T-10, LED Strip Light	NFPA	0.20	0.00	0.00
0601972	Lights, Turntable Walkway, P25, LED	NFPA	0.35	0.00	0.00
0602100	Lights, Torque Box Ladder Storage, Pierce LED Strip Lights, 2 Lts	NFPA	1.00	0.00	0.00
0603606	Cab Instruments, Ivory Gauges, Chrome Bezels, Enf MUX	NFPA	1.26	0.00	0.00
0605610	Lightbar, Wln, Freedom IV-Q, 2-21.5", RRRRR RRRRR, 30 Deg	NFPA	6.48	0.00	9.76
0615121	Vehicle Information Center, 7" Color Display, MUX, Additional,	NFPA	1.20	0.00	0.00
0615386	Vehicle Information Center, 7" Color Display, Touchscreen, MUX	NFPA	1.20	0.00	0.00
0615864	Lights, Perimeter Body, Truck-Lite 44308C LED 1lt, Turntable	NFPA	0.50	0.00	0.00
0617092	Air Dryer, Wabco System Saver 1200, With Wet Tank,	NFPA	7.81	0.00	0.00
0620054	Light, Directional/Marker, Intermediate, Weldon 9186-8580-29	NFPA	0.10	0.90	0.00
0642225	Lights, Side Zone Lower, Wln M7*C, M6*C, M6*C, Clear Lens, 6lts	NFPA	5.40	8.10	0.00
0647644	Lights, Dome, FRP Dual LED 6 Lts	NFPA	1.20	1.20	0.00
0647899	Lights, Directional/Marker, Cab Front Side, Weldon 9186-8580-29	NFPA	0.80	0.00	0.00
0653081	Light, Pump Operator & Panel, Side Ctrl, PUC, 60354C LED Cab	NFPA	2.00	0.00	0.00
0653937	Flasher, Headlight Alternating	NFPA	0.08	0.00	0.00
0667186	Light, Slide-Out Pump Operator Step, On Scene Solutions Access	NFPA	0.65	0.00	0.00
0709438	Lights, Walk Surf, FRP Flood, LED	NFPA	2.00	0.00	0.00
0724463	Controller, Pressure, Pierce LCD, PUC	NFPA	1.70	0.00	0.00
0729601	Generator, Harrison 6kW MSV 120/240V, Hydraulic, Digital Volt,	NFPA	35.31	0.00	0.00
0731813	Hour Meter, Aerial, Included in Information Centers, ASL, AAT,	NFPA	0.10	0.00	0.00
0735474	Lights, Clearance/Marker/ID, Front, P25 LED 7 Lts, Saber	NFPA	0.35	0.00	0.00
0737181	Intercom, 2-Way Fire Research ICA910 Hands Free	NFPA	0.50	0.00	0.00
0739224	Indicator Light @ Pump Panel, Throttle Ready, Incl w/Pressure	NFPA	0.10	0.00	0.00
0755095	Aerial, 107' ASL Tandem, 750/500 Tip, 50 MPH	NFPA	5.00	0.00	0.00
0757997	Cabinet, Rear Facing, LS, 23 W x 40.25 H x 26.75 D, Lap, Ext	NFPA	0.78	0.78	0.00
0762388	Lights, Stabilizer Scene, (2) sets, Amdor AY-LB-12HW012, LED	NFPA	0.72	0.00	0.00
0762413	Light, Boom Support, Amdor AY-LB-12HW012, 12" LED	NFPA	0.18	0.00	0.00
0767457	Cabinet, Rear Facing, RS, 22 W x 43 H x 26.75 D, Lap, Ext Acc,	NFPA	0.30	0.30	0.00
0769420	Lights, Perimeter Cab, Amdor AY-LB-12HW020 LED 4Dr	NFPA	1.20	0.00	0.00
0769572	Lights, Perimeter Pump House, Amdor AY-LB-12HW020 LED 2lts	NFPA	0.58	0.00	0.00
0783157	Headlights, Rect LED, JW Spkr Evo 2, Heat,	NFPA	6.60	6.60	0.00
0787314	Cab, Enforcer, 8410 w/Notch, PUC	NFPA	6.80	10.20	0.00
0791501	Light, Traffic Directing, Wln TAL65, 36" Long LED, Aerials	NFPA	0.60	1.20	0.00
0793038	Control Stations, ASL Tandem Axle, MUX, Color Display	NFPA	4.26	0.00	0.00
0802753	Lights, Tracking, Wln MP** LED, 2lts	NFPA	8.00	0.00	0.00
0803462	Lights, Tip, Wln MP** LED, 2lts	NFPA	8.00	0.00	0.00
0804514	Lights, Tail, Wln M62BTT* Red Stop/Tail & M62T* Amber Dir Arw	NFPA	0.83	2.49	0.00
0805281	Camera System, Pierce, Mux, Wireless Fixed Camera, Egress to	NFPA	1.20	0.00	0.00
0811018	Engine, Paccar MX13, 510HP, 1850 lb-ftW/OBD, EPA 2024,	NFPA	6.00	0.00	0.00
0887546	Trans, Allison 6th Gen, 4000 EVS P, w/Prognostics,	NFPA	2.00	2.00	0.00
0889521	DEF Tank, 7.3 Gallon, LS Fill, Under Cab, Paccar, Lift Up Fill Dr,	NFPA	0.60	11.40	0.00

\* UDMC = User Defined Mission Critical, LM = User Defined Load Managed, S = Electrical Amperage Supply



# Electrical Analysis

8/7/2023

**Bid #:** 1089  
**Desc:** Santaquin Aerial  
**Customer:** Santaquin City Fire Department  
**Option:** Pierce Command Zone, Advanced Electronics & Control System, Enforcer, WiFi CZT

**Job #:**  
**Sales Rep:** Frisby, Chad  
**Organization:** Siddons-Martin Emergency Group  
**Type:** Multiplexed

Option	Description	Type*	Minimum Load	Intermittent Load	Total Connected
0889577	Bracket, License Plate & Light, P25 LED, Stainless Brkt	NFPA	0.07	0.00	0.00
0889980	Lights, Step (3), P25 LED, One Side	NFPA	0.15	0.00	0.00
0892638	Lights, Cab & Crw Cab Acs Stps, P25, LED w/Bezel, 6lts	NFPA	1.00	0.00	0.00
0898617	Lights, Hose Bed, Sides, Dual Strips, 45 Ends	NFPA	3.30	0.00	0.00
0647729	Alternator, 320 amp, Delco Remy 40SI	S	0.00	0.00	0.00
<b>Load Totals:</b>			<b>161.89</b>	<b>473.37</b>	<b>232.62</b>

Note: Minimum Continuous Load is in "Blocking Right of Way" mode.(Reference current edition of NFPA 1901)  
 Note: Intermittent Load items are not factored in on any alternator load comparisons. These items are included on the report for reference only and should be looked at as amp draw exclusion items. (Reference current edition of NFPA 1901)  
 Note: Total Connected Load "Demand" represents Total Connected Load minus any Load Managed items

### Alternator Output at Idle: 210.00

Minimum Continuous Load	
Supply:	210.00
Demand:	161.89
Variance:	48.11

### Alternator Output at Governed Speed: 288.00

Total Connected Load	
Supply:	288.00
Demand:	207.51
Variance:	80.49

\* UDMC = User Defined Mission Critical, LM = User Defined Load Managed, S = Electrical Amperage Supply



Proposal for **Santaquin City Fire Department**

Prepared by **Siddons-Martin Emergency Group**

08/07/2023



Siddons Martin is pleased to submit a proposal to Santaquin Fire Department for a **Pierce® 107' Heavy Duty Aerial Ladder** per your request for quotation. The following paragraphs will describe in detail the apparatus, construction methods, and equipment proposed. This proposal will indicate size, type, model and make of components parts and equipment, providing proof of compliance with each and every item (except where noted) in the departments advertised specifications.

PIERCE MANUFACTURING was founded in 1913. Since then we have been building bodies with one philosophy, "BUILD THE FINEST". Our skilled craftsmen take pride in their work, which is reflected, in the final product. We have been building fire apparatus since the early "forties" giving Pierce Manufacturing over 75 years of experience in the fire apparatus market. Pierce Manufacturing has built and put into service more than 62,500 apparatus, including more than 33,900 on Pierce custom chassis designed and built specifically for fire and emergency applications. Our Appleton, Wisconsin facility has over 870,000 total square feet of floor space situated on approximately 105 acres of land. Our Bradenton, Florida facility has 300,000 square feet of floor space situated on approximately 38 acres of land.

Our beliefs in high ethical standards are carried through in all of our commitments and to everyone with whom we do business. Honesty, Integrity, Accountability and Citizenship are global tenets by which we all live and work. Consequently, we neither engage in, nor have we ever been convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market.

Pierce has only one brand of fire apparatus "Pierce", ensuring you are receiving top of the line product that meets your specification.

In accordance with the current edition of NFPA 1901 standards, this proposal will specify whether the fire department, manufacturer, or apparatus dealership will provide required loose equipment.

Images and illustrative material in this proposal are as accurate as known at the time of publication, but are subject to change without notice. Images and illustrative material is for reference only, and may include optional equipment and accessories and may not include all standard equipment.

### **GENERAL DESIGN AND CONSTRUCTION**

To control quality, ensure compatibility, and provide a single source for service and warranty, the custom cab, chassis, pump module and body will be entirely designed, assembled/welded and painted in Pierce owned manufacturing facilities. This includes, but not limited to the cab weldment, the pumphouse module assembly, the chassis assembly, the body and the electrical system.

### **QUALITY AND WORKMANSHIP**

Pierce has set the pace for quality and workmanship in the fire apparatus field. Our tradition of building the highest quality units with craftsmen second to none has been the rule right from the beginning and we demonstrate that ongoing commitment by: Ensuring all steel welding follows American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding follows American Welding society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding follows American welding Society B2.1-2000 requirements for structural welding of sheet metal. Our flux core arc welding uses alloy rods, type 7000 and is performed to American Welding Society standards A5.20-E70T1. Furthermore, all employees classified as welders are tested



and certified to meet the American welding Society codes upon hire and every three (3) years thereafter. Pierce also employs an American Welding Society certified welding inspector in plant during working hours to monitor weld quality.

Pierce Manufacturing operates a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International Organization for Standardization (ISO) specify the quality systems that are established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance is included with this proposal.

In addition to the Quality Management system, we also employ a Quality Achievement Supplier program to insure the vendors and suppliers that we utilize meet the high standards we demand. That is just part of our overall "Quality at the Source" program at Pierce.

To demonstrate the quality of our products and services, a list of at least two (2) fire departments/municipalities that have purchased vehicles for a second time is provided.

### **DELIVERY**

The apparatus will be delivered under its own power to insure proper break-in of all components while the apparatus is still under warranty. A qualified delivery representative shall deliver the apparatus and remain for a sufficient length of time to instruct personnel in proper operation, care and maintenance of the equipment delivered.

### **MANUAL AND SERVICE INFORMATION**

At time of delivery, complete operation and maintenance manuals covering the apparatus will be provided. A permanent plate will be mounted in the driver's compartment specifying the quantity and type of fluids required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

### **SAFETY VIDEO**

At the time of delivery Pierce will also provide one (1) 39-minute, professionally produced apparatus safety video, in DVD format. This video will address key safety considerations for personnel to follow when they are driving, operating, and maintaining the apparatus, including the following: vehicle pre-trip inspection, chassis operation, pump operation, aerial operation, and safety during maintenance.

### **PERFORMANCE TESTS**

A road test will be conducted with the apparatus fully loaded and a continuous run of no less than ten (10) miles. During that time the apparatus will show no loss of power nor will it overheat. The transmission drive shaft or shafts and the axles will run quietly and be free of abnormal vibration or noise. The apparatus when fully loaded will not have less than 25 percent nor more than 50 percent on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle. The apparatus will meet NFPA 1901 acceleration and braking requirements.

### **SERVICE AND WARRANTY SUPPORT**

Pierce dealership support will be provided by Siddons Martin by operating a Pierce authorized service center. The service center will have factory-trained mechanics on staff versed in Pierce fire apparatus. The service facility will be located within fifty (50) miles of the fire department.

In addition to the dealership, Pierce has service facilities located in both, Weyauwega, Wisconsin and Bradenton, Florida. Pierce also maintains a dedicated parts facility of over 100,000 square feet in Appleton, Wisconsin. The parts facility stocks in excess of \$5,000,000 in parts dedicated to service and replacement parts. The parts facility employs a staff dedicated solely for the distribution and shipment of service and replacement parts.

Service parts for the apparatus being proposed can be found via Pierceparts.com which, is an interactive online tool that delivers information regarding your specific apparatus as well as the opportunity to register for training classes.

As a Pierce customer you have the ability to view the complete bill of materials for your specific apparatus, including assembly drawings, piece part drawings, and beneficial parts notations. You will also have the ability to search the complete Pierce item master through a parts search function which offers all Pierce SKU's and descriptions offered on all Pierce apparatus. Published component catalogs, which include proprietary systems along with an extensive operators manual library is available for easy reference.

Pierce Manufacturing maintains a dedicated service and warranty staff of over 35 personnel, dedicated to customer support, which also maintains a 24 hour 7 day a week toll free hot line, four (4) on staff EVTs, and offers hands-on repair and maintenance training classes multiple times a year.

### **LIABILITY**

The successful bidder will defend any and all suits and assume all liability for the use of any patented process including any device or article forming a part of the apparatus or any appliance furnished under the contract.

### **INSURANCE PROVIDED BY BIDDER**

#### **COMMERCIAL GENERAL LIABILITY INSURANCE**

The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of commercial general liability insurance:

Each Occurrence\$1,000,000

Products/Completed Operations Aggregate\$1,000,000

Personal and Advertising Injury\$1,000,000

General Aggregate\$2,000,000

Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form and will include Contractual Liability coverage for bodily injury and property damage subject to the terms and conditions of the policy. The policy will include Owner as an additional insured when required by written contract.

### **COMMERCIAL AUTOMOBILE LIABILITY INSURANCE**

The successful bidder will, during the performance of the contract, keep in force at least the following minimum limits of commercial automobile liability insurance and coverage will be written on a Commercial Automobile liability form:

Each Accident Combined Single Limit:\$1,000,000

### **UMBRELLA/EXCESS LIABILITY INSURANCE**

The successful bidder will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Aggregate:\$3,000,000

Each Occurrence:\$3,000,000

The umbrella policy will be written on an occurrence basis and at a minimum provide excess to the bidder's General Liability and Automobile Liability policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.

All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Bidder agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as certificate holder.

### **INSURANCE PROVIDED BY MANUFACTURER**

#### **PRODUCT LIABILITY INSURANCE**

The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of Product Liability insurance:

Each Occurrence\$1,000,000

Products/Completed Operations Aggregate\$1,000,000

Coverage will be written on a Commercial General Liability form. The policy will be written on an occurrence form. The manufacturer's policy will include the owner as additional insured when required by written contract between the Owner and a Pierce authorized dealer.

## **UMBRELLA/EXCESS LIABILITY INSURANCE**

The manufacturer will, during the performance of the contract and for three (3) years following acceptance of the product, keep in force at least the following minimum limits of umbrella liability insurance:

Each Occurrence:\$25,000,000

Aggregate:\$25,000,000

The umbrella policy will be written on an occurrence basis and provide excess to the manufacturer's General Liability/Products policies.

The required limits can be provided by one (1) or more policies provided all other insurance requirements are met.

Coverage will be provided by a carrier(s) rated A- or better by A.M. Best.

All policies will provide a 30-day notice of cancellation to the named insured. The Certificate of Insurance will provide the following cancellation clause: Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Manufacturer agrees to furnish owner with a current Certificate of Insurance with the coverages listed above along with the bid. The certificate will show the purchaser as the certificate holder.

## **SINGLE SOURCE MANUFACTURER**

Pierce Manufacturing, Inc. provides an integrated approach to the design and manufacture of our products that delivers superior apparatus and a dedicated support team. From our facilities, the chassis, cab weldment, cab, pump house (including the sheet metal enclosure, valve controls, piping and operators panel) body and aerial device will be entirely designed, tested, and hand assembled to the customer's exact specifications. The electrical system either hardwired or multiplexed, will be both designed and integrated by Pierce Manufacturing. The warranties relative to these major components (excluding component warranties such as engine, transmission, axles, pump, etc.) will be provided by Pierce as a single source manufacturer. Pierce's single source solution adds value by providing a fully engineered product that offers durability, reliability, maintainability, performance, and a high level of quality.

Your apparatus will be manufactured in Appleton, Wisconsin.

## **NFPA 2016 STANDARDS**

This unit will comply with the NFPA standards effective January 1, 2016, except for fire department directed exceptions. These exceptions will be set forth in the Statement of Exceptions.

Certification of slip resistance of all stepping, standing and walking surfaces will be supplied with delivery of the apparatus.

All horizontal surfaces designated as a standing or walking surface that are greater than 48.00" above the ground must be defined by a 1.00" wide line along its outside perimeter. Perimeter markings and

designated access paths to destination points will be identified on the customer approval print and are shown as approximate. Actual location(s) will be determined based on materials used and actual conditions at final build. Access paths may pass through hose storage areas and opening or removal of covers or restraints may be required. Access paths may require the operation of devices and equipment such as the aerial device or ladder rack.

A plate that is highly visible to the driver while seated will be provided. This plate will show the overall height, length, and gross vehicle weight rating.

The manufacturer will have programs in place for training, proficiency testing and performance for any staff involved with certifications.

An official of the company will designate, in writing, who is qualified to witness and certify test results.

### **NFPA COMPLIANCY**

Apparatus proposed by the bidder will meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire department's specifications that differ from NFPA specifications will be indicated in the proposal as "non-NFPA".

### **INSPECTION CERTIFICATE**

A third party inspection certificate for the aerial device will be furnished upon delivery of the aerial device. The certificate will be Underwriters Laboratories Inc. Type 1 and will indicate that the aerial device has been inspected on the production line and after final assembly.

Visual structural inspections will be performed on all welds on both aluminum and steel ladders.

On critical weld areas, or on any suspected defective area, the following tests will be conducted:

- Magnetic particle inspection will be conducted on steel aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. Magnets will be placed on each side of the weld while iron powder is placed on the weld itself. The powder will detect any crack that may exist. This test will conform to ASTM E709 and be performed prior to assembly of the aerial device.
- A liquid penetrant test will be conducted on aluminum aerials to assure the integrity of the weldments and to detect any flaws or weaknesses. This test will conform to ASTM E165 and be performed prior to assembly of the aerial device.
- Ultrasonic inspection will be conducted on all aerials to detect any flaws in pins, bolts and other critical mounting components.

In addition to the tests above, functional tests, load tests, and stability tests will be performed on all aerials. These tests will determine any unusual deflection, noise, vibration, or instability characteristics of the unit.

### **PUMP TEST**

The pump will be tested, approved and certified by Underwriter's Laboratory at the manufacturer's expense. The test results and the pump manufacturer's certification of hydrostatic test; the engine

manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details will be forwarded to the Fire Department.

### **GENERATOR TEST**

If the unit has a generator, the generator will be tested, approved, and certified by Underwriters Laboratories at the manufacturer's expense. The test results will be provided to the Fire Department at the time of delivery.

### **BREATHING AIR TEST**

If the unit has breathing air, Pierce Manufacturing will draw an air sample from the air system and certify that the air quality meets the requirements of NFPA 1989, *Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection*.

### **VEHICLE INSPECTION PROGRAM CERTIFICATION**

To assure the vehicle is built to current NFPA 1901 standards, the apparatus, in its entirety, will be third-party, independent, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition. The certification includes: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus.

A placard will be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.

### **INSPECTION TRIP(S)**

The bidder will provide two (2) factory inspection trip(s) for Pre-construction at factory with 3 department members and Final inspection at factory also with 3 department members customer representative(s). The inspection trip(s) will be scheduled at times mutually agreed upon between the manufacturer's representative and the customer. All costs such as travel, lodging and meals will be the responsibility of the bidder.

### **BID BOND NOT REQUESTED**

A bid bond will not be included. If requested, the following will apply:

All bidders will provide a bid bond as security for the bid in the form of a 5% bid bond to accompany their bid. This bid bond will be issued by a Surety Company who is listed on the U.S. Treasury Departments list of acceptable sureties as published in Department Circular 570. The bid bond will be issued by an authorized representative of the Surety Company and will be accompanied by a certified power of attorney dated on or before the date of bid. The bid bond will include language, which assures that the bidder/principal will give a bond or bonds as may be specified in the bidding or contract documents, with good and sufficient surety for the faithful performance of the contract, including the Basic One (1) Year Limited Warranty, and for the prompt payment of labor and material furnished in the prosecution of the contract.

Notwithstanding any document or assertion to the contrary, any surety bond related to the sale of a vehicle will apply only to the Basic One (1) Year Limited Warranty for such vehicle. Any surety bond related to the sale of a vehicle will not apply to any other warranties that are included within this bid (OEM or otherwise) or to the warranties (if any) of any third party of any part, component, attachment or

accessory that is incorporated into or attached to the vehicle. In the event of any contradiction or inconsistency between this provision and any other document or assertion, this provision will prevail.

**PERFORMANCE BOND NOT REQUESTED**

A performance bond will not be included. If requested at a later date, one will be provided to you for an additional cost and the following will apply:

The successful bidder will furnish a Performance and Payment bond (Bond) equal to 100 percent of the total contract amount within 30 days of the notice of award. Such Bond will be in a form acceptable to the Owner and issued by a surety company included within the Department of Treasury's Listing of Approved Sureties (Department Circular 570) with a minimum A.M. Best Financial Strength Rating of A and Size Category of XV. In the event of a bond issued by a surety of a lesser Size Category, a minimum Financial Strength rating of A+ is required.

Bidder and Bidder's surety agree that the Bond issued hereunder, whether expressly stated or not, also includes the surety's guarantee of the vehicle manufacturer's Bumper to Bumper warranty period included within this proposal. Owner agrees that the penal amount of this bond will be simultaneously amended to 25 percent of the total contract amount upon satisfactory acceptance and delivery of the vehicle(s) included herein. Notwithstanding anything contained within this contract to the contrary, the surety's liability for any warranties of any type will not exceed three (3) years from the date of such satisfactory acceptance and delivery, or the actual Bumper to Bumper warranty period, whichever is shorter.

Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.

**APPROVAL DRAWING**

A drawing of the proposed apparatus will be prepared and provided to the purchaser for approval before construction begins. The Pierce sales representative will also be provided with a copy of the same drawing. The finalized and approved drawing will become part of the contract documents. This drawing will indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.

A "revised" approval drawing of the apparatus will be prepared and submitted by Pierce to the purchaser showing any changes made to the approval drawing.

**ELECTRICAL WIRING DIAGRAMS**

Two (2) electrical wiring diagrams, prepared for the model of chassis and body, will be provided.

**ENFORCER CHASSIS**

The Pierce Enforcer™ is the custom chassis developed exclusively for the fire service. Chassis provided will be a new, tilt-type custom fire apparatus. The chassis will be manufactured in the apparatus body builder's facility eliminating any split responsibility. The chassis will be designed and manufactured for heavy-duty service, with adequate strength, capacity for the intended load to be sustained, and the type of service required. The chassis will be the manufacturer's first line tilt cab.



## **WHEELBASE**

The wheelbase of the vehicle will be 250.5".

## **GVW RATING**

The gross vehicle weight rating will be 68,000#.

## **FRAME**

The chassis frame will be built with two (2) steel channels bolted to five (5) cross members or more, depending on other options of the apparatus. The side rails will have a 13.38" tall web over the front and mid sections of the chassis, with a continuous smooth taper to 10.75" over the rear axle. Each rail will have a section modulus of 25.992 cubic inches and a resisting bending moment (rbm) of 3,119,040 in-lb over the critical regions of the frame assembly, with a section modulus of 18.96 cubic inches with an rbm of 2,275,200 in-lb over the rear axle. The frame rails will be constructed of 120,000 psi yield strength heat-treated 0.38" thick steel with 3.50" wide flanges.

## **FRAME REINFORCEMENT**

In addition, a mainframe internal liner will be provided. The liner will be an internal "C" design that steps to an internal "L" design over the rear axle. It will be heat-treated steel measuring 12.50" x 3.00" x 0.25" through the front portion of the liner, stepping to 9.38" x 3.00" x 0.25" through the rear portion of the liner. Each liner will have a section modulus of 13.58 cubic inches, yield strength of 110,000 psi, and rbm of 1,494,042 in-lb. Total rbm at wheelbase center will be 4,391,869 in-lb.

The frame liner will be mounted inside of the chassis frame rail and extend the full length of the frame.

## **FRONT NON DRIVE AXLE**

The Oshkosh TAK-4® front axle will be of the independent suspension design with a ground rating of 22,800 lb.

Upper and lower control arms will be used on each side of the axle. Upper control arm castings will be made of 100,000-psi yield strength 8630 steel and the lower control arm casting will be made of 55,000-psi yield ductile iron.

The center cross members and side plates will be constructed out of 80,000-psi yield strength steel.

Each control arm will be mounted to the center section using elastomer bushings. These rubber bushings will rotate on low friction plain bearings and be lubricated for life. Each bushing will also have a flange end to absorb longitudinal impact loads, reducing noise and vibrations.

There will be nine (9) grease fittings supplied, one (1) on each control arm pivot and one (1) on the steering gear extension.

The upper control arm will be shorter than the lower arm so that wheel end geometry provides positive camber when deflected below rated load and negative camber above rated load.

Camber at load will be zero degrees for optimum tire life.

The ball joint bearing will be of low friction design and be maintenance free.

Toe links that are adjustable for alignment of the wheel to the center of the chassis will be provided.

The wheel ends will have little to no bump steer when the chassis encounters a hole or obstacle.

The steering linkage will provide proper steering angles for the inside and outside wheel, based on the vehicle wheelbase.

The axle will have a turning angle of up to 45 degrees.

### **FRONT SUSPENSION**

Front Oshkosh TAK-4™ independent suspension will be provided with a minimum ground rating of 22,800 lb.

The independent suspension system will be designed to provide maximum ride comfort. The design will allow the vehicle to travel at highway speeds over improved road surfaces and at moderate speeds over rough terrain with minimal transfer of road shock and vibration to the vehicle's crew compartment.

Each wheel will have torsion bar type spring. In addition, each front wheel end will also have energy absorbing jounce bumpers to prevent bottoming of the suspension.

The suspension design will be such that there is at least 10.00" of total wheel travel and a minimum of 3.75" before suspension bottoms.

The torsion bar anchor lock system allows for simple lean adjustments, without the use of shims. One can adjust for a lean within 15 minutes per side. Anchor adjustment design is such that it allows for ride height adjustment on each side.

The independent suspension was put through a durability test that simulated 140,000 miles of inner city driving.

### **FRONT SHOCK ABSORBERS**

KONI heavy-duty telescoping shock absorbers will be provided on the front suspension.

### **FRONT OIL SEALS**

Oil seals with viewing window will be provided on the front axle.

### **FRONT TIRES**

Front tires will be Goodyear 425/65R22.50 radials, 20 ply Armor Max MSA, rated for 22,800 lb maximum axle load and 68 mph maximum speed.

The tires will be mounted on Alcoa 22.50" x 12.25" polished aluminum disc type wheels with a ten (10)stud, 11.25" bolt circle.

### **REAR AXLE**

The rear axle will be a Meritor™, Model RT58-185, tandem axle assembly with a capacity of 58,000 lb.

An inter-axle differential, which divides torque evenly between axles, will be provided on the rear axle with an indicator light mounted on the cab instrument panel.

### **TOP SPEED OF VEHICLE**

A rear axle ratio will be furnished to allow the vehicle to reach a top speed of 60 mph/96KPH.

### **REAR SUSPENSION**

The rear suspension will be an Ultimaax spring system with an equalizing beam design that distributes the load equally between the two (2) axles. The ground rating of the suspension will be 58,000 lb.

### **REAR OIL SEALS**

Oil seals will be provided on the rear axle(s).

### **REAR TIRES**

Rear tires will be eight (8) Goodyear 315/80R22.5 radials, load range L, all position G751 tread, rated for 66,160 lb maximum axle load and 68 mph maximum speed.

The tires will be mounted on Accuride® 22.50" x 9.00" polished aluminum disc wheels with a ten (10) stud, 11.25" bolt circle.

### **TIRE BALANCE**

All tires will be balanced with Counteract balancing beads. The beads will be inserted into the tire and eliminate the need for wheel weights.

### **TIRE PRESSURE MANAGEMENT**

There will be a RealWheels LED AirSecure™ tire alert pressure management system provided, that will monitor each tire's pressure. A sensor will be provided on the valve stem of each tire for a total of 10 tires.

The sensor will calibrate to the tire pressure when installed on the valve stem for pressures between 10 and 200 psi. The sensor will activate an integral battery operated LED when the pressure of that tire drops 5 to 8 psi.

Removing the cap from the sensor will indicate the functionality of the sensor and battery. If the sensor and battery are in working condition, the LED will immediately start to flash.

### **CHROME LUG NUT COVERS**

Chrome lug nut covers will be supplied on front and rear wheels.

### **FRONT HUB COVERS**

Stainless steel hub covers will be provided on the front axle. An oil level viewing window will be provided.

### **REAR HUB COVERS**

Stainless steel, high hat, hub covers will be provided on the rear axle hubs.

### **MUD FLAPS**

Mud flaps with a Pierce logo will be installed behind the front and rear wheels.

### **AUTOMATIC TIRE CHAINS**

One (1) pair of ONSPOT extreme duty automatic tire chains will be provided at the rear. System will be electric over air operated with switch on cab instrument panel. System may be engaged at speeds up to 25 mph and operated at speeds up to 35 mph.

### **WHEEL CHOCKS**

There will be one (1) pair of folding Ziamatic, Model SAC-44-E, aluminum alloy, Quick-Choc wheel blocks, with easy-grip handle provided.

### **Wheel Chock Brackets**

There will be one (1) pair of Zico, Model SQCH-44-H, horizontal mounting wheel chock brackets provided for the Ziamatic, Model SAC-44-E, folding wheel chocks. The brackets will be made of aluminum and consist of a quick release spring loaded rod to hold the wheel chocks in place. The brackets will be mounted forward of the left side rear tire.

### **ELECTRONIC STABILITY CONTROL**

A vehicle control system will be provided as an integral part of the ABS brake system from Meritor Wabco.

The system will monitor and update the lateral acceleration of the vehicle and compare it to a critical threshold where a side roll event may occur. If the critical threshold is met, the vehicle control system will automatically reduce engine RPM, engage the engine retarder (if equipped), and selectively apply brakes to the individual wheel ends of the front and rear axles to reduce the possibility of a side roll event.

The system will monitor directional stability through a lateral accelerometer, steer angle sensor and yaw rate sensor. If spinout or drift out is detected, the vehicle control system will selectively apply brakes to the individual wheel ends of the front and rear axles to bring the vehicle back to its intended direction.

### **ANTI-LOCK BRAKE SYSTEM**

The vehicle will be equipped with a Wabco 6S6M, anti-lock braking system. The ABS will provide a six (6) channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology will control the anti-lock braking system. Each wheel will be monitored by the system. When any wheel begins to lockup, a signal will be sent to the control unit. This control unit will then reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system will eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

### **AUTOMATIC TRACTION CONTROL**

An anti-slip feature will be included with the ABS. The Automatic Traction Control will be used for traction in poor road and weather conditions. The Automatic Traction Control will act as an electronic differential lock that will not allow a driving wheel to spin, thereby supplying traction at all times. The ABS electronic control unit (ECU) will work with the engine ECU, sharing information concerning wheel slip. Engine ECU will use information to control engine speed, allowing only as much throttle application as required for the available traction, regardless of how much the driver is asking for. An

"off road traction" switch will be provided on the instrument panel. Activation of the switch will allow additional tire slip to let the truck climb out and get on top of deep snow or mud.

## **BRAKES**

The service brake system will be full air type.

The front brakes will be Knorr/Bendix disc type with a 17.00" ventilated rotor for improved stopping distance.

The brake system will be certified, third party inspected, for improved stopping distance.

The rear brakes will be Meritor™ 16.50" x 7.00" cam operated with automatic slack adjusters. Dust shields will be provided.

## **AIR COMPRESSOR, BRAKE SYSTEM**

The air compressor will be a Wabco single piston compressor with a 26.8 CI displacement.

## **BRAKE SYSTEM**

The brake system will include:

- Brake treadle valve
- Heated automatic moisture ejector on air dryer
- Total air system minimum capacity of 8,616 cubic inches
- Two (2) air pressure gauges with a red warning light and an audible alarm, that activates when air pressure falls below 60 psi
- Spring set parking brake system
- Parking brake operated by a push-pull style control valve
- A parking "brake on" indicator light on instrument panel
- Park brake relay/inversion and anti-compounding valve, in conjunction with a double check valve system, with an automatic spring brake application at 40 psi
- A pressure protection valve to prevent all air operated accessories from drawing air from the air system when the system pressure drops below 80 psi (550 kPa)

The air tank will be primed and painted to meet a minimum 750 hour salt spray test.

To reduce the effects of corrosion, the air tank will be mounted with stainless steel brackets.

## **BRAKE SYSTEM AIR DRYER**

The air dryer will be a WABCO System Saver 1200 with spin-on coalescing filter cartridge and 100 watt heater.

## **BRAKE LINES**

Color-coded nylon brake lines will be provided. The lines will be wrapped in a heat protective loom in the chassis areas that are subject to excessive heat.

**AIR INLET**

One (1) air inlet with 3D series male coupling will be provided. It will allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet will be located forward in the driver side lower step well of cab. A check valve will be provided to prevent reverse flow of air. The inlet will discharge into the "wet" tank of the brake system. A mating female fitting will also be provided with the loose equipment.

**ALL WHEEL LOCK-UP**

An additional all wheel lock-up system will be installed which applies air to the front brakes only. The standard spring brake control valve system will be used for the rear.

**ENGINE**

The chassis will be powered by an electronically controlled engine as described below:

Make:	Paccar
Model:	MX13
Power:	510 hp at 1600rpm
Torque:	1850 lb-ft at 1000rpm
Governed Speed:	1900 rpm
Emissions Certification:	EPA 2024
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	12.9L
Starter:	DP60
Fuel Filters:	Dual cartridge style with check valve, water separator, and water in fuel sensor

The engine will include On-board diagnostics (OBD), which provides self diagnostic and reporting. The system will give the owner or repair technician access to state of health information for various vehicle sub systems. The system will monitor vehicle systems, engine and after treatment. The system will illuminate a malfunction indicator light on the dash console if a problem is detected.

**HIGH IDLE**

A high idle switch will be provided, inside the cab, on the instrument panel, that will automatically maintain a preset engine rpm. A switch will be installed, at the cab instrument panel, for activation/deactivation.

The high idle will be operational only when the parking brake is on and the truck transmission is in neutral. A green indicator light will be provided, adjacent to the switch. The light will illuminate when the above conditions are met. The light will be labeled "OK to Engage High Idle."

## **ENGINE BRAKE**

The compression release brake option is a fully integrated MX engine braking system. It utilizes the turbocharger and backpressure valve, but adds in a hydraulically operated compression brake to increase overall retarding power.

To maximize the effectiveness of the compression brake the MX engine brake system works in conjunction with the turbocharger and back pressure valve.

The driver will be able to turn the engine brake system on/off and have a high, medium and low setting

## **CLUTCH FAN**

A fan clutch will be provided. The fan clutch will be automatic when the pump transmission is in "Road" position, and constantly engaged when in "Pump" position.

## **ENGINE AIR INTAKE**

The engine air intake will be located above the engine cooling package. It will draw fresh air from the front of the apparatus through the radiator grille.

The ember separator is designed to prevent road dirt and recirculating hot air from entering the engine.

The ember separator will be easily accessible by tilting the cab.

## **EXHAUST SYSTEM**

The exhaust system will include a Single Module™ aftertreatment device to meet current EPA standards. The exhaust system will be stainless steel from the turbo to the inlet of the aftertreatment device, and will be 5.00" in diameter. An insulation wrap will be provided on all exhaust pipes between the turbo and aftertreatment device to minimize the heat loss to the aftertreatment device. The exhaust will terminate horizontally ahead of the right side rear wheels. A tailpipe diffuser will be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields will be provided to isolate chassis and body components from the heat of the tailpipe diffuser.

## **RADIATOR**

The radiator and the complete cooling system will meet or exceed NFPA and engine manufacturer cooling system standards.

For maximum corrosion resistance and cooling performance, the entire radiator core will be constructed using long life aluminum alloy. The radiator core will consist of aluminum fins, having a serpentine design, brazed to aluminum tubes.

The radiator core will have a minimum front area of 1060 square inches.

Supply tank will be made of heavy duty glass-reinforced nylon and the return tank will be made of aluminum. Both tanks will be crimped onto the core assembly using header tabs and a compression gasket to complete the radiator core assembly. There will be a full steel frame around the inserts to enhance cooling system durability and reliability.

The radiator will be compatible with commercial antifreeze solutions.

The radiator assembly will be isolated from the chassis frame rails with rubber isolators to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven terrain.

The radiator will include a de-aeration/expansion tank. For visual coolant level inspection, the radiator will have a built-in sight glass. The radiator will be equipped with a 15 psi pressure relief cap.

A drain port will be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.

Shields or baffles will be provided to prevent recirculation of hot air to the inlet side of the radiator.

### **COOLANT LINES**

Gates, or Goodyear, rubber hose will be used for all engine coolant lines installed by Pierce Manufacturing.

Hose clamps will be stainless steel constant torque type to prevent coolant leakage. They will expand and contract according to coolant system temperature thereby keeping a constant clamping pressure on the hose.

### **FUEL TANK**

A 65 gallon fuel tank will be provided and mounted at the rear of the chassis. The tank will be constructed of 12-gauge, hot rolled steel. It will be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank will be mounted with stainless steel straps.

A 0.75" drain plug will be located in a low point of the tank for drainage.

A fill inlet will be located on the left hand side of the body and is covered with a hinged, spring loaded, stainless steel door that is marked "Ultra Low Sulfur - Diesel Fuel Only."

A 0.50" diameter vent will be installed from tank top to just below fuel fill inlet.

The fuel tank will meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.

All fuel lines will be provided as recommended by the engine manufacturer.

### **DIESEL EXHAUST FLUID TANK**

A 7.3 gallon diesel exhaust fluid (DEF) tank will be provided and mounted under the cab on the driver's side.

A fill inlet will be provided on the driver's side of the cab. The lift up door will be spring loaded and be polished stainless steel.

### **TRANSMISSION**

An Allison 6th generation, Model EVS 4000P, electronic, torque converting, automatic transmission will be provided.

The transmission will be equipped with prognostics to monitor oil life, filter life, and transmission health. A wrench icon on the shift selector's digital display will indicate when service is due.



Two (2) PTO openings will be located on left side and top of converter housing (positions 8 o'clock and 1 o'clock).

A transmission temperature gauge with an amber light and buzzer will be installed on the cab instrument panel.

### **TRANSMISSION SHIFTER**

A six (6)-speed push button shift module will be mounted to right of driver on console. Shift position indicator will be indirectly lit for after dark operation.

The transmission ratio will be:

1st	3.51 to 1.00
2nd	1.91 to 1.00
3rd	1.43 to 1.00
4th	1.00 to 1.00
5th	0.75 to 1.00
6th	0.64 to 1.00
R	4.80 to 1.00

### **TRANSMISSION PROGRAMMING**

The transmission will be programmed to automatically shift the transmission to neutral when the parking brake is set to simplify operation and increase operational safety.

### **TRANSMISSION COOLER**

A Modine plate and fin transmission oil cooler will be provided using engine coolant to control the transmission oil temperature.

### **TRANSMISSION FLUID**

The transmission will be provided with TranSynd heavy duty synthetic transmission fluid.

### **DRIVELINE**

Drivelines will be a heavy-duty metal tube and be equipped with Spicer® 1810 universal joints.

The shafts will be dynamically balanced before installation.

A splined slip joint will be provided in each driveshaft where the driveline design requires it. The slip joint will be coated with Glidecoat® or equivalent.

### **STEERING**

Dual Sheppard, Model M110, steering gears, with integral heavy-duty power steering, will be provided. For reduced system temperatures, the power steering will incorporate an air to oil cooler and Paccar hydraulic pump with integral pressure and flow control. All power steering lines will have wire braded lines with crimped fittings.

A tilt and telescopic steering column will be provided to improve fit for a broader range of driver configurations.

### **STEERING WHEEL**

The steering wheel will be 18.00" in diameter, have tilting and telescoping capabilities, and a four (4)-spoke design.

There will be a switch pod provided on the left side of the steering wheel between the spokes. The switch pods will be an integral part of the steering wheel. The following switches will be provided:

- Windshield wash
- Wiper intermittent speed increase
- Wiper intermittent speed decrease
- Hi/Lo wiper speed
- Wiper off

### **LOGO AND CUSTOMER DESIGNATION ON DASH**

The dash panel will have an emblem containing the Pierce logo and customer name. The emblem will have three (3) rows of text for the customer's department name. There will be a maximum of eight (8) characters in the first row, 11 characters in the second row and 11 characters in the third row.

The first row of text will be: Santaquin

The second row of text will be: Fire

The third row of text will be: Department

### **BUMPER**

A one (1)-piece, ten (1) gauge, 304-2B type polished stainless steel bumper, a minimum of 10.00" high, will be attached to a bolted modular extension frame constructed of 50,000 psi tensile steel "C" channel mounted directly behind it to provide adequate support strength.

The bumper will be extended 19.00" from front face of cab.

### **Gravel Pan**

A gravel pan, constructed of bright aluminum treadplate, will be furnished between the bumper and cab face. The gravel pan will be properly supported from the underside to prevent flexing and vibration of the aluminum treadplate.

### **CENTER HOSE TRAY**

A hose tray, constructed of aluminum, will be placed in the center of the bumper extension.

The tray will have a capacity of 125' of 1.75" double jacket cotton-polyester hose.

Black rubber grating will be provided at the bottom of the tray. Drain holes are also provided.

### **Center Tray Cover**

A bright aluminum treadplate cover will be provided over the center tray.

Stiffeners will be provided on the underside of the cover.

The cover will be attached with a stainless steel hinge.

The drop down bumper will secure the cover in the closed position and a mechanical stay arm will hold the cover in the open position.

### **TOW HOOKS**

Two (2) chromed steel tow hooks will be installed under the bumper and attached to the front frame members. The tow hooks will be designed and positioned to allow up to a 6,000 lb straight horizontal pull in line with the centerline of the vehicle. The tow hooks will not be used for lifting of the apparatus.

### **HINGED CENTER SECTION**

The center section of the bumper will be hinged at the bottom. One (1) D-Ring latch will hold the section in the closed position.

### **CAB**

The Enforcer cab will be designed specifically for the fire service and manufactured by the chassis builder.

The cab will be built by the apparatus manufacturer in a facility located on the manufacturer's premises.

For reasons of structural integrity and enhanced occupant protection, the cab will be a heavy duty design, constructed to the following minimal standards.

The cab will have 12 main vertical structural members located in the A-pillar (front cab corner posts), B-pillar (side center posts), C-pillar (rear corner posts), and rear wall areas. The A-pillar will be constructed of solid A356-T5 aluminum castings. The B-pillar and C-pillar will be constructed from 0.13" wall extrusions. The rear wall will be constructed of two (2) 2.00" x 2.00" outer aluminum extrusions and two (2) 2.00" x 1.00" inner aluminum extrusions. All main vertical structural members will run from the floor to 4.625" x 3.864" x 0.090" thick roof extrusions to provide a cage-like structure with the A-pillar and roof extrusions being welded into a 0.25" thick corner casting at each of the front corners of the roof assembly.

The front of the cab will be constructed of a 0.13" firewall plate, covered with a 0.090" front skin (for a total thickness of 0.22"), and reinforced with a full width x 0.50" thick cross-cab support located just below the windshield and fully welded to the engine tunnel. The cross-cab support will run the full width of the cab and weld to each A-pillar, the 0.13" firewall plate, and the front skin.

The cab floors will be constructed of 0.125" thick aluminum plate and reinforced at the firewall with an additional 0.25" thick cross-floor support providing a total thickness of 0.375" of structural material at the front floor area. The front floor area will also be supported with two (2) triangular 0.30" wall extrusions that also provides the mounting point for the cab lift. This tubing will run from the floor wireway of the cab to the engine tunnel side plates, creating the structure to support the forces created when lifting the cab.

The cab will be 96.00" wide (outside door skin to outside door skin) to maintain maximum maneuverability.

The forward cab section will have an overall height (from the cab roof to the ground) of approximately 99.00". The crew cab section will have a 10.00" raised roof, with an overall cab height of approximately 109.00". The overall height listed will be calculated based on a truck configuration with the lowest suspension weight rating, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension will increase the overall height listed.

The raised roof section of the crew cab will have a 58.00" wide x 10.00" high square notch in the center section of the roof. This will allow the aerial device to be bedded in the same location as a non-raised roof.

The floor to ceiling height inside the crew cab will be 44.50" in the forward facing center position and 63.50" in the forward facing outboard positions.

The crew cab floor will measure 60.00" from the rear wall to the back side of the rear facing seat risers.

The medium block engine tunnel, at the rearward highest point (knee level), will measure 76.00" to the rear wall. The big block engine tunnel will measure 66.00" to the rear wall.

The crew cab will be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The cab will be a full tilt cab style.

A 3-point cab mount system with rubber isolators will improve ride quality by isolating chassis vibrations from the cab.

### **CAB ROOF DRIP RAIL**

For enhanced protection from inclement weather, a drip rail will be furnished on the sides of the cab. The drip rail will be painted to match the cab roof, and bonded to the sides of the cab. The drip rail will extend the full length of the cab roof.

### **CAB PUMP ENCLOSURE**

The rear of the cab will be made to house the fire pump below the forward facing crew cab seats. The cab side panels will be notched to accommodate the pump panel.

### **INTERIOR CAB INSULATION**

The cab will include 1.00" insulation in the ceiling, 1.50" insulation in the side walls, and 2.00" insulation in the rear wall to maximize acoustic absorption and thermal insulation.

### **FENDER LINERS**

Full circular inner fender liners in the wheel wells will be provided.

### **PANORAMIC WINDSHIELD**

A one (1)-piece safety glass windshield will be provided with over 2,775 square inches of clear viewing area. The windshield will be full width and will provide the occupants with a panoramic view. The windshield will consist of three (3) layers: outer light, middle safety laminate, and inner light. The outer light layer will provide superior chip resistance. The middle safety laminate layer will prevent the

windshield glass pieces from detaching in the event of breakage. The inner light will provide yet another chip resistant layer. The cab windshield will be bonded to the aluminum windshield frame using a urethane adhesive. A custom frit pattern will be applied on the outside perimeter of the windshield for a finished automotive appearance.

### **WINDSHIELD WIPERS**

Three (3) electric windshield wipers with washer will be provided that meet FMVSS and SAE requirements.

The washer reservoir will be able to be filled without raising the cab.

### **ENGINE TUNNEL**

Engine hood side walls will be constructed of 0.375" aluminum. The top will be constructed of 0.125" aluminum and will be tapered at the top to allow for more driver and passenger elbow room.

The engine hood will be insulated for protection from heat and sound. The noise insulation keeps the dBA level within the limits stated in the current NFPA 1901 standards.

The engine tunnel will be no higher than 17.00" off the crew cab floor.

### **CAB REAR WALL EXTERIOR COVERING**

The exterior surface of the rear wall of the cab will be overlaid with bright aluminum treadplate except for areas that are not typically visible when the cab is lowered.

### **CAB LIFT**

A hydraulic cab lift system will be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves.

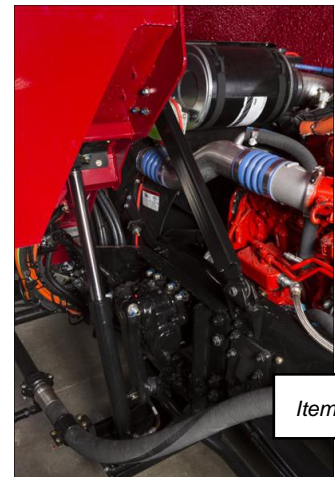
Lift controls will be located on the right side pump panel or front area of the body in a convenient location.

The cab will be capable of tilting 43 degrees to accommodate engine maintenance and removal.

The cab will be locked down by a 2-point normally closed spring loaded hook type latch that fully engages after the cab has been lowered. The system will be hydraulically actuated to release the normally closed locks when the cab lift control is in the raised position and cab lift system is under pressure. When the cab is completely lowered and system pressure has been relieved, the spring loaded latch mechanisms will return to the normally closed and locked position.

The hydraulic cylinders will be equipped with a velocity fuse that protects the cab from accidentally descending when the control is located in the tilt position.

For increased safety, a redundant mechanical stay arm will be provided that must be manually put in place on the left side between the chassis and cab



frame when the cab is in the raised position. This device will be manually stowed to its original position before the cab can be lowered.

### **Cab Lift Interlock**

The cab lift system will be interlocked to the parking brake. The cab tilt mechanism will be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism will be disabled.

### **GRILLE**

A bright finished aluminum mesh grille screen, inserted behind a bright finished grille surround, will be provided on the front center of the cab.

### **DOOR JAMB SCUFFPLATES**

All cab door jambs will be furnished with a 1.00" polished stainless steel scuffplate, mounted on the striker side of the jamb.

### **SIDE OF CAB MOLDING**

Chrome molding will be provided on both sides of cab.

### **MIRRORS**

A Retrac, Model 613423, dual vision, motorized, west coast style mirror, with chrome finish, will be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass will be heated and adjustable with remote control within reach of the driver.

### **DOORS**

To enhance entry and egress to the cab, the forward cab doors will be a minimum of 37.50" wide x 75.50" high. The crew cab doors will be located on the sides of the cab and will be constructed in the same manner as the forward cab doors. The crew cab door openings will be a minimum of 34.30" wide x 85.50" high.

The forward cab and crew cab doors will be constructed of extruded aluminum with a nominal material thickness of 0.093". The exterior door skins will be constructed from 0.090" aluminum.

A customized, vertical, pull-down type door handle will be provided on the exterior of each cab door. The finish of the door handle will be chrome/black. The exterior handle will be designed specifically for the fire service to prevent accidental activation, and will provide 4.00" wide x 2.00" deep hand clearance for ease of use with heavy gloved hands.



[Exterior Door Handle]

Each door will also be provided with an interior flush, open style paddle handle that will be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles will provide 4.00" wide x 1.25" deep hand clearance for ease of use with heavy gloved hands.

The cab doors will be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The keys will be Model 751. The locks will be capable of activating when the doors are open or closed. The doors will remain locked if locks are activated when the doors are opened, then closed.



[Interior Door Handle]

A full length, heavy duty, stainless steel, piano-type hinge with a 0.38" pin and 11 gauge leaf will be provided on all cab doors. There will be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.

A chrome grab handle will be provided on the inside of each cab door for ease of entry.

A red webbed grab handle will be installed on the crew cab door stop strap. The grab handles will be securely mounted.

The cab steps at each cab door location will be located inside the cab doors to protect the steps from weather elements.

**Door Panels**

The inner cab door panels will be constructed out of brushed stainless steel.

**ELECTRIC OPERATED CAB DOOR WINDOWS**

All four (4) cab doors will be equipped with electric operated windows with one (1) flush mounted automotive style switch on each door. The driver's door will have four (4) switches, one (1) to control each door window.

Each switch will allow intermittent or auto down operation for ease of use. Auto down operation will be actuated by holding the window down switch for approximately 1 second.

**CAB STEPS**



Item # 12.

The forward cab and crew cab access steps will be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps will be designed with a grip pattern punched into bright aluminum treadplate material to provide support, slip resistance, and drainage. The bottom steps will be a bolt-in design to minimize repair costs should they need to be replaced. The forward cab steps will be a minimum 25.00" wide, and the crew cab steps will be 21.65" wide with a 10.00" minimum depth. The inside cab steps will not exceed 16.50" in height.

The vertical surfaces of the step well will be aluminum treadplate.

### **CAB EXTERIOR HANDRAILS**

A 1.25" diameter slip-resistant, knurled aluminum handrail will be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress.

### **STEP LIGHTS**

There will be six (6) white LED step lights with chrome housing installed for cab and crew cab access steps.

- One (1) light for the left access steps.
- Two (2) lights for the left side crew cab access steps.
- Two (2) lights for the right side crew cab access steps.
- One (1) light for the right side access step.

In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.

The lights will be activated when the battery switch is on and the adjacent door is opened.

### **FENDER CROWNS**

Stainless steel fender crowns will be installed at the cab wheel openings.

### **CAB DASH**

The driver side dash, switch panel located to the right of the driver, and center console will be an easily removable high impact resistant polymer cover.

The instrument gauge cluster will be surrounded with a high impact ABS plastic contoured to the same shape of the instrument gauge cluster.

The officer side dash will be a flat top design with an upper beveled edge to provide easy maintenance and will be constructed out of aluminum and painted to match the cab interior.

### **CAB INTERIOR**

The cab interior will be constructed of primarily metal (painted aluminum) to withstand the severe duty cycles of the fire service.

The engine tunnel will be padded and covered, on the top and sides, with dark silver gray 36 ounce leather grain vinyl resistant to oil, grease, and mildew.



For durability and ease of maintenance, the cab interior side walls will be painted aluminum. The rear wall will be painted aluminum.

The headliner will be installed in both forward and rear cab sections. Headliner material will be vinyl. A sound barrier will be part of its composition. Material will be installed on an aluminum sheet and securely fastened to interior cab ceiling.

The forward portion of the cab headliner will permit easy access for service of electrical wiring or other maintenance needs.

