Guideline Specifications

for

Construction and Maintenance Equipment

for

Street and Highway Work

2005

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Introduction
1. Introduction

New state purchasing laws, which are scheduled to be effective July 1, 1998 require the purchasing agent of the local public agency (LPA) to “prepare, issue, revise, maintain and monitor use of specifications.” They also require that the purchasing agency maintain an indexed file of specifications prepared by or under the authority of its purchasing agents. It is intended that this document satisfy that requirement. More importantly, however, it is hoped that this document will be a useful tool for county engineers and supervisors and city and town street commissioners in purchasing their equipment. Good equipment specifications are necessary to ensure that the owner gets the piece of equipment that they need, and that each of the bidders have an equal opportunity to bid. Unfortunately, few LPA’s have the time or expertise to develop a complete set of specifications for all of the different types of equipment that they need. It is hoped that these specifications can at least partially fulfill this need.

In addition to actual equipment specifications, this document contains information on bid procedures. Section 2 describes state law relative to bidding and purchase of equipment. Most of the information in this section is taken directly from Local Government Purchasing and Public Construction, an AIC publication prepared by Ice Miller Donadio & Ryan.

Section 3 contains a Sample and a Blank Notice to Bidders. The sample provides information on what information the Notice should contain and the Blank may be used directly. This Notice satisfies state requirements and may be used directly or as a model to develop your own.

Section 4 contains a Sample and a Blank Indiana Bid Form No. 95. There seems to be some confusion among the vendors on how this form is to be completed, so it is a good idea to include the Sample with your Bid Specifications to prevent confusion and the possibility of a rejected bid.

Section 5 describes a procedure for evaluating the top five bids considering more than simply the bid price. It is hoped that it will assist the Owner in justifying their selection, whether or not it is the “low bid”. Also included in this Section is sample output from a Quattro Pro worksheet. The worksheet used the procedure described earlier in the Section and determines the “best” of the top five bids received.

All of the actual Specifications are included in Section 6. Each type of equipment is preceded by a checklist of items the Owner needs to give special attention to before the specifications are distributed. The names of the members of the task force are also listed and may be called for additional information or assistance. In writing the specifications, the task force attempted to provide a complete set of specifications for each piece of equipment. Where judgment decisions had to be made, the task force included in the specifications their opinion of the minimum value, the LPA should feel comfortable in increasing these values where needed. Where there was some doubt or disagreement regarding a size or capacity, it was agreed that we would error on the conservative side, which meant that we would recommend the larger or heavier alternative. Therefore, it could be stated that these specifications constitute a conservative set of minimum requirements.

The task force also tried to think in terms of life cycle costs, rather than initial cost. For example, with the dump truck specifications, we felt that a heavy duty severe service truck would
hold its value much longer and be worth more as a trade in than a mid-size truck would. Therefore, the truck specifications will generate bids for a heavy duty truck. Throughout the Guideline Specifications, the idea was to specify a heavy duty, long lasting piece of highway equipment.

The user of these specifications should carefully review the left column of each page of the specifications and verify that the recommendations of the task force are consistent with the needs of the LPA. In some cases, it was impossible for the task force to make a recommendation. In these cases, a blank space was provided for the LPA to enter their desired quantity. There are also several locations where the LPA must select one of several pages to include in the specifications. A good example of this is truck chassis transmissions. Most LPA’s are now purchasing trucks with Allison automatic transmissions, but many agencies still want to use the traditional standard transmission with a clutch. For this reason we have included a page of the specifications for each of three different transmission choices. The LPA should make a decision as to which of the three choices they want to use and include the page for that choice only. A checklist is provided at the beginning of each section to remind the Owner of those portions of the Specifications that require their input.

The specifications for each piece of equipment inform the Bidder that he should note those areas where his unit does not meet the minimum requirements. A space is provided for such notes at the bottom of every page of the specifications. Failure to meet the minimum requirements does not in itself constitute grounds for rejection of the bid, but will be taken into consideration in the evaluation of the bids.

At the end of each separate specification within Section 6, the user will find a listing of Vendor Websites that offer that particular type of equipment. A master list of Vendor Websites is also included as Appendix I.

It is understood that writing, and even reading, specifications can become very complicated. Section 7 provides a Glossary of some of the common terms used in equipment specifications. Most of these were taken from the Motor Truck Engineering Handbook (See References), but others were added as the project progressed.

Section 8 contains a list of references where the user may find additional information.

Appendices are included which provide additional information on Vendors, Performance Based Specifications, Wheel and Tire Data, and Manufacturers’ Literature.
How Specs Live Forever

The US Standard railroad gauge (distance between the rails) is 4' 8½". That's an exceedingly odd number. Why was that gauge used? Because that's the way they built them in England, and the US railroads were built by English expatriates. Why did the English people build them like that? Because the first rail lines were built by the same people who built the pre-railroad tramways, and that's the gauge they used.

Why did "they" use that gauge then? Because the people who built the tramways used the same jigs and tools that they used for building wagons, which used that wheel spacing. Okay! Why did the wagons use that odd wheel spacing? Well, if they tried to use any other spacing the wagons would break on some of the old, long distance roads, because that's the spacing of the old wheel ruts.

So who built these old rutted roads? The first long distance roads in Europe were built by Imperial Rome for the benefit of their legions. The roads have been used ever since. And the ruts? The initial ruts, which everyone else had to match for fear of destroying their wagons, were first made by Roman war chariots. Since the chariots were made for or by Imperial Rome, they were all alike in the matter of wheel spacing.

Thus, we have the answer to the original question. The United State standard railroad gauge of 4' 8½" derives from the original specification for an Imperial Roman army war chariot. Specs and Bureaucracies live forever. So, the next time you are handed a specification and wonder what horse's ass came up with it, you may be exactly right. Because the Imperial Roman chariots were made to be just wide enough to accommodate the back-ends of two war horses.
Bid Requirements
2. Bid Requirements for Indiana Local Public Agencies

The following was taken from “Local Government Purchasing and Public Construction, An Overview for Counties” published by Association of Indiana Counties, prepared by Ice Miller Donadio & Ryan, June 1998, with permission.
Preface

The Association of Indiana Counties

The Association of Indiana Counties ("AIC") was established in 1957 for the betterment of county government. AIC was founded, quite simply, to represent the best interests of counties. Today, AIC’s purposes and goals are little changed from the early years. AIC seeks the betterment of county government through:

- representation of counties at the Indiana General Assembly;
- research and dissemination of information;
- communication through publications and seminars;
- professional training and educational programs;
- liaison between counties, state and federal agencies; and
- technical and managerial assistance.

While there are a number of agencies and groups offering assistance to county governments, AIC is the only entity that represents the legislative needs of Indiana counties. With an office in Indianapolis, AIC is a full service organization with an executive director and professional staff.

Ice Miller Donadio & Ryan

Ice Miller Donadio & Ryan has offices in Indianapolis, South Bend and Chicago, is the largest law firm in Indianapolis with over 200 attorneys, and serves as special counsel to the Indiana Association of Cities and Towns; as general counsel to the Association of Indiana Counties; and as bond counsel and special counsel to hundreds of local governments in Indiana. This publication was prepared by members of the Firm’s Municipal Law Group. The Group includes over forty professionals practicing in municipal finance, municipal law, local government litigation, solid waste districts, environmental law, state tax, zoning and condemnation law, employee benefits, labor law, construction law, and other areas.
Introduction

The statutes governing purchases by local governments were re-written by the Indiana General Assembly in 1997; some additional changes were made in 1998. The new purchasing code is the work product of three years of efforts by a dedicated group of state, municipal and county purchasing agents, members of the Legislative Services Agency and representatives from the Association of Indiana Counties. This work group was directed to combine all of the various statutes governing purchases by state and local government and their respective agencies in order to provide greater flexibility to purchasing agents and to streamline what has often been viewed as a very cumbersome process. The new requirements for purchasing can be found at IC 5-22 and apply generally to all state agencies and political subdivisions, including counties.

