

AGENDA
PUBLIC SAFETY & WELFARE COMMITTEE MEETING
Kenosha Municipal Building - Room 204
Monday, August 26, 2013 - 5:00 pm

Chairman:	Rocco J. LaMacchia, Sr	Vice Chairman:	Chris Schwartz
Aldersperson:	Anthony Kennedy	Aldersperson:	Michael J. Orth
Aldersperson:	Kevin E. Mathewson		

Call to Order
Roll Call

Approval of the minutes of the meeting held on August 12, 2013.

1. Aldermanic request for Stop Signs at 19th Avenue and 45th Street Intersection. *(District 6) (Staff recommends approval for a 90-day trial)*
2. Aldermanic request for Stop Signs at 19th Avenue and 37th Street Intersection. *(District 6) (Staff recommends approval for a 90-day trial)*
3. Aldermanic Request for a No Left Turn sign into Nash Elementary School between the hours of 7am - 9am and 2pm – 4pm on school days. *(District 17) (Staff recommends approval for a 90-day trial)*
4. Correction of previous trial to replace the Northbound and Southbound Yield Signs with Stop Signs at the following intersections: *(District 12) (from the August 12, 2013 meeting)*
 - a.) 79th Street and 15th Avenue
 - b.) 79th Street and 16th Avenue
5. Approve correction of previous trial to replace Westbound and Eastbound Yield Signs with Stop Signs at 79th Street and 15th Avenue and 79th Street and 16th Avenue. *(District 12) (from the November 26, 2013 meeting)*
6. By the Mayor - To Amend Subsection 9.07 A. to Establish a Retaining Wall Application Fee, to Amend Subsection 9.07 B. and to Require Payment for Permit Fees at the time of Application, and Repeal and Recreate Section 9.26 *(of the Code of General Ordinances)* Regarding the Application for a Retaining Wall Permit. *(Referred from Council on 8/19/13)*
7. Resolution by Aldersperson Kevin E. Mathewson, Co-Sponsor Aldersperson G. John Ruffolo - To Authorize the City Administrator to Enter the City of Kenosha in the 2013-2014 Earth Hour City Challenge. *(Referred from Council on 8/19/13) (Also referred to Public Works)*
8. Purchase Agreement with Sutphen Corporation for the purchase of two pumper trucks for the Kenosha Fire Department. *(Referred from Council on 8/19/13) (Also referred to Finance Committee)*

DISCUSSION ITEM:

1. Permit Procedures and Application Process Update

CITIZEN COMMENTS/ALDERMEN COMMENTS/OTHER BUSINESS AS AUTHORIZED BY LAW

IF YOU ARE DISABLED AND NEED ASSISTANCE, PLEASE CALL 653-4050 BEFORE THIS MEETING

NOTICE IS HEREBY GIVEN THAT A MAJORITY OF THE MEMBERS OF THE COMMON COUNCIL MAY BE PRESENT AT THE MEETING, AND ALTHOUGH THIS MAY CONSTITUTE A QUORUM OF THE COMMON COUNCIL, THE COUNCIL WILL NOT TAKE ANY ACTION AT THIS MEETING.

PUBLIC SAFETY & WELFARE COMMITTEE
Minutes of Meeting held Monday, August 12, 2013

A meeting of the Public Safety & Welfare Committee was held on Monday, August 12, 2013 in Room 204 of the Kenosha Municipal Building. The meeting was called to order at 8:50 pm by Chairman LaMacchia.

At roll call, the following members were present: Alderpersons Schwartz, Kennedy, and Mathewson. Alderperson Orth was excused. Staff members in attendance were Michael Lemens, Director of Public Works; Shelly Billingsley, deputy Director of Public Works/City Engineer; Police Chief John Morrissey; Deputy Police Chief Dan Miskinis; Police Captain Thomas Hansche; Deputy Fire Chief John Poltrock; Alderperson G. John Ruffolo; Alderperson David Bogdala and Alderperson Scott Gordon.

It was moved by Alderperson Kennedy, seconded by Alderperson Schwartz, to approve the minutes from the meeting held on Monday, July 29, 2013. Motion carried unanimously.

1. Previous trial for the Removal of “2-Hour Parking 6:00am-7:00pm Daily” Signs from the West Side of 18th Avenue between 61st Street and 63rd Street. *(District 3) (Staff recommends approval)*
Staff/Alderperson: Shelly Billingsley spoke.
It was moved by Alderperson Kennedy, seconded by Alderperson Schwartz, to approve. Motion carried unanimously.
2. Previous trial to Relocate No Parking Signs from the West Side to the East Side of 42nd Avenue 5200 Block. *(District 11) (Staff recommends approval)*
Staff/Alderperson: Shelly Billingsley spoke.
It was moved by Alderperson Schwartz, seconded by Alderperson Mathewson, to approve. Motion carried unanimously.
3. Previous trial to replace the Northbound and Southbound Yield Signs with Stop Signs at the following intersections:
 - a.) 79th Street and 15th Avenue
 - b.) 79th Street and 16th Avenue*(District 12) (Staff recommends approval)*
Staff/Alderperson: Shelly Billingsley spoke.
It was moved by Alderperson Schwartz, seconded by Alderperson Kennedy, to approve. Motion carried unanimously.
4. Resolution by Alderpersons David F. Bogdala and G. John Ruffolo - To Amend the City of Kenosha Capital Improvement Program for 2013 by Decreasing FI-13-003 “Fire Administration Office” in the Amount of \$300,000 and to Increase Capital Improvement Line Item IN-93-00 2 “Resurfacing” in the Amount of \$300,000 for a Net Change of \$0. *(Also referred to Public Works & Finance) (Referred from Council on 8/5/13)*
Staff/Alderperson: Alderpersons David Bogdala and G. John Ruffolo spoke. Deputy Fire Chief Poltrock and Michael Lemens answered questions.
It was moved by Alderperson Kennedy, seconded by Alderperson Schwartz, to deny. Motion carried 3-1 (with Alderperson Mathewson voting nay).
5. Resolution by Alderman David F. Bogdala - To Amend the City of Kenosha Capital Improvement Program for 2013 by Decreasing OT-96-001 “Equipment - Mini Van” in the Amount of \$13,100 and to Create Capital Improvement Line Item OT-13-004 “School Zone – Signage” in the Amount of \$13,100 for a Net Change of \$0. *(Also referred to Finance) (Referred from Council on 8/5/13)*
Staff/Alderperson: Alderperson David Bogdala spoke.
Chairman LaMacchia passed the gavel and asked questions. Alderperson David Bogdala and Police Chief Morrissey answered questions and spoke.
It was moved by Alderperson Kennedy, seconded by Alderperson Mathewson, to open up to a public hearing. Motion carried unanimously.

Public Hearing: Gary Kunich, Alderperson Scott Gordon, Doug Willems, Tom Riley and Alderperson G. John Ruffolo spoke.

Chairman LaMacchia closed public comments. Alderperson Mathewson asked questions. Shelly Billingsley, Alderperson David Bogdala and Police Chief Morrissey answered.

It was moved by Alderperson Kennedy to approve with a financial note to get more money to implement more. Motion failed due to lack of a second. It was moved by Alderperson Mathewson, seconded by Alderperson Schwartz to approve. Motion carried unanimously.

CITIZEN COMMENTS: Doug Willems commented that as an observation of his, he has seen Police Officers talking and texting on the phone while driving during work. Gary Kunich said he has also observed Police Officers on the phone while driving. He has also offered to help by telling his story to officers, schools, etc. Alderperson David Bodgala thanked Gary Kunich for being here and commented on item #5.

ALDERPERSON COMMENTS: Alderperson Mathewson asked Police Chief Morrissey to see if the Police Department could look in to getting automated equipment for tickets. Police Chief Morrissey responded that all cars and motorcycles are already so-equipped. Alderperson Kennedy commented that he is going to try again at Council to get more money for item #5. He would like a financial note by Mondays Council Meeting. Alderperson Mathewson asked if we can get a financial report in two weeks. Michael Lemens answered.

ADJOURNMENT - There being no further business to come before the Public Safety & Welfare Committee, it was moved, seconded and unanimously carried to adjourn at 9:57 pm.



Engineering Division
Shelly Billingsley
Director of Engineering
Fleet Maintenance
Mauro Lenci
Superintendent
Park Division
Jeff Warnock
Superintendent

Street Division
John H. Prijic
Superintendent
Waste Division
Rocky Bednar
Superintendent

DEPARTMENT OF PUBLIC WORKS

Michael M. Lemens, P.E., Director
Shelly Billingsley, P.E., Deputy Director

Municipal Building · 625 52nd ST · RM 305 · Kenosha, WI 53140
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Date: August 22, 2013

To: Alderman Rocco LaMacchia, Chairman
Public Safety and Welfare Committee

From: Shelly Billingsley, P.E.,
City Engineer/Deputy Director of Public Works

CC: Todd Ohnstad,
6th District

Subject: *Aldermanic Request for Stop Signs at 19th Avenue and 45th Street Intersection*

BACKGROUND INFORMATION

Alderman Ohnstad is requesting, on behalf of his constituents, for Stop control on 19th Avenue at the intersection with 45th Street. Residences in the neighborhood claim that it is challenging for northbound motorists to see oncoming traffic on 45th Street. 19th Avenue and 45th Street is a 4-leg intersection with a 50 feet offset between the north leg and the south leg.

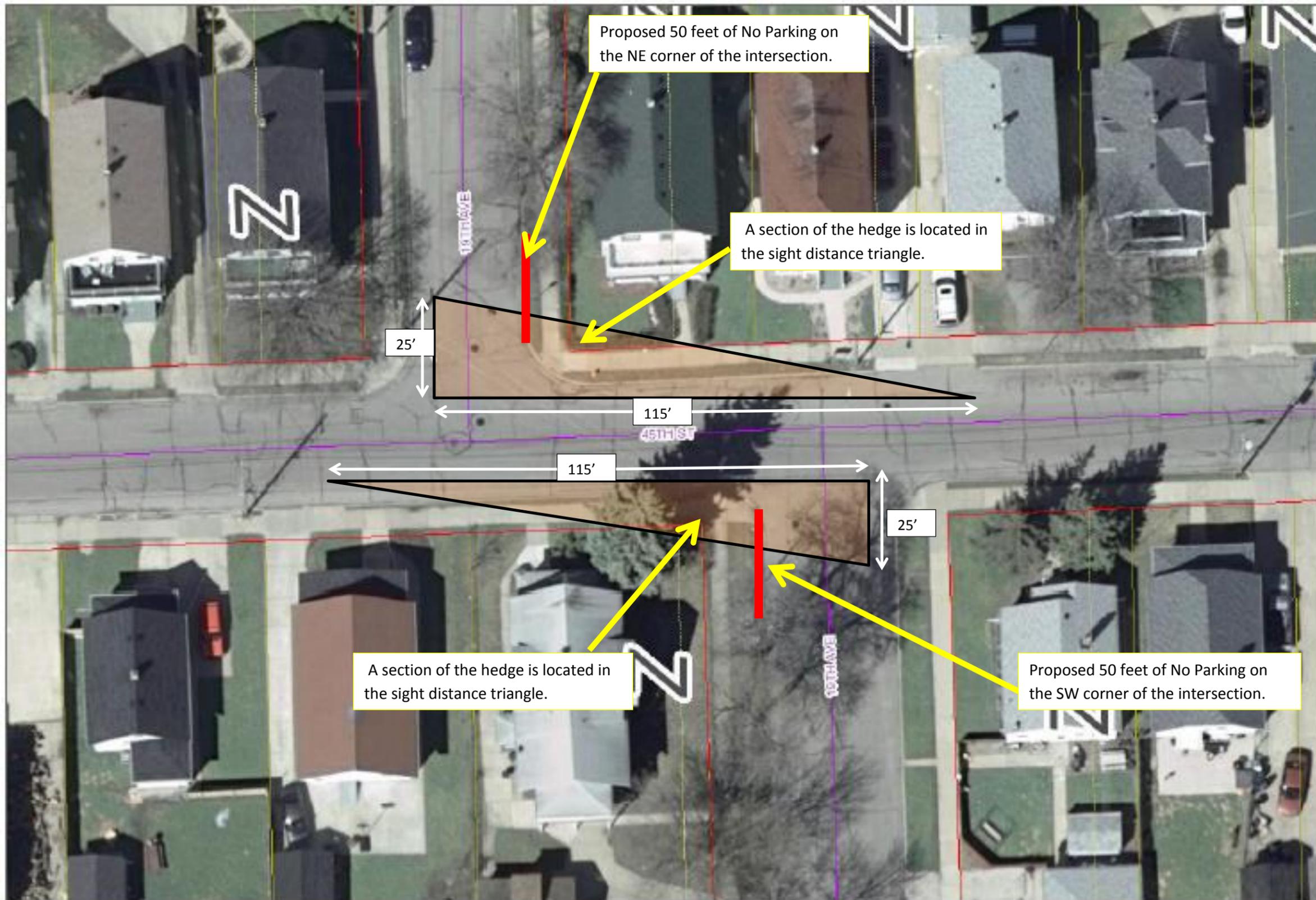
Staff inspected the said intersection and observed that hedges at the northeast and southwest corners of the intersection are located within the sight-distance triangle as illustrated in Exhibit I. The limitation of the sight-distance is made worse when cars are parked too close to the intersection. Staff also noticed that parked cars too close to the intersection impair turning movement and significantly reduce the capacity at the intersection. These safety concerns could be mitigated by installing a Stop control on 19th Avenue and restricting parking on the northeast and southwest corners of the intersection. Furthermore, the Stop control on 19th Avenue is consistent with the City's practice to control the minor street. A sign layout for the neighborhood is illustrated in Exhibit II.

RECOMMENDATION

Staff recommends a 90-day trial for a 2-Way Stop signs on 19th Avenue to control northbound and southbound traffic.

19TH AVENUE AND 45TH STREET INTERSECTION
STOP CONTROL INVESTIGATION

EXHIBIT I



Proposed 50 feet of No Parking on the NE corner of the intersection.

A section of the hedge is located in the sight distance triangle.

A section of the hedge is located in the sight distance triangle.

Proposed 50 feet of No Parking on the SW corner of the intersection.

DISCLAIMER: This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, data and information located in various state, county and municipal offices and other sources affecting the area shown and is to be used for reference purposes only. Kenosha County is not responsible for any inaccuracies herein contained. If discrepancies are found, please contact Kenosha County.

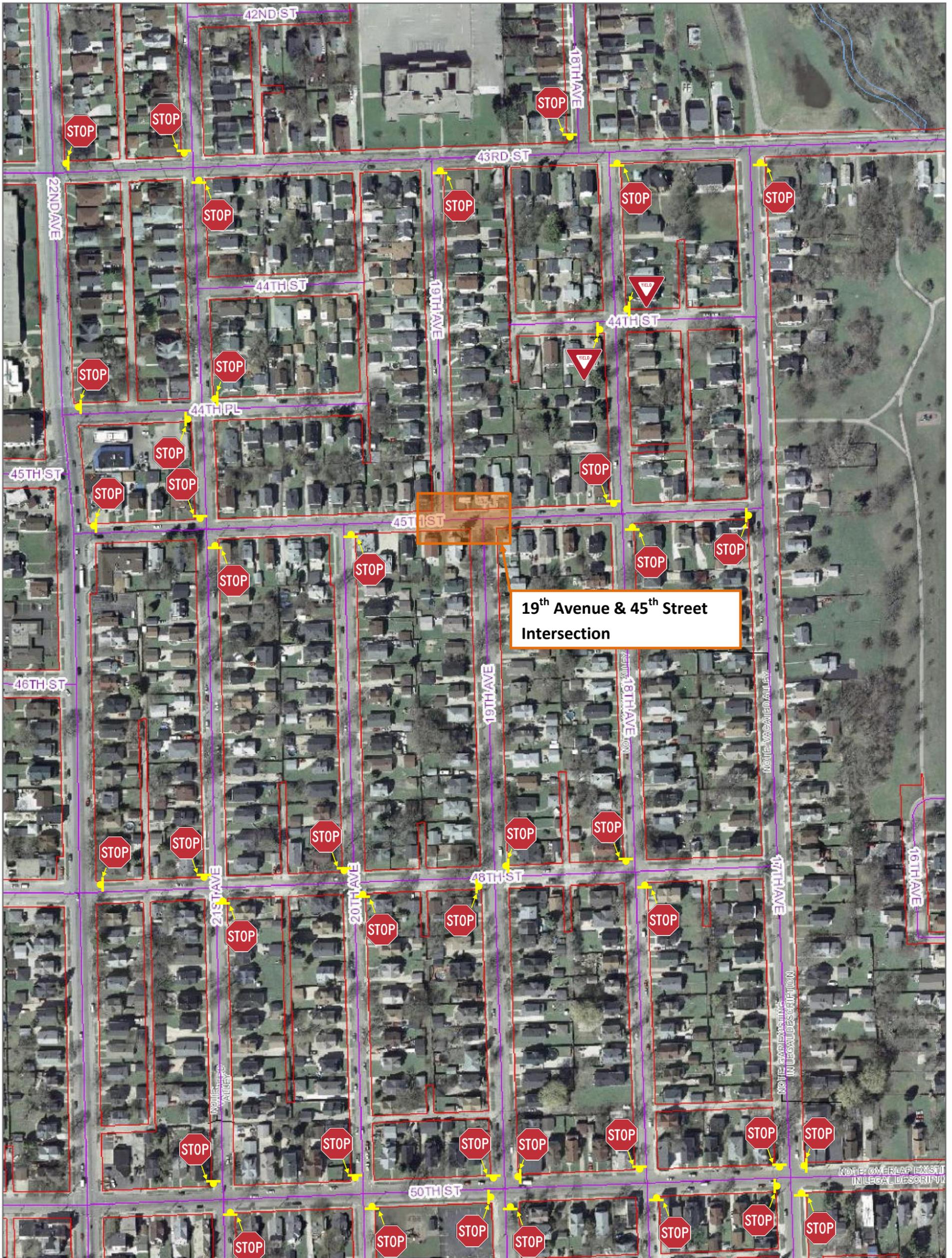


Intersection Control near 19th Avenue & 45th Street

EXHIBIT II



1 inch = 200 feet
Date Printed: 7/18/2013



DISCLAIMER This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, data and information located in various state, county and municipal offices and other sources affecting the area shown and is to be used for reference purposes only. Kenosha County is not responsible for any inaccuracies herein contained. If discrepancies are found, please contact Kenosha County.



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Director of Engineering
Fleet Maintenance
Mauro Lenci
Superintendent
Park Division
Jeff Warnock
Superintendent

Street Division
John H. Prijic
Superintendent
Waste Division
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Superintendent

DEPARTMENT OF PUBLIC WORKS

Michael M. Lemens, P.E., Director
Shelly Billingsley, P.E., Deputy Director

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Date: August 21, 2013

To: Alderman Rocco LaMacchia, Chairman
Public Safety and Welfare Committee

From: Shelly Billingsley, P.E.,
City Engineer/Deputy Director of Public Works

CC: Todd Ohnstad,
6th District

Subject: *Aldermanic Request for Stop Signs at 19th Avenue and 37th Street Intersection*

BACKGROUND INFORMATION

Alderman Ohnstad is requesting for a 2-Way Stop control at 19th Avenue and 37th Street to improve traffic safety and to implement a countermeasure for right-of-way related crashes. The said intersection is a 4-leg uncontrolled intersection. 19th Avenue is considered the major street because it is 36 feet wide and has an average daily traffic of about 218 vehicles as compared to 37th Street, which is 27 feet wide and has an average daily traffic of about 156 vehicles.

Four right-of-way crashes were recorded at this intersection in the last four years. Motorists entering the intersection at the same time were the cause of all four crashes. A review of traffic control in the area indicated that 37th Street is uncontrolled for about five Blocks while 19th Avenue is controlled at every other intersection. A layout of intersection control is attached.

Based on the cause of the crashes, the traffic control layout in the area and by virtue of 37th Street being narrower and having less traffic volume, Stop control on 37th Street for eastbound and westbound traffic could mitigate the right-of-way crashed at the said intersection.

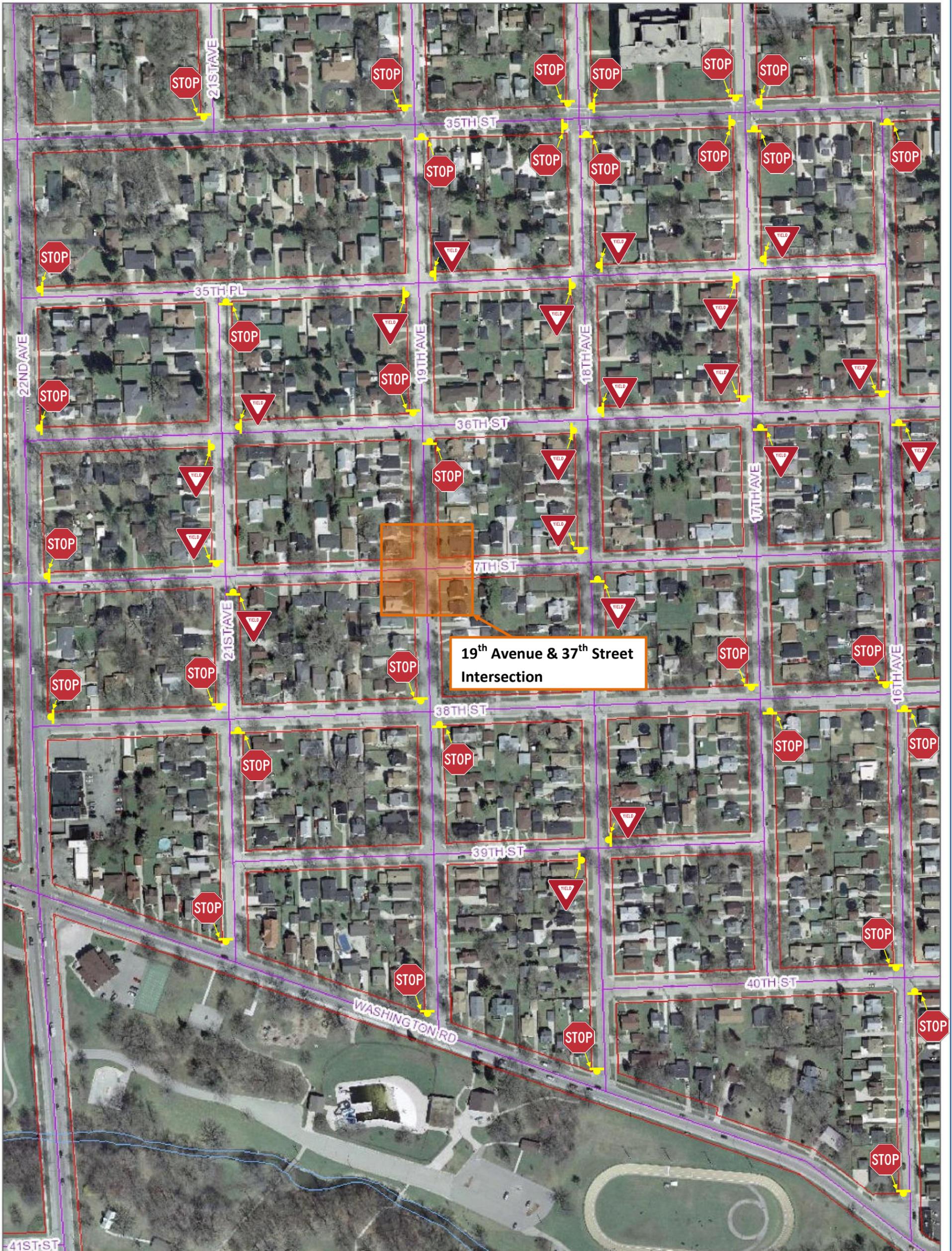
RECOMMENDATION

Staff recommends a 90-day trial for Stop signs on 37th Street, controlling eastbound and westbound traffic at 19th Avenue and 37th Street Intersection.

Intersection Control near 19th Avenue & 37th Street



1 inch = 210 feet
Date Printed: 7/18/2013



19th Avenue & 37th Street
Intersection



Engineering Division
Shelly Billingsley
Director of Engineering
Fleet Maintenance
Mauro Lenci
Superintendent
Park Division
Jeff Warnock
Superintendent

Street Division
John H. Prijic
Superintendent
Waste Division
Rocky Bednar
Superintendent

DEPARTMENT OF PUBLIC WORKS

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August 26, 2013

To: Rocco J. LaMacchia, Sr, Chairman
Public Safety and Welfare

From: Sean Von Bergen, P.E.
Assistant City Engineer

SVB
8.21.2013

Subject: *Aldermanic Request for a 90 day trial for a No Left Turn sign into Nash Elementary School between the hours of 7am - 9am and 2pm - 4pm on School Days.*

BACKGROUND INFORMATION

Alderman Bogdala is requesting a No Left Turn sign for southbound traffic on 98th Avenue at the southeast entrance to Nash Elementary School. Staff has met with Nash Principal Marty Pitts and the school is in favor of Alderman Bogdala's request. Mr. Pitts indicated there is an incredible amount of traffic congestion during morning drop-off and afternoon pick-up at the school's driveway entrance. There are no traffic controls in place at the school's entrance. The school's safety committee has identified this as a safety concerns for the students. The school would like traffic to line up single file westbound on 70th Street / northbound on 98th Avenue and make a right turn into the school's driveway entrance.

RECOMMENDATION

Staff recommends approval of a 90 day trial for a No Left Turn sign between the hours of 7am - 9am and 2pm - 4pm on School Days for southbound traffic on 98th Avenue at the southeast entrance to Nash Elementary School.

Cc: Alderman David Bogdala, District 17
Michael Lemens, Director of Public Works
Shelly Billingsley, Deputy Director of Public Works /City Engineer
Sean Von Bergen, Assistant City Engineer
Clement Abongwa, Traffic Engineer
File

Nash Elementary School - Proposed No Left Turn Sign

Nash Elementary

Existing Signs

-  Caution Children
-  No Parking
-  School
-  Stop
-  Stop Ahead
-  Yield

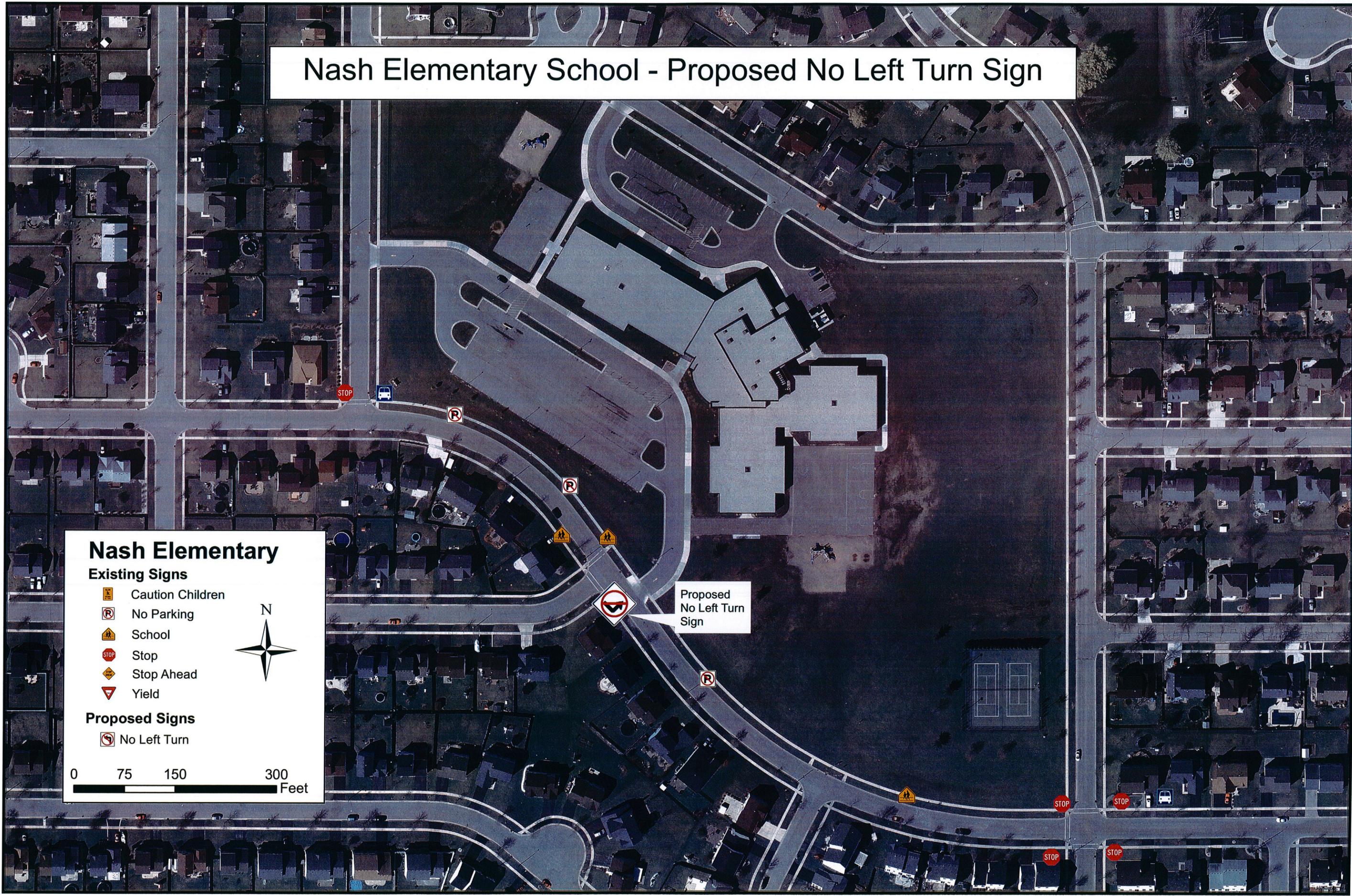
Proposed Signs

-  No Left Turn



0 75 150 300
Feet

Proposed
No Left Turn
Sign





ENGINEERING DIVISION
SHELLY BILLINGSLEY, P.E.
CITY ENGINEER

PARK DIVISION
JEFF WARNOCK
SUPERINTENDENT

FLEET MAINTENANCE
MAURO LENCI
SUPERINTENDENT

STREET DIVISION
JOHN H. PRIJIC
SUPERINTENDENT

WASTE DIVISION
ROCKY BEDNAR.
SUPERINTENDENT

DEPARTMENT OF PUBLIC WORKS

MICHAEL M. LEMENS, P.E., DIRECTOR
SHELLY BILLINGSLEY, P.E., DEPUTY DIRECTOR

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August 22, 2013

To: Rocco J. LaMacchia, Sr., Chairman
Public Safety and Welfare

From: Shelly Billingsley, P.E. *Shelly Billingsley*
Deputy Director of Public Works / City Engineer

Cc: Steve Bostrom
District 12

Staff: Michael M. Lemens, Sean Von Bergen, and Clement Abongwa

Subject: ***Correction to Previous Trial to Replace Northbound and Southbound Yield Signs with Stop Signs at the following intersections:***
a. ***79th Street and 15th Avenue***
b. ***79th Street and 16th Avenue***

BACKGROUND/ANALYSIS

A correction needs to be made to the meeting on August 12th due to the subject being labeled incorrectly. The correction is being made to the recommendation of:

"The following Ordinance Change is required"

- *Revise Section 7.125 Street Controlled by Yield Signs:*
Remove from column "A" – 16th Avenue
Remove from column "B" – 78th Street

Remove from Column "A" – 15th Avenue
Remove from Column "B" – 78th Street

The corrected version should be the following
The following Ordinance Change is required:

- *Revise Section 7.125 Street Controlled by Yield Signs:*
Remove from Column "A" – 15th Avenue
Remove from Column "B" – 79th Street

The intersection of 16th Avenue and 78th Street shall not be removed.

RECOMMENDATION

Correct the Previous Trial to Not Remove the following from Section 7.125:

Column "A" – 16th Avenue

Column "B" – 78th Street

Column "A" – 15th Avenue

Column "B" – 78th Street

But to remove the following from Section 7.125:

Remove from Column "A" – 15th Avenue

Remove from Column "B" – 79th Street

and to keep the revision to Section 7.12C for All Vehicles travelling on the following streets shall stop before crossing the following streets to add the following:

All vehicles travelling on 16th Avenue shall stop before entering the intersection with 79th Street.

All vehicles travelling on 15th Avenue shall stop before entering the intersection with 79th Street.



ENGINEERING DIVISION
SHELLY BILLINGSLEY, P.E.
CITY ENGINEER

PARK DIVISION
JEFF WARNOCK
SUPERINTENDENT

FLEET MAINTENANCE
MAURO LENCI
SUPERINTENDENT

STREET DIVISION
JOHN H. PRIJIC
SUPERINTENDENT

WASTE DIVISION
ROCKY BEDNAR.
SUPERINTENDENT

DEPARTMENT OF PUBLIC WORKS

MICHAEL M. LEMENS, P.E., DIRECTOR
SHELLY BILLINGSLEY, P.E., DEPUTY DIRECTOR

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August 22, 2013

To: Rocco J. LaMacchia, Sr., Chairman
Public Safety and Welfare

From: Shelly Billingsley, P.E. *Shelly Billingsley*
Deputy Director of Public Works / City Engineer

Cc: Steve Bostrom
District 12

Staff: Michael M. Lemens, Sean Von Bergen, Clement Abongwa and Chief Morrissey

Subject: ***Correction to Previous Trial to Replace Westbound and Eastbound Yield Signs with Stop Signs at 79th Street and 15th Avenue Intersection and 79th Street and 16th Avenue Intersection.***

BACKGROUND/ANALYSIS

A correction needs to be made to the meeting on November 26, 2012 due to the subject being labeled incorrectly. The correction is being made to the subject:

- Replace Westbound and Eastbound Yield signs with Stop Signs at 79th Street and 15th Avenue Intersection and 79th Street and 16th Avenue Intersection.

The correction should be the following

- Replace Northbound and Southbound Yield signs with Stop Signs at 79th Street and 15th Avenue Intersection and 79th Street and 16th Avenue Intersection.

RECOMMENDATION

Approve as corrected.



Engineering Division
Shelly Billingsley, P.E.
Director/City Engineer
Fleet Maintenance
Mauro Lenci
Superintendent
Parks Division
Jeff Warnock
Superintendent

Street Division
John H. Prijic
Superintendent
Waste Division
Rocky Bednar
Superintendent

C-2

DEPARTMENT OF PUBLIC WORKS
Michael M. Lemens, P.E., Director

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Date: November 21, 2012

To: Rocco J. LaMacchia, Sr, Chairman
Public Safety and Welfare

CC: Steve Bostrom
District 12

From: Shelly Bilingsley, P.E.
Director of Engineering

Shelly Billingsley
N-bound S-bound

Subject: ***Aldermanic Request to replace westbound and eastbound Yield signs with Stop Signs at 79th Street and 15th Avenue Intersection and 79th Street and 16th Avenue Intersection.***

BACKGROUND INFORMATION

Alderman Bostrom is requesting for the replacement of the Yield signs with Stop signs at the following intersections:

- a) 79th Street and 15th Avenue - Northbound and southbound directions.
- b) 79th Street and 16th Avenue – Northbound and southbound directions.

Staff inspected the two intersections and observed that there are sight distance concerns at the two intersections. Monitoring the traffic pattern at the said intersections indicated that Stop signs would improve visibility of approaching traffic to the intersections. Layout of the Stop signs is attached.

RECOMMENDATION

Staff recommends a 90-day trial for the replacement of the Yield signs with Stop signs at the following intersections:

- a) 79th Street and 15th Avenue - Northbound and southbound directions.
- b) 79th Street and 16th Avenue – Northbound and southbound directions.

cc: Police Chief John Morrissey – w/a
Michael Lemens, Director of Public Works – w/a
Shelly Billingsley, Director of Engineering – w/a
Clement Abongwa – w/a
File – w/a

PUBLIC SAFETY & WELFARE COMMITTEE
Minutes of Meeting held Monday, November 26, 2012

A meeting of the Public Safety & Welfare Committee was held on Monday, November 26, 2012 in Room 204 of the Kenosha Municipal Building. The meeting was called to order at 6:00 pm by Chairman LaMacchia.

At roll call, the following members were present: Alderpersons Schwartz and Kennedy. Alderperson Orth and Alderperson Mathewson were excused. Staff members in attendance were Michael Lemens, Director of Public Works; Shelly Billingsley, Director of Engineering; Clement Abongwa, Assistant City Engineer; Alderperson Steve Bostrom, Alderperson Eric Hugaard, and Alderperson Tod Ohnstad.

It was moved by Alderperson Kennedy, seconded by Alderperson Schwartz, to approve the minutes from the meeting held on Monday, October 29, 2012. Motion carried unanimously.

C-1. Previous trial to Replace Westbound and Eastbound a Yield Signs with Stop Signs on 69th Street at 5th Avenue. (*District 3*) (*Staff recommends approval*)
Staff/Alderperson: Clement Abongwa spoke.
It was moved by Alderperson Kennedy, seconded by Alderperson Schwartz, to approve. Motion carried unanimously.

C-2. Aldermanic Request Westbound and Eastbound Yield Signs with Stop Signs at 79th Street and 15th Avenue and 79th Street and 16th Avenue. (*District 12*) (*Staff recommends approval 90-day trial*)
Staff/Alderperson: Clement Abongwa reported that consistent with Ordinance he issued the necessary work orders. Alderperson Bostrom spoke.
It was moved by Alderperson Schwartz, seconded by Alderperson Kennedy, to approve. Motion carried unanimously.

C-3. Aldermanic Request for the Installation of Additional School Zone Signs on 14th Avenue between 71st Street and 73rd Street. (*District 12*)
Staff/Alderperson: Alderperson Bostrom spoke.
Photos were handed out. It was moved by Alderperson Kennedy, seconded by Alderperson Schwartz, to receive and file. Motion carried unanimously.

DISCUSSION ITEMS:

1. Washington Road Railroad Bridge – Michael Lemens, Alderperson Hugaard and Alderperson Ohnstad spoke.

ADJOURNMENT - There being no further business to come before the Public Safety & Welfare Committee, it was moved, seconded and unanimously carried to adjourn at 6:26 pm.

·Planning & Zoning
·Community Development

262.653.4030
262.653.4045 FAX
Room 308



·Building Inspections
·Property Maintenance

262.653.4263
262.653.4254 FAX
Room 100

DEPARTMENT OF COMMUNITY DEVELOPMENT & INSPECTIONS

Municipal Building · 625 52nd Street · Kenosha, WI 53140
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Jeffrey B. Labahn, Director

Richard Schroeder, Deputy Director

MEMO

TO: Alderman Rocco LaMacchia
Members of the Public Safety & Welfare Committee

FROM: Rich Schroeder, Department of Community Development & Inspections RS

RE: **By the Mayor - To Amend Subsection 9.07 A. to Establish a Retaining Wall Application Fee, To Amend Subsection 9.07 B. and to Require payment for Permit Fees at the time of Application, and Repeal an Recreate Section 9.26 of the Code of General Ordinances regarding the Application for a Retaining Wall Permit.**

DATE: August 21, 2013

The attached Ordinance will clarify the following:

1. That a retaining wall permit is only required if the retaining wall is over five (5') feet in height.
2. A three (3') foot high fence would not be required for a retaining wall between two and five (2-5') feet in height.
3. The plans and specifications for any retaining wall over five (5') foot must be prepared by a Civil Engineer.