All wiring will be placed in metal raceways.

### **CAB INTERIOR UPHOLSTERY**

The cab interior upholstery will be 36 oz black vinyl.

### **CAB INTERIOR PAINT**

The cab interior metal surfaces, excluding the rear heater panels, will be painted fire smoke gray, vinyl texture paint.

The rear heater panels will be painted black, vinyl textured paint.

### **CAB FLOOR**

A small blister will be provided at the rear of the engine tunnel for chassis components. The blister will be coated with black UL-LX® polyurethane/polyurea elastomer abrasive resistant material.

The cab and crew cab floor areas will be covered with Polydamp™ acoustical floor mat consisting of a black pyramid rubber facing and closed cell foam decoupler.

The top surface of the material has a series of raised pyramid shapes evenly spaced, which offer a superior grip surface. Additionally, the material has a 0.25" thick closed cell foam (no water absorption) which offers a sound dampening material for reducing sound levels.

### **DEFROST/AIR CONDITIONING SYSTEM**

A ceiling mounted combination heater, defroster and air conditioning system will be installed in the cab above the engine tunnel area.

#### **Cab Defroster**

A 54,000 BTU heater-defroster unit with 690 SCFM of air flow will be provided inside the cab. The heater-defrost will be installed in the forward portion of the cab ceiling. Air outlets will be strategically located in the cab header extrusion per the following:

- One (1) adjustable will be directed towards the left side cab window
- One (1) adjustable will be directed towards the right side cab window
- Six (6) fixed outlets will be directed at the windshield

The defroster will be capable of clearing 98 percent of the windshield and side glass when tested under conditions where the cab has been cold soaked at 0 degrees Fahrenheit for 10 hours, and a 2 ounce

per square inch layer of frost/ice has been able to build up on the exterior windshield. The defroster system will meet or exceed SAE J382 requirements.

### **Cab/Crew Auxiliary Heater**

There will be one (1) 31,000 BTU auxiliary heater with 560 SCFM of air flow provided in each outboard rear facing seat risers with a dual scroll blower. An aluminum plenum incorporated into the cab structure used to transfer heat to the forward positions.

### **Air Conditioning**

A condenser will be a 59,644 BTU output that meets and exceeds the performance specification will be mounted on the radiator.

The air conditioning system will be capable of cooling the average cab temperature from 100 degrees Fahrenheit to 75 degrees Fahrenheit at 50 percent relative humidity within 30 minutes. The cooling performance test will be run only after the cab has been heat soaked at 100 degrees Fahrenheit for a minimum of 4 hours.

The evaporator unit will be installed in the rear portion of the cab ceiling over the engine tunnel. The evaporator will include one (1) high performance heating core, one (1) high performance cooling core with (1) plenum directed to the front and one (1) plenum directed to the rear of the cab. The rear plenum will be covered with a formed plastic cover.

The evaporator unit will have a 52,000 BTU at 690 SCFM rating that meets and exceeds the performance specifications.

Adjustable air outlets will be strategically located on the forward plenum cover per the following:

- Four (4) will be directed towards the seating position on the left side of the cab
- Four (4) will be directed towards the seating position on the right side of the cab

Adjustable air outlets will be strategically located on the rear plenum cover per the following:

- Minimum of five (5) will be directed towards crew cab area

A high efficiency particulate air (HEPA) filter will be included for the system. Access to the filter cover will be secured with four (4) screws.

The air conditioner refrigerant will be R-134A and will be installed by a certified technician.

### **Climate Control**

An automotive style controller will be provided to control the heat and air conditioning system within the cab. The controller will have three (3) functional knobs for fan speed, temperature, and air flow distribution (front to rear) control.



The system will control the temperature of the cab and crew cab automatically by pushing the center of the fan speed control knob. Rotate the center temperature control knob to set the cab and crew cab temperature.

The AC system will be manually activated by pushing the center of the temperature control knob. Pushing the center of the air flow distribution knob will engage the AC for max defrost, setting the fan speeds to 100 percent and directing all air flow to the overhead forward position.

The system controller will be located within panel position #12.

#### **Gravity Drain Tubes**

Two (2) condensate drain tubes will be provided for the air conditioning evaporator. The drip pan will have two (2) drain tubes plumbed separately to allow for the condensate to exit the drip pan. No pumps will be provided.

#### **SUN VISORS**

Two (2) smoked Lexan™ sun visors will be provided. The sun visors will be located above the windshield with one (1) mounted on each side of the cab.

There will be no retention bracket provided to help secure each sun visor in the stowed position.

#### **GRAB HANDLES**

A black rubber covered grab handle will be mounted on the door post of the driver and officer's side cab door to assist in entering the cab. The grab handles will be securely mounted to the post area between the door and windshield.



### **ENGINE COMPARTMENT LIGHTS**

There will be one (1) Whelen, Model 3SC0CDCR, 12 volt DC, 3.00" white LED light(s) with Whelen, Model 3FLANGE, chrome flange kit(s) installed under the cab to be used as engine compartment illumination.

These light(s) will be activated automatically when the cab is raised.

### **ACCESS TO ENGINE DIPSTICKS**

For access to the engine oil and transmission fluid dipsticks, there will be a door on the engine tunnel, inside the crew cab. The door will be on the rear wall of the engine tunnel, on the vertical surface.

The engine oil dipstick will allow for checking only. The transmission dipstick will allow for both checking and filling.

The door will have a rubber seal for thermal and acoustic insulation. One (1) flush lift and turn latch will be provided on the access door.



### **CAB SAFETY SYSTEM**

The cab will be provided with a safety system designed to protect occupants in the event of a side roll or frontal impact, and will include the following:

- A supplemental restraint system (SRS) sensor will be installed on a structural cab member behind the instrument panel. The SRS sensor will perform real time diagnostics of all critical subsystems and will record sensory inputs immediately before and during a side roll or frontal impact event.
- A slave SRS sensor will be installed in the cab to provide capacity for eight (8) crew cab seating positions.
- A fault-indicating light will be provided on the vehicle's instrument panel allowing the driver to monitor the operational status of the SRS system.
- A driver side front air bag will be mounted in the steering wheel and will be designed to protect the head and upper torso of the occupant, when used in combination with the 3-point seat belt.

- A passenger side knee bolster air bag will be mounted in the modesty panel below the dash panel and will be designed to protect the legs of the occupant, when used in combination with the 3-point seat belt.
- Air curtains will be provided in the outboard bolster of outboard seat backs to provide a cushion between occupant and the cab wall.
- Suspension seats will be provided with devices to retract them to the lowest travel position during a side roll or frontal impact event.
- Seat belts will be provided with pre-tensioners to remove slack from the seat belt during a side roll or frontal impact event.

### **Frontal Impact Protection**

The SRS system will provide protection during a frontal or oblique impact event. The system will activate when the vehicle decelerates at a predetermined G force known to cause injury to the occupants. The cab and chassis will have been subjected, via third party test facility, to a crash impact during frontal and oblique impact testing. Testing included all major chassis and cab components such as mounting straps for fuel and air tanks, suspension mounts, front suspension components, rear suspensions components, frame rail cross members, engine and transmission and their mounts, pump house and mounts, frame extensions and body mounts. The testing provided configuration specific information used to optimize the timing for firing the safety restraint system. The sensor will activate the pyrotechnic devices when the correct crash algorithm, wave form, is detected.

The SRS system will deploy the following components in the event of a frontal or oblique impact event:

- Driver side front air bag
- Passenger side knee bolster air bag
- Air curtains mounted in the outboard bolster of outboard seat backs
- Suspension seats will be retracted to the lowest travel position
- Seat belts will be pre-tensioned to firmly hold the occupant in place

### **Side Roll Protection**

The SRS system will provide protection during a fast or slow 90 degree roll to the side, in which the vehicle comes to rest on its side. The system will analyze the vehicle's angle and rate of roll to determine the optimal activation of the advanced occupant restraints.

The SRS system will deploy the following components in the event of a side roll:

- Air curtains mounted in the outboard bolster of outboard seat backs
- Suspension seats will be retracted to the lowest travel position
- Seat belts will be pre-tensioned to firmly hold the occupant in place

### **SEATING CAPACITY**

The seating capacity of the vehicle (including tiller cab and belted seat positions in the rescue body) will be six (6).

## **DRIVER SEAT**

A seat will be provided in the cab for the driver. The seat design will be a cam action type, with air suspension. For increased convenience, the seat will include a manual control to adjust the horizontal position (6.00" travel). The manual horizontal control will be a towel-bar style located below the forward part of the seat cushion. To provide flexibility for multiple driver configurations, the seat will have an adjustable reclining back. The seat back will be a high back style with side bolster pads for maximum support. For optimal comfort, the seat will be provided with 17.00" deep foam cushions designed with EVC (elastomeric vibration control).

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A suspension seat safety system will be included. When activated in the event of a side roll, this system will pretension the seat belt and retract the seat to its lowest travel position.

The seat will be furnished with a 3-point, shoulder type seat belt.

## **OFFICER SEAT**

A seat will be provided in the cab for the passenger. The seat will be a cam action type, with air suspension. For increased convenience, the seat will be provided with 6.00" double locking fore/aft slide adjustment. For optimal comfort, the seat will be provided with 17.00" deep foam cushions designed with EVC (elastomeric vibration control).

The seat back will be an SCBA back style with 5 degree fixed recline angle. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A suspension seat safety system will be included. When activated, this system will pretension the seat belt and then retract the seat to its lowest travel position.

The seat will be furnished with a 3-point, shoulder type seat belt.

## **REAR FACING LEFT SIDE CABINET**

A rear facing cabinet will be provided in the crew cab at the left side outboard position.

The cabinet will be 23.00" wide x 40.25" high x 26.75" deep with one (1) lap door hinged on the inboard side, painted to match the cab interior with two (2) non-locking lever latches. The interior clear door opening of the cabinet will be 16.00" wide x 37.75" high.

The cabinet will also provide access from outside the cab with one (1) double pan door painted to match the cab exterior with a locking D-ring latch with #751 key. A rubber bumper will be provided as a

door stop. The door will be located on the side of the cab over the wheelwell. The clear door opening will be 17.00" wide x 34.00" high.

The cabinet will include two (2) infinitely adjustable shelves with a 1.25" up-turned lip painted to match the cab interior.

The cabinet will include no louvers.

The exterior access will be provided with a brushed stainless steel scuffplate on the lower door frame.

The cabinet will be constructed of smooth aluminum and painted to match the cab interior.

### **Cabinet Light**

There will be one (1) white LED strip light installed on the left side of the exterior cabinet door opening. The lights will be controlled by an automatic door switch.

### **REAR FACING RIGHT SIDE EMS CABINET**

A rear facing cabinet will be provided in the crew cab at the right side outboard position.

The cabinet will be 22.00" wide x 43.00" high x 26.75" deep with one (1) lap door hinged on the inboard side, painted to match the cab interior with two (2) non-locking lever latches. The interior clear door opening of the cabinet will be 15.00" wide x 40.50" high.

The cabinet will also provide access from outside the cab with one (1) double pan door painted to match the cab exterior with a non-locking D-ring latch. A rubber bumper will be provided as a door stop. The door will be located on the side of the cab over the wheelwell. The clear door opening will be 17.00" wide x 34.00" high.

The cabinet will include two (2) infinitely adjustable shelves with a 1.25" up-turned lip painted to match the cab interior.

The cabinet will include no louvers.

The exterior access will be provided with a brushed stainless steel scuffplate on the lower door frame.

The cabinet will be constructed of smooth aluminum and painted to match the cab interior.

### **Cabinet Light**

There will be one (1) white LED strip light installed on the right side of the interior cabinet door opening. The lights will be controlled by an automatic door switch.

### **FORWARD FACING DRIVER SIDE OUTBOARD SEAT**

There will be one (1) forward facing, foldup seat provided at the driver side outboard position in the crew cab. For optimal comfort, the seat will be a minimum of 15.00" from the front of the cushion to the face of the seat back and designed with EVC (elastomeric vibration control).

The seat back will be an SCBA style with 90 degree back. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A seat safety system will be included. When activated, this system will pretension the seat belt around the occupant to firmly hold them in place in the event of a side roll.

The seat will be furnished with a 3-point, shoulder type seat belt.

### **FORWARD FACING CENTER SEATS**

There will be two (2) forward facing seats provided at the center position in the crew cab. For optimal comfort, the seats will be provided with 15.00" deep foam cushions designed with EVC (elastomeric vibration control).

The seat backs will be an SCBA style with 90 degree back. The SCBA cavity will be adjustable from front to rear in 1.00" increments to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- A seat safety system will be included. When activated, this system will pretension the seat belt.

The seats will be furnished with a 3-point, shoulder type seat belt.

### **FORWARD FACING PASSENGER SIDE OUTBOARD SEAT**

There will be one (1) forward facing, foldup seat provided at the passenger side outboard position in the crew cab. For optimal comfort, the seat will be a minimum of 15.00" from the front of the cushion to the face of the seat back and designed with EVC (elastomeric vibration control).

The seat back will be an SCBA style with 90 degree back. The SCBA cavity will be adjustable from front to rear in 1.00" increments, to accommodate different sized SCBA cylinders. Moving the SCBA cavity will be accomplished by unbolting, relocating, and re-bolting it in the desired location.

The seat will include the following features incorporated into the side roll protection system:

- Side air curtain will be mounted integral to the outboard bolster of the seat back. The air curtain will be covered by a decorative panel when in the stowed position.
- A seat safety system will be included. When activated, this system will pretension the seat belt around the occupant to firmly hold them in place in the event of a side roll.

The seat will be furnished with a 3-point, shoulder type seat belt.

### **SEAT UPHOLSTERY**

All seat upholstery will be black Turnout Tuff material.

### **AIR BOTTLE HOLDERS**

All SCBA type seats in the cab will have a "Hands-Free" auto clamp style bracket in its backrest. For efficiency and convenience, the bracket will include an automatic spring clamp that allows the occupant



to store the SCBA bottle by simply pushing it into the seat back. For protection of all occupants in the cab, in the event of an accident, the inertial components within the clamp will constrain the SCBA bottle in the seat and will exceed the NFPA standard of 9G.

There will be a quantity of five (5) SCBA brackets.

### **SEAT BELTS**

All cab and tiller cab (if applicable) seating positions will have red seat belts. To provide quick, easy use for occupants wearing bunker gear, the female buckle and seat belt webbing length will meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.

The 3-point shoulder type seat belts will include height adjustment. This adjustment will optimize the belts effectiveness and comfort for the seated firefighter. The 3-point shoulder type seat belts will be furnished with dual automatic retractors that will provide ease of operation in the normal seating position.

The 3-point shoulder type belts will also include the ReadyReach D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.

Any flip up seats will include a 3-point shoulder type belts only.

To ensure safe operation, the seats will be equipped with seat belt sensors in the seat cushion and belt receptacle that will activate an alarm indicating a seat is occupied but not buckled.

### **HELMET STORAGE PROVIDED BY FIRE DEPARTMENT**

NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided.

There is no helmet storage on the apparatus as manufactured. The fire department will provide a location for storage of helmets.

### **CAB DOME LIGHTS**

There will be six (6) dual LED dome lights with black bezels provided. Two (2) lights will be mounted above the inside shoulder of the driver and officer and four (4) lights will be installed and located, two (2) on each side of the crew cab.

The color of the LED's will be red and white.

The white LED's will be controlled by the door switches.

The color LED's will be controlled by the lens switch.

In order to ensure exceptional illumination, each white LED dome light will provide a minimum of 10.1 foot-candles (fc) covering an entire 20.00" x 20.00" square seating position when mounted 40.00" above the seat.

### **ENHANCED SOFTWARE FOR CAB AND CREW CAB DOME LIGHTS**

The cab and crew cab dome lights will remain on for 10 seconds for improved visibility after the doors are closed.

The dome lights will dim after 10 seconds or immediately if the vehicle's transmission is put into gear.

### **CAB SPOTLIGHT**

There will be two (2) Golight, Model 20\*\*4GT, white LED spotlights located on the cab roof, one on each side of cab. The spotlights will be mounted to the surface of the cab roof.

These lights may be load managed when the parking brake is applied.

### **Spotlight Controller**

There will be one (1) wired dash mounted remote provided for each spotlight.

### **SPOTLIGHT CONTROLLER LOCATION**

The remote to control each spotlight will be located on the engine tunnel two switches located on engine tunnel, one on each side for the officer and driver.

### **PORTABLE HAND LIGHTS, PROVIDED BY FIRE DEPARTMENT**

NFPA 1901, 2016 edition, section 9.9.4 requires two portable hand lights mounted in brackets fastened to the apparatus.

The hand lights are not on the apparatus as manufactured. The fire department will provide and mount these hand lights.

### **CAB INSTRUMENTATION**

The cab instrument panel will include gauges, an LCD display, telltale indicator lamps, control switches, alarms, and a diagnostic panel. The function of the instrument panel controls and switches will be identified by a label adjacent to each item. Actuation of the headlight switch will illuminate the labels in low light conditions. Telltale indicator lamps will not be illuminated unless necessary. The cab instruments and controls will be conveniently located within the forward cab section, forward of the driver. The gauge assembly and switch panels are designed to be removable for ease of service and low cost of ownership.

### **Gauges**

The gauge panel will include the following ten (10) ivory faced gauges with chrome bezels to monitor vehicle performance:

- Voltmeter gauge (volts):
  - Low volts (11.8 VDC)
    - Amber caution indicator on the information center with intermittent alarm
    - Amber caution light on gauge assembly
  - High volts (15.5 VDC)
    - Amber caution indicator on the information center with intermittent alarm
    - Amber caution light on gauge assembly
  - Very low volts (11.3 VDC)
    - Red warning indicator on the information center with a steady alarm
    - Amber caution light on gauge assembly
  - Very high volts (16.0 VDC)
    - Red warning indicator on the information center with a steady alarm

- Amber caution light on gauge assembly
- Engine Tachometer (RPM)
- Speedometer MPH (Major Scale), KM/H (Minor Scale)
- Fuel level gauge (Empty - Full in fractions):
  - Low fuel (1/8 full)
    - Amber caution indicator on the information center with intermittent alarm
    - Amber caution light on gauge assembly
  - Very low fuel (1/32 full)
    - Red caution indicator on the information center with steady alarm
    - Amber caution light on gauge assembly
- Engine Oil pressure Gauge (PSI):
  - Low oil pressure to activate engine warning lights and alarms
    - Red caution indicator on the information center with steady alarm
    - Amber caution light on gauge assembly
- Front Air Pressure Gauges (PSI):
  - Low air pressure to activate warning lights and alarm
    - Red warning indicator on the information center with a steady alarm
    - Amber caution light on gauge assembly
- Rear Air Pressure Gauges (PSI):
  - Low air pressure to activate warning lights and alarm
    - Red warning indicator on the information center with a steady alarm
    - Amber caution light on gauge assembly
- Transmission Oil Temperature Gauge (Fahrenheit):
  - High transmission oil temperature activates warning lights and alarm
    - Amber caution indicator on the information center with intermittent alarm
    - Amber caution light on gauge assembly
- Engine Coolant Temperature Gauge (Fahrenheit):
  - High engine temperature activates an engine warning light and alarms
    - Amber caution indicator on the information center with intermittent alarm
    - Amber caution light on gauge assembly
- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions):
  - Low fluid (1/8 full)
    - Amber indicator light in gauge dial

All gauges will perform prove out at initial power-up to ensure proper performance.

### **Indicator Lamps**

To promote safety, the following telltale indicator lamps will be located on the instrument panel in clear view of the driver. The indicator lamps will be "dead-front" design that is only visible when active. The colored indicator lights will have descriptive text or symbols.

The following amber telltale lamps will be present:

- Low coolant
- Trac cntl (traction control) (where applicable)

- Check engine
- Check trans (check transmission)
- Aux brake overheat (Auxiliary brake overheat)
- Air rest (air restriction)
- Caution (triangle symbol)
- Water in fuel
- DPF (engine diesel particulate filter regeneration)
- Trailer ABS (where applicable)
- Wait to start (where applicable)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- Side roll fault (where applicable)
- Front air bag fault (where applicable)

The following red telltale lamps will be present:

- Warning (stop sign symbol)
- Seat belt
- Parking brake
- Stop engine
- Rack down

The following green telltale lamps will be provided:

- Left turn
- Right turn
- Battery on

The following blue telltale lamp will be provided:

- High beam

### **Alarms**

**Audible steady tone warning alarm:** A steady audible tone alarm will be provided whenever a warning message is present.

**Audible pulsing tone caution alarm:** A pulsing audible tone alarm (chime/chirp) will be provided whenever a caution message is present without a warning message being present.

**Alarm silence:** Any active audible alarm will be able to be silenced by holding the ignition switch at the top position for three (3) to five (5) seconds. For improved safety, silenced audible alarms will intermittently chirp every 30 seconds until the alarm condition no longer exists. The intermittent chirp will act as a reminder to the operator that a caution or warning condition still exists. Any new warning or caution condition will enable the steady or pulsing tones respectively.

### **Indicator Lamp and Alarm Prove-Out**

A system will be provided which automatically tests telltale indicator lights and alarms located on the cab instrument panel. Telltale indicators and alarms will perform prove-out at initial power-up to ensure proper performance.

### **Control Switches**

For ease of use, the following controls will be provided immediately adjacent to the cab instrument panel within easy reach of the driver. All switches will have backlit labels for low light applications.

Headlight/Parking light switch: A three (3)-position maintained rocker switch will be provided. The first switch position will deactivate all parking and headlights. The second switch position will activate the parking lights. The third switch will activate the headlights.

Panel back lighting intensity control switch: A three (3)-position momentary rocker switch will be provided. Pressing the top half of the switch, "Panel Up" increases the panel back lighting intensity and pressing the bottom half of the switch, "Panel Down" decreases the panel back lighting intensity. Pressing the half or bottom half of the switch several times will allow back lighting intensity to be gradually varied from minimum to maximum intensity level for ease of use.

Ignition switch: A three (3)-position maintained/momentary rocker switch will be provided. The first switch position will turn off and deactivate vehicle ignition. The second switch position will activate vehicle ignition and will perform prove-out on the telltale indicators and alarms for 3 to 5 seconds after the switch is turned on. A green indicator lamp is activated with vehicle ignition. The third momentary position will temporarily silence all active cab alarms. An alarm "chirp" may continue as long as alarm condition exists. Switching ignition to off position will terminate the alarm silence feature and reset function of cab alarm system.

Engine start switch: A two (2)-position momentary rocker switch will be provided. The first switch position is the default switch position. The second switch position will activate the vehicle's engine. The switch actuator is designed to prevent accidental activation.

Hazard switch will be provided on the instrument panel or on the steering column.

Heater, defroster, and air conditioning control panel.

Windshield wiper control will include low, high and intermittent modes.

Turn signal arm: A self-canceling turn signal with high beam headlight will be provided.

Parking brake control: An air actuated push/pull park brake control valve will be provided.

Chassis horn control: Activation of the chassis horn control will be provided through the center of the steering wheel.

High idle engagement switch: A momentary rocker switch with integral indicator lamp will be provided. The switch will activate and deactivate the high idle function. The "OK To Engage High Idle" indicator lamp must be active for the high idle function to engage. A green indicator lamp integral to the high idle engagement switch will indicate when the high idle function is engaged.

"OK To Engage High Idle" indicator lamp: A green indicator light will be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

Emergency switching will be controlled by multiple individual warning light switches for various groups or areas of emergency warning lights. An Emergency Master switch provided on the instrument panel that enables or disables all individual warning light switches is included.

An additional "Emergency Master" button will be provided on the lower left hand corner of the gauge panel to allow convenient control of the "Emergency Master" system from inside the driver's door when standing on the ground.

### **Custom Switch Panels**

The design of cab instrumentation will allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There will be positions for up to four (4) switch panels in the lower instrument console and up to six (6) switch panels in the overhead visor console. All switches have backlit labels for low light conditions.



### **Diagnostic Panel**

A diagnostic panel will be accessible while standing on the ground and located inside the driver's side door left of the steering column. The diagnostic panel will allow diagnostic tools such as computers to

connect to various vehicle systems for improved troubleshooting providing a lower cost of ownership. Diagnostic switches will allow ABS systems to provide blink codes should a problem exist.

The diagnostic panel will include the following:

- Engine diagnostic port
- Transmission diagnostic port
- ABS diagnostic port
- Roll sensor diagnostic port
- Command Zone USB diagnostic port
- ABS diagnostic switch (blink codes flashed on ABS telltale indicator)
- Diesel particulate filter regeneration switch (where applicable)
- Diesel particulate filter regeneration inhibit switch (where applicable)

### **Cab LCD Display**

A digital four (4)-row by 20-character dot matrix display will be integral to the gauge panel. The display will be capable of showing simple graphical images as well as text. The display will be split into three (3) sections. Each section will have a dedicated function. The upper left section will display the outside ambient temperature.

The upper right section will display the following, along with other configuration specific information:

- Odometer
- Trip mileage
- PTO hours
- Fuel consumption
- Engine hours

The bottom section will display INFO, CAUTION, and WARNING messages. Text messages will automatically activate to describe the cause of an audible caution or warning alarm. The LCD will be capable of displaying multiple text messages should more than one caution or warning condition exist.

### **AIR RESTRICTION INDICATOR**

A high air restriction warning indicator light LCD message with amber warning indicator and audible alarm will be provided.

### **"DO NOT MOVE APPARATUS" INDICATOR**

A flashing red indicator light, located in the driving compartment, will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On."

The same circuit that activates the Do Not Move Apparatus indicator will activate a pulsing alarm when the parking brake is released.

### **DO NOT MOVE TRUCK MESSAGES**

Messages will be displayed on the Command Zone™, color display located within sight of the driver whenever the Do Not Move Truck light is active. The messages will designate the item or items not in the stowed for vehicle travel position (parking brake disengaged).

The following messages will be displayed (where applicable):

- Do Not Move Truck
- DS Cab Door Open (Driver Side Cab Door Open)
- PS Cab Door Open (Passenger's Side Cab Door Open)
- DS Crew Cab Door Open (Driver Side Crew Cab Door Open)
- PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)
- DS Body Door Open (Driver Side Body Door Open)
- PS Body Door Open (Passenger's Side Body Door Open)
- Rear Body Door Open
- DS Ladder Rack Down (Driver Side Ladder Rack Down)
- PS Ladder Rack Down (Passenger Side Ladder Rack Down)
- Deck Gun Not Stowed
- Lt Tower Not Stowed (Light Tower Not Stowed)
- Fold Tank Not Stowed (Fold-A-Tank Not Stowed)
- Aerial Not Stowed (Aerial Device Not Stowed)
- Stabilizer Not Stowed
- Steps Not Stowed
- Handrail Not Stowed

Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause major damage to the apparatus if the apparatus is moved will be displayed as a caution message after the parking brake is disengaged.

### **SWITCH PANELS**

The emergency light switch panel will have a master switch for ease of use plus individual switches for selective control. Each switch panel will contain eight (8) membrane-type switches each rated for one million (1,000,000) cycles. Panels containing less than eight (8) switch assignments will include non-functioning black appliqué. The built-in switch panels will be located in the lower console or overhead console of the cab.

Additional switch panel(s) will be located in the overhead position(s) above the windshield or in designated locations on the lower instrument panel layout.

The switches will be membrane-type and also act as an integral indicator light. For quick, visual indication the entire surface of the switch will be illuminated white whenever back lighting is activated and illuminated green whenever the switch is active. An active illuminated switch will flash when interlock requirements are not met or device is actively being load managed. For ease of use, a two (2)-ply, scratch resistant laser engraved Gravoply label indicating the use of each switch will be placed in the center of the switch. The label will allow light to pass through the letters for ease of use in low light conditions.

### **WIPER CONTROL**

Wiper control will consist of a two (2)-speed windshield wiper control with intermittent feature and windshield washer controls. The control will be located in the left hand pod of the steering wheel.



## **HOURMETER - AERIAL DEVICE**

The following aerial hour meter messages will be included in the information centers:

- Aerial Hours, that keeps track of the time the aerial device is in motion.
- Aerial PTO Hours, that keeps track of the time the aerial master switch is on and the aerial PTO is engaged.

## **AERIAL MASTER**

There will be a master switch for the aerial operating electrical system provided.

## **AERIAL PTO SWITCH**

A PTO switch for the aerial with indicator light will be provided.

## **SPARE CIRCUIT**

There will be two (2) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires will have the following features:

- The positive wire will be connected directly to the battery power
- The negative wire will be connected to ground
- Wires will be protected to 15 amps at 12 volts DC
- Power and ground will terminate officer side dash area
- Termination will be with heat shrinkable butt splicing
- Wires will be sized to 125 percent of the protection

The circuit(s) may be load managed when the parking brake is set.

## **INFORMATION CENTER**

An information center employing a 7.00" diagonal touch screen color LCD display will be encased in an ABS plastic housing.

The information center will have the following specifications:

- Operate in temperatures from -40 to 185 degrees Fahrenheit
- An Optical Gel will be placed between the LCD and protective lens
- Five weather resistant user interface switches
- Grey with black accents
- Sunlight Readable
- Linux operating system
- Minimum of 1000nits rated display
- Display can be changed to an available foreign language
- A LCD display integral to the cab gauge panel will be included as outlined in the cab instrumentation area.
- Programmed to read US Customary

### **General Screen Design**

Where possible, background colors will be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background will be used.

If a caution or warning situation arises the following will occur:

- An amber background/text color will indicate a caution condition
- A red background/text color will indicate a warning condition
- The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" will change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages.
- A label for each button will exist. The label will indicate the function for each active button for each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol.

### **Home/Transit Screen**

This screen will display the following:

- Vehicle Mitigation (if equipped)
- Water Level (if the water level system includes compatible communications to the information center)
- Foam Level (if the foam level system includes compatible communications to the information center)
- Seat Belt Monitoring Screen Seat Belt Monitoring Screen
- Tire Pressure Monitoring (if equipped)
- Digital Speedometer
- Active Alarms

### **On Scene Screen**

This screen will display the following and will be auto activated with pump engaged (if equipped):

- Battery Voltage
- Fuel
- Oil Pressure
- Coolant Temperature
- RPM
- Water Level (if equipped)
- Foam Level (if equipped)
- Foam Concentration (if equipped)
- Water Flow Rate (if equipped)
- Water Used (if equipped)
- Active Alarms

## **Virtual Buttons**

There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

## **Page Screen**

The page screen will display the following and allow the user to progress into other screens for further functionality:

- Diagnostics
  - Faults
    - Listed by order of occurrence
    - Allows to sort by system
  - Interlock
    - Throttle Interlocks
    - Pump Interlocks (if equipped)
    - Aerial Interlocks (if equipped)
    - PTO Interlocks (if equipped)
  - Load Manager
    - A list of items to be load managed will be provided. The list will provide a description of the load.
    - The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.
    - The screen will indicate if a load has been shed (disabled) or not shed.
    - "At a glance" color features are utilized on this screen.
  - Systems
    - Command Zone
      - Module type and ID number
      - Module Version
      - Input or output number
      - Circuit number connected to that input or output
      - Status of the input or output
      - Power and Constant Current module diagnostic information
    - Foam (if equipped)
    - Pressure Controller (if equipped)
    - Generator Frequency (if equipped)
  - Live Data
    - General Truck Data
- Maintenance
  - Engine oil and filter
  - Transmission oil and filter
  - Pump oil (if equipped)
  - Foam (if equipped)
  - Aerial (if equipped)
- Setup

- Clock Setup
- Date & Time
  - 12 or 24 hour format
  - Set time and date
- Backlight
  - Daytime
  - Night time
  - Sensitivity
- Unit Selection
- Home Screen
- Virtual Button Setup
- On Scene Screen Setup
- Configure Video Mode
  - Set Video Contrast
  - Set Video Color
  - Set Video Tint
- Do Not Move
  - The screen will indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices will be indicated
    - Driver Side Cab Door
    - Passenger's Side Cab Door
    - Driver Side Crew Cab Door
    - Passenger's Side Crew Cab Door
    - Driver Side Body Doors
    - Passenger's Side Body Doors
    - Rear Body Door(s)
    - Ladder Rack (if applicable)
    - Deck Gun (if applicable)
    - Light Tower (if applicable)
    - Hatch Door (if applicable)
    - Stabilizers (if applicable)
    - Steps (if applicable)
- Notifications
  - View Active Alarms
    - Shows a list of all active alarms including date and time of the occurrence is shown with each alarm
    - Silence Alarms - All alarms are silenced
- Timer Screen
- HVAC (if equipped)
- Tire Information (if equipped)
- Ascendant Set Up Confirmation (if equipped)

Button functions and button labels may change with each screen.

## **ADDITIONAL INFORMATION CENTER**

There will be one (1) information center(s) each employing a 7.00" diagonal touch screen color LCD display located on the right side engine tunne.

The information center(s) will have the following specifications:

- Operate in temperatures from -40 to 185 degrees Fahrenheit
- An Optical Gel will be placed between the LCD and protective lens
- Five weather resistant user interface switches
- Grey with black accents
- Sunlight Readable
- Linux operating system
- Minimum of 1000nits rated display
- Display can be changed to an available foreign language
- A LCD display integral to the cab gauge panel will be included as outlined in the cab instrumentation area.
- Programmed to read US Customary

## **General Screen Design**

Where possible, background colors will be used to provide "At a Glance" vehicle information. If information provided on a screen is within acceptable limits, a green background will be used.

If a caution or warning situation arises the following will occur:

- An amber background/text color will indicate a caution condition
- A red background/text color will indicate a warning condition
- The information center will utilize an "Alert Center" to display text messages for audible alarm tones. The text messages will be written to identify the item(s) causing the audible alarm to sound. If more than one (1) text message occurs, the messages will cycle every second until the problem(s) have been resolved. The background color for the "Alert Center" will change to indicate the severity of the "warning" message. If a warning and a caution condition occur simultaneously, the red background color will be shown for all alert center messages.
- A label for each button will exist. The label will indicate the function for each active button for each screen. Buttons that are not utilized on specific screens will have a button label with no text or symbol.

## **Home/Transit Screen**

This screen will display the following:

- Vehicle Mitigation (if equipped)
- Water Level (if equipped)
- Foam Level (if equipped)
- Seat Belt Monitoring Screen
- Tire Pressure Monitoring (if equipped)
- Digital Speedometer

- Active Alarms

### **On Scene Screen**

This screen will display the following and will be auto activated with pump engaged (if equipped):

- Battery Voltage
- Fuel
- Oil Pressure
- Coolant Temperature
- RPM
- Water Level (if equipped)
- Foam Level (if equipped)
- Foam Concentration (if equipped)
- Water Flow Rate (if equipped)
- Water Used (if equipped)
- Active Alarms

### **Virtual Buttons**

There will be four (4) virtual switch panel screens that match the overhead and lower lighting and HVAC switch panels.

### **Page Screen**

The page screen will display the following and allow the user to progress into other screens for further functionality:

- Diagnostics
  - Faults
    - Listed by order of occurrence
    - Allows to sort by system
  - Interlock
    - Throttle Interlocks
    - Pump Interlocks (if equipped)
    - Aerial Interlocks (if equipped)
    - PTO Interlocks (if equipped)
  - Load Manager
    - A list of items to be load managed will be provided. The list will provide a description of the load.
    - The lower the priority numbers the earlier the device will be shed should a low voltage condition occur.
    - The screen will indicate if a load has been shed (disabled) or not shed.
    - "At a glance" color features are utilized on this screen.
  - Systems
    - Command Zone
      - Module type and ID number
      - Module Version

- Input or output number
    - Circuit number connected to that input or output
    - Status of the input or output
    - Power and Constant Current module diagnostic information
      - Foam (if equipped)
      - Pressure Controller (if equipped)
      - Generator Frequency (if equipped)
  - Live Data
    - General Truck Data
- Maintenance
  - Engine oil and filter
  - Transmission oil and filter
  - Pump oil (if equipped)
  - Foam (if equipped)
  - Aerial (if equipped)
- Setup
  - Clock Setup
  - Date & Time
    - 12 or 24 hour format
    - Set time and date
  - Backlight
    - Daytime
    - Night time
    - Sensitivity
  - Unit Selection
  - Home Screen
  - Virtual Button Setup
  - On Scene Screen Setup
  - Configure Video Mode
    - Set Video Contrast
    - Set Video Color
    - Set Video Tint
- Do Not Move
  - The screen will indicate the approximate location and type of item that is open or is not stowed for travel. The actual status of the following devices will be indicate
    - Driver Side Cab Door
    - Passenger's Side Cab Door
    - Driver Side Crew Cab Door
    - Passenger's Side Crew Cab Door
    - Driver Side Body Doors
    - Passenger's Side Body Doors
    - Rear Body Door(s)
    - Ladder Rack (if applicable)
    - Deck Gun (if applicable)

- Light Tower (if applicable)
  - Hatch Door (if applicable)
  - Stabilizers (if applicable)
  - Steps (if applicable)
- Notifications
  - View Active Alarms
    - Shows a list of all active alarms including date and time of the occurrence is shown with each alarm
    - Silence Alarms - All alarms are silenced
- Timer Screen
- HVAC (if equipped)
- Tire Information (if equipped)

Button functions and button labels may change with each screen.

### **VEHICLE DATA RECORDER**

There will be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR will be available to download on-line.

The vehicle data recorder will be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position
- Seat Belt Buckled Status - Yes/No by Position
- Master Optical Warning Device Switch - On/Off
- Time - 24 Hour Time
- Date - Year/Month/Day

### **Seat Belt Monitoring System**

A seat belt monitoring system (SBMS) will be provided on the Command Zone™ color display. The SBMS will be capable of monitoring up to 10 seating positions indicating the status of each seat position per the following:

- Seat Occupied & Buckled = Green LED indicator illuminated



- Seat Occupied & Unbuckled = Red LED indicator with audible alarm
- No Occupant & Buckled = Red LED indicator with audible alarm
- No Occupant & Unbuckled = No indicator and no alarm

The seat belt monitoring screen will become active on the Command Zone color display when:

- The home screen is active:
  - and there is any occupant seated but not buckled or any belt buckled with an occupant.
  - and there are no other Do Not Move Apparatus conditions present. As soon as all Do Not Move Apparatus conditions are cleared, the SBMS will be activated.

The SBMS will include an audible alarm that will warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.

### **INTERCOM SYSTEM**

There will be digital, single radio interface, intercom located behind officer seat in the cab. The front panel will have master volume and squelch controls with illuminated indicators, allowing for independent level setting of radio and auxiliary audio devices.

There will be one (1) radio listen only / transmit control with select, monitor, receive, and transmit indicators. There will be one (1) auxiliary audio input with select, and receive indicators.

There will be one (1) wireless base station for up to five (1-5) headset users provided.

The wireless base station will have a 100' to 1100' range, line of sight. Objects between the transmitter and receiver affect range.

The following Firecom components will be provided:

- One (1) 5100D Intercom
- One (1) WB505R wireless base station (1-5 wireless positions)
- All necessary power and station cabling

### **RADIO / INTERCOM INTERFACE CABLE**

The apparatus manufacturer will supply and install one (1) radio interface cable before delivery of the vehicle.

The radio equipment to be used by the customer will be:

- Motorola High Power , Model number Motorola, Model APX 7500, high power.

### **WIRELESS UNDER HELMET, INTERCOM ONLY HEADSET**

There will be four (4) Firecom™, Model UHW-503 wireless under the helmet, intercom only headset(s) provided. A heavy duty, coiled 12 volt charging pigtail with plug will be provided crew cab.



Each headset will feature:

- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 dB noise reduction
- Programmable Microphone transmit button
- Rechargeable battery operates 24 hours on a full charge
- IP-66 when worn

### **WIRELESS UNDER HELMET, RADIO TRANSMIT ONLY HEADSET**

There will be two (2) Firecom™, Model UHW-505, wireless under the helmet, radio transmit headset(s) provided. A heavy duty, coiled 12 volt charging pigtail with plug will be provided driver's seat and officer seat.



Each headset will feature:

- Noise cancelling electric microphone
- Flexible microphone boom
- Ear seals with 20 dB noise reduction
- Stereo Listen-Through Ear dome microphones
- Radio Push To Transmit button (Left or Right Side)
- Rechargeable battery operates for 24 hours on a full charge
- IP-66 when worn

### **TWO WAY RADIO INSTALLATION**

There will be two (2) customer supplied two way radio(s) with a single remote head sent to the apparatus manufacturers preferred radio installer to be installed behind officer seat per the shipping document.

The remote radio head will be located overhead .

No antenna mount or whip will be included in this option.

Specific shipping requirements will be followed.

### **RADIO ANTENNA MOUNT**

There will be one (1) standard 1.125", 18 thread antenna-mounting base(s) installed on the right side on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the instrument panel area. A weatherproof cap will be installed on the mount.



### **VEHICLE CAMERA SYSTEM**

There will be a color vehicle camera system provided with the following:

- One (1) Analog High Definition (AHD) camera located on the right side of the apparatus, pointing rearward, displayed automatically with the right side turn signal.
- One (1) AHD camera located on the left side of the apparatus, pointing rearward, displayed automatically with the left side turn signal.
- One (1) AHD, black camera located at the rear of the apparatus, pointing rearward, displayed automatically with the vehicle in reverse.

The camera images will be displayed on the left side vehicle information center display. Audio from the microphone on the rear camera will be not provided.

The following components will be included:

- One (1) 1080P Rear Camera
- Two (2) 1080P Side Cameras
- All necessary cables

### **CAMERA SWITCHER**

There will be one (1), HMU318 HD Image Processor multiplexer, 4 channel camera video switcher with remote control provided to allow Single, dual, triplex, quad, trefoil, Y split and PIP view display modes on the vehicle information center display provided. The switcher will have one (1) CVBS, Composite Video Blanking and Sync, standard Definition video output and one (1) AHD, Analog High Definition video output for High Definition cameras.

### **VEHICLE CAMERA VIDEO SPLIT**

Video from three (3) cameras camera(s) located at RS, LS, and rear cameras , will be split to both the driver's vehicle information center display and the officers vehicle information center display. A video isolator will be installed at each display video connection. The control triggers for each camera will be the same on both displays.

### **ELECTRICAL POWER CONTROL SYSTEM**

The primary power distribution will be located forward of the officer's seating position and be easily accessible while standing on the ground for simplified maintenance and troubleshooting. Additional electrical distribution centers will be provided throughout the vehicle to house the vehicle's electrical power, circuit protection, and control components. The electrical distribution centers will be located strategically throughout the vehicle to minimize wire length. For ease of maintenance, all electrical distribution centers will be easily accessible. All distribution centers containing fuses, circuit breakers and/or relays will be easily accessible.

Distribution centers located throughout the vehicle will contain battery powered studs for supplying customer installed equipment thus providing a lower cost of ownership.

Circuit protection devices, which conform to SAE standards, will be utilized to protect electrical circuits. All circuit protection devices will be rated per NFPA requirements to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers will be Type-I automatic reset (continuously resetting). When required, automotive type fuses will be utilized to

protect electronic equipment. Control relays and solenoid will have a direct current rating of 125 percent of the maximum current for which the circuit is protected per NFPA.

### **Solid-State Control System**

A solid-state electronics based control system will be utilized to achieve advanced operation and control of the vehicle components. A fully computerized vehicle network will consist of electronic modules, electronic control modules to include black housings, a power indicator and status indicator located near their point of use to reduce harness lengths and improve reliability. The control system will comply with SAE J1939-11 recommended practices.

The control system will operate as a master-slave system whereas the main control module instructs all other system components. The system will contain patented Mission Critical software that maintains critical vehicle operations in the unlikely event of a main controller error. The system will utilize a Real Time Operating System (RTOS) fully compliant with OSEK/VDX™ specifications providing a lower cost of ownership.

For increased reliability and simplified use the control system modules will include the following attributes:

- Green LED indicator light for module power
- Red LED indicator light for network communication stability status
- Control system self test at activation and continually throughout vehicle operation
- No moving parts due to transistor logic
- Software logic control for NFPA mandated safety interlocks and indicators
- Integrated electrical system load management without additional components
- Integrated electrical load sequencing system without additional components
- Customized control software to the vehicle's configuration
- Factory and field programmable to accommodate changes to the vehicle's operating parameters

To assure long life and operation in a broad range of environmental conditions, the solid-state control system modules will meet the following specifications:

- Module circuit board will meet SAE J771 specifications
- Operating temperature from -40C to +70C
- Storage temperature from -40C to +70C
- Vibration to 50g

IP67 rated enclosure (Totally protected against dust and also protected against the effect of temporary immersion between 15 centimeters and one (1) meter)

Operating voltage from eight (8) volts to 32 volts DC

The main controller will activate status indicators and audible alarms designed to provide warning of problems before they become critical.

### **Circuit Protection and Control Diagram**

Copies of all job-specific, computer network input and output (I/O) connections will be provided with each chassis. The sheets will indicate the function of each module connection point, circuit protection information (where applicable), wire numbers, wire colors and load management information.

### **On-Board Electrical System Diagnostics**

The on-board information center will include the following diagnostic information:

- Text description of active warning or caution alarms
- Simplified warning indicators
- Amber caution indication with intermittent alarm
- Red warning indication with steady tone alarm

Advanced diagnostic feature will be provided in this control system. From the Command Zone display or connected wireless device, these features allow the user to monitor the real-time status of every input or output on the vehicle. It also allows users logged in as an administrator to force on inputs or outputs to assist the troubleshooting process.

### **TCU Module with WiFi**

An in cab module will provide WiFi wireless interface and data logging capability. The WiFi interface will comply with IEEE 802.11 b/g/n capabilities while communicating at 2.4 Gigahertz. The module will communicate through a black WiFi antenna allowing a line of site communication range of up to 300 feet with a roof mounted antenna.

The module will transmit a password protected web page to a WiFi enabled device (i.e. most smart phones, tablets or laptops) allowing two levels of user interaction. The firefighter level will allow vehicle monitoring of the vehicle and firefighting systems on the apparatus. The technician level will allow diagnostic access to inputs and outputs installed on the Command Zone™, control and information system.

The TCU capability will record faults from the engine, transmission, ABS and Command Zone™, control and information systems as they occur. No other data will be recorded at the time the fault occurs. The data TCU will provide up to 2 Gigabytes of data storage.

The TCU will provide a means to download the TCU information and update software in the device.

### **Indicator Light and Alarm Prove-Out System**

A system will be provided which automatically tests basic indicator lights and alarms located on the cab instrument panel.

### **Voltage Monitor System**

A voltage monitoring system will be provided to indicate the status of the battery system connected to the vehicle's electrical load. The system will provide visual and audible warning when the system voltage is below or above optimum levels.

The alarm will activate if the system falls below 11.8 volts DC for more than two (2) minutes.

### **Dedicated Radio Equipment Connection Points**

There will be three (3) studs provided in the primary power distribution center located in front of the officer for two-way radio equipment. The studs will consist of the following:

- 12-volt 40-amp battery switched power
- 12-volt 60-amp ignition switched power
- 12-volt 60-amp direct battery power

There will also be a 12-volt 100-amp ground stud located in or adjacent to the power distribution center.

### **EMI/RFI Protection**

To prevent erroneous signals from crosstalk contamination and interference, the electrical system will meet, at a minimum, SAE J551/2, thus reducing undesired electromagnetic and radio frequency emissions. An advanced electrical system will be used to ensure radiated and conducted electromagnetic interference (EMI) or radio frequency interference (RFI) emissions are suppressed at their source.

The apparatus will have the ability to operate in the electromagnetic environment typically found in fire ground operations to ensure clean operations. The electrical system will meet, without exceptions, electromagnetic susceptibility conforming to SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter. The vehicle OEM, upon request, will provide EMC testing reports from testing conducted on an entire apparatus and will certify that the vehicle meets SAE J551/2 and SAE J1113/25 Region 1, Class C EMR for 10KHz-1GHz to 100 Volts/Meter requirements. Component and partial (incomplete) vehicle testing is not adequate as overall vehicle design can impact test results and thus is not acceptable by itself.

EMI/RFI susceptibility will be controlled by applying appropriate circuit designs and shielding. The electrical system will be designed for full compatibility with low-level control signals and high-powered two-way radio communication systems. Harness and cable routing will be given careful attention to minimize the potential for conducting and radiated EMI/RFI susceptibility.

### **ELECTRICAL SYSTEM PROGNOSTICS**

There will be a software based vehicle tool provided to predict remaining life of the vehicles critical fluid and events.

The system will send automatic indications to the Command Zone™ information center and/or wireless enabled devices to proactively alert of upcoming service intervals.

Prognostics will include the following:

- Engine oil and filter
- Transmission oil and filter

### **ELECTRICAL**

All 12-volt electrical equipment installed by the apparatus manufacturer will conform to modern automotive practices. All wiring will be high temperature crosslink type. Wiring will be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset

circuit breakers will be provided which conform to SAE Standards. Wiring will be color, function and number coded. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment will be installed utilizing the following guidelines:

1. All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.
2. Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.
3. Electrical components designed to be removed for maintenance will not be fastened with nuts and bolts. Metal screws will be used in mounting these devices. Also a coil of wire will be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.
4. Corrosion preventative compound will be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation (of the plug).
5. All lights that have their sockets in a weather exposed area will have corrosion preventative compound added to the socket terminal area.
6. All electrical terminals in exposed areas will have silicon applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, will be furnished. Rear identification lights will be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads will be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test will be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order.

The results of the tests will be recorded and provided to the purchaser at time of delivery.

### **BATTERY SYSTEM**

There will be four (4) 12 volt Stryten/Exide®, Model 31S950X5W, batteries that include the following features will be provided:

- 950 CCA, cold cranking amps
- 190 amp reserve capacity
- High cycle
- Group 31
- Rating of 3800 CCA at 0 degrees Fahrenheit
- 760 minutes of reserve capacity
- Threaded stainless steel studs

Each battery case will be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover will be manifold vented with a central venting location to allow a 45 degree tilt capacity.

The inside of each battery will consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.

### **BATTERY SYSTEM**

There will be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.

### **MASTER BATTERY SWITCH**

There will be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.

An indicator light will be provided on the instrument panel to notify the driver of the status of the battery system.

### **BATTERY COMPARTMENTS**

Batteries will be placed on non-corrosive mats and be stored in well ventilated compartments located under the cab and bolted directly to the chassis frame. The battery boxes will have reinforced sides. The battery compartments will be constructed of 0.188" steel plate and be designed to accommodate a maximum of three (3) group 31 batteries in each compartment. The battery hold-downs will be of a non-corrosive material. All bolts and nuts will be stainless steel.

Heavy-duty, 2/0 gauge, color coded battery cables will be provided. Battery terminal connections will be coated with anti-corrosion compound.

Battery solenoid terminal connections will be encapsulated with semi-permanent rubberized compound.

### **JUMPER STUDS**

One (1) set of battery jumper studs with plastic color-coded covers will be included on the battery compartments.

### **BATTERY CHARGER**

There will be a Kussmaul™, Chief Series Smart Charger 4012, product code 091-266-12-40, 40 amp battery charger with build-in touch screen display provided.

The battery charger will be wired to the AC shoreline inlet through a junction box located near the battery charger.

The battery charger will be located in the cab behind the driver seat.

### **AUTO EJECT FOR SHORELINE**

There will be one (1) Kussmaul™, Model 091-55-20-120, 20 amp 120 volt AC shoreline inlet(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.

The shoreline inlet(s) will include red weatherproof flip up cover(s).



There will be a release solenoid wired to the vehicle's starter to eject the AC connector when the engine is starting.

The shoreline(s) will be connected to the battery charger.

There will be a mating connector body supplied with the loose equipment.

There will be a label installed near the inlet(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

The shoreline receptacle will be located on the driver side of cab, above wheel.

### **ALTERNATOR**

A Delco Remy®, Model 40SI, alternator will be provided. It will have a rated output current of 320 amps, as measured by SAE method J56. The alternator will feature an integral regulator and rectifier system that has been tested and qualified to an ambient temperature of 257 degrees Fahrenheit (125 degrees Celsius). The alternator will be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

### **ELECTRONIC LOAD MANAGER**

An electronic load management (ELM) system will be provided that monitors the vehicles 12-volt electrical system, automatically reducing the electrical load in the event of a low voltage condition, and automatically restoring the shed electrical loads when a low voltage condition expires. This ensures the integrity of the electrical system.

For improved reliability and ease of use, the load manager system will be an integral part of the vehicle's solid state control system requiring no additional components to perform load management tasks. Load management systems which require additional components will not be allowed.

The system will include the following features:

- System voltage monitoring.
- A shed load will remain inactive for a minimum of five minutes to prevent the load from cycling on and off.
- Sixteen available electronic load shedding levels.
- Priority levels can be set for individual outputs.
- High Idle to activate before any electric loads are shed and deactivate with the service brake.
  - If enabled:
    - "Load Man Hi-Idle On" will display on the information center.
    - Hi-Idle will not activate until 30 seconds after engine start up.
- Individual switch "on" indicator to flash when the particular load has been shed.
- The information center indicates system voltage.

The information center, where applicable, includes a "Load Manager" screen indicating the following:

- Load managed items list, with priority levels and item condition.
- Individual load managed item condition:
  - ON = not shed
  - SHED = shed

### **SEQUENCER**

A sequencer will be provided that automatically activates and deactivates vehicle loads in a preset sequence thereby protecting the alternator from power surges. This sequencer operation will allow a gradual increase or decrease in alternator output, rather than loading or dumping the entire 12 volt load to prolong the life of the alternator.

For improved reliability and ease of use, the load sequencing system will be an integral part of the vehicle's solid state control system requiring no additional components to perform load sequencing tasks. Load sequencing systems which require additional components will not be allowed.