The statutes governing public construction by political subdivisions and their agencies, including counties, have remained essentially unchanged since 1995. These statutes can generally be found at IC 36-1-12.

The statute authorizing counties to undertake “public-private agreements” was originally enacted in 1995 as IC 36-1-14.3. The 1997 General Assembly recodified it, with very few changes, at IC 5-23.

The statute authorizing counties to enter into guaranteed energy savings contracts and energy efficiency programs can be found at IC 36-1-12.5.

The sample forms and documents that have been included in Appendix B relate to IC 5-22.

This publication is intended for general information purposes only and does not and is not intended to constitute legal advice. The reader must consult with legal counsel to determine how laws or decisions discussed herein apply to the reader’s specific circumstance.
PUBLIC PURCHASING

I. Purchases - General Requirements

A. Application

• Except as otherwise provided, the article governing public purchasing (IC 5-22) applies to every expenditure of public funds by a governmental body. [IC 5-22-1-1] The article does not apply to the following entities:

  • an entity established by the general assembly as a body corporate and politic (i.e. the Indiana Bond Bank, the Indiana Gaming Commission, the Lottery Commission); however, its purchases are subject to purchasing preferences provided for in the article.

  • a local hospital authority under IC 5-1-4.

  • hospitals organized or operated under IC 16-22-1 through IC 16-22-5, IC 16-23 or IC 16-24-1.

  • a library board under IC 20-14-3-14(b).

  • a local housing authority under IC 36-7-18.

  • tax exempt Indiana nonprofit corporations leasing and operating a city market owned by a political subdivision.

  • a person paying for a purchase or lease with funds other than public funds.

  • a person that has entered into a public-private agreement with a governmental body under IC 5-23. [IC 5-22-1-2]

• The article does not apply to the following types of activities:

  • a contract between governmental bodies, other than a contract authorized under the article.

  • a public works project.

  • a collective bargaining agreement between a governmental body and its employees.

  • the employment relationship between a governmental body and an employee.

  • an investment of public funds.
• a contract between a governmental body and a body corporate and politic.

• a contract for social services. [IC 5-22-1-3]

B. Glossary of Terms

• “Adjusted offer” means the offer price of an offeror for preferred supplies as determined under IC 5-22-15-10. [IC 5-22-15-3]

• “Change order” means a written order that: (i) is signed by the purchasing agent; and (ii) directs the contractor to make changes that the contract authorizes the purchasing agent to order without the consent of the contractor. [IC 5-22-2-2]

• “Contract modifications” means a written alteration: (i) in a specification, delivery point, rate of delivery, period of performance, price, quantity, or another provision of a contract; and (ii) that is accomplished by mutual action of the parties to the contract. [IC 5-22-2-3]

• “Contractor” refers to a person who has a contract with a governmental body. [IC 5-22-2-4]

• “Cost reimbursement contract” means a contract that entitles a contractor to receive: (i) reimbursement for costs that are allowable and allocable in accordance with the contract terms and the provisions of IC 5-22; and (ii) a fee, if any. [IC 5-22-2-5]

• “Data” means recorded information, regardless of its form or characteristics. [IC 5-22-2-6]

• “Data processing” includes the resources, technologies and services associated with the fields of: (i) information processing; (ii) office automation; and (iii) telecommunication facilities and networks. [IC 5-22-2-7]

• “Designee” means an authorized representative. [IC 5-22-2-8]

• “Established catalog price” refers to the price included in a catalog, price list, schedule or other form that: (i) is regularly maintained by the manufacturer or contractor; (ii) is published or is otherwise available for inspection by customers; and (iii) states prices at which sales are currently or were last made to a significant number of any category of buyers, or buyers constituting the general buying public, for the supplies or services involved. [IC 5-22-2-9]

• “Executive branch” refers to the department of state government provided in Articles 5 and 6 of the Indiana Constitution. [IC 5-22-2-10]

• “Fiscal body” means: (i) county council, for a county; (ii) common council, for a city; (iii) town council, for a town; (iv) city-county council for Indianapolis and Marion County; or (v) governing body or budget approval body for a political subdivision that is not a city, county, town, or township. [IC 5-22-2-11]
• “Gift” includes a bequest, cooperative agreement, and a grant. [IC 5-22-2-12]

• “Governmental body” means an agency, board, branch, commission, council, department, institution, office or another establishment of: (i) the executive branch; (ii) the judicial branch; (iii) the legislative branch; and (iv) a political subdivision. [IC 5-22-2-13]

• “Invitation for bids” means all documents, whether attached or incorporated by reference, used for soliciting bids. [IC 5-22-2-14]

• “Judicial branch” refers to the department of state government provided in Article 7 of the Indiana Constitution. [IC 5-22-2-15]

• “Legislative branch” refers to the department of state government provided in Article 4 of the Indiana Constitution. [IC 5-22-2-16]

• “Offer” means a response to a solicitation. It includes bid, proposal and quote. [IC 5-22-2-17]

• “Offeror” means a person that submits an offer to a governmental body. [IC 5-22-2-18]

• “Operating agreement” means an agreement under IC 5-23 between an operator and the governmental body for the operation, maintenance, repair or management of a public facility. [IC 5-22-2-19]

• “Person” includes an association, a business, a committee, a corporation, a fiduciary, an individual, a joint stock company, a joint venture, a limited liability company, a partnership, a sole proprietorship, a trust, or another legal entity, organization, or group of individuals. [IC 5-22-2-20]

• “Petroleum products,” for purposes of IC 5-22-17-10, includes: (i) gasoline; (ii) fuel oils; (iii) lubricants; and (iv) liquid asphalt. [IC 5-22-17-10]

• “Policy” refers to a governmental body’s or purchasing agency’s written statement of: (i) purchasing procedure; or (ii) substantive purchasing purposes that does not have the force and effect of law. [IC 5-22-2-21]

• “Political subdivision” means a municipal corporation or a special taxing district. [IC 36-1-2-13]

• “Preferred supplies” means supplies that are given a preference under IC 5-22-15. [IC 5-22-15-4]

• “Price preference percentage” means the percentage preference provided by IC 5-22-15 for specific kinds or items of supplies. [IC 5-22-15-5]
“Professional,” for purposes of 50 IAC 11, means a person who performs the services of: (i) accountant; (ii) architect; (iii) attorney; (iv) construction manager; (v) engineer; (vi) financial advisor; (vii) project administrator; (viii) project manager; (ix) tax analyst; or (x) other person who provides consulting services. It does not include a person who performs the services of: (i) underwriter; (ii) investment banker; or (iii) real estate broker or salesperson. [50 IAC 11-2-4]

“Public funds” means money: (i) derived from the revenue sources of the governmental body and (ii) deposited into the general or a special fund of the governmental body. It does not include either: (i) money received by any person managing or operating a public facility under an authorized operating agreement under IC 5-23; or (ii) proceeds of bonds payable exclusively by a private entity. [IC 5-22-2-23]