A recommendation is made to approve the attached Ordinance.

RS:kas
Attachment

ORDINANCE NO. _____

SPONSOR: THE MAYOR

**TO AMEND SUBSECTION 9.07 A TO ESTABLISH A
RETAINING WALL APPLICATION FEE, TO AMEND
SUBSECTION 9.07 B AND TO REQUIRE PAYMENT
FOR PERMITS FEES AT THE TIME OF APPLICATION,
AND REPEAL AND RECREATE SECTION 9.26 OF THE
CODE OF GENERAL ORDINANCES REGARDING
THE APPLICATION FOR A RETAINING WALL PERMIT**

The Common Council of the City of Kenosha, Wisconsin, do ordain as follows:

Section One: Section 9.07 A. of the Code of General Ordinances for the City of Kenosha, Wisconsin, is hereby amended to include within the list of permits subject to fees: "Retaining walls".

Section Two: Section 9.07 B. of the Code of General Ordinances for the City of Kenosha, Wisconsin, is hereby repealed and recreated as follows:

B. Payment of Fees. The fee for a Permit required pursuant to this Chapter must be paid at the time of application for the Permit. A Permit shall not be valid until such time that the fees required by this Code have been paid. The fee paid for a Permit that was not granted or was not issued will not be refunded.

Section Three: Section 9.26 of the Code of General Ordinances for the City of Kenosha, Wisconsin, is hereby repealed and recreated as follows:

9.26 RETAINING WALLS

A. Permit Required. No Person ~~may~~ shall construct, build, alter or modify any retaining wall over the height of five ~~feet (5')-feet~~ without first obtaining a Permit therefor from the Department of Community Development and Inspections.

B. Application. Application for such a Permit shall be made ~~by~~ on a fully completed, City-provided application form, and submitted along with two (2) sets of ~~p~~Plans and specifications, - a letter from a licensed civil engineer approving the plans and specifications, and the application fee.

~~C.Regulations. Any retaining wall which exceeds a height of twenty-four (24") inches above the adjacent grade shall be required to have a fence installed a minimum of thirty-six (36") inches in height on top of the wall, and comply with Section 2.0 of the City of Kenosha Zoning Ordinance.~~

Section Three: This Ordinance shall become effective upon passage and publication.

ATTEST: _____ City Clerk

APPROVED: _____ Mayor

Passed:

Published:

Drafted By:
EDWARD R. ANTARAMIAN
City Attorney

RESOLUTION _____

**SPONSOR: ALDERPERSON KEVIN E. MATHEWSON
CO-SPONSOR: ALDERPERSON G. JOHN RUFFOLO**

**TO AUTHORIZE THE CITY ADMINISTRATOR TO ENTER
THE CITY OF KENOSHA IN THE 2013-2014 EARTH HOUR
CITY CHALLENGE**

WHEREAS, the world is currently in a state of rapid urbanization, such that cities already account for over 70% of the world's fossil fuel related CO₂ emissions; and

WHEREAS, the 2013-2014 Earth Hour City Challenge ("Challenge") is a year-long competition with registration ending on October 13, 2013, held by the World Wildlife Fund, Inc. (WWF) among cities to promote renewable energy and prepare for climate change; and

WHEREAS, the Challenge is an initiative designed by WWF to mobilize action and support from cities in the global transition towards a climate friendly, one-planet future, and to stimulate the development and dissemination of best practices for climate mitigation and adaptation; and

WHEREAS, United States cities that participate are recognized for their efforts in spreading the global movement to create more sustainable, resilient cities and compete for the title of U.S. Earth Hour Capital as well as grants from WWF; and

WHEREAS, the Challenge allows participating cities to demonstrate their sustainability accomplishments and achievements; and

WHEREAS, participation in the Challenge allows a community such as the City to learn from other cities, causing further consideration of creative solutions with respect to climate action; and

WHEREAS, participation in the Challenge allows a community such as the City to be connected to a global movement with an understanding of the context within which it does its work; and

WHEREAS, 2012 participants in the annual challenge include such geographically diverse cities such as: the City of San Francisco, CA; the City of Knoxville, TN; the City of Richmond, VA; the City of Chicago, IL; and the City of Cleveland, OH; and

WHEREAS, participation in the Challenge has the potential to increase awareness of the City of Kenosha's commitment to environmental concerns among state and national policy makers; and

WHEREAS, to participate in the Challenge, cities must report at least one

commitment to quantifiably reduce greenhouse gas emissions, expand renewable energy, or increase energy efficiency and one action undertaken or planned to meet those commitments; and

WHEREAS, registration for the Challenge is through the carbonn Cities Climate Registry (cCCR) that is published by ICLEI-Local Governments for Sustainability utilizing the Bonn Center for Local Action and Reporting (carbonn); and

WHEREAS, participation in the Challenge is free of entry charge and imposes upon the City no obligation to take any action or expend any money beyond what the Common Council deems appropriate; and

WHEREAS, WWF will award three (3) grants of \$30,000 in March 2014 to United States cities in support of efforts to expand renewable energy in their communities.

NOW, THEREFORE, BE IT RESOLVED, that the Common Council for the City of Kenosha does hereby authorize and direct the City Administrator to take steps to enroll the City of Kenosha in the World Wildlife Fund, Inc.'s 2013-2014 Earth Hour City Challenge, including, but not limited to, completing the WWF's interest form, setting up a profile at the carbonn Cities Climate Registry, and entering the City's climate and sustainability plans and projects into carbonn.

BE IT FURTHER RESOLVED that City staff is encouraged to bring to the attention of the Common Council any actions that the Common Council could take to make the City of Kenosha more competitive in accomplishing the goals of the Earth Hour City Challenge.

Adopted this _____ day of _____, 2013.

ATTEST:

Debra Salas, City Clerk/Treasurer

APPROVED:

Keith G. Bosman, Mayor

Drafted By:
EDWARD R. ANTARAMIAN
City Attorney



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SUTPHEN

FAMILY OWNED
SINCE 1890

To : City of Kenosha
625 52nd Street
Kenosha, Wisconsin

Date: April 27, 2013

FOR YOUR REVIEW: - 2013 Bid Specifications Triple Combination Pumper

We hereby propose and agree to furnish the following fire fighting apparatus upon your acceptance of this proposal:

One Sutphen Custom Triple Combination Pumper Complete and Delivered for the Total Sum of \$ 535,329.00 Ea.

If purchased together, a second Sutphen Custom Triple Combination Pumper Complete and Delivered for the Total Sum of \$ 530,329.00 Ea.

Radios Loose Equipment, per Specifications\$ 86,918.00 Ea.

Loose Equipment Mounting, per Specifications\$ 10,000.00 Ea.

Grand Total for two Pumpers Fully Equipped \$ 1,259,494.00

A 30% down payment credit of \$ 13,763.35, will be applied to the total radio & loose equipment package, upon receipt.

The proposed apparatus will be manufactured completely in accordance with the Kenosha Fire Department 2013 Bid Specifications Triple Combination Pumper and will be **delivered 9-11 months after approval of contract**. This delivery schedule is subject to delays from all causes beyond our control. Unless accepted within 60 days, the right is reserved to withdraw this proposal.

Respectfully submitted by:

David J. Rider
North American Sales Manager, Sutphen Corporation

Sutphen Corporation
PO Box 158 • Amlin, OH 43002-0158
6450 Eiterman Road • Dublin, OH 43016-8711
Tel 614 889-1005 • Toll Free 800 848-5860 • Fax 614 889-0874



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PROPOSAL DRAWING

A general layout drawing depicting the apparatus layout and appearance will be provided with the bid. The drawing will consist of left side, right side, frontal and rear elevation views. Apparatus equipped with a fire pump, will have a general layout view of the pump operators panel scaled the same as the elevation views. The drawing will be a depiction of the actual apparatus proposed and not of a generic similar product.

APPROVAL DRAWING

After the award of bid and pre-construction conference, a detailed layout drawing depicting the apparatus layout and appearance including any changes agreed upon will be provided for customer review and signature. The drawing will become part of the contract documents. The drawing will consist of left side, right side, frontal and rear elevation views. Apparatus equipped with a fire pump, will have a general layout view of the pump operators panel scaled the same as the elevation views.

PERFORMANCE BOND

Within twenty (20) days of notification to the successful bidder by the purchaser, prior to any work commencing on the proposed apparatus, the successful bidder will, at their own expense, obtain and submit to the purchasing entity a performance bond in the amount of 100% equal to the total contract price.

Additionally, each bidder must disclose the price/amount it pays for bonding, per \$1,000. This is to demonstrate the economic stability and credit worthiness of the bidder. NO EXCEPTIONS.

CHASSIS

The chassis will be manufactured in the factory of the bidder. The chassis will be designed and manufactured for heavy duty service with adequate strength and capacity of all components for the intended load to be sustained and the type of service required. There will be no divided responsibility in the production of the apparatus.

ALUMINUM CAB

The cab will be a full tilt 6-person cab with a 10" rear raised roof designed specifically for the fire service and manufactured by the chassis builder.



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2013 Bid Specifications Triple Combination Pumper

Cab will be built entirely by the apparatus manufacturer within the same facilities (no exceptions).

CAB DESIGN

The cab will be designed specifically for the fire service and manufactured by the chassis builder.

The apparatus chassis will be of an engine forward, fully enclosed tilt cab design. There will be four (4) side entry doors.

The cab will be of a fully open design with no divider wall or window separating the front and rear cab sections.

Construction of the cab will consist of high strength 5052H32 aluminum welded to extruded aluminum framing of 6061-T6 material.

The cab roof will utilize extruded, radiused outer corner rails with integral drip channel and box tubing type cross brace supports.

The cab sides will be constructed from extruded door pillars and posts that provide a finished door opening, extruded and formed wheel well openings supports, formed aluminum wheel well liners and box tubing type support braces.

The cab floor and rear cab wall will utilize box tubing type framing and support bracing.

The framework will be of a welded construction that fully unitizes the structural frame of the cab.

The structural extrusion framework will be overlaid with interlocked aluminum alloy sheet metal panels to form the exterior skin of the cab.

The structural extrusion framework will support and distribute the forces and stresses imposed by the chassis and cab loads and will not rely on the sheet metal skin for any structural integrity.

CAB SUB-FRAME

The cab will be mounted to a steel box tube sub-frame, and will be isolated from the chassis, through the use of no less than six (6) elastomeric bushings. The sub frame will be painted to match the primary chassis color.



Kenosha Fire Department Proposal
2013 Bid Specifications Triple Combination Pumper

The sub-frame will be mounted to the chassis through the use of lubricated Kaiser bushing for the front pivot point, and two (2) hydraulically activated cab latches, to secure the rear.

CAB TILT SYSTEM

An electrically powered hydraulic cab tilt system will be provided, and will lift the cab to an angle of 45 degrees, exposing the engine and accessories for service. The system will be interlocked to only operate when the parking brake is set.

The lift system will be comprised of two (2) hydraulic lift cylinders, an electrically driven hydraulic pump, and a control switch. A mechanical locking system will be provided to ensure the cab remains in the raised position in the event of a hydraulic failure. The cab tilt controls will be interlocked to the parking brake to ensure the cab will not move, unless the parking brake is set.

The hydraulic lift cylinders will be connected to a steel cab sub-frame, and not directly to the cab. **NO EXCEPTIONS**

CAB DIMENSIONS

The cab will be designed to satisfy the following minimum width and length dimensions:

Cab Width (excluding mirrors)	98"
Cab Length (from C/L of front axle)	
To front of cab (excluding bumper)	68"
To rear of cab	62"
Total Cab Length (excluding bumper)	130"

FENDER CROWNS

Polished stainless steel front axle fenderettes with full depth radiused wheel well liners will be provided.

GRILLE

The front of the cab will be equipped with a stainless steel grille with sufficient area to allow proper airflow into the cooling system and engine compartment.



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2013 Bid Specifications Triple Combination Pumper

CAB INSULATION

The exterior walls, doors, and ceiling of the cab will be insulated from the heat and cold, and to further reduce noise levels inside the cab. The cab interior sound levels will not exceed 90 decibels at 45 mph in all cab seat positions. **NO EXCEPTIONS**

ROOF DESIGN

The cab will be of a one-half 10" raised roof design with side drip rails and will satisfy the following **minimum** height dimensions:

Cab Dimensions Interior

Front	59"
Rear	65"

Cab Dimensions Exterior

Front	65"
Rear	75"

EXTERIOR GLASS

The cab windshield will be of a two piece curved design utilizing tinted, laminated, automotive approved safety glass. The window will be held in place by an extruded rubber molding. The cab will be finished painted prior to the window installation.

SUN VISORS

The sun visors will be made of dark smoke colored transparent polycarbonate. There will be a visor located at both the driver and officer positions, recessed in a molded form for a flush finish.

CAB STEPS

The lower cab steps will be no more than 22" from the ground. An intermediate step will be provided, mid way between the lower cab step, and the cab floor.

The intermediate step will be slightly inset to provide for safer ingress and egress. All steps will be covered with material that meets or exceeds the NFPA requirements for stepping surfaces.



Kenosha Fire Department Proposal
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STEP LIGHTS

A white LED strip light will illuminate each interior cab step. These lights will illuminate whenever the battery switch is on and the cab door is opened.

MANUAL ROLL DOWN WINDOWS

All four cab entry doors will have manual roll down windows. Each door will be individually operated. All four windows will roll down completely. NO EXCEPTIONS.

CAB STRUCTURAL INTEGRITY

The cab of the apparatus will be designed and so attached to the vehicle as to eliminate, to the greatest possible extent, the risk of injury to the occupants in the event of an accident.

The apparatus cab will be tested to specific load and impact tests with regard to the protection of occupants of a commercial vehicle.

A test will be conducted to evaluate the frontal impact strength of the apparatus cab to conform to the test J2420 and the "United Nations Regulation 29, Annex 3, paragraph 4, (Test A). A second test will be conducted to evaluate the roof strength of the apparatus cab to conform to the Society Of Automotive Engineers (SAE) SAE J2422/SAE J2420 and "United Nations Regulation 29, Annex 3, paragraph 5, (Test B) and SAE J2420. The evaluation will consist of the requirements imposed by ECE Regulation 29, Paragraph 5.

The test will be conducted by a certified independent third party testing institution.

A letter stating successful completion of the above test on the brand of cab being supplied will be included in the bid. There will be **"no exception"** to this requirement.

SEAT BELT TESTING

The seat belt anchorage system will be tested to meet FMVSS 207 Section 4.2a and FMVSS 210 section 4.2. Testing will be conducted by an independent third party product evaluation company.

A copy of the certification letter will be supplied with the bid documents.



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MANUAL CAB LIFT

There will be a manually operated hydraulic pump for tilting the cab in case the main pump should fail. Access to the pump will be located under the left corner of the front bumper.

CAB DOORS

The cab doorframes will be constructed from aluminum extrusions fitted with an aluminum sheet metal skin and will be equipped with dual weather seals. The outside cab door window opening will be framed by a black anodized aluminum trim, to provide a clean appearance. The cab doors will be equipped with heavy-duty door latching hardware, which complies with FMVSS 206. The door latch mechanism will utilize control cable linkage for positive operation. A rubber coated nylon web doorstop will be provided.

The doors will be lap type with a full-length stainless steel 3/8" diameter hinge and will be fully adjustable.

All openings in the cab will be grommeted or equipped with rubber boots to seal the cab from extraneous noise and moisture.

The cab doors will be designed to satisfy the following minimum opening and step area dimensions:

Door Opening:	
Front	36.5" x 73"
Rear	36.5" x 73"

WORK SURFACE

There will be a flat work surface in front of the officer's seat.

IN-CAB OVERHEAD STORAGE AREA

An overhead storage area will be provided at the front of the raised roof portion inside of the cab above the rear-facing crew seats. The full-width storage area will be approximately 84" wide x 10.5" high x 17" deep and will have a Zolatone gray/black rubberized, textured finish to match the cab interior. Removable nylon netting will be provided to cover the storage area opening.



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2013 Bid Specifications Triple Combination Pumper

EMS CABINET, REAR FACING

There will be a cabinet constructed of .125 aluminum plate and painted to match the interior of the cab. The cabinet dimensions will be approximately 21" wide x 22" deep x 39" high. The cabinet will come complete with a locking roll up door and two adjustable shelves. Strip lighting will be provided in the cabinet. The location of the cabinet will be in place of the rear facing crew seat behind the driver.

EMS CABINET, REAR FACING

There will be a cabinet constructed of .125 aluminum plate and painted to match the interior of the cab. The cabinet dimensions will be approximately 21" wide x 18" deep x 39" high. The cabinet will come complete with a locking roll up door and two adjustable shelves. Strip lighting will be provided in the cabinet. The location of the cabinet will be in place of one of the rear facing crew seats behind the officer.

INTERIOR DOOR PANELS

The interior of the cab entry doors will have a 304 brushed stainless steel scuff plate, contoured to the door, from the door sill down.

DIAMOND PLATE, CAB FLOOR

The cab floor will be covered with 1/8" embossed diamondplate.

CAB REAR WALL COVERING

The rear outside wall of the cab will be covered with 1/8" aluminum diamond plate.

CAB ACCESSORY FUSE PANEL

A fuse panel will be located underneath the rear facing seat on the officer's side. The fuse panel will consist of six (6) battery hot and six (6) ignition switch circuits. Each circuit will be capable of 10-ampere 12-volt power and total output of 50-amps. The fuse panel will be capable of powering accessories such as hand held spotlights, radio chargers, hand lantern chargers and other miscellaneous 12-volt electrical components.



Kenosha Fire Department Proposal
2013 Bid Specifications Triple Combination Pumper

CUSTOM MAP BOX

A map box will be custom fabricated from aluminum plate and painted to match the interior of cab. the map box will be designed to match existing map boxes in the KFD fleet.

EMS GLOVE BOX HOLDER

A total of four (4) EMS glove box holders will be provided and mounted. The exact location will be determined at the pre-construction conference.

CLIPBOARD HOLDER

A custom holder for a clip board will be provided. The holder will be fabricated from Stainless Steel, and will be mounted to the inside of the officer's door, and the officer's side crew cab door. A Velcro strap will secure the clipboard in the holder.

AIR HORNS

Two (2) Grover 2040 Stuttertone rectangular, chrome plated, air horns will be recess mounted, one (1) each side behind the perforated grille of the bumper. The air horns will be controlled by a toggle switch wired through the horn button. A foot switch for the air horns will also be provided on the officer's side.

ALTERNATOR

A 320 ampere Prestolite/Leece Neville alternator with serpentine belt will be provided The alternator will generate 260 amperes at idle.

A low voltage alarm, audible and visual, will be provided.

FRONT AXLE

A Meritor™ MFS-20-133A non-driving, front steer axle with a capacity 20,000 pounds will be provided. The axle will have a 3.74" dropped I-beam, be 10 bolt hub piloted, and furnished with oil seals.



Kenosha Fire Department Proposal
2013 Bid Specifications Triple Combination Pumper

REAR AXLE

The rear axle will be a Meritor™ RS-26-160 Single reduction drive axle with a capacity of 27,000 lbs. The axles will be hub piloted, 10 studs, furnished with oil seals.

TOP SPEED

Rear axle speed approximately 65 MPH.

BATTERIES

The battery system will be a single system consisting of four negative ground, 12 volt Interstate Group 31 MHD batteries, cranking performance of 950 CCA each with total of 3800 amps, 185 minute reserve capacity with 25 ampere draw at 80 degrees Fahrenheit. Each battery will have 114 plates. Warranty will be accepted nationwide.

The batteries will be installed in a vented 304 stainless steel battery box with a removable aluminum cover to protect the batteries from road dirt and moisture. The battery cover will be secured with four "T" handle rubber hold downs to provide easy access for maintenance and inspection. Stainless steel hardware will be used for installation. The batteries are to be placed on dri-deck and secured with a fiberglass hold down. The batteries will be wired directly to starter motor and alternator.

The battery cables will be 3/0 gauge. Battery cable terminals will be soldering dipped, color-coded and labeled on heat shrink tubing with a color-coded rubber boot protecting the terminals from corrosion.

There will be a 350-ampere fuse protecting the pump primer and a 250-ampere fuse protecting the electric cab tilt pump and other options as required.

BATTERY CHARGING

A Kussmaul Auto Charge 1200 battery system charger will be provided. The Auto Charge 1200 is a fully automatic battery charger with a very high output for vehicles with a single battery system. A single bar graph display is provided to indicate the state of charge of the battery system. The rated output will be 40 amps for the vehicle battery system.

A Kussmaul Model 091-55-20-120 super electric auto-eject with weatherproof cover and power interrupt will be provided.



Kenosha Fire Department Proposal
2013 Bid Specifications Triple Combination Pumper

BATTERY JUMPER TERMINAL

There will be one set (two studs) of battery jumper terminals located by the battery box under the cab. The terminals will have plastic color-coded covers. Each terminal will be tagged to indicate positive/negative.

AIR DISC BRAKES

The apparatus will be equipped with Arvin Meritor DiscPlus EX225 Air Disc Brakes. Each disc brake assembly will include one (1) 17" vented rotor, one (1) lightweight hub, one (1) twin-piston caliper, and two (2) quick-change pads.

AIR BRAKE SYSTEM

The vehicle will be equipped with air-operated brakes. The system will meet or exceed the design and performance requirements of current FMVSS-121 and test requirements of current NFPA 1901 standards.

Each wheel will have a separate brake chamber. A dual treadle valve will split the braking power between the front and rear systems.

All main brake lines will be color-coded nylon type protected in high temperature rated split plastic loom. The brake hoses from frame to axle will have spring guards on both ends to prevent wear and crimping as they move with the suspension. All fittings for brake system plumbing will be brass.

A Meritor Wabco System Saver 1200 air dryer will be provided.

The air system will be provided with a rapid build-up feature, designed to meet current NFPA 1901 requirements. The system will be designed so the vehicle can be moved within 60 seconds of startup. The quick build up system will provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended operating conditions following the 60-second buildup time. The vehicle will not be required to have a separate on-board electrical air compressor or shoreline hookup to meet this requirement.

Four (4) supply tanks will be provided. One air reservoir will serve as a wet tank and a minimum of one tank will be supplied for each the front and rear axles. A Schrader fill valve will be mounted in the front of the driver's step well.

A spring actuated air release emergency/parking brake will be provided on the rear axle. One (1) parking brake control will be provided and located on the engine hood next to the



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transmission shifter within easy reach of the driver. The parking brake will automatically apply at 35 ±10 PSI reservoir pressure. A Meritor WABCO IR-2 Inversion Relay Valve, supplied by both the Primary and Secondary air systems, will be used to activate the parking brake and to provide parking brake modulation in the event of a primary air system failure.

Accessories plumbed from the air system will go through a pressure protection valve and to a manifold so that if accessories fail they will not interfere with the air brake system.

AIR INLET

An air system inlet/fill connection will be provided. The inlet will be connected to the air brake to allow constant air feed. The location of the inlet will be determined during the pre-construction conference.

AIR BRAKING ABS SYSTEM

A Wabco ABS system will be provided to improve vehicle stability and control by reducing wheel lock-up during braking. This braking system will be fitted to axles and all electrical connections will be environmentally sealed from water and weather and be vibration resistant.

The system will constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which will sense approaching wheel lock and instantly modulate brake pressure up to 5 times per second to prevent wheel lock-up. Each wheel will be individually controlled. To improve field performance, the system will be equipped with a dual circuit design. The system circuits will be configured in a diagonal pattern. Should a malfunction occur, that circuit will revert to normal braking action. A warning light at the driver's instrument panel will indicate malfunction to the operator.

The system will consist of a sensor clip, sensor, electronic control unit and solenoid control valve. The sensor clip will hold the sensor in close proximity to the tooth wheel. An inductive sensor consisting of a permanent magnet with a round pole pin and coil will produce an alternating current with a frequency proportional to wheel speed. The unit will be sealed, corrosion-resistant and protected from electro-magnetic interference. The electronic control unit will monitor the speed of each wheel sensor and a microcomputer will evaluate wheel slip in milliseconds.



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ASR SWITCH

An on/off switch for the Acceleration Slip Resistance will be provided on the dash. This will allow the driver to override the computer and turn the ASR on when at a higher speed for better traction in deep snow or mud.

BUMPER

There will be a 12" high double rib polished stainless steel wrap-around bumper provided at the front of the apparatus. Laser cut perforated grilles will be incorporated into the bumper and located at the outboard section of the bumper for the air horns and at the center for the siren speaker. The bumper will be mounted to a reinforcement plate constructed of 1/4" x 10" x 70" carbon steel. A gravel shield will be provided, constructed of .188" aluminum diamond plate. The bumper extension will be approximately 18".

STORAGE WELL COMPARTMENT

There will be a hose well compartment located in the center of the front bumper. The compartment will run the full width of the bumper and measure approximately 75" wide x 10" long x 5" deep at the ends and 12" deep in the center. The compartment will be constructed of .125" smooth aluminum plate.

COOLING SYSTEM

The cooling system will be designed to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system will be designed and tested to meet or exceed the engine and transmission manufacturer's requirements, and EPA regulations.

The complete cooling system will be mounted in a manner to isolate the system from vibration and stress. The individual cores will be mounted in a manner to allow expansion and contraction at various rates without inducing stress to the adjoining core(s).

The cooling system will be comprised of a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components will include a surge tank, a charge air cooler, bolted to the top of the radiator to maximize cooling, recirculation shields, a shroud, a fan, and required tubing. All components will consist of an individually sealed system.



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RADIATOR

The radiator will be a cross-flow design constructed completely of aluminum with welded side tanks. The radiator will be bolted to the bottom of the charge air cooler to allow a single depth core, thus allowing a more efficient and serviceable cooling system.

The radiator will be equipped with a drain cock to drain the coolant for serviceability. The drain cock will be located at the lowest point of the aluminum cooling system to maximize draining of the system.

CHARGE AIR COOLER

The charge air cooler will be of a cross-flow design and constructed completely of aluminum with extruded tanks. The charge air cooler will be bolted to the top of the radiator to allow a single depth core.

COOLANT

The cooling system will be filled with a 50/50 mix. The coolant makeup will contain ethylene glycol and de-ionized water to prevent the coolant from freezing to a temperature of -34 degrees F.

HOSES & CLAMPS

Silicone hoses will be provided for all engine coolant lines.

All radiator hose clamps will be spring loaded stainless steel constant torque hose clamps for all main hose connections to prevent leaks. Recirculation shields will be installed where required to prevent heated air from reentering the cooling package and affecting performance.

FAN

The engine cooling system will incorporate a heavy-duty composite 11- blade Z-series fan. It will provide the highest cooling efficiently while producing the lowest amount of noise. This robust yet light-weight fan results in less wear and stress on motors and bearings.

A shroud and recirculation shield system will be used to ensure air that has passed through the radiator is not drawn through again.



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The fan tip to radiator core clearance will be kept at a minimal distance to increase the efficiency of the fan and reduce fan blast noise.

SURGE TANK

The cooling system will be equipped with an aluminum surge tank mounted to the officer's side of the cooling system core. The surge tank will house a low coolant probe and sight glass to monitor the coolant level. Low coolant will be alarmed with the check engine light. The surge tank will be equipped with a dual seal cap that meets the engine manufacturer's pressure requirements, and system design requirements.

The tank will allow for expansion and to remove entrained air from the system. There will also be an extended fill neck to prevent system overflow and encroachment of expansion air space. Baffling will be installed in the tank to prevent agitated coolant from being drawn into the engine cooling system.

DRIVE LINE

The driveline will consist of Spicer 1810 series dual grease fitting universal joints with "half-round" end yokes. The drive shaft will be built with a heavy-duty steel tube 4.095" outside diameter x .180 wall thickness. The shafts will be dynamically balanced prior to installation into the chassis. A splined slip joint will be provided in each shaft assembly. Universal joints will be extended life. There will be two (2) Zerk fittings in each universal joint assembly so the joint can be greased without turning the shaft.

ENGINE ENCLOSURE, RAPTOR SKIN COVERING

An integral, formed aluminum and composite engine enclosure will be provided. The engine enclosure will be contoured and blended in an aesthetically pleasing manner with the interior dash and flooring of the cab. The enclosure will be kept as low as possible, to maximize space and increase crew comfort.

The enclosure will be constructed from 5052 H2 aluminum plate and GRP composite materials, providing high strength, low weight, and superior heat and sound deadening qualities. The exterior sides will be covered with rubberized carpeting to aid in sound deadening and heat resistance. The top will be covered with a fiberglass grade cover, with a heavy duty, black Raptor Skin, wear resistant covering, further reducing noise and heat in the cab.



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The underside of the engine enclosure will be covered with a sound deadening, heat reflective insulation system, and will further minimize noise (DB levels), and eliminate engine heat from the front and rear of the cab. The insulation material will be bonded with adhesive and mechanically fastened to the underside of the cab. All seams will be sealed to prevent water absorption.

ENGINE

The apparatus will be powered by a Cummins Diesel ISX 12 500 HP @ 1800 R.P.M., 1645 ft. lb. torque @ 1100 R.P.M.

ENGINE WARRANTY

The engine will have a five year or 100,000 mile warranty and approval by Cummins for installation in the chassis. There will be no deductible for the first two years. A one hundred dollar deductible will apply for service during the next three years.

AIR COMPRESSOR

The air compressor will be an 18.7 CFM engine driven Wabco.

STARTER

A 12-volt starter will be provided, controlled by a switch on the left lower cab dash.

FUEL FILTERS

The engine fuel filters will be mounted in a manner that is easily accessible for service or replacement. A Cummins approved primary FleetGuard Fuel Pro filter will be remote mounted to the Chassis frame rail. A secondary FleetGuard FF2200 spin on filter will be mounted on the engine.

EXHAUST SYSTEM

The engine exhaust system will include the following components:

- Diesel Particulate Filter (DPF)
- Diesel Oxidation Catalyst (DOC)
- Diesel Exhaust Fluid (DEF)



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- Selective Catalytic Reduction Filter (SCR)

The SCR catalyst utilizes the DEF fluid, which consists of urea and purified water, to convert NOx into nitrogen and water. This will meet or exceed 2013 EPA emissions requirements.

The engine exhaust system will be horizontal design constructed from heavy-duty truck components. The exhaust tubing will be stainless steel to the DPF through to the SCR, aluminized steel from the SCR to the exhaust tip. A heavy duty stainless steel bellows tube will be used to isolate the exhaust system from the engine. The system will be equipped with single canister consisting of a Diesel Oxidation Catalyst (DOC) and a Diesel Particulate Filter (DPF), and will be mounted under the right side frame rail, meeting the specific engine manufacturer's specifications and current emission level requirements. The outlet will be directed to the forward side of the rear wheels, exiting the right side with a heavy duty heat diffuser. The heat diffuser will prevent the exhaust temperature from exceeding 851 deg. F during a regeneration cycle. A heat-absorbing sleeve will be provided on the exhaust pipe in the engine compartment area to reduce the heat, protect the alternator, and also to protect personnel while servicing the engine compartment.

AFTER TREATMENT SYSTEM

To meet EPA requirements of Particulate output, a DPF (Diesel Particulate Filter) is used. To meet EPA requirements of Nitrous Oxide output an SCR (Selective Catalytic Reduction) system utilizing DEF (Diesel Exhaust Fluid) is used.

ON-BOARD DIAGNOSTIC (OBD) SYSTEM

The engine will be equipped with an on-board diagnostic (OBD) system which will monitor emissions-related engine systems and components and alert the operator of any malfunctions. The OBD system is designed to further enhance the engine and operating system by providing early detection of emission-related faults. The engine control unit (ECU) will manage smart sensors located throughout the engine and after-treatment system. The system will monitor component verification and sensor operation. There will be warning lights located in the dash instrument panel to alert the operator of a malfunction. A data port will be provided under the driver's side dash for the purpose of code reading and troubleshooting. All communication will be provided through the J1939 data link.



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AIR CLEANER/INTAKE

The engine air intake and filter will be designed in accordance with the engine manufacturer's recommendations. It will be 99.9% effective in removing airborne contaminants when tested per the industry standard SAE J726 procedure and offer a dirt holding capacity of at least 3.0 gm/cfm of fine dust (tested per SAE J726) offering superior engine protection.

The air filter will be located at the front of the apparatus and will be at least 66" above the ground, to allow fording deep water in an emergency situation.

An ember separator will be provided in the engine air intake meeting the requirements of NFPA 1901.

An Air Restriction warning light will be provided and located on the cab dash.

ENGINE BRAKE

The engine will be equipped with a Jacobs compression engine brake. An "On/Off" switch and a control for "Low/High" will be provided on the instrument panel within easy reach of the driver.

The engine brake will interface with the Wabco ABS brake controller to prevent engine brake operations during adverse braking conditions.

A pump shift interlock circuit will be provided to prevent the engine brake from activating during pumping operations.

The brake light will activate when the engine brake is engaged.

DIESEL EXHAUST FLUID TANK

The exhaust system will include a molded cross linked polyethylene tank. The tank will have a capacity of 5 usable gallons and will be mounted on the left side of the chassis frame.

The DEF tank fill neck will accept only a 19mm dispensing nozzle versus the standard 22mm diesel fuel dispensing nozzle to prevent cross contamination. The DEF tank cap will be blue in color to further prevent cross contamination.

A placard will accompany fill location noting DEF specifications.



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EXHAUST ADAPTER

The exhaust will terminate to accept a station mounted PlymoVent® exhaust system.

FRAME

The chassis frame will be of a ladder type design utilizing industry accepted engineering best practices. The frame will be specifically designed for fire apparatus use. Each frame rail will be constructed of two 3/8" thick-formed channels. The outer channel will be 10.06" x 3.50" x .375" and the inner channel (liner) will be 9.31" x 3.13" x .375". The section modulus will be 31.28 in.³. The resistance to bending moment (RBM) will be 1,569,160 in./lbs. The cross-members will be constructed of minimum 3/8" formed channels and have formed gusseted ends at the frame rail attachment.

.625 inch, grade 8 flange, Huck bolt fasteners will be used on all permanently attached brackets to the frame to eliminate the need for bolt re-tightening.

A lifetime warranty will be provided, per manufacturer's written statement.

FUEL TANK

The chassis will be equipped with a 65-gallon stainless steel rectangular fuel tank. The fuel tank will be certified to meet FMVSS 393.67 tests. It will also maintain engine manufacturer's recommended expansion room of 5%.

The tank will be removable by means of six (6) bolted connections and dropped. One (1) tank baffle will be used.

Dual pick-up and return ports with a single 3/4" tank drawtube will be provided for diesel generators if required.

The fuel tank will be equipped with a 2 1/4" filler neck assembly with a 3/4" vent located on the left hand side of the tank. A fuel fill cap attached with a lanyard will be provided. The bottom of the fuel tank will contain a 1/2" drain plug.

The fuel lines will be nylon braid reinforced fuel hose with brass fittings. The lines will be carefully routed along the inside of the frame rails. All fuel lines are covered in high temperature rated split plastic loom. Single suction and return fuel lines will be provided.

The fuel tank will be mounted in a saddle with a barrier between the tank and the saddle.



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FUEL COOLER

Installed on the apparatus fuel system will be an Air-To-Liquid aluminum fuel cooler. The fuel cooler will be located in the lowest module of the cooling system.

CAB HANDRAILS

There will be a 24" long, handrail provided and installed, at each cab entrance. The handrails will be constructed of type 304 stainless steel 1.25 inch diameter tubing with bright finish and knurled gripping surface. Mounting flanges will be constructed from 7 gauge, .180 thick, stainless sheet. Each grab rail will have 90 degree returns to flanges. The ends of grab rail will pass through the flanges and be welded to form one structural unit. The handrails will be mounted using 1.25" SS Hex bolts, with a barrier rubber gasket at each flange.

Sufficient space will allow for a gloved hand to firmly grip the rail.

There will be two (2) rubber coated grab handles provided and mounted on the interior of the cab, one each side, on the windshield post for ingress assistance. The handrail on the driver's side will be approximately 11" long and the handrail on the officer's side will be approximately 18" long.

CAB DOOR HANDRAILS

Two (2) 1.25" diameter knurled stainless steel handrails will be provided on the inside of the rear crew doors just above the windowsill.

HEATER/DEFROSTER/AIR CONDITIONER

There will be a minimum 65,000 cool BTU and 75,000 heat BTU single unit, heater/air conditioner mounted over the engine cover. The unit will be mounted in center of the cab on the engine hood/enclosure. Unit will have a shutoff valve at the right side of the frame, next to the engine. Airflow of the heater/air conditioner will be a minimum 1200 CFM. To achieve maximum cooling, a TM-21 Compressor (10 cu. in.) will be used. There will be ductwork to the floor of the cab, facing forward to provide heat for the front of cab floor area.

The defroster/heater will be a minimum of 35,000 BTU and will be a separate unit mounted over the windshield. There will be eight (8) louvers/diffusers to direct to



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windshield and door glass. Airflow of the defroster/heater will be a minimum 350 CFM. The unit will be painted Zolatone greystone to match the cab ceiling.

The condenser will be roof mounted and have 65,000 BTU rating. The unit will include three fan motors. Airflow of the condenser will be a minimum 2250 CFM. (This roof-mounted condenser will work at full rated capacity at an idle with no engine heat problems.)

HEATER/DEFROSTER/AIR CONDITIONING CONTROLS

The heater/defroster/air conditioning will be located in the overhead console in the center of the apparatus cab within reach of the driver and officer. The controls will be illuminated for easy locating in dark conditions. The controls will be located in such a way that the driver will not be forced to turn away from the road to make climate control adjustments. Control of all heater/defroster/air conditioning functions for the entire apparatus cab will be achieved through these controls.

Metal deflectors will be provided over the defroster and A/C vents.

DEFROSTER DIFFUSER

A molded diffuser made of durable ABS plastic ductwork system will be provided. It will be form fitted and will attach to the cab's overhead defroster unit to provide temperature controlled air to the windshields. Air flow of up to 280 cfm is balanced and directed across the entire windshield for optimum defrosting capability in all types of weather.

LOAD MANAGER

Load manager will have the ability to sequence loads on and off. It will also be able to shed 8 loads when the vehicle is stationary, starting at 12.7 volts lowest priority load to be shed, then respectively at 12.6, 12.4, 12.2, 12.0, 11.8, 11.4 and 11.0 volts DC. Any load that has been shed will be off for a minimum of five minutes, and then if voltage has rebounded above shed voltage, the shed load will automatically come on. There will also be an indicator panel along side the rocker switches, which indicate power is on, battery warning and fast idle. Battery warning indicator will flash at a rate proportional to the voltage discharge rate.



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AUTOMATIC HIGH IDLE ACTIVATION

The load management system will be capable of activating the apparatus high idle system when the system voltage drops below 12.3 volts DC. The system will raise engine speed for a minimum of five minutes until voltage exceeds 13.0 volt DC. The load management system will activate the high idle feature before any devices are automatically shed OFF. The high idle function request from the load management device will function only if the appropriate interlocks are present; that is, control of the high idle system is monitored and will be superseded by the state of the interlock control module. The automatic high idle system will be deactivated whenever the brake pedal is pressed, and will remain inactive for two minutes thereafter to allow an operator to override the high idle function and return the engine to idle before PTO engagement.