Emergency light sequencing will operate in conjunction with the emergency master light switch. When the emergency master switch is activated, the emergency lights will be activated one by one at half-second intervals. Sequenced emergency light switch indicators will flash while waiting for activation.

When the emergency master switch is deactivated, the sequencer will deactivate the warning light loads in the reverse order.

Sequencing of the following items will also occur, in conjunction with the ignition switch, at half-second intervals:

- Cab Heater and Air Conditioning
- Crew Cab Heater (if applicable)
- Crew Cab Air Conditioning (if applicable)
- Exhaust Fans (if applicable)
- Third Evaporator (if applicable)

### **HEADLIGHTS**

There will be four (4) JW Speaker®, Model 8800, 4" x 6" rectangular LED lights with heated lens mounted in the front quad style, chrome housing on each side of the cab grille:

- the outside light on each side will contain a part number 055\*\*\*1 low beam module
- the inside light on each side will contain a part number 055\*\*\*1 high beam module
- the headlights to include chrome bezels

The low beam lights will be activated when the headlight switch is on.

The high beam and low beam lights will be activated when the headlight switch and the high beam switch is activated.

### **FRONT DIRECTIONALS**

The front directional's will be Whelen®, Model M62T, 4.31" high x 6.75" wide x 1.37" deep directional lights with amber LEDs. The lens color(s) to be clear. The directional's will be housed in the same common bezel as the front warning light and will be located above the headlights. The housing to be polished and the trim shall be chrome.

The flash pattern of the directional lights will be Steady On (Arrow).

### **INTERMEDIATE LIGHT**

There will be two (2) Weldon, Model 9186-8580-29, amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light will double as a turn signal and marker light.

### **CAB CLEARANCE/MARKER/ID LIGHTS**

There will be seven (7) amber LED lights provided per the following:

- Three (3) amber LED identification lights will be installed in the center of the cab above the windshield.
- Two (2) amber LED clearance lights will be installed, one (1) on each outboard side of the cab above the windshield as close to the outside of the apparatus as practical.
- Two (2) amber LED clearance lights will be installed, one (1) on each side of the cab as high and far forward as practical.

The lights will be installed without guards.

### **FRONT CAB SIDE DIRECTIONAL/MARKER LIGHTS**

There will be two (2) Weldon, Model 9186-8580-29, amber LED lights installed front of the cab door, one (1) on each side of the cab.

The lights will activate as marker lights with the headlight switch and directional lights with the corresponding directional circuit.

### **REAR CLEARANCE/MARKER/ID LIGHTING**

There will be three (3) LED identification lights located at the rear installed per the following:

- As close as practical to the vertical centerline
- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height

There will be two (2) LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the rear

- All at the same height

There will be two (2) LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:

- To indicate the overall length of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the side
- All at the same height

The lights will be mounted with no guard.

There will be two (2) red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

There will be two (2) red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15.00", but no more than 60.00", above the ground.

Per FMVSS 108 and CMVSS 108 requirements.

### **MARKER LIGHTS**

There will be one (1) pair of amber and red LED marker lights with rubber arm, located at the rear most lower corner of the body. The amber lens will face the front and the red lens will face the rear of the truck.

These lights will be activated with the running lights of the vehicle.

### **REAR FMVSS LIGHTING**

The rear stop/tail and directional lighting included in the rear tail light housing will include the following:

- Two (2) Whelen®, Model M62BTT, 4.30" high x 6.70" wide x 1.40" deep brake/tail lights with red LEDs
- Two (2) Whelen, Model M62T, 4.30" high x 6.70" wide x 1.40" deep directional lights with amber LEDs. The directional lights will be set to Steady On (Arrow) flash pattern.
- The lens color(s) to be clear.

There will be two (2) Whelen Model M62BU, LED backup lights provided in the tail light housing.

### **LICENSE PLATE BRACKET**

One (1) license plate bracket constructed of stainless steel will be provided at the rear of the apparatus.

One (1) white LED light with chrome housing will be provided to illuminate the license plate. A stainless steel light shield will be provided over the light that will direct illumination downward, preventing white light to the rear.

### **LIGHTING BEZEL**

There will be two (2) Whelen, Model M6FCV4P, four (4) place chromed ABS housings with Pierce logos provided for the rear M6 series stop/tail, directional, back up, scene lights or warning lights.

### **BACK-UP ALARM**

A PRECO, Model 1040, solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse will be provided. The device will sound at 60 pulses per minute and automatically adjust its volume to maintain a minimum ten (10) dBA above surrounding environmental noise levels.

### **ACCENT LIGHTS**

There will be one (1) Amdor®, Model AY-LB-12HB012, 190 lumen, 12" long, blue 12 volt DC LED strip light(s) installed as accent light(s) provided. The accent light(s) will be located Grill on the apparatus.

The LED accent light(s) will be activated by with the headlights.

### **CAB PERIMETER SCENE LIGHTS**

There will be four (4) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" white LED strip lights provided, one (1) for each cab door.

These lights will be activated automatically when the battery switch is on and the exit doors are opened or by the same means as the body perimeter scene lights.

### **PUMP HOUSE PERIMETER LIGHTS**

There will be two (2) Amdor, Model AY-LB-12HW020, 350 lumens each, 20.00" LED weatherproof strip lights with brackets provided under the pump panel running boards, one (1) each side.

If the combination of options in the vehicle does not permit clearance for a 20.00" light, a 12.00" version of the Amdor light will be installed.

The lights will be controlled by the same means as the body perimeter lights.

### **BODY PERIMETER SCENE LIGHTS**

There will be one (1) Truck-Lite, Model 44308C, 4.00" white LED lights with Model 40700, grommets provided under the turntable access steps.

The perimeter scene lights will be activated when the parking brake is applied.

### **ENHANCED SOFTWARE FOR PERIMETER LIGHTS**

All perimeter lights will be deactivated when the parking brake is released unless alternate control is selected.

The cab and crew cab perimeter lights will remain on for ten (10) seconds for improved visibility after the doors closed.

### **12 VOLT LIGHTING**

There will be one (1) Whelen® Model P\*H2\*, 17,750 lumens 12 volt DC light(s) with a combination of flood and spot optics provided on the front visor, centered.

The housing(s) painted parts of this light assembly to be white.

The light(s) will be controlled by a switch at the driver's side switch panel and by a switch at the passenger's side switch panel.

These light(s) may be load managed when the parking brake is applied.

### **CAB 12 VOLT DC SCENE LIGHTS**

There will be one (1) Whelen® Model M9LZC, 12 volt DC lights with white LEDs and chrome trim installed on the cab located, LS cab high centered between doors.

The lights will be activated by the same control that has been selected for the passenger's side scene light(s).

The light(s) may be load managed when the parking brake is applied.

### **CAB 12 VOLT DC SCENE LIGHTS**

There will be one (1) Whelen® Model M9LZC, 12 volt DC lights with white LEDs and chrome trim installed on the cab located, RS cab high centered between doors.

The lights will be activated by the same control that has been selected for the driver's side scene light(s).

The light(s) may be load managed when the parking brake is applied.

### **BODY 12 VOLT LIGHTING**

There will be two (2) Whelen® Model M9LZC, 12 volt DC lights with white LEDs and chrome trim installed on the body located, Each side of rear body high.

The lights will be activated by the same switching that has been selected for the other rear scene light(s) on the apparatus.

The light(s) may be load managed when the parking brake is applied.

### **12 VOLT DC LIGHTS**

There will be one (1) Whelen® Model PSL2B\*, 9,000 lumens 12 volt DC powered light(s) with white LEDs and with a combination of flood and spot optics installed on the apparatus body located, Over LS3.

The painted parts of this light assembly to be white.

The light(s) will have universal bail mounting.

The lights will be activated by the same control that has been selected for the driver's side scene light(s).

The light(s) may be load managed when the parking brake is applied.

## **12 VOLT DC LIGHTS**

There will be one (1) Whelen® Model PSL2B\*, 9,000 lumens 12 volt DC powered light(s) with white LEDs and with a combination of flood and spot optics installed on the apparatus body located, Over RS4.

The painted parts of this light assembly to be white.

The light(s) will have universal bail mounting.

The lights will be activated by the same control that has been selected for the passenger's side scene light(s).

The light(s) may be load managed when the parking brake is applied.

## **HOSE BED LIGHTS**

There will be two (2) sets of 12 volt DC light strips with white LEDs, provided to illuminate the hose bed and under the turntable per the following:

- One (1) set of lights installed on the left side of the hose bed.
- One (1) set of lights installed on the right side of the hose bed.

There will be a 16 gauge bright stainless steel overhead cover with 45 degree ends provided over the lights to protect the lights from the hose and the hose from damaging snags.

The lights will be activated when the aerial device parking brake is applied.

## **WALKING SURFACE LIGHT**

There will be Model FRP, 4" round black 12 volt DC LED floodlight(s) with bolt mount provided to illuminate the entire designated walking surface on top of the body.

The light(s) will be activated when the body step lights are on.

## **WATER TANK**

It will have a capacity of 500 gallons and will be constructed of polypropylene plastic in an L-shape with a notch for hose storage. The joints and seams will be nitrogen welded inside and out. The tank will be baffled in accordance with NFPA Bulletin 1901 requirements. The baffles will have vent openings at both the top and bottom of each baffle to permit movement of air and water between compartments. The longitudinal partitions will be constructed of .38" polypropylene plastic and extend from the bottom of the tank through the top cover to allow positive welding. The transverse partitions extend from 4" off the bottom to the underside of the top cover. All partitions interlock and will be welded to the tank bottom and sides. The tank top will be constructed of .50" polypropylene. It will be recessed .38" and will be welded to the tank sides and the longitudinal partitions. It will be supported to keep it rigid during fast filling conditions. Construction will include 2.00" polypropylene dowels spaced no more than 30.00" apart and welded to the transverse partitions. Two of the dowels will be drilled and tapped (.50" diameter, 13.00" deep) to accommodate lifting eyes. A sump will be provided at the bottom of the water tank. The sump will include a drain plug and the tank outlet. Tank will be installed in a fabricated "cradle" assembly constructed of structural steel. Sufficient crossmembers are provided to properly support bottom of tank. Crossmembers are constructed of steel bar chsnnel or rectangular tubing.

Tank "floats" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50" thick x 3.00" wide, will be placed on all horizontal surfaces that the tank rests on. Stops are provided to prevent an empty tank from bouncing excessively while moving vehicle. Tank mounting system is approved by the manufacturer.

Fill tower will be constructed of .50" polypropylene and will be a minimum of 8.00" wide x 14.00" long.

Fill tower will be furnished with a .25" thick polypropylene screen and a hinged cover.

An overflow pipe, constructed of 4.00" schedule 40 polypropylene, will be installed approximately halfway down the fill tower and extend through the water tank and exit to the rear of the rear axle.

### **HOSE BED**

The hose bed will be fabricated of 0.125" thick 5052-H32 aluminum with a tensile strength of 31,000.

The sides of the hose bed will not form any portion of the fender compartments.

The hose bed will be located ahead of the ladder turntable between the tank and side body compartments.

Hose removal will be at the rear of the body via "chutes" under the turntable on the right side. Each chute will be enclosed with a full height smooth aluminum door. There will be a lift and turn latch and a pneumatic cylinder at the top of the door (if applicable).

The hose bed flooring will consist of removable aluminum grating with a top surface that is corrugated to aid in hose aeration.

The grating slats will be 0.50" wide x 4.50" long with spacing between the slats for hose ventilation.

The hose bed/cargo area interior will be painted to match the lower body color.

Hose capacity will be a minimum of 1000' of 5.00" large diameter hose.

### **AERIAL HOSE BED HOSE RESTRAINT**

The hose in the hose bed will be restrained by one (1) black nylon Velcro® strap at the top of the hose bed. The strap will be installed to the top of the hose bed side sheets.

### **RUNNING BOARDS**

Design of the vehicle will be such that running boards will not be required to reach pre connects or other items on the side of the vehicle.

### **TURNTABLE STEPS**

Steps to access the turntable from the left side will be provided just behind the compartmentation. There shall be no bottom flip step provided. The bottom step will have a step height not exceeding 24.00" from the ground to the top surface of the step at any time. All steps will have a height no greater than 14.00" from top surface to top surface.

The steps will be a swing-down design, with the stepping area made of Morton Tread-Grip® channel.



The stepwell will be lined with bright aluminum treadplate to act as scuffplates.

The steps will be connected to the "Do Not Move Truck" indicator.

A knurled aluminum handrail will be provided on each side of the access steps.

A hand hold will be provided in the left and right side of each side of the access steps.

### **STEP LIGHTS**

There will be three (3) white P25 LED step lights provided for the aerial turntable access steps.

In order to ensure exceptional illumination, each light will provide a minimum of 25 foot-candles (fc) covering an entire 15" x 15" square placed ten (10) inches below the light and a minimum of 1.5 fc covering an entire 30" x 30" square at the same ten (10) inch distance below the light.

The step lights will be activated by when the aerial master switch is activated.

### **SMOOTH ALUMINUM REAR WALL**

The rear wall will be smooth aluminum.

### **TOW EYES**

Two (2) rear painted tow eyes will be located at the rear of the apparatus and will be mounted directly to the torque box. The inner and outer edges of the tow eyes will be radiused. Each tow eye will be rated for 9000lb and painted to match the lower job color.

### **COMPARTMENTATION**

Compartmentation will be fabricated of 0.125" 5052 aluminum. The side compartments are an integral assembly with the rear fenders. Fully enclosed rear wheel housings will be provided to prevent rust pockets and for ease of maintenance. Due to the severe loading requirements of this aerial, a method of compartment body support suitable for the intended load will be provided.

The backbone of the support system will be the chassis frame rail, which is the strongest component of the chassis and is designed for sustaining maximum loads.

A support system will be used which will incorporate a floating substructure by using Neoprene Elastomer isolators to allow the body to remain rigid while the chassis goes through its natural flex. The isolators will have a broad range of proven viability in vehicular applications, be of a fail safe design, and allow for all necessary movement in three (3) transitional and rotational modes. This will result in a 500 lb equipment rating for each lower compartment of the body.

The compartmentation in front of the rear axle will include a 3.00" steel support assemblies which are bolted to the chassis frame rails. A steel framework will be mounted to the body above these support assemblies connected to the support assemblies with isolators. There will be one (1) support assembly mounted to each chassis frame rail.

The compartmentation behind the rear axle will include 3.00" steel support assemblies which are bolted to the chassis frame rails and extend underneath to the outside edge of the body. The support

assembly will be coated to isolate the dissimilar metals before it is bolted to the body. There will be one (1) support assembly mounted to each chassis frame rail.

Compartment flooring will be of the sweep out design with the floor higher than the compartment door lip. The compartment door openings are framed by flanging the edges in 1.75" and bending out again 0.75" to form an angle. Drip protection is provided over all door openings by means of bright aluminum extrusion or formed bright aluminum treadplate. Side compartment tops will be covered with bright aluminum treadplate with a 1.00" rolled over edge on the front, rear and outward side. The covers are fabricated in one (1) piece and have the corners welded. A bright aluminum treadplate cover will be provided on the front wall of each side compartment. All screws and bolts which protrude into a compartment will have acorn nuts at the ends to prevent injury.

The body design has been fully tested. Proven engineering and test techniques such as finite element analysis, model analysis, stress coating and strain gauging have been performed with special attention given to fatigue life and structural integrity of the compartment body and substructure.

### **AGGRESSIVE WALKING SURFACE**

All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards.

### **LOUVERS**

All body compartments will have a minimum of one (1) set of louvers stamped into a wall to provide the proper airflow inside the compartment and to prevent water from dripping into the compartment. These louvers will be formed into the metal and not added to the compartment as a separate plate.

### **LEFT SIDE COMPARTMENTATION**

A full height roll-up door compartment ahead of the rear wheels will be 41.75" wide x 64.00" high x 24.25" deep inside with an clear door opening of 38.75" wide x 56.38" high.

One (1) roll-up door compartment above the fender compartments and over the rear axles will be provided. The compartment will be 72.13" wide x 33.25" high x 24.25" deep inside with a clear door opening of 63.75" wide x 25.50" high.

A compartment with a single pan polished stainless steel door will be located above the front stabilizer. The door will be hinged on the rear body side with a SouthCo C2 chrome raised trigger lever latch. The compartment will be approximately 18.00" wide x 23.00" high x 24.25" deep with a door opening of approximately 12.00" wide x 15.75" high.

A full height roll-up door compartment behind the rear wheels will be 43.75" wide x 49.25" high x 21.25" deep. The clear door opening will be 40.75" wide x 41.62" high.

One (1) lift-up door compartment below the turntable will be provided. The compartment will be 39.38" wide x 18.38" high x 21.25" deep inside with a door opening of 35.00" wide x 14.88" high.

### **RIGHT SIDE COMPARTMENTATION**

A full height roll-up door compartment ahead of the rear wheels will be 41.75" wide x 64.00" high x 24.25" deep inside the lower 29.75" and 12.00" deep inside the upper portion with a clear door opening of 38.75" wide x 55.38" high.

One (1) roll-up door compartment will be provided above the fender compartments and over the rear axles. The compartment will be 72.13" wide x 33.25" high x 12.00" deep inside with a clear door opening of 63.75" wide x 24.50" high.

A compartment with a single pan polished stainless steel door will be located above the front stabilizer. The door will be hinged on the rear body side with a flush lift and turn latch. The compartment will be 18.00" wide x 23.00" high x 12.00" deep with a door opening of 12.00" wide x 15.75" high.

A full height roll-up door compartment behind the rear wheels will be approximately 43.75" wide x 49.25" high x 21.25" deep inside the lower 29.75" and 12.00" deep in the upper portion. The clear door opening will be approximately 40.75" wide x 41.62" high.

One (1) compartment below the turntable with a lift-up door will be approximately 39.38" wide x 18.38" high x 12.00" deep inside with a door opening of approximately 35.00" wide x 14.88" high.

### **RIGHT SIDE COMPARTMENT IN PLACE OF TURNTABLE STEPS**

A roll-up door compartment in place of turntable stairs 12.00" deep x 20.88" wide x 39.50" high inside with a minimum clear door opening of approximately 15.25" wide x 39.50" high will be provided.

### **SIDE COMPARTMENT ROLLUP DOORS**

There will be six (6) compartment doors installed on the side compartments. The Gortite doors will be double faced aluminum construction and painted one (1) color to match the lower portion of the body.

Lath sections will be an interlocking rib design and will be individually replaceable without complete disassembly of door.

Between each slat at the pivoting joint will be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals will allow door to operate in extreme temperatures ranging from plus 180 to minus 40 degrees Fahrenheit. Side, top and bottom seals will be provided to resist ingress of dirt and weather and be made of Santoprene.

All hinges, barrel clips and end pieces will be nylon 66. All nylon components will withstand temperatures from plus 300 to minus 40 degrees Fahrenheit.

A polished stainless steel lift bar to be provided for each roll-up door. Lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door.

Doors will be constructed from an aluminum box section. The exterior surface of each slat will be flat. The interior surfaces will be concave to provide strength and prevent loose equipment from jamming the door from inside.

To conserve space in the compartments, the spring roller assembly will not exceed 3.00" in diameter.

The header for the rollup door assembly will not exceed 4.00".

A heavy-duty magnetic switch will be used for control of open compartment door warning lights.

### **SIDE COMPARTMENT LAP DOORS**

All hinged compartment doors will be lap style with double panel construction and fabricated of 0.09" 5052H32 aluminum. Doors will be a minimum of 1.50" thick. To provide additional door strength, a "C" section reinforcement will be installed between the outer and interior panels.

Doors will be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core will be installed on the door framing that seals onto the interior panel, to ensure a weather resisting compartment.

All compartment doors will have polished stainless steel continuous hinge with a pin diameter of 0.25", that is bolted or screwed on with stainless steel fasteners. A dielectric substance will be applied to each hinge fastener.

All door lock mechanisms will be fully enclosed within the door panels to prevent fouling of the lock in the event equipment inside shifts into the lock area.

Doors will be latched with recessed, polished stainless steel D-ring handles and Eberhard 106 locks.

To prevent corrosion caused by dissimilar metals, compartment door handles will not be attached to outer door panel with screws. A rubber gasket will be provided between the D-ring handle and the door.

### **BODY MODIFICATION FROM STANDARD**

The compartment above the stabilizers (if applicable) will be decreased due to deeper stabilizer depth. The height of the compartment will decrease 4.00" and the compartment door will move up 4.00" higher. The stabilizer frame opening as well as the stabilizer pan will be increased in height by 6.00".

### **REAR BUMPER**

A 5.00" rear bumper will be furnished. Bumper will be constructed of steel framework and will be covered with polished aluminum treadplate. The bumper will be 4.00" deep x 5.00" high and will be spaced away from the body approximately 1.00". It will extend the full width of the body.

### **DOOR GUARD**

There will be nine (9) compartment doors that will include a guard/drip pan designed to protect the rollup door from damage when in the retracted position and contain any water spray. The guard will be fabricated from stainless steel and installed on the left side rearward compartment, left side rearward over the wheel compartment, left side forward compartment, left side forward compartment, right side rearward compartment, right side over the wheel compartment, right side forward over the wheel compartment, right side forward compartment and right side forward compartment.

### **COMPARTMENT LIGHTING**

There will be nine (9) compartment(s) with two (2) white 12 volt DC LED compartment light strips. The dual light strips will be centered vertically along each side of the door framing. There will be two (2) light strips per compartment. The dual light strips will be in all body compartment(s).

Any remaining compartments without light strips will have a 6.00" diameter Truck-Lite, Model: 79384 light. Each light will have a number 1076 one filament, two wire bulb.

Opening the compartment door will automatically turn the compartment lighting on.

### **MOUNTING TRACKS**

There will be six (6) sets of tracks for mounting shelf(s) in LS1, LS3, LS4, RS1, RS3 and RS4. These tracks will be installed vertically to support the adjustable shelf(s), and will be full height of the compartment. The tracks will be painted to match the compartment interior.

### **ADJUSTABLE SHELVES**

There will be 11 shelves with a capacity of 500 lb provided.

The shelf construction will consist of .188" aluminum painted spatter gray with 2.00" sides.

Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by .12" thick stamped plated brackets and bolts.

The location(s) will be in RS2 centered between the floor and the ceiling, in RS1 in the lower third, in RS3 in the lower third, in RS3 in the upper third, in RS1 in the upper third, in RS4 in the upper third to the left of the partition, in RS4 in the lower third to the left of the partition, in LS1 in the lower third, in LS3 in the lower third, in LS3 in the upper third and in LS1 in the upper third.

### **SLIDE-OUT FLOOR MOUNTED TRAY**

There will be two (2) floor mounted slide-out tray(s) provided.

Each tray will have 2.00" high sides and a minimum capacity rating of 500 lb in the extended position.

Each tray will be constructed of aluminum painted spatter gray

There will be two undermount-roller bearing type slides rated at 250lb each provided. The pair of slides will have a safety factor rating of 2.

To ensure years of dependable service, the slides will be coated with a finish that is tested to withstand a minimum of 1,000 hours of salt spray per ASTM B117.

To ensure years of easy operation, the slides will require no more than a 50lb force for push-in or pull-out movement when fully loaded after having been subjected to a 40 hour vibration (shaker) test under full load. The vibration drive file will have been generated from accelerometer data collected from a heavy truck chassis driven over rough gravel roads in an unloaded condition. Proof of compliance will be provided upon request.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for the locks will be located at the front of the tray for ease of use with a gloved hand.

The location(s) will be RS1 and LS1.

### **SWING OUT TOOLBOARD**

A swing out aluminum toolboard will be provided.

It will be a minimum of .188" thick with .203" diameter holes in a pegboard pattern with 1.00" centers between holes.

A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard.

The board will be mounted on a pivoting device at the front of the compartment on the top and bottom to allow easy movement in and out of the compartment. The maximum tool load will be 400 pounds.

The board will have positive lock in the stowed and extended position.

The board will have a D-ring handle to secure it in the stowed position.

The board will be mounted on adjustable tracks from front to back within the compartment.

There will be One (1) toolboard(s) provided. The toolboard(s) will be spatter gray painted and installed LS2 full height and width.

### **SWING OUT TOOLBOARD**

A swing out aluminum toolboard will be provided.

It will be a minimum of .188" thick with .203" diameter holes in a pegboard pattern with 1.00" centers between holes.

A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard.

The board will be mounted on a pivoting device at the back of the compartment on the top and bottom to allow easy movement in and out of the compartment. The maximum tool load will be 400 pounds.

The board will have positive lock in the stowed and extended position.

The board will have a D-ring handle to secure it in the stowed position.

The board will be mounted stationary within the compartment.

There will be One (1) toolboard(s) provided, will be spatter gray painted, and installed LS2 full height and width.

### **VERTICAL COMPARTMENT PARTITION**

One (1) partition will be provided.

The partition construction will consist of body material painted spatter gray. Each partition will be the full vertical height of the compartment.

The location(s) will be in RS3, 12.00" from the forward door frame.

### **RUB RAIL**

Bottom edge of the side compartments will be trimmed with a bright aluminum extruded rub rail.

Trim will be 2.12" high with 1.38" flanges turned outward for rigidity.

The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.

### **BODY FENDER CROWNS**

Polished stainless steel fender crowns will be provided around the rear wheel openings with a dielectric barrier will be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.

The fender crowns will be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion. Rubber welting will be provided between the body and crown.

### **BODY FENDER LINER**

A painted to match the lower body color fender liner will be provided. The liners will be removable to aid in the maintenance of rear suspension components.

### **HARD SUCTION HOSE**

Hard suction hose will not be required.

### **FOUR AIR BOTTLE STORAGE COMPARTMENT**

A total of two (2) air bottle compartments will be provided and located on the left side and the right side, centered between the tandem rear wheels. The air bottle compartment will consist of individual bins each designed to hold an air bottle with a maximum diameter of 7.63" and a maximum depth of 26.00".

Each compartment will hold a total of four (4) air bottles. The compartment will accommodate three (3) bottles across the top and one (1) centered below. The bottom air bottle will be accessible only when the top center bottle is removed and the hinged partition over the bottom bottle is lifted up. Each bottle will be separated by a partition.

A drop down door with support cables with pair of Southco raised trigger C2 chrome lever latches will be provided for each compartment. The door will be polished stainless steel. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment there will be a drain hole and black rubber matting.

### **AIR BOTTLE COMPARTMENT STRAP**

Straps will be provided in the air bottle compartment(s) to help contain the top three (3) air bottles. The straps will wrap around the neck of each bottle and attach to the wall of the compartment.

### **SINGLE AIR BOTTLE STORAGE COMPARTMENT**

A quantity of two (2) air bottle compartments, 7.75" in diameter x 26.00" deep, will be provided on the right side forward of the rear wheels and on the right side rearward of the rear wheels. A polished stainless steel door with a Southco raised trigger C2 chrome lever latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, black rubber matting will be provided.

**SINGLE AIR BOTTLE STORAGE COMPARTMENT**

A quantity of one (1) air bottle compartment, 7.75" in diameter x 26.00" deep, will be provided on the left side forward of the rear wheels. The triangular door shall cover the air bottle opening and the DEF tank access.. A polished stainless steel door with a Southco raised trigger C2 chrome lever latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, black rubber matting will be provided.

**SINGLE AIR BOTTLE STORAGE COMPARTMENT**

A quantity of one (1) air bottle compartment, approximately 7.75" in diameter x 26.00" deep, will be provided on the right side rearward of the rear wheels. The triangular door shall cover the air bottle opening and fuel tank access.. A polished stainless steel door with a chrome plated flush lift & turn latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

Inside the compartment, black rubber matting will be provided.

**EXTENSION LADDER**

There will be one (1) 35' two (2) section aluminum Duo-Safety Series 1200-A extension ladder(s) provided.

**AERIAL EXTENSION LADDER**

There will be one (1) 24' two (2) section aluminum Series 900-A extension ladder(s) provided and located in the aerial torque box.

**ROOF LADDERS**

There will be two (2) 16' aluminum Duo-Safety Series 875-A roof ladders provided.

**AERIAL ATTIC EXTENSION LADDER**

There will be one (1) 14' Fresno aluminum Duo-Safety Series 701 attic extension ladder(s) provided.

**AERIAL FOLDING LADDER**

There will be one (1) 10' aluminum Duo-Safety Series 585-A folding ladder(s) provided and located in the aerial torque box.

**GROUND LADDER STORAGE**

The ground ladders are stored within the torque box and are removable from the rear.

Ladders will be enclosed to prevent road dirt and debris from fouling or damaging the ladders.

The ladders rest in full length stainless steel slides and are arranged in such a manner that any one ladder can be removed without having to move or remove any other ladder.



A Gortite rollup door will be provided at the rear, double faced, aluminum construction, and an anodized satin finish. A polished stainless steel lift bar to be provided for the rear roll-up door. The latching mechanism will consist of a full length lift bar lock with latches on the outer extrusion of the door frame.

A stainless plate with a 2-bend flange and a stainless steel hinge will be provided to secure the aerial ladder complement. The plate assembly will be mounted to the bottom of the entrance of the torque box ladder storage area.

When the plate is vertical, it will secure the ladders and prevent them from migrating to the rear of the apparatus. When the plate is down and not securing the ladders, the rollup door can not close, which will activate the "Open Door Indicator Light" within the cab. The rollup door together with hinge friction will secure the plate in place during driving operations.

A door guard will be provided to prevent tools inside the torque box from damaging the rollup door.

### **LADDER STORAGE LIGHTING**

There will be 21.00" white 12 volt DC LED strip lights in the torque box ladder storage compartment. One (1) light will be provided on each side of the ladder storage area.

The lights will be activated when the ladder storage compartment door is opened.

### **ADDITIONAL FOLDING LADDER**

There will be one (1) Little Giant Classic Model 17 - 10102 folding ladder provided by the fire department. The ladder(s) will be located floor of RS3.

### **LADDER STORAGE**

Storage will be provided in RS5 compartment for a Little Giant ladder. The ladder will be stored horizontally in the compartment floor of RS5. There will be two (2) trough style brackets provided with dura surf slides and a Velcro® strap to aid in restraint and removal of the ladder. The ladder will be a Little Giant Classic Model 17 - 10102.

### **PIKE POLES**

There will be two (2) 12' Duo Safety pike pole(s) with fiberglass handles provided. The pike pole(s) will be stored in tubular holders located in the ground ladder storage compartment.

### **8' PIKE POLE**

There will be two (2) 8' Duo Safety pike pole(s) with fiberglass handle provided. The pike pole(s) will be stored in tubular holders located in the ground ladder storage compartment.

### **6' PIKE POLE**

There will be one (1) 6' Duo Safety pike pole(s) with fiberglass handle provided. The pike pole(s) will be stored in tubular holders located in the ground ladder storage compartment.

### **3' PIKE POLE**

There will be two (2) 3' Duo Safety pike pole(s) with fiberglass shaft and "D" handles shipped loose.

### **PIKE POLE STORAGE IN TORQUE BOX/LADDER STORAGE**

There will be ABS tubing provided in the torque box/ladder storage area for a total of six (6) pike poles.

If the head of a pike pole can come into contact with a painted surface, a stainless steel scuffplate will be provided.

### **PUC MODULE**

The pump module will be separate from the hose body and compartments so that each may flex independently of the other. It will be a fabricated assembly of aluminum tubing, angles and channels which supports both the plumbing and the side running boards.

The pump module will be mounted on the chassis frame rails with standard body angles in four places to allow for chassis frame twist.

Pump module, plumbing and gauge panels will be removable from the chassis in a single assembly.

### **PUMP CONTROL PANELS (LEFT SIDE CONTROL)**

Pump controls and gauges will be located midship at the left side of the apparatus and properly identified.

The main pump operator's control panel will be completely enclosed and located in the forward section of the body compartment. There will be a roll up door to protect against road debris and weather elements. This roll-up door compartment will include a drip pan below the roll of the door. The pump operator's panels will be no more than 31.00" wide, and made in four (4) sections with the center section easily removable with simple hand tools. For the safety of the pump operator, there will be no discharge outlets or pump inlets located on the main pump operators panel.



Layout of the pump control panel will be ergonomically efficient and systematically organized. The upper section will contain the master gauges. This section will be angled down for easy visibility. The center section will contain the pump controls aligned in two horizontal rows. The pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable) will be located on or adjacent to the center panel, on the side walls for easy operation and visibility. The lower section will contain the outlet drains.

Manual controls will be easy moving 8" long lever style controls that operate in a vertical, up and down swing motion. These handles will have a 2.25" diameter knob and be able to lock in place to prevent valve creep under any pressure. Bright finish bezels will encompass the opening, be securely mounted to the pump operator's panel, and will incorporate the discharge gauge bezel. Bezels will be bolted to the panel for easy removal and gauge service. The driver's side discharges will be controlled directly at the valve. There will be no push-pull style control handles.

Identification tags for the discharge controls will be recessed within the same bezel. The discharge identification tags will be color coded, with each discharge having its own unique color.

All remaining identification tags will be mounted on the pump panel in chrome-plated bezels.

All discharge outlets will be color coded and labeled to correspond with the discharge identification tag.

The pump panels for the discharge and intake ports will be located ahead of the pump module with no side discharge or intake higher than the frame rail. The pump panels will be easily removable with simple hand tools.

A recessed cargo area will be provided at the front of the body, ahead of the water tank above the plumbing.

### **PASSENGER SIDE PUC MODULE COMPARTMENT**

A full height compartment with a roll-up door ahead of the front stabilizer will be provided, as convenient large storage compartment for often used items for the crew. The interior dimensions of this compartment will be 30.25" wide x 52.00" high x 25.13" deep. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment will be 28.00" wide x 52.00 high.

Closing of the door will not require releasing, unlocking, or unlatching any mechanism and will easily be accomplished with one hand.

This roll-up door compartment will include a drip pan below the roll of the door.

### **PUMP**

Pump will be a Pierce, low profile, 2000 gpm single stage midship mounted centrifugal type, mounted below the cab. The pump will have a 15 percent reserve capacity to allow for extended time between pump rebuild. To ensure efficient pump/vehicle design the capacity to weight ratio will not be less than 1.5:1.

The pump casing will consist of three (3) discharge outlets, one (1) to each side in line with the impeller and one (1) to the rear. The pump casing will incorporate two (2) water strippers to maintain radial balance.

Pump will be the Class A type.

Pump will be certified to deliver the percentage of rated discharge from draft at pressure indicated below:

- 100 percent of rated capacity at 150 psi net pump pressure
- 70 percent of rated capacity at 200 psi net pump pressure
- 50 percent of rated capacity at 250 psi net pump pressure

The pump will have the capacity to deliver the percentage of rated discharge from a pressurized source as indicated below:

- 135 percent of rated capacity at 100 psi net pump pressure from a 5 psi source

Pump body will be fine-grained gray iron. Pump will incorporate a heater/cooling jacket integral to the pump housing.

The impeller will be high strength vacuum cast bronze alloy accurately machine balanced and splined to a ten (10) spline stainless steel pump shaft for precision fit, exceptional durability, and efficiency. Double replaceable reverse flow labyrinth type bronze wear ring design will help to minimize end thrust. The impeller will be a twisted vane design to create higher lift. No keyed shafts will be acceptable.

The pump will include o-ring gaskets throughout the pump.

Deep groove radial type oversize ball bearings will be provided. The bearings will be protected at the openings from road dirt and water with an oil seal and water slinger.

The pump will have a flat, patterned area on the top of the pump intake wye to allow standing for plumbing maintenance. The main inlet manifold will be 6.00" in diameter and will have a low profile design to facilitate low crosslays and high flows.

For ease of service, the pump housing, intake wye, impeller, mechanical seal, and gear case will be accessible from above the chassis frame by tilting the cab. Removal of the main inlet wyes will provide access to the impeller, mechanical seal, and wear ring.

The tank to pump line and the primary discharge line will be the only piping required to be removed for overhaul.

For ease of service and overhaul there will be no piping or manifolding located directly over the pump.

### **PUMP MOUNTING**

Pump will be mounted to the chassis frame rails directly below the crew cab, to minimize wheelbase and facilitate service, using rubber isolators in a modified V pattern that include one (1) central mounted isolator located between the frame rails and one (1) on each side outside the frame rails. The mounting will allow chassis frame rails to flex independently without damage to the fire pump. Each isolator will be 2.55" in total outside diameter and will be rated at 490 lb. The pump will be completely accessible by tilting the cab with no piping located directly above the pump.

### **MECHANICAL SEALS**

Silicon carbide mechanical seals will be provided. The seals will be spring loaded and self-adjusting. The seals will have a minimum thermal conductivity of 126 W/m\*K to run cooler. Seals will have a minimum hardness of 2800 kg/mm<sup>2</sup> to be more resistant to wear, and have thermal expansion characteristics of no more than 4.0 X10<sup>-6</sup>mm/mm\*K to be more resistant to thermal shock.

### **PUMP GEAR CASE**

The integrated pump transmission gear case will use a pressure-lubricated system to cool, lubricate, and filter the oil. The gear case will be constructed of lightweight aluminum, and impregnated with resin in accordance to MIL Spec MIL-I-17563. A sight glass, accessible by tilting the cab, will be provided for easy fluid level checks.

The gear case will consist of three (3) gears to drive the pump.

### **CLUTCH**

There will be a heavy-duty hydraulic clutch mounted directly to the integrated pump transmission to engage and disengage the pump without gear clash. The clutch will be a multiple disc design for

maximum torque. The clutch will be fully self-adjusting to provide automatic wear compensation, and consistent torque throughout the life of the clutch. Positive engagement and disengagement will be provided through a high efficient and dependable hydraulic system to assure superior performance.

### **LOW PRESSURE/HIGH TEMPERATURE LIGHTS**

Lights will be provided to indicate when a high temperature or low pressure situation occurs. Lights will be provided next to the master gauges at the pump panel as well as on the control panel in the cab. A pair of lights will be provided in each location. One light will be provided to indicate high temperature. The second light will be provided to indicate a low pressure. All lights will be labelled accordingly.

### **PUMPING MODE**

Pump will provide for both pump and roll mode and stationary pumping mode.

Stationary pumping mode will be accomplished by stopping the vehicle, setting the parking brake and engaging the water pump switch on the cab switch panel. The transmission will shift to "Neutral" range automatically when the parking brake is set. The "OK to Stationary Pump" indicator will also illuminate when the parking brake is set.

If the vehicle is equipped with a suitable Husky foam system or Hercules CAFS system, these systems will be engaged from the cab switch panel as well.

Pump and roll mode will be accomplished by the use of the main pump and will not require the use of a secondary pump. Pump and roll mode will use the same operation sequence as stationary pumping mode with a few additional steps. After the vehicle is setup for stationary pumping, the operator will leave the cab and setup the pump panel to discharge at the desired outlet(s). Upon returning to the cab, the operator will disengage the parking brake. An "OK to Pump & Roll" indicator will illuminate on the cab switch panel. First gear on the transmission gear selector will be selected by the operator for pump and roll operations. The operator as needed will apply the foot throttle. Pump and roll mode will be maintained unless the transmission shifts out of first gear.

Stopping either stationary pumping mode or pump and roll mode will be accomplished by pressing the "Water Pump" switch down to disengage the pump.

A pump pressure reading will be displayed in view of the driver.

### **PUMP SHIFT**

Pump will be engaged in not more than two steps, by simply setting the parking brake, which will automatically put the transmission into neutral, and activating a rocker switch in the cab. Switches in the cab will also allow for water, foam, or CAFS if equipped, and activate the appropriate system to preset parameters. The engagement will provide simple two-step operation, enhance reliability, and completely eliminate gear clash. The shift will include the indicator lights as mandated by NFPA. A direct override switch will be located behind a door in the lower pump operator's panel. The switch will automatically disengage when the door is closed.

As the parking brake is applied, the pump panel throttle will be activated and deactivate the chassis foot throttle for stationary operation.

### **TRANSMISSION LOCK UP**

Transmission lock up is not required as transmission will automatically shift to neutral as soon as the parking brake is set.

### **AUXILIARY COOLING SYSTEM**

A supplementary heat exchange cooling system will be provided to allow the use of water from the discharge side of the pump for cooling the engine water. A water-to-coolant heat exchanger will be used.

### **INTAKE RELIEF VALVE - PUMP**

There will be One (1) Elkhart Style 40 relief valve(s) installed on the suction side of the pump preset at 125 psig.

The relief valve(s) will have a working range of 75 psi to 250 psi.

The outlet will terminate below the frame rails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag.

The relief valve pressure control will be located behind behind the right side pump panel with a stainless steel access door .

### **PIERCE PRESSURE CONTROLLER**

A Pierce electronic pressure controller will be provided.

A pressure transducer will be installed in the discharge side of the water pump. The transducer continuously monitors pump pressure sending a signal to the electronic pressure controller.

The pressure controller can be used in two (2) modes of operation, RPM mode and pressure modes. The controller will be programmed to turn on/default to No Mode/Default Press Setting mode.

In the RPM mode, the controller can be activated after vehicle parking brake has been set. When in this mode, the controller will maintain the set engine speed, regardless of engine load (within engine operation capabilities).

In the pressure mode, the controller can be activated after vehicle parking brake has been set. When in this mode, the controller will automatically maintain the discharge pressure set by the operator (within the discharge capabilities of the pump and water supply) regardless of flow.

A 2.00" diameter throttle control knob with no mechanical stops, a serrated grip, and a red idle push button in the center will be a integrated/part of the pressure controller. The throttle control knob will be programmed for Clockwise rotation to increase engine speed.

Individual LED indicators for ok to pump, throttle ready, pressure mode and rpm mode will be located on the pressure controller for easy viewing.

A pump cavitation protection feature will also provided which will return the engine to idle should the pump cavitate. Cavitation is sensed by the combination of pump pressure below 30 psi and engine speed above 2000 rpm for more than five (5) seconds.

Other safety features include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure controller LCD screen will be 4.20" in size with a minimum brightness of 750 nits. The LCD screen and LED intensity will be automatically adjust for day and nighttime operation. The LCD screen intensity can also be manually adjusted if needed.

The following information will be provided/displayed on the LCD screen -

- Engine RPM
- Check engine and stop engine warning indicators
- Engine oil pressure
- Engine coolant temperature
- Water pump transmission temperature
- Fuel Level
- Water tank level
- Battery voltage
- Operating mode (RPM or pressure)
- Pressure or RPM setting

On screen messaging show diagnostic and warning messages as they occur. It will show apparatus information, stored data, and program options when selected by the operator. It will monitor inputs outputs and support audible and visual warning alarms for the following conditions -

- High battery voltage
- Low battery voltage/engine off
- Low battery voltage/engine running
- High water pump temperature
- Low fuel
- Low engine oil pressure
- High engine coolant temperature
- Water tank out of water (visual alarm only)
- No engine response (visual alarm only)

The pressure controller will store the accumulated operating hours for the pump and engine. These items are to be displayed within the pressure controller menu.

The pressure controller will include a USB port on the back of the controller for easy software upgrades if needed.

### **PRIMING PUMP**

The priming pump will be a Trident Emergency Products compressed air powered, high efficiency, multistage venturi based AirPrime System, conforming to standards outlined in the current edition of NFPA 1901.

All wetted metallic parts of the priming system are to be of brass and stainless steel construction.

One (1) priming control will open the priming valve and start the pump primer.

### **PUMP MANUALS**

There will be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals will be provided by the pump manufacturer in the form of two (2) electronic copies. Each manual will cover pump operation, maintenance, and parts.

### **PLUMBING, STAINLESS STEEL AND HOSE**

All inlet and outlet lines will be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's will be equipped with brass or stainless steel couplings. All stainless steel hard plumbing will be a minimum of a schedule 10 wall thickness.

Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with victaulic or rubber couplings.

Plumbing manifold bodies will be ductile cast iron or stainless steel.

All piping lines are to be drained through a master drain valve or will be equipped with individual drain valves. All drain lines will be extended with a hose to drain below the chassis frame.

All water carrying gauge lines will be of flexible polypropylene tubing.

All piping, hose and fittings will have a minimum of a 500 PSI hydrodynamic pressure rating.

### **MAIN PUMP INLETS**

A 6.00" pump manifold inlet will be provided on each side of the vehicle. The suction inlets will include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.

Main pump inlets will not be located on the main operator's panel and will maintain a low connection height by terminating below the top of the chassis frame rail.

### **SHORT SUCTION TUBE(S)**

The suction tube(s) on the water pump will have short suction tube(s) installed to allow for installation of adapters, elbows or intake valves without excessive overhang.

### **INLET VALVES WITH INTAKE RELIEF VALVE**

There will be (2) twoTask Force Tips (TFT) AXD (Left) Series aluminum ball intake valve(s), (1) one manual on the left side main inlet and (1) electric on the right side main inlet.

The inlet connection will be 3ST (5.0" Swivel Storz) with a cap with a matching cap and the outlet connection will be NX (6.0" Threaded Swivel) . There will be an eight-position adjustable 30 degree swiveling detent elbow on the inlet side of the ball intake valve.

If ball intake valve is to be controlled with a manual handwheel, the handwheel will be controlled with a NFPA compliant slow-close hand wheel. A position indicator will be provided to allow for a quick



visualization of the status of the valve in the open, closed or transition position. The handwheel shaft will be F (Front Crank) .

If the ball intake valve is to be electrically controlled, the ball intake valve will be controlled by a remote panel-mounted push-button switch with LED lights for a quick visualization of the status of the valve in the open, closed or transition position. The push button switch will be mounted on the pump operator's panel.

The ball intake valve(s) will be equipped with a standard adjustable pressure relief valve. The relief valve will have a working range of 90 PSI to 300 PSI.

A 3/4" TFT bleeder/drain valve will be provided on the ball intake valve to exhaust excess air or water from the valve.

For corrosion protection the aluminum casting will have a hard coat anodized finish, with a powder coated internal and external finish. All the components facing the wet side of the valve will be constructed from stainless steel.

### **MAIN PUMP INLET CAP**

The main pump inlets will have National Standard Threads with a long handle chrome cap.

The cap will be the Pierce VLH, which incorporates an exclusive thread design to automatically relieve stored pressure in the line when disconnected.



### **VALVES**

All ball valves will be Akron® Brass. The Akron valves will be the 8000 series heavy-duty style with a stainless steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.

Valves will have a **ten (10) year** warranty.

The location of the valve for the one (1) inlet will be recessed behind the pump panel.

### **INLET CONTROL**

The side auxiliary inlet(s) will incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism will indicate the position of the valve.

### **LEFT SIDE INLET**

There will be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.

The auxiliary inlet will be provided with a strainer, chrome swivel and plug.

### **ANODE, INLET**

A pair of sacrificial zinc anodes will be provided in the water pump inlets to protect the pump from corrosion.

### **INLET BLEEDER VALVE**

A 0.75" bleeder valve will be provided for each side gated inlet.

The valves will be located behind the panel with a "T" swing style handle control extended to the outside of the panel.

The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage.

The water discharged by the bleeders will be routed below the chassis frame rails.

### **TANK TO PUMP**

The booster tank will have a 3.00" outlet and be connected to the intake side of the pump with heavy duty 4.00" piping and a quarter turn 3.00" full flow line valve with the control located at the operator's panel. A rubber coupling will be included in this line to prevent damage from vibration or chassis flexing.

A check valve will be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.

### **TANK REFILL**

A 1.50" combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.

### **DISCHARGE OUTLET CONTROLS**

The right side discharges will incorporate a quarter-turn ball valve and be controlled by Akron 9335 electric valve controllers provided on the pump operators panel. The electric controls must be of a true position feedback design, requiring no clutches in the motor or current limiting. The units must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate their corresponding valve actuator. The controllers will provide position indication on a full color, backlit LCD display. They will have manual adjustment of the brightness as well as an auto dimming option. In addition to the valve controls, the electric valve controllers will include a pressure display

All other outlets will have manual swing handles that operate in a vertical up and down motion. These handles will be able to lock in place to prevent valve creep under pressure.

### **LEFT SIDE DISCHARGE OUTLETS**

There will be two (2) discharges with a 2.50" valves on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter. Discharges will be located below the cab, and will be no higher than the top of the chassis frame rail. Discharges will not be located on the pump operator's panel. Lever controls will be provided at the valve.

### **RIGHT SIDE DISCHARGE OUTLETS**

There will be One (1) discharge outlet with a 2.50" valve on the right side of the apparatus, terminating with a 2.50" MNST adapter. The discharge(s) will be located below the crew cab and will be no higher than the top of the chassis frame rail.

There will be Akron 9335 electric valve controller(s) provided on the pump operators panel. The electric control(s) must be of a true position feedback design, requiring no clutches in the motor or current limiting. The unit(s) must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate the valve actuator. The controller(s) will provide position indication on a full color, backlit LCD display. They will have manual adjustment of the brightness as well as an auto dimming option.

In addition to valve position, each controller will include a pressure display.

### **LARGE DIAMETER DISCHARGE OUTLET**

There will be a 4.00" discharge outlet with a 4.00" valve installed on the right side of the apparatus, terminating with 4.00" MNST threads. The discharge will be located below the crew cab and will be no higher than the top of the chassis frame rail.

There will be an Akron 9335 electric valve controller provided on the pump operators panel. The electric control must be of a true position feedback design, requiring no clutches in the motor or current limiting. The unit must be completely sealed with momentary open, close as well and an optional one touch full open feature to operate the valve actuator. The controller will provide position indication on a full color, backlit LCD display. It will have manual adjustment of the brightness as well as an auto dimming option.

In addition to valve position, the controller will include a pressure display.

### **LARGE DIAMETER OUTLET CAP**

The large diameter outlet will have a National Standard hose thread adapter with a 4.00" rocker lug chrome plated cap and chain.

The cap will be the Pierce VLH, which incorporates a patent pending thread design to automatically relieve stored pressure in the line when disconnected.

### **FRONT DISCHARGE OUTLET**

There will be one (1) 1.50" discharge outlet piped to the front of the apparatus and located in the center bumper tray.

Plumbing will consist of 2.00" piping and flexible hose with a 2.00" ball valve with control at the pump operator's panel. A fabricated weldment made of stainless steel pipe will be used in the plumbing where appropriate. The piping will terminate with a 1.50" NST with 90 degree stainless steel swivel.

There will be automatic drains provided at all low points of the piping.

### **DISCHARGE CAPS/ INLET PLUGS**

Chrome plated, rocker lug, caps with chain will be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets.

Chrome plated, rocker lug, plugs with chain will be furnished for all auxiliary inlets 1.00" thru 3.00" in size.

The caps and plugs will incorporate a thread design to automatically relieve stored pressure in the line when disconnected.

### **OUTLET BLEEDER VALVE**

A 0.75" bleeder valve will be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.

The valves will be located behind the panel with a T swing style handle control extended to the outside of the side pump panel.

The handles will be chrome plated and provide a visual indication of valve position.

The T swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage.

Bleeders will be located at the bottom of the pump panel. They will be properly labeled identifying the discharge they are plumbed in to.

The water discharged by the bleeders will be routed below the chassis frame rails.

### **AERIAL OUTLET**

The aerial waterway will be plumbed from the pump to the water tower line with 4.00" pipe and a 4.00" valve. The control for the waterway valve will be located at the pump operator's panel.

An indicator will be provided to show when the valve is in the open or closed position.

### **CROSSLAY MODULE**

The crosslay module will be full width of the rear body.

The crosslay module will include a boom support compartment. The interior of the boom support compartment will be a DA finish.

The forward, upper corners of the module will have full body corners.

The crosslay module will be manufactured for installation of roll up doors on each side to include the boom support compartment with on common roll up door.

### **ROLLUP DOOR, CROSSLAY ENDS**

The compartment doors will be rollup style, double faced aluminum construction painted one (1) color to match the lower portion of the body and manufactured by Gortite®.

Lath sections will be an interlocking rib design and will be individually replaceable without complete disassembly of door.

Between each slat at the pivoting joint will be a PVC inner seal to prevent metal to metal contact and prevent dirt or moisture from entering the compartments. Seals will allow door to operate in extreme

temperatures ranging from 180 to -40 degrees Fahrenheit. Side, top and bottom seals will be provided to resist ingress of dirt and weather and be made of Santoprene.

All hinges, barrel clips and end pieces will be nylon 66. All nylon components will withstand temperatures from 300 to -40 degrees Fahrenheit.

A polished stainless steel lift bar to be provided for each roll-up door. Lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door.

Doors will be constructed from an aluminum box section. The exterior surface of each slat will be flat. The interior surfaces will be concave to provide strength and prevent loose equipment from jamming the door from inside.

To conserve space in the compartments, the spring roller assembly will not exceed 3.00" in diameter.

The header for the rollup door assembly will not exceed 4.00".

A heavy-duty magnetic switch will be used for control of open compartment door warning lights.

The crosslays will not have a drip pan below the roll of the door.

### **CROSSLAY(S), LOWER**

There will be two (2) lower crosslays provided.

#### **1.50" Crosslays**

There will be two (2) 1.50" crosslays plumbed with 2.00" welded or formed schedule 10 304L stainless steel pipe.

The crosslays will be low mounted with the bottom of both crosslay trays no more than 11.00" above the frame rails for simple, safe reloading and deployment.

There will be a 1.50" National Standard hose thread 90-degree swivel provided in each hose bed, so that the hose may be removed from either side of apparatus. The swivel will be as far outbound as possible for ease of changing hose.

Each crosslay will be gated with a 2.00" quarter turn ball valve with the controls located at the pump operator's panel.

Each hose bed will be capable of carrying 200' of 1.75" double jacket hose .

#### **Crosslay Hose Trays**

A removable tray will be provided for each crosslay hose bed. The crosslay tray will be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes will be in the floor and additional hand holes will be provided in the sides for easy removal and installation from the compartment. The floor of the trays will be perforated to allow for drainage and hose drying.