“Purchase” includes buy, procure, rent, lease, or otherwise acquire. It includes: (i) description of requirements; (ii) solicitation or selection of sources; (iii) preparation and award of contract; (iv) all phases of contract administration; and (v) all functions that pertain to purchasing. [IC 5-22-2-24]

“Purchasing agency” means a governmental body that is authorized to enter into contract by IC 5-22, rules adopted under IC 5-22, or by another law. [IC 5-22-2-25]

“Purchasing agent” means an individual authorized by a purchasing agency to act as an agent for the purchasing agency in the administration of the duties of the agency. [IC 5-22-2-26]

“Purchase description” means the words used in a solicitation to describe the supplies or services to be purchased. The term includes specifications attached to, or made a part of, the solicitation. [IC 5-22-2-27]

“Request for proposals” or “RFP” means all documents, whether attached or incorporated by reference, used for soliciting proposals. [IC 5-22-2-28]

“Rule” refers to: (i) with respect to an agency of the executive branch, a rule adopted under IC 4-22-2; (ii) with respect to any other governmental body, an order, an ordinance, a resolution, or another procedure by which the governmental body is authorized by law to adopt a policy that has the force and effect of law. [IC 5-22-2-29]

“Services” means the furnishing of labor, time, or effort by a person, not involving the delivery of specific supplies other than printed documents or other items that are merely incidental to the required performance. [IC 5-22-2-30]

“Small business” means a business that: (i) is independently owned and operated; (ii) is not dominant in its field of operation; and (iii) satisfies the criteria established in the rules adopted by a governmental body under IC 5-22-14-3. [IC 5-22-14-1]

“Small business set-aside” means a purchase in which the solicitation states that offers will be accepted only from small businesses. [IC 5-22-14-2]
• “Social services” means services obtained from funds covered by the Social Services Block Grant Act. IC 5-22-2-31]

• “Solicitation” means the procedure by which a governmental body invites persons to submit an offer to enter into a contract with the governmental body for the purchase or sale of supplies by the governmental body. It includes an invitation for bids, a request for proposals and a request for quotes. [IC 5-22-2-32]

• “Soy diesel/bio diesel fuel” includes fuels other than alcohol that are primarily esters derived from biological materials, including oilseeds and animal fats, for use in compression and ignition engines. [IC 5-22-17-19(b)]

• “Special fund” means, with respect to the state, a dedicated fund. [IC 5-22-2-33]

• “Special purchase” refers to a purchase authorized under IC 5-22-10. [IC 5-22-2-34]

• “Specification” means a description of the physical or functional characteristics of a supply or service or the nature of a supply or service. It includes a description of any requirements for inspecting, testing, or preparing a supply or service for delivery. [IC 5-22-2-35]

• “State agency” means an authority, board, branch, commission, committee, department, division, or other instrumentality of the executive (including the administrative) branch of state government. It does not include the judicial or legislative branches of state government. [IC 5-22-2-36]

• “Supplies” means any property. It includes equipment, goods and materials. It does not include an interest in real property. [IC 5-22-2-38]

• “Total adjusted offer” means the sum of the offers and adjusted offers of an offeror for each item of supplies. [IC 5-22-15-6]

• “Trust” means a fiduciary relationship between a person who, as trustee, holds title to property and another person for whom, as beneficiary, the title is held. [IC 30-4-1-1]

• “Using agency” means a governmental body that uses supplies or services purchased under IC 5-22. [IC 5-22-2-39]

C. General Provisions Applicable to All Purchases

• Requirement to Act in Good Faith

• All persons involved in the negotiation, performance or administration of contracts for purchases of supplies or services shall act in good faith [IC 5-22-3-1]
• Gifts
  
  • A governmental body may comply with the terms and conditions of a gift, even when those terms and conditions are contrary to IC 5-22, if noncompliance with those terms and conditions would invalidate the gift. [IC 5-22-3-2]

• Adoption of Rules and Policies
  
  • A governmental body may adopt rules to regulate purchases of the governmental body. [IC 5-22-3-3(a)]
    
    • A rule may supplement IC 5-22.
    • A rule may not be inconsistent with IC 5-22.

  • The purchasing agency of a governmental body may establish written policies for purchases made by the purchasing agency. [IC 5-22-3-3(b)]
    • The written policies may apply to all purchases generally or to a specific purchase, as stated in the solicitation for the purchase. [IC 5-22-3-3(a)]
      
      • A written policy may supplement IC 5-22 or a rule adopted by the purchasing agency’s governmental body.
      • A written policy may not be inconsistent with IC 5-22 or a rule adopted by the purchasing agency’s governmental body.

• Property Interest in a Contract
  
  • An offeror does not gain a property interest in the award of a contract by a governmental body unless the offeror is awarded and the contract is completely executed. [IC 5-22-3-6]

• Offers Submitted by a Trust
  
  • An offer submitted by a trust to enter into a contract with a governmental body or to purchase surplus property from the governmental body must identify:
    
    • each beneficiary of the trust; and
    • each settlor empowered to revoke or modify the trust. [IC 5-22-3-5]

D. Purchasing Organizations

• The purchasing agency for a political subdivision is the person designated by law or by rule of the governmental body. [IC 5-22-4-5(a)]
  
  • The individuals designated by the purchasing agency are the purchasing agents for the governmental body. [IC 5-22-4-5(b)]
• A purchasing agency may have more than one purchasing agent. [IC 5-22-4-6]

• If a county has established a purchasing agency for the county:
  • the county purchasing agency is the purchasing agency for a circuit, superior or county court of that county; and
  • the purchasing agent for the county is the purchasing agent for the circuit, superior and county courts of that county. [IC 5-22-4-3(a) and (b)]

• If a county has not established a county purchasing agency:
  • the circuit court is the purchasing agency for that court;
  • the individuals designated by a court are the purchasing agents for that court;
  • a court may request the executive branch of state government to be the purchasing agency for that court; or
  • a court may request a purchasing agency of a political subdivision to be the purchasing agency for that court. [IC 5-22-4-3(c) and (d)]

• A governmental body may enter into an agreement with other governmental bodies under the Interlocal Cooperation Act to form a cooperative purchasing organization. [IC 5-22-4-7]

• A cooperative purchasing organization is the purchasing agency for a governmental body for purchases made for the governmental body by the cooperative purchasing organization.

• An individual designated by the cooperative purchasing organization is a purchasing agent for the governmental body for purchases made for the governmental body by the cooperative purchasing organization.