INSTRUMENT PANEL

The main dash shroud, which covers the area directly in front of the driver from the doorpost to the engine hood, will be custom molded and covered with a non-glare black vinyl. The dash will be a one-piece hinged panel that tilts outward for easy access to service the internal components. The gauge panel will be constructed of durable aesthetically pleasing light gray polymer material, placed over a heavy duty steel backing plate, for added strength and durability.

The gauges will be Beede Instruments, NexSys Link gauges with built-in self-diagnostics and red warning lights to alert the driver of any problems. All gauges and controls will be backlit for night vision and identified for function. All main gauges and warning lights will be visible to the driver through the steering wheel.

MASTER BATTERY & IGNITION SWITCH

The vehicle will be equipped with a keyless ignition, with a three (3)-position Master Battery rocker switch, "Off/ACC/On" and a two (2)-position Engine Start rocker switch, "Off/Start".

DIESEL PARTICULATE FILTER CONTROLS

There will be two (2) controls for the diesel particulate filter. One control will be for regeneration and one control will be to inhibit engine regeneration. These will be located below the steering wheel in the kick panel.



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INSTRUMENTATION & CONTROLS

Instrumentation on dash panel in front of the driver:

- Tachometer/hourmeter with high exhaust system regeneration temperature, and instrument malfunction indicators
- Speedometer/odometer with built in turn signal, high beam, and re-settable trip odometer
- Voltmeter
- Diesel fuel gauge
- DEF (Diesel Exhaust Fluid) gauge
- Engine oil pressure
- Transmission temperature
- Engine temperature
- Primary air pressure
- Secondary air pressure

Indicators and warning lights in front of the driver:

- Parking brake engaged
- Low air with buzzer
- Antilock brake warning
- Check transmission
- Transmission temperature
- Upper power indicator
- Seat belt
- Engine temperature
- Low oil indicator
- Low voltage indicator
- Air filter restriction light
- Low coolant indicator
- High idle indicator
- Power on indicator
- Check engine
- Stop engine
- Check engine MIL lamp
- DPF indicator
- High exhaust temperature
- Wait to start



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Other indicator and warning lights (if applicable):

- Differential locked
- PTO (s) engaged
- Auto-slip response
- Retarder engaged
- Retarder temperature
- ESC indicator

Controls located on main dash panel in front of the driver:

- Master power disconnect with ignition switch
- Engine start switch
- Headlight switch
- Windshield wiper/washer switch
- Differential lock switch (if applicable)
- Dimmer switch for backlighting

Controls included in steering column:

- Horn button
- Turn signal switch
- Hi-beam low-beam switch
- 4-way flasher switch
- Tilt-telescopic steering wheel controls

CENTER CONTROL CONSOLE

There will be an ergonomically designed center control console. The console will be constructed of 1/8" smooth aluminum and will be mounted on the engine hood between the driver and officer. The console will have a durable coating to match the color of the engine hood covering and will feature surfaces on each side that are contoured to face the driver and the officer for easy viewing and accessibility. The switches and other customer specified electrical items will be mounted in removable 1/8" smooth aluminum panels with a black wrinkle finish. The console will have an aluminum lift-up lid with quick release latch. The lid will be held in the open position with a gas strut to allow for easy access and serviceability.

Controls located in the console conveniently accessible to the driver:

- Transmission shifter
- Pump shift control with OK TO PUMP and PUMP ENGAGED lights
- Remote mirror control



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- Illuminated rocker switches to control high idle, Jacob's brake, siren/horn, siren brake, master emergency, and other customer specified components
- 12V power point (if applicable)

Controls located in the console conveniently accessible to the driver and the officer (center):

- Parking brake control with a guard to prevent accidental engagement

Controls located in the console conveniently accessible to the officer:

- Illuminated rocker switches to control customer specified components that are easily reachable to the officer and do not allow for compromise of the driver's view, and eliminate the need for foot switches
- Surface to recess siren head, radio head, or other desired items as space permits
- 12V power point (if applicable)

Driving compartment warning labels will include:

- HEIGHT OF VEHICLE
- OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION
- DO NOT USE AUXILIARY BRAKING SYSTEMS ON WET OR SLIPPERY ROADS
- EXIT WARNINGS

Additional labels included:

- COMPUTER CODE SWITCH
- ABS CODE SWITCH
- FLUID DATA TAG
- CHASSIS DATA TAG

OVERHEAD CONTROL CONSOLE

An ergonomically designed overhead console will be provided above the driver and officer, running the full width of the cab. The overhead console will be constructed from 1/8" aluminum plate and will be painted with a durable finish to match the inside of the cab. There will be seven (7) removable 1/8" smooth aluminum plates with a black wrinkle finish to house switches and other electrical items.

Directly above the driver there will be two (2) panels with no cutouts, unless otherwise specified by the customer.



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There will be a panel located to the right of the driver that will be designated for defroster, heat, and air conditioning controls (if specified).

The center overhead panel will be designated for up to seven (7) door ajar indicators. Upon releasing the apparatus parking brake, one or more of these lights will automatically illuminate (flash) when any of the following conditions occur that may cause damage if the apparatus is moved: cab or compartment door is open; ladder or equipment rack is not stowed; stabilizer system deployed; any other device has not been properly stowed.

There will be a panel to the left of the officer as well as two (2) directly above the officer. These panels will have no cutouts, unless otherwise specified by the customer.

ENGINE WARNING SYSTEM

An engine warning system will be provided to monitor engine conditions such as low oil pressure, high engine temperature and low coolant level. Warning indication will include a STOP ENGINE (red) light with audible buzzer activation and a CHECK ENGINE (amber) light

Note: (Some engine configurations may also include a fluid warning light.)

There will be a master information light bar with 24 lights located across the center of the dash panel that covers up to 24 functions. These are defined under Indicators and Warning Lights above.

CHASSIS WIRING

All chassis wiring will have XL high temperature crosslink insulation. All wiring will be color-coded, and the function and number stamped at 3" intervals on each wire. All wiring will be covered with high temperature rated split loom for easy access to wires when trouble shooting. All electrical connectors and main connectors throughout the chassis will be treated to prevent corrosion.

MASTER ELECTRICAL PANEL

The main chassis breaker panel will be wired through the master disconnect solenoid and controlled by the three-position ignition rocker switch. The breaker panel will be located in front of the officer on the interior firewall and will be protected by a removable aluminum cover. The cover will have an aluminum notebook holder on the exterior face accessible to the officer. The cover will be painted with a durable finish to match the interior of the cab and will be secured with two (2) thumb screws.



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The breaker panel will include up to 22 ground switched relays with circuit breaker protection. An integrated electrical sub-panel will be provided and interfaced to the body and chassis through an engineered wire harness system.

Twelve (12) 20-ampere relays and one (1) 70-ampere relay will be provided for cab light bar and other electrical items. If the option for a mechanical siren has been selected two (2) additional relays will be provided.

Up to two (2) additional relay boards with circuit breaker protection will be provided for additional loads as required. Each board will contain four (4) relays. The relay boards will be configured to trip with input from switch of positive-negative or load manager by moving the connector on the board (no tools required).

All relay boards will be equipped with a power-on indicator light (red), input indicator light (green) and power output indicator light (red).

Up to twenty-three (23) additional automatic reset circuit breakers for non-switched loads that are remotely switched (ie: heater fans, hood lights, etc.) will be provided.

All relays and circuit breakers on the relay boards will be pull-out/push-in replaceable.

All circuit breakers on the relay boards will be 20 ampere automatic reset which can be doubled or tripled for 40 or 60-ampere capacity.

The system will utilize Deutch DRC weather resistant connectors at the breaker panel, toe board and main dash connections.

All internal wire end terminals, including locking connectors, will be mechanically affixed to the wire ends by matching terminal crimping presses to assure the highest quality terminations.

All internal splices will be ultrasonically welded connections and all internal wiring will be high temperature GXL type wire that is protected by wiring duct wherever possible.

All switches will be ground controlled; no power going through any rocker switch.

Any switch controlling a relay in the breaker panel will be capable of being set to function only when the parking brake is set. All relays will be tagged with the function that the relay is controlling.



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PUMP SHIFT MODULE

A pump shift module with indicating lights will be located within easy reach of the driver. A gear lockup will be provided to hold the transmission in direct drive for pump operation.

SPEEDOMETER

A Class 1 brand digital speedometer will be provided on the officer's side in cab.

HIGH IDLE

The engine will have a "high idle" switch on the dash that will maintain an engine RPM of 1,000. The switch will be installed at the cab instrument panel for activation/deactivation. The "high idle" mode will become operational only when the parking brake is on and the truck transmission is in neutral.

AUXILIARY POWER POINTS

Two (2) 12-volt 20-ampere auxiliary lighter socket type plug-ins, will be provided in the cab, one near the driver and one near the officer.

AUXILIARY POWER POINT

One (1) additional 12-volt 20-ampere auxiliary lighter socket type plug-in, will be provided in the cab.

VEHICLE DATA RECORDER

An Akron / Weldon vehicle data recorder as required by the 2009 edition of NFPA 1901 will be installed. Vehicle data will be sampled at the rate of 1 second per 48 hours, and 1 minute per 100 engine hours.

Software will be provided to allow the fire department to collect the data as needed.

INTERIOR

The cab interior will have Zolatone gray/black rubberized, mar resistant, textured finish. The full front and rear headliners and rear firewall will be finished in gray Durawear.



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LIGHTING CAB EXTERIOR

Exterior lighting and reflectors will meet or exceed Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements in effect at this time.

LED HEADLIGHTS

There will be dual, sealed-beam LED, rectangular headlights in custom housings on each side of the front of the cab. The lenses will be hardened glass. The LEDs will be long-lasting and able to withstand shock and vibration.

These headlights will provide 850 effective lumens in high beam and 750 effective lumens in low beam.

This installation will be a 12V DC configuration and draw 3.6 Amps.

Headlight alignment will conform to SAE J599 AUG. 1997

- DOT Approved FMVSS 108
- SAE J96 ECE Reg. 112
- Sealed to IP67

Manufacturer's warranty: 4-year limited warranty.

ALTERNATING HEAD LAMP

The headlights will have an alternating flash feature for emergency response use.

DAYTIME RUNNING LIGHTS

The headlamps will be provided with a "Daytime Running" feature. The lights will automatically be switched on when the vehicle ignition is switched on.

HAND HELD SPOTLIGHT

One Optronics Blue Eye Model KB-4003, 400,000-candle power hand-held spotlight will be provided, installed at officer's side of cab.



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LIGHTING CAB INTERIOR

Interior lighting will be provided inside the front of the cab for passenger safety. Two (2) ceiling mounted combination red/clear LED dome lights with a push button on/off switch in the light lens. One light will be located over each the officer and driver's position. The lights will also activate from the open door switch located in each cab doorjamb.

DOOR LIGHTS

Whelen Model 500 LED flashing lights will be provided in each cab door. The lights will be activated from the open door switch located in each cab doorjamb.

LIGHTING CREW CAB INTERIOR

Interior lighting will be provided inside the crew cab for passenger safety. Two (2) ceiling mounted combination red/clear LED dome lights with a push button on/off switch in the light lens will be provided. The lights will also activate from the open door switch located in each cab doorjamb.

MIRRORS

Two (2) Lang Mekra 300 Series smooth chrome plated Aero style main and convex mirrors will be installed on each side of the vehicle. The main mirror will be 4-way remote adjustable with heat, 7" x 16" 2nd surface chromed flat glass. The convex will be 6" x 8" 2nd surface chromed 400 mm radius glass. Each mirror housing assembly will be constructed of lightweight textured chrome ABS with on truck glass and housing back cover replacement. In the event the mirror breaks the glass will be replaceable in (3) minutes or less. The glass will include a safety adhesive backing to keep broken glass in place. The mirror assembly will be supported by a "C" loop bracket constructed of polished stainless steel tube utilizing two point mounting reducing vibration of mirror glass during normal vehicle operation. The lower section of the holder will include a spring loaded single detent position 20 degrees forward with easy return to operating position without refocusing.

HELMET STORAGE

A universal style helmet bracket will be provided for each riding position.

A placard will be provided for each riding position warning that injury may occur if helmets are worn while seated.



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SEAT BELT WARNING SYSTEM

An Akron / Weldon seat belt warning system will be provided, and will monitor each seating position. Each seat will be supplied with a sensor that, in conjunction with the display module located on the dash, will determine when the seat belt was fastened and if the seat is occupied. An icon will represent that the seat is properly occupied. An audible and visual alarm will be activated if the seat is occupied and/or the belt is not fastened in the proper sequence.

DRIVER'S SEAT

The driver's seat will be a Bostrom Sierra FX air ride high back, adjustable fore/aft, upholstered with gray tweed Durawear. A 3-point seat belt will be provided.

OFFICER'S SEAT

The officer's seat will be a Bostrom Firefighter™ Tanker 450 ABTS SCBA seat. The seat will have the following features:

- Integrated 3-point seat belt
- "Auto-Pivot & Return" head rest
- Built in lumbar support
- 100% Durawear™ gray tweed seat material

UNDER SEAT STORAGE

There will be a storage compartment under the officer's seat approximately 15" wide x 10.5" tall x 15.5" deep.

CREW SEATS

The crew cab area will have four (4) Bostrom Firefighter™ seats. The seating arrangement will be: two (2) rear facing Bostrom Tanker 450 ABTS SCBA seats and two (2) forward facing Bostrom 400CT ABTS SCBA flip up seats. The seats will have the following features:

- Integrated 3-point seat belts



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- “Auto-Pivot & Return” head rest
- Built in lumbar support
- 100% Durawear™ gray tweed seat material

FLIP UP SEAT

A spring loaded flip-up seat will be provided on the rear cab wall, driver's side. The seat will be supplied with a seat belt.

SCBA BOTTLE BRACKET

The officer and fixed crew seats will come equipped with an IMMI SmartDock Hands Free SCBA Locking System, capable securing all U.S. and international SCBA brands and sizes while in transit or for storage on fire trucks.

Locking will be achieved by placing the SCBA unit (bottle) in the seat cavity to engage the automatic lock system. A top clamp will surround the top of the SCBA tank for a secure fit in all directions.

All adjustment points will be easily adjustable.

The bracket system will be free of straps and clamps that may interfere with auxiliary equipment on SCBA units.

The system will automatically release and will eliminate the need for straps or pull cords.

The bracket system will meet NFPA 1901 standards and requirements of EN 1846-2.

CREW SEAT COMPARTMENT

A compartment will be provided under the forward facing crew seats on the back wall of the cab. The compartment will be full through, with an access door on each side, accessible from the side of the crew cab doors.

STEERING

The steering system will be a TRW wheel to wheel steering system that is tested and certified by TRW, consisting of a heavy duty TRW/Ross Model TAS-85 power steering gear, TRW PS36 steering pump, miter box, drag links, and a thermostatic controlled fan



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cooled system (set point 185 deg. F to 170 deg. F). The steering gear will be bolted to the frame at the cross-member for steering linkage rigidity. Four (4) turns from lock to lock with an 18" diameter slip resistant rubber covered steering wheel. Steering column will have six-position tilt and 2" telescopic adjustment. The cramp angle will be 45 degrees with 315mm tires or 43 degrees with 425mm tires providing very tight turning ability.

SUSPENSION (FRONT)

The front suspension will be a variable rate taper-leaf design, 54" long and 4" wide. Long life, maintenance free, urethane bushed spring shackles will be utilized. All spring and suspension mounting will be attached directly to frame with high strength Huck bolts and self-locking round collars. Spring shackles and pins that require grease will not be acceptable. **NO EXCEPTIONS.**

ENHANCED FRONT SUSPENSION SYSTEM

The front suspension will have the handling, stability, and ride quality enhanced by the use of a Ride Tech auxiliary spring system and Koni high performance shock absorbers.

This system will utilize three stage, urethane auxiliary springs, and high performance gas filled shock absorbers to control the deflection of the leaf springs, and dampen vibration normally transmitted to the chassis. This maintenance free system will be custom tuned to the apparatus gross weight rating for maximum performance, while maintaining a soft compliant ride. **NO EXCEPTIONS.**

A (3) three year 36,000 mile warranty will be provided by the manufacturer.

SUSPENSION (REAR) 27,000 LB AIR RIDE

A Hendrickson FIREMAAX model FMX272 air ride rear suspension will be provided. The suspension will be a dual air spring design equipped with dual height control valves to maintain proper ride height. To reduce axle stress and maintain axle position and pinion angle the suspension design will incorporate three torque rods. The ground rating of the suspension will be 27,000 pounds.



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TIRE PRESSURE MONITOR

A Real Wheels LED tire pressure sensor will be provided for each wheel. The pressure sensor will indicate if a particular tire is not properly inflated. A total of six (6) indicators will be provided.

FRONT TIRES

Front tires will be Goodyear 385/65R22.5, load range J, G296 highway tread, single tubeless type with a GAWR of 20,000 pounds. Wheels will be disc type, hub piloted, 22.5 x 12.25 10 stud 11.25 bolt circle. Chrome plated lug nut caps will be provided.

FRONT HUB COVERS

Polished stainless steel hub covers will be provided for the front axle.

REAR HUB COVERS

Polished stainless steel hub covers will be provided for the rear axle.

REAR TIRES

Rear tires will be Goodyear 12R22.5, load range H, G622 Mud and Snow tread, dual tubeless type with a GAWR of 24,000 pounds. Wheels will be disc type, hub piloted, 22.5 x 8.25 10 stud with 11.25" bolt circle. Chrome plated lug nut caps will be provided.

MUD FLAPS

Hard rubber mud flaps will be provided for front and rear tires.

WHEELS

The front and rear wheels will be ACCURIDE® brand aluminum.

TOW EYES (Front)

There will be two front tow eyes with 3" diameter holes attached directly to the chassis frame.



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TOW EYES (Rear)

There will be two tow eyes attached directly to the chassis frame rail and will be chromate acid etched for superior corrosion resistance and painted to match the chassis.

TRANSMISSION

The chassis will be equipped with a Generation IV Allison EVS4000 six (6) speed automatic transmission. It will be programmed five (5) speed, sixth gear locked out, for fire apparatus vocation, in concert with the specified engine.

An electronic oil level indicator will be provided as well as a diagnostic reader port connection. The fifth gear will be an overdrive ratio, permitting the vehicle to reach its top speed at the engine's governed speed. The dipstick is dipped in a rubber coating for ease in checking oil level when hot.

The chassis to transmission wiring harness will utilize Metri-Pack 280 connectors with triple lip silicone seals and clip-type positive seal connections to protect electrical connections from contamination without the use of coatings.

Ratings:	Max Input (HP)	600
	Max Input (Torque)	1850 (lb ft)
	Max Turbine (Torque)	2600 (lb ft)

Mechanical Ratios:	1st -	3.51:1
	2nd -	1.91:1
	3rd -	1.43:1
	4th -	1.00:1
	5th -	0.74:1
	Reverse -	-5.00:1

TRANSMISSION COOLER

The apparatus transmission will be equipped with a Liquid-To-Liquid remote mounted cooler with aluminum internal components. The cooler will be encased in an aluminum housing and mounted to the outside of the officer's side frame rail for accessibility and ease of service.



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TRANSMISSION FLUID

The transmission will come filled with Castrol TranSynd™ Synthetic Transmission Fluid or approved equal meeting the Allison TES-295 specification. **NO EXCEPTION.**

TRANSMISSION SHIFTER

An Allison "Touch Pad" shift selector will be mounted to the right of the driver on the engine cover accessible to the driver. The shift position indicator will be indirectly lit for nighttime operation.

FRONT TURN SIGNALS

There will be two Whelen 400 Series LED rectangular amber turn signal lights mounted one each side in the front of the headlight housing and one mounted on each side of the warning light housing.

WHEELBASE

The approximate wheelbase will be 210".

WINDSHIELD WIPERS

Two (2) black anodized finish two speed synchronized electric windshield wiper system. Dual motors with positive parking. System includes large dual arm wipers with built in washer system. One (1) master control works the wiper, washer and intermittent wipe features. Washer bottle is a remote fill with a 4 quart capacity. Washer fill is located just inside of officer cab door.

MISCELLANEOUS CHASSIS EQUIPMENT

Fluid capacity plate affixed below driver's seat.

Chassis filter part number plate affixed below driver's seat.

Maximum rated tire speed plaque near driver.

Tire pressure label near each wheel location.



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Cab occupancy capacity label affixed next to transmission shifter.

Do not wear helmet while riding plaque for each seating position.

NFPA compliant seat belt and standing warning plates provided.

FIRE PUMP HALE QMAX-200

Fire pump will be midship mounted. The fire pump will be of the double suction single stage centrifugal type, carefully designed in accordance with good modern practice.

The pump will be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI.

The pump body will be horizontally split, on a single plane, casing type with removable lower casing for easy removal of the entire impeller assembly including wear rings and bearings from beneath the pump without disturbing piping or the mounting of the pump in the chassis.

All moving parts in contact with water will be of high quality bronze or stainless steel. Easily replaceable bronze labyrinth wear rings will be provided. Discharge passage will be designed to accomplish uniform pressure readings as the actual pump pressure. The rated capacity of the fire pump will be 2000 gallons per minute in accordance with NFPA# 1901.

The pump shaft will be rigidly supported by three bearings for a minimum deflection. One high lead bronze sleeve bearing will be located immediately adjacent to the impeller (on side opposite the drive unit). The sleeve bearing will be lubricated by a force fed, automatic lubrication system, pressure balanced to exclude foreign material. The remaining bearings will be heavy-duty type, deep groove ball bearings in the gearbox and they will be splash lubricated.

The pump shaft will have only one packing gland located on the inlet side of the pump. It will be of split design for ease of repacking. The packing gland must be a full circle threaded design to exert uniform pressure on the packing to prevent "cocking" and uneven packing load when it is tightened. It will be easily adjustable by hand with a rod or screwdriver and requiring no special tools or wrenches. The packing rings will be of a unique combination of braided graphite filament and braided synthetic packing and have sacrificial zinc foil separators to protect the pump shaft from galvanic corrosion.



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PUMP TRANSFER CASE

The drive unit will be designed of ample capacity for lubricating reserve and to maintain the proper operating temperature. Pump drive unit will be of sufficient size to withstand up to 16,000 lbs. ft. torque of the engine in both road and pump operating conditions.

The gearbox drive shafts will be heat-treated chrome nickel steel. Input and output shafts will be at least 2-3/4" in diameter. They will withstand the full torque of the engine in both road and pump operating conditions.

The engagement of the pump transmission will be of such design so as to permit transfer of power from road to pump operation only after vehicle is completely stopped. The pump shift will be air actuated from the cab and have both a green "Pump Engaged" light, and a green "O.K.-To-Pump" light. a third green light will be provided on the pump operator's panel for "Throttle Ready".

The pump drive unit will be cast and completely manufactured and tested at the pump manufacturer's factory.

PRIMING SYSTEM

The priming pump will be a Trident Emergency Products compressed air powered, high efficiency, multi-stage, venturi based AirPrime System. All wetted metallic parts of the priming system are to be of brass and stainless steel construction. A single panel mounted control will activate the priming pump and open the priming valve to the pump. The priming system will have a five year warranty.

PUMP CERTIFICATION

The pump, when dry, will be capable of taking suction and discharging water in compliance with NFPA #1901 chapter 14. The pump will be tested by National Testing and will deliver the percentages of rated capacities at pressures indicated below:

- 100% of rated capacity @ 150 PSI net pump pressure.
- 70% of rated capacity @ 200 PSI net pump pressure.
- 50% of rated capacity @ 250 PSI net pump pressure.

THREAD TERMINATION

National Standard Thread will terminate the inlets and outlets of the apparatus.



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MANUAL RELIEF VALVE HALE QG

The pressure control will be a fully automatic device, which will provide precise pressure control to protect nozzle operators from sudden pressure rises by keeping even discharge flow to each open outlet in accordance with the desired pressure. The pressure selector wheel will incorporate an indicator light system telling the operator when the valve is functioning. In the event of relief valve failure the pump will remain operable for the complete range of the pump's rated capacity, without requiring the closing of any emergency or 'in case of failure' (off/on) valves.

THERMAL RELIEF VALVE

There will be a Hale TRV-L Thermal Relief Valve supplied. The valve will automatically dump a controlled amount of water to atmosphere when the pump water exceeds 120 degrees Fahrenheit. The valve will re-set automatically. A light will be provided at the pump panel, which will illuminate when the pump reaches 120 degrees Fahrenheit to warn the operator that the pump is automatically dumping.

ENGINE STATUS CENTER

A Fire Research TachPro model TPA320-A00 engine monitoring display kit will be installed. The kit will include a display module, oil pressure sensor, audible alarm buzzer, memory module, and cables. The display module will consolidate five (5) instruments into one device. The case will be waterproof and have dimensions not to exceed 5" high by 5" wide by 3-1/4" deep.

The following continuous displays will be provided:

- Engine RPM; shown with four daylight bright LED digits more than 1/2" high, updated in 10 RPM increments
- Oil pressure; shown on an LED bar graph display in 10 psi increments
- Battery voltage; shown on an LED bar graph display
- Engine coolant temperature; shown on an LED bar graph display in 10 degree increments.

The program will support the accumulation of elapsed pump hours in a non-volatile, transferable memory module. Pump hours will be displayed at the push of a button.

The program will have self-diagnostic capabilities. It will monitor inputs and support audible and visual warning alarms for the following conditions:



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- Low oil pressure alarms when engine oil pressure is less than 8 psi
- Low battery voltage alarms at 11.5 volts if engine is off or 11.8 volts if engine is running
- High battery voltage alarms at 15.6 volts
- High engine coolant temperature visual alarm at 220 °F and audio alarm at 230 °F.

HAND THROTTLE

A Fire Research Infinity PRO model ETA400-A00 series remote hand throttle will be installed. The case and control knob will be machined from anodized aluminum, waterproof. The control knob will be 2" in diameter with a serrated grip, no mechanical stops, and have a red idle push button in the center.

The remote throttle will set the engine RPM to idle when the pump engaged interlock signal is recognized regardless of the control knob position. It will use optical technology to detect the direction and speed of the control knob when it is rotated.

INTAKE RELIEF

There will be a Hale stainless steel intake relief valve installed on the intake side of the pump. The surplus water will be discharged away from the pump operator and terminate with Male NST hose thread. System is field adjustable.

AUXILIARY COOLER

An auxiliary cooler will be furnished to provide additional cooling to the engine under extreme pumping conditions. Water from the pump is to be piped to the coils of the heat exchanger allowing the engine fluid to be cooled as required.

VALVES

All valves will be Akron Heavy-Duty swing out 8800/8600 series unless otherwise noted. The valve will have an all cast brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve will be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed flow optimizing stainless steel ball. The valve will not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve will be compatible with a slow close device. This valve will be actuated using manual handles, a Rack & Sector, manual



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gear, or electric actuator. The manual handles will be quickly adjustable to one of eight handle positions, and require only 90 degrees travel.

VALVE WARRANTY

The valves will carry a 10-year warranty.

DISCHARGE ADAPTER

A 2.5" x 1.5" adapter with cap will be provided for 2.5" discharge.

PUMP CONNECTIONS

All suction and discharge lines (except pump manifolds) 1" and larger will be heavy-duty stainless steel pipe. Where vibration or chassis flexing may damage or loosen piping or where a coupling is necessary for servicing, a flexible connection will be furnished. All lines will be drained by a master drain valve or a separate drain provided at the connection. All individual drain lines for discharges will be extended with a 90 degree fitting in order to drain below the chassis frame. All water carrying gauge lines will utilize nylon tubing.

6" PUMP INLETS

Two 6" diameter suction ports with 6" NST male threads will be provided, one on each side of vehicle. The inlets will extend through the side pump panels and come complete with removable strainer and long handle chrome-plated cap.

2.5" RIGHT SIDE INLET

One 2.5" gated inlet valve will be provided on the right side pump panel. The valve will be supplied with chrome plate female swivel, plug, chain, and removable strainer.

The valve will attach directly to the suction side of the pump with the valve body behind the pump panel.



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2.5" LEFT SIDE INLET

One 2.5" gated inlet valve will be provided on the left side pump panel. The valve will be supplied with chrome plate female swivel, plug, chain, and removable strainer. The valve will attach directly to the suction side of the pump with the valve body behind the pump panel.

TANK TO PUMP

The booster tank will be connected to the intake side of the pump with a 1/4 turn 3" full flow valve with check valve, with the remote control located at the operator's panel. The 3" tank to pump line will run from a bottom sump into the 3" valve. To prevent damage due to chassis flexing or vibration, a short 3" flexible rubber hose coupling will be used to connect the tank to the intake valve.

OUTLETS

The discharge valves will be an inline Tork-Lock constructed of brass and be of the quarter turn type of fixed pivot design to allow for ease of operation at all pressures. The valves will be controlled from the operator's panel and will be equipped with swing type locking handles. Each valve will be supplied with 2-1/2" National Standard Threads and come with chrome plated female caps and chains. 2-1/2" or larger discharge outlet will be supplied with a 3/4" quarter turn drain valve located at the outlet. All 2-1/2" and larger discharges will be supplied with a 30 degree angle down elbow.

3.00" LEFT SIDE DISCHARGES

One (1) 3.00" gated discharge will be located on the left side pump panel. The valves will be of the quarter turn tork-lok ball type of fixed pivot design to allow for ease of operation at all pressures. The valve will be connected to the discharge side of the pump with the valve bodies behind the pump panel. A chrome swing type handle located on the pump operator's panel will control the side discharge.

ADAPTER

There will be a 4" NST swivel female x 5" Storz adapter with cap and chain on the right side 4" discharge.



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3.00" RIGHT SIDE DISCHARGES

One (1) 3.00" gated discharge will be located on the right side pump panel. The valves will be of the quarter turn tork-lok ball type of fixed pivot design to allow for ease of operation at all pressures. The valve will be connected to the discharge side of the pump with the valve bodies behind the pump panel. A chrome swing type handle located on the pump operator's panel will control the right side discharge.

4" OUTLET

A Hale Maxflow 4" electric valve will be provided on the right side pump panel. The valve will be controlled at the pump operator's panel.

3" OUTLET LEFT REAR

There will be a 3" gated outlet piped to the left rear, adjacent to the hose bed. The outlet will be installed with proper clearance for spanner wrenches or adapters. Plumbing will be 3" piping and a full flow 3" ball valve with the control at the pump operator's panel.

3" REAR OUTLET

There will be a 3" gated outlet piped to the right rear, adjacent to the hose bed. The outlet will be installed with proper clearance for spanner wrenches or adapters. Plumbing will be 3" piping and a full flow 3" ball valve with the control at the pump operator's panel.

FRONT BUMPER DISCHARGE

A 3" discharge with 3" plumbing will be provided at the front bumper. The valve will be remote controlled at the pump panel.

DELUGE RISER

A 3" deluge riser will be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping will be rigidly braced. The riser will be gated and controlled from the pump operators panel.



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MONITOR

There will be an Akron Apollo Model 3433 High Rise removable monitor provided and mounted on the deluge riser. The monitor will be capable of elevating 24" above the base. Quad stacked tips; stream shaper and portable base will also be provided.

AKRON FOAM NOZZLE

An Akron Model 4475 foam nozzle with pick up tube will be provided. The pickup tube and nozzle will be equipped with camlock fittings.

FOAM NOZZLE PICK UP TUBE

A foam pick up tube with matching cam lock fittings will be hard piped in the vicinity of the deck gun riser directly to the foam tank.

SPEEDLAYS

Two (2) speedlays will be provided under the top mount console. The piping and valves will be 2", the swivel will be 1.5". The valves will be the "drop-out" style, push/pull controlled from the pump panel. Each compartment will hold 200 ft. of 1.75" double jacket hose. Both beds will be of the same dimension.

SPEEDLAY COVER

A vinyl cover will be provided to enclose the ends of the speedlays.

TANK FILL

A 2" tank fill line will be provided, using a quarter turn full flow ball valve controlled from the pump operator's panel.

FOAM SYSTEM

There will be an Akron Model 3126 125 gpm By-Pass Eductor installed in one 2.5" discharge for two foam tanks. The system will come complete with a combination instruction plate and a 0-1-2-3-6% metering valve, as well as all necessary valves and check valves to properly flush the system.



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FOAM TANK

There will be a 25-gallon foam tank. The tank will be part of the main booster tank. There will be a 3" PVC fill tower and cap and a tank vent. There will be a 1-1/2" flanged outlet and drain valve at the lowest point in the tank.

FOAM TANK

There will be a 40-gallon foam tank. The tank will be part of the main booster tank. There will be a 3" PVC fill tower and cap and a tank vent. There will be a 1-1/2" flanged outlet and drain valve at the lowest point in the tank.

PUMP OPERATOR'S TOP MOUNT CONTROL PANEL

The pump operators panel will be a top mount control type located forward of the apparatus body. The operator's panel will be positioned and designed to provide full 360° visibility for the pump operator. The operator will face the rear of the apparatus to operate the controls.

The panels will be constructed of brushed stainless steel for maximum protection against abrasion caused during normal use. The panel will be constructed in a manner to have two geometric planes. The lower more horizontal will hold the valve control levers and the upper more vertical will house the gauges. The panel will be hinged to pivot for easy access.

A full-width lightbar will be provided over the panel, hinged for quick access to the gauges.

Access doors will be provided on each side of the body to allow entrance into the pump area.

ESCUTCHEON PLATES

The pump panel will be equipped with color-coded removable escutcheon plates around the suction and discharge valves.

TOP MOUNT VALVE CONTROLS

The apparatus pump panel will be equipped with Innovative Controls Top Mount Valve Controls for valve actuation. The ergonomically designed grip-activated T-handles will be chrome-plated zinc with recessed UV-resistant labels for color-coding and verbiage. The



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patented spring-loaded handle and control rod assembly will open and close valves when the user simply squeezes the T-handle and pivots the rod. When the T-handle grip is released, the valve control will lock at the desired position automatically to eliminate valve drift. No secondary manual tightening method will be required.

A robust die cast and chrome-plated pivot arm with a brass bushing will house the internal locking mechanism protecting it from environmental hazards. Galvanized linkage from the T-handle to the valve will ensure long-term smooth valve control operation and never require lubrication.

The valve control handles will mount to sections of decorative clear anodized aluminum extrusion, designed to evenly space the handles and provide a secure mount for the handle's pivot rod. All valve controls will have the corresponding discharge gauge located immediately adjacent to the control handle to allow operator to view the discharge pressure without searching the panel.

WALKWAY

A walkway will be provided behind the cab forward of the pump module. The walkway will be a minimum of 23" wide accessible from both sides of the apparatus. The walkway surface will be constructed of .188 serrated aluminum diamond plate adequately reinforced with 1.5" x 3" x .25" T-6061 aluminum alloy extruded channel. The back exterior wall of cab will be covered with diamond plate for maximum protection against abrasion caused during normal use.

COLOR CODING

Each discharge valve control, outlet, and corresponding line gauge will be color-coded. The color-coding will be:

- #1 Discharge - Yellow
- #2 Discharge – White
- #3 Discharge – Navy Blue
- #4 Discharge - Black
- #5 Discharge - Green
- #1 Pre-Connect - Orange
- #2 Pre-Connect - Red
- #3 Pre-Connect - Brown
- #4 Pre-Connect - Magenta
- Front Bumper Line - Turquoise
- Large Diameter Discharge – Yellow With White Border
- Left Hose Bed Pre-Connect - Tan



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Right Hose Bed Pre-Connect - Lavender
Left Rear Discharge - Olive
Right Rear Discharge – Light Blue
Deck Gun – Silver
Inlets – Burgundy
Tank fill Lime Green
Tank to Pump - Burgundy

PUMP MODULE FRAMEWORK & PUMP FINISH

The pump module framework and the fire pump will be painted to match the primary body color. All fittings, pipe ends and valve ends will be properly taped off prior to applying paint. The paint finish will be applied before the installation of any wiring, gauge lines, valve linkages, or operator's panel. The paint will be the same material used for the finished body and cab.

RUNNING BOARD TROUGH

A trough will be provided in the left side running board. Velcro straps will be provided to secure the hose.

RUNNING BOARD TROUGH

A trough will be provided in the right side running board. Velcro straps will be provided to secure the hose.

WALKWAY COMPARTMENTS

A compartment will be provided each side under the top mount pump control walkway. The compartment dimension will be approximately 12" tall x 16" deep x 24" wide. The compartment will be equipped with a hinged door and D-ring latch.

BACKBOARD STORAGE

An area below the top mount walkway will be provided for the storage of two (2) backboards. A drop down door with a latch will be provided on the driver's side.



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PUMP PANEL LIGHTING, LED

The driver's side pump panel controls and gauges will be illuminated by a full width LED light strip.

PUMP PANEL LIGHTS

Each pump panel will be illuminated by a minimum of three (3) Weldon model #2030 halogen lights. The lights will be mounted in hood directly above the pump panel. A switch located on the pump panel will activate the lights.

PUMP PANEL GAUGES AND CONTROLS

The following gauges and controls will be provided at the pump panel:

- Two (2) certified laboratory test gauge outlets.
- Pump primer control.
- Master drain control and additional drains as needed.
- Tank-fill and pump cooler valve controls.
- Tank to pump valve control.
- Pump capacity rating plate.
- All discharge controls.
- Two (2) master pump gauges.
- Gauges on all 1-1/2" and larger discharge lines.

PUMP COMPARTMENT HEATER

A heater will be provided to heat the in the pump compartment. The heater will use water from the water manifold located of the right side of the engine. The manifold will have a dedicated valve to turn the water on or off for maintenance or during warm weather conditions. Hot air radiated from the unit will be distributed through the pump compartment by a 12-volt fan activated by a switch located on the pump operator's panel.

AIR OUTLET

One (1) air chuck will be provided adjacent to the pump operator's panel on the left side. The system will tie into the wet tank of the brake system and include an 85-psi pressure protection valve in the outlet line to prevent the brake system from losing all air. A 25 ft. air hose will be provided.



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Note: Purchaser to specify type of hose fitting.

4" MASTER GAUGES

NoShok liquid filled pump pressure and vacuum gauges will be provided. The gauges will be 4" in diameter with white faces and black lettering. The gauges will have a pressure range of 30"-0-400 psi.

2.5" PRESSURE GAUGES

NoShok liquid filled individual line pressure gauges will be provided. The gauges will be 2.5" in diameter with white faces and black lettering. The gauges will have a pressure range of 0-400 psi.

WATER TANK GAUGE

An Innovative Controls weather proof encapsulated (14) super bright LED light indicator will monitor the water tank level and will be mounted on the pump operator's panel. The fourteen LED lights are arranged in a "V" pattern for easy identification of liquid level. When the liquid level reaches less than a 1/4 full the refill level begins to flash. The tank-sensing probe will be chemical resistant PVC with stainless steel sensing wires. The cover plate will be aluminum sub-plate, black background and blue graphics, with an outdoor exposure rated composite overlay.

FOAM TANK GAUGE

An Innovative Controls weather proof encapsulated (14) super bright LED light indicator will monitor the foam tank level and will be mounted on the pump operator's panel. The fourteen LED lights are arranged in a "V" pattern for easy identification of liquid level. When the liquid level reaches less than a 1/4 full the refill level begins to flash. The tank-sensing probe will be chemical resistant PVC with stainless steel sensing wires. The cover plate will be aluminum sub-plate, black background and red graphics, with an outdoor exposure rated composite overlay.