Trays will be held in place by a mechanical spring-loaded stainless-steel latch that automatically deploys upon loading the trays to hold the trays in place during transit.

## **CROSSLAY(S), UPPER**

There will be one (1) upper crosslay provided.

### **2.50" Crosslay**

There will be one (1) 2.50" crosslay plumbed with 2.50" welded or formed schedule 10 304L stainless steel pipe.

There will be a 2.50" National Standard hose thread 90-degree swivel provided in each hose bed, so that hose may be removed from either side of apparatus. The swivel will be as far outbound as possible for ease of changing hose.

Each crosslay will be gated with a 2.50" quarter turn ball valve with the controls located at the pump operator's panel.

Each hose bed will be capable of carrying 200' of 2.50" double jacket hose .

### **Crosslay Hose Trays**

A removable tray will be provided for each crosslay hose bed. The crosslay tray will be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes will be in the floor and additional hand holes will be provided in the sides for easy removal and installation from the compartment. The floor of the trays will be perforated to allow for drainage and hose drying.

Trays will be held in place by a mechanical spring-loaded stainless-steel latch that automatically deploys upon loading the trays to hold the trays in place during transit.

## **BOOSTER HOSE REEL**

A Hannay electric rewind booster hose reel will be installed over the pump in a recessed open compartment on the right side of the apparatus. The reel will be fabricated of aluminum and have highly polished end discs.

A polished stainless steel roller and guide assembly will be mounted on the reel side of the apparatus.

Discharge control will be provided at the pump operator's panel. Plumbing to the reel will consist of 1.50" Aeroquip hose and a 1.50" valve.

Reel motor will be protected from overload with a circuit breaker rated to match the motor.

An electric rewind control switch will be installed on the reel side pump panel.

Booster hose, 1.00" diameter and 150 feet, with chrome plated Barway, or equal couplings will be provided.

Working pressure of the booster hose will be a minimum of 800 psi.

Capacity of the hose reel will be 200 feet of 1.00" booster hose.

An Elkhart, model S-200, booster hose nozzle will be provided.

### **FOAM SYSTEM**

A foam system will not be required on this apparatus.

### **PUMP PANEL CONFIGURATION**

The pump panel configuration will be arranged and installed in an organized manner that will provide user-friendly operation.

### **PUMP OPERATOR'S PLATFORM**

A pull out, flip down platform will be provided at the pump operator's control panel.

The front edge and the top surface of the platform will be made of DA finished aluminum with a Morton Cass insert.

The platform will be approximately 13.75" deep when in the stowed position and approximately 22.00" deep when extended. The platform will be as wide as possible. The platform will lock in the retracted and the extended position.

The sides, bottom and rear portions of the support assembly will be painted to match lower job color.

The platform will be wired to the "step not stowed" indicator in the cab.

### **PUMP OPERATOR'S PLATFORM PERIMETER LIGHT**

There will be an On Scene Solutions, Model Night Stick Access, 20.00" white 12 volt DC LED strip light provided to illuminate the ground area.

### **PUMP AND GAUGE PANEL**

The pump operator's panel and gauge panels will be constructed of stainless steel with a brushed finish.

The side control panels will be constructed of stainless steel with a brushed finish for durability and ease of maintenance.

### **PUMP AND PLUMBING ACCESS**

Simple access to the plumbing will be provided through the front of the body area by raising the cab for complete plumbing service and valve maintenance. Access to valves will not require removal of operator panels or pump panels. Access for rebuilding of the pump will not require removal of more than the tank to pump line and a single discharge line. This access will allow for fast, easy valve or pump rebuilding, making for reduced out of service times. Steps will be provided for access to the top of the pump.



Access to the pump will be provided by raising the cab. The pump will be positioned such that all maintenance and overhaul work can be performed above the frame and under the tilted cab. The service and overhaul work on the pump will not require the removal of operator panels or pump panels. Complete pump casing and gear case removal will require no more than removal of the intake and discharge manifolds, driveline, coolers and a single discharge line. The pump case and gear case will be able to be removed by lifting upward without interference from piping and be removable in less than 3 hours.

#### **PUMP COMPARTMENT LIGHT**

There will be one (1) Whelen®, Model 3SC0CDCR, 3.00" white 12 volt DC LED light(s) with Whelen, Model 3FLANGEC, flange(s) installed in the plumbing area.

The light(s) will be activated by a toggle switch located in the pump compartment area.

Engine monitoring graduated LED indicators will be incorporated with the pressure controller.

#### **THROTTLE READY GREEN INDICATOR LIGHT**

There will be a green indicator light integrated with the pressure governor and/or engine throttle installed on the pump operators panel that is activated when the pump is in throttle ready mode.



## **VACUUM AND PRESSURE GAUGES**

The pump vacuum and pressure gauges will be liquid filled and manufactured by Class 1 Incorporated ©.

The gauges will be a minimum of 4.00" in diameter and will have white faces with black lettering, with a pressure range of 30.00"-0-600#.

Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel.

Test port connections will be provided at the pump operator's panel. One will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They will be marked with a label.

This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.

## **PRESSURE GAUGES**

The individual "line" pressure gauges for the discharges will be Class 1© interlube filled.

They will be a minimum of 2.00" in diameter and have white faces with black lettering.

Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

Gauges will have a pressure range of 30"-0-400#.

The individual pressure gauge will be installed as close to the outlet control as practical.

This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.

## **WATER LEVEL GAUGE**

An electric water level gauge will be incorporated in the pressure controller that registers water level by means of nine (9) LEDs. They will be at 1/8 level increments with a tank empty LED. The LEDs will be a bright type that is readable in sunlight, and have a full 180-degree of clear viewing.

To further alert the pump operator, the gauge will have a warning flash when the tank volume is less than 25 percent. The gauge will have down chasing LEDs when the tank is almost empty.

The level measurement will be ascertained by sensing the head pressure of the fluid in the tank or cell.

## **MINI SLAVE UNIT**

An electric water level gauge will be provided in the cab that registers water level by means of five (5) LEDs. They will be at 1/4 level increments with a tank empty LED. The LEDs will be a bright type that are readable in sunlight and have a full 180-degree of clear viewing.

The water level gauge in the cab will be activated when the pump is in gear.

### **ADDITIONAL WATER LEVEL GAUGE**

There will be two (2) additional Fire Research MaxVision model WLA280-A00 water tank remote indicators provided and installed Each side of cab near rear as high as possible. The indicators will show the volume of water in the tank on Ninety six (96) easy to see super bright Tri-color LEDs. The indicator case will be waterproof, manufactured of Polycarbonate material with an integrated lens.

The remote indicator will indicate the level as a single color in Red for 25% or less, Amber color for up to 50% volume, Blue color for up to 75% volume and Green color for up to 100% volume. When the level reaches 25%, the red LEDs will begin flashing. When the level is empty, the red LEDs will scroll in a down-chasing motion and then flash three times.

The flash rate will be determined by the main water tank sensor.

It will have the program capability to adjust the brightness level for day time and night time viewing. The LEDs can also be programmed for different colors.

This module will be activated when the pump is in gear.

### **SIDE CONTROL PUMP OPERATOR'S/PUMP PANEL LIGHTING**

Illumination will be provided for controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus and the equipment provided on it. External illumination will be a minimum of five (5) foot-candles on the face of the device. Internal illumination will be a minimum of four (4) footlamberts.

The pump panels will be illuminated by two (2) Truck-Lite, Model 60354C, 6.00" x 2.00" oval white LED lights with Model 60700, grommets and chrome covers installed on the back of the cab, one (1) on the driver's side and one (1) on the passenger's side.

The pump operator's panel will utilize the same LED strip lighting at the forward doorframe as all other compartment lighting.

There will be a small white LED pump engaged indicator light installed overhead.

### **AIR HORN SYSTEM**

Two (2) Hadley®, eTone, chrome air horns will be recessed in the front bumper. The air horn system will be piped to the air brake system wet tank utilizing 0.38" tubing. A pressure protection valve will be installed to prevent the loss of air in the brake system.

#### **Air Horn Location**

The air horns will be located on each side of the bumper, towards the outside.

#### **Air Horn Control**

The air horn(s) will be activated by the following:

- Steering wheel horn ring with electric/air horn selector switch

### **ELECTRONIC SIREN**

A Whelen®, Model 295SLSA1, electronic siren with noise canceling microphone will be provided.

This siren to be active when the battery switch is on and that emergency master switch is on.

Electronic siren head will be recessed in the driver side center switch panel.

The electronic siren will be controlled on the siren head only. No horn button or foot switches will be provided.

### **SPEAKER**

There will be one (1) Whelen®, Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets and polished stainless steel grille provided. The speaker will be connected to the siren amplifier.

The speaker(s) will be recessed in the center of the front bumper.

### **AUXILIARY MECHANICAL SIREN**

There will be a Federal Signal Model Q2B mechanical siren furnished and installed in the front of the apparatus.

The Q2B will be chrome finish.

The siren will have a 2-gauge cable connected to a power solenoid that is connected by a 2-gauge cable ran battery direct to the primary chassis batteries and will be labeled Q2B+ at the battery. The power solenoid will only be enabled when the emergency master switch is on.

The siren will have a 2-gauge ground wire connected to the chassis battery stud. The cable will be labeled Q2B- at the battery.

The mechanical siren will be mounted on the bumper deck plate. It will be mounted on the left side. A reinforcement plate will be furnished to support the siren.

### **MECHANICAL SIREN CONTROL**

The mechanical siren will be activated by the following:

- Left side foot switch.

A momentary chrome push button switch will be included in the right side dash panel to activate the siren brake.

### **FRONT ZONE UPPER WARNING LIGHTS**

There will be two (2) 21.50" Whelen Freedom IV LED lightbars mounted on the cab roof, one (1) on each side, above the driver's and passenger's door, at a 30 degree angle.

The driver's side lightbar will include the following:

- One (1) red flashing LED module in the outside end position.
- One (1) red flashing LED module in the outside front corner position.
- One (1) red flashing LED module in the outside front position.
- One (1) red flashing LED module in the inside front position.
- One (1) red flashing LED module in the inside front corner position.

The passenger's side lightbar will include the following:

- One (1) red flashing LED module in the inside front corner position.
- One (1) red flashing LED module in the inside front position.
- One (1) red flashing LED module in the outside front position.
- One (1) red flashing LED module in the outside front corner position.
- One (1) red flashing LED module in the outside end position.

There will be clear lenses included on the lightbar.

There will be a switch in the cab on the switch panel to control the lightbars.

### **LIGHTS, FRONT ZONE LOWER**

Two (2) Whelen model M6\*C LED flashing warning lights will be installed on the cab face above the headlights, in a common bezel with the directional lights.

The driver's side front warning light to be red.

The passenger's side front warning light to be red.

Both lights will include a clear lens.

There will be a switch located in the cab on the switch panel to control the lights.

### **HEADLIGHT FLASHER**

The high beam headlights will flash alternately between the left and right side.

There will be a switch installed in the cab on the switch panel to control the high beam flash. This switch will be live when the battery switch and the emergency master switches are on.

The flashing will automatically cancel when the hi-beam headlight switch is activated or when the parking brake is set.

### **SIDE ZONE LOWER LIGHTING**

There will be six (6) Whelen® flashing LED warning light provided per the following:

- Two (2) Model M7\*C, lights located one (1) each side on the bumper extension. The side front lights to be red.
- Two (2) Model M6\*C, lights located on cab behind crew door, one each side. The side middle lights to include red LEDs.
- Two (2) Model M6\*C lights located one each side of body between dually's. The side rear lights to be red.

- The lights will include clear lenses.
- These lights will be with three (3) pairs of flange kits.

There will be a switch in the cab on the switch panel to control the lights.

### **INTERIOR CAB DOOR WARNING LIGHTS**

There will be four (4) Weldon, Model 8401-0000-20, 16" long x 3/4" High x 5/8" deep amber 12 volt DC LED flashing strip lights provided.

- One (1) light on the left side cab door.
- One (1) light on the right side cab door.
- One (1) light on the right side crew cab door.
- One (1) light on the left side crew cab door.

Each light will be located in the door pan..

Each light will be activated when the battery switch is on, respective door is opened and the park brake is on.

Each light will be installed so the flash pattern directs traffic away from the doors.

### **ELECTRICAL CONNECTORS FOR WARNING LIGHTS**

The lights shall be installed with a weatherproof insulated crimped connectors in order to provide ease of connection/disconnection of the circuit applied to.

### **SIDE WARNING LIGHTS**

There will be four (4) Whelen, Model WIONSMC\* LED light(s) provided and located in the body rub rails each side in the forward and rearward rub rail. The lights will only be mounted with the rubber gasket if clearance allows it.

The color of each light will be red LED with a clear lens.

Each light will be provided with a chrome plated ABS flange.

The light(s) will be activated with the emergency master.

### **REAR ZONE LOWER LIGHTING**

There will be two (2) Whelen®, Model M6\*C LED flashing warning lights with chrome trim located at the rear of the apparatus.

- The driver's side rear light to be red
- The passenger's side rear light to be red

The lenses will be clear.

There will be a switch located in the cab on the switch panel to control the lights.

### **REAR/SIDE ZONE UPPER WARNING LIGHTS**

There will be two (2) Whelen®, Model L31H\*FN, LED warning beacons provided at the rear of the truck, located one (1) each side. There will be a switch located in the cab on the switch panel to control the beacons.

The color of the lights will be red LEDs with both domes clear.

### **TRAFFIC DIRECTING LIGHT**

There will be one (1) Whelen®, Model TAL65, 36.00" long x 2.87" high x 2.25" deep, amber LED traffic directing light installed at the rear of the apparatus.

The Whelen, Model TACTL5, control head will be included with this installation.

The controller will be energized when the battery switch is on.

The auxiliary flash not activated.

This traffic directing light will be mounted on top of the body below the turntable with a treadplate box at the rear of the apparatus.

The traffic directing light control head will be located in the driver side overhead switch panel in the right panel position.

### **ELECTRICAL SYSTEM GENERAL DESIGN FOR ALTERNATING CURRENT**

The following guidelines will apply to the 120/240 VAC system installation:

#### **General**

Any fixed line voltage power source producing alternating current (ac) line voltage will produce electric power at 60 cycles plus or minus 3 cycles.

Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures will conform to NFPA 70, National Electrical Code (herein referred to as the NEC).

Line voltage electrical system equipment and materials included on the apparatus will be listed and installed in accordance with the manufacturer's instructions. All products will be used only in the manner for which they have been listed.

#### **Grounding**

Grounding will be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems will not be used. Only stranded or braided copper conductors will be used for grounding and bonding.

An equipment grounding means will be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.

The grounded current carrying conductor (neutral) will be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor will be

colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.

In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure will be bonded to the vehicle frame by a copper conductor. This conductor will have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements will be permitted to be used.

All power source system mechanical and electrical components will be sized to support the continuous duty nameplate rating of the power source.

### **Operation**

Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, will be permanently attached to the apparatus at any point where such operations can take place.

Provisions will be made for quickly and easily placing the power source into operation. The control will be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train will be equipped with a means to prevent the unintentional movement of the control device from its set position.

A power source specification label will be permanently attached to the apparatus near the operator's control station. The label will provide the operator with the following information:

- Rated voltage(s) and type (ac or dc)
- Phase
- Rated frequency
- Rated amperage
- Continuous rated watts
- Power source engine speed

Direct drive (PTO) and portable generator installations will comply with Article 445 (Generators) of the NEC.

### **Overcurrent protection**

The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device will not exceed 144.00" (3658 mm) in length.

For fixed power supplies, all conductors in the power supply assembly will be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degree Fahrenheit (90 degrees Celsius).

For portable power supplies, conductors located between the power source and the line side of the main overcurrent protection device will be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).

### **Wiring Methods**

Fixed wiring systems will be limited to the following:

- Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)
- or
- Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)

Electrical cord or conduit will not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring will be run as follows.

- Separated by a minimum of 12.00" (305 mm), or properly shielded, from exhaust piping
- Separated from fuel lines by a minimum of 6.00" (152 mm) distance

Electrical cord or conduit will be supported within 6.00" (152 mm) of any junction box and at a minimum of every 24.00" (610 mm) of continuous run. Supports will be made of nonmetallic materials or corrosion protected metal. All supports will be of a design that does not cut or abrade the conduit or cable and will be mechanically fastened to the vehicle.

### **Wiring Identification**

All line voltage conductors located in the main panel board will be individually and permanently identified. The identification will reference the wiring schematic or indicate the final termination point. When prewiring for future power sources or devices, the unterminated ends will be labeled showing function and wire size.

### **Wet Locations**

All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, will be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.

All receptacles located in a wet location will be not less than 24.00" (610 mm) from the ground. Receptacles on off-road vehicles will be a minimum of 30.00" (762 mm) from the ground.

The face of any wet location receptacle will be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle will be installed in a face up position.

### **Dry Locations**

All receptacles located in a dry location will be of the grounding type. Receptacles will be not less than 30.00" (762 mm) above the interior floor height.

All receptacles will be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they will be so marked.



### **Listing**

All receptacles and electrical inlet devices will be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages will be rated for the appropriate service.

### **Electrical System Testing**

The wiring and associated equipment will be tested by the apparatus manufacturer or the installer of the line voltage system.

The wiring and permanently connected devices and equipment will be subjected to a dielectric voltage withstand test of 900-volts for one (1) minute. The test will be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test will be conducted after all body work has been completed.

Electrical polarity verification will be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

### **Operational Test per Current NFPA 1901 Standard**

The apparatus manufacturer will perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test will be witnessed and the results certified by an independent third-party certification organization.

The prime mover will be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.

The power source will be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current NFPA 1901 standard.

Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current NFPA 1901 standard will be applied to the low voltage electrical system during the operational test.

### **GENERATOR**

The apparatus will be equipped with an alternating current (AC) electrical power system. The generator will be a Harrison, 6,000 watt (120/240 volts AC, 50/25 amps), Stinger, hydraulic driven unit. The generator will be driven by a transmission power take off unit, through a hydraulic pump and motor.

The hydraulic engagement supply will be operational only after the chassis parking brake is applied.

To properly monitor the generator performance, a digital voltage, frequency, hour meter will be provided.

### **GENERATOR LOCATION**

The generator will be mounted in the cargo area at the front of the body in Cargo area LS rear. The flooring in this area will be either reinforced or constructed, in such a manner, that it will handle the additional weight of the generator.

## **GENERATOR START**

There will be a switch provided on the cab instrument panel to engage the generator.

## **CIRCUIT BREAKER PANEL**

The circuit breaker panel will be located high on the left wall of compartment LS3.

## **ELECTRIC CORD REEL**

Furnished with the 120 volt AC electrical system will be a Hannay, Series 1600, cord reel. The reel will be provided with a 12-volt electric rewind switch, that is guarded to prevent accidental operation and labeled for its intended use. The switch will be protected with a fuse and installed at a height not to exceed 72.00" above the operators standing position.

The exterior finish of the reel(s) will be painted job color matching the lower body.

A Nylatron guide to be provided to aid in the payout and loading of the reel. A ball stop will be provided to prevent the cord from being wound on the reel.

A label will be provided in a readily visible location adjacent to the reel. The label will indicate current rating, current type, phase, voltage and total cable length.

A total of one (1) cord reel will be provided one (1) above the pump area, opposite side of the generator.

The cord reel will be configured with three (3) conductors.

## **CORD**

Provided for electric distribution will be one (1) length installed on the reel of 200 feet of black 10/3 electrical cord. A Hubbell L5-30, 30 amp, 120 volt, twist lock connector body will be installed on the end of the cord.

## **120 VOLT RECEPTACLE**

There will be two (2), 15/20 amp 120 volt AC three (3) wire straight blade duplex receptacle(s) with interior stainless steel wall plate(s), installed one behind the officers seat and one behind the drivers seat. The NEMA configuration for the receptacle(s) will be 5-20R.

The receptacle(s) will be powered from the shoreline inlet.

There will be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

## **120 VOLT RECEPTACLE**

There will be three (3), 15/20 amp 120 volt AC three (3) wire straight blade duplex receptacle(s) with interior stainless steel wall plate(s), installed LS3, RS3, RS4. The NEMA configuration for the receptacle(s) will be 5-20R.

The receptacle(s) will be powered from the on board generator.

There will be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

### **240 VOLT RECEPTACLE**

There will be one (1), 30 amp 240 volt AC three (3) wire twist lock receptacle(s) with interior flip up cover(s) installed in LS1 on forward wall behind door above bottom shelf. The NEMA configuration for the receptacles will be L6-30R.

The receptacle(s) will be powered from the on board generator.

There will be a label installed near the receptacle(s) that state the following:

- Line Voltage
- Current Rating (amps)
- Phase
- Frequency

### **FOUR (4)-SECTION 107 FOOT AERIAL LADDER**

#### **CONSTRUCTION STANDARDS**

The ladder will be constructed to meet all of the requirements as described in the current NFPA 1901 standards.

The aerial device will be a true ladder type device; therefore ladders attached to booms will not be considered.

These capabilities will be established in an unsupported configuration.

All structural load supporting elements of the aerial device that are made of a ductile material will have a design stress of not more than 50% of the minimum yield strength of the material based on the combination of the live load and the dead load. This 2:1 structural safety factor meets the current NFPA 1901 standard.

All structural load supporting elements of the aerial device that are made of non-ductile material will have a design stress of not more than 20% of the minimum ultimate strength of the material, based on the combination of the rated capacity and the dead load. This 5:1 safety factor meets the current NFPA 1901 standard.

Wire ropes and attaching systems used to extend and retract the fly sections will have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope will remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used will be 1:12. Wire ropes will be constructed of

seven (7) strands over an inner wire core for increased flexibility. The wire rope will be galvanized to reduce corrosion.

The aerial base pivot bearings will be maintenance free type bearings and require no external lubrication.

The aerial device will be capable of sustaining a static load one and one-half times its rated tip load capacity (live load) in every position in which the aerial device can be placed when the vehicle is on a firm level surface.

The aerial device will be capable of sustaining a static load one and one-third times its rated tip load capacity (live load) in every position the aerial device can be placed when the vehicle is on a slope of five degrees downward in the direction most likely to cause overturning.

With the aerial device out of the cradle and in the fully extended position at zero degrees elevation, a test load will be applied in a horizontal direction normal to the centerline of the ladder. The turntable will not rotate and the ladder will not deflect beyond what the product specification allows.

All welding of aerial components, including the aerial ladder sections, turntable, pedestal, and outriggers, will be in compliance with the American Welding Society standards. All welding personnel will be certified, as qualified under AWS welding codes.

The aerial device will be capable of operating in conditions of wind up to 50 mph and icing conditions of up to a .25" coating over the aerial structure.

All of the design criteria must be supported by the following test data:

- Strain gage testing of the complete aerial device
- Analysis of deflection data taken while the aerial device was under test load

The following standards for materials are to be used in the design of the aerial device:

- Materials are to be certified by the mill that manufactured the material
- Material testing that is performed after the mill test will be for verification only and not with the intent of changing the classification
- All welded structural components for the ladder will be traceable to their mill lots.

### **LADDER CONSTRUCTION**

The ladder is comprised of four (4) sections.

The ladder will have the capability to support a minimum of 750 pounds at the tip in the unsupported configuration, based upon 360 degree rotation, up to full extension and from -10 degrees to +77 degrees.

The ladder (handrails, baserails, trusses, K-braces and rungs) will be constructed of high strength low alloy steel, minimum 100,000 pounds per square inch yield, with full traceability on all structural members.

Each section will be trussed diagonally, vertically and horizontally using welded steel tubing.

All ladder rungs are round and welded to each section utilizing "K" bracing for lateral and torsional rigidity.

The inside width dimensions of the ladder will be:

- Base Section 41.87"
- Lower Mid Section 34.88"
- Upper Mid Section 27.87"
- Fly Section 21.63"

The height of the handrails above the centerline of the rungs will be:

- Base Section 26.28"
- Lower Mid Section 22.68"
- Upper Mid Section 20.06"
- Fly Section 17.32"

The ladder will be designed to provide continuous egress for firefighters and civilians from an elevated position to the ground.

The egress section will be designed to maintain the rated load of the aerial device. It will be bolted on for easy replacement. There will be a lift eye welded on to each side of the egress.

### **VERTICAL HEIGHT**

The ladder will extend to a minimum height of 107' above the ground at full extension and elevation. The measurement of height will be consistent with NFPA standards.

### **HORIZONTAL REACH**

The rated horizontal reach will be 100'. The measurement of horizontal reach will be consistent with NFPA standards.

### **TURNTABLE**

The upper turntable assembly will connect the aerial ladder to the turntable bearing. The steel structure will have a mounting position for the aerial elevation cylinders, ladder connecting pins, and upper turntable operator's position.

The turntable will be coated with a non-skid, chemical resistant material in the walking areas. The stepping surfaces will meet the skid-resistance requirements of the current NFPA 1901 standard.

The turntable handrails will be a minimum 42.00" high and will not increase the overall travel height of the vehicle. The handrails will be constructed from aluminum and have a slip resistant knurled surface. The turntable vertical handrail spacing will be designed with a 44.00" wide x 27.00" high opening to allow for equipment to pass through from the ground to the aerial ladder. The opening will be located at the center, rear of the turntable.

### **ELEVATION SYSTEM**

Dual 5.50" diameter elevating cylinders will be mounted on the underside of the base section of the ladder, one (1) on each side. One (1) 2.25" diameter stainless steel pin will fasten each cylinder to the ladder and one (1) 2.50" diameter stainless steel pin will fasten each cylinder to the turntable. The pins will have 125,000 psi minimum yield strength and will be secured with 0.50" Grade 8 bolts with castle nut and cotter pin. The bolts are to ensure that the pins do not walk out of the mounting brackets on the turntable and base section.

The elevating cylinders will be mounted utilizing maintenance-free spherical bearings on both ends of the cylinders. The aerial base pivot bearings will be maintenance-free type bearings with no external lubrication required. The cylinders will function only to elevate the ladder and not as a structural member to stabilize the ladder side movement. The elevating cylinders will be provided with pilot-operated check valves on the barrel and rod side of the piston to prevent movement of the ladder in case of a loss of hydraulic pressure.

The operation envelope will be 10 degrees below horizontal to 77 degrees above horizontal.

The elevation system will be designed following NFPA standards. The elevation hydraulic cylinders will incorporate cushions on the upper limit of travel.

The lift cylinders will be equipped with integral holding valves located in the cylinder to prevent the unit from descending should the charged lines be severed, at any point within the hydraulic system and to maintain the ladder in the bedded position during road travel. The integral holding valves will NOT be located in the transfer tubes.

The elevation system will be controlled by the microprocessor. Linear transducers will measure the extension of the elevation cylinder. The microprocessor will provide the following features:

- Collision avoidance of the elevation system to prevent accidental body damage
- Automatic deceleration when the aerial device is lowered into the cradle
- Automatic deceleration at the end of stroke, in maximum raise and lower positions
- Deceleration of the aerial device at the limits of travel.

### **EXTENSION/RETRACTION SYSTEM**

A hydraulically powered, extension and retraction system will be provided through dual hydraulic cylinders and wire ropes. Each set will be capable of operating the ladder in the event of a failure, of the other. The extension cylinder rod will be chrome plated to provide smooth operation of the aerial device and reduce seal wear. The extension/retraction cylinders will be equipped, with integral holding

valves, to prevent the unit from retracting should the charged line be severed, at any point within the hydraulic system. The integral holding valves will NOT be located in the transfer tubes.

Wire ropes and attaching systems used to extend and retract the fly sections will have a 5:1 safety factor based on the ultimate strength under all operating conditions. The factor of safety for the wire rope will remain above 2:1 during any extension or retraction stall. The minimum ratio of the diameter of wire rope used to the diameter of the sheave used will be 1:12. Wire ropes will be constructed of seven (7) strands over an inner wire for increased flexibility. The wire rope will be galvanized to reduce corrosion.

The extension/retraction system will be controlled by the microprocessor. Linear transducers will measure the ladder extension. The microprocessor will provide the following features:

- Automatic deceleration at the end of stroke, in maximum extend and retract positions

All sheaves will require lubrication. They will have bronze bushings and grease zerks.

### **MANUAL OVERRIDE CONTROLS**

Manual override controls will be provided for all aerial and stabilizer functions.

### **LADDER SLIDE MECHANISM**

UHMW polyethylene wear pads will be used between the telescoping ladder sections, to provide greater bearing surface area for load transfer. Adjustable slide pads will be used to control side play between the ladder sections.

### **ROTATION SYSTEM**

The aerial will be supplied with a powered rotation system as outlined in NFPA standards. The hydraulic rotation motor will provide continuous rotation under all rated conditions and be supplied with a brake to prevent unintentional rotation. One (1) hydraulically driven, planetary gear box with drive speed reducers will be used to provide infinite and minute rotation control throughout the entire rotational travel. One (1) spring applied, hydraulically released disc type swing brake will be furnished to provide positive braking of the turntable assembly. Provisions will be made for emergency operation of the rotation system should complete loss of normal hydraulic power occur. The hydraulic system will be equipped with pressure relief valves which will limit the rotational torque to a nondestructive power. The gearbox will have a minimum continuous torque rating of 80,000 in. lbs. and a minimum intermittent rating of 160,000 in. lbs. The turntable bearing, ring gear teeth, pinion gear, planetary gearbox, and output shaft will be certified by the manufacturer of the components for the application.

The rotation system will be controlled by the microprocessor. The microprocessor will provide the following features:

- Collision avoidance to prevent accidental body damage
- Prevent the aerial from being rotated into an unstable condition.

### **ROTATION INTERLOCK**

The microprocessor will be used to prevent the rotation of the aerial device to the side in which the stabilizers have not been fully deployed (short-jacked). The microprocessor will allow full and

unrestricted use of the aerial, in the 180 degree area, on the side(s) where the stabilizers have been fully deployed. The system will also have a manual override, to comply with NFPA 1901. SYSTEMS THAT PERMIT THE AERIAL TO ROTATE TO THE "SHORT JACK" SIDE, WITHOUT AUTOMATICALLY STOPPING THE ROTATION AND/OR WITHOUT ACTUATION OF THE "MANUAL OVERRIDE", will NOT BE ACCEPTED. SYSTEMS THAT ONLY INCLUDE AN ALARM ARE NOT CONSIDERED AN INTERLOCK AND will NOT BE ACCEPTED.

**LADDER CRADLE INTERLOCK SYSTEM**

A ladder cradle interlock system will be provided through the microprocessor to prevent the lifting of the aerial device from the nested position until the operator places all the stabilizers in a load supporting configuration. A switch will be installed at the boom support to prevent operation of the stabilizers once the aerial has been elevated from the nested position..

**AERIAL TORQUE BOX/PEDESTAL**

The pedestal assembly will be a welded assembly made of high strength 0.25" plate. The vertical member will be a 0.375" reinforced wall cylinder with a 28.00" outside diameter and will connect the rotation bearing mounting plate to the lower substructure.

The pedestal assembly will be bolted to the chassis frame with 0.88" diameter Grade 8 bolts, and will be utilized to mount the outrigger jacks and reservoir for the aerial hydraulic system.

There will be a 5/8" gap between the torque box and the frame rails to promote drying of the surfaces and reduce the effect of corrosion.

**LOAD CAPACITIES**

The following load capacities will be established with the stabilizers at full horizontal extension and placed in the down position to level the truck and to relieve the weight from the tires and axles. Capacities will be based upon full extension and 360 degree rotation.

A load chart, visible at the operator's station, will be provided. The load chart will show the recommended safe load at any condition of the aerial device's elevation and extension.

**50 MPH WIND CONDITIONS/WATERWAY DRY**

Degrees of Elevation	-10 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 77
Egress	750	750	750	750	750	750	750	750
Fly	-	-	-	-	-	250	500	750
Upper Mid	-	-	-	-	250	500	1000	1000
Lower Mid	-	-	-	-	500	750	1000	1000
Base	-	-	-	500	500	1000	1000	1000

**50 MPH WIND CONDITIONS/WATERWAY CHARGED**

Degrees of	-10 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 77
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Elevation								
Egress	500	500	500	500	500	500	500	500
Fly	-	-	-	-	-	250	500	500
Upper Mid	-	-	-	-	250	500	750	1000
Lower Mid	-	-	-	250	500	750	1000	1000
Base	-	-	250	500	750	1000	1000	1000

**Reduced loads at the tip can be redistributed in 250 lb. increments to the fly, mid, or base sections as needed.**

**The tip capacity will be reduced to zero when flowing water with the nozzle above the waterway centerline.**

**Side to side monitor travel will be reduced with a 50MPH wind rating on the device.**

**BOOM SUPPORT**

A heavy-duty boom support will be provided for support of the ladder in the travel position. On the base section of the ladder, a stainless steel scuffplate will be provided where the ladder comes into contact with the boom support.

The boom support will be located just to the rear of the chassis cab.

**AERIAL BOOM SUPPORT LIGHT**

There will be one (1) Amdor®, Model AY-LB-12HW012, 190 lumen, 12" long, white LED strip light mounted on the boom support cradle. This light will be activated when the aerial master switch is activated.

**EXTENSION INDICATOR**

Extension markings and corresponding numerical indicators will be provided along each inside top rail of the base section of the aerial every ten (10) feet. They will indicate various positions of extension up to full. Markings and indicators will be clearly visible to the console operator. To aid in visibility during hours of darkness, the markings and numerical indicators will be of a black reflective material.

**FOLDING STEPS**

One (1) set of folding steps will be provided at the tip of the ladder. An additional set of folding steps will be provided at the base of the fly section. The steps will be bright finished with a black tread coating on the stepping surface. Each step will have no integrated light.

**AERIAL DEVICE RUNG COVERS**

Each rung will be covered with a secure, heavy-duty, fiberglass pultrusion that incorporates an aggressive, no-slip coating.

The rung covers will be glued to each rung, and will be easily replaceable should the rung cover become damaged.

The center portion of each rung cover will be black and the outside 2.00" edge at each side will be black.

Under no circumstances will the rung covers be fastened to the rungs using screws or rivets.

The rung covers will have a 10-year, limited warranty.

### **PIKE POLE MOUNTING BRACKETS**

Mounting will be provided near the end of the fly section of the aerial ladder for one (1) pike pole(s).

The bracket will be sized to hold a Duo-Safety 8' pike pole.

### **STOKES AND LADDER STORAGE BOX**

There will be two (2) aluminum storage box(es) provided at the base section of the aerial ladder on each side of the aerial device. The box(es) will be painted job color. The box(es) will be located in place of the aerial boom panel and have a hinged cover with pair of butterfly latches to secure the equipment. The cover will have the same finish as the box. The cover will be tied in to the open door indicator circuitry when in the open position. A divider will be provided to separate the stokes basket and the ladder. The box(es) will have no louvers.

The size of the stokes basket will be 83.00" long x 25.00" wide x 8.00" high. The ladder will be a Duo-Safety 775-A 10' roof ladder.

The maximum capacity of each box will be 75 lb.

### **TOOL MOUNTING BRACKETS**

Brackets will be provided near the end of the fly section of the aerial ladder for mounting a fire axe or PIG hand tool. The mounting brackets will be Performance Advantage Company Model 1004 with a black strap. The mounting plates will be D/A finished aluminum.

### **STABILITY TEST**

An aerial stability test will be run on this apparatus using the maximum weight allowance for tip options.

### **LIGHTS FOR TURNTABLE WALKWAY**

There will be white LED lights provided at the aerial turntable. The lights will be located to illuminate the entire walking surface of the turntable including the area around the turntable console. These lights will be activated by the aerial master switch.

### **TURNTABLE CONSOLE LIGHTING**

There will be one (1), TecNiq Model T10, white LED light strip mounted in the turntable console cover to illuminate the controls located on both the upper and lower portion of the turntable control station. These lights will be activated by the aerial master switch.

### **ROTATION BEARING COVER**

A cover will be fitted over the aerial rotation bearing and drive pinion gear(s). The cover will be aluminum treadplate and attached to the underside of the turntable deck.

### **INFORMATION CENTER**

There will be an information center provided. The information center will operate in temperatures from -40 to 185 degrees Fahrenheit. The information center will employ a Linux operating system and a

7.00" (diagonal measurement) LCD display. The LCD will have a minimum 400nits rated, color display. The LCD will be sunlight readable. The LCD display will be encased in an ABS, black plastic housing with a gray decal. There will be five (5), weather-resistant user interface switches provided. The LCD display can be changed to an available foreign language.

### **OPERATION**

The information center will be designed for easy operation in everyday use. There will be a page button to cycle from one screen to the next screen in a rotating fashion. A video button will allow an NTSC signal into the information center to be displayed on the LCD. If any button is pressed while viewing a video feed, the information center will return to the vehicle information screens. There will be a menu button to provide access to maintenance, setup, and diagnostic screens. All other button labels will be specific to the information being viewed.

### **GENERAL SCREEN DESIGN**

Where possible, background colors will be used to provide vehicle information *At A Glance*. If the information provided on a screen is within acceptable limits, a green background color will be used. If the information provided on a screen is not within acceptable limits, an amber background color will indicate a caution condition and a red background color will indicate a warning condition.

Every screen in the information center will include the aerial tip temperature, the time (12- or 24-hour mode) and a text Alert Center. The time will be synchronized between all Command Zone color displays located on the vehicle. The Alert Center will display text messages for audible alarms. The text messages will identify any items causing the audible alarm to sound. If more than one (1) audible alarm is activated, the text message for each alarm will cycle every second until the problems have been resolved. The background for the Alert Center will change to indicate the severity of the warning message. Amber will indicate a caution condition and red will indicate a warning condition. If a warning and a caution condition occur simultaneously, the red background color will be shown for all Alert Center messages.

A label will be provided for each button. The label will indicate the function for each active button for each screen. If the button is not utilized on specific screens, it will have a button label with no text.

Symbols will accurately depict the aerial device type the information pertains to such as rear mount ladder, rear mount platform, mid-mount ladder or mid-mount platform.

### **PAGE SCREENS**

The Information center will include the following pages:

The Aerial Main and Load Chart page will indicate the following information:

- Rungs Aligned and Rungs Not Aligned will be indicated with text and respective green or red colored ladder symbols.
- Ladder Elevation will be indicated via a fire apparatus vehicle with ladder symbol with the degree of elevation indicated between the vehicle and ladder.
- Water Flow (if applicable) will be indicated via a water nozzle symbol and text indicating flow / time.

- Breathing Air Levels will be indicated via an air bottle symbol and text indicating the percent (%) of air remaining. A green bar graphs shown inside the bottle will indicate oxygen levels above 20%. A red bar graph will indicate oxygen levels at or below 20%. When oxygen levels are at or below 10% the red bar graph will flash.
- The Aerial Load Chart will indicate the load limit on each section of the ladder based on actual ladder position and water flow (if applicable).
- *At A Glance* color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

The Aerial Reach and Hydraulic Systems page will indicate the following information:

- Aerial Hydraulic Oil Temperature will be indicated with symbol and text. At a glance features will be utilized.
- Aerial Hydraulic Oil Pressure will be indicated with a symbol and text. At a glance features will be utilized.
- The following calculations will be indicated on a representative vehicle symbol:
  - Aerial Device Extension length.
  - Aerial Device Height indicating the height of the aerial device tip from the ground.
  - Aerial Device Reach indicating the horizontal distance the aerial reaches from the turntable.
  - Aerial Device Angle indicating the angle from the vehicle which the device is at.
- *At A Glance* color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

The Level Vehicle page will indicate the following information:

- The grade of the vehicle will be indicated via a fire apparatus vehicle symbol with the degree of grade shown in text format. The symbol will tilt dependent on the vehicle grade.
- The slope of the vehicle will be indicated via a fire apparatus vehicle symbol with the degree of slope shown in text format. The symbol will tilt dependent on the vehicle slope.
- Outriggers status will be indicated via a colored symbol for each outrigger present. Each outrigger status will be defined as one of the following:
  - Outrigger stowed indicated with a silver pan located close to the vehicle
  - Outrigger fully extended indicated with a fully deployed green outrigger
  - Outrigger short-jacked indicated by a yellow outrigger partially deployed

- Outrigger not set indicated by a red outrigger that is not set on the ground
- A text box located on the vehicle symbol will be utilized to identify the overall status of the outrigger leveling system. The following status will be indicated in the text box:
  - Deployed status will indicate all outriggers are properly set on the ground at full extension
  - Shortjacked status will indicate one or more outriggers are set on the ground but not fully extended.
  - Not Set status will indicate one or more outriggers is not properly set on the ground.
  - Stowed status will indicate all outriggers are stowed for vehicle travel.
- A bedding assist alert will indicate that the aerial device is being aligned by the Command Zone system as the operator lowers the aerial device into the cradle with the joystick.
- *At A Glance* color features will be utilized on this screen. Caution type conditions will be indicated via a yellow background. Warning type conditions will be indicated via a red background. Conditions operating within acceptable limits will be indicated via a green background.

## **MENU SCREENS**

The following screens will be available through the Menu button:

The View System Information screen will display aerial device hours, aerial PTO hours, ladder aligned for stowing, aerial rotation angle, total water flow (if applicable), and aerial waterway valve status (if applicable).

The Set Display Brightness screen will allow brightness increase and decrease and include a default setting button.

The Configure Video Mode screen will allow setting of video contrast, video color and video tint.

The Set Startup screen allows setting of the screen that will be active at vehicle power-up.

The Set Date and Time screen has a 12- or 24-hour format, and allows setting of the time and date.

The View Active Alarms screen shows a list of all active alarms including the date and time of each alarm occurrence and shows all alarms that are silenced.

The System Diagnostics screen allows the user to view system status for each module and it's respective inputs and outputs. Viewable data will include the module type and ID number; the module version; and module diagnostics information including input or output number, the circuit number connected to that input or output, the circuit name (item connected to the circuit), status of the input or output, and other module diagnostic information.

Aerial calibrations screen indicates items that may be calibrated by the user and instructions to follow for proper calibration of the aerial device.

Button functions and button labels may change with each screen.

### **LOWER CONTROL STATION**

A lower control station will be located at the rear of the apparatus in an easily accessible area. The controls and indication labels will be illuminated for nighttime operation. The following items will be furnished at the lower control station and will be clearly identified and conveniently located for ease of operation and viewing:

- Level assist switch
- Override switch to override microprocessor
- Emergency power unit switch

### **TURNTABLE CONTROL STATION**

There will be one (1) device control station located on the left side of the turntable so the operator may easily observe the ladder tip while operating the controls. All elevation, extension and rotation controls will operate from this location. The controls will permit the operator to regulate the speed of the aerial functions, within the safe limits, as determined by the manufacturer and NFPA standards. Each control will be equipped, with a positive lock to hold the control in a neutral position, preventing accidental activation. In addition to the neutral lock, a console cover will be provided at the turntable control station. The controls will be so designed to allow the turntable control station to immediately override the tip controls, if equipped, even if the ladder is being operated by the tip controls.

The following items will also be provided at the turntable control station, clearly identified, lighted for nighttime operation and conveniently located for ease of operation and viewing:

- Intercom controls
- Tip tracking light switch
- Emergency stop switch
- Emergency power unit switch
- Operator's load chart
- Two (2) position switch for selecting aerial operational speed

### **HIGH IDLE**

The high idle will be controlled by the microprocessor. The microprocessor will automatically adjust the engine rpm to compensate for the amount of load placed upon the system. The system will include a safety device that allows activation of the high idle, only when the parking brake is set and the transmission is placed in neutral.

### **STABILIZERS**

The vehicle will come equipped with a stabilization system consisting of four (4) hydraulically operated stabilizers. The front two (2) will be out and down style, the rear two (2) will be down only. This system will meet or exceed all requirements of the NFPA specifications related to stabilization and setup on sloped surfaces.

The stabilizer/leveling jacks will have a maximum spread of 16' measured from the centerline of the jack footpads when the beams are fully extended. The beams will be 6.88" wide x 9.00" high with 3/4" thick top and bottom plates and 1/2" thick sides of 100,000-PSI minimum yield strength steel. The cylinders will have pilot-operated check valves with thermal relief designed to insure that the beams will not drift out of the stowed position during travel. Wear pads will guide the stabilizers.

The horizontal extension cylinders will be totally enclosed within the beams and will incorporate telescoping hydraulic tubing to supply the jack cylinder hydraulic power. Stabilizer hydraulic hoses will remain stationary during operation of the stabilizers to prevent hose wear and potential failure. The cylinders will be equipped with decelerators to reduce the speed of extension and retraction when the beams are near the fully retracted and extended positions. The stabilizer extension hydraulic cylinders will have the following dimensions: 2.25" bore, 1.38" rod, and 39.25" stroke.

The vertical jack cylinders will be capable of 18.00" ground penetration. The cylinders will be supplied with pilot operated check valves on each jack cylinder to hold the cylinder in the stowed or working position, should a charged line be severed at any point in the hydraulic system. For safety, the integral holding valves will be located in the cylinder base, NOT in the transfer tube. Vertical jack cylinder rods will be fully enclosed by a telescoping inner box to protect the cylinder rods from damage. The stabilizer jack hydraulic cylinders will have the following dimensions: 4.25" bore, 3.00" rod, and 28.88" stroke.

Each stabilizer jack will have a pan that will be a maximum of 14.00" wide so as to allow the extension of the stabilizer between parked cars or other obstacles. This pan will serve as a protective guard and a mounting surface for warning lights. The top, forward, and rear edges will be flanged back 90 degrees for added strength.

### **STABILIZER PADS**

The stabilizer footpad will be 12.00" in diameter. The footpad will be attached to the jack cylinder rod by means of a machined ball at the end of the jack cylinder rod which mates to a socket machined into the footpad. The footpad will have the ability to pivot 20 degrees from horizontal in any direction to allow setup on uneven terrain.

### **AUXILIARY STABILIZER PADS**

An auxiliary ground pad will be supplied for each stabilizer to provide additional load distribution on soft surfaces. The pads will be 31" x 26" and made from lightweight composite material. The ground pressure will not exceed 75 pounds per square inch when the ground pads are used and the apparatus is fully loaded and the aerial device is carrying its rated capacity in any position. The pads will be stored in a double stacked configuration, two (2) behind each rear tandem axle in a single bracket.

### **STABILIZER CONTROLS**

A portable stabilizer control box will be provided. The control box will be weatherproof and oil resistant. Each function and indicator light will be labeled on a metal photo panel. The control box can be taken as far away as 15' from the vehicle with an extension cable.

The stabilizer control box will include the following:

- One (1) green power indicator light for stabilizer control that will be illuminated when the aerial master and "PTO" switches in the cab are activated.
- Four (4) electric toggle switches for stabilizers: each toggle switch will control the extend/retract (front only) and raise/lower of its respective stabilizer to allow vehicle set up in restricted areas and/or on uneven surfaces.
- Auto leveling assist switch: The outrigger control system will incorporate a computerized self leveling system in addition to the standard outrigger controls. The operator will have the option to manually or automatically level the truck. The computerized system will ensure full outrigger extension, proper jack penetration, and will level the vehicle within 1/2 a degree of level for safe operation of the aerial device.
- One (1) electric toggle switch for the engaging the emergency power unit.
- One (1) red "stabilizer not stowed" indicator light: this light will illuminate when the stabilizers are not in the fully stowed position.
- Two (2) fully extended beams green indicator lights: these lights will be illuminated when each of the respective stabilizer beams are fully extended.
- Four (4) firm on ground green indicator lights: each light will be illuminated when its respective stabilizer shoe is in the load supporting condition.

Each toggle switch will activate the engine fast idle automatically.

Manual override will be supplied for each stabilizer control valve.

A stabilizer deployment audible warning alarm will be provided and activated by the stabilizer movement.

A "Stabilizers Not Stowed" indicator will be provided in the driver's compartment. It will illuminate automatically whenever the stabilizers are not fully stowed to prevent damage to the apparatus if moved. The stabilizer system will also be wired to the "Do Not Move Indicator Light", which will flash whenever the apparatus parking brake is not fully engaged and the stabilizers are not fully stowed.

### **CRADLE INTERLOCK SYSTEM**

A cradle interlock system will be provided, to prevent the lifting of the aerial from the nested position, until the operator has positioned all the stabilizers in a load supporting configuration. A switch will be installed at the cradle, to prevent operation of the stabilizers once the aerial has been elevated from the nested position.

### **STABILIZER PAN AND TRIM MATERIAL**

The aerial stabilizer pans will be polished stainless steel and the aerial stabilizer trim will be polished stainless steel .



### **STABILIZER CONTROL BOX DOOR**

A vertically hinged smooth aluminum door will be provided over the stabilizer control box. The door will be hinged along the outboard edge and be provided with a Southco C2 chrome raised trigger lever latch.

### **STABILIZER PLACEMENT**

There will be two (2) cameras provided and installed on the body, one (1) directly above each stabilizer. The cameras will be activated with a switch in the cab and will provide a picture to specify the fully extended stabilizer position allowing the driver the ability to position the vehicle with the proper clearance for stabilizer deployment.

### **HYDRAULIC SYSTEM**

All hose assemblies will be assembled and crimped by the hose manufacturers certified technician.

All manufacturing employees responsible for the installation of hydraulic components will be properly trained. Training will include: proper handling, installation, torque requirements, cleanliness and quality control procedures for hydraulic components.

Hoses used in the aerial hydraulic system will be of a premium quality hose with a high abrasion resistant cover. All pressure hoses will have a working pressure of 4000 psi and a burst pressure rating of 16,000 psi.

All hydraulic fittings and tubing will be plated to minimize corrosion.

The fitting will use an O-ring seal where possible to minimize hydraulic leaks.

An interlock will be provided that prevents activation of the hydraulic pump until the transmission is placed in neutral and the parking brake is set as outlined in the current NFPA 1901 standard.

The system will meet the performance requirement of the current NFPA 1901 standard, which requires adequate cooling less than 2.5 hours of operations.

All hydraulic components that are non-sealing whose failure could result in the movement of the aerial will comply with current NFPA 1901 standards and have burst strength of 4:1.

Dynamic sealing components whose failure could cause aerial movement will have a margin of 2:1 on maximum operating pressure per the current NFPA 1901 standard.

All hydraulic hoses, tubes, and connections will have a minimum burst strength of 4:1 per the current NFPA 1901 standard.

A chassis mounted positive displacement piston pump for consistent pressure and rapid responses will supply hydraulic power for all aerial operations. The positive displacement pump will provide 3,150psi. The hydraulic pump will be solely dedicated to aerial operations.

Each aerial will be evaluated as to the region and climate where it will be used to determine the optimum viscosity and proper oil grade. Oil viscosity will be based on an optimum range of 80 to 1000

SUS during normal aerial use. Before shipment of the unit, an oil sample will be taken and analyzed to confirm the oil is within the allowable ISO grade tolerance.

The aerial hydraulic system will have a minimum oil cleanliness level of ISO 18/15/13 based on the ISO 4406:1999 cleanliness standard. Each customer will receive a certificate of actual cleanliness test results and an explanation of the rating system.

Each aerial will include an oil sample port, identified with a yellow dust cap and a label, for subsequent customer testing.

Ball valves will be provided in the hydraulic suction lines to permit component servicing without draining the oil reservoir.

The aerial will incorporate the use of trombone steel tubes inside the stabilizer beams to eliminate hydraulic hose wear and leaks.

Hydraulic power to the ladder will be transferred from the pedestal by a hydraulic swivel.

The system hydraulic pressure will be displayed on the turntable display.

The hydraulic system will be additionally protected from excessive pressure by a secondary pressure relief valve set at 3,150 psi. In the event the main hydraulic pump compensator malfunctions, the secondary relief will prevent system damage.

### **HYDRAULIC CYLINDERS**

All cylinders used on the aerial device will be produced by a manufacturer that specializes in the manufacture of hydraulic cylinders.

Each cylinder will include integral safety holding cartridges.

Each cylinder will be designed to a minimum safety factor of 4:1 to failure.

All safety holding cartridges will be installed at the cylinder manufacturer, in a controlled clean environment to avoid possible contamination and or failure.

### **POWER TAKEOFF/HYDRAULIC PUMP**

The apparatus will be equipped with a power takeoff driven by the chassis transmission and actuated by an electric shift, located inside the cab. The power takeoff which drives the hydraulic pump will meet all the requirements for the aerial unit operations.

An amber indicator light will be installed on the cab instrument panel to notify the operator that the power takeoff is engaged.

An interlock will be provided that allows operation of aerial power only after the chassis spring brake has been set and the chassis transmission has either been placed in the neutral position or drive position after the driveline has been disengaged from the rear axle.

The hydraulic system will be supplied by a variable displacement load and pressure compensating piston pump. The pump will meet the demands of all three simultaneous aerial functions. The pump

will provide proper flow for single aerial function with the engine at idle speed. A switch will be provided on the control console to increase the engine speed for multiple function operation.

### **EMERGENCY PUMP**

The hydraulic system will be designed with an auxiliary power unit meeting the guidelines of the current NFPA 1901 standard.

The aerial will be equipped with an emergency hydraulic pump, electrically driven from the truck batteries. The pump will be capable of running for 30 minutes for limited aerial functions to stow the unit in case of a main pump or truck system failure. A momentary switch will be located at the stabilizer and aerial control locations to activate the emergency pump.

### **AERIAL CONTROL VALVE**

The aerial hydraulic control valve will be designed with special spool flows, limiting the oil flow for the designed function speed. The valve will be electrically controlled and be located in the control console with the handles oriented downward for manual operation. The activation handles will be spaced a minimum of 3.50" for ease of operation. The valve spools will be designed to bleed off downstream pressure, in the neutral position and allow proper sealing of any cylinder holding cartridge.