E. Specifications

• General Requirements for Specifications

  • A governmental body may adopt rules or establish policies for the preparation, maintenance and content of specifications. [IC 5-22-5-1(a)]

  • Such rules or policies may include a description of requirements for inspection, testing, or preparing an item for delivery. [IC 5-22-5-1(b)]

  • A purchasing agent shall prepare, issue, revise, maintain, and monitor the use of specifications. [IC 5-22-5-2]
• A specification must promote overall economy for the purposes intended and encourage competition in satisfying the governmental body's needs. [IC 5-22-5-3]

• The purchasing agency must maintain an indexed file of specifications prepared by or under the authority of its purchasing agents. [IC 5-22-5-4]

• Requests for Specifications

• The purchasing agent may issue a request for specifications if:
  
  • the purchasing agent makes a written determination that the development of specifications by the governmental body is not feasible; and

  • the executive of the governmental body approves the issuance of the request for specifications. [IC 5-22-5-5(a)]

• A request for specifications must include:

  • the factors or criteria that will be used in evaluating the specifications;

  • a statement concerning the relative importance, or weighting, of the evaluation factors; and

  • a statement concerning whether discussions may be conducted with persons proposing specifications to clarify the specification requirements. [IC 5-22-5-5(b)]

• A request for specifications must be published in accordance with IC 5-3-1, two times, at least one week apart, with the second publication occurring at least 10 days prior to the date the specifications will be received. It is the purchasing agent's duty to see that notice is published. [IC 5-22-5-5(c)]

• If provided for in the request for specifications, the purchasing agent may discuss proposed specifications with persons proposing specifications to clarify the specification requirements. [IC 5-22-5-5(d)]

• All persons proposing specifications must be accorded fair and equal treatment with respect to any opportunity for discussion and revision of proposed specifications. [IC 5-22-5-5(e)]
F. Competitive Bidding

- A purchasing agent is required to follow the procedure for competitive bidding when awarding a contract for supplies, unless another purchasing method is required or authorized by IC 5-22. [IC 5-22-7-1]

- Invitation for Bids
  
  - A purchasing agent shall issue an invitation for bids, which must include:
    
    - a purchase description;
    
    - all contractual terms and conditions that apply to the purchase;
    
    - a statement of the evaluation criteria that will be used, including any of the following:
      
      - inspection;
      - testing;
      - quality;
      - workmanship;
      - delivery;
      - suitability for a particular purpose;
      - the requirements imposed on offers made by a trust;
    
    - the time and place for opening the bids;
    
    - a statement concerning whether the bid must be accompanied by a certified check or other evidence of financial responsibility that may be imposed in accordance with rules or policies of the governmental body;
    
    - a statement concerning the conditions under which a bid may be canceled or rejected in whole or in part. [IC 5-22-7-2]

- An invitation for bids must be given in accordance with IC 5-3-1, two times, at least one week apart, with the second publication occurring at least 10 days prior to the date the bids will be received. The purchasing agent is responsible for seeing that notice is published. [IC 5-22-7-5]

- The purchasing agency shall open the bids publicly in the presence of one or more witnesses at the time and place designated in the invitation for bids. [IC 5-22-7-6]

- Bids must be unconditionally accepted without alteration or correction and evaluated based on the requirements provided in the invitation for bids. [IC 5-22-7-7]

- Evaluation Criteria
• Evaluation criteria that will affect the bid price and be considered in the evaluation for an award must be objectively measurable. [IC 5-22-7-3]

• Only criteria specified in the invitation for bids may be used in evaluating bids. [IC 5-22-7-4]

• A contract must be awarded with reasonable promptness by written notice to the lowest responsible and responsive bidder. [IC 5-22-7-8]

• Changes in Bids

• The governmental body may adopt rules or establish policies to allow any of the following:
  
  • correction or withdrawal of inadvertently erroneous bids before or after an award;
  
  • cancellation of awards or contracts based on an inadvertently erroneous bid. [IC 5-22-7-10(a)]

• Unless provided for in a rule or policy, a purchasing agency must make a written determination to:
  
  • permit the correction or withdrawal of a bid; or
  
  • cancel awards or contracts based upon bid mistakes. [IC 5-22-7-10(b)]

• After bids have been opened, a purchasing agency may not permit changes in bid prices or other provisions of bids prejudicial to the interest of the governmental body or to fair competition. [IC 5-22-7-11]

• If a bidder inserts contract terms or bids on items not specified in the invitation for bids, the purchasing agent shall treat the additional material as a proposal for addition to the contract and may:
  
  • declare the bidder nonresponsive;
  
  • permit the bidder to withdraw the proposed addition to the contract in order to meet the requirements and criteria provided for in the invitation for bids; or
  
  • accept any of the proposed additions to the contract, unless the proposed additions are prejudicial to the interest of the governmental body or to fair competition. [IC 5-22-7-12]
• The purchasing agent may not accept proposed additions to the contract that are prejudicial to the interest of the governmental body or to fair competition. [IC 5-22-7-13(a)]

• A purchasing agent’s decision to permit a change to the requirements of the invitation for bid must be supported by a written determination of the purchasing agency. [IC 5-22-7-13(b)]

• **Maintenance of Bid Information**

• The purchasing agency shall maintain the following information for each invitation to bid which shall be open for public inspection after each contract award:
  
  • the name of each bidder;
  
  • the amount of each bid; and
  
  • any other information required by IC 5-22 and any rules adopted in accordance with IC 5-22. [IC 5-22-7-9]

**G. Small Purchases**

• Applicable to a purchase expected by the purchasing agent to be less than $75,000. Purchases may not be artificially divided so as to constitute a small purchase. [IC 5-22-8-1]

• **Purchases Less than $25,000**

  • A purchasing agent may make a purchase of less than $25,000 under small purchase policies established by the purchasing agency or under rules adopted by the governmental body. [IC 5-22-8-2]

• **Purchases Between $25,000 and $75,000**

  • A purchasing agent may purchase supplies by inviting quotes from at least three (3) persons known to deal in the lines or classes of supplies to be purchased.

  • The purchasing agent shall mail an invitation to quote at least seven (7) days before the time fixed for receiving quotes.

  • If the purchasing agent receives a satisfactory quote, the purchasing agent shall award a contract to the lowest responsible and responsive bidder for each line or class of supplies quoted.
• A purchasing agent may reject all quotes.

• If the purchasing agent does not receive a quote from a responsible and responsive offeror, the purchasing agent may purchase the supplies using methods for special purchases. [IC 5-22-8-3]

H. Requests for Proposals

• A purchasing agent may award a contract through a request for proposals procedure instead of competitive sealed bidding when the purchasing agent makes a written determination that the use of competitive sealed bidding is either not practicable or not advantageous to the governmental body. [IC 5-22-9-1]

• The governmental body may also provide by rule or policy that (i) it is either not practicable or not advantageous to governmental body to purchase specified types of supplies by sealed competitive bidding; and (ii) receiving proposals is the preferred method for purchase of that type of supply. [IC 5-22-9-8]

• A request for proposals must include:

  • the factors or criteria that will be used to evaluate the proposals;

  • a statement concerning the relative importance of price and the other evaluation factors;

  • a statement concerning whether the proposal must be accompanied by a certified check or other evidence of financial responsibility, which may be imposed in accordance with rules adopted by the governing body;

  • a statement concerning whether discussions may be conducted with responsible offerors who submit proposals determined to be reasonably susceptible of being selected for award. [IC 5-22-9-2]

• A request for proposals for must be given in accordance with IC 5-3-1, two times, at least one week apart, with the second publication occurring at least 10 days prior to the date the proposals will be received. The purchasing agent must see that the notice is published. [IC 5-22-9-3]

• Proposals must be opened so as to avoid disclosure of contents to competing offerors during the process of negotiations. [IC 5-22-9-4]

• A register of proposals must be prepared and open for public inspection after a contract award. [IC 5-22-9-5(a)]

• The register must include:
• a copy of the request for proposals;

• a list of all persons to whom copies of the request for proposal were given;

• a list of all proposals received, including the following information:
  • the names and addresses of all offerors;
  • the dollar amount of each offer;
  • the name of the successful offeror and the dollar amount of that offeror’s offer;

• the basis on which the award was made;

• the entire contents of the contract file except for proprietary information included with an offer, such as trade secrets, manufacturing processes, and financial information that was not required to be made available for public inspection under the terms of the request for proposals. [IC 5-22-9-5(b)]

• As provided in the request for proposals, or under the rules or policies of the governmental body, discussions may be conducted with, and best and final offers obtained from, responsible offerors who submit proposals determined to be reasonably susceptible of being selected for an award. [IC 5-22-9-6]

• Contract Award

  • A contract shall be awarded to the responsible offeror whose proposal is determined in writing to be the most advantageous to the governmental body, taking into consideration price and the other evaluation factors set forth in the request for proposals. [IC 5-22-9-7]

  • If provided for in the request for proposals, contracts may be awarded to more than one offeror whose proposals are determined in writing to be the most advantageous to the governmental body, taking into consideration price and the other evaluation factors.