BODY SUB-FRAME

The body compartments will be attached to an aluminum sub-frame using aircraft type Huck fasteners. The sub-frame will be constructed from 6" x 2" x 5/16" structural channel, 3" x 1.5" x 3/16" tubing, and 1.5" x 3/16" angle. This sub-frame will rest directly on the



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chassis frame rails and will be separated from the chassis using 1/4" thick ultra-high-molecular-weight (UHMW) polyethylene pads at all contact points.

The bottom of the side body and rear body compartments will be supported from the chassis frame rails using a steel support system. At the front of the body there will be a minimum of two (2) steel support members constructed from 1/2" x 5" plate and 3/16" thick formed channel. These supports will be secured to the chassis using 5/8" grade-8 zinc-plated bolts. At the rear of the body there will be a heavy-duty steel rear platform constructed from 1/2" x 5" plate, 3/16" and 1/4" thick formed angles and channels, and 2" x 2" x 3/16" tubing. This rear platform will be attached to the chassis frame rails using 5/8" and 3/4" grade-8 zinc-plated bolts. The bottom of the side body and rear body compartments will be attached to the steel support system using aircraft type Huck fasteners.

Self-supporting bodies will not be acceptable. NO EXCEPTIONS

APPARATUS BODY

The body will be constructed of 3/16" #5052 aluminum sheet, #3003 bright aluminum diamond plate and structural aluminum extrusions. The body will be of the modular design to allow for proper flexing of the truck chassis. The body will be custom built and engineered for proper load distribution on the chassis. An insulator material will be used where aluminum and steel are in contact to prevent corrosion.

The ceilings, sidewalls and floors of the body compartments will be constructed of 3/16" 5052-H32 smooth aluminum plate with a tensile strength range of 32,000 to 44,000 psi. Continuous 5356 fill welding will seal compartment panels.

The body framework will be constructed of custom-designed aluminum alloy 6063-T5 extrusions with a tensile strength of 35,000 psi.

To eliminate "dead space" and to maximize compartment interior space, there will be no more than 1/4" between outer and inner walls.

The compartment extrusions will be slotted full-length on backside for uniform fitting of the aluminum plate work that forms the compartment interiors.

The aluminum extrusion profiles will incorporate 1" x 1-3/4" recessed continuous door seal at the bottom of the compartment. The extrusions will be designed to allow unobstructed, sweep-out floors in all compartments.



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The front, top, and rear surfaces of body will be covered with .125" bright aluminum diamond treadplate. The forward and rear recessed surfaces will be flush with the corner extrusions.

The compartment tops will extend downward over the extrusions and form a drip molding. The material will be .125 aluminum treadplate with approved aerated service for walking.

The compartment assemblies are to be fastened to the sub-frame with mechanical Huck-type bolts.

The apparatus body will be a separate module from the pump enclosure and will not be fastened together in any manner.

Each compartment will be properly vented with louvers.

REAR STEP COMPARTMENTATION

A1- There will be a compartment provided at the rear step. The compartment will be approximately 40" wide x 40" high x 29-1/2" deep inside. The compartment will be provided with a roll-up door.

COMPARTMENTATION LEFT SIDE

L1- There will be a compartment, ahead of the rear wheels approximately 30-1/2" wide x 66" high x 27-1/4" deep inside.

L2- There will be a compartment above rear wheel approximately 61-1/2" wide x 36-1/2" high x 27-1/4" deep inside.

L3- There will be a compartment behind the rear wheels approximately 53-1/2" wide x 66" high x 27-1/4" deep.

COMPARTMENTATION RIGHT SIDE

R1- There will be a compartment ahead of the rear wheels approximately 30-1/2" wide x 60" high x 27-1/4" deep.

R2- There will be a compartment above rear wheels approximately 61-1/2" wide x 30-1/2" high x 27-1/4" deep.



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R3- There will be a compartment behind the rear wheels approximately 53-1/2" wide x 60" high x 27-1/4" deep.

ROLL-UP COMPARTMENT DOORS

The apparatus body will be equipped with R.O.M Robinson Shutter doors. The door slats will be double wall box frame, manufactured from anodized aluminum with a satin finish. The doors will have the following features:

- Manufactured wholly in the United States.
- Concave individual slat design to prevent loose equipment from hindering door operation.
- Co-Extruded stretch resistant inner seal between slats to prevent metal-to-metal contact and inhibit moisture and dust penetration.
- Interlocking swaged/dimpled end shoes will be utilized to provide a tight fitting assembly and allow for easy removal in the event of damage.
- Effective counter balancing for ease of lifting and lowering the doors.
- One-piece side rail and track to provide an unobstructed slide area and reduce the risk of binding.
- Non-abrasive replaceable water and dust barrier to keep compartment equipment clean and dry.
- A magnetic type switch integral to the door will be supplied for door ajar indication and compartment light activation.
- A full width positive latch bar will be operable with one hand, even with heavy gloves.

A door open indicator light will be provided in the cab.

A 3M clear protective material will be provided along the outer edge of the compartment floor to protect this area from scratches that could occur when installing or removing equipment from the compartments.

SCBA CYLINDER COMPARTMENTS

There will be four (4) spare breathing air cylinder compartments recessed in the rear fender wells, two (2) left and two (2) right. The compartments will have brushed stainless doors equipped with a weather resistant flush fitting thumb latch. The interior of the door will incorporate a rubber seal to keep the compartment free of road debris and moisture. The interior compartment will be constructed of a high-density polyethylene plastic.



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ADJUSTABLE SHELF

There will be an adjustable shelf provided and installed in a compartment. The shelf will be fabricated of .188" aluminum plate.

ADJUSTABLE ROLLOUT DRAWER

There will be a 250 lb. capacity rollout drawer supplied and installed in a compartment. The drawer will be approximately 3" deep and will be mounted on adjustable tracks.

600# SLIDE-MASTER TRAY

There will be a Slide-Master pullout drawer provided and installed. The drawer will have a distributed load capacity of 600 lbs. and be capable of extending 70% of its depth. The tray will be fabricated of .188" aluminum plate and have a formed lip that measures 2".

UNISTRUT

Each compartment will come equipped with 1.625" x .875" x .125" aluminum Unistrut channel. The Unistrut will be securely fastened to the interior walls of the compartment.

HOSE BED

The hose bed will be provided with aluminum slatted flooring radiused at the edges to prevent hose damage from sharp edges. Each hose bed floor section will be removable for easy access to the water tank.

HOSE BED DIVIDER

The hose bed will be divided by a 3/16" aluminum partition that is fully adjustable by sliding in tracks located at the front and rear of the hose bed. The divider will be located as needed.

HOSE BED COVER

There will be a red nylon/vinyl hose bed cover for the main hose bed. The cover will be capable of being securely fastened at the front, sides and rear.



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BODY HANDRAILS

Handrails will be constructed of type 304 stainless steel 1.25 inch diameter tubing with bright finish and knurled gripping surface. Mounting flanges will be constructed from 7 gauge, .180 thick, stainless sheet. Each grab rail will have 90 degree returns to flanges. The ends of grab rail will pass through the flanges and be welded to form one structural unit. The handrails, will be mounted using 1.25" SS Hex bolts, with a barrier rubber gasket at each flange. Sufficient space will allow for a gloved hand to firmly grip the rail. The rails will be located in the following areas:

(Note: These are in addition to those previously mentioned in the cab section):

There will be one (1) vertical handrail at rear of the body one each side of the rear compartment.

There will be two (2) handrails mounted horizontally, above the pump panel, one (1) on each side as large as possible.

STEPS

There will be fold-down steps mounted on each side of the front face of body to provide access to the top of the pump module and dunnage area.

The rear of the body will be equipped with fixed steps. The bottom step will measure 14" x 11" to provide a stable footing position. Each additional step above will measure 14" x 8" for clearance while climbing. Thinly fabricated aluminum steps will not be utilized.

The quantity and location of steps and handrails will meet the Current NFPA 1901 pamphlet in effect at the time the apparatus is ordered.

RUB RAILS

The body will be equipped with anodized aluminum channel style rub rails at the sides. Rub rails will be spaced away from the body by 1/2" polymer spacers. The rub rails will be polished to a bright finish.

ALUMINUM TREADPLATE

All load bearing aluminum treadplate running boards will be .155 thick bright-annealed finish. Running boards and rear step edges will be flanged down for added strength. Running boards will also be flanged up to form kick plates. All non-load bearing



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aluminum will be .125" thick bright annealed finish. In areas where aluminum treadplate will function as a load-bearing surface, there will be a heavy steel sub-structure. This structure will consist of 3" channel and 1-1/2" angle welded support. This will assure that there will be no flexing or cracking of running boards. The aluminum will be insulated from the steel by closed cell foam body barrier material.

Treadplate locations:

1. Skirting around front bumper.
2. The step at the cab entrance.
3. The jump seat steps.
4. The body header.
5. The running boards.
6. The rear step.
7. The top of the compartments.
8. The rear of the apparatus.
9. The rear fenders.

REAR FENDERS STAINLESS STEEL

The rear fenders will be constructed of stainless steel, and will be left in a natural brushed finish.

REAR FENDERETTE

A polished stainless steel fenderette will be attached to the rear fender.

BOOSTER TANK

The tank will have a capacity of 750 U.S. gallons.

The tank will be constructed of 1/2" thick polypropylene sheet stock. This material will be a non-corrosive stress relieved copolymer thermo-plastic. The booster tank will be of a specific configuration and is so designed to be completely independent of the body and compartments. All joints and seams will be welded and/or formed and tested for maximum strength and integrity. The top of the booster tank is fitted with removable lifting eyes designed with a 3 to 1 safety factor to facilitate easy removability. The transverse swash partitions will be manufactured of 3/8" polypropylene and extend from approximately 4" off the floor to just under the cover. The longitudinal swash partitions



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will be constructed of 3/8" polypropylene and extend from the floor of the tank through the cover to allow for positive welding and maximum integrity. All partitions will be equipped with vent and air holes to permit movement of air and water between compartments. The partitions will be designed to provide maximum water flow. All swash partitions interlock with one another and are welded to each other as well as to the walls of the tank.

The tank will have a combination vent and manual fill tower. The fill tower will be constructed of 1/2" polypropylene and will be a minimum dimension of 8" x 8" outer perimeter. The tower will be located in the left front corner of the tank. The tower will have 1/4" thick removable polypropylene screen and a polypropylene hinged-type cover. The cover tank will be constructed of 1/2" thick polypropylene to incorporate a multi three-piece locking design which allows for individual removal and inspection if necessary.

The sump will be constructed of 1/2" polypropylene and be located in the left front quarter of the tank. The sump will have a minimum of 3" national pipe threaded outlet on the bottom for a drain plug. This will be used as a combination clean-out and drain. All tanks will have a anti-swirl plate located approximately 2" above the sump.

All tank fill couplings will be backed with flow deflectors to break up the stream of water entering the tank.

The tank will rest on the body cross members in conjunction with such additional cross members, spaced at a distance that would not allow for more than 530 square inches of unsupported area under the tank floor.

The tank will be completely removable without disturbing or dismantling the apparatus structure.

MASTER ELECTRICAL PANEL

The main breaker panel will be wired through the master disconnect solenoid and controlled with a three-position ignition rocker switch. Circuit breakers and flashers will be located at officer's right side lower interior firewall with removable cover and schematic provided with notebook holder on outside cover.

A deluxe breaker panel with up to 22 ground switched relays with circuit breaker protection will be provided.

An integrated electrical sub-panel will be provided and interfaced to the body and chassis through an engineered wire harness system.



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Twelve (12) 20-ampere and one (1) 70-ampere relay for cab lightbar and assemblies will be provided. If the option for a mechanical siren has been selected two (2) additional relays will be provided.

Additional four relay boards with circuit breaker protection for additional loads. Maximum two boards (8 relays) per breaker panel. All relay boards set up to trip with input from switch of positive-negative or load manager by moving connector on board (no tools needed to do this).

All relay boards will be equipped with a power-on indicator light (red), input indicator light (green) and power output indicator light (red).

Up to 23 additional automatic reset circuit breakers for non-switched loads that are remotely switched (ie: heater fans, hood lights, etc.).

All relays and circuit breakers on the relay boards will be pull-out/push-in replaceable.

All circuit breakers on the relay boards will be 20 ampere automatic reset which can be doubled or tripled for 40 or 60-ampere capacity.

The system will utilize Deutsch DRC weather resistant connectors at the breaker panel, toe board and main dash connections.

All internal wire end terminals, including locking connectors, will be mechanically affixed to the wire ends by matching terminal crimping presses to assure the highest quality terminations.

All internal splices will be ultrasonically welded connections and all internal wiring will be high temperature GXL type wire that is protected by wiring duct wherever possible.

All switches will be ground controlled; no power going through any rocker switch.

Any switch controlling a relay in the breaker panel will be capable of being set to function only when the parking brake is set. All relays will be tagged with the function that the relay is controlling.

BODY ELECTRIC SYSTEM

All body electrical wiring in the chassis will be XLP cross link-insulated type. Wiring is to be color-coded and include function codes every three (3) inches. Wiring harnesses will be routed in protective, heat resistant loom, securely and neatly installed. Two power distribution centers will be provided in central locations for greater accessibility. The



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power distribution centers contain automatic thermal self-resetting breakers, power control relays, flashers, diode modules, daytime driving light module, and engine and transmission data links. All breakers and relays are utilized in circuits which amp loads are substantially lower than the respective component rating thus ensuring long component life. Power distribution centers will be composed of a system of interlocking plastic modules for ease in custom construction. The power distribution centers are function oriented. The first is to control major truck function and the second controls overhead switching and interior operations. Each module is single function coded and labeled to aid in troubleshooting. The centers also have accessory breakers and relays for future installations. All harnesses and power distribution centers will be electrically tested prior to installation to ensure the highest system reliability.

All external harness interfaces will be of a triple seal type connection to ensure a proper connection. The cab/chassis and the chassis/body connection points will be mounted in accessible locations. Complete chassis wiring schematics will be supplied with the apparatus.

The wiring harness contained on the chassis will be designed to utilize wires of stranded copper or copper alloy of a gauge rated to carry 125% of maximum current for which the circuit is protected without exceeding 10% voltage drop across the circuit. The wiring will be uniquely identified by color code or circuit function code, labeled at a minimum of every three (3) inches. The identification of the wiring will be referenced on a wiring diagram. All wires conform to SAEJ1127 (Battery Cable), SAEJ1128 (Low Tension Primary Cable), SAEJ1560 (Low Tension Thin Wall Primary Cable).

All harnesses will be covered with moisture resistant loom with a minimum rating of 300 Degrees Fahrenheit and a flammability rating of VW-1 as defined in UL62. The covering of jacketed cable has a minimum rating of 289 degree Fahrenheit.

All harnesses are securely installed in areas protected against heat, liquid contaminants and damage. The harness connections and terminations use a method that provides a positive mechanical and electrical connection and are in accordance to the device manufacturer's instructions. No connections within the harness utilize wire nut, insulation displacement, or insulation piercing.

All circuits conform to SAE1292. All circuits are provided with low voltage over current protective devices. These devices are readily accessible and protected against heat in excess of component rating, mechanical damage, and water spray. Star washers are not used for ground connections.



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BACK-UP ALARM

An Preco LDA-50 automatic self-adjusting electronic back-up alarm producing 97 db will be installed at the rear between the frame rails. It will operate whenever the transmission's reverse gear is selected.

COMPARTMENT LIGHTING

Each compartment will be equipped with two (2) LED light strips which will provide a consistent pattern to illuminate to entire compartment.

Provisions will be made for the installation of customer furnished radio.

ANTENNA MOUNTING

The customer supplied radio antenna will be installed in the cab roof with the coax cable run to the radio mounting area. The radio location will be determined at the pre-construction meeting.

REAR VISION CAMERA SYSTEM

Provided and mounted on the apparatus will be a Safety Vision SV-CLCD-64 camera kit. The system will consist of one (1) cab mounted model SV-LCD68 6.8" LCD monitor, one (1) model SV-620 (Color) high resolution 1/3" CCD camera, one (1) SV-LCDCB Control Box, and one (1) SV-523 65' camera cable. The monitor will be dash mounted in plain view of the driver. The kit is capable of having two (2) additional cameras installed for a total of three (3).

REAR BUZZER SYSTEM

A rear buzzer system will be provided between the rear tailboard and the cab. A momentary push button switch with a rubber boot will be mounted above each taillight assembly, and an audible buzzer will be provided near the driver.

An instruction plate will be mounted near each button and near the driver and will contain the following information.

- 1 - STOP
- 2 - GO
- 3 - BACK



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TAIL/STOP/TURN/BACKUP LIGHTS

The taillights are to be Whelen 600 LED style. The brake/tail lights to be red and exceed SAE requirements. The turn signal will be populated in an arrow pattern, amber in color. The backup lights will also be LED. One opening will be open to accept a 600 series warning light.

LED ICC/MARKER LIGHTS

LED type ICC/marker lights will be provided to meet D.O.T. requirements.

STEP LIGHTS

The pump module running board area will be illuminated by Whelen 2G 4" diameter LED lights mounted one each side on the front of the body in chrome flanges.

LED strip lighting will be provided at the front and rear of the body to illuminate all stepping surfaces.

GROUND LIGHTING

The apparatus will be equipped with lighting capable of illumination to meet NFPA requirements. Lighting will be provided at areas under the driver and crew riding area exits and will be automatically activated when the exit doors are opened. The ground lights will be Truck-lite® LED model #44042C. Lighting required in other areas such as work areas, steps and walkways will be activated when the parking brake is applied, provided the ICC lights are on.

SCENE LIGHTS

Two (2) pair of Whelen 900 LED scene lights will be installed as specified. The lights will have 24 Super LEDs.

OPTICAL WARNING SYSTEM

The optical warning system will be capable of two separate signaling modes during emergency operations. One mode will signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right-of-way and the other



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mode will signal that the apparatus is stopped and is blocking the right-of-way. Switching will be provided that senses the position of the parking brake.

A master optical warning device switch will be provided to energize all of the optical warning devices provided. All lights will operate at not less than the minimum flash rate per minute as specified by NFPA.

UPPER LEVEL WARNING DEVICES

The upper level is divided into zones A, B, C and D and the approved lighting package to be provided will be as follows:

Zone A (front) will have one (1) Whelen Freedom 72" Model FN72QLED NFPA 1901 compliant light bar, with twelve (12) LED modules. The light bar will have ten (10) red LED and two (2) clear LED heads and will be mounted on the cab roof.

Zone B (right side) will be covered by the module from the light bar and the right rear stanchion beacon.

Zone C (rear) will have two (2) Whelen Model MCFLED2R Micro Edge Freedom LED light bars, red, mounted on rear stanchions.

Zone D (left side) will be covered by the module from the light bar and the left rear stanchion beacon.

TRAFFIC ADVISOR

A Whelen LED TAL65 Traffic Advisor with a TACTRL1 Control Head will be provided. The low profile Traffic Advisor is approximately 1-1/2" high x 2-1/2" deep x 36" long. The six (6) LED lamp group is in a cap style extruded aluminum housing with black powder painted finish and surface mounted to eliminate large body panel cutouts. The high intensity LED's are rated for over 100,000 hours of operation and have extremely low current consumption. The Control Head has a four function rotary switch for selection of: center to left, center to right, center to left and right, or flash patterns. The dip switch on the rear panel selects the choice of eight (8) different programmable flash patterns. The Control Head features a visual LED status display.

The rear beacons will be upgraded to Whelen B6MM LED beacons.



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LOWER LEVEL WARNING DEVICES

The lower level is divided into zones A, B, C and D and the approved lighting package to be provided will be as follows:

Zone A (front) will have a stainless steel warning light housing each side with two (2) Whelen 600 Super LED red lights mounted in the front of each housing. The inboard pair of lights is in addition to the minimum NFPA warning system and will be wired through a load-shedding device.

Zone B (right side) will have two (2) Whelen 600 Series Super LED red lights mounted one on the side of the headlight housing and one on the body side at rear of apparatus.

Zone C (rear) will have two (2) Whelen 600 Series Super LED, red lights mounted one each side of the rear of the apparatus.

Zone D (left side) will have two (2) Whelen 600 Series Super LED red lights mounted one on the side of the headlight housing and one on the body side at rear of apparatus.

LED WARNING LIGHTING

There will be one pair of Whelen Model 600 Series Super LED red lights mounted on the apparatus. The placement of the lights is to be determined by the fire department.

FEDERAL Q2B SIREN

There will be a Federal Q2B-NN siren installed in the center of the cab grille. The siren will be securely mounted and activated by means of a solenoid and will include a brake.

A siren foot switch will be provided for both the driver and officer, one on each side of the cab floor.

FEDERAL E-Q2B SIREN

There will be a Federal e-Q2B 200 watt siren and digital output control head with 200 watt speaker with classic chrome plated Q-siren mounted in the front grille. The siren will be securely mounted and activated by means of a solenoid and will include a brake.

The siren will be wired to the horn button. A rocker switch on the dash will toggle between air horns and Q2B.



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SIREN SPEAKER

One Cast Products SA4201-5-A weatherproof siren speaker will be provided, mounted behind the bumper.

GENERATOR

The apparatus will be equipped with a complete electrical power generation system.

A Harrison hydraulic 10.0 KW generator model MAS – 16R/5A will be provided and installed. The generator and wiring will conform to present National Electric Codes as outlined in the National Fire Protection Association Standards.

The output of the generator will be controlled by an internal hydraulic system. An electrical instrument gauge panel will be provided for the operator to monitor and control all electrical operations and output. The generator will be powered by a transmission power take off unit, through a hydraulic pump and motor. The generator will be operable anytime that the apparatus engine is running and meeting the minimum range of 900 RPM's.

Height	14"
Width	24"
Depth	18"
Weight	273
Max kW	10.0
AMPS@120V	80
AMPS@240V	40
HP Required	20
Torque Required	82.9
Maximum Pressure	2800 psi

120-VOLT OUTLET

A 120-volt outlet with weatherproof cover will be provided. All 120 volt wiring will be installed in liquid tight conduit.

SHORE POWER

A shore power connection will be provided with two (2) 110-volt outlets. The location of the outlets will be determined during the pre-construction conference.



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BREAKER BOX

A circuit breaker box will be provided with sixteen (16) spaces for breakers which will be provided as needed. All wiring will be installed in liquid tight conduit.

WHELEN PIONEER PLUS LED BROW LIGHT

A Whelen model PFP2 LED brow light will be provided. The light will be mounted at the front of the cab.

The light will be controlled from a switch in the cab.

LED LIGHT WHELEN PIONEER

A Whelen Model PFP2 Pioneer Plus Dual Panel LED floodlight will be provided. The light will be housed in a heavy-duty aluminum housing.

Lumens: 10,000
Amps: 13
Volts: 12.8 DC
Bulb Type: LED
Width: 14"
Height: 4-5/8"
Depth: 3"

The light will be fixed mounted on a KR-SB-600 mount. A switch will be located at the light head.

LED LIGHT WHELEN PIONEER

A Whelen Model PFP2 Pioneer Plus Dual Panel LED floodlight will be provided. The light will be housed in a heavy-duty aluminum housing.

Lumens: 10,000
Amps: 13
Volts: 12.8 DC
Bulb Type: LED
Width: 14"
Height: 4-5/8"
Depth: 3"



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The light will be mounted on a telescoping pole. A switch will be located at the light head.

CORD REEL

There will be a Hannay Model ECR1616-17-18/4 electric rewind, four (4)-conductor cable reel furnished and mounted in a compartment. The reel will come complete with 150 feet of 10/4 Seoprene Water-resistant (SOW) yellow jacketed cable. A Hannay Type "C" roller assembly and HS-3 cable stop ball will be provided.

FOUR WAY RECEPTACLE

An Akron (GFE) four-way receptacle box with light will be provided and hard wired to the end of the cable. The box will be securely mounted in the immediate area of the cord reel. The mounting will be a fabricated aluminum bracket equipped with a Velcro strap to secure the box.

FOUR-WAY RECEPTACLE MOUNTING

The four-way receptacle box will be mounted on a compartment wall or shelf.

SUCTION HOSE AND STRAINER

Two (2) 10 ft. lengths of 6" lightweight (KOCHEK) fire department hard suction hose with lightweight long handle couplings and pin lug male couplings will be provided.

The hose will be mounted in a trough and held in position by two heavy-duty quick release straps. Aluminum treadplate scuff plates will be provided on the body side metal where the long handle couplings would otherwise hit the body sides.

A six-inch strainer especially designed for fire department service. Strainer area equals four and one-half times the area of the hose.

GROUND LADDERS

The apparatus will be equipped with heavy duty, box type "I" beam rail, ground ladders. The ladders will meet the requirements of NFPA 1931 to ensure proper design and that sufficient strength is available for the service intended. The ground ladders will be constructed of aluminum with non-welded, field replaceable rung to rail connections to



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simplify field repairs and removable plated steel butt spurs for added strength. A full 1/2", non-rotting, poly rope will be provided for easy ladder operation.

One (1) Alco-Lite PEL-24 24 ft. two-section aluminum extension ladder.

One (1) Alco-Lite PRL-14 14 ft. aluminum roof ladder.

One (1) Alco-Lite FL-10' 10 ft. folding ladder.

The ladders will have lifetime Warranty against manufacturing defects.

LADDER

One (1) 13-foot Little Giant ladder will be provided.

ZIAMATIC QUIC-LIFT LADDER RACK

The ground ladders will be mounted on a Ziamatic electric ladder rack system so that they may be automatically lowered to a convenient height for safe and easy removal. The rack will be made of high strength lightweight cast aluminum and be powered by two high cycle electric actuators and will be self-locking in any position. The rack will be capable of lowering the ladders approximately 31" from their stored position.

PIKE POLE & FOLDING LADDER MOUNTING

Provisions will be provided to mount two (2) pike poles, and a folding ladder to the ladder rack.

CORROSION REDUCTION POLICY

The manufacturer will have in place a formal corrosion reduction program and assembly procedures designed for reducing and eliminating the possibility of corrosion. It is understood that fire apparatus will operate in harsh environments. At the time of the bid the apparatus manufacturer will show proof of a corrosion policy. Failure to submit this information could be grounds for rejection. If a formal policy is not in place explain in your bid how your firm will take the necessary steps for corrosion reduction. There will be no exception to this requirement.

In addition to a formal program the manufacture will show proof of testing corrosion reduction processes to ASTM B117. A copy of recent test will be included in the bid.



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Frame Rails

The chassis frame rails will be coated with a high performance, two component, reinforced inorganic zinc rich primer with a proven cathodic protection makeup preferably Cathacoat 302HB. The surface will be clean and free of all salts, chalk and oils prior to application. Were the primer has been broken during the frame assembly process the area will be touch up to reestablish the seal. Prior to finish paint a second primer Devran 201 will be applied. Once the assembly of the frame is complete and the second primer is applied the entire assembly will be covered with high quality top coat paint preferably Imron 5000 or equal. The manufacturer will submit with the bid a copy of the product brochure and or description of the primer to be used.

Electro Plating

Steel and Iron brackets such as the pump module bracket will be Zinc plated to protect against corrosion. Plating will be in accordance with ASTM B663. The apparatus manufacturer will list all components with plating.

Fasteners

In any area that a stainless steel screw or bolt head is to come in contact with aluminum or steel, painted or non-painted, the fastener will have the underside if the head pre-coated with nylon. The nylon coating will act as a barrier between the fastener head and the metal or painted surface.

Screw or bolt taped into the metal will be pre-coated with a Threadlocker type material pre-applied on the threads.

When bolting together stainless steel the manufacturer will use a pan-head bolt with nylon coating under the head, a stainless washer with a rubber backing, and a Stover flange nut to secure the bolt.

When mounting aluminum components such as a step to the apparatus body. The manufacturer will use stainless washers with rubber backing. All mounted components will a barrier material between the two surfaces.

All rivet type fasteners will be of the same material being secured.

Whenever possible, pre-drill and tap all holes for mounting components such as lights, steps and hand rails prior to the paint process to reduce the corrosion opportunity. If a hole must be drilled into a previously painted surface, re-establish the paint barrier around the hole and use a flange-type nutsert with a gasket under the flange.

Where possible, minimize the number of stainless trim screws in aluminum. Structural tape and or adhesive will be used were possible for mounting trim to the body or cab.



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If a pre-treated screw or bolt is not available, hand apply Dynatex Boltlocker or Threadlocker on the threads of the screw, bolt or nutsert. This will help seal threads from moisture and help prevent the fasteners from loosening.

If lubricant is used when tapping the hole, clean out the lubricant and the shavings before applying blue Threadlocker into the hole.

Barrier Tape

Barrier tape will be used on the backsides of all lights, trim pieces, or other components when bolting them to the apparatus; also when attaching stainless steel over an aluminum surface or when attaching aluminum treadplate to the stainless steel. All instances of dis-similar metals contacting each other require the addition of barrier tape between the metals where contact is made.

Before applying the tape, be sure the metal surface is clean from oil or dirt by cleaning the surface with a 50/50 mix of alcohol and water or similar solvent.

Gaskets

Gaskets will be used under all snaps, loops and fasteners for such items as for hose bed covers. Reestablish paint seal around the mounting hole edges after drilling.

Mounting with Threadlocker coating will be used.

Flat washers with rubber backing will be used behind all lights that have stainless screws.

Rollup Doors

1 3/4" X 1/16" barrier tape will be used on the frame opening to act as barrier between the aluminum door rail and the painted door opening surface.

Use a paint stick around the holes after drilling and tapping. In mounting the rails, use screws with the nylon under the head and Threadlocker on the threads for mounting the doorframes.

Install barrier tape to the painted surface where the trim is located on top of the door opening.

Hinged Doors

Barrier tape will be applied to the painted surface of the body and on the painted hinge side of the door.

On the hinge side, mount tape out toward the edge to space over the barrel of the hinge, being sure to not touch the door.



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Make sure the hinge fits into the extrusion frame with no corner weld beads interfering with the door fit. Do not put the hinge in a bind or cause the stainless steel hinge to touch the aluminum. Install the doors using a truss head bolt with the nylon coating under the head and Threadlocker on the threads.

Painting Steel

The manufacturer will wipe any oil residue dry, remove any rust and remove weld slag or smoke. Clean the surface with solvent before painting. Prime with one even coat of black Color primer, and then spray a topcoat over the primer for the finish coat. After bolts are tightened to the proper torque, touch up the bolt area and ends of the bolts with primer or cold galvanizing coating.

Mounting Emergency Lights and Options

All emergency lights, accessory mountings, Kussmaul covers, and 110 outlet boxes mounted to the body should be mounted with pre-coated Threadlocker and nylon under the head screws or bolts to minimize corrosion between dissimilar metals.

Electrical Grounding

Grounding straps will be installed consisting of a minimum 2-gauge strap bolted to the chassis frame.

A ground cable from the cab to the right side frame rail
From the alternator to the right side frame rail
From the pump module frame to the right side truck frame.
Aerials: from the hydraulic and pump module framework.
From the pump mount to the truck frame rail.
From the body module to the right side truck frame.

Proper grounding will help eliminate ground loop problems throughout the truck, reducing the possibility for electrolysis and corrosion to occur. Provide clean connection points on all ground connections, (remove paint where applicable), and spray or brush on electrical sealer as necessary.

When installing foam system pump wiring the power must come from a dedicated breaker to a power solenoid, and then to the power terminal provided by FoamLogix or FoamPro. Pay particular attention to the grounding detail for wire size and good grounding practice, including removing the paint at the point of ground attachment to the chassis. Keep the length of ground wire as short as practically possible.

SALT SPRAY TESTING

Salt spray test will be used to confirm the relative resistance to corrosion of coated and uncoated metallic specimens, when exposed to a salt spray climate at an elevated



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temperature. Test specimens will be placed in an enclosed chamber and exposed to a continuous indirect spray of neutral (pH 6.5 to 7.2) salt water solution, which falls-out on to the specimens at a rate of 1.0 to 2.0 ml/80cm²/hour, in a chamber temperature of +35C. This climate will be maintained under constant steady state conditions.

Method

Salt fog testing will be performed by placing samples in a test cabinet that has been designed in accordance with Paragraph 4 (Apparatus) of ASTM B117 and operated in accordance with Paragraph 10 (Conditions) of ASTM B117.

A 5% salt solution, prepared by dissolving sodium chloride into water that meets the requirements of ASTM D1193 Specification for Reagent Water, Type IV is supplied to the chamber. At the time the samples are placed into test, the cabinet should be pre-conditioned to the operating temperature of 35°C and fogging a 5% salt solution at the specified rate. The fog collection rate is determined by placing a minimum of two 80 sq. cm. funnels inserted into measuring cylinders graduated in ml. inside the chamber. One collection device will be located nearest the nozzle and one in the farthest corner.

Orientation

Unless otherwise agreed upon, the samples are placed at a 15-30 degree angle from vertical or tested in the "installed" position. This orientation allows the condensation to run down the specimens and minimizes condensation pooling. Overcrowding of samples within the cabinet should be avoided. An important aspect of the test is the utilization of a free-falling mist, which uniformly settles on the test samples. Samples should be placed in the chamber so that condensation does not drip from one to another.

Test durations

Test durations will be 500 hours except for sample rotation and daily monitoring of collection rates, the cabinet should remain closed for the duration of the test.

PAINTING

All exposed metal surfaces not chrome plated, polished stainless steel or bright aluminum tread plate will be thoroughly cleaned and prepared for painting. All irregularities in painted surfaces will be rubbed down and all seams will be caulked before the application of the finish coat.

All removable items such as brackets, compartment doors, door hinges, trim, etc. will be removed and painted separately to insure finish paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly. Both aluminum and steel surfaces to be painted will be primed with a two



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(2)-component primer which is compatible with the finish coat. The apparatus will be finish painted with a polyurethane base/clear system. "No Exception"

A barrier gasket/washer of "High Density Closed Cell Urethane Foam" will be used behind all lights, handrails, door hardware and any miscellaneous items such as stainless steel snaps, hooks, washers and acorn nuts. The gaskets/washers will be coated with pressure sensitive acrylic adhesive. All screws used to penetrate painted surfaces will be pre-treated/coated under the head with nylon and the threads will have pre-coat #80. This procedure will be strictly adhered to for corrosion prevention and damage to the finish painted surfaces.

The following paint process will be utilized:

Surface Preparation:

1. Wash surface thoroughly with mild detergent.
2. Clean and de-grease with Prep-Sol 3812S.
3. Sand and feather edge using 400 grit or finer on a dual action sander.
4. Remove sanding dust with a cleaner compatible with polyurethane base coat/clear coat final finish.

Substrate treatment:

1. Use a Metal Conditioner followed with a Conversion Coating product.

Priming:

1. Use a priming 615S pretreatment.
2. Use a self etching primer applied to achieve a 1.5 mil dft minimum.
3. Use Prime N Seal sealer compatible with polyurethane base coat.

Color Coat:

1. Apply polyurethane base coat 1-2 mil dft minimum.

Clear coat:

1. Apply polyurethane clear coat 2 mil dft minimum.

PAINT-TWO TONE CAB

The cab exterior surfaces will be two (2) colors. The paint break line will be at the bottom of the windshield.

PAINTED FRAME

The frame rails and body subframe will be painted glossy black.



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UNDERCOATING

Ziebart, or equal, undercoating will be applied to visible surfaces on the underside of the truck body and chassis to help reduce noise in the cab caused by tires, stones, sand and water spray. This thick, super-tough coating, being highly abrasion-resistant does not wear off. It also protects underbody components from moisture, mud and salt.

ZIEBART WARRANTY

The application will come with Ziebart's ten (10) year rust protection limited warranty.

LETTERING

Forty (40) 3" 22KT Gold laminate goldleaf letters, with left hand shading and right hand outline to equal 3-5/8" letter, will be provided.

STRIPING

A 6" Scotchlite stripe will be provided across the front of the cab and along each side of the apparatus.

A 1/8" highlight color above and black edge below the Scotchlite stripe will be provided.

STRIPING, CHEVRON STYLE, REAR BODY

The apparatus will have 6" red and yellow reflective DiamondGrade Chevron style striping affixed to the entire rear of the apparatus. The striping will be set in a manner to have the effect of an inverted "V" shape. The stripe will travel low to high from the outside to the inside.

STRIPING, CHEVRON STYLE, BUMPER

The apparatus will have 6" red and yellow reflective DiamondGrade Chevron style striping affixed to front bumper of the apparatus. The striping will be set in a manner to have the effect of an inverted "V" shape. The stripe will travel low to high from the outside to the inside.



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MISCELLANEOUS EQUIPMENT FURNISHED

1 pt. touch-up paint

A bag of stainless steel nuts and bolts, as used in the construction of the apparatus.

WHEEL CHOCKS

Two (2) Ziamatic #SAC-44 folding wheel chocks with SQCH-44H holders will be provided. The wheel chocks will be located in a area close to the rear axles easily accessible from the side of the apparatus.

RECHARGEABLE HANDLIGHT

One (1) Streamlight® SL-44401 Fire Vulcan® rechargeable handlight with 12 volt charger will be provided and mounted.

OPERATION AND SERVICE MANUALS

Complete "Operation and Service" manuals will be supplied with the completed apparatus, one (1) printed copy and one (1) CD. Service manual instructions will include service, maintenance and troubleshooting for major and minor components of the truck. The apparatus manufacturer will supply part numbers for major components (i.e. Engine, Axles, Transmission, Pump, etc.). A table of contents, hydraulic, air brake and overall apparatus wiring schematics will be included.

A video demonstration DVD on the operation of the truck will be supplied with the manuals.

DELIVERY

The completed apparatus will be driven under it's own power to the fire department. An operational demonstration will also be provided at the time of delivery.

WARRANTIES

The following warranties will be supplied:



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1. The apparatus will be warranted to be free from mechanical defects in workmanship for a period of one (1) year. The apparatus will be covered for parts and labor costs associated with repairs for a period one (1) year.
2. Life-time warranty on the frame.
3. Seven (7) year warranty on paint.
4. Ten (10) body structural warranty
5. Ten (10) year cab structural warranty
6. Manufacturers Warranties for all major components.

Detailed warranty documents will be included for complete coverage on each of these warranties.

MANUFACTURING & LOCATIONS

The apparatus will be manufactured in facilities wholly owned and operated by the company. A complete stock of service parts, and service will be provided on a 24 hours around the clock basis. The company will maintain parts and service for a minimum period of twenty (20) years on each apparatus model manufactured.