### **OIL RESERVOIR**

The oil reservoir will have a minimum capacity of 38 gallons. The oil fill location will be easily accessible and be labeled "Hydraulic Oil Only" and also indicate the grade of oil that is installed in the reservoir. The fill will have a desiccant breather filter with a water capacity of 4 fluid ounces and a 5 micron rating. A drain hose will be included and will terminate with a quarter turn ball valve.

Two suction ports will be provided, one for the main hydraulic pump and one for the emergency pump. The main suction will be slightly elevated off the bottom of the reservoir and include a 100 mesh suction strainer. The emergency suction port will be closer to the bottom of the reservoir to provide some reserve oil for emergency operation.

A six (6) disc type magnetic drain will also be provided to collect any ferrous contaminants.

A float type sending unit in the reservoir will provide an indication of oil level on an electronic display. A temperature sending unit in the reservoir will provide indication of the oil temperature on an electronic display.

The hydraulic oil reservoir will be labeled per the current edition of NFPA 1901 standard.

### **RETURN FILTER**

The low pressure oil return filter will be integrated with the hydraulic manifold and designed to prevent oil loss during filter change. A 50 psi bypass will be included to protect the element and hydraulic system during lower than normal operating temperatures. The system will incorporate the following filter to provide dependable service:

- return filter: beta 200 at 6 micron

### **HYDRAULIC SWIVEL**

The aerial ladder will be equipped with a three (3) port, high pressure hydraulic swivel which will connect the hydraulic lines from the hydraulic pump and reservoir through the rotation point to the aerial control bank. The hydraulic swivel will allow for 360 degree continuous rotation of the aerial.

### **ELECTRIC SWIVEL**

The ladder will be equipped with an electric swivel to allow 360 degrees rotation of the aerial while connecting all electrical circuits through the rotation point. A minimum of 28 collector rings will be provided that are capable of supplying 30 amp continuous service. All collector rings will be enclosed and protected with desiccant plugs against condensation and corrosion. No oil or silicone will be used.

### **12-BIT ABSOLUTE ENCODER**

The aerial ladder will be equipped with a 12-Bit Absolute Encoder which provides 4096 counts per shaft turn for position and direction reference.

The 12-Bit Absolute Encoder will provide a unique binary word to reference each position and direction for all 360 degrees of rotation.

If the power is interrupted for any reason, the 12-Bit Absolute Encoder will allow power to be returned to the system without having to re-zero the settings.

The 12-Bit Absolute Encoder will be an integral part of a micro-processor based control system.

### **ELECTRICAL SYSTEM**

The standard 8 conductor cable to the tip contains 10 AWG conductors.

The 107' heavy duty ladder will utilize a microprocessor-based control system. The system will consist of the following components:

A tethered stabilizer control will be provided. The tethered control will be weatherproof and oil resistant. A Super Bright LED indicator light will be labeled on a metal photo panel for each function. The electrical connection at the tethered control will be permanently attached by a strained relieved coil cord that will allow the operator to move 14' away from the electrical connection for operation.

- Remote Stabilizer Controls
- Weatherproof and oil resistant
- One (1) green "power" indicator light
- One (1) red "stabilizer not stowed" indicator light
- One (1) electric toggle switch for auto level assist
- One (1) electric toggle switch for the emergency power unit
- One (1) electric toggle switch for each stabilizer to control:
  - Extend/retract function (front only)
  - Raise/lower function
- One (1) green "stabilizer fully extended" indicator light for each front stabilizer
- One (1) green "firm on ground" indicator light for each stabilizer

## **Control System Modules**

Each of the control system modules will be configured as follows:

- Sealed to a NEMA 4 rating
- Operating range from -40 degrees F to 185 degrees F (-40 degrees C to 85 degrees C)
- Communicate using J1939 data link
- Two (2) diagnostic LED light
  - One (1) green light that illuminates when module has power (B+) and ground
  - One (1) red light that flashes to indicate the module is capable of communicating via the data link
- Ground matrix identification system

The following control system modules will be used:

### Control Module

- Main controller for the system
- USB connection allows for computer diagnostics

### Power Module

- Built-in fault sensing
- Eight (8) digital outputs
- Pulse width modulating (PWM) capable
- 10A continuous per output
- Circuit protection based on actual current draw (not affected by heat)

### Constant Current Module

- Built-in fault sensing
- Three (3) analog inputs
- Eight (8) digital outputs
- Pulse width modulating (PWM) capable
- 3A continuous per output
- Circuit protection based on actual current draw (not affected by heat)
- Closed Loop System

### Input Module

- 16 software selectable (digital or analog) inputs

### Output Module

- 16 digital outputs

### Input/Output Module

- Eight (8) software selectable (digital or analog) inputs
- Eight (8) digital outputs

### **TIP LIGHT**

There will be two (2) Whelen® Model MP\*\*, 5,695 lumens 12 volt DC LED lights installed at the tip of the aerial device.

One (1) will be located on the left side with left side tip light to include spot optics.

One (1) will be located on the right side with right side tip light to include spot optics.

- The light(s) to be installed on adjustable bail bracket(s).
- The painted parts of this light assembly to be white

The lights will be controlled with the tracking lights.

### **TRACKING LIGHTS**

There will be two (2) Whelen® MP\*\*, 5,695 lumens 12 volt DC LED lights installed on the base section of the aerial device below the hand rails per the following:

- One (1) will be located on the left side with left side tracking light to include spot optics.
- One (1) will be located on the right side with right side tracking light to include spot optics.
- The light(s) to be installed on adjustable bail bracket(s).
- The painted parts of this light assembly to be white.

The tracking lights will be controlled by a switch located at the turntable only.

### **LIGHTING ON AERIAL LADDER**

There will be TecNiq, Model D02, LED rung lighting provided on both sides of the aerial ladder base, lower and upper mid, and fly sections. The lighting will be located adjacent to the ladder rungs along the lower rail of the ladder sections and will run the length of the ladder section.

The color of the aerial device when the device is at full extension will be:

- Top one-third to be red
- Middle one-third to be white
- Bottom one-third to be blue

The LED rung lighting will be activated when a switch at the turntable operator's panel is activated through the aerial master and a switch at the turntable operator's panel is activated through the master battery switch.

The lights may be load managed when the parking brake is applied.

### **STABILIZER WARNING LIGHTS**

There will be our (4) Whelen®, Model M6\*C, LED flashing warning lights with Whelen, Model M6FC, chrome flanges installed, one (1) on each stabilizer cover panel.

- The front stabilizer pan lights will be red LED with a clear lens
- The rear stabilizer pan lights will be red LED with a clear lens

These warning lights will be activated by the same switch as the side warning lights.

### **STABILIZER BEAM WARNING LIGHTS**

Two (2) 4.00" diameter red LED flashing lights will be mounted on each stabilizer, one (1) facing forward and one (1) facing rearward. The lights will be Grote Supernova 40 series LED lights. The lights will be recessed in the horizontal beam of the stabilizer. These warning lights will be activated with the aerial master switch.

### **STABILIZER SCENE LIGHTS**

There will be one (1) Amdor®, Model AY-LB-12HW012, 190 lumen, 12" long, white LED strip light installed under each stabilizer beam to illuminate the surrounding area. A total of four (4) lights will be installed. The lights will be activated by the aerial master switch.

### **2-WAY AERIAL COMMUNICATION SYSTEM**

There will be a Fire Research model ICA910 two-way intercom system provided. The control module with an LED volume display and push-button volume control will be located on the turntable operator console.

A hands free module will be located at the aerial tip or platform and constantly transmit to the other module unless the control module push-to-talk button is pressed.

Each intercom unit will be weatherproof.

### **AERIAL VIDEO CAMERA SYSTEM**

There will be one (1) color, back-up style camera with 150-degree field of view attached to the aerial ladder egress facing outward and connected to one (1) 2.4GHz wireless transmitter. One (1) 2.4GHz receiver will be provided at the aerial turntable and the video will go to the Command Zone information center display. The camera system will be activated with the aerial master switch.

The following components will be supplied:

- One (1) Sharp Vision, Model SV-CW134639CAI Camera
- One (1) Sharp Vision, Model SV-WT-479 Transmitter
- One (1) Sharp Vision, Model SV-WR-480 Receivers
- All necessary cables

### **RAISED AERIAL PEDESTAL**

The aerial pedestal will be raised to accommodate the height of the cab.

### **LIFTING EYE ASSEMBLY - ROPE RESCUE ATTACHMENT**

A lifting eye assembly will be provided that is designed to evenly distribute load at the tip of the aerial. The lift eye assembly is retained by two (2) locking pins, one (1) at each end outboard side of the egress. Leveling is maintained by the lifting eye assembly rotating within the egress mounting. The lifting eye assembly rating will match the capacity rating of the aerial device.

### **HITCH, WINCH MOUNT**

A hitch receiver will be supplied at the left and right side of the vehicle aft of the rear wheels. The hitch will not interfere with the angle of departure and will be tied directly to the frame rails. The hitch will be capable of up to a 10,000 lb direct pull. Receiver plugs will be provided for the receiver when it is not in use.

### **MANSAVER™ BARS, AERIAL TURNTABLE**

ManSaver™ bars will be red in color and installed at the aerial turntable.

### **WATER SYSTEM**

A waterway system will be provided consisting of the following components and features:

A 5.00" pipe will be connected to the water supply on one end and to a 5.00" internal diameter water swivel at the rotation point of the turntable. The water swivel will permit 360 degree continuous rotation of the aerial device.

The 5.00" waterway swivel is to be routed through the rotation point up to the heel pin swivel. The heel pin swivel will allow the water to flow to the ladder pipe while elevating the aerial ladder from -10 degrees to 77 degrees. The heel pivot pin is not integral with the waterway swivel at any point. The design of the waterway will allow complete servicing of the waterway swivel without disturbing the heel pivot pin.

The integral telescopic water system will consist of a 4.50" diameter tube in the base section, a 4.00" diameter tube in the inner mid-section, a 3.50" diameter tube in the outer mid-section, and a 3.00" diameter tube in the fly section. The telescopic waterway will be constructed of anodized aluminum pipe.

The aerial will be capable of discharging up to 1000 gpm at 100 psi parallel to the ladder and 90 degrees to each side of center while maintaining the rated tip load.

The aerial will be capable of discharging between 1001 and up to 1500 gallons per minute at 100 psi parallel to the ladder and 40 degrees to each side of center while maintaining the rated tip load.



The master stream will be capable of flow up to 30 degrees above horizontal.

An adjustable pressure relief valve will be furnished to protect the aerial waterway from a pressure surge.

A 1.50" drain valve will be located at the lowest point of the waterway system.



### **WATERWAY SEALS**

The waterway seals will be of type-B PolyPak design, composed of nitroxile seal and a nitrile wiper, which together offer maximum stability and extrusion resistance on the waterway. The seal will be capable of withstanding pressures up to 2000 psi, temperatures in excess of 250 degrees Fahrenheit and have resistance to all foam generating solutions. The seals will be internally lubricated.

The waterway seals will have automatic centering guides constructed of synthetic thermalpolymer. The guides will provide positive centering of the extendible sections within each other and the base section to insure longer service life and smoother operation.

### **AERIAL MONITOR**

An Akron Model 3480 monitor with stow and deploy will be provided at the tip with a Akron 1500 gpm Model 5178. This monitor will allow for an additional 30 degrees of travel above horizontal at the aerial tip.

The monitor's functions will be controlled electrically from two (2) separate locations. One (1) control will be located at the control console and the other at the ladder tip.

There will be a courtesy light at the tip of the aerial to illuminate the controls.

If the aerial has a quick-lock waterway, a limit switch will be provided to disable the extended vertical travel when the monitor is locked to the lower ladder section.

The stowed monitor will face the right side of the apparatus, as long as there are no cab or cab roof lighting interferences.

### **WIRELESS REMOTE AERIAL MONITOR CONTROL**

One (1) handheld wireless remote control will be provided near the pump operator's panel in a protected area or in a body compartment. The remote will include two (2) lithium-ion rechargeable batteries. The frequency of the remote will be 900 MHz. A battery charger will be provided in loose equipment.

### **AERIAL WATERWAY FLOW METER**

Waterway flow, including total water flowed, will be monitored by the microprocessor. An LCD display will be located at the turntable control station.

### **REAR INLET**

A 5.00" NST inlet to the aerial waterway will be provided at the rear of the apparatus. It will be furnished with a 5.00" chrome plated adapter and a 5.00" chrome plated, long handle cap.

## **WATERWAY LOCKING SYSTEM**

The aerial ladder waterway monitor will be capable of being positioned at either the fly section or at the next lower section of the ladder.

The monitor location will be changeable by the use of a single handle, located at the side of the ladder.

The handle, attached to a cam bracket, will simply be moved forward to lock the monitor at the fly section and back to lock it to the previous section.

There will be no pins to remove and reinstall.

The monitor will be operational at all times, regardless of its position, without connecting or disconnecting electrical lines.

## **2.50" AUXILIARY OUTLET AT AERIAL TIP**

An auxiliary hose connection outlet will be supplied at the tip of the aerial ladder. It will be located on the left hand side of the aerial waterway.

Flow to the auxiliary outlet will be supplied by 2.50" piping. A 2.50" gate valve with a non-rising stem and crank handle will be supplied. A cap and chain will be provided.

Flow to the aerial waterway monitor will be controlled by a 4.00" aluminum butterfly valve with a handwheel. The valve will be located at the monitor inlet.

A 200 psi relief valve and a 0.75" automatic drain valve will be supplied in the waterway at the tip.

## **TOOLS**

The following tools will be provided for retorquing of all specified bolts as recommended by the manufacturer:

- Torque Wrench
- All Required Extensions, Sockets and Adapters
- 4-to-1 Multiplier

## **MANUALS**

Two (2) operator maintenance manuals and two (2) wiring diagrams pertaining to the aerial device will be provided with the apparatus at time of pick-up.

## **INITIAL INSTRUCTION**

On initial delivery of the fire apparatus, the contractor will supply a qualified representative to demonstrate the apparatus and provide initial instruction to the fire department regarding the operation, care, and maintenance of the apparatus for a period of four (4) consecutive days.

## **LOOSE EQUIPMENT**

The following equipment will be furnished with the completed unit:

- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit.

## **NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT**

The following loose equipment as outlined in NFPA 1901, 2016 edition, section 9.9.3 and 9.9.4 will be provided by the fire department.

- 800 ft (240 m) of 2.50" (65 mm) or larger fire hose, in any combination.
- 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose, in any combination.
- One (1) handline nozzle, 200 gpm (750 L/min) minimum.
- Two (2) handline nozzles, 95 gpm (360 L/min) minimum.
- One (1) playpipe with shutoff and 1.00" (25 mm), 1.125" (29 mm), and 1.25" (32 mm) tips.
- One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.
- One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s).
- One (1) first aid kit.
- Four (4) salvage covers, each a minimum size of 12 ft × 14 ft (3.6 m × 5.5 m).
- Four (4) combination spanner wrenches.
- Two (2) hydrant wrenches.
- One (1) double female 2.50" (65 mm) adapter with National Hose threads.
- One (1) double male 2.50" (65 mm) adapter with National Hose threads.
- One (1) rubber mallet, for use on suction hose connections.
- Four (4) ladder belts meeting the requirements of NFPA 1983.
- One (1) 150 ft (45 m) light-use life safety rope meeting the requirements of NFPA 1983.
- One (1) 150 ft (45 m) general-use life safety rope meeting the requirements of NFPA 1983.
- One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.
- Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.
- Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.
- One (1) automatic external defibrillator (AED).
- If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, will be carried mounted in brackets fastened to the apparatus.
- If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side will be carried. Any intake connection larger than 3.00" (75 mm) will include a pressure relief device that meets the requirements of 16.6.6.

- If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake will be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.
- If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters will be carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to allow the hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.

### **SOFT SUCTION HOSE**

There will be no soft suction hose provided.

### **DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT**

NFPA 1901, 2016 edition, section 9.9.4 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

### **WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT**

NFPA 1901, 2016 edition, section 9.9.4 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

### **FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT**

NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) flathead axe mounted in a bracket fastened to the apparatus.

The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.

### **PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT**

NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) pickhead axe mounted in a bracket fastened to the apparatus.

The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.

### **PAINT PROCESS**

The exterior custom cab and body painting procedure will consist of a seven (7) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the custom cab and body will be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces will be removed and sanded to a smooth finish. Exterior seams will be sealed before painting. Exterior surfaces that will not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum treadplate.

2. Chemical Cleaning and Pretreatment - All surfaces will be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces will be properly cleaned and treated using a high pressure, high temperature 4 step Acid Etch process. The steel and stainless surfaces will be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion.
3. Surfacer Primer - The Surfacer Primer will be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surfacer Primer is applied to surfaces that require a Critical aesthetic finish. The Surfacer Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.
4. Finish Sanding - The Surfacer Primer will be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.
5. Sealer Primer - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surfacer Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when topcoated.
6. Basecoat Paint - Two coats of a high performance, two component high solids polyurethane basecoat will be applied. The Basecoat will be applied to a thickness that will achieve the proper color match. The Basecoat will be used in conjunction with a urethane clear coat to provide protection from the environment.
7. Clear Coat - Two (2) coats of Clear Coat will be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors will be Clear Coated to match the body. Paint warranty for the roll-up doors will be provided by the roll-up door manufacturer.

After the cab and body are painted, the color will be verified to make sure that it matches the color standard. Electronic color measuring equipment will be used to compare the color sample to the color standard entered into the computer. Color specifications will be used to determine the color match. A Delta E reading will be used to determine a good color match within each family color.

All removable items such as brackets, compartment doors, door hinges, and trim will be removed and painted separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.

The paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6 A.C.T. standard in critical areas. The manufacture's written paint standards will be available upon request.

### **Environmental Impact**

Contractor will meet or exceed all current state regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:

- Topcoats and primers will be chrome and lead free.

- Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals.
- Particulate emission collection from sanding operations will have a 99.99 percent efficiency factor.
- Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter is used, it will have an efficiency rating of 98 percent. Water wash systems will be 99.97 percent efficient
- Water from water wash booths will be reused. Solids will be removed on a continual basis to keep the water clean.
- Paint wastes are disposed of in an environmentally safe manner.
- Empty metal paint containers will be recycled to recover the metal.
- Solvents used in clean-up operations will be recycled on-site or sent off-site for distillation and returned for reuse.

Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Contractor will, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with his state EPA rules and regulations.

**TWO-TONE CAB PAINT**

The cab will be painted two-tone with the upper section painted #10 white and the lower section painted #90 red. There will be a standard two-tone cab paint break provided.

There will be a standard cab shield provided.

**BODY PAINT**

The body will be painted to match the lower section of the cab.

**PAINT CHASSIS FRAME ASSEMBLY**

The chassis frame assembly will be finished with a single system black top coat before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components that are included with the chassis frame assembly that will be painted are:

- Frame rails
- Frame liners
- Cross members
- Axles
- Suspensions
- Steering gear
- Battery boxes
- Bumper extension weldment
- Frame extensions
- Body mounting angles

FILM TECHNICAL PROPERTIES		
PROPERTY	TEST METHOD	PERFORMANCE
Color	-	Black
Film Thickness	-	0.5 - 1.5 Mils
Gloss - 60 Degree	ASTM D523	65 - 85
Pencil Hardness	ASTM D3363	2H Minimum
Direct Impact	ASTM D2794	100 in. - lbs. Minimum
Reverse Impact	ASTM D2794	60 in. - lbs. Minimum
Crosshatch Adhesion	ASTM D3359	4B - 5B
Humidity	ASTM D1735	1000 Hours Minimum
Water Immersion	ASTM D870	250 Hours Minimum
Gravelometer	GM9508P	6 Minimum
Throwpower	GM9535P	12 - 15 in.
Cold rolled steel lab panels, Zinc Phosphate pretreatment, 0.6 mils average film thickness, cured 20 minutes @ 350°F.		
PROPERTY	SUBSTRATE PRETREATMENT	SALT SPRAY* 1000 HOURS
Corrosion Resistance	CRS / Zinc Phos / Non-Chrome	1 - 2 mm
*Salt Spray - ASTM B117, cold rolled steel lab panels cured 20 minutes @ 350°F. (Average Total Scribe Creep)		

- Rear Body support substructure (front and rear)
- Pump house substructure
- Air tanks
- Steel fuel tank
- Castings
- Individual piece parts used in chassis and body assembly

Components treated with epoxy E-coat protection prior to paint:

- Two (2) C-channel frame rails
- Two (2) frame liners

The E-coat process will meet the technical properties shown.

### **AXLE HUB PAINT**

All axle hubs will be painted to match lower job color.

### **COMPARTMENT INTERIOR PAINT**

The interior of all compartments will be painted with a gray spatter finish for ease of cleaning and to make it easier to touch up scratches and nicks.

### **AERIAL DEVICE PAINT COLOR**

The aerial device paint procedure will consist of a six (6) step finishing process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the aerial device structural components above the rotation point will be thoroughly cleaned and mechanically shot-blasted to remove metal impurities and prepare the aerial for painting.
2. Primer/Surfacer Coats - A two (2) component urethane primer/surfacer will be applied to the mechanically shot-blasted metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface. All seams will be caulked with a two (2) component epoxy caulk before painting.
3. Hand Sanding - The primer/surfacer coat of the outer surfaces of the hand rails and base rails will be lightly sanded to a smooth finish.
4. Sealer Primer Coat - A two (2) component sealer primer coat will be applied over the sanded primer.
5. Topcoat Paint - Urethane base coat will be applied to opacity for correct color matching.
6. Clearcoat - Two (2) coats of an automotive grade two (2) component urethane will be applied.

Surfaces that will not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate.

All buy out components, such as monitor, nozzle, gauges, etc. will be supplied as received from the vendor.

Removable items such as brackets will be removed and painted separately to ensure paint coverage behind all mounted items.

The stabilizer beams and torque box will be treated with epoxy E-coat prior to painting to help provide resistance to corrosion and chemicals. The stabilizers and torque box will be painted black.

The aerial device components will be painted as follows using the aforementioned six (6) step finishing process:

- Aerial device ladder sections and extension cylinders: red 90
- Aerial egress: 10 white (will be contrasting color to the aerial device ladder)
- Aerial turntable: black 101
- Aerial control console: black 101
- Aerial lift cylinders: black 101
- Aerial boom support: black 101

### **REFLECTIVE STRIPES**

Three (3) reflective stripes will be provided across the front of the vehicle and along the sides of the body. The reflective band will consist of a 1.00" black stripe at the top with a 1.00" gap then a 6.00" black stripe with a 1.00" gap and a 1.00" black stripe on the bottom.

The reflective band provided on the cab face will be at the headlight level.

### **REAR CHEVRON STRIPING**

There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. Covered surfaces will include the rear wall and aluminum doors. Rear compartment doors, stainless steel access doors, and the rear bumper will not be covered.

The colors will be red and fluorescent yellow green diamond grade.

Each stripe will be 6.00" in width.

This will meet the requirements of the current edition of NFPA 1901, which states that 50% of the rear surface will be covered with chevron striping.

### **REFLECTIVE STRIPE ON STABILIZERS**

There will be a 4.00" wide fluorescent yellow green diamond grade reflective stripe provided on the forward and rear facing side of all aerial stabilizers.

### **CAB DOOR REFLECTIVE STRIPE**

A 6.00" x 16.00" white reflective stripe will be provided across the interior of each cab door. The stripe will be located approximately 1.00" up from the bottom, on the door panel.

This stripe will meet the NFPA 1901 requirement.

### **LETTERING**

The lettering will be totally encapsulated between two (2) layers of clear vinyl.



### **LETTERING**

Forty-one (41) to sixty (60) printed effect gold leaf lettering, 3.00" high, with outline and shade will be provided.

### **CAB GRILLE DESIGN**

An American flag design will be painted on the cab grille.

### **FIRE APPARATUS PARTS MANUAL**

There will be one (1) custom parts manual(s) in USB flash drive format for the complete fire apparatus provided.

The manual(s) will contain the following:

- Job number
- Part numbers with full descriptions
- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in alphabetical order
- Instructions on how to locate parts

Each manual will be specifically written for the chassis and body model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.

### **Service Parts Internet Site**

The service parts information included in these manuals are also available on the Pierce website. The website offers additional functions and features not contained in this manual, such as digital photographs and line drawings of select items. The website also features electronic search tools to assist in locating parts quickly.

### **CHASSIS SERVICE MANUALS**

There will be one (1) chassis service manuals on USB flash drives containing parts and service information on major components provided with the completed unit.

The manual will contain the following sections:

- Job number
- Table of contents
- Troubleshooting
- Front Axle/Suspension
- Brakes
- Engine
- Tires
- Wheels
- Cab
- Electrical, DC
- Air Systems

- Plumbing
- Appendix

The manual will be specifically written for the chassis model being purchased. It will not be a generic manual for a multitude of different chassis and bodies.

### **CHASSIS OPERATION MANUAL**

The chassis operation manual will be provided on one (1) USB flash drive.

### **ONE (1) YEAR MATERIAL AND WORKMANSHIP**

A Pierce basic apparatus limited warranty certificate, WA0008, is included with this proposal.

### **ENGINE WARRANTY**

A Paccar five (5) year limited engine warranty will be provided. A limited warranty certificate, XX, is included with this proposal.

### **STEERING GEAR WARRANTY**

A Sheppard **three (3) year** limited steering gear warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.

### **FIFTY (50) YEAR STRUCTURAL INTEGRITY**

The Pierce custom chassis frame limited warranty certificate, WA0013, is included with this proposal.

### **FRONT AXLE THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY**

The Pierce TAK-4 suspension limited warranty certificate, WA0050, is included with this proposal.

### **TDM REAR AXLE FIVE (5) YEAR MATERIAL AND WORKMANSHIP WARRANTY**

A Meritor™ Axle 5 year limited warranty will be provided.

### **ABS BRAKE SYSTEM THREE (3) YEAR MATERIAL AND WORKMANSHIP WARRANTY**

A Meritor Wabco™ ABS brake system limited warranty certificate, WA0232, is included with this proposal.

### **TEN (10) YEAR STRUCTURAL INTEGRITY**

The Pierce custom cab limited warranty certificate, WA0012, is included with this proposal.

### **TEN (10) YEAR PRO-RATED PAINT AND CORROSION**

A Pierce cab limited pro-rated paint warranty certificate, WA0055, is included with this proposal.

### **FIVE (5) YEAR MATERIAL AND WORKMANSHIP**

The Pierce Command Zone electronics limited warranty certificate, WA0014, is included with this proposal.

### **CAMERA SYSTEM WARRANTY**

A Pierce fifty four (54) month warranty will be provided for the camera system.

### **COMPARTMENT LIGHT WARRANTY**

The Pierce 12 volt DC LED strip lights limited warranty certificate, WA0203, is included with this proposal.

### **TRANSMISSION WARRANTY**

The transmission will have a **five (5) year/unlimited mileage** warranty covering 100 percent parts and labor. The warranty will be provided by Allison Transmission.

Note: The transmission cooler is not covered under any extended warranty you may be getting on your Allison Transmission. Please review your Allison Transmission warranty for coverage limitations.

### **TRANSMISSION COOLER WARRANTY**

The transmission cooler will carry a five (5) year parts and labor warranty (exclusive to the transmission cooler). In addition, a collateral damage warranty will also be in effect for the first three (3) years of the warranty coverage and will not exceed \$10,000 per occurrence. A copy of the warranty certificate will be submitted with the bid package.

### **WATER TANK WARRANTY**

A UPF poly water tank limited warranty certificate, WA0195, is included with this proposal.

### **TEN (10) YEAR STRUCTURAL INTEGRITY**

The Pierce apparatus body limited warranty certificate, WA0009, is included with this proposal.

### **ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY**

A Gortite roll-up door limited warranty will be provided. The mechanical components of the roll-up door will be warranted against defects in material and workmanship for the lifetime of the vehicle. A **six (6) year** limited warranty will be provided on painted and satin roll up doors.

The limited warranty certificate, WA0190, is included with this proposal.

### **SEVEN (7) YEAR PARTS, ONE (1) YEAR LABOR**

The pump and its components will be provided with a seven (7) year parts and one (1) year labor limited warranty. The manufacturer's warranty will provide that the pump and its components will be free from failures caused by defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate will be submitted with the bid package.

### **TEN (10) YEAR PUMP PLUMBING WARRANTY**

The Pierce apparatus plumbing limited warranty certificate, WA0035, is included with this proposal.

### **TWENTY (20) YEAR AERIAL DEVICE STRUCTURAL INTEGRITY WARRANTY**

The Pierce device limited warranty certificate, WA0052, is included with this proposal.

### **AERIAL SWIVEL WARRANTY**

An Amity five (5) year limited swivel warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.

**HYDRAULIC SYSTEM COMPONENTS WARRANTY**

Aerial hydraulic system components will be provided with a five (5) year material and workmanship limited warranty.

**HYDRAULIC SEAL WARRANTY**

Aerial hydraulic seals will be provided with a three (3) year material and workmanship limited warranty.

A copy of the warranty certificates will be submitted with the bid package.

**AERIAL WATERWAY WARRANTY**

An Amity ten (10) year limited waterway warranty will be provided. A copy of the warranty certificate will be submitted with the bid package.

**FOUR (4) YEAR PRO-RATED PAINT AND CORROSION**

A Pierce aerial device limited pro-rated paint warranty certificate, WA0047, is included with this proposal.

**TWO (2) YEAR GENERATOR MATERIAL AND WORKMANSHIP WARRANTY**

A Harrison Hydra-Gen generator two (2) year limited warranty will be provided.

**TEN (10) YEAR PRO-RATED PAINT AND CORROSION**

A Pierce body limited pro-rated paint warranty certificate, WA0057, is included with this proposal.

**THREE (3) YEAR MATERIAL AND WORKMANSHIP**

The Pierce Goldstar gold leaf lamination limited warranty limited warranty certificate, WA0018, is included with this proposal.

**VEHICLE STABILITY CERTIFICATION**

The fire apparatus manufacturer will provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification will be provided at the time of bid.

**ENGINE INSTALLATION CERTIFICATION**

The fire apparatus manufacturer will provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The certification will be provided at the time of delivery.

**POWER STEERING CERTIFICATION**

The fire apparatus manufacturer will provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification will be provided at the time of bid.

**CAB INTEGRITY CERTIFICATION**

The fire apparatus manufacturer will provide a cab crash test certification with this proposal. The certification will state that a specimen representing the substantial structural configuration of the cab has been tested and certified by an independent third party test facility. Testing events will be documented with photographs, real-time and high-speed video, vehicle accelerometers, cart accelerometers, and a laser speed trap. The fire apparatus manufacturer will provide a state licensed

professional engineer to witness and certify all testing events. Testing will meet or exceed the requirements below:

- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.
- European Occupant Protection Standard ECE Regulation No.29.
- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.

### **Side Impact**

The cab will be subjected to dynamic preload where a 14,320-lb moving barrier is slammed into the side of the cab at 5.50 mph, striking with an impact of 13,000 ft-lb of force. This test is part of the SAE J2422 test procedure and more closely represents the forces a cab will see in a rollover incident.

### **Frontal Impact**

The same cab will withstand a frontal impact of 32,600 ft-lb of force using a moving barrier in accordance with SAE J2420.

### **Additional Frontal Impact**

The same cab will withstand a frontal impact of 65,098 ft-lb of force using a moving barrier. (Twice the force required by SAE J2420)

### **Roof Crush**

The cab will be subjected to a roof crush force of 22,500 lb. This value meets the ECE 29 criteria, and is equivalent to the front axle rating up to a maximum of ten (10) metric tons.

### **Additional Roof Crush**

The same cab will be subjected to a roof crush force of 110,000 lbs. (Four and a half times the load criteria of ECE 29)

The same cab will withstand all tests without any measurable intrusion into the survival space of the occupant area.

There will be no exception to any portion of the cab integrity certification. Nonconformance will lead to immediate rejection of bid.

### **CAB DOOR DURABILITY CERTIFICATION**

Robust cab doors help protect occupants. Cab doors will survive a 200,000 cycle door slam test where the slamming force exceeds 20 G's of deceleration. The bidder will certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.

### **WINDSHIELD WIPER DURABILITY CERTIFICATION**

Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers will survive a 3 million cycle durability test in accordance with section 6.2 of SAE J198 *Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles*. The bidder will certify that the wiper system design has been tested and that the wiper system has met these criteria.

### **ELECTRIC WINDOW DURABILITY CERTIFICATION**

Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design will complete 30,000 complete up-down cycles and still function normally when finished. The bidder will certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.

### **SEAT BELT ANCHOR STRENGTH**

Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design will withstand 3000 lb of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The bidder will certify that each anchor design was pull tested to the required force and met the appropriate criteria.

### **SEAT MOUNTING STRENGTH**

Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design will be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The bidder will certify, at time of delivery, that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.

### **PERFORMANCE CERTIFICATIONS**

#### **Cab Air Conditioning**

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system will cool the cab from a heat-soaked condition at 100 degrees Fahrenheit to an average of 78 degrees Fahrenheit in 30 minutes. The bidder will certify that a substantially similar cab has been tested and has met these criteria.

#### **Cab Defroster**

Visibility during inclement weather is essential to safe apparatus performance. The defroster system will clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure And Performance Requirements - Trucks, Buses, And Multipurpose Vehicles. The bidder will certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.

#### **Cab Auxiliary Heater**

Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. An auxiliary cab heater will warm the cab 77 degrees Fahrenheit from a cold-soak, within 30 minutes when tested using the coolant supply methods found in SAE J381. The bidder will certify, at time of delivery, that a substantially similar cab has been tested and has met these criteria.

### **AMP DRAW REPORT**

The bidder will provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus will provide the following:

- Documentation of the electrical system performance tests.
- A written load analysis, which will include the following:
  - The nameplate rating of the alternator.
  - The alternator rating under the conditions specified per:
    - Applicable NFPA 1901 or 1906 (Current Edition).
  - The minimum continuous load of each component that is specified per:
    - Applicable NFPA 1901 or 1906 (Current Edition).
  - Additional loads that, when added to the minimum continuous load, determine the total connected load.
  - Each individual intermittent load.

All of the above listed items will be provided by the bidder per the applicable NFPA 1901 or 1906 (Current Edition).

Pierce Manufacturing Inc.

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AN OSHKOSH CORPORATION COMPANY  
2600 AMERICAN DRIVE  
POST OFFICE BOX 2017  
APPLETON, WISCONSIN 54912-2017  
920-832-3000 . FAX 920-832-3208  
www.piercemfg.com

August 07, 2023

Santaquin City Fire Department  
45 West 100 South  
Santaquin ,UT,  
Bid:1089

**Statement of Exceptions  
NFPA 1901 Standard for Automotive Fire Apparatus 2016 Edition**

The following items will not be in accordance with NFPA at the time of delivery from Pierce Manufacturing.

**HELMET STORAGE PROVIDED BY FIRE DEPARTMENT**

NFPA 1901, 2016 edition, section 14.1.7.4.1 requires a location for helmet storage be provided.

There is no helmet storage on the apparatus as manufactured. The fire department will provide a location for storage of helmets.

**PORTABLE HAND LIGHTS, PROVIDED BY FIRE DEPARTMENT**

NFPA 1901, 2016 edition, section 9.9.4 requires two portable hand lights mounted in brackets fastened to the apparatus.

The hand lights are not on the apparatus as manufactured. The fire department will provide and mount these hand lights.

**ADDITIONAL FOLDING LADDER**

There will be one (1) Little Giant Classic Model 17 - 10102 folding ladder provided by the fire department. The ladder(s) will be located floor of RS3.

**NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE DEPARTMENT**

The following loose equipment as outlined in NFPA 1901, 2016 edition, section 9.9.3 and 9.9.4 will be provided by the fire department.

- 800 ft (240 m) of 2.50" (65 mm) or larger fire hose, in any combination.



- 400 ft (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose, in any combination.
- One (1) handline nozzle, 200 gpm (750 L/min) minimum.
- Two (2) handline nozzles, 95 gpm (360 L/min) minimum.
- One (1) playpipe with shutoff and 1.00" (25 mm), 1.125" (29 mm), and 1.25" (32 mm) tips.
- One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.
- One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s).
- One (1) first aid kit.
- Four (4) salvage covers, each a minimum size of 12 ft × 14 ft (3.6 m × 5.5 m).
- Four (4) combination spanner wrenches.
- Two (2) hydrant wrenches.
- One (1) double female 2.50" (65 mm) adapter with National Hose threads.
- One (1) double male 2.50" (65 mm) adapter with National Hose threads.
- One (1) rubber mallet, for use on suction hose connections.
- Four (4) ladder belts meeting the requirements of NFPA 1983.
- One (1) 150 ft (45 m) light-use life safety rope meeting the requirements of NFPA 1983.
- One (1) 150 ft (45 m) general-use life safety rope meeting the requirements of NFPA 1983.
- One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.
- Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.
- Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.
- One (1) automatic external defibrillator (AED).
- If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, will be carried mounted in brackets fastened to the apparatus.
- If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side will be carried. Any intake connection larger than 3.00" (75 mm) will include a pressure relief device that meets the requirements of 16.6.6.
- If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake will be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.
- If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters will be carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to

allow the hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.

#### **DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE DEPARTMENT**

NFPA 1901, 2016 edition, section 9.9.4 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

#### **WATER EXTINGUISHER PROVIDED BY FIRE DEPARTMENT**

NFPA 1901, 2016 edition, section 9.9.4 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The fire department will provide and mount the extinguisher.

#### **FLATHEAD AXE PROVIDED BY FIRE DEPARTMENT**

NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) flathead axe mounted in a bracket fastened to the apparatus.

The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.

#### **PICKHEAD AXE PROVIDED BY FIRE DEPARTMENT**

NFPA 1901, 2016 edition, Section 9.9.4 requires one (1) pickhead axe mounted in a bracket fastened to the apparatus.

The axe is not on the apparatus as manufactured. The fire department will provide and mount the axe.

Upon signing below, the Fire Department acknowledges that it has received this Statement of Exceptions to NFPA 1901. This statement specifically describes each aspect of the completed apparatus that is not fully compliant with the requirements of the standard at the time of delivery.

\_\_\_\_\_  
Printed Name and Title, Fire Dept Representative

\_\_\_\_\_  
Signature, Fire Dept Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name and Title, Pierce Representative

\_\_\_\_\_  
Signature, Pierce Representative

\_\_\_\_\_  
Date



# Fire and Rescue Apparatus

## One (1) Year Material and Workmanship

### Basic Apparatus

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Portions of the apparatus manufactured by Pierce shall be free from defects in material and workmanship
Warranty Begins:	The date the apparatus is placed in service, or 60 days from the original buyer invoice date, whichever comes first.
Warranty Period Ends After:	Twelve (12) months.
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	No specific exclusions apply

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus



## SUPPLIER

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the purchaser who first puts the product in service ("Buyer"):

<b>Coverage:</b>	<b>Covers any failures of the engine which result, under normal use and service, from a defect in material or factory workmanship.</b>
<b>Warranty Begins:</b>	<b>The date of the original buyer invoice.</b>
<b>Warranty Period Ends After:</b>	<b>Five (5) years or 100,000 miles, whichever occurs first</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<b>See warranty for exclusions.</b>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

3/19/2021 WA0386

## **PACCAR ENGINE LIMITED WARRANTY**

### **PACCAR MX Warranty**

### **United States**

**THIS LIMITED WARRANTY (“LIMITED WARRANTY”) LISTS THE RESPECTIVE RIGHTS AND RESPONSIBILITIES OF PIERCE MANUFACTURING INC.’S END USER CUSTOMER THAT FIRST PUTS THE PACCAR ENGINE INTO SERVICE (“YOU” or “FIRST PURCHASER”), PACCAR INC (“PACCAR”), AND THE SERVICING PACCAR ENGINE DISTRIBUTORS (“AUTHORIZED DISTRIBUTORS”). PLEASE READ THIS LIMITED WARRANTY CAREFULLY.**

PACCAR warrants directly to You that the PACCAR MX engine and related kitted parts (collectively, the “Engine”) will be free from defects in materials and factory workmanship (“Warrantable Failures”) appearing under normal commercial use and service during the time, mileage or hour limitations set forth in the attached Warranty Schedule. **This Engine warranty extends only to You, and not any subsequent owner or user of the Engine.** The Emissions warranty is made to all owners of the Engine in the chain of distribution until the end of the Emissions warranty coverage period. Warranty coverage relating to the Emissions components is outlined in the Emissions Warranty section of the PACCAR MX Operator’s Manual, the terms and conditions of which are incorporated herein by reference.

YOUR SOLE AND EXCLUSIVE REMEDY AGAINST PACCAR AND ITS SUBSIDIARIES AND AFFILIATES ARISING FROM YOUR PURCHASE AND USE OF THIS ENGINE IS LIMITED TO THE REPAIR OR REPLACEMENT OF WARRANTABLE FAILURES AT AUTHORIZED DISTRIBUTORS IN THE UNITED STATES AND CANADA AND IS SUBJECT TO PACCAR’S TIME, MILEAGE, AND HOUR LIMITATIONS LISTED IN THE ATTACHED WARRANTY SCHEDULES. The maximum time, mileage and hour limitations in the Warranty Schedules begin running on the Date of Delivery to the First Purchaser. **The accrued time, mileage, or hours is calculated when this Engine is brought into an Authorized Distributor for correction of Warrantable Failures.**

#### **WARRANTY DISCLAIMER AND LIMITATIONS OF LIABILITY (ENGINE AND EMISSIONS)**

**This Limited Warranty is the sole warranty made by PACCAR and its Authorized Distributors to You relating to the Engine. Except for the above limited express warranty, PACCAR and its Authorized Distributors make no other warranties to You, express or implied. PACCAR AND ITS AUTHORIZED DISTRIBUTORS EXPRESSLY DISCLAIM ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

IT IS AGREED THAT PACCAR AND ITS AUTHORIZED DISTRIBUTORS SHALL NOT BE LIABLE TO YOU FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO: LOSS OF INCOME OR LOST PROFITS; ENGINE OR VEHICLE DOWNTIME; THIRD PARTY DAMAGE, INCLUDING DAMAGE OR LOSS TO OTHER ENGINES, VEHICLES OR PROPERTY, ATTACHMENTS, TRAILERS AND CARGO; LOSS OR DAMAGE TO PERSONAL CONTENTS; COMMUNICATION EXPENSES; LODGING AND/OR MEAL EXPENSES; FINES; APPLICABLE TAXES OR BUSINESS COSTS OR LOSSES; ATTORNEYS’ FEES; AND ANY LIABILITY YOU MAY HAVE IN RESPECT TO ANY OTHER PERSON OR ENTITY.

This warranty does not apply to parts or accessories supplied by the vehicle manufacturer or third parties.

Failures of belts and hoses supplied by PACCAR are covered during the first year from the Date of Delivery of the Engine to the First Purchaser. PACCAR does not warrant antifreeze, lubricants, filters, filter elements, or any other part that is a maintenance or repair item. However, in its sole discretion, PACCAR may pay for lubricating oil, antifreeze, filter elements, belts, hoses, and other maintenance or repair items if the need for replacing such items is due to a Warrantable Failure of the Engine.

You are responsible for the safe operation and maintenance of the Engine and Emissions equipment as specified in the applicable Operator’s Manuals. You are responsible for providing proof that all recommended inspections and maintenance have been performed. Before the expiration of the applicable warranty, You must notify an Authorized Distributor of any Warrantable Failures and make the Engine available for Engine repair by such Authorized Distributor. You are responsible for delivery of the Engine to the Authorized Distributor. Locations in the United States and Canada of Authorized Distributors may be found at [WWW.PACCARPOWERTRAIN.COM](http://WWW.PACCARPOWERTRAIN.COM).

PACCAR IS NOT RESPONSIBLE FOR WEAR AND TEAR OR WEAROUT OF COVERED PARTS, storage deterioration, and changes in adjustment resulting from your use of the Engine. Damage due to accident, misuse, abuse, neglect, negligence, improper or insufficient maintenance, or unauthorized modification is not warranted. This may include, but is not limited to: operation without adequate coolants, lubricants, or other fluids; over-fueling; over-speeding; lack of maintenance of the lubricating, cooling or air intake systems; improper storage, starting, warm-up, run-in or shutdown practices; and unauthorized modifications to the Engine. **PACCAR is not responsible for damage or loss resulting from Engine horsepower/torque upgrades.**

Parts used to repair a Warrantable Failure may be new parts, approved remanufactured parts, or repaired parts. PACCAR is not responsible for failures resulting from the use of parts not approved by PACCAR. A new or approved remanufactured part used to repair a Warrantable Failure assumes the identity of the part it has replaced and is entitled to the remaining warranty coverage, if any.

PACCAR IS NOT RESPONSIBLE FOR DAMAGE OR LOSSES CAUSED BY INCORRECT OIL, FUEL, DIESEL EXHAUST FLUID, COOLANT, OR ADDITIVES; WATER, DIRT OR OTHER CONTAMINANTS IN THE FUEL, OIL OR DIESEL EXHAUST FLUID; OPERATION WITHOUT ADEQUATE COOLANTS OR LUBRICANTS; OVER-FUELING; OVER-SPEEDING; IMPROPER STORAGE, STARTING, WARM-UP, RUN-IN OR SHUT-DOWN PRACTICES; OR UNAUTHORIZED MODIFICATIONS OF THE ENGINE. Failure of replacement parts used in repairs due to the above non-warrantable conditions is not warrantable.

If your vehicle is disabled by a Warrantable Failure to the Engine during the base warranty period, PACCAR is not responsible for towing expenses to transport the vehicle to the nearest Authorized Distributor. In lieu of the towing expense and at the sole discretion of PACCAR,

PACCAR will pay the reasonable costs of an authorized mechanic to travel to and from the location of the disabled Vehicle in order to perform the Engine repair.

PACCAR will pay for reasonable labor costs for Engine removal and reinstallation when necessary to repair a Warrantable Failure.

Warrantable Failures resulting in excessive oil consumption will be handled within the basic Engine coverage as stated in the attached Engine Schedule. Before a claim for excessive oil consumption, low power, or excessive fuel consumption will be considered for payment, You must submit adequate documentation to show that consumption exceeds PACCAR published standards

PACCAR reserves the right to inspect and download data from the Engine Electronic Control Module for purpose of failure analysis unless prohibited by applicable law.

**TIME LIMIT ON COMMENCING LEGAL ACTION / OTHER TERMS**

IT IS AGREED THAT YOU HAVE 12 MONTHS FROM THE ACCRUAL OF THE CAUSE OF ACTION TO COMMENCE ANY LEGAL ACTION ARISING FROM THE PURCHASE OR USE OF THE ENGINE, OR BE BARRED FOREVER.

To the extent any provision of this limited warranty is found to contravene the law of any jurisdiction, the remainder of the warranty shall not be affected thereby.

**PACCAR ENGINE LIMITED WARRANTY SCHEDULE**  
**PACCAR MX Warranty**  
**United States**

THIS ENGINE WARRANTY SCHEDULE APPLIES ONLY TO ORIGINAL FACTORY EQUIPMENT AND IS SUBJECT TO THE TERMS AND LIMITATIONS IN THE ATTACHED LIMITED WARRANTY. This Engine Warranty Schedule does not apply to the vehicle which is warranted separately. Pursuant to the terms of the attached Limited Warranty, PACCAR Inc ("PACCAR") will pay warranty claims for Warrantable Failures within the following maximum limits in time, mileage, or hours, **whichever shall occur first**. The Warrantable Failure must be brought to the attention of an Authorized Distributor within 30 days of discovery.

**PACCAR MX Engine**

**Basic Engine -Twenty-four (24) months or 250,000 miles (or 400,000 km) or 6,250 hours -** (all applications except fire apparatus)

**Fire Apparatus Truck Applications Basic Engine - Sixty (60) months or 100,000 miles (or 160,000 km) or 6,250 hours**

**Major Engine Components - Sixty (60) months or 500,000 miles or 12,500 hours**

- |                         |                           |                     |                    |
|-------------------------|---------------------------|---------------------|--------------------|
| Cylinder Block Casting  | Crankshaft                | Lube Pump Gear      | Flywheel Housing   |
| Main Bearing Bolts      | Camshaft                  | Crankshaft Gear     | Water Pump Housing |
| Cylinder Head Casting   | Cam Follower Assemblies   | Camshaft Gear       | Thermostat Housing |
| Cylinder Head Capscrews | Connecting Rod Assemblies | Camshaft Idler Gear |                    |



**R. H. SHEPPARD CO., INC.**  
101 Philadelphia St.  
Hanover, PA 17331  
**Pierce Manufacturing Inc.**  
2600 American Drive  
Appleton, WI 54912

**LIMITED WARRANTY:** The R. H. Sheppard Co. Inc., (“Sheppard”) warrants all M110PKG1 and M110SAU1 steering gears manufactured and sold to Pierce Manufacturing Inc. (“Pierce”) for application on Pierce TAK-4 equipped vehicles to be free from defects of workmanship and material under normal use and service for a period of thirty six months from the in service date of the vehicle to its original owner.

Vehicle applications where Sheppard product is used require an application approval before production build. If Pierce uses Sheppard product for any purpose or application which has not been approved by Sheppard in advance, including aftermarket devices (defined as a device added to the steering system directly or indirectly affecting the performance or operation of the Sheppard product in its approved application) not tested and approved by Sheppard this limited warranty **SHALL NOT APPLY AND SHALL BE VOID. SHEPPARD MAKES NO OTHER WARRANTY, EITHER EXPRESS OR IMPLIED. SHEPPARD EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.** **SHEPPARD SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES OR FOR LOSS OR DAMAGE DIRECTLY OR INDIRECTLY ARISING FROM THE USE OF A PRODUCT.** Pierce expressly acknowledges its obligation to inform all users (customers) of the above disclaimer.

**CONDITIONS:** Claims under this Limited Warranty may only be made by Pierce. In no event shall Sheppard be held liable for warranty charges by unauthorized persons. No allowance will be made for repairs or alterations, unless made with the written consent of Sheppard. Authorized Pierce dealers shall be the only authorized repair facility for Sheppard products applied to Pierce vehicles. Any warrantable repair made under this Limited Warranty must be made on or before 36 months of the in-service date for the Product to which the claim relates. Sheppard shall not be liable for claims made after such date. Sheppard product fitted to Pierce vehicles that are repaired at a repair facility other than an authorized Pierce dealer within the warranty period will be considered for payment under the guidelines of this agreement only by joint written consideration of Sheppard and Pierce warranty departments. It shall be the responsibility of the Pierce warranty department to notify Sheppard if and when this situation occurs. Sheppard will not be held responsible for damage to other steering components such as but not limited to pumps and reservoirs due to improper adjustment of steering gear relief plungers. Vehicle downtime and towing will not be considered under warranty.

**REMEDIES:** The sole and exclusive remedy of Pierce for Sheppard’s breach of the foregoing warranty is limited to the return and repair or reimbursement as follows:

**R. H. SHEPPARD CO., INC. WARRANTY**  
**Pierce Manufacturing Inc.**  
**Page 2**

**Warranty Support:** In support of the Pierce dealer network, Sheppard will provide a toll-free “Hotline” service to assist in the diagnosis and troubleshooting of steering problems. The R. H. Sheppard Co., Inc. Field Service Department can be reached at 1-800-274-7437 for assistance. Sheppard will require that Pierce dealers contact this toll-free “Hotline” for approval before product is removed from a vehicle in a warranty situation. When contacted regarding a warranty situation, the Sheppard representative will provide an authorization number for removal of the product. This Returned Goods Authorization (RGA) number must be included in all warranty correspondence and attached to all returned goods.

**Procedure:** In the event of a warranty situation, the servicing dealer shall contact the Sheppard Hotline and receive an RGA number before replacing any steering gear. For M110PKG1 and M110SAU1 steering gear models, the dealer will first obtain an RGA number from Sheppard, and then order the replacement gear from Pierce. Replacement M110PKG1 and M110SAU1 steering gears shall be shipped from Pierce once those models are in full production. A warranty claim for both parts and labor will then be generated by the dealer and sent to Pierce. After reviewing the claim, Pierce will submit it to Sheppard for reimbursement.

**Parts Reimbursement:** Sheppard agrees to reimburse Pierce at Pierce’s purchase price plus 30% mark-up for parts found to be defective within the warranty period. Parts being returned for warranty consideration shall be sent to the R. H. Sheppard Company, 447 E. Middle St., Hanover, PA 17331 ATTN: Warranty Dept. Sheppard’s determination as to whether the part is covered by the foregoing warranty is final and conclusive. Sheppard requires the return of complete steering gears only. Individual seals replaced under warranty **should not** be returned unless specifically requested by Sheppard. All parts being returned for warranty consideration must be clearly tagged with all pertinent warranty information including, but not limited to (1) Returned Goods Authorization number (RGA); (2) claim number; (3) date in service; (4) date of failure; (5) mileage; (6) part number; (7) labor hours; (8) dealer labor rate and; (9) dollar amount claimed. Claims submitted without prior authorization are subject to rejection under this agreement.

**Labor:** Labor to repair Sheppard product found to be defective within the warranty period will be reimbursed at not more than 10 hours per vehicle. Labor shall be reimbursed at the rate of \$85.00 USD per hour for M110PGK1 and M110SAU1 steering gears.

**Freight:** Pierce will collect M110PGK1 and M110SAU1 warranty material at a designated collection point. Inbound freight to the Pierce collection point will be the responsibility of Pierce. All warranty material should be returned from the Pierce collection point to R. H. Sheppard Co. Freight Collect by a Sheppard-specified common carrier based on location of the Pierce collection point. Sheppard does not require the return of failed seals. Any freight charges incurred for the return of seals will be the responsibility of Pierce. Parts returned for warranty consideration without prior authorization are subject to rejection under this agreement and may be subject to a charge back of inbound freight charges. Parts rejected under this warranty will be returned to Pierce Freight Collect or scrapped by Sheppard at Pierce’s discretion.