  • The only factors or criteria that may be used in the evaluation of proposals are those specified in the request for proposals.

• Offerors must be accorded fair and equal treatment with respect to any opportunity for discussion and revision of proposals. [IC 5-22-9-9]

• In conducting discussions with an offeror, information derived from proposals submitted by competing offerors may not be disclosed. [IC 5-22-9-10]
I. Special Purchasing Methods

- Notwithstanding any other provision of IC 5-22, a purchasing agent may make a purchase without soliciting bids or proposals, if the purchasing agent uses the following special purchasing methods. [IC 5-22-10-1]

- A special purchase must be made with such competition as is practicable under the circumstances. [IC 5-22-10-2]

- A purchasing agent may make a special purchase:
  
  - when there exists, under emergency conditions, a threat to public health, welfare or safety; [IC 5-22-10-4]
  
  - when there exists a unique opportunity to obtain supplies or services at a substantial savings to the governmental body; [IC 5-22-10-5]
  
  - at an auction; [IC 5-22-10-6]
  
  - of data process contracts or license agreements for software programs or supplies or services, when only one source meets the using agency's reasonable requirements; [IC 5-22-10-7]
  
  - when (i) the compatibility of equipment, accessories or replacement parts is a substantial consideration in the purchase; and (ii) only one source meets the using agency's reasonable requirements; [IC 5-22-10-8]
  
  - when purchase of the required supplies or services under another purchasing method provided under IC 5-22 would seriously impair the functioning of the using agency; [IC 5-22-10-9]
  
  - when the purchasing agency has solicited for a purchase under other methods provided for in IC 5-22 and has not received a responsive offer; [IC 5-22-10-10]
  
  - for the evaluation of supplies or a system containing supplies for any of the following reasons: [IC 5-22-10-11]
    
    - to obtain functional information or comparative data; or
    
    - for a purpose that in the judgment of the purchasing agent may advance the long term competitive position of the governmental body;
    
    - when the market structure is based on price but the governmental body is able to receive a dollar or percentage discount of the established price; [IC 5-22-10-12]
    
    - from a public utility if the price is a negotiated price that considers the results of an
independent appraisal obtained by the public utility and a separate independent appraisal obtained by the purchasing agency; [IC 5-22-10-19]

- when there is only one source for the supply and the purchasing agent determines in writing that there is only one source for the supply. [IC 5-22-10-13]

- A purchasing agent may make a purchase from a person when the purchasing agent determines in writing that (i) supplies can be purchased from the person or the person’s authorized representative at prices equal to or less than the prices stipulated in current federal supply service schedules established by the General Services Administration; and (ii) it is advantageous to the governmental body’s interest in efficiency and economy. [IC 5-22-10-14]

- A purchasing agent may purchase supplies if the purchase is from a person who has a contract with a federal agency and the person’s contract with the federal agency requires the person to make the supplies available to the state or political subdivisions. [IC 5-22-10-15(a)]

- A purchasing agent for a political subdivision may purchase supplies if the purchase is made from a person who has a contract with a state agency and the person’s contract with the state agency requires the person to make the supplies or services available to political subdivisions. [IC 5-22-10-15(b)]

- A purchasing agent may acquire supplies if the purchasing agent determines that the governmental body can obtain the transfer of the supplies from the federal government as federal surplus property at a cost less than would be obtained from the purchase of the supplies by soliciting for bids or proposals. [IC 5-22-10-16]

- A governmental body may not make a purchase of federal surplus property if title to the property will be transferred to the governmental body before sufficient funds have been appropriated.

- A governmental body may make a purchase of federal surplus property if (i) the supplies will be transferred under a conditional sale or lease, a lease with an option to purchase, or a contract for the use of the supplies; and (ii) sufficient funds are appropriated to pay the consideration for one year of the agreement.

- A governmental body that purchases or leases surplus federal materials shall give notice of the purchase or lease in accordance with IC 5-3-1, one time, no later than 30 days after the purchase.

- A purchasing agent for a board of aviation commissioners or an airport authority may make a special purchase of petroleum products if the petroleum products are for resale to the general public. [IC 5-22-10-20]

- A purchasing agent may acquire supplies by accepting a gift on behalf of the governmental
body. [IC 5-22-10-17]

- A purchasing agent shall maintain the contract records for a special purchase in a separate file. [IC 5-22-10-3(a)]
  - The contract file for special purchases must contain a written determination of the basis for (i) the special purchase; and (ii) the selection of the contractor. [IC 5-22-10-3(b)]

- A governmental body shall maintain a record listing all contracts made for special purchases for a minimum of five years. The record must contain:
  - each contractor's name;
  - the amount and type of each contract; and
  - a description of the supplies purchased under each contract. [IC 5-22-10-3(c)]

- The contract records for a special purchase are subject to annual audit by the state board of accounts. [IC 5-22-10-3(d)]

J. **Other Procedures Governing Purchases**

- A solicitation may provide that offers will be received and contracts will be awarded separately or for any combination of lines or classes of supplies or services contained in the solicitation. [IC 5-22-17-12]
  - If the solicitation does not indicate how separate contracts might be awarded, the purchasing agent may award separate contracts to different offerors only if the purchasing agent makes a written determination that the award of separate contracts is in the interest of efficiency or economy.
  - If the purchasing agent awards a contract for a line or class of supplies or services, or any combination of lines or classes, to an offeror other than the lowest offeror, the purchasing agent must make a written determination stating the reasons for awarding a contract to that offeror.

- A solicitation may provide that the purchasing agent will award a contract for supplies or services for an unspecified number of items at a fixed price per unit and that the contract may contain a formula or method for the escalation of the unit price. [IC 5-22-17-13]

- A notice or other materials that are to be sent by mail may be sent by electronic means, as provided for in (i) rules adopted by the governmental body; (ii) written policies of the purchasing agency; or (iii) the solicitation; provided that the rules, policies, or solicitation provide that the electronic transmission of the information is at least as efficient and secure as sending the information by mail. [IC 5-22-3-4(a)]

- A governmental body may receive electronic offers if (i) the solicitation describes the
procedure for transmitting the electronic offer; and (ii) the governmental body receives the transmission on a fax machine or other system with a security feature that protects the contents of the offer with the same degree of protection as the content of an offer not transmitted electronically. [IC 5-22-3-4(b)]

- Whenever public notice of a purchase is required, it must be done in accordance with IC 5-3-1. [IC 5-22-18-1(a)]
  - The purchasing agent may give notice in addition to notice given under IC 5-3-1 if the purchasing agent determines it will increase competition. [IC 5-22-18-1(b)]
  - The purchasing agent shall schedule all notices to provide a reasonable amount of time for preparation and submission of responses after notification. [IC 5-22-18-1(c)]
    - The period between the last publication, mailing or posting of notices and the final date for submitting offers must be at least seven days. [IC 5-22-18-1(c)]
      Note that, with respect to receiving bids, IC 5-3-1 requires at least ten days between the last publication and the final date for submitting bids.