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LOOSE EQUIPMENT

The following loose equipment will be provided for each vehicle:

<u>Quantity</u>	<u>Item #</u>	<u>Description</u>
1.00	In Case	Dewalt Cordless 36V Drv
1.00	9-43129	Craftsman Tool Box
1.00	9-61906	Craftsman Tool Box
1.00	9-6500-0	Craftsman Tool Box
1.00	9-46382	Craftsman - Standard Tools
1.00	9-46382	Craftsman - Metric Tools
1.00	Sears	Key Hole Saw
1.00	951646	Pipe Wrench 14" Sears Aluminum
1.00	951648	Pipe Wrench 24" Sears Aluminum
1.00	Sears	Tin Snips - Straight Blade
1.00	945094	Lineman Cutters 8" Sears
1.00	9-44036	Craftsman Adj. Wrench Set
4.00	P 1 5	Teilight Floodlights
1.00	AJ302	Firehooks 6' Arson Trash Hook
2.00	T294X	Window Punch
1.00	AB885	Windshield Glass Saw
4.00	143Y350-L5-20	12/3 Electric Cords - 50' length Plugs-
2.00		Natural Gas Shutoff Clamps
4.00	Teli-Lite	Pigtails - TwistLock Male x 110 Fem.
1.00	942135	Craftsman Drive Set
1.00	944048	Craftsman Wrench Set
6.00	B397	Spanner Wrenches - Loose
1.00	A3831	Chimney Fog Nozzle
1.00	AC671	5" Storz x 50' LDH - Yellow Hose
1.00	AF555	20lb. ABC Extinguisher
1.00	AJ115	Firehooks-Dynamic Trio- Tool Board
1.00	AJ115	Firehooks-Dynamic Trio- Platform
1.00	HAM3	Firehooks Hammer 3
1.00	T986	Firehooks K Tool Kit
1.00	AA680	Firehooks Kayo Ram
1.00	AJ306	Firehooks 5' Drywall Hook
1.00	P819	Firehooks 32" Drywall Hook
4.00	SB-1	Milwaukee Strap Belt
1.00	AC597	Firehooks 16" Officers Bar - Pro
2.00	B439	Firehooks 51" Crowbar
1.00	AJ238	TNT Forcible Entry Tool



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2.00	AW187	Firehooks 8lb Pickhead Axe/FG
2.00	AW188	Firehooks 8lb Flathead Axe/FG
2.00	L957	Firehooks 6lb Flathead Axe/FG
2.00	T225	Firehooks 6lb Flathead Axe/FG
2.00	7TMPAPH6	Firehooks 6' FG All Purpose Hook
2.00	7T97902	Firehooks 8' FG New Yorker
2.00	7T97904	Firehooks 12' FG New Yorker
2.00	AJ305	Firehooks 4' Universal Hook w/ D
1.00	7TMPAPH4WD	Firehooks 4' All Purpose w/ D
1.00	AR174	Firehooks Roof Pro Bar
2.00	T982	Firehooks 36" Pro Bar
1.00	SHF 10	Firehooks 10lb. Sledge FG
1.00	SHF16	Firehooks 16lb. Sledge FG
2.00	AZ381	Flathead Shovel 27" Darley
1.00	T988	Firehooks 36" Bolt Cutter
1.00	AM293	HD Bolt Cutter - NCCC28
1.00	Special	36" Hydrant Wrench Stainless
6.00	4000-18	Elkhart Nozzle 1.75 150@75 - Color Chief
2.00	DB 275-GA	Elkhart 2.5 Shutoff With 187A 1 1/8" Tip
2.00	AC7252525	Double Female 2.5"
2.00	AC7262525	Double Male 2.5"
1.00	AJ101	5" Storz x 4" Storz
1.00	AG7341550	5" Storz x 1 1/2" Female NST
4.00	AG7346050	5" Storz x Hydrant Steamer - Thread Kenosha Thread
1.00	AE445	Rubber Mallot Firehooks
1.00	SEARS	Wood Mallot Craftsman
3.00	G423	Sprinkler Shutoff 1078
2.00	AS130	Akron Black Max 6" NST x 5" Storz
2.00	4000-24	Elkhart Chief 200@50 PSI
4.00	B-278	Elkhart 2.5" Mounted 1.5" Outlet Playpipe
2.00	ST-190B	Elkhart Stacked Tips 1 1/8", 1", 3/4"
1.00	3443	Akron Mercury Master 1000 Storage Bracket/2420 Nozzle/489 Nozzle/1545 Nozzle
1.00	Reducer	2.5"F to 1" Male
1.00	AF241	Cellar Nozzle 535
2.00	AC726	2.5" Fem. X 1.5" male Reducer
2.00	AW090	1.5" L.W. Caps
1.00	AG7343050	5" Storz x 3" Fem. NST
1.00	AC671	5" Storz x 25' LDH - Yellow
3.00	2285 Akron	Hydrant Gate Valve 2.5"
2.00	SPECIAL	3" x 10' Fire Hose - Rubber M/F Black
2.00	BE024	High Rise Bags - Attach to Hose Pack



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2.00	BE025	Accessory Bag
1.00	7TMP285	Elkhart Hose Clamp
2.00		6" x 10' Hard Suction Hose Black
1.00		6" Low Level Strainer
1.00	7TMP500218	Klein Hydrant Bag
2.00	H795	2.5 Gallon Water Extinguisher
2.00	AF567	80BC Dry Chemical Extinguisher
1.00	AF571	Purple K Extinguisher
1.00	AR091	Halon/Halotron Extinguisher
1.00	H792	C02 Extinguisher
1.00	L574	5 Gallon Stainless Indian Can
3.00	AM078	Gated Wye 2.5" Fem. X 2 -1.5"
1.00	AC7282515	2.5" Male x 1.5" Female Adapter
4.00	Akron 46	Akron Spanner Wrench Kit
4.00	AR229	Akron Storz Spanner Wrench Kit
2.00	T240	Akron Hydrant Wrench
2.00	AG73650	5" Storz Blind Cap
2.00	20K0525	Clappered Sia. 5" Storz x 2-2.5 F
2.00	AF155	LDH Hose Roller
1.00	DC305K	Dewalt 36V Sawzall Kit
		Dewalt Vehicle Charger 12V
1.00		Spare Blades 10 Pack
3.00		Dewalt Batteries
1.00	DW311K	Dewalt Electric Sawzall Kit
6.00	AK264	36" Reflective Traffic Cones
4.00	G547	Port. Quart Lights 500 Watt
2.00	Motorola Radio System -	Intergrate w/ Firecomm System
		XTL-2500 both radios with switch
4.00	Motorola XTS-2500	Portable VHF 512 Mode,
		Antenna Battery Speaker Mic
4.00	477104	Stearns Universal
1.00	5600	MSA Thermal Imager Vehicle Mnt
		Lanyard Battery

KENOSHA FIRE DEPARTMENT



2013 BID SPECIFICATIONS TRIPLE COMBINATION PUMPER



**Kenosha Fire Department
Triple Combination Pumper**

INTENT OF SPECIFICATIONS

It is the intent of these specifications to cover the furnishing and delivery to the purchaser a complete apparatus equipped as hereinafter specified. With a view of obtaining the best results and the most acceptable apparatus for service in the fire department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder must conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who will be solely responsible for the design and construction of all features. The apparatus will conform to the requirements of the current (at the time of bid) National Fire Protection Association Pamphlet #1901 for Motor Fire Apparatus unless otherwise specified in these specifications.

Bids will only be considered from companies which have an established reputation in the field of fire apparatus construction and have been in business for a minimum of seventy five (75) years.

Each bid will be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus and equipment proposed and to which the apparatus furnished under contract must conform. Computer run-off sheets are not acceptable as descriptive literature.

The specifications will indicate size, type, model and make of all component parts and equipment.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

STATEMENT OF EXCEPTIONS TO NFPA 1901

If, at the time of delivery, the apparatus manufacturer is not in compliance, a statement of exceptions must be provided as follows:

- The specific standard affected.
- A statement describing why the manufacturer is not in compliance.
- A description of the remedy, and who the responsible party is.



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The document must be signed by an officer of the company, and an authorized agent of the purchaser. **NO EXCEPTIONS**

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

QUALITY AND WORKMANSHIP

The design of the apparatus must embody the latest approved automotive engineering practices.

The workmanship must be the highest quality in its respective field. Special consideration will be given to the following points: Accessibility to various areas requiring periodic maintenance, ease of operation (including both pumping and driving) and symmetrical proportions.

Construction must be rugged and ample safety factors must be provided to carry loads as specified and to meet both on and off road requirements and speed as set forth under "Performance Test and Requirements."

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

GENERAL CONSTRUCTION

The apparatus will be designed and the equipment mounted with due consideration to distribution of load between the front and rear axles so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution will be in accordance with the recommendations of the International Association of Fire Chiefs and National Fire Association (or American Insurance Association). Certified Laboratories certificate will be submitted by the manufacturer. Weight of apparatus will meet all federal axle load laws.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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PERFORMANCE TESTS AND REQUIREMENTS

A road test will be documented with the apparatus fully loaded and a continuous run of ten (10) miles or more will be made under all driving conditions, during which time the apparatus will show no loss of power or overheating. The transmission drive shaft or shafts, and rear axles will run quietly and free from abnormal vibration or noise throughout the operating range of the apparatus. The apparatus, when loaded, will be approximately 66% on the rear axle. The successful bidder will furnish a weight certification showing weight on the front and rear axle, and the total weight of the completed apparatus at the time of delivery.

- a. The apparatus must be capable of accelerating to 30 MPH from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed engine RPM.
- b. The service brakes will be capable of stopping the fully loaded vehicle within 35 feet from a speed of 25 MPH on a level concrete highway.
- c. The apparatus, fully loaded, will be capable of obtaining a speed of 50 MPH on a level highway with the engine not exceeding 95% of its governed RPM (full load).
- d. The apparatus will be tested and approved by a qualified testing agency in accordance with their standard practices for pumping engines.
- e. The contractor will furnish copies of the Pump Manufacturer's Certification of Hydrostatic Test (if applicable), the Engine Manufacturer's current Certified Brake Horsepower Curve and the Manufacturer's Record of Construction Details.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

FAILURE TO MEET TESTS

In the event the apparatus fails to meet the test requirements of these specifications on the first trial, a second trial may be made at the option of the bidder within thirty (30) days of the date of the first trials. Such trials will be final and conclusive and failure to comply



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with these requirements will be cause for rejection. Permission to keep and/or store the apparatus in any building owned or occupied by the purchaser will not constitute acceptance of same.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

PROPOSAL GUARANTEE

A certified check or bid bond in the sum of ten percent (10%) of the total bid price shall be submitted with the "Bid Proposal" at the time of the bid. The full amount of the bid surety shall be returned to the unsuccessful bidders following the award of the contract to the successful bidder.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

PERFORMANCE BOND

Within twenty (20) days of notification to the successful bidder by the purchaser, prior to any work commencing on the proposed apparatus, the successful bidder shall, at their own expense, obtain and submit to the purchasing entity a performance bond in the amount of 100% equal to the total contract price.

Additionally, each bidder must disclose the price/amount it pays for bonding, per \$1,000. This is to demonstrate the economic stability and credit worthiness of the bidder. **NO EXCEPTIONS.**

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

EXCEPTIONS TO SPECIFICATIONS

The following specifications will be strictly adhered to. Exceptions will be considered if they are deemed equal to or superior to the specifications, provided they are fully explained on a separate page entitled "EXCEPTIONS TO SPECIFICATIONS."



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Exceptions will be listed by page and paragraph.

Failure to denote exceptions in the above manner will result in immediate rejection of the proposal. In addition a general statement taking "TOTAL EXCEPTION" to the specifications will result in immediate rejection of bid.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

____/____

PURCHASER RIGHTS

The Purchaser reserves the right to accept or reject any bid. The purchaser also reserves the right to award in their best interest and reserves the right to waive any formalities.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

____/____

DELIVERY REQUIREMENTS

The apparatus will be completely equipped as per these specifications upon arrival and on completion of the required tests will be ready for immediate service in the fire department of the purchaser. Any and all alterations required at the scene of delivery to comply with these specifications must be done at the contractor's expense.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

____/____

DELIVERY

The custom built fire apparatus will be driven from the manufacturing facility to the community by a factory trained delivery engineer who will thoroughly demonstrate the complete apparatus operation and maintenance to the fire department designated personnel.



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ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

U.S.A. MANUFACTURER

The entire apparatus will be assembled within the borders of the Continental United States to insure more readily available parts (without added costs and delays caused by tariffs and customs) and service, as well as protecting the purchaser should legal action ever be required.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

MANUFACTURER'S EXPERIENCE

Each manufacturer will have been in business making similar apparatus for a minimum of fifty (50) years and must have had single ownership for more than seventy-five (75) years.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

ELIMINATION OF DIVIDED RESPONSIBILITY

It is required that each bidder produce both the chassis and complete apparatus. To eliminate divided responsibility and service, the chassis and body must be manufactured by the same Company. Manufacturer will state the number of years the Company has been producing their own chassis and body. Manufacturer will state compliance with the paragraph. NO EXCEPTIONS.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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MANUFACTURING & LOCATIONS

The apparatus will be manufactured in facilities wholly owned and operated by the company. A complete stock of service parts, and service will be provided on a 24 hours around the clock basis. The company will maintain parts and service for a minimum period of twenty (20) years on each apparatus model manufactured.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

FAMA COMPLIANCE

Manufacturer must be a current member of the Fire Apparatus Manufacturer's Association.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

PRICING OF FUTURE PURCHASES AND "TAG ON" ORDERS

Apparatus purchased in future years beyond the bid award date are subject to cost increases for material and labor. The successful bidder shall extend the proposed price for future years through the use of the U.S. Bureau of Labor Statistics, Producer Price Index (PPI) to calculate the selling price increase.

Series ID - PCU3361203361203
Industry - Heavy Duty Truck Manufacturing
Product - Buses, Including military and firefighting vehicles

The price adjustment shall not exceed the percentage adjustment of the PPI at the time of the bid opening date to the most current month for which the statistic is available. The original quoted price shall be the base price.

Note: 2013 model year engine and emissions changes shall be an exception to the above statement.

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ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

FUTURE PURCHASES AND "TAG ON" ORDERS

The successful bidder shall accept "tag on" orders to this bid proposal for a period not to exceed three (3) years from the bid opening date. The successful bidder shall honor the "tag on" order from any municipality within the United States or Canada.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

CONFIGURATION OF TAG ON ORDERS

In many cases the entity wishing to "tag on" to an existing order may require their apparatus to be configured differently from the original proposed apparatus. The successful bidder shall allow changes to the configuration within good engineering guidelines. The changes shall be subject to current pricing in effect at the time of order. For example, a different engine may be required. This shall be considered a "change order" and the purchase price shall be adjusted up or down depending on the current option price.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

PRE-CONSTRUCTION CONFERENCE

After award of the contract, and prior to construction of the apparatus, a pre-construction conference shall be held at the facility of the manufacturer. The City of Kenosha will be responsible for the cost associated with this trip.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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INSPECTION TRIPS

Prior to delivery a total of two (2) inspection trips, one at the mid-point and the other prior to delivery, shall be made to inspect the progress of the apparatus. The inspections shall take place at the manufacturer's facility. The City of Kenosha will be responsible for the cost associated with these trips.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

PROPOSAL DRAWING

A general layout drawing, "D" Size, depicting the apparatus layout and appearance shall be provided with the bid. The drawing shall consist of left side, right side, frontal and rear elevation views. Apparatus equipped with a fire pump, shall have a general layout view of the pump operators panel scaled the same as the elevation views. The drawing shall be a depiction of the actual apparatus proposed and not of a generic similar product.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

APPROVAL DRAWING

After the award of bid and pre-construction conference, a detailed layout drawing depicting the apparatus layout and appearance including any changes agreed upon shall be provided for customer review and signature. The drawing shall become part of the contract documents. The drawing shall be "D" size, and consist of left side, right side, frontal and rear elevation views. Apparatus equipped with a fire pump, shall have a general layout view of the pump operators panel scaled the same as the elevation views.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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BID SEQUENCE

For ease of evaluation, all bid proposals will be submitted in the same order as the fire department's specification. **NO EXCEPTIONS.**

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

HEAVY DUTY CHASSIS

The chassis will be manufactured in the factory of the bidder. The chassis will be designed and manufactured for heavy duty service with adequate strength and capacity of all components for the intended load to be sustained and the type of service required. There will be **no divided responsibility** in the production of the apparatus.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

ALUMINUM CAB

The cab will be a full tilt 5-person cab with a 10" rear raised roof designed specifically for the fire service and manufactured by the chassis builder.

Cab will be built entirely by the apparatus manufacturer within the same facilities
NO EXCEPTIONS.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

CAB DESIGN

The cab will be designed specifically for the fire service and manufactured by the chassis builder.

The apparatus chassis will be of an engine forward, fully enclosed tilt cab design. There will be four (4) side entry doors.



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The cab will be of a fully open design with no divider wall or window separating the front and rear cab sections.

Construction of the cab will consist of high strength 5052H32 aluminum welded to extruded aluminum framing of 6061-T6 material.

The cab roof will utilize extruded, radiused outer corner rails with integral drip channel and box tubing type cross brace supports.

The cab sides will be constructed from extruded door pillars and posts that provide a finished door opening, extruded and formed wheel well openings supports, formed aluminum wheel well liners and box tubing type support braces.

The cab floor and rear cab wall will utilize box tubing type framing and support bracing.

The framework will be of a welded construction that fully unitizes the structural frame of the cab.

The structural extrusion framework will be overlaid with interlocked aluminum alloy sheet metal panels to form the exterior skin of the cab.

The structural extrusion framework will support and distribute the forces and stresses imposed by the chassis and cab loads and will not rely on the sheet metal skin for any structural integrity.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

 /

CAB SUB-FRAME

The cab will be mounted to a steel box tube sub-frame, and will be isolated from the chassis, through the use of no less than six (6) elastomeric bushings. The sub frame will be painted to match the primary chassis color.

The sub-frame will be mounted to the chassis through the use of lubricated Kaiser bushing for the front pivot point, and two (2) hydraulically activated cab latches, to secure the rear.



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**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

✓

CAB TILT SYSTEM

An electrically powered hydraulic cab tilt system will be provided, and will lift the cab to an angle of 45 degrees, exposing the engine and accessories for service. The system will be interlocked to only operate when the parking brake is set.

The lift system will be comprised of two (2) hydraulic lift cylinders, an electrically driven hydraulic pump, and a control switch. A mechanical locking system will be provided to ensure the cab remains in the raised position in the event of a hydraulic failure. The cab tilt controls will be interlocked to the parking brake to ensure the cab will not move, unless the parking brake is set.

The hydraulic lift cylinders will be connected to a steel cab sub-frame, and not directly to the cab. **NO EXCEPTIONS**

MANUAL CAB LIFT

There will be a manually operated hydraulic pump for tilting the cab in case the main pump should fail. Access to the pump will be located under the left corner of the front bumper.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

✓

CAB DIMENSIONS

The cab will be designed to satisfy the following minimum width and length dimensions:

Cab Width (excluding mirrors)	98"
Cab Length (from C/L of front axle)	
To front of cab (excluding bumper)	68"
To rear of cab	62"
Total Cab Length (excluding bumper)	130"



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ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

INTERIOR

Overall, the cab interior will have Zolatone gray/black rubberized, mar resistant, textured finish. The front and rear headliners and rear firewall will be finished in gray Durawear.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

FENDER CROWNS

Black rubber flexible front fenderettes with full depth radiused wheel well liners will be provided.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

GRILLE

The front of the cab will be equipped with a stainless steel grille with sufficient area to allow proper airflow into the cooling system and engine compartment.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

CAB INSULATION

The exterior walls, doors, and ceiling of the cab will be insulated from the heat and cold, and to further reduce noise levels inside the cab. The cab interior sound levels will not exceed 90 decibels at 45 mph in all cab seat positions. **NO EXCEPTIONS**



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**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

ROOF DESIGN

The cab will be of a one-half 10" raised roof design with side drip rails and will satisfy the following **minimum** height dimensions:

Cab Dimensions Interior

Front 59"
Rear 65"

Cab Dimensions Exterior

Front 65"
Rear 75"

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

EXTERIOR GLASS

The cab windshield will be of a two piece curved design utilizing tinted, laminated, automotive approved safety glass. The window will be held in place by an extruded rubber molding. The cab will be finished painted prior to the window installation.

The cab door windows will utilize tinted, automotive approved safety glass.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

SUN VISORS

The sun visors will be made of dark smoke colored transparent polycarbonate. There will be a visor located at both the driver and officer positions, recessed in a molded form for a flush finish.



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**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

CAB STEPS

The lower cab steps will be no more than 22" from the ground. An intermediate step will be provided, mid way between the lower cab step, and the cab floor.

The intermediate step will be slightly inset to provide for safer ingress and egress. All steps will be covered with material that meets or exceeds the NFPA requirements for stepping surfaces.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

STEP LIGHTS

A white LED strip light will illuminate each interior cab step. These lights will illuminate whenever the battery switch is on and the cab door is opened.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

MANUAL ROLL DOWN WINDOWS

All four cab entry doors will have manual roll down windows. Each door will be individually operated. All four windows will roll down completely.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

CAB STRUCTURAL INTEGRITY

The cab of the apparatus will be designed and so attached to the vehicle as to eliminate, to the greatest possible extent, the risk of injury to the occupants in the event of an



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accident.

The apparatus cab will be tested to specific load and impact tests with regard to the protection of occupants of a commercial vehicle.

A test will be conducted to evaluate the frontal impact strength of the apparatus cab to conform to the test J2420 and the "United Nations Regulation 29, Annex 3, paragraph 4, (Test A). A second test will be conducted to evaluate the roof strength of the apparatus cab to conform to the Society Of Automotive Engineers (SAE) SAE J2422/SAE J2420 and "United Nations Regulation 29, Annex 3, paragraph 5, (Test B) and SAE J2420. The evaluation will consist of the requirements imposed by ECE Regulation 29, Paragraph 5.

The test will be conducted by a certified independent third party testing institution.

A letter stating successful completion of the above test on the brand of cab being supplied will be included in the bid. There will be "no exception" to this requirement.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

SEAT BELT TESTING

The seat belt anchorage system will be tested to meet FMVSS 207 Section 4.2a and FMVSS 210 section 4.2. Testing will be conducted by an independent third party product evaluation company.

A copy of the certification letter will be supplied with the bid documents.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

CAB DOORS

The cab doorframes will be constructed from aluminum extrusions fitted with an aluminum sheet metal skin and will be equipped with dual weather seals. The outside cab door window opening will be framed by a black anodized aluminum trim, to provide a clean appearance. The cab doors will be equipped with heavy-duty door latching hardware,



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which complies with FMVSS 206. The door latch mechanism will utilize control cable linkage for positive operation. A rubber coated nylon web doorstep will be provided.

The doors will be lap type with a full-length stainless steel 3/8" diameter hinge and will be fully adjustable.

All openings in the cab will be grommeted or equipped with rubber boots to seal the cab from extraneous noise and moisture.

The cab doors will be designed to satisfy the following minimum opening and step area dimensions:

Door Opening:	
Front	36.5" x 73"
Rear	36.5" x 73"

INTERIOR DOOR PANELS

The interior of the cab entry doors will have a 304 brushed stainless steel scuff plate, contoured to the door, from the door sill down.

The lower portion of the doors will also have a 304 brushed stainless steel scuff plate and will include a total of 245 square inches of reflective material on each door, exceeding the NFPA requirement of 96 square inches. The layout will be opposing ruby red "chevron" stripes on each side. The red striping will be laid over white 3M reflective materials. The reflective decal will be plainly visible to oncoming traffic when the doors are in the open position.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

WORK SURFACE

There will be a flat work surface in front of the officer's seat.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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IN-CAB OVERHEAD STORAGE AREA

An overhead storage area will be provided at the front of the raised roof portion inside of the cab above the rear-facing crew seats. The full-width storage area will be approximately 84" wide x 10.5" high x 17" deep and will have a Zolatone gray/black rubberized, textured finish to match the cab interior. Removable nylon netting will be provided to cover the storage area opening.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

EMS CABINET, REAR FACING

There will be a cabinet constructed of .125 aluminum plate and painted to match the interior of the cab. The cabinet dimensions will be approximately 21" wide x 22" deep x 43" high. The cabinet will come complete with a locking roll up door and two adjustable shelves. Strip lighting will be provided in the cabinet. The location of the cabinet will be in place of the rear facing crew seats behind the driver & Officer.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

DIAMOND PLATE, CAB FLOOR

The entire cab floor will be covered with 1/8" embossed diamond plate.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

CAB REAR WALL COVERING

The rear outside wall of the cab will be covered with 1/8" aluminum diamond plate.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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CUSTOM MAP BOX

A map box will be custom fabricated from aluminum plate and painted to match the interior of cab. the map box will be designed to match existing map boxes in the KFD fleet.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

EMS GLOVE BOX HOLDER

A total of four (4) EMS glove box holders will be provided and mounted.

The exact location will be determined at the pre-construction conference.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

CLIPBOARD HOLDER

A custom holder for a clip board will be provided. The holder will be fabricated from Stainless Steel, and will be mounted to the inside of the officer's door, and the officer's side crew cab door. A Velcro strap will secure the clipboard in the holder.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

CAB EQUIPMENT MOUNTING LAYOUT

The following list shall be used to ensure the apparatus cab equipment layout match those of the existing fleet. The exact configuration will be determined prior to final delivery. Provisions shall be made to mount the following equipment in crew cab, ensuring the mounting meets the most current addition of NFPA 1901:

- One (1) Pick Head Axe
- One (1) Pac Ironslok with Velcro Irons Strap
- Officers door map storage box



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- One (1) Fire Extinguisher Mounted in the Rear Seat Riser
- Four (4) Coffee Mug Holders
- Four (4) Portable Radio Mounts
- One (1) Thermal Imager
- Divided Clip Board Storage in EMS Cabinet
- Coat hooks on each cab door
- Glove box between forward facing seats

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

_____ ✓

CAB ACCESSORY FUSE PANEL

A fuse panel will be located underneath the rear facing seat on the officer's side. The fuse panel will consist of six (6) battery hot and six (6) ignition switch circuits. Each circuit will be capable of 10-ampere 12-volt power and total output of 50-amps. The fuse panel will be capable of powering accessories such as hand held spotlights, radio chargers, hand lantern chargers and other miscellaneous 12-volt electrical components.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

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ALTERNATOR

A 320 ampere Prestolite/Leece Neville Model 4962PA, alternator with serpentine belt will be provided The alternator will generate 260 amperes at idle.

A low voltage alarm, audible and visual, will be provided.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

_____ ✓

BATTERIES

The battery system will be a single system consisting of four negative ground, 12 volt Interstate Group 31 MHD batteries, cranking performance of 950 CCA each with total of



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3800 amps, 185 minute reserve capacity with 25 ampere draw at 80 degrees Fahrenheit. Each battery will have 114 plates. Warranty will be accepted nationwide.

The batteries will be installed in a vented 304 stainless steel battery box with a removable aluminum cover to protect the batteries from road dirt and moisture. The batteries are to be placed on dri-deck and secured with a fiberglass hold down. The batteries will be wired directly to starter motor and alternator.

The battery box cover will be held on by flexible rubber hold downs.

The battery cables will be 3/0 gauge. Battery cable terminals will be soldering dipped, color-coded and labeled on heat shrink tubing with a color-coded rubber boot protecting the terminals from corrosion.

There will be a 350-ampere fuse protecting the pump primer and a 250-ampere fuse protecting the electric cab tilt pump and other options as required.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

BATTERY CHARGING

A Kussmaul Auto Charge 1200 battery system charger will be provided. The Auto Charge 1200 is a fully automatic battery charger with a very high output for vehicles with a single battery system. A single bar graph display is provided to indicate the state of charge of the battery system. The rated output will be 40 amps for the vehicle battery system.

A Kussmaul Model 091-55-20-120 super electric auto-eject with a yellow weatherproof cover and power interrupt will be provided.

A stainless steel trim ring will be provided around the receptacle to further protect the paint finish.

A stainless steel trim ring will be provided around the 110v auto eject plug.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓



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BATTERY JUMPER TERMINAL

There will be one set (two studs) of battery jumper terminals located by the battery box under the cab. The terminals will have plastic color-coded covers. Each terminal will be tagged to indicate positive/negative.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

AIR DISC BRAKES

The apparatus will be equipped with Arvin Meritor DiscPlus EX225 Air Disc Brakes. Each disc brake assembly will include one (1) 17" vented rotor, one (1) lightweight hub, one (1) twin-piston caliper, and two (2) quick-change pads.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

AIR BRAKE SYSTEM

The vehicle will be equipped with air-operated brakes. The system will meet or exceed the design and performance requirements of current FMVSS-121 and test requirements of current NFPA 1901 standards.

Each wheel will have a separate brake chamber. A dual treadle valve will split the braking power between the front and rear systems.

All main brake lines will be color-coded nylon type protected in high temperature rated split plastic loom. The brake hoses from frame to axle will have spring guards on both ends to prevent wear and crimping as they move with the suspension. All fittings for brake system plumbing will be brass.

A Meritor Wabco System Saver 1200 air dryer will be provided.

The air system will be provided with a rapid build-up feature, designed to meet current NFPA 1901 requirements. The system will be designed so the vehicle can be moved within 60 seconds of startup. The quick build up system will provide sufficient air pressure so that the apparatus has no brake drag and is able to stop under the intended



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operating conditions following the 60-second buildup time. The vehicle will not be required to have a separate on-board electrical air compressor or shoreline hookup to meet this requirement.

Four (4) supply tanks will be provided. One air reservoir will serve as a wet tank and a minimum of one tank will be supplied for each the front and rear axles.

Accessories plumbed from the air system will go through a pressure protection valve and to a manifold so that if accessories fail they will not interfere with the air brake system.

AUXILIARY AIR FILL

A Schrader fill valve will be mounted in the front of the driver's step well.

PARKING BRAKE

A spring actuated air release emergency/parking brake will be provided on the rear axle. One (1) parking brake control will be provided and located on the engine hood next to the transmission shifter within easy reach of the driver. The parking brake will automatically apply at 35 ±10 PSI reservoir pressure. A Meritor WABCO IR-2 Inversion Relay Valve, supplied by both the Primary and Secondary air systems, will be used to activate the parking brake and to provide parking brake modulation in the event of a primary air system failure.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

AIR INLET

An air system inlet/fill connection will be provided. The inlet will be connected to the air brake to allow constant air feed. The location of the inlet will be determined during the pre-construction conference.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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AIR BRAKING ABS SYSTEM

A Wabco ABS system will be provided to improve vehicle stability and control by reducing wheel lock-up during braking.

This braking system will be fitted to axles and all electrical connections will be environmentally sealed from water and weather and be vibration resistant.

The system will constantly monitor wheel behavior during braking. Sensors on each wheel transmit wheel speed data to an electronic processor, which will sense approaching wheel lock and instantly modulate brake pressure up to 5 times per second to prevent wheel lock-up. Each wheel will be individually controlled. To improve field performance, the system will be equipped with a dual circuit design. The system circuits will be configured in a diagonal pattern. Should a malfunction occur, that circuit will revert to normal braking action. A warning light at the driver's instrument panel will indicate malfunction to the operator.

The system will consist of a sensor clip, sensor, electronic control unit and solenoid control valve. The sensor clip will hold the sensor in close proximity to the tooth wheel. An inductive sensor consisting of a permanent magnet with a round pole pin and coil will produce an alternating current with a frequency proportional to wheel speed. The unit will be sealed, corrosion-resistant and protected from electro-magnetic interference. The electronic control unit will monitor the speed of each wheel sensor and a microcomputer will evaluate wheel slip in milliseconds.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

ASR SWITCH

An on/off switch for the Acceleration Slip Resistance will be provided on the dash. This will allow the driver to override the computer and turn the ASR on when at a higher speed for better traction in deep snow or mud.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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AIR HORNS

Two (2) Grover 2040 Stuttertone rectangular, chrome plated, air horns will be recess mounted, one (1) each side behind the perforated grille of the bumper. The air horns will be controlled by a toggle switch wired through the horn button. A foot switch for the air horns will also be provided on the officer's side.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

BUMPER

There will be a 12" high double rib polished stainless steel wrap-around bumper provided at the front of the apparatus. Laser cut perforated grilles will be incorporated into the bumper and located at the outboard section of the bumper for the air horns and at the center for the siren speaker. The bumper will be mounted to a reinforcement plate constructed of 1/4" x 10" x 70" carbon steel. A gravel shield will be provided, constructed of .188" aluminum diamond plate. The bumper extension will be approximately 18".

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

STORAGE WELL COMPARTMENT

There will be a hose well compartment located in the center of the front bumper. The compartment will run the full width of the bumper and measure approximately 75" wide x 10" long x 5" deep at the ends and 12" deep in the center. The compartment will be constructed of .125" smooth aluminum plate.

Two velcro straps will secure the hose load in the bumper well

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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COOLING SYSTEM

The cooling system will be designed to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system will be designed and tested to meet or exceed the engine and transmission manufacturer's requirements, and EPA regulations.

The complete cooling system will be mounted in a manner to isolate the system from vibration and stress. The individual cores will be mounted in a manner to allow expansion and contraction at various rates without inducing stress to the adjoining core(s).

The cooling system will be comprised of a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components will include a surge tank, a charge air cooler, bolted to the top of the radiator to maximize cooling, recirculation shields, a shroud, a fan, and required tubing. All components will consist of an individually sealed system.

RADIATOR

The radiator will be a cross-flow design constructed completely of aluminum with welded side tanks. The radiator will be bolted to the bottom of the charge air cooler to allow a single depth core, thus allowing a more efficient and serviceable cooling system.

The radiator will be equipped with a drain cock to drain the coolant for serviceability. The drain cock will be located at the lowest point of the aluminum cooling system to maximize draining of the system.

CHARGE AIR COOLER

The charge air cooler will be of a cross-flow design and constructed completely of aluminum with extruded tanks. The charge air cooler will be bolted to the top of the radiator to allow a single depth core.

COOLANT

The cooling system will be filled with a 50/50 mix. The coolant makeup will contain ethylene glycol and de-ionized water to prevent the coolant from freezing to a temperature of -34 degrees F.



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Triple Combination Pumper**

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

SURGE TANK

The cooling system will be equipped with an aluminum surge tank mounted to the officer's side of the cooling system core. The surge tank will house a low coolant probe and sight glass to monitor the coolant level. Low coolant will be alarmed with the check engine light. The surge tank will be equipped with a dual seal cap that meets the engine manufacturer's pressure requirements, and system design requirements.

The tank will allow for expansion and to remove entrained air from the system. There will also be an extended fill neck to prevent system overflow and encroachment of expansion air space. Baffling will be installed in the tank to prevent agitated coolant from being drawn into the engine cooling system.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

HOSES & CLAMPS

Silicone hoses will be provided for all engine coolant lines.

All radiator hose clamps will be spring loaded stainless steel constant torque hose clamps for all main hose connections to prevent leaks. Recirculation shields will be installed where required to prevent heated air from reentering the cooling package and affecting performance.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

FAN

The engine cooling system will incorporate a heavy-duty composite 11- blade Z-series fan. It will provide the highest cooling efficiently while producing the lowest amount of noise. This robust yet light-weight fan results in less wear and stress on motors and



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bearings.

A shroud and recirculation shield system will be used to ensure air that has passed through the radiator is not drawn through again.

The fan tip to radiator core clearance will be kept at a minimal distance to increase the efficiency of the fan and reduce fan blast noise.

FAN CLUTCH

A fan clutch will be provided that will allow the cooling fan to operate only when needed. The fan will remain continuously activated when the truck is placed in pump gear.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

_____ ✓

ENGINE ENCLOSURE

An integral, formed aluminum and composite engine enclosure will be provided. The engine enclosure will be contoured and blended in an aesthetically pleasing manner with the interior dash and flooring of the cab. The enclosure will be kept as low as possible, to maximize space and increase crew comfort.

The enclosure will be constructed from 5052 H2 aluminum plate and GRP composite materials, providing high strength, low weight, and superior heat and sound deadening qualities. The exterior sides will be covered with rubberized carpeting to aid in sound deadening and heat resistance. The top will be covered with a heavy duty, black rubberized, wear resistant covering, further reducing noise and heat in the cab.

The underside of the engine enclosure will be covered with a sound deadening, heat reflective insulation system, and will further minimize noise (DB levels), and eliminate engine heat from the front and rear of the cab. The insulation material will be bonded with adhesive and mechanically fastened to the underside of the cab.

All seams will be sealed to prevent water absorption. NO EXCEPTIONS.

A work light will be installed in the engine enclosure with an individual switch located on the base of the light.



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**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

✓

ENGINE

The apparatus will be powered by a Cummins Diesel ISX 11.9 500 HP @ 1800 R.P.M., 1645 ft. lb. torque @ 1200 R.P.M.

ENGINE WARRANTY

The engine will have a five year or 100,000 mile warranty and approval by Cummins for installation in the chassis. There will be no deductible for the first two years. A one hundred dollar deductible will apply for service during the next three years.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

✓

AIR COMPRESSOR

The air compressor will be an 18.7 CFM engine driven Wabco.

STARTER

A 12-volt starter will be provided, controlled by a switch on the left lower cab dash.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

✓

FUEL COOLER

Installed on the apparatus fuel system will be an Air-To-Liquid aluminum fuel cooler. The fuel cooler will be located in the lowest module of the cooling system.



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**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

FUEL FILTERS

The engine fuel filters will be mounted in a manner that is easily accessible for service or replacement. A Cummins approved primary FleetGuard Fuel Pro filter will be remote mounted to the Chassis frame rail. A secondary FleetGuard FF2200 spin on filter will be mounted on the engine.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

DIESEL EXHAUST FLUID TANK

The exhaust system will include a molded cross linked polyethylene tank. The tank will have a capacity of 5 usable gallons and will be mounted on the left side of the chassis frame.

The DEF tank fill neck will accept only a 19mm dispensing nozzle versus the standard 22mm diesel fuel dispensing nozzle to prevent cross contamination. The DEF tank cap will be blue in color to further prevent cross cross contamination.

A placard will accompany fill location noting DEF specifications.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

EXHAUST SYSTEM

The engine exhaust system will include the following components:

- Diesel Particulate Filter (DPF)
- Diesel Oxidation Catalyst (DOC)



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- Diesel Exhaust Fluid (DEF)
- Selective Catalytic Reduction Filter (SCR)

The SCR catalyst utilizes the DEF fluid, which consists of urea and purified water, to convert NOx into nitrogen and water. This will meet or exceed 2010 EPA emissions requirements.

The engine exhaust system will be horizontal design constructed from heavy-duty truck components. The exhaust tubing will be stainless steel to the DPF through to the SCR, aluminized steel from the SCR to the exhaust tip. A heavy duty stainless steel bellows tube will be used to isolate the exhaust system from the engine. The system will be equipped with single canister consisting of a Diesel Oxidation Catalyst (DOC) and a Diesel Particulate Filter (DPF), and will be mounted under the right side frame rail, meeting the specific engine manufacturer's specifications and current emission level requirements. The outlet will be directed to the forward side of the rear wheels, exiting the right side with a heavy duty heat diffuser. The heat diffuser will prevent the exhaust temperature from exceeding 851 deg. F during a regeneration cycle. A heat-absorbing sleeve will be provided on the exhaust pipe in the engine compartment area to reduce the heat, protect the alternator, and also to protect personnel while servicing the engine compartment.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

EXHAUST ADAPTER

The exhaust will terminate to accept a station mounted PlymoVent® exhaust system.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

AIR CLEANER/INTAKE

The engine air intake and filter will be designed in accordance with the engine manufacturer's recommendations. It will be 99.9% effective in removing airborne contaminants when tested per the industry standard SAE J726 procedure and offer a dirt holding capacity of at least 3.0 gm/cfm of fine dust (tested per SAE J726) offering superior



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engine protection.

The air filter will be located at the front of the apparatus and will be at least 66" above the ground, to allow fording deep water in an emergency situation.

An ember separator will be provided in the engine air intake meeting, the requirements of NFPA 1901.