**R. H. SHEPPARD CO., INC. WARRANTY**  
**Pierce Manufacturing Inc.**  
**Page 3**

**Outside Purchases:** Pierce authorized dealers shall be the only outlet for repair, warranty service and parts for Sheppard products applied to Pierce vehicles. Sheppard will not be responsible for consumables such as hoses, belts, fluids, fittings or miscellaneous shop material that may be required for the repair of the product.

**Warranty Documentation:** Warranty credit memos will be issued monthly to the Pierce Warranty Department. Monthly credit memos will include (1) claim number; (2) part number; (3) parts reimbursement; (4) labor reimbursement; (5) any applicable Pierce reference number and; (6) reason for rejection or acceptance of the claim. Credit memos will be issued in U.S. funds. Debits for warranty claims will not be accepted under this agreement. Claim disposition will constitute the final and conclusive resolution of warranty claims.

**Parts Retention:** Sheppard will retain parts submitted for warranty consideration for a period of sixty (60) days for any material found to be rejected for warranty. Sheppard will notify Pierce within sixty (60) days of receipt of Sheppard's determination as to whether any such part is covered by this warranty. Warranty reimbursement will be issued within thirty days of receipt of material at Sheppard.

**Good-Will Requests:** Good-Will requests will be considered jointly between Sheppard and Pierce for equitable compensation.

**RECALLS:** Sheppard retains the right to review information regarding federal motor vehicle recall and /or product repair programs if Sheppard products fitted to Pierce vehicles are alleged to be non-compliant with federal motor vehicle safety standards. Sheppard retains the right to review any claims of product defect or non-compliance before participating in reimbursement of expenses incurred as a result of alleged non-compliance or defect of its products. Sheppard agrees to negotiate in good faith for the reimbursement of expenses incurred by Pierce for all administrative, material and labor cost and expense associated with any recall where Sheppard product is found to be defective or non-compliant with federal motor vehicle standards.

**MISCELLANEOUS:** This writing constitutes the full complete and final statement of Sheppard's limited warranty for M110PKG1 and M110SAU1 products sold to Pierce. All prior oral or written correspondence, test data, negotiations, representations, understandings and the like regarding products are merged in this writing and extinguished by it. This limited warranty may not be altered, amended extended or modified except by a writing signed by the President or Vice President of Sheppard. No employee, vendor, dealer, distributor or other representative of Sheppard has authority to make statements to extend, expand, alter or amend the terms of this Limited Warranty. Sheppard expressly disclaims any statements contrary to the Limited Warranty. Sheppard's failure at any time to enforce any of the terms and conditions stated herein shall not constitute a waiver of any provisions herein. This Limited Warranty shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania.

**R. H. SHEPPARD CO., INC. WARRANTY**  
**Pierce Manufacturing Inc.**  
**Page 4**

Any legal actions which may arise as a result of disputes, controversies or claims arising out of or related to this limited warranty shall be in such forum as Sheppard and Pierce shall agree, or, in the absence of agreement, in a court of appropriate jurisdiction other than in the county in which either party is located. This Limited Warranty shall not be assigned by Pierce.

**COOPERATIVE EFFORT:** Sheppard and Pierce agree to work cooperatively toward expanding this warranty coverage to a period of sixty months from the in service date. These cooperative efforts shall focus on examining the effects of increased heat generated by 2007 model engines and its impact on the entire power steering system.

**AGREEMENT:** This agreement is effective April 3, 2006 and may be modified by mutual agreement between Sheppard and Pierce of a signed amendment to be attached to the original Limited Warranty. There are no third party beneficiaries to this Limited Warranty. This warranty agreement applies to Pierce authorized dealers only. It does not encompass any special arrangements that Pierce may now have or that Pierce may enter into, with any other segments of the trucking industry. This warranty agreement does not apply to non-conforming product removed at Pierce assembly plants.

This Limited Warranty agreement between the R. H. Sheppard Co., Inc and Pierce Manufacturing Inc. may be terminated by either party with thirty days written notice prior to termination.

Signed at Pierce Manufacturing Inc., Appleton, WI this \_\_\_\_\_ day of \_\_\_\_\_, 2006.

**R. H. SHEPPARD CO., INC.**

**PIERCE MANUFACTURING INC.**

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title



# Fire and Rescue Apparatus

## Lifetime Fifty (50) Year Structural Integrity Custom Chassis Frame Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Custom chassis frame rail manufactured by Pierce shall be free from defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Fifty (50) Years (Expected Life of Apparatus)
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This warranty does not apply to damage caused by corrosion.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus

## Three (3) Year Material and Workmanship TAK-4 Independent Front Suspension

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The TAK-4 Front Independent Suspension and Steering Gears shall be free from defects in material and workmanship.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Three (3) Years -or- 30,000 Miles
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This limited warranty excludes brake pads, brake rotors, seal boots and shock absorbers.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus



## SUPPLIER

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the purchaser who first puts the product in service ("Buyer"):

<b>Coverage:</b>	<b>The Meritor axle shall be covered by Meritor as indicated in the attached Meritor warranty coverage description</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Five (5) Years</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<b>The exclusions listed in the attached Meritor warranty description shall apply.</b>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

6/29/2020 WA0384



# MERITOR® COMMERCIAL VEHICLE SYSTEMS

WARRANTY/MODEL YEAR 2020 VEHICLES



**MERITOR**







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## How to Read Warranty Coverage

Number of Years	Mileage (in thousands) Unl=Unlimited	P=Parts Only P&L=Parts & Labor
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**Notice:**

Models or components that are approved for use by Meritor’s vocational guidelines contained in Meritor Publication TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, which are not specifically listed, are warranted for one year, unlimited miles, parts only (1/Unl/P).

Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

### Advantage Program

Purchasing additional coverage on select components will continue to safeguard your investment against major repair costs after the initial base coverage expires. You can find out more about the Advantage Program by visiting [www.meritor.com](http://www.meritor.com) or by contacting Meritor at 866-OnTrac1 (866-668-7221).



# LINEHAUL WARRANTY INFORMATION

## Linehaul Vehicles

- Bulk Hauler
- Chip Hauler (Truck)\*
- Doubles
- Flatbed
- General Freight
- Grain Hauler
- Livestock Hauler
- Moving Van
- Pipe Hauler
- Refrigerated Freight
- Tanker
- Triples

\* Chip Hauler vehicles require specific axle models listed below and Linehaul condition to be eligible for Linehaul warranty consideration.

## Linehaul Typically Is

- High mileage operation (over 60,000 miles/year)
- Well maintained major highways of concrete or asphalt construction
- Greater than 30 miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 5/750/P&L

FD-965	FF-967	MFS-12-122B-N	MFS-12-132C-N	MFS-13-122B-N	MFS-13B-122C-N
FF-941	FG-941	MFS-12-122C-N	MFS-12E-132B-N	MFS-13-122C-N	MFS-13B-132B-N
FF-942	FG-943	MFS-12E-122A-N	MFS-12E-132C-N	MFS-13-132B-N	MFS-13B-132C-N
FF-943	MFS-10-122A	MFS-12E-122B-N	MFS-12-143A-N	MFS-13-132C-N	MFS-14-122A-N
FF-944	MFS-10-143A-N	MFS-12E-122C-N	MFS-12E-143A-N	MFS-13-143A-N	MFS-14-124A-N
FF-961	MFS-10-144A-N	MFS-12-124A-N	MFS-12-144A-N	MFS-13-144A-N	MFS-14-143A-N
FF-966	MFS-12-122A-N	MFS-12-132B-N	MFS-13-122A-N	MFS-13B-122B-N	MFS-14-144A-N

## Rear Drive Single Axles – 5/750/P&L

RS-19-144/145/A	RS-21-145	RS-23-160
MS-19-14X	RS-21-160	RS-23-161
MS-21-144	MS-23-17X	RS-23-186

## Rear Drive Tandem/Tridem Axles – 5/750/P&L

RT-34-144/P/A	MA-40-165	MT-40-14XHE
RT-40-145/A	MA-40-175	MT-40-144/P
RT-40-160/P <sup>1,2</sup>	MT-34-14X/P	MT-40-943
RT-46-160/P <sup>1,2</sup>	MT-40-14T/P	MT-40-943-SP
RT-46-164EH/P <sup>1,2</sup>	MT-40-14X/P	RZ-166 <sup>2</sup>
RT-50-160/P <sup>1,2</sup>	MT-40-14X/P	RZ-188

## Drivelines

RPL	5/500/P, 1/Unl/P&L
MXL	3/350/P, 1/Unl/P&L
155N	1/Unl/P
92N	1/Unl/P

<sup>1</sup> These models required for Chip Hauler and Linehaul warranty consideration.  
<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



# LINEHAUL WARRANTY INFORMATION

## Brake Components

Cam Q Series Trailer Brakes	5/500/P, 1/100/L
Q+ Drum Brake™	5/500/P, 1/Unl/P&L
ASA	5/500/P, 1/Unl/P&L
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
STEELite X30 Drum Brake™ <sup>2</sup>	12-Years or Wearable Life/P
EX+ Air Disc Brake™	5/500/P, 1/Unl/L
EX+ Air Disc Brake Extended Standard Warranty <sup>3</sup>	5/500/P&L

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 3/500/P&L.

<sup>2</sup> Based on stamped wear diameter max.

<sup>3</sup> Applies only to MA761 friction material code CD brake assembly i.e. EX225LXXXCDXXX

## Trailer Axles

Beam and Brackets	5/500/P, 1/100/L
Wheel End Systems <sup>1</sup>	
Standard System <sup>2</sup>	1/100/P&L
PreSet by Meritor <sup>3</sup>	5/500/P&L
AxlePak <sup>4</sup>	5P/L
AxlePak <sup>5</sup>	7P/L

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>2</sup> When installed by Meritor.

<sup>3</sup> Requires approved hubcap stating PreSet by Meritor on hubcap face.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/Unl/P, 1/Unl/L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/Unl/P, 1/Unl/L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## TAG/Pusher Axles<sup>1</sup>

TQ, TQD, TR, TRD Beam and Brackets	5/750/P&L
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<sup>1</sup> For brake components and ABS Coverage, refer to appropriate product warranties.

## Meritor Tire Inflation System

MTIS Components	5/Unl/P, 1/Unl/L
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## Trailer Air Suspension Systems

MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup>	
Major Structural Components	5/500/P, 1/100/L
Curbing Damage Warranty <sup>2</sup>	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs	2/200/P, 1/100/L
Bushings	5/P, 3/L
PinLoc Air Controls	1/100/P&L
PinLoc Actuator	3/300/P&L
MPA20 (Single Axle Parallelogram)	
Major Structural Components	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs	2/200/P, 1/100/L
Bushings	5/P, 3/L
MTA (Trailing Arm)	
Major Structural Components	5/500/P, 1/100/L
Height Control Valve	1/100/P&L
Shock Absorbers	2/200/P&L
Air Springs & Rebound Straps	2/200/P, 1/100/L
Bushings	5/500/P, 3/300/L

<sup>1</sup> Fastener torque coverage is limited to 2/Unl/P&L when torqued by Meritor (For axle and ABS coverage, refer to appropriate product warranties.)

<sup>2</sup> “Curbing damage” is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.



# GENERAL SERVICE WARRANTY INFORMATION

## General Service Vehicles

- Auto Hauler
- Beverage Truck
- Chip Hauler
- Cross Country Coach
- Flatbed
- Front Engine Commercial Chassis
- Front Engine Integral Coach
- General Freight
- Intercity Coach
- Intermodal Chassis
- Livestock Hauler
- Meat Packer
- Moving Van
- Municipal Truck
- Newspaper Delivery
- Pick-Up and Delivery
- Pipe Hauler
- Platform Auto Hauler
- Rear Engine Integral Coach
- Recreational Vehicles
- Refrigerated Freight
- School Bus
- Stake Truck
- Tanker
- Tanker Trailer
- Tour Bus
- Wrecker

## General Service Typically Is

- Lower mileage operations (less than 60,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 2/Uni/P&L

FD-965	FL-943	MFS-8-163B-N	MFS-12E-132B-N	MFS-13-132C-N	MFS-16-143A-N
FF-941	MFS-6-151A-N	MFS-10-122A	MFS-12-132C-N	MFS-13B-132B-N	MFS-18-133A-N
FF-942	MFS-6-153B-N	MFS-10-143A-N	MFS-12E-132C-N	MFS-13B-132C-N	MFS-18-135A-N
FF-943	MFS-6-162B-N	MFS-10-144A-N	MFS-12-143A-N	MFS-13-143A-N	MFS-18-193A-N
FF-944	MFS-6-153C-N	MFS-12-122A-N	MFS-12-144A-N	MFS-13-144A-N	MFS-20-133A-N
FF-946	MFS-6-162C-N	MFS-12E-122A-N	MFS-12E-143A-N	MFS-14-122A-N	MFS-20-135A-N
FF-961	MFS-7-113C-N	MFS-12-122B-N	MFS-13-122A-N	MFS-14-124A-N	MFS-20-192A-N
FF-966	MFS-7-153C-N	MFS-12E-122B-N	MFS-13-122B-N	MFS-14-143A-N	MFS-20-193A-N
FG-967	MFS-7-163C-N	MFS-12-122C-N	MFS-13B-122B-N	MFS-14-144A-N	MFS-22-135A-N
FG-941	MFS-8-113B-N	MFS-12E-122C-N	MFS-13-122C-N	MFS-16-122A-N	MFS-22H-135A-N
FH-941	MFS-8-143A-N	MFS-12-124A-N	MFS-13B-122C-N	MFS-16-133A-N	MFS-22-193A-N
FH-946 <sup>1</sup>	MFS-8-153B-N	MFS-12-132B-N	MFS-13-132B-N	MFS-16-135A-N	MFS-22H-193A-N
FL-941					

<sup>1</sup> Can also be used with reduced steer angles in tag position in Coach Applications.

## Front Drive/Non-Drive Steer Axles – 1/Uni/P&L

MX-08-130-FV (FSD-08A)	MX-16-130-FV (FSD-16A)	MX-21-130-SD (SDA-2100)
MX-10-130-FV (FSD-10A)	MX-18-130-FV (FSD-18A)	MX-23-130-FV (FSD-23A)
MX-12-130-FV (FSD-12A)	MX-18-130-SD (SDA-1800)	MX-23-130-SD (SDA-2300)
MX-13-130-FV (FSD-13A)	MX-20-130-FV (FSD-20A)	MX-29-130-FV (FSD-29A)
MX-14-130-FV (FSD-14A)	MX-21-130-FV (FSD-21A)	

## Rear Drive Tandem/Tridem - 3/Uni/P&L

RT-40-160/P	RT-50-160/P
RT-46-160/P	RZ-166
RT-46-164EH/P	

## Rear Drive Axles – 1/Uni/P&L

11170	RND-14H
523	RND-16A

## Drivelines

RPL	4/400/P, 1/Uni/P&L
MXL	3/350/P, 1/Uni/P&L
155N	1/Uni/P
92N	1/Uni/P

## Rear Drive Single Axles – 2/Uni/P&L

MS-17-13X	MS-21-14X	RC-23-160	RS-24-160	MS-30-616-SP
MS-17-14X	MS-21-144	RC-23-161	RC-25-160	RS-35-380
MS-19-13X	MS-23-17X	RC-23-162 <sup>1</sup>	RS-26-185	71162
MS-19-14X	RS-21-145/A	RC-23-165 <sup>1</sup>	MS-26-616	71163
RS-17-144/145/A	RS-21-160	RS-23-160	MS-26-616-SP	79163
RS-19-144/145/A	RC-22-145	RS-23-161	RS-30-185	
MS-21-13X	RC-22-145/A	RS-23-186	MS-30-616	

<sup>1</sup> 3/Uni/P&L if PreSet by Meritor.

## Rear Drive Tandem/Tridem Axles – 2/Uni/P&L

MT-34-14X/P	MT-40-14XHE	RT-44-145/P	MT-58-616
RT-34-144/P/A	MT-40-144/P	RT-46-169	RT-58-185 <sup>1</sup>
MT-40-14T/P	RT-40-145/A	MT-52-616	MT-70-380
MT-40-14X/P	MT-44-14X/P	RT-52-185 <sup>1</sup>	RZ-188

## Transmission – 1/Uni/P&L

516	FAT 30
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## PTO – 1/Uni/P&L

MPT-318	MPT-526	MPT-1702
MPT-500	MPT-531	MPT-175
MPT-510	MPT-543	MPT-185
MPT-518	MPT-170	MPT-190

<sup>1</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.



# GENERAL SERVICE WARRANTY INFORMATION

## Brake Components

Cam Q Series Trailer Brakes	3/Unl/P, 1/Unl/L
Cam P <sup>3</sup>	2/200/P
Cam	3/Unl/P
Q+ Drum Brake™	3/Unl/P&L
Q+ Drum Brake™ <sup>3</sup>	2/200/P&L
ASA	3/Unl/P
ASA <sup>3</sup>	2/200/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
STEELite X30 Drum Brake™ <sup>2</sup>	12-Years or Wearable Life/P
EX+ Air Disc Brake™	2/Unl/P&L

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

<sup>2</sup> Based on stamped wear diameter max.

<sup>3</sup> Applies to Tour Bus and Cross Country Coach only.

## Trailer Axles

Beam and Brackets <sup>1</sup>	5/Unl/P, 1/Unl/L
Wheel End Systems <sup>2</sup>	
Standard System <sup>3</sup>	1/Unl/P&L
AxlePak <sup>4</sup>	5/P&L
AxlePak <sup>5</sup>	7/P&L

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

<sup>4</sup> When specified with AxlePak5 wheel end system, coverage on MTIS thru-tee and stator is 5/Unl/P, 1/Unl/L.

<sup>5</sup> When specified with AxlePak7 wheel end system, coverage on MTIS thru-tee and stator is 7/Unl/P, 1/Unl/L.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## Chassis Axles (2000 Series/ChassiPak)

Beam & Brackets	6/Unl/P, 1/Unl/L
Wheel End Systems <sup>1</sup>	
Standard System	1/Unl/P&L
AxlePak7	7/P&L
Beam and Brackets	7/P, 1/L

<sup>1</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

## Trailer Air Suspension Systems

MPA38/40 (Tandem Axle Parallelogram) <sup>1</sup>	
Major Structural Components	5/Unl/P, 1/Unl/L
Curbing Damage Warranty <sup>2</sup>	5/500/P, 1/100/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings	5/P, 3/L
PinLoc Air Controls	1/Unl/P&L
PinLoc Air Actuator	3/Unl/P&L
MPA20 (Single Axle Parallelogram)	
Major Structural Components	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings	5/P, 3/L
MTA (Trailing Arm)	
Major Structural Components	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs and Rebound Straps	2/Unl/P, 1/Unl/L
Bushings <sup>3</sup>	5/Unl/P, 3/Unl/L

(For axle and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> Fastener torque coverage is limited to 2/Unl/P&L when torqued by Meritor

<sup>2</sup> "Curbing damage" is defined as deformation (bending, buckling, or breakage), caused by sudden impact with a curb or similar fixed object. Damage to the RideSentry slider box (the suspension sliding subframe, consisting of the frame rails, crossmembers, and central A-frame assembly), caused by accidental trailer impact with a curb or similar fixed object, is eligible for warranty coverage. Damage to other components or damage resulting from collision with another vehicle, rollover or fire is not covered under this provision. Warranty is not transferrable to another trailer VIN, and coverage does not apply if the trailer is deemed to be a total loss, scrapped, or otherwise not salvageable.

<sup>3</sup> Raw wood applications 3/Unl/P, 1/Unl/L

## TAG/Pusher Axles

TQ, TQD, TR, TRD Beam and Brackets <sup>1</sup>	3/Unl/P, 1/Unl/L
MC14002, MC16003, FH946	2/Unl/P&L

(For brake components and ABS coverage, refer to appropriate product warranties.)

<sup>1</sup> 3/Unl/P&L if sold with PreSet by Meritor.

## Meritor® Tire Inflation System

MTIS Components	5/Unl/P, 1/Unl/L
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# HEAVY SERVICE/SPECIALTY VEHICLE WARRANTY INFORMATION

## Heavy Service/Specialty Vehicle

- Airport Rescue Fire Fighting (ARFF)
- Airport Shuttle\*
- Asphalt Truck
- Block Truck
- Bottom Dump Trailer Combination
- Cementing Vehicle
- Commercial Pick-Up
- Concrete Pumper
- Construction Material Hauler
- Mixer
- Demolition
- Drill Rig
- Dump
- Equipment Hauling
- Flatbed Trailer Hauler
- Flatbed Truck
- Fracturing Truck
- Front Loader
- Geophysical Exploration
- Hopper Trailer Combinations
- Landscaping Truck
- Liquid Waste Hauler
- Log Hauling
- Lowboy
- Michigan Special Gravel Trains
- Michigan Special Log Hauler
- Michigan Special Steel Hauler
- Michigan Special Waste Vehicle
- Municipal Dump
- Rear Loader (Refuse)
- Recycling Truck
- Residential Pick-Up (Refuse)
- Rigging Truck
- Roll-Off
- Scrap Truck
- Semi-End Dump
- Sewer/Septic Vacuum
- Shuttle Bus\*
- Side Loader
- Snowplow/Snowblower
- Steel Hauling
- Tanker
- Tank Truck
- Tractors with Pole Trailers
- Tractor/Trailer with Jeeps
- Transfer Dump
- Transfer Vehicle
- Utility Truck
- Winch Truck

\*Commercial chassis only

### Heavy Service/Specialty Vehicle Typically Is

- Moderate mileage operation (less than 60,000 miles per year)
- On/Off road vocations (10% or more off-road)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

### Front Drive/Non-Drive Steer Axles – 2/Uni/P&L

FD-965	FL-941	MFS-10-143A-N	MFS-12-143A-N	MFS-13-144A-N	MFS-18-193A-N	MX-12-120
FF-941	FL-943	MFS-10-144A-N	MFS-12-144A-N	MFS-13-155	MFS-20-133A-N	MX-12-120 EVO
FF-942	MFS-6-151A-N	MFS-12-122	MFS-12-155	MFS-14-122	MFS-20-135A-N	MX-14-120
FF-943	MFS-6-153B	MFS-12E-122	MFS-13-122	MFS-14-124A-N	MFS-20-192A-N	MX-16-120
FF-944	MFS-6-162B	MFS-12-122B-N	MFS-13-122B-N	MFS-14-143A-N	MFS-20-193A-N	MX-18-120
FF-946	MFS-6-162C	MFS-12E-122B-N	MFS-13B-122B-N	MFS-14-144A-N	MFS-22-135A-N	MX-17-140
FF-961	MFS-7-113C-N	MFS-12-122C-N	MFS-13-122C-N	MFS-16-122A-N	MFS-22H-135A-N	MX-19-140
FF-966	MFS-7-153C-N	MFS-12E-122C-N	MFS-13B-122C-N	MFS-16-133A-N	MFS-22-193A-N	MX-21-140
FF-967	MFS-7-163C-N	MFS-12-124A-N	MFS-13-132B-N	MFS-16-135A-N	MFS-22H-193A-N	MX-21-160
FG-941	MFS-8-113B-N	MFS-12-132B-N	MFS-13B-132B-N	MFS-16-143A-N	RF-16-145	MX-23-160
FG-943	MFS-8-153B-N	MFS-12E-132B-N	MFS-13-132C-N	MFS-18-133A-N	RF-21-160	MX-810
FH-941	MFS-8-163B-N	MFS-12-132C-N	MFS-13B-132C-N	MFS-18-135A-N	MX-10-120	
FH-946	MFS-10-122A	MFS-12E-132C-N	MFS-13-143A-N	MFS-18-192A-N	MX-10-120 EVO	

### Front Drive/Non-Drive Steer Axles – 1/Uni/P&L

MX-08-130-FV (FSD-08A)	MX-16-130-FV (FSD-16A)	MX-21-130-SD (SDA-2100)
MX-10-130-FV (FSD-10A)	MX-18-130-FV (FSD-18A)	MX-23-130-FV (FSD-23A)
MX-12-130-FV (FSD-12A)	MX-18-130-SD (SDA-1800)	MX-23-130-SD (SDA-2300)
MX-13-130-FV (FSD-13A)	MX-20-130-FV (FSD-20A)	MX-29-130-FV (FSD-29A)
MX-14-130-FV (FSD-14A)	MX-21-130-FV (FSD-21A)	

### Rear Drive Axles – 1/Uni/P&L

11170	RND-14H
523	RND-16A

### Drivelines

RPL	3/Uni/P, 1/Uni/P&L
92N	1/Uni/P&L
MXL	1/Uni/P&L

### Rear Drive Single Axles – 2/Uni/P&L

MS-17-14X	RS-21-160	RS-24-160	MS-35-380
RS-17-144/145/A	RC-22-145	RS-25-160	RS-38-380
MS-19-14X	RC-23-160	MS-26-616	RC-25-160
RS-19-144	RH-23-160	MS-26-616-SP	RC-26-633
MS-21-114	RS-23-160	RS-26-185/380	MT-58-616
MS-21-14X	RC-23-161	MS-30-616	MT-58-616-SP
RS-21-145	RS-23-161	MS-30-616-SP	
RS-21-145/A	RS-23-186/380	RS-30-185/380	

### Transmission – 1/Uni/P&L

516		
FAT 30		
<b>PTO – 1/Uni/P&amp;L</b>		
MPT-318	MPT-526	MPT-1702
MPT-500	MPT-531	MPT-175
MPT-510	MPT-543	MPT-185
MPT-518	MPT-170	

Item # 12.



# HEAVY SERVICE/SPECIALTY VEHICLE WARRANTY INFORMATION

## Rear Drive Tandem/Tridem Axles – 2/Unl/P&L

MT-34-14X/P	RT-44-145/P	RT-52-185/380 <sup>1,2</sup>	MT-70-380
RT-34-144/P/A	RT-46-169	MT-58-616	RZ-188
MT-40-14X/P	RT-58-160	MT-58-616-SP	
RT-40-145/A	MT-52-616	RT-58-185/380 <sup>1,2</sup>	
MT-44-14X/P	MT-52-616-SP	RT-70-380	

<sup>1</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>2</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Brake Components

Cam P	3/Unl/P
Cam P <sup>3</sup>	2/100/P
Cam Cast Plus™	2/100/P&L
Q+ Drum Brake™	3/Unl/P&L
Q+ Drum Brake™ <sup>2</sup>	2/100/P&L
ASA	3/Unl/P
ASA <sup>2</sup>	2/100/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
EX+ Air Disc Brake	2/100/P&L

<sup>1</sup> Based on stamped wear diameter max.

<sup>2</sup> Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

<sup>3</sup> Warranty for all non-Meritor ASAs supplied by Meritor for all Heavy Service vocations is 1/100/P.

## Rear Drive Tandem/Tridem - 3/Unl/P&L

RT-40-160/P/A <sup>3</sup>
RT-46-160/P/A <sup>1,3</sup>
RT-46-164EH/P/A <sup>2,3</sup>
RT-50-160/P/A <sup>3</sup>
RZ-166

<sup>1</sup> U.S. only. Canadian warranty = 1/Unl/P for combination vehicles only.

<sup>2</sup> Axle model designated will vary according to options and variations specified on these axles. Contact Meritor Axle Applications Engineering for details.

<sup>3</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Meritor Tire Inflation System

MTIS Components	5/Unl/P, 1/Unl/L
-----------------	------------------

## Trailer Air Suspension Systems

MTA (Trailing Arm)	
Major Structural Components <sup>1</sup>	5/Unl/P, 1/Unl/L
Height Control Valve	1/Unl/P&L
Shock Absorbers	2/Unl/P&L
Air Springs	2/Unl/P, 1/Unl/L
Bushings <sup>1</sup>	5/Unl/P, 3/Unl/L

<sup>1</sup> Raw wood applications 3/Unl/P, 1/Unl/L

(For axle and ABS coverage, refer to appropriate product warranties.)

## Trailer Axles

Beam and Brackets <sup>1</sup>	5/Unl/P, 1/Unl/L
Wheel End Systems <sup>2</sup>	
Standard System <sup>3</sup>	1/Unl/P&L

<sup>1</sup> 9000 Series is 3/Unl/P, 1/Unl/L.

<sup>2</sup> Includes hub, wheel seals and wheel bearings—all systems require annual inspections and proper documentation to ensure full coverage.

<sup>3</sup> When installed by Meritor.

(For brake components and ABS coverage, refer to appropriate product warranties.)

## Gearboxes – 1/Unl/P&L

MGX-240	MGX-376	MGX-448	MGX-506	MGX-528	MGX-546
MGX-279	MGX-377	MGX-456	MGX-514	MGX-533	MGX-550
MGX-279D	MGX-378	MGX-478	MGX-519	MGX-534	
MGX-280	MGX-380	MGX-480	MGX-520	MGX-536	
MGX-285	MGX-384	MGX-487	MGX-522	MGX-537	
MGX-292	MGX-402	MGX-488	MGX-524	MGX-541	
MGX-314	MGX-413	MGX-505	MGX-527	MGX-545	

## Transfer Cases – 1/Unl/P

MTC-4213	MTC-3118-CV (358)	MTC-3209-GV (RTC-60/420)
MTC-4210	MTC-3120-FV (TC-143)	MTC-3209-GV (RTC-60/380)
MTC-4208	MTC-3124 (T-2119)	MTC-3209-GV (MTC-60/420)
MTC-4206-FV (TC-38)	MTC-3205-GV (MTC-25/247)	MTC-3209-GV (MTC-60/380)
MTC-3106-FV (TC-137)	MTC-3205-GV (MTC-25/350)	MTC-3212-CV (315 & 548B)
MTC-3111 (T-2111)	MTC-3205-GV (RTC-25/350)	MTC-3312-FV (TC-270)
MTC-3112-CV (529 & 548C)	MTC-3206-FV (TC-237)	MTC-3220-FC (TC-142)
MTC-3116 (T-2111)	MTC-3206-CS (544)	MTC-2212-CV (306)
MTC-3118-FV (TC-180 & TC-180-23)	MTC-3208-GV (RTC-50)	





# FIRE AND EMERGENCY WARRANTY INFORMATION

## Fire and Emergency Vehicles

- Aerial Ladder Truck
- Aerial Platform
- Ambulance
- Command Vehicle
- Crash Fire Rescue (CFR)
- Pumper
- Rapid Intervention Vehicle (RIV)
- Tanker

## Fire and Emergency Typically Is

- Lower mileage operations (less than 20,000 miles/year)
- Generally, on-road service (less than 10% off-road)
- An average of three (3) miles between starting and stopping

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Non-Drive Steer Axles – 5/Unl/P&L

FL-941	MFS-18-193A-N	MFS-22-135A-N
FL-943	MFS-20-133A-N	MFS-22H-135A-N
MFS-18-133A-N	MFS-20-135A-N	MFS-22-193A-N
MFS-18-135A-N	MFS-20-193A-N	MFS-22H-193A-N

## Front Drive Steer Axles – 2/Unl/P&L

MX-19140	MX-21160	MX-23810
MX-21140	MX-23160	

## Rear Drive Single Axles – 5/Unl/P&L

RC-23-160	RS-23-186	RS-26-185	RS-25-160
RS-23-160	RS-24-160	RS-30-185	
RS-23-161	RC-25-160	RS-35-380	

<sup>1</sup> 3/Unl/P&L if PreSet by Meritor.

## Rear Drive Tandem/Tridem Axles – 5/Unl/P&L

MT-40-14X/P	RT-44-145/P	MT-52-616
MT-40-144/P	RT-46-160/P	RT-52-185 <sup>1</sup>
RT-40-145/A	RT-46-164EH/P	MT-58-616
RT-40-160/P	RT-46-169	RT-58-185 <sup>1</sup>
MT-44-14X/P	RT-50-160/P	MT-70-380

<sup>1</sup> Each vehicle must have a Request for Application Recommendation (RAR) approved by Meritor prior to vehicle build. All RARs must identify the chassis number or VIN. Refer to Product Information Letter #303 and #396 for further details.

## Brake Components

Cam	3/Unl/P
Q+ Drum Brake™	3/Unl/P&L
ASA	3/Unl/P
Hubs/Cast Drums and Other Wheel-end Components	1/Unl/P
Hydraulic Disc Brakes	1/Unl/P
All Other Brakes	1/Unl/P
EX+ Air Disc Brake™	2/Unl/P&L

<sup>1</sup> Includes: bushing, seal, cam, ASA lubrication and wear coverage of 1/Unl/P.

## Drivelines

RPL	4/400/P, 1/Unl/L
MXL	3/350/P, 1/Unl/L
155N	1/Unl/P
92N	1/Unl/P

## Transfer Cases – 1/Unl/P

MTC-4208	MTC-3111 (T-2111)
MTC-4210	MTC-3116 (T-2111)
MTC-4213	MTC-3124 (T-2119)





# TRANSIT BUS WARRANTY INFORMATION

## Transit Bus Vehicles

- Airport Shuttle
- City Bus
- Commuter Coach
- Shuttle Bus
- Transit Bus
- Trolley

## Transit Bus Typically Is

- Moderate mileage operation (less than 50,000 miles per year)
- Moderate to frequent stops/starts (up to 10 stops per mile)

Coverage under Meritor's warranty require that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## Front Drive/Non-Drive Steer Axles – 5/300/P&L

FH-946                      MFS-12-155  
 FH-941<sup>1</sup>                     MFS-13-155

<sup>1</sup> Commuter coach only – 2/Unl/P&L

## Drivelines

RPL                              3/Unl/P, 1/Unl/L  
 92N                              1/Unl/P&L  
 MXL                              1/Unl/P&L

## Rear Drive Single Axles – 5/300/P&L

RS-23-160                    79163                      RS-21-160  
 RC-23-161                    RC-23-162<sup>1</sup>  
 71163                          RC-23-165<sup>1</sup>

<sup>1</sup> Commuter coach only – 2/Unl/P&L

## Tag Axles – 2/Unl/P&L

MC-14002  
 MC-16003  
 FH-946

## Brake Components

Cam Cast Plus™                      2/100/P&L  
 Q+ Drum Brake™<sup>1</sup>                    2/100/P&L  
 ASA<sup>1</sup>                                      2/100/P  
 Hubs/Cast Drums and  
 Other Wheel-end  
 Components                              1/Unl/P  
 All Other Brakes                        1/Unl/P  
 EX+ Air Disc Brake                    2/100/P&L

<sup>1</sup> Applies to City Bus, Trolley, Shuttle Bus and Airport Shuttle only.

## Center Non-drive Axles – 5/300/P&L

MC-26000  
 71063  
 79063





# TERMS AND CONDITIONS

## Coverage Exclusions

### Product Description

#### All

The cost of any repairs, replacements or adjustments to a covered component (1) associated with noise; (2) resulting from the use or installation of non-genuine Meritor components or materials; (3) due to vibration associated with improper operation or misapplication of drivetrain components; and (4) damage resulting from corrosion.

For axle assemblies supplied by Meritor with suspension and interface brackets designed and/or attached by non-Meritor parties, Meritor warranty coverage does not apply to the brackets, bracket attachment methods, and field issues caused by brackets or bracket attachments to any covered component unless specified in a separate OEM agreement.

#### Front Axles

King Pin Bushings.

#### Rear Axles

Self-contained traction equalizers and oil filters. The use of NoSPIN differentials will result in the exclusion of axle shafts from warranty considerations. NoSPIN is a product of Eaton.

#### ASA

Boot and bushing. Bent, broken, over-torqued, missing or otherwise damaged pawl assemblies.

#### Cam Brake

Brake lining wear and brake shoe “rust-jacking.”

#### Disc Brake

Pad wear, rotor wear.

## Coverage Limitations

### Product Description

#### All

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program. Products purchased on an incomplete vehicle (glider) are limited to one year, unlimited miles parts only (1/Unl/P).

#### Front Axles

Tie rod and tie rod ends limited to 3-year/300,000-mile or published vocational coverage, whichever is less. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

Pinion and through shaft seals limited to 3-year/300,000-mile or published vocational coverage, whichever is less, if yoke is installed by Meritor. If yoke is not installed by Meritor, then Meritor does not warrant pinion seals. Wheel seals, gaskets and wheel bearings are covered for 1 year/unlimited miles if the wheel end equipment is supplied and assembled by Meritor.

#### Rear Axles

The Meritor® breather part number A-2297-C-8765 with A-3196-J-1336 hose must be used for eligibility of any potential warranty consideration relating to contamination and/or loss of lube in axles.

#### Cam Brake

Limited to bracket, brake spider and camshaft structural integrity.

#### STEELite X30

Wearable life is up to the discard diameter of the drum.

#### Disc Brake

Warranty coverage for boots, seals, bushings and pins is 2/200/P. Warranty coverage for pads is 1/100/P.

Warranty coverage on vehicles with 1,850 lb-ft engine torque and over may be reduced on individual drivetrain components. Contact your Meritor representative for specific details.

# TERMS AND CONDITIONS

## (1) What is Covered by this Commercial Warranty?

Meritor Heavy Vehicle Systems, LLC warrants to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment in vehicles licensed for on-highway use, will be free from defects in material and workmanship. This warranty coverage begins only after the expiration of the OEM's vehicle warranty for the applicable covered components. Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed elsewhere in this warranty statement.

Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Components (whether new, used or remanufactured) installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

For certain components, coverage requires the use of specific extended drain interval or synthetic lubricants. For further information about lubrication and maintenance, see Meritor publication Maintenance Manual Number 1 and the applicable Meritor maintenance manual for the product in question. Other conditions and limitations applicable to this warranty are detailed below.

## (2) Designation of Vocational Use Required.

To obtain warranty coverage, each Owner must notify Meritor through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the Meritor components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with Meritor directly. Failure to notify Meritor of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date.

A second Owner and each subsequent Owner must also notify Meritor as to the intended vocational use of the vehicle. This notification can be sent directly to Meritor or through the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use.

Coverage under Meritor's warranty requires that the application of products be properly approved pursuant to OEM and Meritor approvals. Refer to TP-9441 for axles, SP-8320 for trailer axles, TP-12126 for drivelines, and/or contact Meritor regarding specific application approval questions on any product line.

## (3) What is the Cost of this Warranty?

There is no charge to the Owner for this warranty.

## (4) What is not Covered by this Warranty?

This warranty does not cover normal wear and tear; nor does it cover a component that fails, malfunctions or is damaged as a result of (I) improper installation, adjustment, repair or modification (including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by Meritor), (II) accident, natural disaster, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the axle and/or driveline capacity), or (III) improper or insufficient maintenance (including deviation from approved lubricants, change intervals, or lube levels). This warranty does not cover any component or part that is not branded by Meritor. For vehicles that operate full or part time outside of the United States and Canada, a one year, unlimited mileage, parts only warranty (1/Unl/P) will apply.

## (5) Remedy.

The exclusive remedy under this warranty shall be the repair or replacement of the defective component at Meritor's option. Meritor reserves the right to require that all applicable failed materials are available and/or returned to Meritor for review and evaluation.

## (6) Disclaimer of Warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESSED, IMPLIED OR STATUTORY INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

## (7) Limitation of Remedies.

In no event shall Meritor be liable for special, incidental, indirect, or consequential damages of any kind or under any legal theory, including, but not limited to, towing, downtime, lost productivity, cargo damage, taxes, or any other losses or costs resulting from a defective covered component.

## (8) To Obtain Service.

If the Owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either Meritor or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM new truck and/or trailer dealer or authorized Meritor service location. The dealer will inspect the vehicle and contact Meritor for an evaluation of the claim. When authorized by Meritor, the dealer will repair or replace during the term of this warranty any defective Meritor component covered by this warranty.

## (9) Entire Agreement.

This is the entire agreement between Meritor and the Owner about warranty and no Meritor employee or dealer is authorized to make any additional warranty on behalf of Meritor. This agreement allocates the responsibilities for component failure between Meritor and the Owner.

Product models, brands, names and trademarks depicted herein are the property of their respective owners and, except where otherwise indicated, are not in any way associated with Meritor Heavy Vehicle Systems, LLC, or any parent or affiliate, thereof.



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Item # 12.



# Fire and Rescue Apparatus

## Three (3) Year Material and Workmanship Meritor Wabco ABS Brake System Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	The Meritor Wabco ABS brake system shall be covered by Meritor Wabco as indicated in the attached Meritor Wabco warranty coverage description
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Three (3) Year
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	The exclusions listed in the attached Meritor Wabco warranty description shall apply.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# WARRANTY

## MODEL YEAR 2021 VEHICLES



Warranty coverage is essential to protecting your investment. But understanding the full details of your coverage can be challenging. This straightforward approach allows you, our valued customer, to better understand how your specific vehicle applications will be covered in your region. Our component warranty coverage is provided according to vocation/usage categories listed below.

- Linehaul covers high mileage operation (over 60,000 miles/year) on well-maintained major highways of concrete or asphalt construction.
- General Service covers moderate mileage operations (less than 60,000 miles/year) on well-maintained public roads (less than 10 percent off-road) typically with less than three (3) stops per mile.
- Heavy Service (Vocational) covers vehicles with more than 10 percent off-road OR moderate to frequent starts/stops typically with more than three (3) stops per mile.
- Off-Highway Service covers lower mileage operations. Vehicles are not typically licensed for highway use.

### How to Read Warranty Coverage (Example)

Number of Years	Mileage (in thousands) Unl=Unlimited	P=Parts Only P&L=Parts & Labor
3	300	P

- The standard aftermarket warranty for WABCO products - including WABCO Original parts, WABCO Reman Solutions, ProVia quality aftermarket parts and WABCO retrofit solutions - is one year, parts only from in-service date when purchased from ZF distributor networks or its affiliates and/or subsidiaries.

# WARRANTY - MODEL YEAR 2021 VEHICLES

## LINEHAUL/GENERAL SERVICE WARRANTY INFORMATION

### LINEHAUL/GENERAL SERVICE VEHICLES

- Aerial Ladder Truck
- Aerial Platform
- Ambulance
- Auto Hauler
- Beverage Truck
- Bulk Hauler
- Chip Hauler (Truck)
- Cross Country Coach
- Doubles
- Flatbed
- Front Engine Commercial Chassis
- Front Engine Integral Coach
- General Freight
- Grain Hauler
- Intercity Coach
- Intermodal Chassis
- Livestock Hauler
- Meat Packer
- Moving Van
- Municipal Truck
- Pipe Hauler
- Platform Auto Hauler
- Pumper
- Rear Engine Integral Coach
- Recreational Vehicles
- Refrigerated Freight
- School Bus
- Stake Truck
- Tanker
- Tanker Truck
- Triples
- Tour Bus
- Wrecker

### LINEHAUL TYPICALLY IS

- High mileage operation (over 60,000 miles/year)
- Well maintained major highways of concrete or asphalt construction

### GENERAL SERVICE TYPICALLY IS

- Moderate mileage operations (less than 60,000 miles/year)
- Well maintained public roads (less than 10% off-road)
- Less than three (3) stops per mile

WABCO Components <sup>1</sup>	
Air Management	
Air Brake Valves	1/100/P&L
Trailer Lift Axle Control Valve	
Trailer Control Line Filter <sup>3</sup>	
Air Compressors (ALL) <sup>2</sup>	2/200/P&L
Air Dryers (ALL)	3/300/P&L
Aerodynamics	
OptiFlow <sup>®</sup> TrailerSkirt	2/UnU/P
OptiFlow <sup>®</sup> Trailer Tail and AutoTail	2/UnI/P
Braking Systems	
ABS (Anti-Lock Braking System) Air	3/300/P&L
ABS (Anti-Lock Braking System) Hydraulic	
Electronic Braking System (EBS)	
Electronic Stability Control (ESC)	
Roll Stability Control (RSS)	
Trailer Roll Stability Support (RSS)	
Trailer ABS (Anti-Lock Braking System) <sup>3</sup>	
Driveline Suspension Control	
Clutch Controls	2/200/P&L
Leveling Valves	1/100/P&L
OptiRide <sup>®</sup> Automated Manual Transmission (AMT)	
OptiRide <sup>®</sup> Electronically Controlled Air Suspension (ECAS)	3/300/P&L

WABCO Components <sup>1</sup> (cont.)	
Safety	
OnGuardACTIVE <sup>®</sup>	3/300/P&L
OnLane <sup>®</sup>	
OnLaneALERT <sup>®</sup>	
OnSide <sup>®</sup>	
Trailer SafeStart <sup>™</sup>	
Trailer TailGUARD <sup>™</sup>	
Telematics	
TrailerCAST <sup>™</sup> Telematics Device	3/300/P&L
Wheel End Solutions	
EasyFit <sup>™</sup> Slack Adjuster	6/600/P
MAXXUS <sup>™</sup> Truck Air Disc Brake	5/500/P&L
IVTM - Wheel Module	6/P
IVTM - All Other Products	2/P
Pan 17 and 19 Air Disc Brake	2/UnI/P and 1/UnI/L
Pan 22 Air Disc Brake	5/500/P and 1/L
TRISTOP <sup>™</sup> D Actuator w/ IBV or IRB	6/600/P
TRISTOP <sup>™</sup> D Actuator	3/300/P
UNISTOP <sup>™</sup> Actuator	2/200/P
Trailer MAXX22T <sup>™</sup> Air Disc Brake	5/500/P and 1/L

<sup>1</sup> ZF and WABCO branded components. <sup>2</sup> WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by ZF. Please contact your respective dealer/distributor of those engines for warranty and servicing. <sup>3</sup> An extended warranty of 4/400/P will apply when a WABCO Trailer Control Line Filter is used in combination with a WABCO Trailer ABS valve.

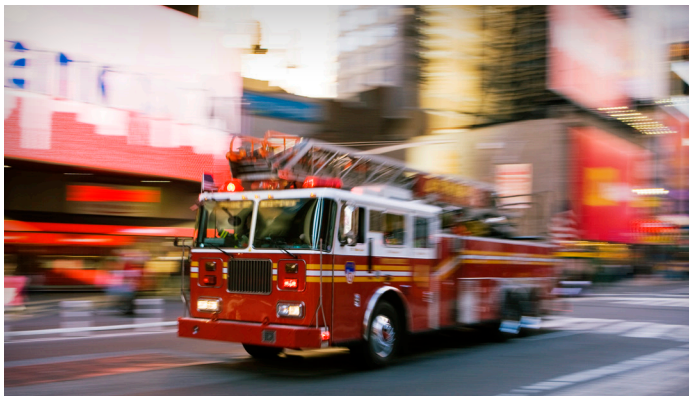
# HEAVY SERVICE (VOCATIONAL) WARRANTY INFORMATION

## HEAVY SERVICE VEHICLES

- Airport Rescue Fire (ARF)
- Airport Shuttle
- Asphalt Truck
- Block Truck
- Bottom Dump Trailer Combination
- Cementing Vehicle
- City Bus
- Commercial Pick-Up
- Concrete Pumper
- Construction Material Hauler
- Crash Fire Rescue (CFR)
- Mixer
- Demolition
- Drill Rig
- Dump
- Emergency Service
- Equipment Hauling
- Flatbed Trailer Hauler
- Flatbed Truck
- Fracturing Truck
- Front Loader
- Geophysical Exploration
- Hopper Trailer Combinations
- Landscaping Truck
- Liquid Waste Hauler
- Log Hauling
- Lowboy
- Michigan Special Gravel Trains
- Michigan Special Log Hauler
- Michigan Special Steel Hauler
- Michigan Special Waste Vehicle
- Municipal Dump
- Newspaper Delivery
- Package Delivery
- Pick-up and Delivery
- Rapid Intervention Vehicle (RIV)
- Rear Loader
- Recycling Truck
- Residential Pick-Up/Waste
- Rigging Truck
- Roll-Off
- Scrap Truck
- Semi-End Dump
- Sewer/Septic Vacuum
- Shuttle Bus
- Side Loader
- Snowplow/Snowblower
- Steel Hauling
- Tanker
- Tank Truck
- Tractors with Pole Trailers
- Tractor/Trailer with Jeeps
- Transfer Dump
- Transfer Vehicle
- Transit Bus
- Trolley
- Utility Truck
- Winch Truck

## HEAVY SERVICE TYPICALLY IS

- On/Off road vocations (10% or more off-road) OR
- Moderate to frequent starts/stops typically more than three (3) stops per mile



WABCO Components <sup>1</sup>	
Air Management	
Air Brake Valves	1/100/P&L
Air Compressors (ALL) <sup>2</sup>	
Air Dryers (ALL)	
Trailer Control Line Filter <sup>3</sup>	
Braking Systems	
ABS (Anti-Lock Braking System) Air	3/300/P&L
ABS (Anti-Lock Braking System) Hydraulic	2/200/P&L
Electronic Braking System (EBS)	3/300/P&L
Electronic Stability Control (ESC)	
Trailer ABS Valve <sup>3</sup>	
Roll Stability Control (RSS)	
Trailer Roll Stability Support (RSS)	
Driveline Suspension Control	
OptiRide® Electronically Controlled Air Suspension (ECAS)	2/200/P&L
Leveling Valves	1/100/P&L
Clutch Controls	2/200/P&L
Safety	
OnGuardACTIVE®	3/300/P&L
OnLane®	
OnLaneALERT®	
OnSide®	
Trailer SafeStart™	
Trailer TailGUARD™	
Telematics	
TrailerCAST™ Telematics Device	3/300/P&L
Wheel End Solutions	
EasyFit™ Slack Adjuster	2/200/P
MAXXUS™ Air Disc Brake	1/Unl/P&L
IVTM - Wheel Module	6/P
IVTM - All Other Products	2/P
Pan 22, 19 and 17 Air Disc Brake	1/Unl/P&L
Trailer MAXX22T™	1/Unl/P&L
TRISTOP™ D Actuator w/ IBV	3/Unl/P
TRISTOP™ D Actuator	2/200/P
UNISTOP™ Actuator	1/100/P

<sup>1</sup> ZF and WABCO branded components. <sup>2</sup> WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by ZF. Please contact your respective dealer/distributor of those engines for warranty and servicing. <sup>3</sup> An extended warranty of 4/400/P will apply when a WABCO Trailer Control Filter is used in combination with a WABCO Trailer ABS valve.



# WARRANTY - MODEL YEAR 2021 VEHICLES

## INDUSTRIAL/OFF-HIGHWAY SERVICE WARRANTY INFORMATION

### INDUSTRIAL AND OFF-HIGHWAY SERVICE TYPICALLY IS

- Low mileage operation<sup>3</sup>
- Vehicles are not typically licensed for highway use

Market	Common Application Types
Agriculture	Fertilizer Spreader, Tractor, Heavy Duty Ag Trailers, Harvester, Sprayer, Skid Loader, Silage Bagger, Slurry Wagons, Grain Cart
Airport Support	Pushback Tractor, Towing Tugs, Aircraft Tow Tractor, Refueling Trucks, Food Service Trucks, Baggage Tractors, De-Icing Equipment, Runway Clearing Equipment
Construction	All-Terrain Crane, Rough Terrain Crane, Excavator, Compactor, Wheel Loader, Road Roller, Motor Grader, Articulated Dump Truck, Rubber Tire Road Roller, Backhoe Loaders, Haul Trucks, Scraper Rough Terrain Forklifts, Trenchers, Drills
Forestry	Logging Forwarder, Kidder, Loaders, Yard Forklifts, Harvesters Fellers
Material Handling	Port Tractor, Rail Yard Spotter, Stevedoring Tractor, Trailer Spotter, Yard Jockey, Scissor Lift, Straddle Carrier, Manlift, Forklift, Boom Lift Telehandlers, Aerial Work Platforms
Mining	Specialized Mining, Excavator, Haul Truck, Underground Loader, Service Trucks, Wheel Loaders, Scrapers, Load Haul Dumps, Personnel Transports, Bolters, Scalers
Municipal	Street Sweeper, Utility Tractor, Utility Trucks, Tree Trimmers, Dump Trucks, Tow Trucks, Flat Bed Trucks, Winch Applications
Oil & Gas	Fracturing Trailer, Injector Heads, Top Drives, Jack/Lift Boats, Wireline Trucks, Load-On / Load-Off
Rail	Railcar Mover, Track Layers, Grinders, Platform Crane, Locomotive Railcars, Ballast Equipment, Winch Applications



WABCO Components <sup>1</sup>	
Air Management	
Air Brake Valves	2/Unl/P
Air Compressors (ALL) <sup>2</sup>	
Air Dryers (ALL)	
Brake Actuation	
Air/Hydraulic Actuators	2/Unl/P
Master Cylinders	
Remote Actuators	
Slave and Wheel Cylinders	
Two Fluid Actuators	
Brake Locks	
Brake Locks (ALL)	2/Unl/P
Electric Brake Locks	
Lever Locks	
Braking Systems	
ABS (Anti-Lock Braking System) Air	1/100/P&L
ABS (Anti-Lock Braking System) Hydraulic	
Driveline Suspension Control	
Clutch Controls	1/100/P&L
Leveling Valves	
Electrohydraulics & Controls	
Electronic Pedals	2/Unl/P
Electrohydraulic Brake Valves (EBV)	
Pressure Switches	
Hydraulic Braking Solutions	
Accumulator Charging Valves	2/Unl/P
Hydraulic Throttle Controls and Switches	
Modulating Brake Valves	
Wheel End Solutions	
EasyFit™ Slack Adjuster	2/200/P
Caliper Disc Brakes	2/Unl/P
MAXXUS™ Air Disc Brake	1/Unl/P&L
Multiple Disc Brakes	2/Unl/P
IVTM - Wheel Module	6/P
IVTM - All Other Products	2/P
Pan 22, 19 and 17 Air Disc Brake	1/Unl/P&L
TRISTOP™ D Actuator w/ IBV	3/Unl/P
TRISTOP™ D Actuator	2/200/P
UNISTOP™ Actuator	1/100/P

<sup>1</sup> ZF and WABCO branded components. <sup>2</sup> WABCO compressors installed on Cummins, Mercedes, and DDC engines are not warranted or serviced by ZF. Please contact your respective dealer/distributor of those engines for warranty and servicing. <sup>3</sup> Equivalent hours of service limit: 2,000 hours for all components.