- The purchasing agent may (i) cancel a solicitation: or (ii) reject all offers, in whole or in part, as specified in the solicitation, if the purchasing agent determines it is in the best interests of the governmental body. The reasons for a cancellation of a solicitation or a rejection of all offers must be made part of the contract file. [IC 5-22-18-2]

- An offer may be opened after the time stated in the solicitation if (i) the governmental body makes a written determination that it is in the best interest of the governmental body to delay the opening; and (ii) the date, time and place of the rescheduled opening is announced at the date, time and place of the originally scheduled opening. [IC 5-22-18-3]

- Generally speaking, contract and purchasing records are public records subject to public inspection and copying in accordance with the Public Records Statute. [IC 5-22-18-4(a)]
  - However, a governmental body may establish policies or adopt rules for the protection of documents submitted to the governmental body in response to a solicitation. [IC 5-22-18-4(b)] Such rules or policies may provide procedures for:
    - protection of offers before opening to prevent disclosure of the contents;
    - affording unobstructed evaluation of offers and the contract awards by the purchasing agent after opening; and
    - protection of offers from tampering before and after opening. [IC 5-22-18-4(c)
FORM B-11

Checklist for Invitation for Bids

Type of Supply _____________

Requesting Agency ________________

____ Purchase Description

____ Evaluation Criteria to Be Used (Circle Selections)
   Inspection
   Testing
   Quality
   Workmanship
   Delivery

____ Requirements imposed on Trusts

____ Applicable Contract Terms and Conditions

____ Time and Place for Opening Bid

____ Evidence of Financial Responsibility Required? (Circle Selection)
   Certified Check
   Bid Bond
   Other ___________ (specify)

____ Performance Bond Required?

____ Statement of Conditions under Which Invitation May Be Canceled

____ Statement of Conditions under Which Bid May Be Rejected in Whole or in Part

____ Notice of Invitation for Bids Published

   First Date of Publication ____________________________
   Second Date of Publication __________________________

____ Form of Non-Collusion Affidavit
Form B-12

NON-COLLUSION AFFIRMATION

STATE OF INDIANA )
) SS:
______________ COUNTY )

The undersigned offeror or agent, duly swears, under penalties for perjury, that he has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be offered by any person nor to prevent any person from making an offer nor to induce anyone to refrain from making an offer and that this offer is made without reference to any other offer.

__________________________
Offeror (Firm)

__________________________
Signature of Offeror or Agent
Form B-13

Form for Offer or Proposal

Please print or type.

Date: ____________

2. Governmental Unit: _______________________________________

3. County: _________________________________________________

4. Offeror (Firm): ___________________________________________

   Address: _________________________________________________

   City/State: _______________________________________________

5. Telephone Number: _______________________________________

6. Agent of Offeror (if applicable): _____________________________

Pursuant to notices given, the undersigned offers to __________________ (Governmental Unit) in accordance with the following attachment(s) which specify the class or item number or description, quantity, unit price and total amount.

The contract will be awarded by in accordance with specifications. Offeror promises that it has not offered nor received a less price than the price stated in its offer/proposal for the supplies included in its offer/proposal. Offeror further agrees that it will not withdraw its offer/proposal from the office in which it is filed. A certified check or bond shall be filed with each offer/proposal if required, and liability for breach shall be enforceable upon evidence of financial responsibility.

________________________________________
Signature of Offeror or Agent
Form B-14

Bid Record for Invitation for Bids

Date of Bid Opening: ______________
Supplies Requested: ______________
Requesting Agency: ______________

Please Type or Print Legibly

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
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APPLENIX E

Frequently Asked Questions Concerning IC 5-22

Q1. Who is the "governmental body?"

A1. Generally speaking, the county is the governmental body. The definitions in IC 5-22 would seem to suggest that any number of county agencies could qualify as a "governmental body." However, IC 5-22-3-2 provides that the governmental body may adopt rules to regulate the purchases of the governmental body. IC 5-22-2-29 defines "rule" to mean "an ordinance, a resolution, or another procedure by which the governmental body is authorized by law to adopt a policy that has the force and effect of law." The county, acting through its legislative body, has this power. A county redevelopment commission, the county drainage board and the plan commission also possess this power. Neither the county highway department, county elected officials, the courts, or the county prosecutor are authorized by law to adopt policies that have the force and effect of law through the enactment of ordinance, resolutions, or other procedures. The county might want to consider adopting an ordinance to clarify who the governmental bodies are for that county.

Q2. Can a county official serve as his own purchasing agent?

A2. No, except for circuit and superior court judges. IC 5-22-4-5(a) provides that the purchasing agency for a county is the person designated by law or by rule of the governmental body. If the county is the governmental body, then the county legislative body is responsible for designating the purchasing agency for the county elected officials. IC 5-22-4-5(b) gives the purchasing agency, and no one else, the power to designate purchasing agents. IC 5-22-4-3(a) provides that a "court in the judicial branch" is the purchasing agency for the court, unless (1) the county has established a county purchasing agency, or (2) the court has asked a political subdivision or the executive branch of the state to serve as the court’s purchasing agency.

Q3. Can the county prosecutor serve as her own purchasing agent?

A3. Since the prosecutor is not a "court in the judicial branch," unless the purchasing agency designates the prosecutor as a purchasing agent, the prosecutor cannot be her purchasing agent.

Q4. Can the county have a countywide purchasing agency?

A4. IC 5-22-4-3(a) suggests that a county can establish a countywide purchasing agency.
Q5. Can the county highway department still make certain minimum monthly purchases without receiving bids or giving notice?

A5. In a way. IC 36-1-9-1(c) which previously allowed for very small monthly purchases for repair and maintenance of county highways, has been repealed effective July 1, 1998; there is no corresponding provision in IC 5-22. However, since IC 5-22 provides that the estimated cost of each purchase is measured on its own (and is not accumulated with all other purchases), so long as an individual purchase is less than $25,000, the county is not required to follow any procedure for making such purchases. However, since IC 5-22 gives only the purchasing agent to make such small purchases, the county highway department cannot make these small purchases itself, unless the purchasing agency has designate the county highway department as a purchasing agent.

Q6. Can I still have annual supply contracts for paper and office supplies?

A6. Yes. IC 5-22 actually permits multiple year contracts, provided that the contract has no provisions for price escalation, and that the contract is clear that it is subject to annual appropriation.

Q7. Can the county accept more than one bid for sand, gravel, asphalt paving materials and crushed stone?

A7. Yes, so long as the specifications allow for offers to be based upon service to specific geographic areas and the contracts are awarded by geographic areas.

Q8. Does the county have to purchase supplies from the Department of Correction?

A8. Yes. The county must purchase supplies and services produced or manufactured by the department of correction as listed in the department’s printed catalog unless the supplies and services cannot be furnished in a timely manner. Supplies and services purchased from the department of correction must meet the specifications and needs of the purchasing governmental body and be purchased at a fair market price.

Q9. Does the county have to purchase supplies from the state rehabilitation center for the blind and visually impaired?