An Air Restriction warning light will be provided and located on the cab dash.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

_____ ✓

ENGINE BRAKE

The engine will be equipped with a Jacobs compression engine brake. An "On/Off" switch and a control for "Low/High" will be provided on the instrument panel within easy reach of the driver.

The engine brake will interface with the Wabco ABS brake controller to prevent engine brake operations during adverse braking conditions.

A pump shift interlock circuit will be provided to prevent the engine brake from activating during pumping operations.

The brake light will activate when the engine brake is engaged.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

_____ ✓

DRIVELINE

The driveline will consist of Spicer 1810 series dual grease fitting universal joints with "Half-Round" end yokes. The drive shaft will be built with a heavy-duty steel tube 4.095" outside diameter x .180 wall thickness. The shafts will be dynamically balanced prior to installation into the chassis.

A splined slip joint will be provided in each shaft assembly. Universal joints will be



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extended life. There will be two (2) Zerk fittings in each universal joint assembly so the joint can be greased without turning the shaft.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

FRAME

The chassis frame will be of a ladder type design utilizing industry accepted engineering best practices. The frame will be specifically designed for fire apparatus use. Each frame rail will be constructed of two 3/8" thick-formed channels. The outer channel will be 10.06" x 3.50" x .375" and the inner channel (liner) will be 9.31" x 3.13" x .375". The section modulus will be 31.28 in.³. The resistance to bending moment (RBM) will be 1,569,160 in./lbs. The cross-members will be constructed of minimum 3/8" formed channels and have formed gusseted ends at the frame rail attachment.

.625 inch, grade 8 flange, Huck bolt fasteners will be used on all permanently attached brackets to the frame to eliminate the need for bolt re-tightening.

A lifetime warranty will be provided, per manufacturer's written statement.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

WHEELBASE

The approximate wheelbase will be 205".

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

FUEL TANK

The chassis will be equipped with a 65-gallon **stainless steel** rectangular fuel tank. The fuel tank will be certified to meet FMVSS 393.67 tests. It will also maintain engine manufacturer's recommended expansion room of 5%.



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**SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:** _____

CAB DOOR HANDRAILS

A total of two (2) 1.25" diameter knurled stainless steel handrails will be provided, one (1) each on the inside of the rear crew doors just above the windowsill.

ABOVE SECTION BID EXACTLY AS WRITTEN: _____ ✓
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

HEATER/DEFROSTER/AIR CONDITIONER

There will be a minimum 65,000 cool BTU and 75,000 heat BTU single unit, heater/air conditioner mounted over the engine cover. The unit will be mounted in center of the cab on the engine hood/enclosure. Unit will have a shutoff valve at the right side of the frame, next to the engine. Airflow of the heater/air conditioner will be a minimum 1200 CFM. To achieve maximum cooling, a TM-21 Compressor (10 cu. in.) will be used. There will be ductwork to the floor of the cab, facing forward to provide heat for the front of cab floor area.

The defroster/heater will be a minimum of 35,000 BTU and will be a separate unit mounted over the windshield. There will be eight (8) louvers/diffusers to direct to windshield and door glass. Airflow of the defroster/heater will be a minimum 350 CFM. The unit will be painted Zolatone greystone to match the cab ceiling.

The condenser will be roof mounted and have 65,000 BTU rating. The unit will include three fan motors. Airflow of the condenser will be a minimum 2250 CFM. (This roof-mounted condenser will work at full rated capacity at an idle with no engine heat problems.)

ABOVE SECTION BID EXACTLY AS WRITTEN: _____ ✓
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

HEATER/DEFROSTER/AIR CONDITIONING CONTROLS

The heater/defroster/air conditioning will be located in the overhead console in the center



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of the apparatus cab within reach of the driver and officer. The controls will be illuminated for easy locating in dark conditions. The controls will be located in such a way that the driver will not be forced to turn away from the road to make climate control adjustments. Control of all heater/defroster/air conditioning functions for the entire apparatus cab will be achieved through these controls.

Metal deflectors will be provided over the defroster and A/C vents.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

DEFROSTER DUCTWORK

A molded, black ABS plastic ductwork system will be provided. It will cover the width of the windshields. It will attach to the cab's overhead defroster unit and provide temperature controlled air to the windshields.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

LOAD MANAGER

Load manager will have the ability to sequence loads on and off. It will also be able to shed 8 loads when the vehicle is stationary, starting at 12.7 volts lowest priority load to be shed, then respectively at 12.6, 12.4, 12.2, 12.0, 11.8, 11.4 and 11.0 volts DC. Any load that has been shed will be off for a minimum of five minutes, and then if voltage has rebounded above shed voltage, the shed load will automatically come on. There will also be an indicator panel along side the rocker switches, which indicate power is on, battery warning and fast idle. Battery warning indicator will flash at a rate proportional to the voltage discharge rate.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓



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AUTOMATIC HIGH IDLE ACTIVATION

The load management system will be capable of activating the apparatus high idle system when the system voltage drops below 12.3 volts DC. The system will raise engine speed for a minimum of five minutes until voltage exceeds 13.0 volt DC. The load management system will activate the high idle feature before any devices are automatically shed OFF. The high idle function request from the load management device will function only if the appropriate interlocks are present; that is, control of the high idle system is monitored and will be superseded by the state of the interlock control module. The automatic high idle system will be deactivated whenever the brake pedal is pressed, and will remain inactive for two minutes thereafter to allow an operator to override the high idle function and return the engine to idle before PTO engagement.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

HIGH IDLE SWITCH

The engine will have a "high idle" switch on the dash that will maintain an engine RPM of 1,000. The switch will be installed at the cab instrument panel for activation/deactivation. The "high idle" mode will become operational only when the parking brake is on and the truck transmission is in neutral.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

INSTRUMENT PANEL

The main dash shroud, which covers the area directly in front of the driver from the doorpost to the engine hood, will be custom molded and covered with a non-glare black vinyl. The dash will be a one-piece hinged panel that tilts outward for easy access to service the internal components. The gauge panel will be constructed of durable aesthetically pleasing light gray polymer material, placed over a heavy duty steel backing plate, for added strength and durability.

The gauges will be Beede Instruments, NexSys Link gauges with built-in self-diagnostics and red warning lights to alert the driver of any problems. All gauges and controls will be



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backlit for night vision and identified for function. All main gauges and warning lights will be visible to the driver through the steering wheel.

ABOVE SECTION BID EXACTLY AS WRITTEN:
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BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

MASTER BATTERY & IGNITION SWITCH

The vehicle will be equipped with a keyless ignition, with a two (2)-position Master Battery rocker switch, "Ignition Off/On" and a two (2)-position Engine Start rocker switch, "Off/Start".

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

INSTRUMENTATION & CONTROLS

Instrumentation on dash panel:

- Tachometer/hourmeter with high exhaust system regeneration temperature, and instrument malfunction indicators
- Speedometer/odometer with built in turn signal, high beam, and re-settable trip odometer
- Voltmeter
- Diesel fuel gauge
- DEF (Diesel Exhaust Fluid) gauge
- Engine oil pressure
- Transmission temperature
- Engine temperature
- Primary air pressure
- Secondary air pressure

Indicators and warning lights visible to driver:

- Battery on
- Parking brake engaged
- Low air with buzzer



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- Turn signals
- Hi-beam
- Transmission temperature
- Do not shift transmission
- Check transmission
- Stop engine with buzzer
- Check engine
- Regeneration
- High exhaust temperature
- Air filter restriction light
- Back pressure
- Cab door open (flashing)
- Compartment door open (flashing)
- Antilock brake warning
- Low voltage

Other indicator and warning lights

- Differential locked
- PTO (s) engaged
- Auto-slip response
- Retarder engaged
- Retarder temperature

Controls located on main dash panel:

- Master power disconnect with ignition switch
- Engine start switch
- Headlight switch
- Windshield wiper/washer switch
- Differential lock switch (if applicable)
- Dimmer switch for backlighting

Controls included in steering column:

- Horn button
- Turn signal switch
- Hi-beam low-beam switch



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- 4-way flasher switch
- Tilt-telescopic steering wheel controls

Controls, gauges and indicator lights located to the right of driver's position:

- Transmission shifter
- Pump shift control with OK TO PUMP and PUMP ENGAGED lights
- Heater/defroster controls
- Eighteen (18) illuminated rocker switches
- Parking brake control

Driving compartment warning labels will include:

- HEIGHT OF VEHICLE
- OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION
- DO NOT USE AUXILIARY BRAKING SYSTEMS ON WET OR SLIPPERY ROADS
- EXIT WARNINGS

Additional labels included:

- COMPUTER CODE SWITCH
- ABS CODE SWITCH
- FLUID DATA TAG
- CHASSIS DATA TAG

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

WINDSHIELD WIPERS

Two (2) black anodized finish two speed synchronized electric windshield wiper system. Dual motors with positive parking. System includes large dual arm wipers with built in washer system. One (1) master control works the wiper, washer and intermittent wipe features. Washer bottle is a remote fill with a 4 quart capacity. Washer fill is located just inside of officer cab door.

ABOVE SECTION BID EXACTLY AS WRITTEN:



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SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

DOOR AJAR INDICATION

Four (4) red LED lights are provided in the forward cab overhead console area, visible to both driver and officer. Upon releasing the apparatus parking brake one or more of these lights will automatically illuminate (flash) if any cab door is open, compartment door is open, any ladder or equipment rack is not in stowed position, stabilizer system deployed or any other device has not been properly stowed that may cause damage if the apparatus is moved.

ABOVE SECTION BID EXACTLY AS WRITTEN: _____ ✓
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

ENGINE WARNING SYSTEM

An engine warning system will be provided to monitor engine conditions such as low oil pressure, high engine temperature and low coolant level. Warning indication will include a STOP ENGINE (red) light with audible buzzer activation and a CHECK ENGINE (amber) light

Note: (Some engine configurations may also include a fluid warning light.)

There will be a master information light bar with 24 lights located across the center of the dash panel that covers up to 24 functions. These are defined under Indicators and Warning Lights above.

ABOVE SECTION BID EXACTLY AS WRITTEN: _____ ✓
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

DIESEL PARTICULATE FILTER CONTROLS

There will be two (2) controls for the diesel particulate filter. One control will be for regeneration and one control will be to inhibit engine regeneration.

ABOVE SECTION BID EXACTLY AS WRITTEN: _____ ✓



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SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

CHASSIS WIRING

All chassis wiring will have XL high temperature crosslink insulation and will be 10 gauge, 12 gauge, 14 gauge and 18 gauge depending on load. All wiring will be color-coded, and the function and number stamped at 3" intervals on each wire. All wiring will be covered with high temperature rated split loom for easy access to wires when trouble shooting. All electrical connectors and main connectors throughout the chassis will be treated to prevent corrosion.

ABOVE SECTION BID EXACTLY AS WRITTEN: _____ ✓
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

PUMP SHIFT MODULE

A pump shift module with indicating lights will be located within easy reach of the driver. A gear lockup will be provided to hold the transmission in direct drive for pump operation.

ABOVE SECTION BID EXACTLY AS WRITTEN: _____ ✓
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

OFFICER'S SIDE SPEEDOMETER

A Class 1 brand digital speedometer will be provided on the officer's side in cab, located in the overhead switch console.

ABOVE SECTION BID EXACTLY AS WRITTEN: _____ ✓
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

AUXILIARY POWER POINTS

Two (2) 12-volt 20-ampere auxiliary lighter socket type plug-ins, will be provided in the cab, one near the driver and one near the officer.



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One (1) additional 12-volt 20-ampere auxiliary lighter socket type plug-in, will be provided in each EMS cabinet.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

VEHICLE DATA RECORDER

An Akron / Weldon vehicle data recorder as required by the 2009 edition of NFPA 1901 will be installed. Vehicle data will be sampled at the rate of 1 second per 48 hours, and 1 minute per 100 engine hours.

Software will be provided to allow the fire department to collect the data as needed.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

LIGHTING CAB EXTERIOR

Exterior lighting and reflectors will meet or exceed Federal Motor Vehicle Safety Standards and National Fire Protection Association requirements in effect at this time.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

FRONT TURN SIGNALS

There will be two Whelen 400 Series LED rectangular amber turn signal lights mounted one each side in the front of the headlight housing and one mounted on each side of the warning light housing.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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LED HEADLIGHTS

There will be dual, sealed-beam LED, rectangular headlights in custom housings on each side of the front of the cab. The lenses will be hardened glass. The LEDs will be long-lasting and able to withstand shock and vibration.

These headlights will provide 850 effective lumens in high beam and 750 effective lumens in low beam.

This installation will be a 12V DC configuration and draw 3.6 Amps.

Headlight alignment will conform to SAE J599 AUG. 1997

- DOT Approved FMVSS 108
- SAE J96 ECE Reg. 112
- Sealed to IP67

Manufacturer's warranty: 4-year limited warranty.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

ALTERNATING HEAD LAMP

The headlights will have an alternating flash feature for emergency response use.

DAYTIME RUNNING LIGHTS

The headlamps will be provided with a "Daytime Running" feature. The lights will automatically be switched on when the vehicle ignition is switched on.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

HAND HELD SPOTLIGHT

One Optronics Blue Eye Model KB-4003, 400,000-candle power hand-held spotlight will be provided, installed at officer's side of cab.



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ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

LIGHTING CAB INTERIOR

Interior lighting will be provided inside the cab for passenger safety. Two (2) ceiling mounted combination red/clear LED dome lights with a push button on/off switch in the light lens. One light will be located over each the officer and driver's position. The lights will also activate from the open door switch located in each cab doorjamb.

LIGHTING CREW CAB INTERIOR

Interior lighting will be provided inside the crew cab for passenger safety. Two (2) ceiling mounted combination red/clear LED dome lights with a push button on/off switch in the light lens will be provided. The lights will also activate from the open door switch located in each cab doorjamb.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

DOOR LIGHTS

Whelen Model 500 AMBER LED flashing lights will be provided in each cab door. The lights will be activated from the open door switch located in each cab doorjamb.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

MIRRORS

Two (2) Lang Mekra 300 Series smooth chrome plated Aero style main and convex mirrors will be installed on each side of the vehicle. The main mirror will be 4-way remote adjustable with heat, 7" x 16" 2nd surface chromed flat glass. The convex will be 6" x 8" 2nd surface chromed 400 mm radius glass. Each mirror housing assembly will be constructed of lightweight textured chrome ABS with on truck glass and housing back



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cover replacement. In the event the mirror breaks the glass will be replaceable in (3) minutes or less. The glass will include a safety adhesive backing to keep broken glass in place. The mirror assembly will be supported by a "C" loop bracket constructed of polished stainless steel tube utilizing two point mounting reducing vibration of mirror glass during normal vehicle operation. The lower section of the holder will include a spring loaded single detent position 20 degrees forward with easy return to operating position without refocusing.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

HELMET STORAGE

A universal style helmet bracket will be provided for each riding position.

A placard will be provided for each riding position warning that injury may occur if helmets are worn while seated.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

SEAT BELT WARNING SYSTEM

An Akron / Weldon seat belt warning system will be provided, and will monitor each seating position. Each seat will be supplied with a sensor that, in conjunction with the display module located on the dash, will determine when the seat belt was fastened and if the seat is occupied. An icon will represent that the seat is properly occupied. An audible and visual alarm will be activated if the seat is occupied and/or the belt is not fastened in the proper sequence.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

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DRIVER'S SEAT

The driver's seat will be a Bostrom Sierra FX air ride high back, adjustable fore/aft, upholstered with gray tweed Durawear. A 3-point seat belt will be provided. The seat



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belt will be mounted to the "B" Post.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

OFFICER'S SEAT

The officer's seat will be a Bostrom Firefighter™ Tanker 450 ABTS SCBA seat. The seat will have the following features:

- Integrated 3-point seat belt
- "Auto-Pivot & Return" head rest
- Built in lumbar support
- 100% Durawear™ gray tweed seat material

UNDER SEAT STORAGE

There will be a storage compartment under the officer's seat approximately 15" wide x 10.5" tall x 15.5" deep.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

CREW SEATS

The crew cab area will have two (2) Bostrom Firefighter™ seats. The seating arrangement will be: two (2) forward facing Bostrom 400CT ABTS fixed SCBA seats. The seats will have the following features:

- Integrated 3-point seat belts
- "Auto-Pivot & Return" head rest
- Built in lumbar support
- 100% Durawear™ gray tweed seat material



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CREW SEAT COMPARTMENT

A compartment will be provided under the forward facing crew seats on the back wall of the cab. The compartment will be full through, with an access door on each side, accessible from the side of the crew cab doors.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

FLIP UP SEAT

A spring loaded flip-up seat will be provided on the rear cab wall, driver's side. The seat will be supplied with a seat belt.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

SCBA BOTTLE BRACKET

The officer and fixed crew seats will come equipped with an IMMI SmartDock Hands Free SCBA Locking System, capable securing all U.S. and international SCBA brands and sizes while in transit or for storage on fire trucks.

Locking will be achieved by placing the SCBA unit (bottle) in the seat cavity to engage the automatic lock system. A top clamp will surround the top of the SCBA tank for a secure fit in all directions.

All adjustment points will be easily adjustable.

The bracket system will be free of straps and clamps that may interfere with auxiliary equipment on SCBA units.

The system will automatically release and will eliminate the need for straps or pull cords.

The bracket system will meet NFPA 1901 standards and requirements of EN 1846-2.

ABOVE SECTION BID EXACTLY AS WRITTEN:

✓



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SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

FRONT AXLE

A Meritor™ MFS-20-133A non-driving, front steer axle with a capacity 20,000 pounds will be provided. The axle will have a 3.74" dropped I-beam, be 10 bolt hub piloted, and furnished with oil seals.

ABOVE SECTION BID EXACTLY AS WRITTEN: _____ ✓
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

SUSPENSION (FRONT)

The front suspension will be a variable rate taper-leaf design, 54" long and 4" wide. Long life, maintenance free, urethane bushed spring shackles will be utilized. All spring and suspension mounting will be attached directly to frame with high strength Huck bolts and self-locking round collars. Spring shackles and pins that require grease will not be acceptable. **NO EXCEPTIONS.**

ABOVE SECTION BID EXACTLY AS WRITTEN: _____ ✓
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

ENHANCED FRONT SUSPENSION SYSTEM

The front suspension will have the handling, stability, and ride quality enhanced by the use of a Ride Tech auxiliary spring system and Koni high performance shock absorbers.

This system will utilize three stage, urethane auxiliary springs, and high performance gas filled shock absorbers to control the deflection of the leaf springs, and dampen vibration normally transmitted to the chassis. This maintenance free system will be custom tuned to the apparatus gross weight rating for maximum performance, while maintaining a soft compliant ride. **NO EXCEPTIONS.**

A (3) three year 36,0000 mile warranty will be provided by the manufacturer. _____ ✓

ABOVE SECTION BID EXACTLY AS WRITTEN: _____



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SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

STEERING

Ross heavy duty Model TAS-85 power steering will be provided. The steering gear will be bolted to the frame at the cross-member for steering linkage rigidity. Four (4) turns from lock to lock with an 18" diameter slip resistant rubber covered steering wheel. Steering column will have six-position tilt and 2" telescopic adjustment. The cramp angle will be 45 degrees with 315mm tires or 43 degrees with 425mm tires providing very tight turning ability.

ABOVE SECTION BID EXACTLY AS WRITTEN: ✓
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

REAR AXLE

The rear axle will be a Meritor™ RS-26-185 Single reduction drive axle with a capacity of 27,000 lbs. The axles will be hub piloted, 10 studs, furnished with oil seals.

ABOVE SECTION BID EXACTLY AS WRITTEN: ✓
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

TOP SPEED

Rear axle speed approximately 68 MPH.

ABOVE SECTION BID EXACTLY AS WRITTEN: ✓
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

SUSPENSION (REAR) 27,000 LB AIR RIDE

A Hendrickson FIREMAAX model FMX272 air ride rear suspension will be provided. The suspension will be a dual air spring design equipped with dual height control valves to maintain proper ride height. To reduce axle stress and maintain axle position and pinion angle the suspension design will incorporate three torque rods. The ground rating



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of the suspension will be 27,000 pounds.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

TIRE PRESSURE MONITOR

A Real Wheels LED tire pressure sensor will be provided for each wheel. The pressure sensor will indicate if a particular tire is not properly inflated. A total of six (6) indicators will be provided.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

FRONT TIRES

Front tires will be Goodyear 385/65R22.5, load range J, G296 highway tread, single tubeless type with a GAWR of 20,000 pounds. Wheels will be disc type, hub piloted, 22.5 x 12.25 10 stud 11.25 bolt circle. Chrome plated lug nut caps will be provided.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

REAR TIRES

Rear tires will be Goodyear 12R22.5, load range H, G622 Mud and Snow tread, dual tubeless type with a GAWR of 24,000 pounds. Wheels will be disc type, hub piloted, 22.5 x 8.25 10 stud with 11.25" bolt circle. Chrome plated lug nut caps will be provided.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

MUD FLAPS

Hard rubber mud flaps will be provided for front and rear tires.



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ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

WHEELS

Aluminum wheels will be provided for the front and for the inside and outside of the rear wheels. The aluminum wheels will match the tire and axle capacities of the apparatus.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

FRONT HUB COVERS

Polished stainless steel hub covers will be provided for the front axle.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

REAR HUB COVERS

Polished stainless steel hub covers will be provided for the rear axle.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

TOW EYES (Front)

There will be two front tow eyes with 3" diameter holes attached directly to the chassis frame.

TOW EYES (Rear)

There will be two tow eyes attached directly to the chassis frame rail and will be chromate acid etched for superior corrosion resistance and painted to match the chassis.



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**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**



TRANSMISSION

The chassis will be equipped with a Generation IV Allison EVS4000 six (6) speed automatic transmission. It will be programmed five (5) speed, sixth gear locked out, for fire apparatus vocation, in concert with the specified engine.

An electronic oil level indicator will be provided as well as a diagnostic reader port connection. The fifth gear will be an overdrive ratio, permitting the vehicle to reach its top speed at the engine's governed speed. The dipstick is dipped in a rubber coating for ease in checking oil level when hot.

The chassis to transmission wiring harness will utilize Metri-Pack 280 connectors with triple lip silicone seals and clip-type positive seal connections to protect electrical connections from contamination without the use of coatings.

Ratings:	Max Input (HP)	600
	Max Input (Torque)	1850 (lb ft)
	Max Turbine (Torque)	2600 (lb ft)

Mechanical Ratios:	1st -	3.51:1
	2nd -	1.91:1
	3rd -	1.43:1
	4th -	1.00:1
	5th -	0.74:1
	Reverse -	-5.00:1

TRANSMISSION SHIFTER

An Allison "Touch Pad" shift selector will be mounted to the right of the driver on the engine cover accessible to the driver. The shift position indicator will be indirectly lit for nighttime operation.



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TRANSMISSION FLUID

The transmission will come filled with Castrol TranSynd™ Synthetic Transmission Fluid or approved equal meeting the Allison TES-295 specification.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

✓

TRANSMISSION COOLER

The apparatus transmission will be equipped with a Liquid-To-Liquid remote mounted cooler with aluminum internal components. The cooler will be encased in an aluminum housing and mounted to the outside of the officer's side frame rail for accessibility and ease of service.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

✓

MISCELLANEOUS CHASSIS EQUIPMENT

- Fluid capacity plate affixed below driver's seat.
- Chassis filter part number plate affixed below driver's seat.
- Maximum rated tire speed plaque near driver.
- Tire pressure label near each wheel location.
- Cab occupancy capacity label affixed next to transmission shifter.
- Do not wear helmet while riding plaque for each seating position.
- NFPA compliant seat belt and standing warning plates provided.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

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FIRE PUMP HALE QMAX-2000

Fire pump will be midship mounted. The fire pump will be of the double suction single stage centrifugal type, carefully designed in accordance with good modern practice.

The pump will be of fine grain alloy cast iron, with a minimum tensile strength of 30,000 PSI.

The pump body will be horizontally split, on a single plane, casing type with removable lower casing for easy removal of the entire impeller assembly including wear rings and bearings from beneath the pump without disturbing piping or the mounting of the pump in the chassis.

All moving parts in contact with water will be of high quality bronze or stainless steel. Easily replaceable bronze labyrinth wear rings will be provided. Discharge passage will be designed to accomplish uniform pressure readings as the actual pump pressure. The rated capacity of the fire pump will be 2000 gallons per minute in accordance with NFPA# 1901.

The pump shaft will be rigidly supported by three bearings for a minimum deflection. One high lead bronze sleeve bearing will be located immediately adjacent to the impeller (on side opposite the drive unit). The sleeve bearing will be lubricated by a force fed, automatic lubrication system, pressure balanced to exclude foreign material. The remaining bearings will be heavy-duty type, deep groove ball bearings in the gearbox and they will be splash lubricated.

The pump shaft will have only one packing gland located on the inlet side of the pump. It will be of split design for ease of repacking. The packing gland must be a full circle threaded design to exert uniform pressure on the packing to prevent "cocking" and uneven packing load when it is tightened. It will be easily adjustable by hand with a rod or screwdriver and requiring no special tools or wrenches. The packing rings will be of a unique combination of braided graphite filament and braided synthetic packing and have sacrificial zinc foil separators to protect the pump shaft from galvanic corrosion.

PUMP TRANSFER CASE

The drive unit will be designed of ample capacity for lubricating reserve and to maintain the proper operating temperature. Pump drive unit will be of sufficient size to withstand up



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to 16,000 lbs. ft. torque of the engine in both road and pump operating conditions.

The gearbox drive shafts will be heat-treated chrome nickel steel. Input and output shafts will be at least 2-3/4" in diameter. They will withstand the full torque of the engine in both road and pump operating conditions.

The engagement of the pump transmission will be of such design so as to permit transfer of power from road to pump operation only after vehicle is completely stopped. The pump shift will be air actuated from the cab and have both a green "Pump Engaged" light, and a green "O.K.-To-Pump" light. a third green light will be provided on the pump operator's panel for "Throttle Ready".

The pump drive unit will be cast and completely manufactured and tested at the pump manufacturer's factory.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

PRIMING SYSTEM

The priming pump will be a Trident Emergency Products compressed air powered, high efficiency, multi-stage, venturi based AirPrime System. All wetted metallic parts of the priming system are to be of brass and stainless steel construction. A single panel mounted control will activate the priming pump and open the priming valve to the pump. The priming system will have a five year warranty.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

PUMP CERTIFICATION

The pump, when dry, will be capable of taking suction and discharging water in compliance with NFPA #1901 chapter 14. The pump will be tested by National Testing and will deliver the percentages of rated capacities at pressures indicated below:

- 100% of rated capacity @ 150 PSI net pump pressure.
- 70% of rated capacity @ 200 PSI net pump pressure.



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50% of rated capacity @ 250 PSI net pump pressure.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

THREAD TERMINATION

National Standard Thread will terminate the inlets and outlets of the apparatus.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

MANUAL RELIEF VALVE HALE QG

The pressure control will be a fully automatic device, which will provide precise pressure control to protect nozzle operators from sudden pressure rises by keeping even discharge flow to each open outlet in accordance with the desired pressure. The pressure selector wheel will incorporate an indicator light system telling the operator when the valve is functioning. In the event of relief valve failure the pump will remain operable for the complete range of the pump's rated capacity, without requiring the closing of any emergency or 'in case of failure' (off/on) valves.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

HAND THROTTLE

A Fire Research Infinity PRO model ETA400-A00 series remote hand throttle will be installed. The case and control knob will be machined from anodized aluminum, waterproof. The control knob will be 2" in diameter with a serrated grip, no mechanical stops, and have a red idle push button in the center.

The remote throttle will set the engine RPM to idle when the pump engaged interlock signal is recognized regardless of the control knob position. It will use optical technology to detect the direction and speed of the control knob when it is rotated.



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**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

✓

ENGINE STATUS CENTER

A Fire Research TachPro model TPA320-A00 engine monitoring display kit will be installed. The kit will include a display module, oil pressure sensor, audible alarm buzzer, memory module, and cables. The display module will consolidate five (5) instruments into one device. The case will be waterproof and have dimensions not to exceed 5" high by 5" wide by 3-1/4" deep.

The following continuous displays will be provided:

- Engine RPM; shown with four daylight bright LED digits more than 1/2" high, updated in 10 RPM increments
- Oil pressure; shown on an LED bar graph display in 10 psi increments
- Battery voltage; shown on an LED bar graph display
- Engine coolant temperature; shown on an LED bar graph display in 10 degree increments.

The program will support the accumulation of elapsed pump hours in a non-volatile, transferable memory module. Pump hours will be displayed at the push of a button.

The program will have self-diagnostic capabilities. It will monitor inputs and support audible and visual warning alarms for the following conditions:

- Low oil pressure alarms when engine oil pressure is less than 8 psi
- Low battery voltage alarms at 11.5 volts if engine is off or 11.8 volts if engine is running
- High battery voltage alarms at 15.6 volts
- High engine coolant temperature visual alarm at 220 °F and audio alarm at 230 °F.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

✓



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INTAKE RELIEF

There will be a Hale stainless steel intake relief valve installed on the intake side of the pump. The surplus water will be discharged away from the pump operator and terminate with Male NST hose thread. System is field adjustable.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

THERMAL RELIEF VALVE

There will be a Hale TRV-L Thermal Relief Valve supplied. The valve will automatically dump a controlled amount of water to atmosphere when the pump water exceeds 120 degrees Fahrenheit. The valve will re-set automatically. A light will be provided at the pump panel, which will illuminate when the pump reaches 120 degrees Fahrenheit to warn the operator that the pump is automatically dumping.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

AUXILIARY COOLER

An auxiliary cooler will be furnished to provide additional cooling to the engine under extreme pumping conditions. Water from the pump is to be piped to the coils of the heat exchanger allowing the engine fluid to be cooled as required.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

VALVES

All valves will be Akron Heavy-Duty swing out 8800/8600 series unless otherwise noted. The valve will have an all cast brass body with flow optimizing stainless steel ball, and dual polymer seats. The valve will be capable of dual directional flow while incorporating a self-locking ball feature using an automatic friction lock design and specially designed



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flow optimizing stainless steel ball. The valve will not require the lubrication of seats or any other internal waterway parts, and be capable of swinging out of the waterway for maintenance by the removal of six bolts. The valve will be compatible with a slow close device. This valve will be actuated using manual handles, a Rack & Sector, manual gear, or electric actuator. The manual handles will be quickly adjustable to one of eight handle positions, and require only 90 degrees travel.

VALVE WARRANTY

The valves will carry a 10-year warranty.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

PUMP CONNECTIONS

All suction and discharge lines (except pump manifolds) 1" and larger will be heavy-duty stainless steel pipe. Where vibration or chassis flexing may damage or loosen piping or where a coupling is necessary for servicing, a flexible connection will be furnished. All lines will be drained by a master drain valve or a separate drain provided at the connection. All individual drain lines for discharges will be extended with a rubber hose in order to drain below the chassis frame. All water carrying gauge lines will utilize nylon tubing.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

6" PUMP INLETS

Two 6" diameter suction ports with 6" NST male threads will be provided, one on each side of vehicle. The inlets will extend through the side pump panels and come complete with removable strainer and long handle chrome-plated cap.

2.5" RIGHT SIDE INLET

One 2.5" gated inlet valve will be provided on the right side pump panel. The valve will be supplied with chrome plate female swivel, plug, chain, and removable strainer.



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The valve will attach directly to the suction side of the pump with the valve body behind the pump panel.

2.5" LEFT SIDE INLET

One 2.5" gated inlet valve will be provided on the left side pump panel. The valve will be supplied with chrome plate female swivel, plug, chain, and removable strainer.

The valve will attach directly to the suction side of the pump with the valve body behind the pump panel.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

_____ ✓

TANK TO PUMP

The booster tank will be connected to the intake side of the pump with a 1/4 turn 3" full flow valve with check valve, with the remote control located at the operator's panel. The 3" tank to pump line will run from a bottom sump into the 3" valve. To prevent damage due to chassis flexing or vibration, a short 3" flexible rubber hose coupling will be used to connect the tank to the intake valve.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

_____ ✓

OUTLETS

The discharge valves will be an inline Tork-Lock constructed of brass and be of the quarter turn type of fixed pivot design to allow for ease of operation at all pressures. The valves will be controlled from the operator's panel and will be equipped with swing type locking handles. Each valve will be supplied with 2-1/2" National Standard Threads and come with chrome plated female caps and chains. 2-1/2" or larger discharge outlet will be supplied with a 3/4" quarter turn drain valve located at the outlet. All 2-1/2" and larger discharges will be supplied with a 30 degree angle down elbow.



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3.00" LEFT SIDE DISCHARGES

Two (2) 3.00" gated discharges will be located on the left side pump panel. The valves will be of the quarter turn tork-lok ball type of fixed pivot design to allow for ease of operation at all pressures. The valve will be connected to the discharge side of the pump with the valve bodies behind the pump panel. A chrome swing type handle located on the pump operator's panel will control each side discharge. The piping will terminated in a 3" x 2.5" 30 deg. elbow. A 2.5" cap with chain will also be provided.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

3.00" RIGHT SIDE DISCHARGES

Two (2) 3.00" gated discharges will be located on the right side pump panel. The valves will be of the quarter turn tork-lok ball type of fixed pivot design to allow for ease of operation at all pressures. The valves will be connected to the discharge side of the pump with the valve bodies behind the pump panel. A chrome swing type handle located on the pump operator's panel will each right side discharge. The piping will terminated in a 3" x 2.5" 30 deg. elbow. A 2.5" cap with chain will also be provided.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

4" OUTLET

A Hale Maxflow 4" electric valve will be provided on the right side pump panel. The valve will be controlled at the pump operator's panel.

ADAPTER

There will be a 4" NST swivel female x 5" Storz adapter with cap and chain on the right side 4" discharge.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:

✓



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BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

3" OUTLET LEFT REAR

There will be a 3" gated outlet piped to the left rear hose bed. The outlet will be installed with proper clearance for spanner wrenches or adapters. Plumbing will be 3" piping and a full flow 3" ball valve with the control at the pump operator's panel. The piping will terminated in a 3" x 2.5" 30 deg. elbow. A 2.5" cap with chain will also be provided.

3" REAR OUTLET RIGHT REAR

There will be two (2) 3" gated outlets piped to the right rear hose bed. The outlets will be installed with proper clearance for spanner wrenches or adapters. Plumbing will be 3" piping and a full flow 3" ball valve with the control at the pump operator's panel. The piping will terminated in a 3" x 2.5" 30 deg. elbow. A 2.5" cap with chain will also be provided.

ABOVE SECTION BID EXACTLY AS WRITTEN: _____
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

DISCHARGE ADAPTER

A 2.5" x 1.5" adapter with cap will be provided for outboard discharge.

ABOVE SECTION BID EXACTLY AS WRITTEN: _____
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____

FRONT BUMPER DISCHARGE

A 2.5" discharge swivel with 3" plumbing will be provided at the front bumper. The valve will be remote controlled at the pump panel.

ABOVE SECTION BID EXACTLY AS WRITTEN: _____
SECTION NOT PROVIDED: _____
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION: _____



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DELUGE RISER

A 3" deluge riser will be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping will be rigidly braced. The riser will be gated and controlled from the pump operators panel.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

MONITOR

There will be an Akron Apollo Model 3433 High Rise removable monitor provided and mounted on the deluge riser. The monitor will be capable of elevating 24" above the base. Quad stacked tips; stream shaper and portable base with two (2) - 2.5" fittings will also be provided.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

AKRON FOAM NOZZLE

An Akron Model 4475 foam nozzle with pick up tube will be provided. The pickup tube and nozzle will be equipped with camlock fittings.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

FOAM NOZZLE PICK UP TUBE

A foam pick up tube with matching cam lock fittings will be hard piped in the vicinity of the deck gun riser directly to the foam tank.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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SPEEDLAYS

Two (2) speedlays will be provided under the top mount console. The piping and valves will be 2", the swivel will be 1.5". The valves will be the "drop-out" style, push/pull controlled from the pump panel. Each compartment will hold 200 ft. of 1.75" double jacket hose. Both beds will be of the same dimension.

SPEEDLAY COVER

A net cover will be provided to enclose the ends of the speedlays.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

TANK FILL

A 2" tank fill line will be provided, using a quarter turn full flow ball valve controlled from the pump operator's panel.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

FOAM TANK

There will be a 65-gallon foam tank. The tank will be part of the main booster tank. There will be a 3" PVC fill tower and cap and a tank vent. There will be a 1-1/2" flanged outlet and drain valve at the lowest point in the tank.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

✓

DISCHARGE EDUCTOR FOAM SYSTEM

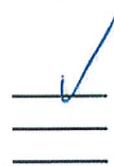
There shall be an Akron Model 3126 125 gpm By-Pass Eductor installed in the front bumper discharge piping. The system shall come complete with a combination instruction



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plate and a 0-1-2-3-6% metering valve, as well as all necessary valves and check valves to properly flush the system.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**



PUMP OPERATOR'S TOP MOUNT CONTROL PANEL

The pump operators panel will be a top mount control type located forward of the apparatus body. The operator's panel will be positioned and designed to provide full 360° visibility for the pump operator. The operator will face the rear of the apparatus to operate the controls.

The panels will be constructed of brushed stainless steel for maximum protection against abrasion caused during normal use. The panel will be constructed in a manner to have two geometric planes. The lower more horizontal will hold the valve control levers and the upper more vertical will house the gauges. The panel will be hinged to pivot for easy access.

A full-width lightbar will be provided over the panel, hinged for quick access to the gauges.

Access doors will be provided on each side of the body to allow entrance into the pump area.

ESCUTCHEON PLATES

The pump panel will be equipped with color-coded removable escutcheon plates around the suction and discharge valves.

TOP MOUNT VALVE CONTROLS

The apparatus pump panel will be equipped with Innovative Controls Top Mount Valve Controls for valve actuation. The ergonomically designed grip-activated T-handles will be chrome-plated zinc with recessed UV-resistant labels for color-coding and verbiage. The patented spring-loaded handle and control rod assembly will open and close valves when the user simply squeezes the T-handle and pivots the rod. When the T-handle grip is released, the valve control will lock at the desired position automatically to eliminate valve drift. No secondary manual tightening method will be required.



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Triple Combination Pumper**

A robust die cast and chrome-plated pivot arm with a brass bushing will house the internal locking mechanism protecting it from environmental hazards. Galvanized linkage from the T-handle to the valve will ensure long-term smooth valve control operation and never require lubrication.

The valve control handles will mount to sections of decorative clear anodized aluminum extrusion, designed to evenly space the handles and provide a secure mount for the handle's pivot rod. All valve controls will have the corresponding discharge gauge located immediately adjacent to the control handle to allow operator to view the discharge pressure without searching the panel.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

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WALKWAY

A walkway will be provided behind the cab forward of the pump module. The walkway will be a minimum of 23" wide accessible from both sides of the apparatus. The walkway surface will be constructed of .188 serrated aluminum diamond plate adequately reinforced with 1.5" x 3" x .25" T-6061 aluminum alloy extruded channel. The back exterior wall of cab will be covered with diamond plate for maximum protection against abrasion caused during normal use.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

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PUMP MODULE FRAMEWORK & PUMP FINISH

The pump module framework and the fire pump will be painted to match the primary body color. All fittings, pipe ends and valve ends will be properly taped off prior to applying paint. The paint finish will be applied before the installation of any wiring, gauge lines, valve linkages, or operator's panel. The paint will be the same material used for the finished body and cab.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

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RUNNING BOARD TROUGH

A trough will be provided in the left and right side running board to hold a 15-foot length of 5" hose. Velcro straps will be provided to secure the hose.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

WALKWAY COMPARTMENTS

A compartment will be provided each side under the top mount pump control walkway. The compartment dimension will be approximately 12" tall x 16" deep x 24" wide. The compartment will be equipped with a hinged door and D-ring latch.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

BACKBOARD STORAGE

An area below the top mount walkway will be provided for the storage of two (2) backboards. A drop down door with a latch will be provided on the driver's side.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

PUMP PANEL LIGHTING, LED

The pump panel controls and gauges will be illuminated by a full width LED light strip.