# TERMS AND CONDITIONS

## COVERAGE EXCLUSIONS

### PRODUCT DESCRIPTION

#### ALL PRODUCTS

This Warranty shall not apply to the following, but not limited to: (1) damage to the product or its component parts caused by incorrect use, installation, maintenance or repair, including without limitation (a) improper fit of mating components or brackets, damaged threads, cut, broken, chafed, pinched or otherwise damaged wiring (sensors, harnesses and connectors), (b) sensors damaged during removal when seized in block, or associated with sensor adjustments/ alignments, and (c) damage resulting from the use or installation of non-genuine WABCO components or materials; (2) damage to the product, its component parts, or diminished product or component part performance due to incorrect operation, deviation from approved conditions or misapplication; (3) any unauthorized disassembly of the product or its component parts including without limitation (a) obliterated, defaced or missing WABCO or WABCO name plate, serial numbers or label identifying the device as a ZF product or WABCO component, (b) changes to sealed adjusting screws, and (c) opening or attempted repair of non-serviceable components; (4) malfunction of the component due to internal contamination of the vehicle system including without limitation (a) water and other contamination damage that is due to the use of a non-genuine air dryer cartridge or (b) valve failures due to contamination in air system, (5) complaints associated with noise, (6) damage resulting from corrosion (including oxidation of electrical devices and connections).

#### AIR DRYERS

Mounting brackets (see vehicle OEM). Desiccant cartridge housing only.

#### AIR SYSTEM COMPONENTS

Normal wear items; Gladhand seals, dash valve knobs, valve actuation handles, treadles, pedals.

#### ABS, ELECTRONIC STABILITY CONTROL (ESC), ROLL STABILITY CONTROL (RSC), OPTIRIDE®, ONGUARD® AND ONLANE®, COLLECTIVELY “ELECTRONICS”

Failure of electronic components due to overvoltage condition, improper grounding, electrostatic discharge (ESD), improper shielding, electromagnetic interference (EMI), or other wiring or installation issues. Malfunctions and failure codes caused by other electronic subsystem failures (data bus, engine, transmission, dashboard, etc.)

#### HYDRAULIC COMPONENTS

For certain components, brake fluid DOT3 or DOT4 is used as the operating medium. Use of any other fluid will void all warranties associated with that component. For hydraulic braking applications the brake fluid is considered a maintenance item. Maintenance intervals are listed in TB-1367.

## COVERAGE LIMITATIONS

### PRODUCT DESCRIPTION

#### ALL PRODUCTS

Any claim beyond 60 days from date of repair will not be accepted or honored under this warranty program.

Products purchased on an incomplete vehicle (glider) are limited to one year, 1/Unl/P.

For vehicles that operate full- or part-time outside of the United States and Canada, a 1-Year/Unlimited Miles parts only (1/Unl/P) will apply.

#### TOOLBOX PLUS™ DIAGNOSTIC SOFTWARE

Proper diagnostics of WABCO Electronics may require the latest version of TOOLBOX PLUS™. Additional labor due to use of an outdated version of TOOLBOX™ software and/or the time to purchase or install the latest version of TOOLBOX PLUS™ are not covered under product warranty.

# WARRANTY - MODEL YEAR 2021 VEHICLES

## TERMS AND CONDITIONS

(1) What is Covered by this Commercial Warranty?

ZF CV Systems North America LLC and its North American subsidiaries and affiliates (ZF) warrant to the owner ("Owner") that the components listed in this publication, which have been installed by an Original Equipment Manufacturer ("OEM") as original equipment will be free from defects in material and workmanship. This warranty coverage begins from the original in-service date to the limits provided and runs concurrently with any warranties provided by OEMs and/or any distribution agreements and/or any service contracts that cover the components listed in this publication, if any. If the components listed in this publication are covered by an OEM warranty and/or service contract, then the OEM's warranty and/or service contract shall supersede ZF's warranty and Owner shall comply with all OEM's warranty and/or service contract requirements for claims under such OEM's warranty and/or service contract until those agreements expire. Once those agreements expire and provided the ZF warranty has not expired under the terms stated above, the ZF warranty will be in effect until its expiration date.

Warranty coverage ends at the expiration of the applicable time period from the date of vehicle purchase by the first Owner, or, the applicable mileage limitation, whichever occurs first. Duration of coverage varies by component and vocation as detailed previously in this publication. Some components are warranted for parts only and the Owner must pay any labor costs associated with the repair or replacement of the component. Other components are warranted for both parts and reasonable labor to repair or replace the subject component. Additional diagnostic time due to use of an outdated version of TOOLBOX™, time to purchase or install latest version of TOOLBOX™ are the responsibility of the authorized ZF distributor networks and are not covered under product warranty. Components installed as replacements under this warranty are warranted only for the remainder of the original period of time or mileage under the original warranty.

(2) Designation of Vocational Use Required. To obtain warranty coverage, each Owner must notify ZF through the OEM new truck and/or trailer dealer of the intended vocational use of the vehicle into which the WABCO components have been incorporated prior to the vehicle in-service date. This notification may be accomplished by registering the vehicle through your OEM new truck and/or trailer dealer or with ZF directly. Failure to notify ZF of (I) the intended vocational use of the vehicle or (II) a change in vocational use from that which was originally designated, will result in the application of a one year, unlimited mileage, parts only warranty (1/Unl/P) from the initial in-service date. A second Owner and each subsequent Owner must also notify ZF as to the intended vocational use of the vehicle. This notification can be sent directly to ZF or through

the OEM new truck and/or trailer dealer. The duration and mileage coverage of this warranty cannot exceed the coverage extended to the first Owner after his or her initial designation of vocational use. Coverage under ZF's warranty requires that the application of products be properly approved pursuant to OEM and ZF, approvals.

- (3) What is the Cost of this Warranty? There is no charge to the Owner for this warranty.
- (4) What is not Covered by this Warranty? In addition to the items listed on "Coverage Exclusions," this warranty does not cover normal wear and tear, or service items; nor does it cover a component that fails, malfunctions or is damaged as a result of (a) improper handling, storage, installation, adjustment, repair or modification including the use of unauthorized attachments or changes or modification in the vehicle's configuration, usage, or vocation from that which was originally approved by ZF, (b) accident, fire or other casualty, natural disaster, road debris, negligence, misuse, abuse, or improper use (including loading beyond the specified maximum vehicle weight or altering engine power settings to exceed the brake system capacity), or (c) improper or insufficient maintenance (including deviation from maintenance intervals, approved lubricants, or lube levels). This warranty does not cover any component or part that is not sold by ZF.
- (5) To obtain service. If the owner discovers within the applicable coverage period a defect in material or workmanship, the Owner must promptly give notice to either ZF or the dealer from which the vehicle was purchased. To obtain service, the vehicle must be taken to any participating OEM dealer or ZF distributor networks' servicer. The dealer or ZF authorized servicer will inspect the vehicle and contact ZF for an evaluation of the claim. When authorized by ZF, the dealer or ZF authorized servicer will repair or replace during the term of this warranty any defective WABCO component covered by this warranty.
- (6) Disclaimer of Warranty and Limitation of remedies. TO THE MAXIMUM EXTENT PERMITTED BY LAW, THE LIMITED WARRANTY SET FORTH HEREIN IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND/OR WARRANTY FOR HIDDEN OR LATENT DEFECTS, AND IN NO EVENT WILL ZF OR ANY OF ITS AFFILIATES BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL, PROGRESSIVE, SPECIAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND.

- (7) Legal action. Any legal action or claim arising from or related to this Warranty, in contract or otherwise, must be commenced within one year from the accrual of that cause of action, or be barred forever. Any dispute arising in connection with this agreement shall be governed by and construed according to the laws of the State of Michigan and be brought, heard and determined exclusively in either the Circuit Court for the County of Oakland, State of Michigan or the United States District Court for the Eastern District of Michigan. The parties stipulate that the referenced venues are convenient.
- (8) Remedy. The exclusive remedy under this warranty shall be the repair or replacement of the defective component at ZF's option. ZF reserves the right to require that all applicable covered components are available and/or returned to ZF for review and evaluation. THE MAXIMUM LIABILITY, IF ANY, OF ZF FOR ALL DAMAGES, INCLUDING WITHOUT LIMITATION CONTRACT DAMAGES, BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY, OR OTHER TORT, IS LIMITED TO AN AMOUNT NOT TO EXCEED THE PURCHASE PRICE OF THE PRODUCT and where indicated in the product and application warranty information above, the inclusion of labor is limited to the standard repair time. THE PARTIES ACKNOWLEDGE AND AGREE THAT THE LIMITATION OF DAMAGES PROVISION SET FORTH IN THIS PARAGRAPH SURVIVES BETWEEN THE ORIGINAL END USER AND ZF EVEN IF THE EXCLUSIVE REMEDY SET FORTH ABOVE IS DEEMED TO FAIL OF ITS ESSENTIAL PURPOSE. ZF may change the design or make improvements to its Products without incurring any warranty obligation for previously manufactured Product .
- (9) Entire Agreement. This is the entire agreement between ZF and the Owner about warranty and no, ZF employee, or dealer is authorized to make any additional warranty on behalf of ZF unless in writing and signed by an authorized representative of ZF.







**For further product details contact your distributor or the  
WABCO Customer Care Center at 855-228-3203.**

## **About ZF Friedrichshafen AG**

ZF is a global technology company and supplies systems for passenger cars, commercial vehicles and industrial technology, enabling the next generation of mobility. ZF allows vehicles to see, think and act. In the four technology domains Vehicle Motion Control, Integrated Safety, Automated Driving, and Electric Mobility, ZF offers comprehensive solutions for established vehicle manufacturers and newly emerging transport and mobility service providers. ZF electrifies different kinds of vehicles. With its products, the company contributes to reducing emissions and protecting the climate.

ZF, which acquired WABCO Holdings Inc. on May 29, 2020, now has 160,000 employees worldwide with approximately 260 locations in 41 countries. In 2019, the two then-independent companies achieved sales of €36.5 billion (ZF) and \$3.4 billion (WABCO). For more information, visit: [www.wabco-na.com](http://www.wabco-na.com)



# Fire and Rescue Apparatus

## Ten (10) Year Structural Integrity

### Custom Cab

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

<b>Coverage:</b>	<b>The Pierce Custom Cab shall be free from structural failures caused by defects in material and workmanship</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Ten (10) Years - or - 100,000 Miles</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<b>This warranty applies only to the cab tubular support and mounting structures and other structural components of the cab of the vehicle model, as identified in the Pierce specifications for the Fire and Rescue Apparatus.</b>  <b>This warranty does not apply to damage caused by corrosion.</b>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



# Fire and Rescue Apparatus

## Ten (10) Year Pro-Rated Paint and Corrosion

### Cab

## Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Exterior surfaces of the cab painted by Pierce shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Ten (10) Years
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	<p>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b>  0-72 months 100%  73-96 months 50%  97-120 months 25%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b>  0-36 months 100%  37-84 months 50%  85-120 months 25%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b>  0-36 months 100%  37-48 months 50%  49-72 months 25%  73-120 months 10%</p> <p><b>Corrosion Perforation</b>  0-120 months 100%</p> <p>This limited warranty applies only to exterior paint. Paint on the vehicle's interior is warranted only under the Pierce Basic One Year Limited Warranty.</p> <p>Items not covered by this warranty include:  (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual).  (b) UV paint fade.  (c) Any cab not manufactured by Pierce.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus

## Five (5) Year Material and Workmanship

### Command Zone Electronics

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Command Zone control modules shall be free from failures caused by defects in material and workmanship
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Five (5) Years
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This limited warranty applies to all of the control modules for the Command Zone system, including the full color graphic displays. Related wire harnesses, cables and connectors are not covered under this limited warranty and are instead covered under the Pierce One Year Basic Apparatus Limited Warranty.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.





# Fire and Rescue Apparatus

## 54 Months Material and Workmanship

### Camera System

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	This limited warranty covers repairs to correct any defect related to materials or workmanship of the Sharpvision camera system installed on the apparatus occurring during the warranty period.
Warranty Begins:	The date of delivery.
Warranty Period Ends After:	Fifty - Four (54) months
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This limited warranty does not apply to related wire harnesses, cables, and connectors, which are covered by the Pierce one (1) year basic apparatus limited warranty.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Fire and Rescue Apparatus

## Ten (10) Year Material and Workmanship

### Pierce 12V LED Strip Light

#### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

<b>Coverage:</b>	This limited warranty covers repairs to correct any defect related to materials or workmanship of the Pierce 12V LED strip lights installed on the apparatus occurring during the warranty period.
<b>Warranty Begins:</b>	The date of the original purchase invoice (issued when the product ships from the factory).
<b>Warranty Period Ends After:</b>	Ten (10) Year
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	This limited warranty does not apply to related wire harnesses, cables, and connectors, which are covered by the Pierce one (1) year basic apparatus limited warranty.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

## NEW PRODUCT WARRANTY



**PARTICIPATING OEM SALES  
DISTRIBUTOR SALES**

### LIMITED WARRANTY ON NEW ALLISON AUTOMATIC TRANSMISSIONS USED IN EMERGENCY VEHICLE APPLICATIONS

Allison Transmission will provide for repairs or replacement, at its option, during the warranty period of each new Allison transmission listed below that is installed in an Emergency Vehicle in accordance with the following terms, conditions, and limitations.

#### WHAT IS COVERED

- **WARRANTY APPLIES** — This warranty is for new Allison transmission models listed below installed in an Emergency Vehicle and is provided to the original and any subsequent owner(s) of the vehicle during the warranty period.
- **REPAIRS COVERED** — The warranty covers repairs or replacement, at Allison Transmission’s option, to correct any transmission malfunction resulting from defects in material or workmanship occurring during the warranty period. Needed repairs or replacements will be performed using the method Allison Transmission determines most appropriate under the circumstances.
- **TOWING** — Towing is covered to the nearest Allison Transmission Distributor or authorized Dealer only when necessary to prevent further damage to your transmission.
- **PAYMENT TERMS** — Warranty repairs, including parts and labor, will be covered per the schedule shown in the chart contained in section “APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE.”
- **OBTAINING REPAIRS** — To obtain warranty repairs, take the vehicle to any Allison Transmission Distributor or authorized Dealer within a reasonable amount of time and request the needed repairs. A reasonable amount of time must be allowed for the Distributor or Dealer to perform necessary repairs.
- **TRANSMISSION REMOVAL AND REINSTALLATION** — Labor costs for the removal and re-installation of the transmission, when necessary to make a warranty repair, are covered by this warranty.
- **WARRANTY PERIOD** — The warranty period for all coverages shall begin on the date the transmission is delivered to the first retail purchaser, with the following exception:

**Demonstration Service** - A transmission in a new truck or bus may be demonstrated to a total of 5000 miles (8000 kilometers). If the vehicle is within this limit when sold to a retail purchaser, the warranty start date is the date of purchase. Normal warranty services are applicable to the demonstrating Dealer. Should the truck or bus be sold to a retail purchaser after these limits are reached, the warranty period will begin on the date the vehicle was first placed in demonstration service and the purchaser will be entitled to the remaining warranty.

#### APPLICABLE MODELS, WARRANTY LIMITATIONS, AND ADJUSTMENT SCHEDULE

APPLICABLE MODELS	WARRANTY LIMITATIONS (Whichever occurs first)		ADJUSTMENT CHARGE TO BE PAID BY THE CUSTOMER	
	Months	Transmission Miles Or Kilometers	Parts	Labor
MT, MD 3000, 3200, 3500, 3700	0-24	No Limit	No Charge	No Charge
HT with Hydraulic Controls	0-24	No Limit	No Charge	No Charge
AT, 1000 Series™, 2000 Series™, 2400 Series™	0-36	No Limit	No Charge	No Charge
HT with Electronic Controls	0-60	No Limit	No Charge	No Charge
HD 1000 EVS, 2100 EVS, 2200 EVS 2350 EVS, 2500 EVS, 2550 EVS, 3000 EVS, 3500 EVS, 4000, 4000 EVS, 4500, 4500 EVS, 4700, 4700 EVS, 4800, 4800 EVS	0-60	No Limit	No Charge	No Charge

## WHAT IS NOT COVERED

- **DAMAGE DUE TO ACCIDENT, MISUSE, or ALTERATION** — Defects and damage caused as the result of any of the following are not covered:
  - Flood, collision, fire, theft, freezing, vandalism, riot, explosion, or objects striking the vehicle;
  - Misuse of the vehicle;
  - Installation into unapproved applications and installations;
  - Alterations or modification of the transmission or the vehicle, and
  - Damage resulting from improper storage (refer to long-term storage procedure outlined in the applicable Allison Service Manual)
  - Anything other than defects in Allison Transmission material or workmanship

**NOTE:** This warranty is void on transmissions used in vehicles currently or previously titled as salvaged, scrapped, junked, or totaled.

- **CHASSIS, BODY, and COMPONENTS** — The chassis and body company (assemblers) and other component and equipment manufacturers are solely responsible for warranties on the chassis, body, component(s), and equipment they provide. Any transmission repair caused by an alteration(s) made to the Allison transmission or the vehicle which allows the transmission to be installed or operated outside of the limits defined in the appropriate Allison Installation Guideline is solely the responsibility of the entity making the alteration(s).
- **DAMAGE CAUSED by LACK of MAINTENANCE or by the USE of TRANSMISSION FLUIDS NOT RECOMMENDED in the OPERATOR'S MANUAL** — Defects and damage caused by any of the following are not covered:
  - Failure to follow the recommendations of the maintenance schedule intervals applicable to the transmission;
  - Failure to use transmission fluids or maintain transmission fluid levels recommended in the Operator's Manual.
- **MAINTENANCE** — Normal maintenance (such as replacement of filters, screens, and transmission fluid) is not covered and is the owner's responsibility.
- **REPAIRS by UNAUTHORIZED DEALERS** — Defects and damage caused by a service outlet that is not an authorized Allison Transmission Distributor or Dealer are not covered.
- **USE of OTHER THAN GENUINE ALLISON TRANSMISSION PARTS** — Defects and damage caused by the use of parts that are not genuine Allison Transmission parts are not covered.
- **EXTRA EXPENSES** — Economic loss and extra expenses are not covered. Examples include but are not limited to: loss of vehicle use; inconvenience; storage; payment for loss of time or pay; vehicle rental expense; lodging; meals; or other travel costs.
- **"DENIED PARTY" OWNERSHIP** — Warranty repair parts and labor costs are not reimbursed to any participating or non-participating OEMs, dealers or distributors who perform warranty work for, or on behalf of, end users identified by the United States as being a "denied party" or who are citizens of sanctioned or embargoed countries as defined by the U.S. Department of Treasury Office of Foreign Assets Control. Furthermore, warranty reimbursements are not guaranteed if the reimbursement would be contrary to any United States export control laws or regulations as defined by the U.S. Department of Commerce, the U.S. Department of State, or the U.S. Department of Treasury.

## OTHER TERMS APPLICABLE TO CONSUMERS AS DEFINED by the MAGNUSON-MOSS WARRANTY ACT

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Allison Transmission does not authorize any person to create for it any other obligation or liability in connection with these transmissions.

**ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO THESE TRANSMISSIONS IS LIMITED IN DURATION TO THE DURATION OF THIS WRITTEN WARRANTY. PERFORMANCE OF REPAIRS AND NEEDED ADJUSTMENTS IS THE EXCLUSIVE REMEDY UNDER THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES (SUCH AS, BUT NOT LIMITED TO, LOST WAGES OR VEHICLE RENTAL EXPENSES) RESULTING FROM BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY.\*\***

\*\* Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

## OTHER TERMS APPLICABLE TO OTHER END-USERS

**THIS WARRANTY IS THE ONLY WARRANTY APPLICABLE TO THE ALLISON TRANSMISSION MODELS LISTED ABOVE AND IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALLISON TRANSMISSION DOES NOT AUTHORIZE ANY PERSON TO CREATE FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH SUCH TRANSMISSIONS. ALLISON TRANSMISSION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM BREACH OF THIS WARRANTY OR ANY IMPLIED WARRANTY.**

## QUESTIONS

If you have any questions regarding this warranty or the performance of warranty obligations, you may contact any Allison Transmission Distributor or Dealer or write to:

Allison Transmission, Inc.  
P.O. Box 894  
Indianapolis, IN 46206-0894  
Attention: Warranty Administration PF-9



# Fire and Rescue Apparatus

## Five (5) Year Material and Workmanship - Transmission Oil Cooler Three (3) Year Collateral Damage Coverage

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

<b>Coverage:</b>	The transmission cooler shall be free from component or structural failures caused by defects in material and/or workmanship. Collateral damage up to \$10,000 per occurrence is available for the first three (3) years.
<b>Warranty Begins:</b>	The date of delivery to the first retail purchaser.
<b>Warranty Period Ends After:</b>	Five (5) Years on Oil Cooler and three (3) years on collateral damage coverage
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<p>This warranty does not cover repair due to accidents, misuse, and excessive vibration, flying debris, storage damage (freezing), negligence or modification. This warranty is void if any modification or repairs are performed without authorization. This also voids any future warranty.</p> <p>This warranty does not cover cost of maintenance or repairs due to lack of required maintenance services as recommended. Performance of the required maintenance and use of proper fluids are the responsibility of the owner.</p> <p>Towing is covered to the nearest distributor or authorized dealer only when necessary to prevent further damage to your transmission.</p> <p>Labor costs for the removal and reinstallation of goods may be covered when necessary to make repairs. Please contact your OEM for authorization.</p> <p>Replacement of cooler during the warranty period is limited to 100% of reasonable labor costs up to a maximum of \$700 to remove, replace, or repair the oil cooler.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# UNITED PLASTIC FABRICATING, INC. WARRANTY

FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™

## LIFETIME SERVICE WARRANTY

United Plastic Fabricating, Inc. (hereinafter called "UPF") warrants each POLY-TANK®, Booster/Foam Tank POLYSIDE® Wetside Tank, Integrator Tank/Body, ELLIPSE™ Elliptical Tank, Ellip-T-Tank Tank and DEFENDER™ Skid Tank to be free from defects in material and workmanship for the service life of the original vehicle (vehicle must be actively used in an emergency response for fire suppression). All UPF Tanks must be installed and operated in accordance with the UPF Installation and Operating Guidelines. Failure to do so can void the warranty.

Every UPF Tank is inspected and tested before leaving our facility. Should your UPF Tank require service, please notify UPF via email, fax, in writing or by calling UPF at 1-978-975-4520. Please provide the serial number, a description of the service request, the location along with the phone number and name of the contact person. Our goal is to have scheduled work completed within a reasonable time period.

Under a valid warranty claim, UPF will cover the cost to repair the UPF Tank including the customary and reasonable costs to make the tank accessible such as the removal and reinstallation of the tank if authorized in advance (pre-approved) by UPF. The warranty will not cover tanks that have been improperly installed, operated, misused, abused, or modified from its intended or designed use. Serial number must not have been altered, defaced or removed. Tanks that are not stored or installed properly which results in the tank suffering UV damage will not be covered by this agreement.

Should UPF determine that the service claim is valid under this warranty for a tank located outside of the United States and Canada, UPF will assume the costs for labor and material for the warranty repair as described above plus all travel costs to the U.S. port of embarkation. Costs for airline travel outside of the U.S. and Canada will not be the responsibility of UPF.

In the event the tank shall become stationed in an area of the world that is considered to be a war zone or where unsafe conditions exist for the safe passage of United States Nationals, as reported by the United States Department of State, (<http://www.state.gov>), and a request to perform service or warranty repairs, UPF reserves the right to refuse to honor such requests. It is the purchaser's responsibility to relocate the tank to an area where such repairs can be performed without undue risk to UPF employees or their designee. UPF will make every reasonable effort to support our products through alternative means.

For Ellipse™ elliptical tanks, a separate five year warranty provided by the subcontractor is applied to the sub-frames, chute linings (rubber isolation strips) and metal components. The stainless steel wrap provided by UPF shall be warranted by the subcontractor performing the wrap installation in accordance with their warranty in place at the time of the installation. UPF will not be liable for any warranty costs associated with the wrap, sub-frames, chute linings (rubber isolation strips) and metal components but will assist with all claims on behalf of its customer.

For PolySide® wetsided tanks and Integrator™ Tank/Body units, all polypropylene components related to the tank shall carry the standard U

Item # 12.

Continued on back



# UNITED PLASTIC FABRICATING, INC.

# WARRANTY

FOR: POLY-TANK®, POLYSIDE®, INTEGRATOR™, ELLIPSE™, ELLIP-T-TANK™ & DEFENDER™

service warranty. Other polypropylene components, including but not limited to compartments, wheel wells, fenders and other body related components shall be warranted by UPF for a period of ten years. The warranty for the PolySide® and Integrator™ units excludes paint or hardware, which shall be covered by the manufacturer of the paint/hardware.

All UPF tanks 50 gallons or less utilized for non-fire applications and installed on specialty vehicles such as ATVs, trailers, boats, etc. are covered under a separate warranty policy available from UPF. Further, UPF Protector™ foam and water trailers are warranted under a separate warranty policy available from UPF.

This UPF warranty is transferable within the United States only with prior written approval by UPF (except an original apparatus manufacturer may assign this warranty to the first titled owner/lessee of the apparatus).

**UPF will NOT reimburse any unnecessary work and/or work that has not been pre-approved. Any and all third party charges must be pre-authorized and approved in writing by UPF prior to commencing the work. Any unauthorized third party repairs, alterations, actions or modifications will not be covered and can void the warranty. UPF will be the sole determining authority as to whether a service claim will be valid and covered under this warranty.**

In no event will UPF be liable for an amount in excess of the purchase price of the booster/foam tank at the time of manufacture or for any loss or damage, whether direct, indirect, incidental, consequential, or otherwise arising out of failure of its product. Loss of contents (water, foam, etc.) shall not be the responsibility of UPF. Further, UPF is not responsible for costs associated with service repairs to chassis, sub-frames, bodies, valves, dumps, hoses, pressure vacuum vents, and other components (i.e. liquid level transducers, etc.). Further, UPF will not cover the cost for travel of the vehicle to and from a repair facility.

This warranty contains the entire warranty. It is the sole warranty and price agreements or representation, whether oral or written, are either merged herein or expressly cancelled. UPF neither assumes, nor authorizes any person supposing to act on its behalf to change, nor assume for it, any warranty or liability concerning its product.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow exclusion or limitation or incidental or consequential damage, so the above limitation or exclusion may not apply to you. Since some states do not allow limitations on the length of an implied warranty, the above limitation may not apply to you.

**THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION OF THE FACE HEREOF. THERE IS NO EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. ADDITIONALLY, THIS WARRANTY IS IN LIEU OF ALL OTHER OBLIGATION OR LIABILITIES ON THE PART OF UPF.**



# BULLETIN

**TO: All Dealer Service Representatives**  
**From: Kevin Hanegraaf**  
**DATE: January 4, 2010**  
**RE: UPF Tank Warranty Policy – Truck in Accident**  
**Service Topic #292**



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To keep the UPF tank warranty valid on trucks that have been involved in a vehicular accident, it is UPF's policy that the customer must remove the tank from the truck and send it back to one of UPF's facilities for inspection. In the event that this does not take place, the warranty will be considered null and void.

The customer must remove and send the tank back to UPF for inspection in order to maintain the original warranty coverage, at which time it will be:

- Filled with water
- Visually inspected
- Ultraviolet spark tested on articulating test stand in the dark
- Recommendation for repairs if necessary provided by UPF
- Fully evaluated and repaired by UPF

If your customer chooses to leave the tank on the truck and wants a technician to inspect and/or repair the tank in the field, then **the warranty is no longer in effect.** This direction is upheld by UPF because the technician cannot inspect the entire tank when it is still installed on the truck.

**Note:** This memo is intended to relay the information Pierce has received on UPF's tank warranty for trucks that are in a vehicular accident. In the event of an actual claim, we direct you to consult with UPF's service Manager Maura Watts (800-638-8265 x253)





# Fire and Rescue Apparatus

## Ten (10) Year Structural Integrity Apparatus Body

# Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

<b>Coverage:</b>	<b>The apparatus body shall be free from structural failures caused by defects in material and workmanship</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Ten (10) Years - or - 100,000 Miles</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<b>This warranty applies only to the body tubular support and mounting structures and other structural components of the body of the vehicle model, as identified in the Pierce specifications for the Fire and Rescue Apparatus.</b>  <b>This warranty does not apply to damage caused by corrosion.</b>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*



**Pierce Warranty Statement for Gortite Roll Up Doors Rev 2/24/2011**

All mechanical components of the door shall be warranted to be free from defects in materials and workmanship for the lifetime of the vehicle. All parts covered under this warranty shall be to the original owner.

A&A manufacturing warrants that painted doors shall be free of blistering, peeling, bubbling, or any other adhesion defect caused by defective manufacturing methods or paint material selection. The time period for the coverage shall be 6 years from date of door shipment to Pierce. Satin anodized finish doors shall be warranted for 6 years against corrosion defects from date of door shipment to Pierce. Replacement of decals/Scotchlite is not covered.

The maximum amount A&A will reimburse for labor is \$60.00 per hour and the maximum amount of time allowed for repair is as follows:

Door	1.0 Hr.
Slat Replacement	1.0 Hr.
Pennant Plate Replacement	1.0 Hr.
Roller Replacement	.5 Hr.
Seal Replacement	.5 Hr.
Switch/Magnet Replacement	1.0 Hr.
Travel Time	4.0 Hr.



# Fire and Rescue Apparatus

## Seven (7) Year Material and Workmanship

### PUC-NG Pump

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the purchaser who first puts the product in service ("Buyer"):

<b>Coverage:</b>	<b>The PUC-NG Pump, intergrated pump transmisison, and its components manufactured under the Pierce brand in its Fire and Rescue Apparatus vehicle shall be free from failures caused by defects in material and workmanship</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Seven (7) Years - or - 3000 Pump Hours</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<b>This limited warranty applies to the PUC Pump and all its components manufactured under the Pierce brand, including the integrated pump transmission. Items not manufactured under the Pierce brand such as valves, relief valves or wear items such as wear rings, seals, bearings or costs of removal, transporting, storing, or reinstallation are not covered by this six-year limited warranty and are instead covered under the Pierce Basic One Year Limited Warranty.</b>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

4/21/2022 WA0390



Ten (10) Year Material and Workmanship
Stainless Steel Piping
Limited Warranty

1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Table with 2 columns: Label (Coverage, Warranty Begins, Warranty Period Ends After, Conditions and Exclusions) and Description (Stainless steel piping shall be free from structural failures... The date of the original purchase invoice... Ten (10) Years - or - 100,000 Miles... Pierce's obligation under this warranty is limited to repairing or replacing without charge... This warranty does not cover the use of fluoroprotein (FP) type foam...)

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

- (a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce...
(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions...
(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce...
(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period...

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability.

2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent.

4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use.



# Fire and Rescue Apparatus

## Twenty (20) Year Structural Integrity Pierce Aerial Device

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Each new Pierce Aerial Device shall be free from defects in material and workmanship.  Aerial Device Models Covered by this warranty include: Aerial Platforms Aerial Ladders SkyBoom
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Twenty (20) Years - or - 100,000 Miles
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This warranty applies only to the torque box, turntable, aerial sections and other structural components of the aerial device, as identified in the Pierce specifications for the aerial device. This warranty shall be void if, or to the extent that the aerial device is not maintained in strict compliance with NFPA Standard 1911 in effect at time of sale, including such periodic inspections and testing by qualified third parties as are required by that Standard as it may be in effect from time to time. Proof of such compliance shall accompany any claims under this warranty. Third party testing agencies known to Pierce to be qualified for such purposes may be obtained from the Pierce Customer Service Department  This warranty does not apply to damage caused by corrosion.

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY.

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES.

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.





## AMITY FIRE AND SAFETY, INC.

3750 CHESTNUT ROAD  
ALBURTIS, PA 18011-0451  
Phone: 610-966-3115  
Fax: 610-965-6313

### \* STANDARD FIVE YEAR WARRANTY \*

(standard warranty is in effect for parts shipped after 4/15/10)

#### Three Function Swivel

**A. PRESHIPMENT TESTING** The Three Function Swivel fabricated by Amity which is exposed to pressure during normal use is subject to final inspection using the following pressure minimums:

1. Hydrostatic applications will be tested to 400 PSI unless specified otherwise on approved drawings. Operating pressures on installed systems are not to exceed 250 PSI at any point in the system. Warranty will be voided and Amity will not be held liable for failure and/or damage occurring from Water Hammering or freezing of water in any system.
2. Hydraulic applications will be tested to 4000 PSI. System operating pressure in application to be 3000 PSI maximum.
3. Dielectric and Continuity Test all circuits. 30 Amp max current loading.

**B. THREE FUNCTION SWIVEL MAINTENANCE** – Our Three Function Swivel has been fully tested at assembly. Under no circumstances is there to be any maintenance performed internally or externally to the Three Function Swivel by Purchaser or any other third party other than an authorized representative of or Amity itself. The Three Function Swivel is sealed and must remain so. The Three Function Swivel is designed for a long maintenance free life. Should any problems occur or replacement be necessary, first contact Amity. There is to be no field maintenance performed on the Three Function Swivel .

**C. MOUNTING REQUIREMENTS** – The following are the mounting requirements for the Three Function Swivel:

1. Mounting points and methods are to be determined at the initial design stage. All drawings and applicable documentation must be signed off by both parties and filed for future reference. No deviation to the approved mounting is allowed without approval from Amity.
2. The Three Function Swivel is to be mounted concentric to the center of the turntable bearing.
3. All inlet and outlet plumbing to conform to swivel mounting, under no circumstances is the Three Function Swivel to be positioned to match connections. This will avoid putting excessive loads on the Three Function Swivel. All tubing or piping to be supported by means other than the Three Function Swivel.

#### **D. LIMITED WARRANTY, LIMITATIONS, CONDITIONS AND PROCEDURES REQUIRED.**

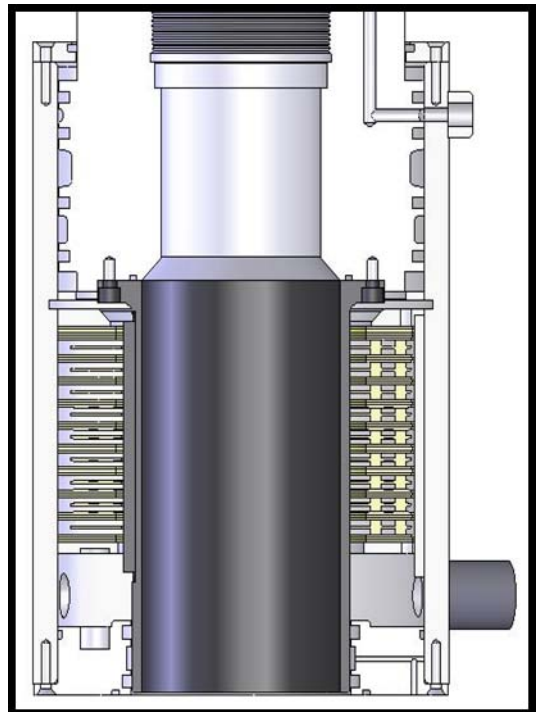
1. The Three Function Swivel is warranted to be free of defects in labor and/or materials for a period of five (5) years from the Date of Service. For purposes here, "Date of Service" shall mean the date when the Three Function Swivel, or the unit to which the Three Function Swivel is incorporated, passes final Underwriters Laboratory testing, or similarly compliant testing, and is certified for service. Evidence of such Date of Service shall be required in connection with any warranty claim by Purchaser.
2. The Three Function Swivel shall be repaired or replaced at the sole option and expense of the Amity provided the Three Function Swivel alleged to be defective was used for its intended normal use of operation and subject to the following qualifications and limitations.
3. Any alteration of the Three Function Swivel without consent from Amity is strictly forbidden and shall void warranty.
4. No welding shall be performed on finished Three Function Swivel.
5. No responsibility is assumed for any malfunctions or damages which are occasionally caused by foreign objects which may be ingested into water or hydraulic systems such as, but not limited to stones, sand or metal chips.
6. Amity assumes responsibility for our Three Function Swivel, which is defective only, and therefore, it will not assume responsibility for labor to either remove or install our Three Function Swivel unless it agrees in writing to assume such responsibility.
7. Unless otherwise approved in writing by the Amity all returns of defective Three Function Swivels (or allegedly defective Three Function Swivels) are at Purchaser's expense and must include a RGA number issued by the Amity.

8. All warranty claims must be presented at the time the problem occurs, or as soon as practical thereafter, either called or faxed to the Amity and include the numbers on the assembly's Amity's label with a detailed explanation of the difficulty in order for the matter to be appropriately evaluated and resolved.
9. Amity will not be held liable for damage incurred during shipment.
10. No responsibility shall be assumed for misuse or improper mounting, unreasonably use or abuse of the Three Function Swivel and or failure to provide or use improper maintenance, failure to follow written installation and use in instruction or any use other than the customary designed use.

**THE REMEDIES PROVIDED IN THE ABOVE EXPRESS LIMITED WARRANTY AND ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE. NO OTHER EXPRESS WARRANTIES ARE MADE. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE ARE LIMITED IN DURATION AS SET FORTH ABOVE. IN NO EVENT SHALL THE AMITY ASSUME OR BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

**THE WITHIN DESCRIBED WARRANTY SHALL ONLY BE AFFORDED TO THE ORIGINAL PURCHASER OR FOR INCORPORATION INTO ANOTHER UNIT AND TO FIRST PURCHASER AS PART OF COMPLETED UNIT, HOWEVER, THE WARRANTY PERIOD OF FIVE YEARS IS FROM THE DATE OF SERVICE WITH THE UNDERSTANDING IT IS INSTALLED WITHIN A REASONABLE TIME PERIOD.**

Dated: \_\_\_\_\_, 20\_\_





# Fire and Rescue Apparatus

## Five (5) Year Material and Workmanship Aerial Hydraulic System Components

## Three (3) Year Material and Workmanship Aerial Hydraulic System Seals

# Limited Warranty

### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

<b>Coverage:</b>	<b>The aerial hydraulic system components and seals shall be free from component or structural failures caused by defects in material and/or workmanship.</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Five (5) Years and Three (3) Years</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<b>Pierce's obligation under this warranty is limited to repairing or replacing without charge, as Pierce may elect, the hydraulic lines, fittings, valves, seals, cylinders, filters, pumps, hydraulic motors, rotary actuators, or components which Pierce determines to have failed due to defective material and workmanship.</b>  <b>This warranty shall not apply unless the aerial device is inspected in accordance with NFPA 1911 Standard for Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus and the applicable Pierce Operator and Maintenance Manuals.</b>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.





## AMITY FIRE AND SAFETY, INC.

3750 CHESTNUT ROAD  
ALBURTIS, PA 18011-0451  
Phone: 610-966-3115  
Fax: 610-965-6313

### \* STANDARD TEN YEAR WARRANTY \*

(standard warranty is in effect for parts shipped after 4/15/10)

#### Telescopic Waterways

**A. PRESHIPMENT TESTING** All waterways fabricated by Amity are final inspected using the following pressure minimums:

1. Hydrostatic applications will be tested to 400 PSI unless specified otherwise on approved drawings. Operating pressures on installed systems are not to exceed 250 PSI at any point in the system. Warranty will be voided and Amity will not be held liable for failure and/or damage occurring from Water Hammering or freezing of water in any system.

#### **B. COMPONENTS DESCRIPTION AND MAINTENANCE**

1. All components are thoroughly greased at assembly. Since internally lubricated seals are used, regular greasing is not required. We recommend components not be greased at installation.
2. Slip Tube Assemblies may be greased at the Amity's regularly scheduled Aerial Inspections. The seals in the Slip Tube Assemblies are self-lubricating, so greasing is not mandatory. We do recommend a visual inspection of the Slip Tube Assembly while it is fully extended after initial installation, from that point on we recommend inspection every ten hours of aerial operation. If any deposits of aluminum appear, they are to be rubbed off using a Teflon scouring pad. Slip Tube Assemblies are designed to give long maintenance free service; however, like any product, problems may occur and periodic visual inspections will aid in determining if a potential problem exists and warrants a call to us. Care must be taken to keep debris off of extended tubes. We recommend wiping tubes with light oil (10 weight) or hydraulic oil after use, if tubes appear to have contamination on them. Under no circumstance are tubes to be cleaned with lacquer thinner, or any other solvent.

#### **C. LIMITED WARRANTY, LIMITATIONS, CONDITIONS AND PROCEDURES REQUIRED.**

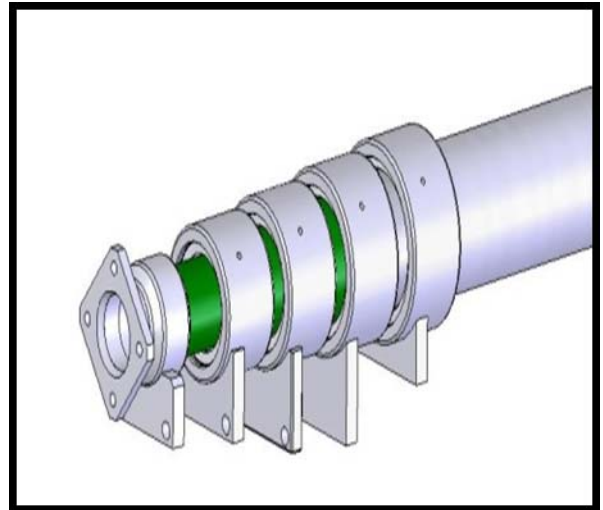
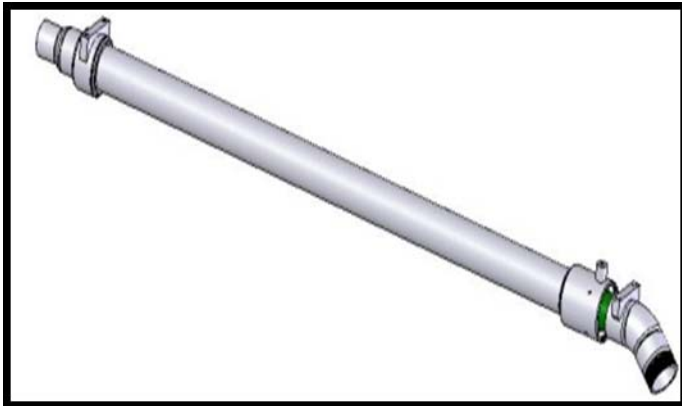
1. Products are warranted to be free of defects in labor and/or materials for a period of ten years from the date of purchase from the Amity and shall be repaired or replaced at the sole option and expense of the Amity provided the products alleged to be defective was used for its intended normal use operation and subject to the following qualifications and limitations.
2. Any alteration of product without consent from Amity is strictly forbidden and shall void warranty.
3. No welding shall be performed on finished product.
4. No responsibility is assumed for any malfunctions or damages which are occasionally caused by foreign objects which may be ingested into water system such as, but not limited to stones, sand or metal chips.
5. Amity assumes responsibility for our product, which is defective only, and therefore, it will not assume responsibility for labor to either remove or install our product unless it agrees in writing to assume such responsibility.
6. Unless otherwise approved in writing by the Amity all returns of defective (or allegedly defective products) are at Purchaser's expense and must include a RGA number issued by the Amity.
7. All warranty claims must be presented at the time the problem occurs, or as soon as practical thereafter, either called or faxed to the Amity and include the numbers on the assembly's Amity's label with a detailed explanation of the difficulty in order for the matter to be appropriately evaluated and resolved.
8. Amity will not be held liable for damage incurred during shipment.
9. No responsibility shall be assumed for misuse or improper mounting, unreasonably use or abuse of the Product and or failure to provide or use improper maintenance, failure to follow written installation and use in instruction or any use other than the customary designed use.

**THE REMEDIES PROVIDED IN THE ABOVE EXPRESS LIMITED WARRANTY AND ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE. NO OTHER EXPRESS WARRANTIES ARE MADE. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR**

FITNESS FOR A PARTICULAR PURPOSE OR USE ARE LIMITED IN DURATION AS SET FORTH ABOVE. IN NO EVENT SHALL THE AMITY ASSUME OR BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

THE WITHIN DESCRIBED WARRANTY SHALL ONLY BE AFFORDED TO THE ORIGINAL PURCHASER OR FOR INCORPORATION INTO ANOTHER UNIT AND TO FIRST PURCHASER AS PART OF COMPLETED UNIT, HOWEVER, THE WARRANTY PERIOD OF TEN YEARS COMMENCES UPON INSTALLATION INTO FINAL ASSEMBLY WITH THE UNDERSTANDING IT IS INSTALLED WITHIN SIX MONTHS OF PURCHASE.

Dated: \_\_\_\_\_, 20\_\_





# Fire and Rescue Apparatus

## Four (4) Year Pro-Rated Paint and Corrosion

### Aerial Device

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

<b>Coverage:</b>	<b>Aerial device shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection for exterior surfaces.</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Four (4) Years</b>
<b>Conditions and Exclusions:</b>	<p><b>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</b></p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b>  0-24 months 100%  25-48 months 50%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b>  0-24 months 100%  25-48 months 50%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b>  0-24 months 100%  25-48 months 50%</p> <p><b>Corrosion Perforation</b>  0-24 months 100%  25-48 months 50%</p> <p><b>This limited warranty applies only to exterior paint.</b></p> <p><b>Items not covered by this warranty include:</b>  (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual).  (b) UV paint fade.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



## MANUFACTURER'S LIMITED WARRANTY - HYDRAULIC GENERATORS

### STANDARD

Harrison Hydra-Gen® (Seller) extends to the original purchaser (Buyer) of goods for use (whether it be an OEM, dealer, re-seller, or end-user) the following warranty covering the Harrison Hydra-Gen® Generator System, subject to the qualifications indicated. Harrison Hydra-Gen® Generator Systems shall consist of a Harrison generator tray assembly and its' components, a Harrison hydraulic pump assembly, and a Harrison supplied meter assembly; unless otherwise specified in below guidelines.

Harrison Hydra-Gen® warrants the original purchaser that the Generator System manufactured or supplied by Harrison Hydra-Gen® will be free from defects in materials and workmanship, provided such goods are:

1. Installed, operated and maintained in accordance with the Harrison Hydra-Gen® owner's manual, and/or written installation addendums.
2. Each new application has been reviewed and approved by the Harrison Hydra-Gen® Application Engineering Group.

### PERIOD OF WARRANTY

\*Two (2) years or 2000 hours of usage, whichever comes first, from the date the product is shipped from Harrison to the Installer.

**\*The END USER must complete and return to Harrison Hydra-Gen® the Harrison Hydra-Gen® Warranty Registration Card, Form WR-1, provided in the generator manual and provided online @ [www.harrisonhydragen.com](http://www.harrisonhydragen.com), within 45 days of delivery.**

**Warranty includes all parts and labor.** In addition, maintenance items that are contaminated or damaged by a proven warrantable failure are covered in years 1-2, and Labor time up to 4 hours, travel time up to 2.5 hours, and mileage up to 100 miles for warranty related repairs are covered.

Repair or replacement parts are warranted for ninety (90) days from date of purchase, excluding labor and travel expenses. Any part repaired or replaced during the warranty period assumes the remainder of the warranty or ninety (90) days, whichever is greater.

Only components supplied by Harrison Hydra-Gen® are covered under this warranty.

There is no other express warranty. Implied warranties, including merchantability and fitness for a particular purpose, are limited to periods set forth above and to the extent permitted by law. Any and all implied warranties are excluded. In no event is Harrison Hydra-Gen® liable for incidental or consequential damages.

The Buyer (OEM, dealer, re-seller, or end-user) must notify Harrison Hydra-Gen®, an Authorized Distributor, or a designated Harrison Hydra-Gen® Service Representative, **in writing**, within thirty (30) calendar days after goods or parts failed to meet this warranty.

The sole liability of Harrison Hydra-Gen® and the Buyer's sole remedy for a failure of goods under this warranty and for any and all other claims arising out of the purchase and use of the goods, including negligence on the part of the manufacturer, shall be limited to the repair or replacement of the product, at the option of Harrison Hydra-Gen®, of the parts that do not conform to this warranty, provided that the product or parts are returned to the Harrison Hydra-Gen® manufacturing facility.

A Returned Goods Authorization (RGA) is required for all products and parts being returned, and may be requested by phone, fax, email, or mail.

Failure to make timely delivery to Harrison Hydra-Gen® of the goods claimed to be defective shall void any warranty.

Unless previous written agreements have been made between the Buyer and Harrison Hydra-Gen®, the Buyer shall be responsible for all freight and shipping charges in connection with the delivery of the goods claimed to be defective, to Harrison Hydra-Gen® at its manufacturing facility, and the return of repaired or replacement goods to the Buyer.

If Harrison Hydra-Gen® determines that no warranty coverage is available for goods claimed to be defective, whether determination is based on the warranty being voided, the product failure

being due to a cause not covered by the warranty, the failure to make a timely and proper warranty claim, or otherwise, the Buyer shall have the option of either:

1. Having the goods not repaired and returned to the Buyer, freight collect.
2. Having the goods repaired, If Harrison Hydra-Gen® determines that the product is repairable, and returned to the Buyer, freight collect. The Buyer will be responsible for all costs associated with the repair and testing of the goods and shall authorize Harrison Hydra-Gen®, in writing, to have the goods repaired and tested by Harrison Hydra-Gen®.

The owner is obligated to operate and maintain the goods in accordance with the recommendations published by Harrison Hydra-Gen® in the owner's manual. The owner is responsible for the costs associated with such maintenance and any adjustments that may be required.

This warranty shall not apply to:

1. Damages or defects caused by normal wear, accident, misuse, abuse, abnormal operating conditions, negligence, corrosion, accident causes, or attributable to written specifications or instructions furnished by the installer.
2. Damages or defects caused by improper maintenance in accordance with the Harrison Hydra-Gen® product manuals and operating guidelines.
3. Damages caused by operator error.
4. Damages or defects caused by improper installation.
5. Damages or defects caused by inadequate water drainage provided by the installer in the area where the generator is installed or stored.
6. Damages or defects caused by inadequate air flow space or ventilation provided by the installer in the area where the generator is installed.
7. Any product or part altered or modified by the installer or service facility without written prior consent by Harrison Hydra-Gen®.
8. Cost of normal maintenance, adjustments, installation or start-up.
9. Normal wear items and components needing periodic maintenance such a rubber hoses and filters.
10. Excessive labor due to components being concealed in vehicle as a result of installation.
11. Water, road debris, excessive dirt, salt, abrasive particles, or large foreign objects found in the generator.
12. Telephone or other communications expense.
13. Paint, hydraulic fluid, and interconnecting hoses (internal or external to system assemblies).



This warranty gives you specific legal rights, and you may also have other rights that may vary from state to state or province to province.

No person is authorized to give any other warranties or to assume any other liabilities behalf of Harrison Hydra-Gen®, unless made or assumed in writing by an officer of Harrison Hydra-Gen®.

Contact Harrison Hydra-Gen® for questions regarding your warranty rights and responsibilities at (281) 807-4420; or visit our website at [www.harrisonhydragen.com](http://www.harrisonhydragen.com).





# Fire and Rescue Apparatus

## Ten (10) Year Pro-Rated Paint and Corrosion

### Custom Body

# Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

<b>Coverage:</b>	<b>Exterior surfaces of the body shall be free from blistering, peeling, corrosion or any other adhesion defect caused by defective manufacturing methods or paint material selection.</b>
<b>Warranty Begins:</b>	<b>The date of the original purchase invoice (issued when the product ships from the factory).</b>
<b>Warranty Period Ends After:</b>	<b>Ten (10) Years</b>
<b>Conditions and Exclusions:</b>  <b>See Also Paragraphs 2 thru 4</b>	<p><b>This limited warranty is applicable to the vehicle in the following percentage costs of warranty repair, if any:</b></p> <p><b>Topcoat Durability &amp; Appearance: Gloss, Color Retention &amp; Cracking</b>  0-72 months 100%  73-96 months 50%  97-120 months 25%</p> <p><b>Integrity of Coating System: Adhesion, Blistering/Bubbling</b>  0-36 months 100%  37-84 months 50%  85-120 months 25%</p> <p><b>Corrosion: Dissimilar Metal and Crevice</b>  0-36 months 100%  37-48 months 50%  49-72 months 25%  73-120 months 10%</p> <p><b>Corrosion Perforation</b>  0-120 months 100%</p> <p><b>This limited warranty applies only to exterior paint. Paint on the vehicle's interior is warranted only under the Pierce Basic One Year Limited Warranty.</b></p> <p><b>Items not covered by this warranty include:</b>  (a) Damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual).  (b) UV paint fade.  (c) Any cab not manufactured by Pierce.</p>

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

*Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.*





# Fire and Rescue Apparatus

## Three (3) Year Material and Workmanship

### Goldstar® Gold Leaf Lamination

### Limited Warranty

#### 1. LIMITED WARRANTY

Subject to the limitations and exclusions set forth below, Pierce Manufacturing provides the following warranty to the Buyer:

Coverage:	Each Goldstar® gold leaf lamination shall be free from defects in material and workmanship.
Warranty Begins:	The date of the original purchase invoice (issued when the product ships from the factory).
Warranty Period Ends After:	Three (3) Years
Conditions and Exclusions:  See Also Paragraphs 2 thru 4	This warranty does not cover damage from lack of maintenance and cleaning (proper cleaning and maintenance procedures are detailed in the Pierce operation and maintenance manual).