A9. Yes. The county must purchase articles produced by the state rehabilitation center for the blind and visually impaired under the same conditions as articles produced by the department of correction, unless similar articles are produced by the county. The state rehabilitation services bureau is required to publish a catalog for the use of counties, showing the products and services
available through the rehabilitation center. Whenever a county needs an article listed in the
catalog, the county must give the bureau a reasonable time to produce or supply the article; and
except for an article produced by the department of correction, may not elsewhere: contract for;
purchase; or purchase an article described in the catalog unless the article cannot be furnished by the
bureau. The county may contract elsewhere for the purchase of an article described in the
catalog if the bureau provides a written statement that the bureau cannot furnish the article.
Supplies purchased from the bureau must meet the specifications and needs of the county and
be purchased at a fair market price. As of April 1, 1998, the bureau did not have a catalog
available.

Q10. Is the county required to purchase supplies from agencies for persons with disabilities?

A10. A county is not required to purchase supplies and services from a qualified nonprofit agency for
persons with severe disabilities, although the county may purchase supplies and services from
those agencies under the same conditions as supplies produced by the department of correction
are purchased. The county may apportion purchases of supplies and services from qualified
agencies on an equitable basis among the interested qualified agencies. Supplies purchased
from a qualified agency must meet the specifications and needs of the purchasing governmental
body; and be purchased at a fair market price.

Q11. Is the county still required to purchase recycled paper? Waste tires?

A11. No. The requirements to purchase recycled paper or to include retreaded tires in specifications
were repealed with respect to local governments, including counties. The state is still required
to make such purchases.

Q12. Does the county have to bid out services?

A12. No. The county may establish any procedures it desires (and that includes no procedures
at all) for the purchase of services. In addition, IC 36-1-9.1, which specified how a county
could bid for janitorial and security service contracts (provided the county adopted the
chapter) has been repealed effective July 1, 1998.

Q13. Will the State Board of Accounts have new bid forms available by July 1?

A13. The State Board of Accounts is not authorized to prescribe bid forms under IC 5-22. Each
individual county must develop its own forms. However, the State Board of Accounts is
anxious to assist counties in developing forms that will assist the Board when it does its
audit of each county.
Notice to Bidders
3. Notice to Bidders

The following pages contain a sample Notice to Bidders and a blank form for the LPA to complete and forward to the news media for publication.
NOTICE TO BIDDERS

Notice is hereby given that the Board of Commissioners of _Purdue County_, Indiana will receive sealed bids at _the office of the County Auditor on the second floor of the County Courthouse in West Lafayette, Indiana_ until the hour of _4:00 pm local time_ on _Monday, June 16, 1997_. At said time, bids will be opened and considered on the following item(s):

_one (1) diesel powered tandem axle dump truck_

Interested Bidders may contact _the County Highway Engineer_ for specifications regarding the above item(s). All bids must be submitted on Form 95 as prescribed by the State Board of Accounts of the State of Indiana, together with a certified check or bid bond equal to five (5) per cent of the bid, together with a signed affidavit of non-collusion. The Board of Commissioners reserve the right to reject any and/or all bids, and to determine the character and sufficiency of each bid.

Given by order of the _Purdue_ County Board of Commissioners this _5th day of May, 1997_.

________________________________________
_Purdue_ County Board of Commissioners

ATTEST:

________________________________________
_Purdue_ County Auditor
NOTICE TO BIDDERS

Notice is hereby given that the Board of Commissioners of _________________ County, Indiana will receive sealed bids at ____________________________
until the hour of _________________ on __________________, 199___. At said time, bids will be opened and considered on the following item(s):

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

All interested Bidders shall contact ____________________________ for specifications regarding the above items. All bids must be submitted on Form 95 as prescribed by the State Board of Accounts of the State of Indiana, together with a certified check or bid bond equal to __________ per cent of the bid, together with a signed affidavit of non-collusion. The Board of Commissioners reserve the right to reject any and/or all bids, and to determine the character and sufficiency of each bid.

Given by order of the _________________ County Board of Commissioners this ________th day of __________________, __________.

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

__________________________ County Board of Commissioners

ATTEST:

____________________________________________________________________

__________________________ County Auditor
Contract for Material Purchase
4. Bid Form No. 95

The following pages contain a sample Bid Form No. 95 and a blank form for the LPA to copy and include with the Specifications. It is recommended that the sample form also be copied and included with the Bid Specifications as there appears to be quite a lot of misunderstanding as to how this form is to be filled out by the Bidder.

It should also be noted that this form serves a dual purpose. First, it prescribes the format of the bid and includes a non-collusion affidavit, which must be signed by the Bidder and notarized. Second, it serves as the Contract between the successful Bidder and the LPA.
BID, OFFER OR PROPOSAL FOR SALE OR LEASE OF MATERIALS

(Defined at I.C. 36-1-3-5.5) (Please type or print)

PURDUE COUNTY

1. Governmental Unit: COUNTY HIGHWAY DEPARTMENT
2. County: PURDUE COUNTY
3. Bidder (Firm): BIGRAD TRUCKS USALE INC.
   Address: 1234 STREET
   City/State: BLOOMINGTON, IN 98999-1234
4. Telephone Number: (301) 333-1234
5. Agent of Bidder (if applicable): JIMMY BIGRAD

Pursuant to notices given, the undersigned offers bid(s) to PURDUE COUNTY HIGHWAY DEPT. (Governmental Unit) in accordance with the following attachment(s) which specify the class or item number or description, quantity, unit price and total amount.

The contract will be awarded by classes or items, in accordance with specifications. Any changes or alterations in the items specified will render such bid void as to that class or item. Bidder promises that he has not offered or received a less price than the price stated in his bid for the materials included in said bid. Bidder further agrees that he will not withdraw his bid from the office in which it is filed. A certified check or bond shall be filed with each bid required, and liability for breach shall be enforceable upon the contract, the bond or certified check or both as the case may be.

John R. Bigrad
Signature of Bidder or Agent

BID OFFER OR PROPOSAL

Attach separate sheet listing each item bid based on specifications published by governing body. Following is an example of the bid format:

<table>
<thead>
<tr>
<th>Class or Item</th>
<th>Quantity</th>
<th>Unit</th>
<th>Description</th>
<th>Unit Price</th>
<th>Amount</th>
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<td>MAKE &amp; MODEL NO.</td>
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<td>05,123.94</td>
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NON-COLLUSION AFFIDAVIT

STATE OF INDIANA ) ) SS:

PURDUE COUNTY )

The undersigned bidder or agent, being duly sworn on oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to induce anyone to refrain from bidding, and that this bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding.

He further says that no person or persons, firms, or corporation has, have or will receive directly or indirectly any rebate, fee, gift, commission or thing of value on account of such bid.

John E. Bigrad
Signature of Bidder or Agent

NOTARY STAMP

Subscribed and sworn to before me this 17th day of December, 1994.

My Commission Expires: 12/31/96

Notary Public

County of Residence: PURDUE COUNTY

ACCEPTANCE

There now being sufficient unobligated appropriated funds available, the contracting authority of PURDUE COUNTY HIGHWAY (Governmental Unit) hereby accepts the terms of the attached bid for classes or items numbered 48-1 and promises to pay the undersigned bidder upon delivery the price quoted for the materials stipulated in said bid.

Contracting Authority Members:

Date: 3/4/99

Section 4.1 - Sample Bid Form No. 95 - Front Side
BID OF

BIG BAD TRUCKS 4 SALE, INC.