Each side pump panel will be illuminated by a minimum of three (3) Weldon model #2030 lights. The lights will be mounted in hood directly above the pump panel. A switch located on the pump panel will activate the lights.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:



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BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



PUMP PANEL GAUGES AND CONTROLS

The following gauges and controls will be provided at the pump panel:

- Two (2) certified laboratory test gauge outlets.
- Pump primer control.
- Master drain control and additional drains as needed.
- Tank-fill and pump cooler valve controls.
- Tank to pump valve control.
- Pump capacity rating plate.
- All discharge controls.
- Two (2) master pump gauges.
- Gauges on all 1-1/2" and larger discharge lines.

COLOR CODING

Each discharge valve control, outlet, and corresponding line gauge will be color-coded.

4" MASTER GAUGES

NoShok liquid filled pump pressure and vacuum gauges will be provided. The gauges will be 4" in diameter with white faces and black lettering. The gauges will have a pressure range of 30"-0-400 psi.

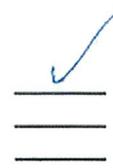
2.5" PRESSURE GAUGES

NoShok liquid filled individual line pressure gauges will be provided. The gauges will be 2.5" in diameter with white faces and black lettering. The gauges will have a pressure range of 0-400 psi.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:





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WATER TANK GAUGE

An Innovative Controls weather proof encapsulated (14) super bright LED light indicator will monitor the water tank level and will be mounted on the pump operator's panel. The fourteen LED lights are arranged in a "V" pattern for easy identification of liquid level. When the liquid level reaches less than a 1/4 full the refill level begins to flash. The tank-sensing probe will be chemical resistant PVC with stainless steel sensing wires. The cover plate will be aluminum sub-plate, black background and blue graphics, with an outdoor exposure rated composite overlay.

FOAM TANK GAUGE

An Innovative Controls weather proof encapsulated (14) super bright LED light indicator will monitor the foam tank level and will be mounted on the pump operator's panel. The fourteen LED lights are arranged in a "V" pattern for easy identification of liquid level. When the liquid level reaches less than a 1/4 full the refill level begins to flash. The tank-sensing probe will be chemical resistant PVC with stainless steel sensing wires. The cover plate will be aluminum sub-plate, black background and red graphics, with an outdoor exposure rated composite overlay.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

PUMP COMPARTMENT HEATER

A heater will be provided to heat the in the pump compartment. The heater will use water from the water manifold located of the right side of the engine. The manifold will have a dedicated valve to turn the water on or off for maintenance or during warm weather conditions. Hot air radiated from the unit will be distributed through the pump compartment by a 12-volt fan activated by a switch located on the pump operator's panel.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

AIR OUTLET

One (1) air chuck will be provided adjacent to the pump operator's panel on the left side.



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The system will tie into the wet tank of the brake system and include an 85-psi pressure protection valve in the outlet line to prevent the brake system from losing all air. A 25 ft. air hose will be provided.

Note: Purchaser to specify type of hose fitting.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

BODY SUB-FRAME

The chassis will be fitted with a sub-frame system consisting of a series of steel plate gusseted legs, extending down and out from the chassis frame rails on each side. This system will provide additional structural support to the running boards and side compartments. A heavy-duty rear platform will be constructed of the same material to support the rear compartments and rear step. The entire assembly will be attached to the chassis frame by a series of heavy-duty U-bolts. Self-supporting bodies will not be acceptable. **NO EXCEPTIONS**

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

APPARATUS BODY

The body will be constructed of 3/16" #5052 aluminum sheet, #3003 bright aluminum diamond plate and structural aluminum extrusions. The body will be of the modular design to allow for proper flexing of the truck chassis. The body will be custom built and engineered for proper load distribution on the chassis. An insulator material will be used where aluminum and steel are in contact to prevent corrosion.

The ceilings, sidewalls and floors of the body compartments will be constructed of 3/16" 5052-H32 smooth aluminum plate with a tensile strength range of 32,000 to 44,000 psi. Continuous 5356 fill welding will seal compartment panels.

The body framework will be constructed of custom-designed aluminum alloy 6063-T5 extrusions with a tensile strength of 35,000 psi.



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To eliminate "dead space" and to maximize compartment interior space, there will be no more than 1/4" between outer and inner walls.

The compartment extrusions will be slotted full-length on backside for uniform fitting of the aluminum plate work that forms the compartment interiors.

The aluminum extrusion profiles will incorporate 1" x 1-3/4" recessed continuous door seal at the bottom of the compartment. The extrusions will be designed to allow unobstructed, sweep-out floors in all compartments.

The front, top, and rear surfaces of body will be covered with .125" bright aluminum diamond treadplate. The forward and rear recessed surfaces will be flush with the corner extrusions.

The compartment tops will extend downward over the extrusions and form a drip molding. The material will be .125 aluminum treadplate with approved aerated service for walking.

The compartment assemblies are to be fastened to the sub-frame with mechanical Huck-type bolts.

The apparatus body will be a separate module from the pump enclosure and will not be fastened together in any manner.

Each compartment will be properly vented with louvers.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

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REAR STEP COMPARTMENTATION

A1- There will be a compartment provided at the rear step. The compartment will be approximately 39" wide x 40" high x 27-1/2" deep inside. The compartment will be provided with a roll-up door.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

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COMPARTMENTATION LEFT SIDE

- L1- There will be a compartment, ahead of the rear wheels approximately 36" wide x 66" high x 27-1/4" deep inside in the lower half, and 10 1/2" deep in the upper half.
- L2- There will be a compartment above rear wheel approximately 61-1/2" wide x 36-1/2" high x 10 1/2" deep inside.
- L3- There will be a compartment behind the rear wheels approximately 48" wide x 66" high x 27-1/4" deep inside in the lower half, and 10 1/2" deep in the upper half.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

COMPARTMENTATION RIGHT SIDE

- R1- There will be a compartment ahead of the rear wheels approximately 36" wide x 66" high x 27-1/4" deep inside in the lower half, and 10 1/2" deep in the upper half.
- R2- There will be a compartment above rear wheels approximately 61-1/2" wide x 36-1/2" high x 10 1/2" deep.
- R3- There will be a compartment behind the rear wheels approximately 48" wide x 60" high x 27-1/4" deep inside in the lower half, and 10 1/2" deep in the upper half.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

ROLL-UP COMPARTMENT DOORS

The apparatus body will be equipped with R.O.M Robinson Shutter doors. The door slats will be double wall box frame, manufactured from anodized aluminum with a satin finish. The doors will have the following features:

- Manufactured wholly in the United States.
- Concave individual slat design to prevent loose equipment from hindering door



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operation.

- Co-Extruded stretch resistant inner seal between slats to prevent metal-to-metal contact and inhibit moisture and dust penetration.
- Interlocking swaged/dimpled end shoes will be utilized to provide a tight fitting assembly and allow for easy removal in the event of damage.
- Effective counter balancing for ease of lifting and lowering the doors.
- One-piece side rail and track to provide an unobstructed slide area and reduce the risk of binding.
- Non-abrasive replaceable water and dust barrier to keep compartment equipment clean and dry.
- A magnetic type switch integral to the door will be supplied for door ajar indication and compartment light activation.
- A full width positive latch bar will be operable with one hand, even with heavy gloves.

A door open indicator light will be provided in the cab.

A 3M clear protective material will be provided along the outer edge of the compartment floor to protect this area from scratches that could occur when installing or removing equipment from the compartments.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

SCBA CYLINDER COMPARTMENTS

There will be four (4) spare breathing air cylinder compartments recessed in the rear fender wells, two (2) left and two (2) right. The compartments will have brushed stainless doors equipped with a weather resistant flush fitting thumb latch. The interior of the door will incorporate a rubber seal to keep the compartment free of road debris and moisture. The interior compartment will be constructed of a high-density polyethylene plastic.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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ADJUSTABLE SHELF

There will be a total of six (6) adjustable shelves provided and installed in the specified compartments. The shelves will be fabricated of .188" aluminum plate. The shelves will be located in the following locations: (1) L1 upper, (2) L3 lower. (1) R1 lower, (1) R3 lower, rear.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

ADJUSTABLE ROLLOUT DRAWER

There will be a total of three (3) 250 lb. capacity rollout drawers supplied and installed in the specified compartments. The drawers will be approximately 3" deep and will be mounted on adjustable tracks. The drawers will be installed in the following compartments: L1, R1, R3.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

600# SLIDE-MASTER TRAY

There will be a total of five (5) Slide-Master pullout drawers provided and installed. The drawers will have a distributed load capacity of 600 lbs. and be capable of extending 70% of its depth. The trays will be fabricated of .188" aluminum plate and have a formed lip that measures 2". The drawers shall be located on the floor of the following compartments: L1, L3, R1, R3, A1.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

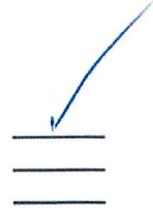
UNISTRUT

Each compartment will come equipped with 1.625" x .875" x .125" aluminum Unistrut channel. The Unistrut will be securely fastened to the interior walls of the compartment.



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**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**



COMPARTMENT EQUIPMENT MOUNTING LAYOUT

The following list shall be used to ensure the apparatus compartment equipment layout match those of the existing fleet. The exact configuration will be determined prior to final delivery. Provisions shall be made to mount the following equipment in each compartment:

COMPARTMENT L1

- Two (2) Zico SCBA Bottle Brackets
- One (1) 2.5" Ball Shut Off
- Two (2) 1.5" Ball Shut Off
- One (1) Spanner Wrench Set
- One (1) LDH Spanner Wrench Set
- Two (2) Sensible Products Quick Lock 2.5" Double Male
- Two (2) Sensible Products Quick Lock 2.5" Double Female
- One (1) 2.5" F to M Garden Hose Thread
- Two (2) 4" -5" Sensible Products Storz Mounts
- One (1) Sensible Products Rubber Mallet Mount
- One (1) Misc Item Tool Box
- One (1) Hydrant Wrench
- One (1) Drivers Gear Box
- One (1) Sprinkler Shut Off Tool
- One (1) Caution Tape Roll
- One (1) Axe

COMPARTMENT L2

- Six (6) Sensible Products Nozzle Mounts for the following:
 - Four (4) Fog Nozzles
 - One (1) Foam Nozzle
 - One (1) Cellar Nozzle
- Two (2) Tool Mounting Straps



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COMPARTMENT L3

Traffic Cones

One (1) Sensible Products Tool Board

One (1) Pipe Wrench

One (1) Mini Haligen Bar

One (1) K- Tool

One (1) Small Hose Clamp

One (1) Dewalt Cordless Drill

One (1) Dewalt Cordless Reciprocating Saw

One (1) Dewalt electric Reciprocating Saw

One (1) Cooler

One (1) Storage box behind cones

COMPARTMENT R1

Three (3) Stream Light Vulcan

Two (2) Zico SCBA Bottle Brackets

One (1) Sensible Products Mallet Mount

One (1) Hydrant Wrench

Storage for Salvage Cover

Mail Box Style Extension Cord Storage

COMPARTMENT R2

One (1) PAC Ironslock Bracket

One (1) Pick Head Axe

One (1) TNT Tool

One (1) D- Handle tool

One (1) Sledge Hammer

One (1) Bolt Cutter

One (1) Broom

One (1) Spud Bar

COMPARTMENT R -3

One (1) Indian Can

One (1) Large Storage Box mounted behind Indian Can

Hanging Storage for ropes, cords etc.



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One (1) High Rise Pack Mounted in a Slide Out Tray

COMPARTMENT A1 REAR

- One (1) Hose Clamp
- One (1) Spanner Wrench Set
- One (1) LDH Spanner Wrench Set
- One (1) Oil Dry Bin
- One (1) Playpipe Nozzle Mount
- One (1) Akron Mercury Portable Master Stream
- One (1) Hydrant Wrench

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

HOSE BED

The hose bed will be provided with aluminum slatted flooring radiused at the edges to prevent hose damage from sharp edges. Each hose bed floor section will be removable for easy access to the water tank. the bottom of the hosebed will be no more than 65" from the rear the ground. **NO EXCEPTIONS.**

The hosebed will be designed for the following hose load (left to right):

- 250' x 2.5" double stacked, pre-connected
- 450' x 2.5" double stacked
- 1000' x 5" flat loaded
- 400' x 3" double stacked
- 200' x 2.5" single stacked, pre-connected
- 250' x 1.75" single stacked, pre-connected

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

HOSE BED DIVIDER

The hose bed will be divided by a total of five (5) 3/16" aluminum partitions that are fully adjustable by sliding in tracks located at the front and rear of the hose bed. The dividers



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will be located as needed.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

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HOSE BED COVER

There will be a black heavy duty nylon/vinyl hose bed cover for the main hose bed. The cover will be capable of being securely fastened at the front, sides and rear. The cover will be attached to the apparatus by a full width rail at the front and field replaceable bungee shock cords on the sides and rear.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

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BODY HANDRAILS

Handrails will be constructed of type 304 stainless steel 1.25 inch diameter tubing with bright finish and knurled gripping surface. Mounting flanges will be constructed from 7 gauge, .180 thick, stainless sheet. Each grab rail will have 90 degree returns to flanges. The ends of grab rail will pass through the flanges and be welded to form one structural unit. The handrails, will be mounted using 1.25" SS Hex bolts, with a barrier rubber gasket at each flange. Sufficient space will allow for a gloved hand to firmly grip the rail. The rails will be located in the following areas:

(Note: These are in addition to those previously mentioned in the cab section):

There will be one (1) vertical handrail at rear of the body one each side of the rear compartment.

There will be two (2) handrails mounted horizontally, above the pump panel, one (1) on each side as large as possible.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

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STEPS

There will be three (3) fold-down steps mounted on each side of the front face of body to provide access to the top of the pump module and dunnage area.

The rear of the body will be equipped with fixed steps. The bottom step will measure 14" x 11" to provide a stable footing position. Each additional step above will measure 14" x 8" for clearance while climbing. Thinly fabricated aluminum steps will not be utilized. Two (2) 8" x 8" cast steps will be provided on the sides of the top mount walkway.

The quantity and location of steps and handrails will meet the Current NFPA 1901 pamphlet in effect at the time the apparatus is ordered.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

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RUB RAILS

The body will be equipped with anodized aluminum channel style rub rails at the sides. Rub rails will be spaced away from the body by 1/2" polymer spacers. The rub rails will be polished to a bright finish. A rubber insert will be provided inside of the channel, and will be equipped with rubber end caps.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

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ALUMINUM TREADPLATE

All load bearing aluminum treadplate running boards will be .155 thick bright-annealed finish. Running boards and rear step edges will be flanged down for added strength. Running boards will also be flanged up to form kick plates. All non-load bearing aluminum will be .125" thick bright annealed finish. In areas where aluminum treadplate will function as a load-bearing surface, there will be a heavy steel sub-structure. This structure will consist of 3" channel and 1-1/2" angle welded support. This will assure that there will be no flexing or cracking of running boards. The aluminum will be insulated from the steel by closed cell foam body barrier material.



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Treadplate locations:

1. Skirting around front bumper.
2. The step at the cab entrance.
3. The jump seat steps.
4. The body header.
5. The running boards.
6. The rear step.
7. The top of the compartments.
8. The rear of the apparatus.

The apparatus will be equipped with an 18" tailboard.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

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REAR FENDERS STAINLESS STEEL

The rear fenders will be constructed of stainless steel, and will be left in a natural brushed finish.

REAR FENDERETTE

A polished stainless steel fenderette shall be attached to the rear fender.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

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BOOSTER TANK

The tank will have a capacity of 750 U.S. gallons.

The tank will be constructed of 1/2" thick polypropylene sheet stock. This material will be a non-corrosive stress relieved copolymer thermo-plastic. The booster tank will be of a specific configuration and is so designed to be completely independent of the body and compartments. All joints and seams will be welded and/or formed and tested for maximum strength and integrity. The top of the booster tank is fitted with removable



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lifting eyes designed with a 3 to 1 safety factor to facilitate easy removability. The transverse swash partitions will be manufactured of 3/8" polypropylene and extend from approximately 4" off the floor to just under the cover. The longitudinal swash partitions will be constructed of 3/8" polypropylene and extend from the floor of the tank through the cover to allow for positive welding and maximum integrity.

All partitions will be equipped with vent and air holes to permit movement of air and water between compartments. The partitions will be designed to provide maximum water flow. All swash partitions interlock with one another and are welded to each other as well as to the walls of the tank.

The tank will have a combination vent and manual fill tower. The fill tower will be constructed of 1/2" polypropylene and will be a minimum dimension of 8" x 8" outer perimeter. The tower will be located in the left front corner of the tank. The tower will have 1/4" thick removable polypropylene screen and a polypropylene hinged-type cover. The cover tank will be constructed of 1/2" thick polypropylene to incorporate a multi three-piece locking design which allows for individual removal and inspection if necessary.

The sump will be constructed of 1/2" polypropylene and be located in the left front quarter of the tank. The sump will have a minimum of 3" national pipe threaded outlet on the bottom for a drain plug. This will be used as a combination clean-out and drain. All tanks will have a anti-swirl plate located approximately 2" above the sump.

All tank fill couplings will be backed with flow deflectors to break up the stream of water entering the tank.

The tank will rest on the body cross members in conjunction with such additional cross members, spaced at a distance that would not allow for more than 530 square inches of unsupported area under the tank floor.

The tank will be completely removable without disturbing or dismantling the apparatus structure.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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MASTER ELECTRICAL PANEL

The main breaker panel will be wired through the master disconnect solenoid and controlled with a three-position ignition rocker switch. Circuit breakers and flashers will be located at officer's right side lower interior firewall with removable cover and schematic provided with notebook holder on outside cover.

A deluxe breaker panel with up to 22 ground switched relays with circuit breaker protection will be provided.

An integrated electrical sub-panel will be provided and interfaced to the body and chassis through an engineered wire harness system.

Twelve (12) 20-ampere and one (1) 70-ampere relay for cab lightbar and assemblies will be provided. If the option for a mechanical siren has been selected two (2) additional relays will be provided.

Additional four relay boards with circuit breaker protection for additional loads. Maximum two boards (8 relays) per breaker panel. All relay boards set up to trip with input from switch of positive-negative or load manager by moving connector on board (no tools needed to do this).

All relay boards will be equipped with a power-on indicator light (red), input indicator light (green) and power output indicator light (red).

Up to 23 additional automatic reset circuit breakers for non-switched loads that are remotely switched (ie: heater fans, hood lights, etc.).

All relays and circuit breakers on the relay boards will be pull-out/push-in replaceable.

All circuit breakers on the relay boards will be 20 ampere automatic reset which can be doubled or tripled for 40 or 60-ampere capacity.

The system will utilize Deutch DRC weather resistant connectors at the breaker panel, toe board and main dash connections.

All internal wire end terminals, including locking connectors, will be mechanically affixed to the wire ends by matching terminal crimping presses to assure the highest quality



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terminations.

All internal splices will be ultrasonically welded connections and all internal wiring will be high temperature GXL type wire that is protected by wiring duct wherever possible.

All switches will be ground controlled; no power going through any rocker switch.

Any switch controlling a relay in the breaker panel will be capable of being set to function only when the parking brake is set. All relays will be tagged with the function that the relay is controlling.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**

BODY ELECTRIC SYSTEM

All body electrical wiring in the chassis will be XLP cross link-insulated type. Wiring is to be color-coded and include function codes every three (3) inches. Wiring harnesses will be routed in protective, heat resistant loom, securely and neatly installed. Two power distribution centers will be provided in central locations for greater accessibility. The power distribution centers contain automatic thermal self-resetting breakers, power control relays, flashers, diode modules, daytime driving light module, and engine and transmission data links. All breakers and relays are utilized in circuits which amp loads are substantially lower than the respective component rating thus ensuring long component life. Power distribution centers will be composed of a system of interlocking plastic modules for ease in custom construction. The power distribution centers are function oriented. The first is to control major truck function and the second controls overhead switching and interior operations. Each module is single function coded and labeled to aid in troubleshooting. The centers also have accessory breakers and relays for future installations. All harnesses and power distribution centers will be electrically tested prior to installation to ensure the highest system reliability.

All external harness interfaces will be of a triple seal type connection to ensure a proper connection. The cab/chassis and the chassis/body connection points will be mounted in accessible locations. Complete chassis wiring schematics will be supplied with the apparatus.

The wiring harness contained on the chassis will be designed to utilize wires of stranded



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copper or copper alloy of a gauge rated to carry 125% of maximum current for which the circuit is protected without exceeding 10% voltage drop across the circuit. The wiring will be uniquely identified by color code or circuit function code, labeled at a minimum of every three (3) inches. The identification of the wiring will be referenced on a wiring diagram. All wires conform to SAEJ1127 (Battery Cable), SAEJ1128 (Low Tension Primary Cable), SAEJ1560 (Low Tension Thin Wall Primary Cable).

All harnesses will be covered with moisture resistant loom with a minimum rating of 300 Degrees Fahrenheit and a flammability rating of VW-1 as defined in UL62. The covering of jacketed cable has a minimum rating of 289 degree Fahrenheit.

All harnesses are securely installed in areas protected against heat, liquid contaminants and damage. The harness connections and terminations use a method that provides a positive mechanical and electrical connection and are in accordance to the device manufacturers instructions. No connections within the harness utilize wire nut, insulation displacement, or insulation piercing.

All circuits conform to SAE1292. All circuits are provided with low voltage over current protective devices.

These devices are readily accessible and protected against heat in excess of component rating, mechanical damage, and water spray.

Star washers are not used for ground connections.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

BACK-UP ALARM

An Ecco model SA917 automatic self-adjusting electronic back-up alarm producing 87-112 db will be installed at the rear between the frame rails. It will operate whenever the transmission's reverse gear is selected.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



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COMPARTMENT LIGHTING

Each compartment will be equipped with two (2) LED light strips which will provide a consistent pattern to illuminate to entire compartment.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

RADIO MOUNTING

Provisions shall be made for the installation of two radios. The radio details are listed in the loose equipment package listed else ware.

ANTENNA MOUNTING

Two (2) antennas to match the requirements of the radio, shall be provided and installed in the cab roof with the coax cable run to the radio mounting area. The radio location shall be determined at the pre-construction meeting.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

REAR VISION CAMERA SYSTEM

Provided and mounted on the apparatus will be a Safety Vision SV-CLCD-64 camera kit. The system will consist of one (1) cab mounted model SV-LCD68 6.8" LCD monitor, one (1) model SV-620 (Color) high resolution 1/3" CCD camera, one (1) SV-LCDCB Control Box, and one (1) SV-523 65' camera cable.

The monitor will be dash mounted in plain view of the driver.

The kit is capable of having two (2) additional cameras installed for a total of three (3).

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REAR BUZZER SYSTEM

A rear buzzer system will be provided between the rear tailboard and the cab. A momentary push button switch with a rubber boot will be mounted above each taillight assembly, and an audible buzzer will be provided near the driver.

An instruction plate will be mouted near each button and near the driver and will contain the following information.

- 1 - STOP
- 2 - GO
- 3 - BACK

ABOVE SECTION BID EXACTLY AS WRITTEN:
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TAIL/STOP/TURN/BACKUP LIGHTS

The taillights are to be Whelen 600 LED style. The brake/tail lights to be red and exceed SAE requirements. The turn signal will be populated in an arrow pattern, amber in color. The backup lights will also be LED. One opening will be open to accept a 600 series warning light.

ABOVE SECTION BID EXACTLY AS WRITTEN:
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BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

LED ICC/MARKER LIGHTS

LED type ICC/marker lights will be provided to meet D.O.T. requirements.

LICENSE PLATE BRACKET

A license plate bracket will be provided at the rear of the apparatus. A Cast Products LED light will be mounted directly above the license plate area for proper illumination.



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STEP LIGHTS

The pump module running board area will be illuminated by Whelen 2G 4" diameter LED lights mounted one each side on the front of the body in chrome flanges.

One Weldon 2631 LED will be mounted under each step on the rear of the body to illuminate the tailboard and the steps.

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GROUND LIGHTING

The apparatus will be equipped with lighting capable of illumination to meet NFPA requirements. Lighting will be provided at areas under the driver and crew riding area exits and will be automatically activated when the exit doors are opened. The ground lights will be Truck-lite® LED model #44042C. Lighting required in other areas such as work areas, steps and walkways will be activated when the parking brake is applied, provided the ICC lights are on.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
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12 VOLT SCENE LIGHTS

A total of two (2) pair of Whelen 900 LED scenelights will be installed in polished housings as specified. The lights will have 24 Super LEDs. A light will be installed in the following locations: One (1) each side in the raised roof portion of the cab, facing outboard. One (1) each side, at the rear of the body facing rearward.

The lights will be wired to separate switches on the cab dash labeled: Right Scene, Left Scene, and Rear Scene. The rear lights will also be wired to the reverse lights.



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OPTICAL WARNING SYSTEM

The optical warning system will be capable of two separate signaling modes during emergency operations. One mode will signal to drivers and pedestrians that the apparatus is responding to an emergency and is calling for the right-of-way and the other mode will signal that the apparatus is stopped and is blocking the right-of-way. Switching will be provided that senses the position of the parking brake.

A master optical warning device switch will be provided to energize all of the optical warning devices provided. All lights will operate at not less than the minimum flash rate per minute as specified by NFPA.

UPPER LEVEL WARNING DEVICES

The upper level is divided into zones A, B, C and D and the approved lighting package to be provided will be as follows:

Zone A (front) will have one (1) Whelen Freedom 72" Model FN72QLED NFPA 1901 compliant light bar, with twelve (12) LED modules. The light bar will have ten (10) red LED and two (2) clear LED heads and will be mounted on the cab roof.

Zone B (right side) will be covered by the module from the light bar and the right rear stanchion beacon.

Zone C (rear) will have two (2) Whelen Model Whelen B6MM LED red, mounted on rear stanchions.

Zone D (left side) will be covered by the module from the light bar and the left rear stanchion beacon.

LOWER LEVEL WARNING DEVICES

The lower level is divided into zones A, B, C and D and the approved lighting package to be provided will be as follows:



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Zone A (front) will have a stainless steel warning light housing each side with two (2) Whelen 600 Super LED red lights mounted in the front of each housing. There will Two (2) Whelen Model 600 Series Super LED red lights mounted, inboard below the headlights.

Zone B (right side) will have four (4) Whelen 600 Series Super LED red lights mounted one (1) on the side of the headlight housing, one (1) on the side of the bumper extension (split lens red/white), one (1) on the side of the cab up high, below the scene light, and one on the body side at rear fender of apparatus. An additional Whelen TIR 3 red LED light will be mounted on the rear body corner.

Zone C (rear) will have four (4) Whelen 600 Series Super LED, red lights mounted two (2) each side of the rear of the apparatus.

Zone D (left side) will have four (4) Whelen 600 Series Super LED red lights mounted one (1) on the side of the headlight housing, one (1) on the side of the bumper extension (split lens red/white), one (1) on the side of the cab up high, below the scene light, and one on the body side at rear fender of apparatus. An additional Whelen TIR 3 red LED light will be mounted on the rear body corner.

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TRAFFIC ADVISOR

A Whelen LED TAL85 Split Traffic Advisor with a TACTRL1 Control Head will be provided. The lamp group is in a cap style extruded aluminum housing with black powder painted finish and surface mounted to eliminate large body panel cutouts. The high intensity LED's are rated for over 100,000 hours of operation and have extremely low current consumption. The Control Head has a four function rotary switch for selection of: center to left, center to right, center to left and right, or flash patterns. The dip switch on the rear panel selects the choice of eight (8) different programmable flash patterns. The Control Head features a visual LED status display.

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FEDERAL Q2B SIREN

There will be a Federal Q2B-NN siren installed in the center of the cab grille. The siren will be securely mounted and activated by means of a solenoid and will include a brake.

A siren foot switch will be provided for both the driver and officer, one on each side of the cab floor.

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SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

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FEDERAL E-Q2B SIREN

There will be a Federal e-Q2B 200 watt siren and digital output control head with a BP -200 watt speaker mounted behind the grille.

The siren will be wired to the horn button. A rocker switch on the dash will toggle the horn ring between air horns and the siren.

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GENERATOR

The apparatus shall be equipped with a complete electrical power generation system.

A Harrison hydraulic 10.0 KW generator model MAS – 16R/5A shall be provided and installed. The generator and wiring shall conform to present National Electric Codes as outlined in the National Fire Protection Association Standards.

The output of the generator shall be controlled by an internal hydraulic system. An electrical instrument gauge panel shall be provided for the operator to monitor and control all electrical operations and output. The generator shall be powered by a transmission power take off unit, through a hydraulic pump and motor. The generator shall be operable anytime that the apparatus engine is running and meeting the minimum range of 900 RPM's.



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Height	14"
Width	24"
Depth	18"
Weight	273
Max kW	10.0
AMPS@120V	80
AMPS@240V	40
HP Required	20
Torque Required	82.9
Maximum Pressure	2800 psi

ABOVE SECTION BID EXACTLY AS WRITTEN:
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BREAKER BOX

A circuit breaker box will be provided with sixteen (16) spaces for breakers which will be provided as needed. All wiring will be installed in liquid tight conduit. The panel will be located on the front wall of compartment L1.

ABOVE SECTION BID EXACTLY AS WRITTEN:
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120-VOLT OUTLET

A total of two (2) 120-volt outlets with weatherproof covers will be provided. The outlets will be located one (1) in each EMS cabinet.

The outlets will be marked GENERATOR.

ABOVE SECTION BID EXACTLY AS WRITTEN:
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SHORE POWER

A shore power connection will be provided with two (2) 110-volt outlets. The outlets will



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be located one (1) in each EMS cabinet.

The outlets will be marked SHORE POWER.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
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WHELEN PIONEER PLUS LED BROW LIGHT

A Whelen model PFP2 120V LED brow light will be provided. The light will be mounted at the front of the cab.

The light will be controlled from a switch in the cab.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
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LED LIGHT WHELEN PIONEER FIX MOUNT

A total of two (2) Whelen Model PFP2 120V Pioneer Plus Dual Panel LED floodlights will be provided. The light will be housed in a heavy-duty aluminum housing.

The light will be fixed mounted, one (1) each side of the body facing outboard, on a KR-SB-600 mount. A switch will be located at the light head. Each light will be wired to an individual breaker .

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LED LIGHT WHELEN PIONEER TELESCOPING

A total of two Whelen Model PFP2 Pioneer Plus Dual Panel 120V LED floodlights will be provided. The lights will be housed in a heavy-duty aluminum housing.

The lights will be mounted on a telescoping pole, one each side at the back of the cab. A switch will be located at the light head. Each light will be wired to an individual breaker.



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**ABOVE SECTION BID EXACTLY AS WRITTEN:
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CORD REEL

There will be a Hannay Model ECR1616-17-18/4 electric rewind, four (4)-conductor cable reel furnished and mounted in the dunnage area, right side. The reel will come complete with 200 feet of 10/4 Seoprene Water-resistant (SOW) yellow jacketed cable. A Hannay Type "C" roller assembly and HS-3 cable stop ball will be provided, on the right side pump access door.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
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FOUR WAY RECEPTACLE

An Akron (GFE) four-way receptacle box with light will be provided and hard wired to the end of the cable. The box will be securely mounted in the immediate area of the cord reel. The mounting will be a fabricated aluminum bracket equipped with a Velcro strap to secure the box. The box will be mounted on the pump panel access door, right side. The junction box will have the following outlets provided: Two (2) 120v 20 amp household, One L20R twistlock, and one (1) 240V L14 20R.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
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GROUND LADDERS

The apparatus will be equipped with heavy duty, box type "I" beam rail, ground ladders. The ladders will meet the requirements of NFPA 1931 to ensure proper design and that sufficient strength is available for the service intended. The ground ladders will be constructed of aluminum with non-welded, field replaceable rung to rail connections to simplify field repairs and removable plated steel butt spurs for added strength. A full 1/2", non-rotting, poly rope will be provided for easy ladder operation.



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One (1) Alco-Lite PEL-24 24 ft. two-section aluminum extension ladder.

One (1) Alco-Lite PRL-14 14 ft. aluminum roof ladder.

One (1) Alco-Lite FL-10' 10 ft. folding ladder.

The ladders will have lifetime Warranty against manufacturing defects.

ABOVE SECTION BID EXACTLY AS WRITTEN:
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LITTLE GIANT LADDER

One (1) 13-foot Little Giant ladder shall be provided, and mounted on the ladder rack with the other ground ladders.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
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ZIAMATIC QUIC-LIFT LADDER RACK

The ground ladders will be mounted on a Ziamatic electric ladder rack system so that they may be automatically lowered to a convenient height for safe and easy removal. The rack will be made of high strength lightweight cast aluminum and be powered by two high cycle electric actuators and will be self-locking in any position. The rack will be capable of lowering the ladders approximately 31" from their stored position.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
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PIKE POLE & FOLDING LADDER MOUNTING

Provisions will be provided to mount two (2) pike poles, and a folding ladder to the ladder rack.



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SUCTION HOSE AND STRAINER

Two (2) 10 ft. lengths of 6" lightweight (KOCHEK) fire department hard suction hose with lightweight long handle couplings and rocker lug male couplings will be provided.

The hose will be mounted in V-shaped troughs and held in position by two heavy-duty quick release straps. Aluminum treadplate scuff plates will be provided on the body side metal where the long handle couplings would otherwise hit the body sides.

A six-inch barrel strainer will be provided.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
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CORROSION REDUCTION POLICY

The manufacturer will have in place a formal corrosion reduction program and assembly procedures designed for reducing and eliminating the possibility of corrosion. It is understood that fire apparatus will operate in harsh environments. At the time of the bid the apparatus manufacturer will show proof of a corrosion policy. Failure to submit this information could be grounds for rejection. If a formal policy is not in place explain in your bid how your firm will take the necessary steps for corrosion reduction. There will be no exception to this requirement.

In addition to a formal program the manufacture will show proof of testing corrosion reduction processes to ASTM B117. A copy of recent test will be included in the bid.

Frame Rails

The chassis frame rails will be coated with a high performance, two component, reinforced inorganic zinc rich primer with a proven cathodic protection makeup preferably Cathacoat 302HB. The surface will be clean and free of all salts, chalk and oils prior to application. Were the primer has been broken during the frame assembly process the area will be touch up to reestablish the seal. Prior to finish paint a second primer Devran 201 will be applied. Once the assembly of the frame is complete and the second primer



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is applied the entire assembly will be covered with high quality top coat paint preferably Imron 5000 or equal. The manufacturer will submit with the bid a copy of the product brochure and or description of the primer to be used.

Electro Plating

Steel and Iron brackets such as the pump module bracket will be Zinc plated to protect against corrosion. Plating will be in accordance with ASTM B663. The apparatus manufacturer will list all components with plating.

Fasteners

In any area that a stainless steel screw or bolt head is to come in contact with aluminum or steel, painted or non-painted, the fastener will have the underside if the head pre-coated with nylon. The nylon coating will act as a barrier between the fastener head and the metal or painted surface.

Screw or bolt taped into the metal will be pre-coated with a Threadlocker type material pre-applied on the threads.

When bolting together stainless steel the manufacturer will use a pan-head bolt with nylon coating under the head, a stainless washer with a rubber backing, and a Stover flange nut to secure the bolt.

When mounting aluminum components such as a step to the apparatus body. The manufacturer will use stainless washers with rubber backing. All mounted components will a barrier material between the two surfaces.

All rivet type fasteners will be of the same material being secured.

Whenever possible, pre-drill and tap all holes for mounting components such as lights, steps and hand rails prior to the paint process to reduce the corrosion opportunity. If a hole must be drilled into a previously painted surface, re-establish the paint barrier around the hole and use a flange-type nutsert with a gasket under the flange.

Where possible, minimize the number of stainless trim screws in aluminum. Structural tape and or adhesive will be used were possible for mounting trim to the body or cab.

If a pre-treated screw or bolt is not available, hand apply Dynatex Boltlocker or Theadlocker on the threads of the screw, bolt or nutsert. This will help seal threads from moisture and help prevent the fasteners from loosening.



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If lubricant is used when tapping the hole, clean out the lubricant and the shavings before applying blue Threadlocker into the hole.

Barrier Tape

Barrier tape will be used on the backsides of all lights, trim pieces, or other components when bolting them to the apparatus; also when attaching stainless steel over an aluminum surface or when attaching aluminum treadplate to the stainless steel. All instances of dis-similar metals contacting each other require the addition of barrier tape between the metals where contact is made.

Before applying the tape, be sure the metal surface is clean from oil or dirt by cleaning the surface with a 50/50 mix of alcohol and water or similar solvent.

Gaskets

Gaskets will be used under all snaps, loops and fasteners for such items as for hose bed covers. Reestablish paint seal around the mounting hole edges after drilling.

Mounting with Threadlocker coating will be used.

Flat washers with rubber backing will be used behind all lights that have stainless screws.

Rollup Doors

1 3/4" X 1/16" barrier tape will be used on the frame opening to act as barrier between the aluminum door rail and the painted door opening surface.

Use a paint stick around the holes after drilling and tapping. In mounting the rails, use screws with the nylon under the head and Threadlocker on the threads for mounting the doorframes.

Install barrier tape to the painted surface where the trim is located on top of the door opening.

Hinged Doors

Barrier tape will be applied to the painted surface of the body and on the painted hinge side of the door.

On the hinge side, mount tape out toward the edge to space over the barrel of the hinge, being sure to not touch the door.



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Make sure the hinge fits into the extrusion frame with no corner weld beads interfering with the door fit. Do not put the hinge in a bind or cause the stainless steel hinge to touch the aluminum. Install the doors using a truss head bolt with the nylon coating under the head and Threadlocker on the threads.

Painting Steel

The manufacturer will wipe any oil residue dry, remove any rust and remove weld slag or smoke. Clean the surface with solvent before painting. Prime with one even coat of black Color primer, and then spray a topcoat over the primer for the finish coat. After bolts are tightened to the proper torque, touch up the bolt area and ends of the bolts with primer or cold galvanizing coating.

Mounting Emergency Lights and Options

All emergency lights, accessory mountings, Kussmaul covers, and 110 outlet boxes mounted to the body should be mounted with pre-coated Threadlocker and nylon under the head screws or bolts to minimize corrosion between dissimilar metals.

Electrical Grounding

Grounding straps will be installed consisting of a minimum 2-gauge strap bolted to the chassis frame.

A ground cable from the cab to the right side frame rail
From the alternator to the right side frame rail
From the pump module frame to the right side truck frame.
Aerials: from the hydraulic and pump module framework.
From the pump mount to the truck frame rail.
From the body module to the right side truck frame.