This limited warranty shall apply only if the product is properly maintained in accordance with Pierce's maintenance instructions and manuals and is used in service which is normal to the particular model. Normal service means service which does not subject the product to stresses or impacts greater than normally result from careful use. If the Buyer discovers a defect or nonconformity, it must notify Pierce in writing within thirty (30) days after the date of discovery, but in any event prior to the expiration of the warranty period. THIS LIMITED WARRANTY MAY NOT BE ASSIGNED OR OTHERWISE TRANSFERRED BY THE BUYER TO ANY SUBSEQUENT USER OR PURCHASER OR TO ANY OTHER PERSON OR ENTITY.

Notwithstanding anything to the contrary herein, Pierce makes no warranty whatsoever as to:

(a) any integral parts, components, attachments or trade accessories of or to the product that are not manufactured by Pierce, including but not limited to engines, transmissions, drivelines, axles, water pumps and generators; with respect to all such parts, components, attachments and accessories, Pierce shall assign to Buyer the applicable warranties, if any, made by the respective manufacturers thereof;

(b) any vehicle, chassis, or component, part, attachment or accessory damaged by misuse, neglect, fire, exposure to severe environmental or chemical conditions, acidic environment, improper maintenance, accident, crash, or force majeure such as natural disaster, lightning, earthquake, windstorm, hail, flood, war or riot;

(c) any vehicle, chassis or component, part, attachment or accessory that has been repaired, altered or assembled in any way by any person or entity other than Pierce which, in the sole judgment of Pierce, adversely affects the performance, stability or purpose for which it was manufactured; or

(d) products or parts which may in the ordinary course wear out and have to be replaced during the warranty period, including, but not limited to, tires, fluids, gaskets and light bulbs. Pierce assumes no responsibility for the assembly of its parts or subassemblies into finishing products or vehicles unless the assembly is performed by Pierce.

The original purchaser may void this warranty in part or in its entirety if the product is repaired or replaced (a) without prior written approval of the Pierce Customer Service Department; or (b) at a facility which has not been approved by Pierce as to technical capability. Any repairs, modifications, alterations or aftermarket parts added after manufacture without the authorization of Pierce may void this warranty.

#### 2. DISCLAIMERS OF WARRANTIES

THE WARRANTY SET FORTH IN PARAGRAPH 1 IS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY PIERCE. PIERCE HEREBY DISCLAIMS AND EXCLUDES ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY, ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE.

#### 3. BUYER'S EXCLUSIVE REMEDY

If the product fails to conform to the warranty set forth in paragraph 1 during the warranty period, and such nonconformity is not due to misuse, neglect, accident or improper maintenance, Buyer must notify Pierce within the time period specified in paragraph 1, and shall make the product available for inspection by Pierce or its designated agent. At the request of Pierce, any allegedly defective product shall be returned to Pierce by Buyer for examination and/or repair. Buyer shall be responsible for the cost of such transportation, and for risk of loss of or damage to the product during transportation. Within a reasonable time, Pierce shall repair or replace (at Pierce's option and expense) any nonconforming or defective parts. Repair or replacement shall be made only by a facility approved in advance in writing by Pierce. THIS REMEDY SHALL BE THE EXCLUSIVE AND SOLE REMEDY FOR ANY BREACH OF WARRANTY.

#### 4. EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

Notwithstanding anything to the contrary herein or in any agreement between Pierce and Buyer, IN NO EVENT SHALL PIERCE BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, OR PUNITIVE DAMAGES WHATSOEVER, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORY OF LAW OR EQUITY, WITH RESPECT TO VEHICLES OR OTHER PRODUCTS SOLD BY PIERCE, OR THEIR OPERATION OR FAILURE TO OPERATE, OR ANY DEFECTS THEREIN, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATED THERETO, REGARDLESS OF WHETHER PIERCE HAS BEEN INFORMED OF THE POSSIBILITY OF ANY SUCH DAMAGES. Without limiting the generality of the foregoing, Pierce specifically disclaims any liability for property or personal injury damages, penalties, damages for lost profits or revenues, loss of vehicles or products or any associated equipment, cost of substitute vehicles or products, down-time, delay damages, any other types of economic loss, or for any claims by any third party for any such damages.

Note: Any Surety Bond, if a part of the sale of the vehicle as to which this limited warranty is provided, applies only to this Pierce Basic One Year Limited Warranty for such vehicle, and not to other warranties made by Pierce in a separate document (if any) or to the warranties (if any) made by any manufacturer (other than Pierce) of any part, component, attachment or accessory that is incorporated into or attached to the vehicle.



# Certification Document CD0156 Statement of Compliance to NFPA 1901-2016 Vehicle Stability

Pierce fire apparatus comply with NFPA 1901 Section 4.13 Vehicle Stability using the tilt table method. As prescribed by the standard, each apparatus is compared to a substantially similar apparatus that has been loaded as required and tested on a tilt table per the SAE J2180 test procedure. If the apparatus configuration was not expected to meet the minimum tilt table criteria, then it will be equipped with the Electronic Stability Control option. A listing of all tested apparatus is maintained by the Research and Development lab and is available for inspection at the Appleton factory.



**4.13 Vehicle Stability.**

**4.13.1\* Rollover Stability.** The apparatus shall meet the criteria defined in 4.13.1.1, or it shall be equipped with a stability control system in accordance with 4.13.1.2.

**4.13.1.1** The apparatus shall meet the criteria defined in either of the following:

- (1)\*The apparatus shall remain stable to 26.5 degrees in both directions when tested on a tilt table in accordance with SAE J2180, *A Tilt Table Procedure for Measuring the Static Roll-over Threshold for Heavy Trucks*.
- (2) The calculated or measured center of gravity (CG) shall be no higher than 80 percent of the rear axle track width.

**4.13.1.1.1** Compliance shall be certified by testing, calculating, or measuring the apparatus or by comparing the apparatus to a compliant, substantially similar example apparatus, and the certification shall be delivered with the fire apparatus.

**4.13.1.1.2** The example apparatus shall be considered substantially similar if it includes a chassis with the same or higher CG height, the same or narrower rear axle track width, the same or greater water tank size and CG height, the same type of front and rear suspension, and the same type and size of aerial device.

**4.13.1.1.3** For purposes of 4.13.1.1, the apparatus shall be loaded with fuel, fire-fighting agents, hose, ladders, a weight of 250 lb in each seating position, and weight equivalent to the miscellaneous equipment allowance as defined in Table 12.1.2.

**4.13.1.1.3.1** If the apparatus is designed to meet a specified higher equipment loading or larger hose bed capacity or to carry additional ground ladders, these greater loads shall be included in the testing, calculating, or measuring.

**4.13.1.1.3.2** The weight added to the fire apparatus for the purpose of test, calculation, or measurement shall be distributed to approximate typical in-service use of the fire apparatus while not exceeding the manufacturer's published individual compartment weight ratings.

**4.13.1.2** If the apparatus is equipped with a stability control system, the system shall have, at a minimum, a steering wheel position sensor, a vehicle yaw sensor, a lateral accelerometer, and individual wheel brake controls.

## VALIDATION TEST: Multiple Tests

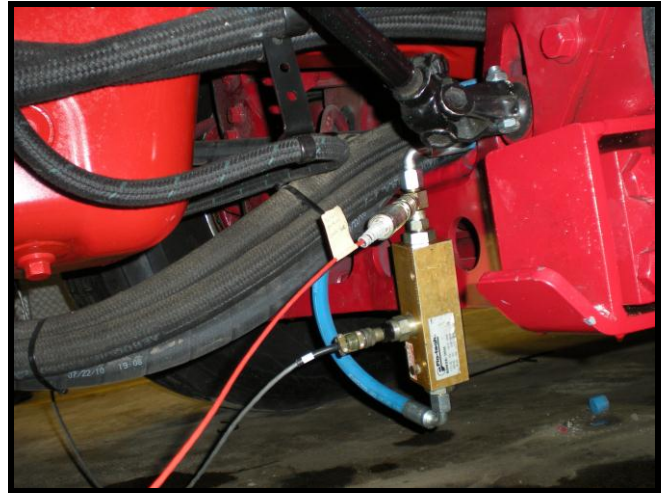
Pierce Manufacturing, Inc.

David W. Archer  
Vice President of Engineering  
June 1, 2017



## Certification Document CD0098 Power Steering System

Pierce Manufacturing, Inc. certifies that the power steering system as installed in our custom chassis meets the requirements of the component supplier, the NFPA 1901 and NFPA 1906 guidelines as applicable, and Pierce internal design standards.



**VALIDATION TEST:** RD1987, RD2055  
RD2056, RD2057, RD2058, RD2059

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "David W. Archer".

David W. Archer  
Director of Engineering  
June 03, 2011

PIERCE MANUFACTURING INC.®

AN OSHKOSH TRUCK CORPORATION® COMPANY



## Certification Document CD0189 Saber® FR - Enforcer™ Cab Integrity Certification

Pierce Manufacturing certifies the integrity of the Saber® FR – Enforcer™ cab relative to occupant protection.

A specimen representing the substantial structural configuration of the Saber® FR – Enforcer™ cab models has been successfully tested in accordance with the following standards.

- SAE J2422 Cab Roof Strength Evaluation – Quasi-Static Loading Heavy Trucks.
- European Occupant Protection Standard ECE Regulation No. 29.
- SAE J2420 COE Frontal Strength Evaluation – Dynamic Loading Heavy Trucks.

**Side Impact:** The test cab was subjected to dynamic preload where a 14,320 lb. moving barrier was impacted into the top corner with sufficient speed to impact the top corner of the cab with 13,000 ft-lbs. of energy. This satisfies SAE J2422 requirements.



**Frontal Impact:** The test cab was struck by the 14,320 lb. moving barrier at a speed sufficient to impart the required 65,098 ft-lbs. of energy. Twice the energy required per SAE J2420.



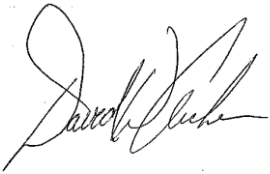
**Roof Crush:** This test cab was then subjected to a roof crush force of 110,000 lbs. This value exceeds the ECE 29 criteria, which must be equivalent to the front axle rating. This is 4.6 times higher than max. front axle rating.



Pass-Fail criteria of the SAE tests and the ECE 29 test is a measure of whether the “survival space” inside the cab is compromised, all doors remain shut, and the cab remained attached to the chassis frame in at least one location. The Pierce cab met all of the Performance Criteria requirements on all 3 integrity tests.

Witnessed and certified by:

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "David W Archer". The signature is stylized with a large initial "D" and "A".

David W Archer  
Vice President of Engineering



PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



**Certification Document CD0137**  
**Saber®FR – Enforcer™**  
**Cab Doors**

Pierce Manufacturing certifies the integrity of the Saber®FR – Enforcer™ cab doors.

Specimens representing the substantial structural configuration of the Saber®FR – Enforcer™ cab front and crew doors have been successfully tested to meet the following objectives:

**OBJECTIVES:**

- Survive a 200,000-cycle door slam test with a slam acceleration up to 20 g's on one representative
- Validate the assembly concept of the main structure of the door by evaluating the durability of the bonding technique.
- Evaluate components, structure, and mounting of the door during and the end of the test for fatigue and failure to ensure durability.
- Verify that the door seals function properly at the end of the test.
- Evaluate the new extrusions and castings of the cab doorframe during and at the end of the test for fatigue, failure, and deformation of seal flanges.
- Evaluate various mounting options for the electronic control module for durability during portions of the slam test.

**CONCLUSIONS:**

- The door structure and doorframe successfully completed a 200,000-cycle door slam test with a door slam acceleration of 20 g's.

**VALIDATION TEST: RD2425**

Pierce Manufacturing, Inc.

David Archer  
November 18, 2014





**Certification Document CD0132**  
**Saber®FR – Enforcer™**  
**Windshield Wiper System**

Pierce Manufacturing certifies the integrity of the Saber® FR –Enforcer™ Windshield Wiper System.

Specimens representing the configuration of the Saber® FR –Enforcer™ windshield wipers have been successfully tested to meet the following objectives:

**OBJECTIVES:**

- Complete 3,000,000 cycles of windshield wiper operation per SAE J198 § 6.2
- Inspect wiper motor, pivots, linkages, and mounts frequently to validate cumulative wiper system integrity.

**CONCLUSIONS:**

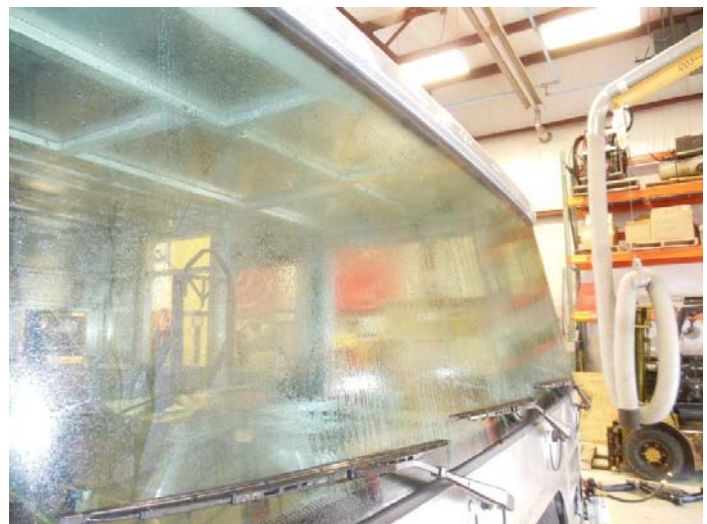
- The wiper linkage, pivots, and mounts successfully completed the 3,000,000 cycles.

**VALIDATION TEST: RD2462**

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "David Archer".

David Archer  
Vice President of Engineering





**Certification Document CD0133  
Saber® FR – Enforcer™  
Window Regulators**

Pierce Manufacturing certifies the integrity of the Saber®FR – Enforcer™ window regulators.

Specimens representing the substantial structural configuration of the Saber®FR – Enforcer™ window regulators have been successfully tested to meet the following objectives:

**OBJECTIVES:**

- Electric window regulators withstand 30,000 up-down cycles.

**CONCLUSIONS:**

- The electric window regulators withstood 30,000 cycles without failure.

**VALIDATION TEST:** RD2425

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "David Archer".

David Archer  
Vice President of Engineering







### Certification Document CD0134 Saber® FR – Enforcer™ Seats and Seat Belts

Pierce Manufacturing certifies the conformance of the Saber® FR – Enforcer™ cab seats and seat belts to Federal Motor Vehicle Safety Standards. Representative Saber® FR – Enforcer™ Seat and Seat Belt designs have been tested successfully in accordance with FMVSS 207.

Physical testing was performed to qualify passenger seats to meet Federal Motor Vehicle Safety Standards (FMVSS) 207 and 210. This requires that a minimum of 3,000 lbf be applied to both the lap and shoulder belts via appropriate body blocks. A third force of twenty times the mass of the seat must be applied at the center-of-gravity (CG) of the seat. All three forces are applied at the same time, reached within thirty seconds of the start of the test, and be held for a minimum of ten seconds.

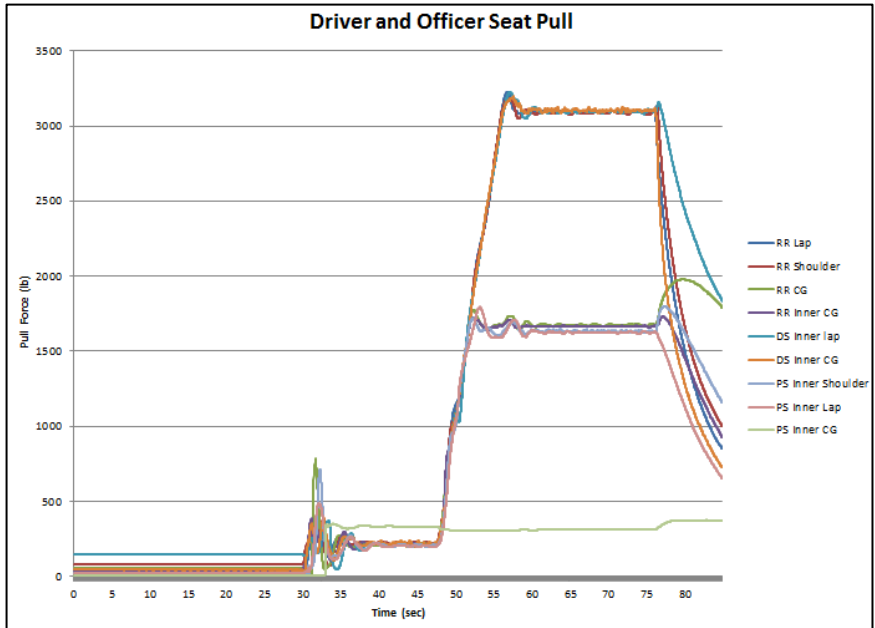
A force equal to twenty times the mass of the seat was applied to each seat in the direction opposite to the combination pull. A moment of 275 lb-ft was applied to the seat with reference to the H-point.

This testing ensures that the seat mounting and seat belt anchors are adequate to retain the seats and occupants in a crash. The Federal requirements are based on the high deceleration rates of passenger vehicles, so the design requirements are significantly more conservative considering the slower crash speeds of heavy trucks.

#### VALIDATION TESTS: RD2397

Pierce Manufacturing, Inc.

David Archer  
Vice President of Engineering



PIERCE MANUFACTURING INC.®

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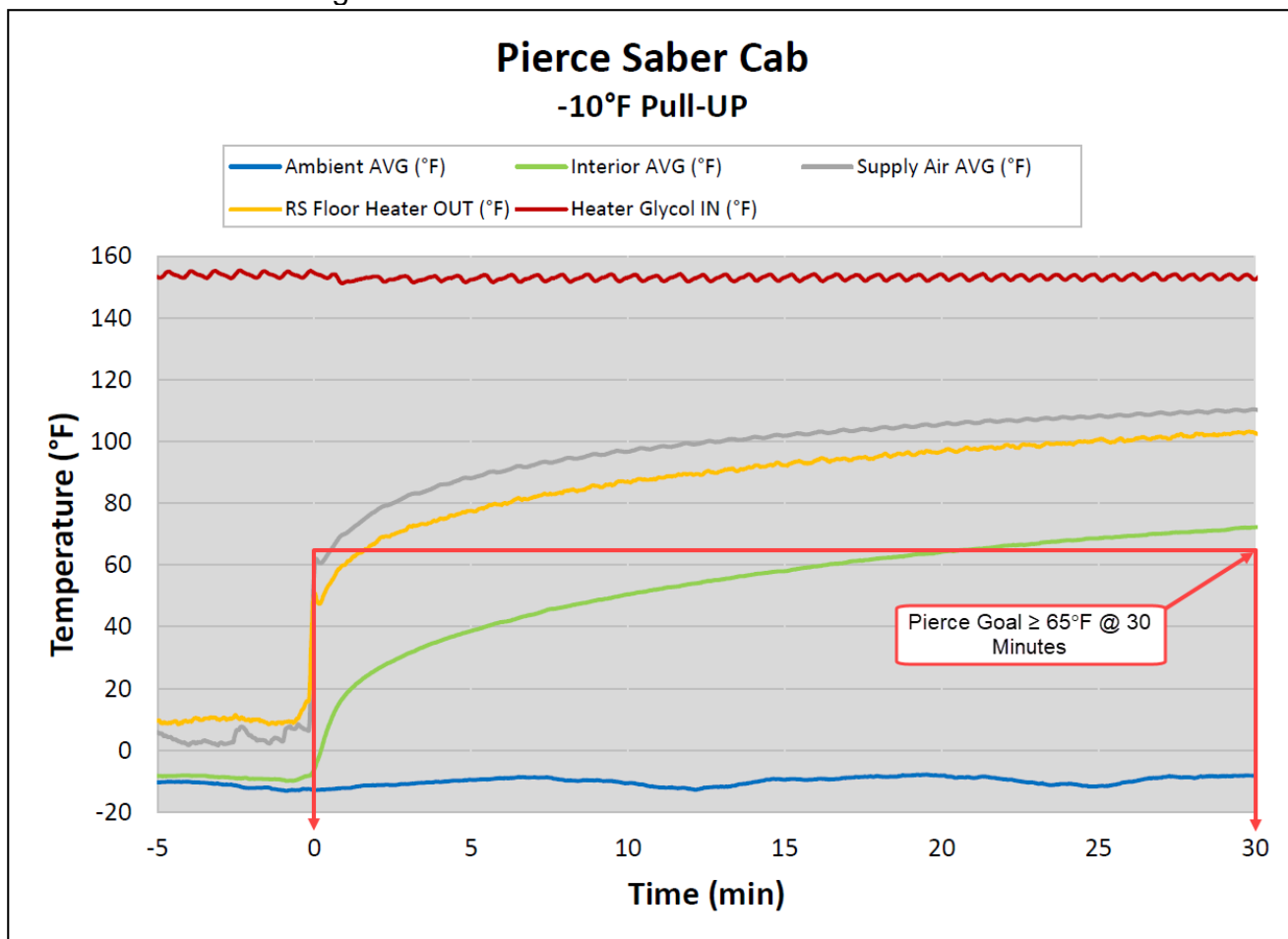


**Certification Document CD0165**  
**Saber® FR – Enforcer™**  
**Cab Heater**

Pierce Manufacturing certifies the performance of the Saber® FR – Enforcer™ cab heat systems.

The Saber®FR - Enforcer™ Heater System was tested successfully in an environmental chamber.

Heater testing was performed using the coolant supply procedures from SAE J381. The average cab temperature increased 82.3° F from -10° F to 72.3° F within the prescribed 30 minutes utilizing the right side under seat auxiliary heater. The cab was contained in a cold chamber at -10° F during the duration of the test.



**VALIDATION TEST: TR#19-0047 R00**

Pierce Manufacturing, Inc.

A handwritten signature in black ink, appearing to read "David Archer". The signature is fluid and cursive, with a large initial "D" and "A".

David Archer  
Vice President of Engineering

PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



### Certification Document CD0167 Saber® FR - Enforcer™ Air Conditioning & Defrost

Pierce Manufacturing certifies the performance of the Saber®FR - Enforcer™ cab air conditioning and defrost system.

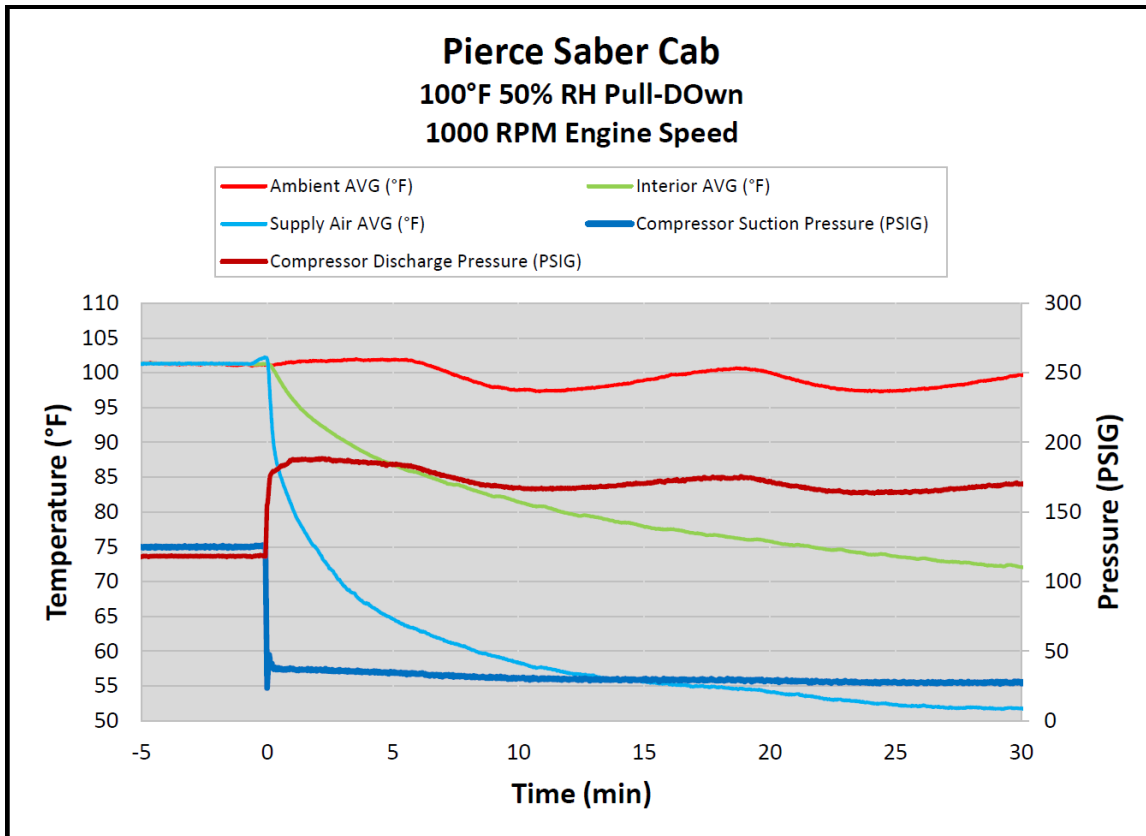
The air conditioning and defrost system was tested successfully in an environmental chamber.

#### Air Conditioning:

Air conditioning performance testing was conducted at an ambient of 100°F and 50 percent relative humidity. The engine speed was maintained at 1000 RPM with the QP21 compressor

The vehicle was heat soaked in the environmental chamber. All temperature probes were monitored to confirm temperature stabilization. The transient test began when all the vehicle doors were closed, and the air conditioning turned on.

The average cab temperature dropped to a maximum of 72.1°F within 30 minutes.



## Defrosting

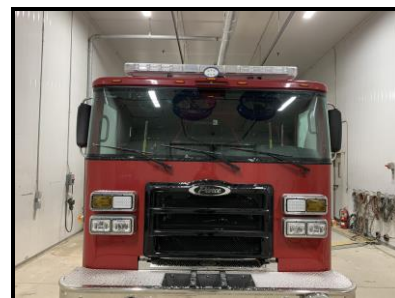
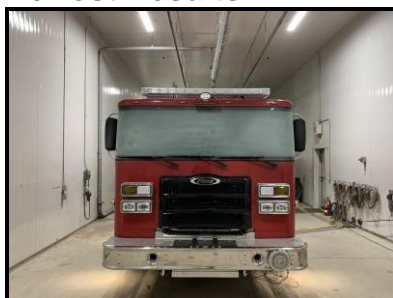
Defroster testing was performed in accordance with *SAE J381 Windshield Defrosting Systems Test Procedure and Performance Requirements-Trucks, Buses, and Multipurpose Vehicles*.

This SAE Recommended Practice establishes uniform test procedures and performance requirements for the defrosting system of enclosed cab trucks, buses, and multipurpose vehicles. Current engineering practice prescribes that for laboratory evaluation of defroster systems, an ice coating of known thickness be applied to the windshield and left- and right-hand side windows to provide more uniform and repeatable test results, even though under actual conditions such a coating would necessarily be scraped off before driving. The test condition, therefore, represents a more severe condition than the actual condition, where the defroster system must merely be capable of maintaining a cleared viewing area.

During the test, the vehicle is cold soaked to 0° F in a cold chamber. A prescribed layer of ice is applied to the windshield. The defroster is then run, and the advancing melt boundary marked as the test proceeds.

The SAE prescribed area of the windshield was 100% cleared and the side windows were 75% cleared within the specified 30-minute period.

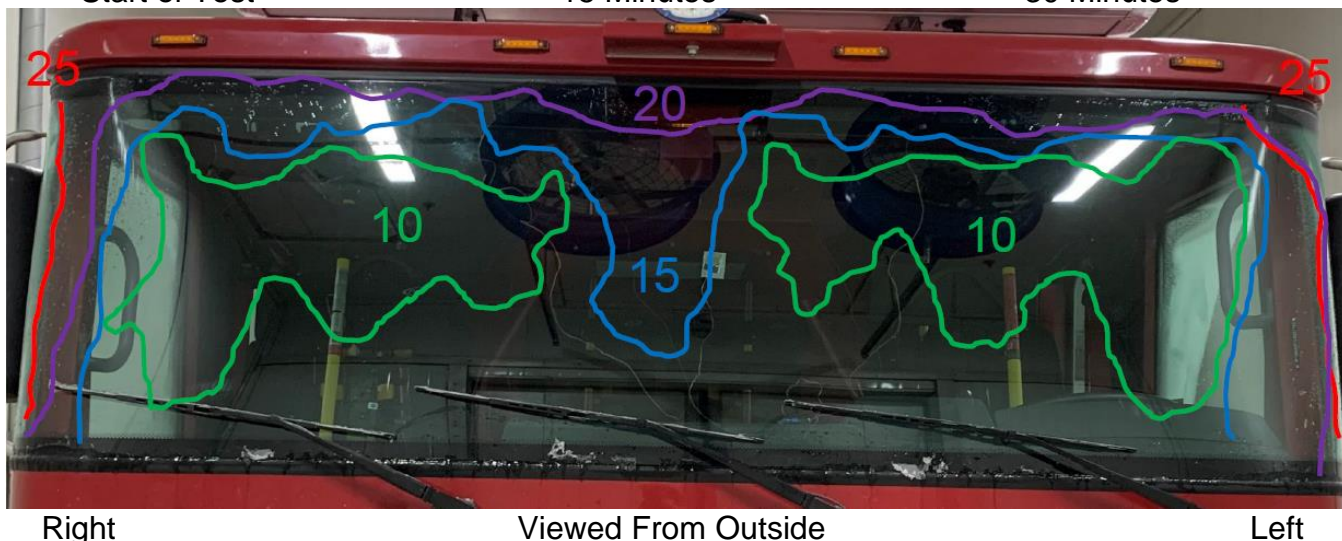
## Defrost Results



Start of Test

15 Minutes

30 Minutes



**VALIDATION TEST: MCC Test Report TR#19-0047 R00**

Pierce Manufacturing, Inc.



David W. Archer  
Vice President of Engineering

PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY

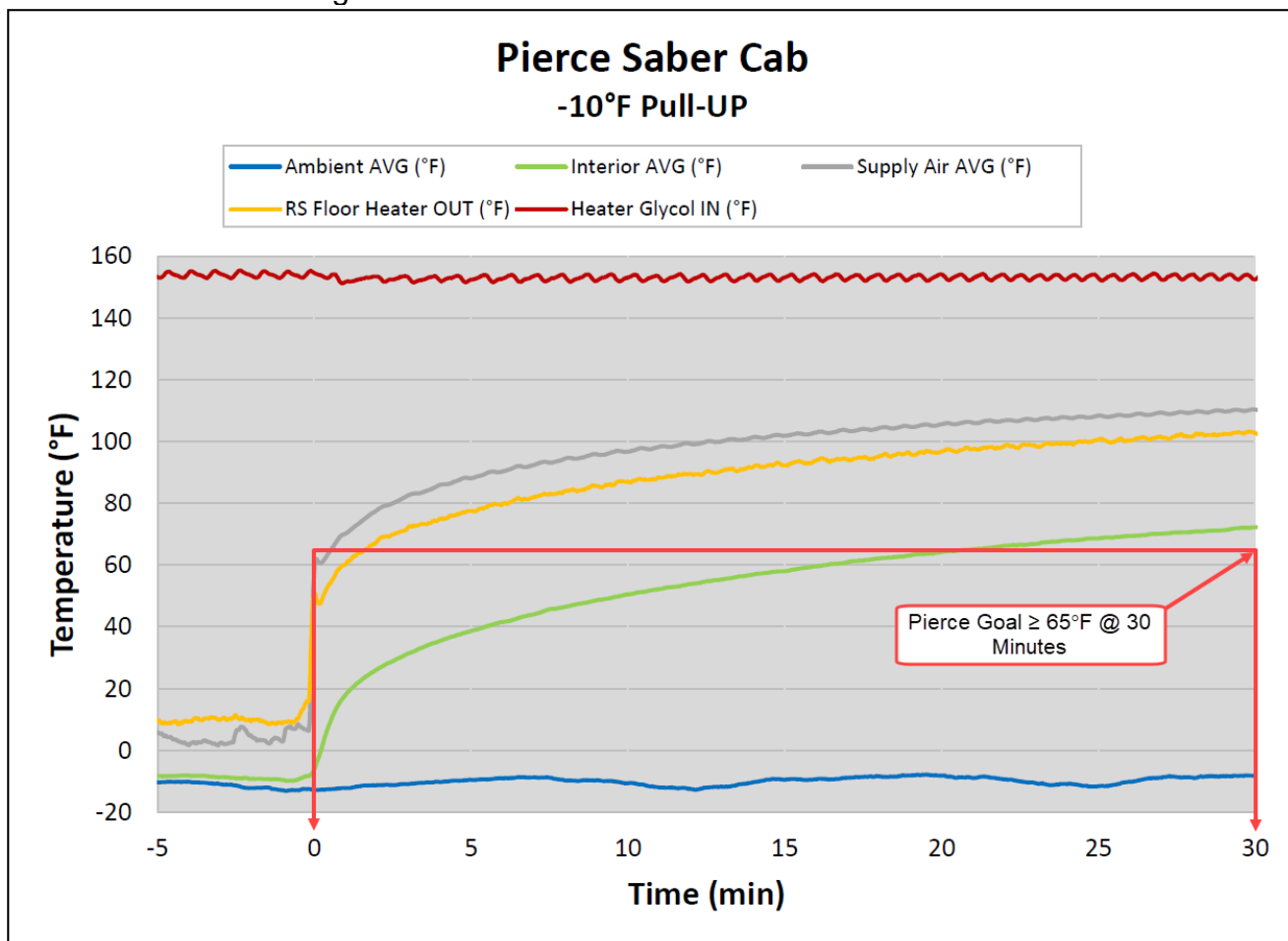


**Certification Document CD0174**  
**Saber® FR – Enforcer™**  
**Cab Heater**

Pierce Manufacturing, in conjunction with Mobile Climate Control, Inc., certifies the performance of the Saber® FR – Enforcer™ cab heat systems.

The Saber®FR - Enforcer™ Heater System was tested successfully in an environmental chamber.

Heater testing was performed using the coolant supply procedures from SAE J381. The average cab temperature increased 82.3° F from -10° F to 72.3° F within the prescribed 30 minutes utilizing the right side under seat auxiliary heater. The cab was contained in a cold chamber at -10° F during the duration of the test.




**VALIDATION TEST: TR#19-0047 R00**

Pierce Manufacturing, Inc.



David Archer  
Vice President of Engineering

Mobile Climate Control, Inc.



Brent Griffith  
Lead Test Engineer & Large Application Specialist



PIERCE MANUFACTURING INC.®

AN OSHKOSH CORPORATION® COMPANY



### Certification Document CD0175 Saber® FR - Enforcer™ Air Conditioning & Defrost

Pierce Manufacturing, in conjunction with Mobile Climate Control, Inc., certifies the performance of the Saber®FR - Enforcer™ cab air conditioning and defrost system.

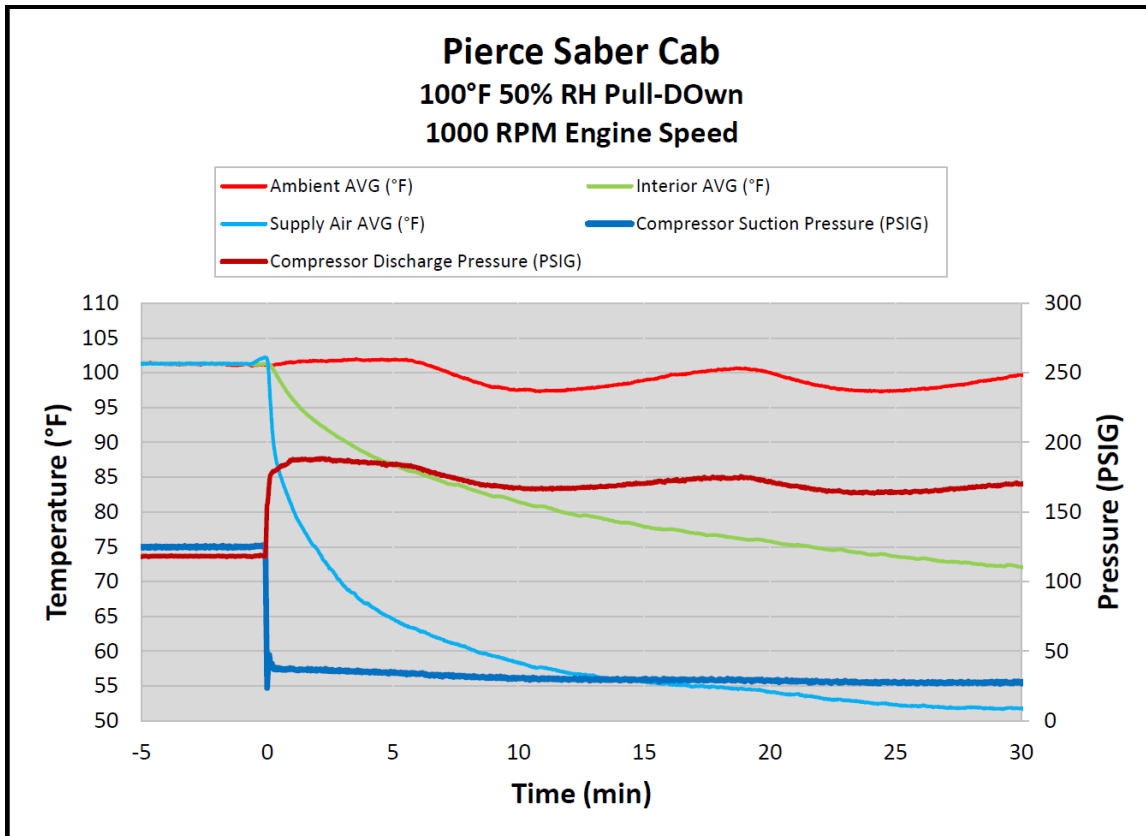
The air conditioning and defrost system was tested successfully in an environmental chamber.

#### Air Conditioning:

Air conditioning performance testing was conducted at an ambient of 100°F and 50 percent relative humidity. The engine speed was maintained at 1000 RPM with the QP21 compressor

The vehicle was heat soaked in the environmental chamber. All temperature probes were monitored to confirm temperature stabilization. The transient test began when all the vehicle doors were closed, and the air conditioning turned on.

The average cab temperature dropped to a maximum of 72.1°F within 30 minutes.



### Defrosting

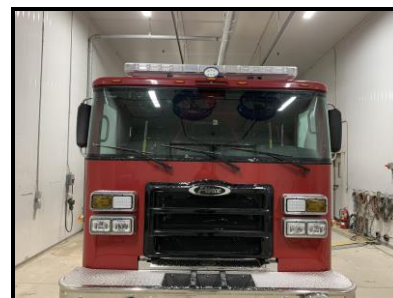
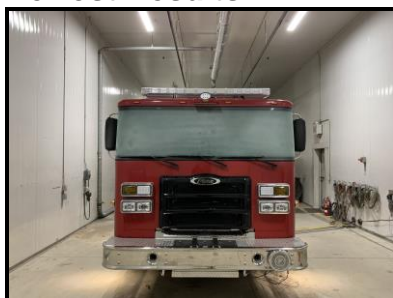
Defroster testing was performed in accordance with *SAE J381 Windshield Defrosting Systems Test Procedure and Performance Requirements-Trucks, Buses, and Multipurpose Vehicles*.

This SAE Recommended Practice establishes uniform test procedures and performance requirements for the defrosting system of enclosed cab trucks, buses, and multipurpose vehicles. Current engineering practice prescribes that for laboratory evaluation of defroster systems, an ice coating of known thickness be applied to the windshield and left- and right-hand side windows to provide more uniform and repeatable test results, even though under actual conditions such a coating would necessarily be scraped off before driving. The test condition, therefore, represents a more severe condition than the actual condition, where the defroster system must merely be capable of maintaining a cleared viewing area.

During the test, the vehicle is cold soaked to 0° F in a cold chamber. A prescribed layer of ice is applied to the windshield. The defroster is then run, and the advancing melt boundary marked as the test proceeds.

The SAE prescribed area of the windshield was 100% cleared and the side windows were 75% cleared within the specified 30-minute period.

### Defrost Results



Start of Test

15 Minutes

30 Minutes




Right

Viewed From Outside

Left

**VALIDATION TEST: MCC Test Report TR#19-0047 R00**

Pierce Manufacturing, Inc.



David W. Archer  
Vice President of Engineering

Mobile Climate Control, Inc.



Brent Griffith  
Lead Test Engineer & Large Application Specialist

Siddons Martin Emergency Group, LLC  
 7285 S. 700 West  
 Midvale, UT 84047  
 Business Number 221B



September 25, 2023

Ryan Lind, Fire Chief  
 SANTAQUIN CITY FIRE DEPARTMENT &  
 AMBULANCE  
 275 W MAIN ST  
 SANTAQUIN, UT 84655

**Proposal For: 2026 Santaquin 107' Tandem Ladder**

Siddons-Martin Emergency Group, LLC is pleased to provide the following proposal to SANTAQUIN CITY FIRE DEPARTMENT & AMBULANCE. Unit will comply with all specifications attached and made a part of this proposal. Total price includes delivery FOB SANTAQUIN CITY FIRE DEPARTMENT & AMBULANCE and training on operation and use of the apparatus.

Description	Amount
<hr/>	
<b>Qty. 1 - 1089 - Pierce-Custom Enforcer Aerial - 107'</b> <b>(Unit Price - \$1,709,049.00)</b>	
Delivery within 34-35 months of order date	
QUOTE # - SMEG-0006350-0	
	Vehicle Price \$1,712,898.90
	13% Prepay Discount (\$23,321.76)
	<b>1089 - UNIT TOTAL \$1,689,577.14</b>
	SUB TOTAL \$1,689,577.14
	<hr/> <b>TOTAL \$1,689,577.14</b>
	<b>PREPAY AMOUNT DUE</b>
	<b>WITHIN 30 DAYS \$219,645.03</b>

Price guaranteed until October 31<sup>st</sup>. Price is also contingent upon the customer receiving a 2024 EPA-compliant PACCAR engine which is in short supply and available only on a first come first serve basis. We expect to run out by the end of September. The prepay discount is also provided as a courtesy should the customer elect to pay for the order within 30 days of booking.

**Additional:** Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.

Persistent Inflationary Environment Notification: If the Producer Price Index of Components for Manufacturing [www.bls.gov Series ID: WPUID6112] (the "PPI") has increased at a compounded annual growth rate greater than 5.0% from the date of acceptance of this proposal letter (the "Order Month") and 14 months prior to the anticipated Ready for Pickup Date (the "Evaluation Month"), then the proposal price may be increased by an amount equal to any increase exceeding 5.0% for the

time period between the Order Month and the Evaluation Month. Siddons Martin and Pierce will provide documentation of such increase and the updated price for the customer's approval before proceeding with completion of the order along with an option to cancel the order.

**Taxes:** Tax is not included in this proposal. In the event that the purchasing organization is not exempt from sales tax or any other applicable taxes and/or the proposed apparatus does not qualify for exempt status, it is the duty of the purchasing organization to pay any and all taxes due. Balance of sale price is due upon acceptance of the apparatus at the factory.

**Late Fee:** A late fee of .033% of the sale price will be charged per day for overdue payments beginning ten (10) days after the payment is due for the first 30 days. The late fee increases to .044% per day until the payment is received. In the event a prepayment is received after the due date, the discount will be reduced by the same percentages above increasing the cost of the apparatus.

**Cancellation:** In the event this proposal is accepted and a purchase order is issued then cancelled or terminated by Customer before completion, Siddons-Martin Emergency Group may charge a cancellation fee. The following charge schedule based on costs incurred may be applied:

- (A) 10% of the Purchase Price after order is accepted and entered by Manufacturer;
- (B) 20% of the Purchase Price after completion of the approval drawings;
- (C) 30% of the Purchase Price upon any material requisition.

The cancellation fee will increase accordingly as costs are incurred as the order progresses through engineering and into manufacturing. Siddons-Martin Emergency Group endeavors to mitigate any such costs through the sale of such product to another purchaser; however, the customer shall remain liable for the difference between the purchase price and, if applicable, the sale price obtained by Siddons-Martin Emergency Group upon sale of the product to another purchaser, plus any costs incurred by Siddons-Martin to conduct such sale.

**Acceptance:** In an effort to ensure the above stated terms and conditions are understood and adhered to, Siddons-Martin Emergency Group, LLC requires an authorized individual from the purchasing organization sign and date this proposal and include it with any purchase order. Upon signing of this proposal, the terms and conditions stated herein will be considered binding and accepted by the Customer. The terms and acceptance of this proposal will be governed by the laws of the state of Utah. No additional terms or conditions will be binding upon Siddons-Martin Emergency Group, LLC unless agreed to in writing and signed by a duly authorized officer of Siddons-Martin Emergency Group, LLC.

Sincerely,



**Chad Frisby**

I, \_\_\_\_\_, the authorized representative of SANTAQUIN CITY FIRE DEPARTMENT & AMBULANCE, agree to purchase the proposed and agree to the terms of this proposal and the specifications attached hereto.

\_\_\_\_\_  
Signature & Date

Siddons Martin Emergency Group, LLC  
 7285 S. 700 West  
 Midvale, UT 84047  
 Business Number 221B



September 25, 2023

Ryan Lind, Fire Chief  
 SANTAQUIN CITY FIRE DEPARTMENT &  
 AMBULANCE  
 275 W MAIN ST  
 SANTAQUIN, UT 84655

**Proposal For: 2026 Santaquin 107' Tandem Ladder**

Siddons-Martin Emergency Group, LLC is pleased to provide the following proposal to SANTAQUIN CITY FIRE DEPARTMENT & AMBULANCE. Unit will comply with all specifications attached and made a part of this proposal. Total price includes delivery FOB SANTAQUIN CITY FIRE DEPARTMENT & AMBULANCE and training on operation and use of the apparatus.

Description	Amount
<b>Qty. 1 - 1089 - Pierce-Custom Enforcer Aerial - 107'</b>	
<b>(Unit Price - \$1,709,049.00)</b>	
Delivery within 34-35 months of order date	
QUOTE # - SMEG-0006350-0	
Vehicle Price	\$1,712,898.90
25% Prepay Discount	(\$68,513.88)
<b>1089 - UNIT TOTAL</b>	<b>\$1,644,385.02</b>
SUB TOTAL	\$1,644,385.02
<b>TOTAL</b>	<b>\$1,644,385.02</b>
<b>PREPAY AMOUNT DUE</b>	
<b>WITHIN 30 DAYS</b>	<b>\$411,096.26</b>

Price guaranteed until October 31<sup>st</sup>. Price is also contingent upon the customer receiving a 2024 EPA-compliant PACCAR engine which is in short supply and available only on a first come first serve basis. We expect to run out by the end of September. The prepay discount is also provided as a courtesy should the customer elect to pay for the order within 30 days of booking.

**Additional:** Due to global supply chain constraints, any delivery date contained herein is a good faith estimate as of the date of this order/contract, and merely an approximation based on current information. Delivery updates will be made available, and a final firm delivery date will be provided as soon as possible.

Persistent Inflationary Environment Notification: If the Producer Price Index of Components for Manufacturing [www.bls.gov Series ID: WPUID6112] (the "PPI") has increased at a compounded annual growth rate greater than 5.0% from the date of acceptance of this proposal letter (the "Order Month") and 14 months prior to the anticipated Ready for Pickup Date (the "Evaluation Month"), then the proposal price may be increased by an amount equal to any increase exceeding 5.0% for the

time period between the Order Month and the Evaluation Month. Siddons Martin and Pierce will provide documentation of such increase and the updated price for the customer's approval before proceeding with completion of the order along with an option to cancel the order.

**Taxes:** Tax is not included in this proposal. In the event that the purchasing organization is not exempt from sales tax or any other applicable taxes and/or the proposed apparatus does not qualify for exempt status, it is the duty of the purchasing organization to pay any and all taxes due. Balance of sale price is due upon acceptance of the apparatus at the factory.

**Late Fee:** A late fee of .033% of the sale price will be charged per day for overdue payments beginning ten (10) days after the payment is due for the first 30 days. The late fee increases to .044% per day until the payment is received. In the event a prepayment is received after the due date, the discount will be reduced by the same percentages above increasing the cost of the apparatus.

**Cancellation:** In the event this proposal is accepted and a purchase order is issued then cancelled or terminated by Customer before completion, Siddons-Martin Emergency Group may charge a cancellation fee. The following charge schedule based on costs incurred may be applied:

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**Acceptance:** In an effort to ensure the above stated terms and conditions are understood and adhered to, Siddons-Martin Emergency Group, LLC requires an authorized individual from the purchasing organization sign and date this proposal and include it with any purchase order. Upon signing of this proposal, the terms and conditions stated herein will be considered binding and accepted by the Customer. The terms and acceptance of this proposal will be governed by the laws of the state of Utah. No additional terms or conditions will be binding upon Siddons-Martin Emergency Group, LLC unless agreed to in writing and signed by a duly authorized officer of Siddons-Martin Emergency Group, LLC.

Sincerely,

  
**Chad Frisby**

I, \_\_\_\_\_, the authorized representative of SANTAQUIN CITY FIRE DEPARTMENT & AMBULANCE, agree to purchase the proposed and agree to the terms of this proposal and the specifications attached hereto.

\_\_\_\_\_  
Signature & Date



Siddons Martin Emergency Group, LLC  
 7285 S. 700 West  
 Midvale, UT 84047  
 Business Number 221B



September 25, 2023

Ryan Lind, Fire Chief  
 SANTAQUIN CITY FIRE DEPARTMENT &  
 AMBULANCE  
 275 W MAIN ST  
 SANTAQUIN, UT 84655

**Proposal For: 2026 Santaquin 107' Tandem Ladder**

Siddons-Martin Emergency Group, LLC is pleased to provide the following proposal to SANTAQUIN CITY FIRE DEPARTMENT & AMBULANCE. Unit will comply with all specifications attached and made a part of this proposal. Total price includes delivery FOB SANTAQUIN CITY FIRE DEPARTMENT & AMBULANCE and training on operation and use of the apparatus.

Description	Amount
<b>Qty. 1 - 1089 - Pierce-Custom Enforcer Aerial - 107'</b>	
<b>(Unit Price - \$1,709,049.00)</b>	
Delivery within 34-35 months of order date	
QUOTE # - SMEG-0006350-0	
Vehicle Price	\$1,712,898.90
50% Prepay Discount	(\$140,003.41)
<b>1089 - UNIT TOTAL</b>	<b>\$1,572,895.49</b>
SUB TOTAL	\$1,572,895.49
<b>TOTAL</b>	<b>\$1,572,895.49</b>
<b>PREPAY AMOUNT DUE</b>	
<b>WITHIN 30 DAYS</b>	<b>\$786,447.75</b>

Price guaranteed until October 31<sup>st</sup>. Price is also contingent upon the customer receiving a 2024 EPA-compliant PACCAR engine which is in short supply and available only on a first come first serve basis. We expect to run out by the end of September. The prepay discount is also provided as a courtesy should the customer elect to pay for the order within 30 days of booking.

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time period between the Order Month and the Evaluation Month. Siddons Martin and Pierce will provide documentation of such increase and the updated price for the customer's approval before proceeding with completion of the order along with an option to cancel the order.

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**Chad Frisby**

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Signature & Date

Siddons Martin Emergency Group, LLC  
 7285 S. 700 West  
 Midvale, UT 84047  
 Business Number 221B



September 15, 2023

Ryan Lind, Fire Chief  
 SANTAQUIN CITY FIRE DEPARTMENT &  
 AMBULANCE  
 275 W MAIN ST  
 SANTAQUIN, UT 84655

**Proposal For: 2026 Santaquin 107' Tandem Ladder**

Siddons-Martin Emergency Group, LLC is pleased to provide the following proposal to SANTAQUIN CITY FIRE DEPARTMENT & AMBULANCE. Unit will comply with all specifications attached and made a part of this proposal. Total price includes delivery FOB SANTAQUIN CITY FIRE DEPARTMENT & AMBULANCE and training on operation and use of the apparatus.

Description	Amount										
<p><b>Qty. 1 - 1089 - Pierce-Custom Enforcer Aerial - 107'</b>  <b>(Unit Price - \$1,709,049.00)</b>            Delivery within 34-35 months of order date            QUOTE # - SMEG-0006350-0</p>	<table border="0" style="width: 100%;"> <tr> <td style="width: 60%;">Vehicle Price</td> <td style="text-align: right;">\$1,712,898.90</td> </tr> <tr> <td>Full Prepay Discount</td> <td style="text-align: right;">(\$169,088.72)</td> </tr> <tr> <td style="border-top: 1px solid black;"><b>1089 - UNIT TOTAL</b></td> <td style="text-align: right; border-top: 1px solid black;"><b>\$1,543,810.18</b></td> </tr> <tr> <td style="padding-top: 20px;">SUB TOTAL</td> <td style="text-align: right; padding-top: 20px;">\$1,543,810.18</td> </tr> <tr> <td style="border-top: 3px double black; text-align: right;"><b>TOTAL</b></td> <td style="text-align: right; border-top: 3px double black;"><b>\$1,543,810.18</b></td> </tr> </table>	Vehicle Price	\$1,712,898.90	Full Prepay Discount	(\$169,088.72)	<b>1089 - UNIT TOTAL</b>	<b>\$1,543,810.18</b>	SUB TOTAL	\$1,543,810.18	<b>TOTAL</b>	<b>\$1,543,810.18</b>
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