Proper grounding will help eliminate ground loop problems throughout the truck, reducing the possibility for electrolysis and corrosion to occur. Provide clean connection points on all ground connections, (remove paint where applicable), and spray or brush on electrical sealer as necessary.

When installing foam system pump wiring the power must come from a dedicated breaker to a power solenoid, and then to the power terminal provided by FoamLogix or FoamPro. Pay particular attention to the grounding detail for wire size and good grounding practice, including removing the paint at the point of ground attachment to the chassis. Keep the length of ground wire as short as practically possible.



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SALT SPRAY TESTING

Salt spray test will be used to confirm the relative resistance to corrosion of coated and uncoated metallic specimens, when exposed to a salt spray climate at an elevated temperature. Test specimens will be placed in an enclosed chamber and exposed to a continuous indirect spray of neutral (pH 6.5 to 7.2) salt water solution, which falls-out on to the specimens at a rate of 1.0 to 2.0 ml/80cm²/hour, in a chamber temperature of +35C. This climate will be maintained under constant steady state conditions.

Method

Salt fog testing will be performed by placing samples in a test cabinet that has been designed in accordance with Paragraph 4 (Apparatus) of ASTM B117 and operated in accordance with Paragraph 10 (Conditions) of ASTM B117.

A 5% salt solution, prepared by dissolving sodium chloride into water that meets the requirements of ASTM D1193 Specification for Reagent Water, Type IV is supplied to the chamber. At the time the samples are placed into test, the cabinet should be pre-conditioned to the operating temperature of 35°C and fogging a 5% salt solution at the specified rate. The fog collection rate is determined by placing a minimum of two 80 sq. cm. funnels inserted into measuring cylinders graduated in ml. inside the chamber. One collection device will be located nearest the nozzle and one in the farthest corner.

Orientation

Unless otherwise agreed upon, the samples are placed at a 15-30 degree angle from vertical or tested in the "installed" position. This orientation allows the condensation to run down the specimens and minimizes condensation pooling. Overcrowding of samples within the cabinet should be avoided. An important aspect of the test is the utilization of a free-falling mist, which uniformly settles on the test samples. Samples should be placed in the chamber so that condensation does not drip from one to another.

Test durations

Test durations will be 500 hours except for sample rotation and daily monitoring of collection rates, the cabinet should remain closed for the duration of the test.



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PAINTING

All exposed metal surfaces not chrome plated, polished stainless steel or bright aluminum tread plate will be thoroughly cleaned and prepared for painting. All irregularities in painted surfaces will be rubbed down and all seams will be caulked before the application of the finish coat.

All removable items such as brackets, compartment doors, door hinges, trim, etc. will be removed and painted separately to insure finish paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly. Both aluminum and steel surfaces to be painted will be primed with a two (2)-component primer which is compatible with the finish coat. The apparatus will be finish painted with a polyurethane base/clear system. "No Exception"

A barrier gasket/washer of "High Density Closed Cell Urethane Foam" will be used behind all lights, handrails, door hardware and any miscellaneous items such as stainless steel snaps, hooks, washers and acorn nuts. The gaskets/washers will be coated with pressure sensitive acrylic adhesive. All screws used to penetrate painted surfaces will be pre-treated/coated under the head with nylon and the threads will have pre-coat #80. This procedure will be strictly adhered to for corrosion prevention and damage to the finish painted surfaces.

The following paint process will be utilized:

Surface Preparation:

1. Wash surface thoroughly with mild detergent.
2. Clean and de-grease with Prep-Sol 3812S.
3. Sand and feather edge using 400 grit or finer on a dual action sander.
4. Remove sanding dust with a cleaner compatible with polyurethane base coat/clear coat final finish.

Substrate treatment:

1. Use a Metal Conditioner followed with a Conversion Coating product.



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Priming:

1. Use a priming 615S pretreatment.
2. Use a self etching primer applied to achieve a 1.5 mil dft minimum.
3. Use Prime N Seal sealer compatible with polyurethane base coat.

Color Coat:

1. Apply polyurethane base coat 1-2 mil dft minimum.

Clear coat:

1. Apply polyurethane clear coat 2 mil dft minimum.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

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PAINT-TWO TONE CAB

The cab exterior surfaces will be two (2) colors. The paint break line will be at the bottom of the windshield. The top will be painted white DuPont 817x Alt 2, and the bottom will be painted red DuPont 48x Alt 1.

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BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

_____ ✓

PAINTED FRAME

The frame rails and body subframe will be painted glossy black.

ABOVE SECTION BID EXACTLY AS WRITTEN:

SECTION NOT PROVIDED:

BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

_____ ✓

UNDERCOATING

Undercoating will be applied to visible surfaces on the underside of the truck body and chassis to help reduce noise in the cab caused by tires, stones, sand and water spray. This thick, super-tough coating, being highly abrasion-resistant does not wear off. It also protects underbody components from moisture, mud and salt.



**Kenosha Fire Department
Triple Combination Pumper**

The application will come with a ten (10) year rust protection limited warranty.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

LETTERING

Forty (40) 3" 22KT Gold laminate goldleaf letters, with left hand shading and right hand outline to equal 3-5/8" letter, will be provided.

STRIPING

A 6" White Scotchlite stripe will be provided across the front of the cab and along each side of the apparatus.

A 1/8" blue highlight color above and below the Scotchlite stripe will be provided.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

STRIPING, CHEVRON STYLE, REAR BODY

The apparatus will have 6" red and yellow reflective DiamondGrade Chevron style striping affixed to the entire rear of the apparatus, with the exception of the rear door. The striping will be set in a manner to have the effect of an inverted "V" shape. The stripe will travel low to high from the outside to the inside.

STRIPING, CHEVRON STYLE, BUMPER

The apparatus will have 6" red and yellow reflective DiamondGrade Chevron style striping affixed to front bumper of the apparatus. The striping will be set in a manner to have the effect of an inverted "V" shape. The stripe will travel low to high from the outside to the inside.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:



**Kenosha Fire Department
Triple Combination Pumper**

**BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:
MISCELLANEOUS EQUIPMENT FURNISHED**

1 pt. touch-up paint

WHEEL CHOCKS

Two (2) Ziamatic #SAC-44 folding wheel chocks with SQCH-44H holders will be provided. The wheel chocks will be located under the body, one (1) in front of the rear axle and one (1) behind the rear axle, left side of the apparatus.

RECHARGEABLE HANDLIGHT

Four (4) Streamlight® Fire Vulcan® LED rechargeable handlights with 12 volt chargers will be provided and mounted.

The lights will be mounted as follows: One (1) - L1, One (1) - A1, Two (2) in the rear cab area.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

OPERATION AND SERVICE MANUALS

Complete "Operation and Service" manuals will be supplied with the completed apparatus, one (1) printed copy and one (1) CD. Service manual instructions will include service, maintenance and troubleshooting for major and minor components of the truck. The apparatus manufacturer will supply part numbers for major components (i.e. Engine, Axles, Transmission, Pump, etc.). A table of contents, hydraulic, air brake and overall apparatus wiring schematics will be included.

A video demonstration DVD on the operation of the truck will be supplied with the manuals.

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



**Kenosha Fire Department
Triple Combination Pumper**

WARRANTIES

The following warranties will be supplied:

1. The apparatus will be warranted to be free from mechanical defects in workmanship for a period of one (1) year. The apparatus will be covered for parts and labor costs associated with repairs for a period one (1) year.
2. Life-time warranty on the frame.
3. Seven (7) year warranty on paint.
4. Ten (10) body structural warranty
5. Ten (10) year cab structural warranty
6. Manufacturers Warranties for all major components.

**ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:**



LOOSE EQUIPMENT

The following loose equipment will be provided with each unit ordered:

Quantity	Item #	Description
1.00	In Case	Dewalt 36v Cordless Drv
1.00	9-43129	Craftsman Tool Box
1.00	9-61906	Craftsman Tool Box
1.00	9-6500-0	Craftsman Tool Box
1.00	9-46382	Craftsman - Standard Tools
1.00	9-46382	Craftsman - Metric Tools
1.00	Sears	Key Hole Saw
1.00	951646	Pipe Wrench 14" Sears Aluminum
1.00	951648	Pipe Wrench 24" Sears Aluminum
1.00	Sears	Tin Snips - Straight Blade
1.00	945094	Lineman Cutters 8" Sears



Kenosha Fire Department Triple Combination Pumper

1.00	9-44036	Craftsman Adj. Wrench Set	
4.00	P 1 5	Telelight	Floodlights
1.00	AJ302	Firehooks 6' Arson Trash Hook	
2.00	T294X	Window Punch	
1.00	AB885	Windshield Glass Saw	
4.00	143Y350-L5-20	12/3 Electric Cords - 50' length Plugs- Natural Gas Shutoff Clamps	
4.00	Teli-Lite	Pigtails - TwistLock Male x 110 Fem.	
1.00	942135	Craftsman Drive Set	
1.00	944048	Craftsman Wrench Set	
6.00	B397	Spanner Wrenches - Loose	
1.00	A3831	Chimney Fog Nozzle	
1.00	AC671	5" Storz x 50' LDH - Yellow Hose	
1.00	AF555	20lb. ABC Extinguisher	
1.00	AJ115	Firehooks-Dynamic Trio- Tool Board	
1.00	AJ115	Firehooks-Dynamic Trio- Platform	
1.00	HAM3	Firehooks Hammer 3	
1.00	T986	Firehooks K Tool Kit	
1.00	AA680	Firehooks Kayo Ram	
1.00	AJ306	Firehooks 5' Drywall Hook	
1.00	P819	Firehooks 32" Drywall Hook	
4.00	SB-1	Milwaukee Strap Belt	
1.00	AC597	Firehooks 16" Officers Bar - Pro	
2.00	B439	Firehooks 51" Crowbar	
1.00	AJ238	TNT Forcible Entry Tool	
2.00	AW187	Firehooks 8lb Pickhead	



Kenosha Fire Department Triple Combination Pumper

		Axe/FG	
2.00	AW188	Firehooks 8lb Flathead	
		Axe/FG	
2.00	L957	Firehooks 6lb Flathead	
		Axe/FG	
2.00	T225	Firehooks 6lb Flathead	
		Axe/FG	
2.00	7TMPAPH6	Firehooks 6' FG All Purpose Hook	
2.00	7T97902	Firehooks 8' FG New Yorker	
2.00	7T97904	Firehooks 12' FG New Yorker	
2.00	AJ305	Firehooks 4' Universal Hook w/ D	
1.00	7TMPAPH4WD	Firehooks 4' All Purpose w/ D	
1.00	AR174	Firehooks Roof Pro Bar	
2.00	T982	Firehooks 36" Pro Bar	
1.00	SHF 10	Firehooks 10lb. Sledge FG	
1.00	SHF16	Firehooks 16lb. Sledge FG	
2.00	AZ381	Flathead Shovel 27" Darley	
1.00	T988	Firehooks 36" Bolt Cutter	
1.00	AM293	HD Bolt Cutter - NCCC28	
1.00	Special	36" Hydrant Wrench	Stainless
6.00	4000-18	Elkhart Nozzle 1.75 150@75 - Color	Chief
2.00	DB 275-GA	Elkhart 2.5 Shutoff	With 187A 1 1/8" Tip
2.00	AC7252525	Double Female 2.5"	
2.00	AC7262525	Double Male 2.5"	
1.00	AJ101	5" Storz x 4" Storz	



Kenosha Fire Department Triple Combination Pumper

1.00	AG7341550	5" Storz x 1 1/2" Female NSt	
4.00	AG7346050	5" Storz x Hydrant Steamer - Thread	Kenosha Thread
1.00	AE445	Rubber Mallot	Firehooks
1.00	SEARS	Wood Mallot	Craftsman
3.00	G423	Sprinkler Shutoff 1078	
2.00	AS130	Akron Black Max 6" NST x 5" Storz	
2.00	4000-24	Elkhart	Chief 200@50 PSI
4.00	B-278	Elkhart 2.5" Mounted	1.5" Outlet Playpipe
2.00	ST-190B	Elkhart Stacked Tips	1 1/8", 1", 3/4" Storage
1.00	3443	Akron Mercury Master 1000	Bracket/2420 Nozzle/489 Nozzle/1545 Nozzle 2.5"F to 1" Male
1.00		Reducer	
1.00	AF241	Cellar Nozzle 535	
2.00	AC726	2.5" Fem. X 1.5" male Reducer	
2.00	AW090	1.5" L.W. Caps	
1.00	AG7343050	5" Storz x 3" Fem. NST	
1.00	AC671	5" Storz x 25' LDH - Yellow	
3.00	2285 Akron	Hydrant Gate Valve 2.5" 3" x 10' Fire Hose -	
2.00	SPECIAL	Rubber M/F	Black
2.00	BE024	High Rise Bags - Attach to Hose Pack	
2.00	BE025	Accessory Bag	
1.00	7TMP285	Elkhart Hose Clamp	
2.00		6" x 10' Hard Suction Hose	Black
1.00		6" Low Level Strainer	



Kenosha Fire Department Triple Combination Pumper

1.00	7TMP500218	Klein Hydrant Bag	
2.00	H795	2.5 Gallon Water Extinguisher	
2.00	AF567	80BC Dry Chemical Extinguisher	
1.00	AF571	Purple K Extinguisher	
1.00	AR091	Halon/Halotron Extinguisher	
1.00	H792	C02 Extinguisher	
1.00	L574	5 Gallon Stainless Indian Can	
3.00	AM078	Gated Wye 2.5" Fem. X 2 -1.5"	
1.00	AC7282515	2.5" Male x 1.5" Female Adapter	
4.00	Akron 46	Akron Spanner Wrench Kit	
4.00	AR229	Akron Storz Spanner Wrench Kit	
2.00	T240	Akron Hydrant Wrench	
2.00	AG73650	5" Storz Blind Cap	
2.00	20K0525	Clappered Sia. 5" Storz x 2-2.5 F	
2.00	AF155	LDH Hose Roller	
1.00	DC305K	Dewalt 36V Sawzall Kit	
		Dewalt Vehicle Charger	
		12V	
1.00		Spare Blades	10 Pack
3.00		Dewalt Batteries	
1.00	DW311K	Dewalt Electric Sawzall Kit	
6.00	AK264	36" Reflective Traffic Cones	
4.00	G547	Port. Quart Lights 500 Watt	
4.00	477104	Stearns	Universal



**Kenosha Fire Department
Triple Combination Pumper**

1.00	5600	MSA	Thermal Imager Vehicle Mnt Lanyard Battery
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ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:

Electronics listed separately:

- 2 Motorola Radio System - both radios to be interfaced w/intercom
- 4 Motorola XTS-2500 Portable VHF

ABOVE SECTION BID EXACTLY AS WRITTEN:
SECTION NOT PROVIDED:
BIDDER IS OFFERING AN ALTERNATIVE TO THIS SECTION:



PURCHASE AGREEMENT

FOR

SUTPHEN FIRE APPARATUS

THIS AGREEMENT, made and entered into this ____ day of _____, 2013 by and between SUTPHEN CORPORATION of Amlin, Ohio, hereinafter called "SUTPHEN" and the City of Kenosha of Kenosha, WI, hereinafter called "PURCHASER",

WITNESSETH:

1. PURCHASE: Purchaser hereby agrees to buy and Sutphen hereby agrees to sell and furnish to Purchaser the apparatus and equipment according to the Kenosha Fire Department 2013 Bid Specifications, Triple Combination Pumper, and the Sutphen Proposal Letter of April 27th, 2013 and to deliver the same as hereinafter provided.

2. PAYMENT: Purchaser agrees to pay for said apparatus and equipment for the total purchase price of One Million, Two Hundred Fifty-Nine Thousand, Four Hundred Ninety-Four Dollars and No Cents (\$ 1,259,494.00).*

*If a down payment in the amount of \$381,600.00 is made within 30 days of contract signing, a credit of \$13,763.35 will be applied. The remaining balance due shall be payable in full upon delivery.

3. PERFORMANCE BOND: A performance bond for the total contract price shall be provided to the Purchaser within twenty days of contract signing.

4. DELIVERY: The apparatus and equipment being purchased hereunder shall be delivered to Purchaser at Kenosha, WI within approximately 9 – 11 months after the receipt and acceptance of this agreement at Sutphen's office in Amlin, Ohio, provided that such delivery date shall be automatically extended for delays due to strikes, failure to obtain materials or other causes beyond Sutphen's control.

5. SUTPHEN WARRANTIES: Sutphen warrants the apparatus purchased here under as set forth in the warranty included with the Kenosha Fire Department 2013 Bid Specifications, Triple Combination Pumper.



6. TESTING SHORTAGES: The apparatus shall be tested per NFPA #1901 at Sutphen's plant site in Amlin, Ohio. Purchaser agrees that the apparatus and equipment being purchased hereunder will not be driven or used in any manner until it is paid for in full, provided, however, that if there are any minor shortages, Purchaser may withhold a sum equivalent to the retail purchase price of any equipment shortages at the time of delivery and may use the apparatus and equipment during this period.

7. DEFAULT: In the case of any default in payment hereunder or in the payment on any notes, negotiable paper, obligations or other instruments issued by Purchaser, Sutphen may take full possession of the apparatus and equipment or of the piece or pieces upon which default has been made, and any payments that have been made theretofore shall be applied as rent in full for the use of the apparatus and equipment up to the date of taking possession by Sutphen.

8. PURCHASER WARRANTIES: With the signing of this agreement, Purchaser warrants that it has the full power and legal authority to enter into this agreement and guarantees that funds for its purchase are available or in the process of collection.

9. ACCEPTANCE: This agreement shall not be binding until it is signed and approved by an officer of the Sutphen Corporation.

10. TAXES, ETC.: The purchase price provided for herein does not include any federal, state or local sales tax, duties, imposts, revenues, excise or other taxes which may hereafter be imposed by governmental authority or otherwise and which are made applicable to the apparatus or equipment covered by the agreement. In the event that any such taxes are subsequently imposed and become applicable, the purchase price herein shall be increased by the amount of such taxes and such sum shall be immediately paid by Purchaser to Sutphen. To the extent applicable, the prices and deliveries set forth herein are subject to the Defense Production Act.

11. INSURANCE: Sutphen shall provide insurance insuring the apparatus and equipment against loss by fire, theft or collision and insuring against property damage and personal injury through the three (3) day delivery period.



12. GENERAL: This agreement and the Sutphen proposal provided herein take precedence over all previous negotiations, oral or written, and no representations or warranties are applicable except as specifically contained in this agreement or in the Sutphen proposal attached hereto. No alteration, modification, amendment or change of this Agreement shall be binding unless executed in writing by the parties. No waiver of any of the provisions of this Agreement shall be deemed a waiver of any other provision, whether or not similar, nor shall any waiver constitute a continuing waiver. This Agreement shall be governed and controlled as to interpretation, enforcement, validity, construction, effect and in all other respects by the laws, statutes and decisions of the State of Ohio. Exclusive jurisdiction and venue for any litigation at all related to this Agreement, directly or indirectly, based upon contract, tort, or other theory of law, shall lie in the Franklin County Court of Common Pleas, Columbus, Ohio, and the parties hereto consent and submit to the general jurisdiction of this court. All of the terms and provisions of this Agreement shall be binding upon and inure to the benefit of and be enforceable by Sutphen, Purchaser, their successors and assigns.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be duly executed and attested by its duly authorized representatives, effective as of the date below when accepted at Sutphen Corporations offices.

SUTPHEN CORPORATION
 By _____
 Sales Representative

THE CITY OF KENOSHA
 Purchaser

By _____

Title _____

Accepted at office
 SUTPHEN CORPORATION
 PO Box 158
 Amlin, Ohio 43002-0158

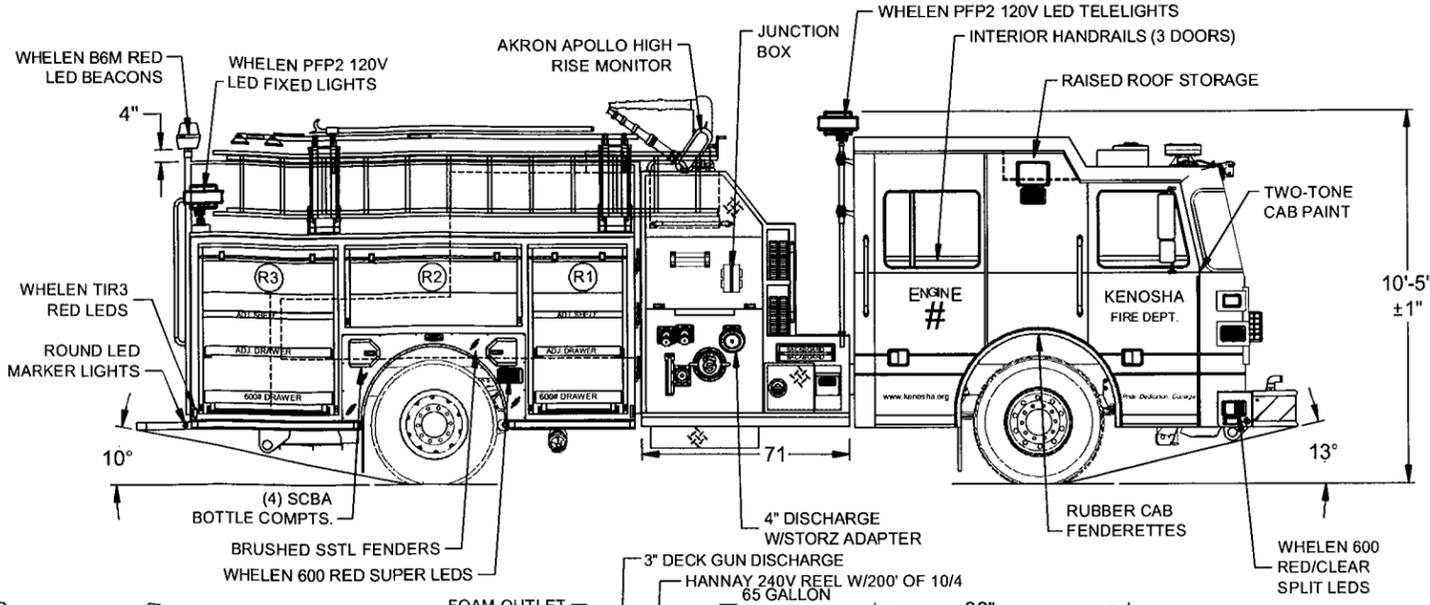
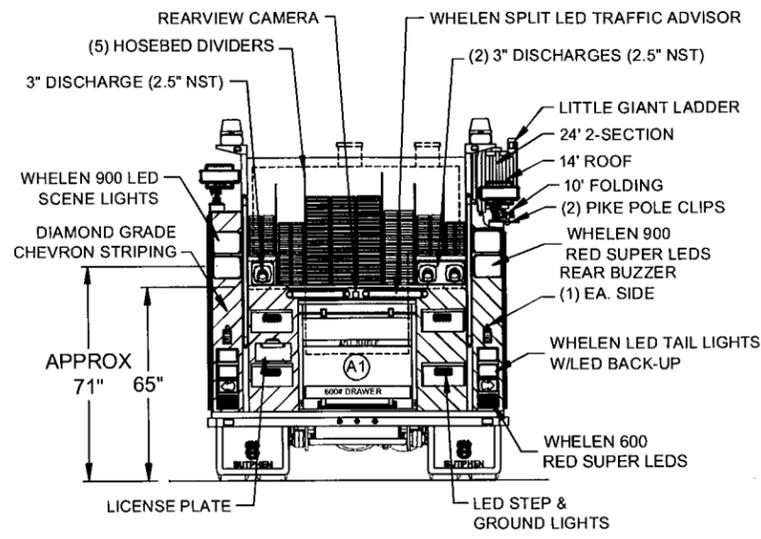
By _____

Title _____

By Drew Sutphen
 Title President

Date _____

Date 8-19-13



LEFT SIDE COMPARTMENTS				
COMPT	DOORS	OPENING DIMENSIONS	INSIDE DIMENSIONS	VOLUME
L1	ROLL UP	30" w X 56" h	36" w X 66" h X 27 1/4" d	27 CU. FT.
L2	ROLL UP	57" w X 27 1/4" h	61 1/2" w X 36 1/2" h X 10-1/2" d	13 CU. FT.
L3	ROLL UP	45" w X 56" h	48" w X 66" h X 27 1/4" d	37 CU. FT.

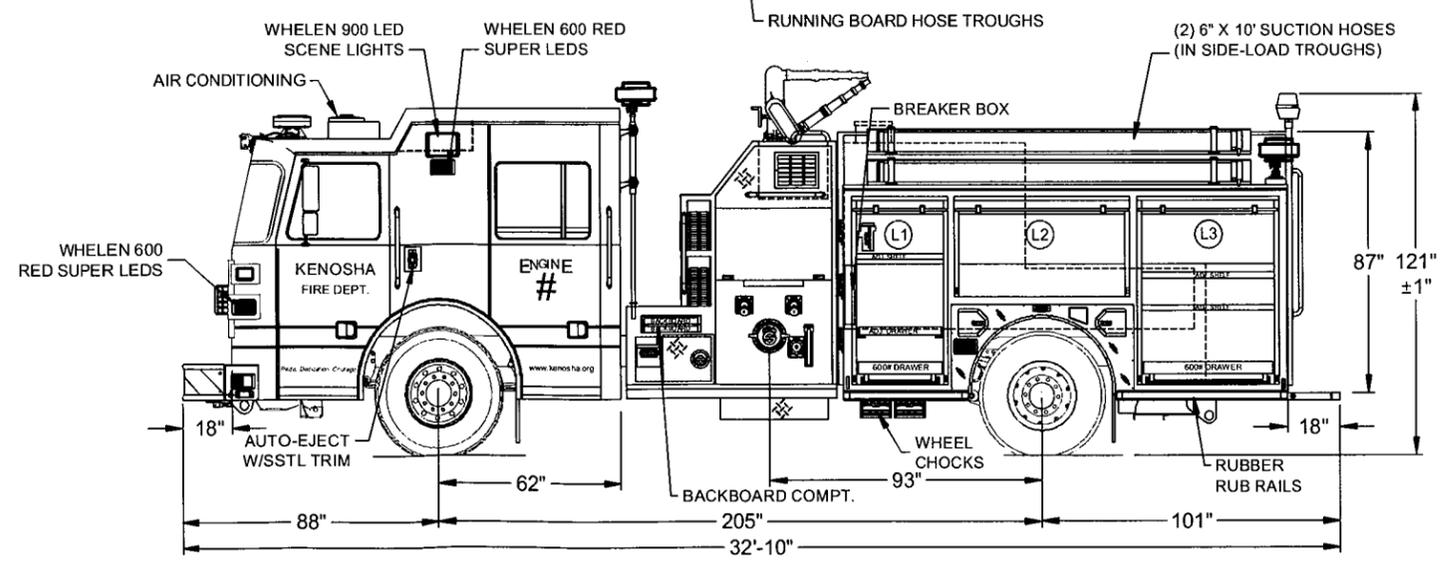
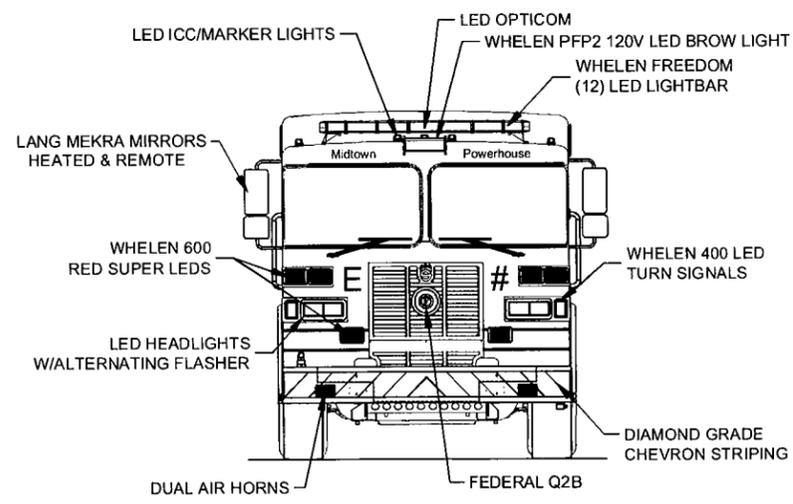
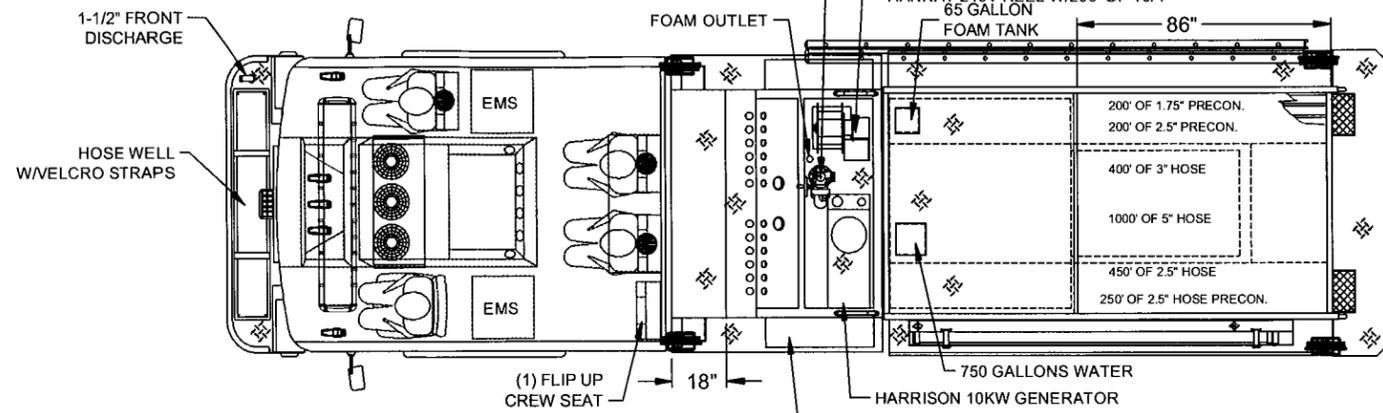
NOTE: UPPER PORTIONS OF LEFT SIDE COMPARTMENTS TO BE 10-1/2" DEEP

RIGHT SIDE COMPARTMENTS				
COMPT	DOORS	OPENING DIMENSIONS	INSIDE DIMENSIONS	VOLUME
R1	ROLL UP	30" w X 50" h	36" w X 60" h X 27 1/4" d	26 CU. FT.
R2	ROLL UP	57" w X 21 1/4" h	61 1/2" w X 30 1/2" h X 10-1/2" d	11 CU. FT.
R3	ROLL UP	45" w X 50" h	48" w X 60" h X 27 1/4" d	35 CU. FT.

NOTE: UPPER PORTIONS OF RIGHT SIDE COMPARTMENTS TO BE 10-1/2" DEEP

REAR STEP COMPARTMENT				
COMPT	DOORS	OPENING DIMENSIONS	INSIDE DIMENSIONS	VOLUME
A1	ROLL-UP	37 1/2" w X 30" h	39" h X 40" w X 27 1/2" d	23 CU. FT.

TOTAL: 187 CU. FT.



DIMENSIONS SHOWN ON THIS DRAWING ARE APPROXIMATE AND ARE SUBJECT TO MINOR DEVIATIONS DURING CONSTRUCTION.

IN THE EVENT OF A DISCREPANCY BETWEEN THE SUTPHEN SPECIFICATIONS AND DRAWING, THE SUTPHEN SPECIFICATIONS SHALL PREVAIL.

DRAWING IS FOR REFERENCE ONLY. SOME ITEMS PROPOSED MAY NOT BE SHOWN OR NOTED.

CUSTOMER APPROVAL

NAME: _____

TITLE: _____

DATE: _____

REV.	DESCRIPTION	BY	DATE

THIS PRINT IS PROVIDED ON A RESTRICTED BASIS AND IS NOT TO BE USED IN ANY WAY DETRIMENTAL TO THE INTEREST OF SUTPHEN CORPORATION.

SUTPHEN CORPORATION
 FIRE APPARATUS - SINCE 1890
 6450 EITERMAN ROAD DUBLIN, OH 43016

DRAWN BY: C. GREEN
 DATE: 8/19/2013

KENOSHA FIRE DEPT.
 KENOSHA, WI
 CUSTOM PUMPER - 36/48 BODY
 Kenosha, WI 2013

·Planning & Zoning

·Community Development

262.653.4030
262.653.4045 FAX
Room 308



·Building Inspections

·Property Maintenance

262.653.4263
262.653.4254 FAX
Room 100

DEPARTMENT OF COMMUNITY DEVELOPMENT & INSPECTIONS

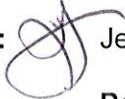
Municipal Building · 625 52nd Street · Kenosha, WI 53140
www.kenosha.org

Jeffrey B. Labahn, Director

Richard Schroeder, Deputy Director

MEMO

TO: Alderman Rocco LaMacchia
Members of the Public Safety & Welfare Committee

FROM:  Jeffrey B. Labahn, Department of Community Development & Inspections

RE: **Permitting Procedures and Application Process Update**

DATE: August 21, 2013

I would like to update the Committee on a number of items since last reporting to you on July 8, 2013.

Permitting activity continues to exceed the 2013 pace by a considerable margin. As of July 31, 2013, the number of permits has increased by 12% compared to this time last year. However, the total valuation of these permits has increased by 124%. This is largely attributed to major new construction projects, such as Aurora Cancer Center and Festival Foods, as well as significant alterations and additions to existing commercial projects.

The building trend is expected to accelerate with other projects, such as Meijer, that have been approved, but not yet entered the permitting and construction phase. This increased work load will continue to place pressure on existing Staff as we strive to continually improve our level of customer service and responsiveness. I look forward to the upcoming budget meetings to discuss how we can most effectively meet those expectations.

One of the topics I mentioned last month is the need to revise and/or adopt new Ordinances that impact the permitting and development requirements and procedures. There is an Ordinance on this agenda pertaining to retaining walls and fencing. The next Ordinances to be presented to the Committee include the following:

- Update local Ordinances to reflect all current requirements contained in the Wisconsin Administrative Code and Uniform Dwelling Code.
- Modify the existing permit fee waiver for one and two-family dwellings for porch and deck repairs which cost does not exceed \$200.00.
- Require a pre-footing survey and eliminate the post-foundation survey.
- Delete the requirement for an Occupancy permit for Alteration permits including one and two-family dwellings.

Other future Ordinances currently under evaluation include:

- Vacant Buildings
- Erosion Control
- Violation Enforcement
- Signage

PERMIT ISSUED & VALUATION DETAIL REPORT

FOR PERIOD FROM 07/01/13 TO 07/31/13

PERMIT DESCRIPTION	NUMBER FOR PERIOD	VALUE FOR PERIOD	NUMBER YTD		VALUE YTD	
			2012	2013	2012	2013
NEW:						
Single-family	1	\$263,000	16	20	\$2,609,475	\$3,750,143
Two-family	0	\$0	0	0	\$0	\$0
Multi-family	0	\$0	0	0	\$0	\$0
Commercial	1	\$5,585,000	3	1	\$1,264,300	\$5,585,000
Institutional	0	\$0	0	1	\$0	\$11,386,847
Manufacturing	0	\$0	0	0	\$0	\$0
ADDITIONS:						
Residential	1	\$18,000	13	8	\$378,680	\$146,500
Multi-family	0	\$0	0	0	\$0	\$0
Commercial	1	\$142,450	4	5	\$166,000	\$595,450
Institutional	1	\$702,558	0	1	\$0	\$702,558
Manufacturing	1	\$30,000	1	1	\$70,000	\$30,000
ALTERATIONS:						
Residential	9	\$88,764	31	48	\$429,440	\$476,164
Multi-family	0	\$0	1	1	\$700	\$5,500
Commercial	7	\$247,833	29	43	\$985,942	\$4,376,683
Institutional	3	\$487,000	7	11	\$921,662	\$667,245
Manufacturing	1	\$25,000	7	6	\$2,440,000	\$833,583
OCCUPANCIES:						
Residential	2	\$0	40	69	\$0	\$0
Home Business	1	\$0	6	7	\$0	\$0
Business Occupancy	19	\$0	132	108	\$0	\$0
Commercial -New	0	\$0	13	5	\$0	\$0
Commercial -Temporary	0	\$0	0	1	\$0	\$0
PLUMBING:						
Commercial	14	\$992,773	56	73	\$1,063,975	\$1,730,124
Residential	34	\$63,696	195	244	\$346,772	\$428,932
Sewer & Water Connect	7	\$573,867	52	60	\$975,549	\$1,580,258
ELECTRICAL:						
Commercial	22	\$2,612,865	135	152	\$2,257,918	\$6,584,945
Residential	40	\$75,255	151	199	\$353,177	\$422,222
HVAC:						
Commercial	4	\$40,849	59	42	\$1,770,117	\$1,088,084
Residential	38	\$168,804	155	205	\$657,463	\$767,090
OTHER:						
Accessory Structures	4	\$24,500	31	31	\$329,950	\$255,069
Temporary Structure	0	\$0	0	0	\$0	\$0
Decks/Porches	10	\$38,425	71	61	\$194,510	\$195,515
Porch Repair/Handrls.	3	\$9,780	10	9	\$3,300	\$15,090
Moving a Building	0	\$0	0	0	\$0	\$0
Signs	19	\$49,258	132	135	\$568,536	\$613,130
Portable Signs	2	\$0	20	10	\$0	\$0
Billboards	0	\$0	0	0	\$0	\$0
Street Occupancy	0	\$0	0	0	\$0	\$0
Pools/Hot Tubs	4	\$63,650	15	19	\$89,575	\$177,352
Fences	56	\$183,393	265	231	\$612,273	\$611,386
Erosion Control	4	\$0	37	44	\$0	\$1,000
Eros.Cont.Res.-Temp.	1	\$0	0	10	\$0	\$0
Low Voltage/Antenna	3	\$55,169	26	22	\$293,000	\$119,799



12:03
 40INQ3
 REV. 2.2

PERMIT ISSUED & VALUATION DETAIL REPORT

FOR PERIOD FROM 07/01/13 TO 07/31/13

PERMIT DESCRIPTION	NUMBER FOR PERIOD	VALUE FOR PERIOD	NUMBER YTD		VALUE YTD	
			2012	2013	2012	2013
Roof	11	\$70,451	16	37	\$82,312	\$273,433
Canopy/Awning	1	\$2,300	4	1	\$10,300	\$2,300
Dog Enclosure	0	\$0	0	0	\$0	\$0
Raze	0	\$0	7	11	\$114,800	\$793,600
Footing/Foundation	2	\$304,000	2	9	\$694,200	\$344,769
Fireplace	2	\$8,189	0	5	\$0	\$20,310
Ramp (wheelchair)	2	\$1,550	3	7	\$6,500	\$11,300
Retaining Wall	1	\$5,000	0	1	\$0	\$5,000
Trash Recept. Encl.	0	\$0	1	2	\$189,209	\$2,900
Extension to Permit	0	\$0	4	6	\$1,100	\$0
Salvage-Vacated Bldg.	0	\$0	0	0	\$0	\$0
Addl. Plan Review	0	\$0	5	1	\$0	\$0
GRAND TOTAL	332	\$12,933,379	1755	1963	\$19,880,735	\$44,599,281