1234 ST.

BIG CITY, IN. 99999-1234

(Contractor)

(Address)

FOR SALE OR LEASE OF MATERIALS

(Defined at I.C. 36-1-2-9.5)

FILED MARCH 2, 1998

THIS BID ACCEPTED FOR THE FOLLOWING CLASSES OR ITEMS

this 2ND day of MARCH, 1998

1 TANDEM AXLE DUMP TRUCK

MAKE & MODEL NO.

$ 65,123.49

P.O. No. TO BE DETERMINED AT DELIVERY

Date 3/2/98

IF NO PART OF BID IS ACCEPTED, WRITE THE WORD "REJECTED" ACROSS FACE.
BID, OFFER OR PROPOSAL FOR SALE OR LEASE OF MATERIALS

(Defined at I.C. 36-1-2-9.5)
(Please type or print)

1. Governmental Unit: ____________________________________________________________________
2. County: ___________________________________________________________________________
3. Bidder (Firm): _______________________________________________________________________
   Address: ____________________________________________________________________________
   City/State: __________________________________________________________________________
4. Telephone Number: ____________________________________________________________________
5. Agent of Bidder (If applicable): _________________________________________________________

Pursuant to notices given, the undersigned offers bid(s) to ________________________________________________________________________ (Governmental Unit) in accordance with the following attachment(s) which specify the class or item number or description, quantity, unit, unit price and total amount.

The contract will be awarded by classes or items, in accordance with specifications. Any changes or alterations in the items specified will render such bid void as to that class or item. Bidder promises that he has not offered nor received a less price than the price stated in his bid for the materials included in said bid. Bidder further agrees that he will not withdraw his bid from the office in which it is filed. A certified check or bond shall be filed with each bid if required, and liability for breach shall be enforceable upon the contract, the bond or certified check or both as the case may be.

__________________________________________________________
Signature of Bidder or Agent

BID OFFER OR PROPOSAL

Attach separate sheet listing each item bid based on specifications published by governing body. Following is an example of the bid format:

<table>
<thead>
<tr>
<th>Class or Item</th>
<th>Quantity</th>
<th>Unit</th>
<th>Description</th>
<th>Unit Price</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NON-COLLUSION AFFIDAVIT

STATE OF INDIANA

) SS: ___________ COUNTY

The undersigned bidder or agent, being duly sworn on oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to induce anyone to refrain from bidding, and that this bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding.

He further says that no person or persons, firms, or corporation has, have or will receive directly or indirectly, any rebate, fee, gift, commission or thing of value on account of such sale.

__________________________________________________________
Bidder (Firm)

__________________________________________________________
Signature of Bidder or Agent

Subscribed and sworn to before me this __________ day of __________________ 19___

My Commission Expires: __________________________________________
County of Residence: ________________________________

Notary Public

ACCEPTANCE

There now being sufficient unobligated appropriated funds available, the contracting authority of ________________________________________________________________________ (Governmental Unit) hereby accepts the terms of the attached bid for classes or items numbered ________________ and promises to pay the undersigned bidder upon delivery the price quoted for the materials stipulated in said bid.

Date: _____________________________________________________________________________

Contracting Authority Members:

______________________________________________________________________________
______________________________________________________________________________
Bid Evaluation
5. Bid Evaluation

The following pages suggest a procedure for evaluating bids. Other procedures for specific pieces of equipment may be found in Appendix II, Equipment Performance Specifications.

Feel free to modify this procedure to better fit the needs of your own agency. The important thing is to have some objective and rational procedure that considers more than simply the purchase price. State law requires the purchasing agent to award the contract to “the lowest responsible and responsive bidder”, which may not always be the bidder who bids the lowest initial price. However, if the LPA does not select the low bid, they can expect to be questioned as to the procedure and criteria they used to make their decision. Hopefully, the attached procedure will lend some credibility to their selection.
5.1 Suggested Procedure for Evaluating Bids

The "the lowest responsible and responsive bidder" shall be determined using the point system outlined below. Any Bidder failing to provide mandatory features or not meeting minimum requirements may be disqualified and no score will be assigned. The Owner shall assign the points. The Owner shall make the final decision concerning points assigned in each area.

At any time during the bidding process, the Owner may request the Bidder of the unit or units which are submitted in the bid to demonstrate an exact unit at a location chosen by the Owner and, in the presence of authorized personnel, to prove any features or performance capabilities, all at the Bidder’s expense. Each Bidder may have his own representatives present during such a review. If the Owner does not require a specific location for the demonstration, the Bidder may choose the location and shall do the demonstration at the Bidder’s expense. Failure of the demonstration machine to meet the Owner's requirements may be judged as non-conformance to bid specifications.

**AWARD CRITERIA POINTS**

<table>
<thead>
<tr>
<th>Item</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.  Bid Price</td>
<td>25</td>
</tr>
<tr>
<td>2.  Conformance to Specifications</td>
<td>60</td>
</tr>
<tr>
<td>3.  Service Availability</td>
<td>15</td>
</tr>
<tr>
<td>4.  Parts Availability</td>
<td>10</td>
</tr>
<tr>
<td>5.  Warranty</td>
<td>10</td>
</tr>
<tr>
<td>6.  Delivery Schedule</td>
<td>10</td>
</tr>
<tr>
<td>7.  Operator Satisfaction</td>
<td>20</td>
</tr>
</tbody>
</table>

Maximum Possible Score: 150
1. BID PRICE

<table>
<thead>
<tr>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest</td>
</tr>
<tr>
<td>Second Lowest</td>
</tr>
<tr>
<td>Third Lowest</td>
</tr>
<tr>
<td>Fourth Lowest</td>
</tr>
<tr>
<td>Fifth Lowest</td>
</tr>
</tbody>
</table>

Total Maximum Possible Points for This Category = 25

2. CONFORMANCE TO SPECIFICATIONS

Any minor deviation from the specifications shall result in loss of points. A major deviation shall result in NO points awarded in this area. Major and minor deviations shall be determined by the Owner, with each minor deviation resulting in the loss of 5 points.

Total Maximum Possible Points for this Category = 60

3. SERVICE AVAILABILITY

The continuous operation of the unit or units is of the utmost importance and frequently of an emergency nature. It is therefore imperative that the successful Bidder be in a position to render prompt parts and service. Points for Service Availability shall be awarded based on the proximity of the Bidder’s warranty facility to the Owner’s base of operations, as follows:

<table>
<thead>
<tr>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within the Owner’s Jurisdictional Boundary (OJB)</td>
</tr>
<tr>
<td>Outside OJB, but within a 50 mile radius</td>
</tr>
<tr>
<td>Outside OJB, but within a 100 mile radius</td>
</tr>
<tr>
<td>Outside OJB, but over a 100 mile radius</td>
</tr>
</tbody>
</table>

Total Maximum Points for This Category = 15

4. PARTS AVAILABILITY

The Parts Availability program for each Bidder shall be evaluated by the Owner and ranked. Points shall be awarded according to the ranking and the following table:

<table>
<thead>
<tr>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Satisfactory</td>
</tr>
<tr>
<td>Second Most Satisfactory</td>
</tr>
<tr>
<td>Third Most Satisfactory</td>
</tr>
<tr>
<td>Fourth Most Satisfactory</td>
</tr>
<tr>
<td>Fifth Most Satisfactory</td>
</tr>
</tbody>
</table>
Total Maximum Possible Points for This Category = 10

5. WARRANTY

The Warranty program for each Bidder shall be evaluated by the Owner and ranked. Points shall be awarded according to the ranking and the following table:

<table>
<thead>
<tr>
<th>Points</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Satisfactory</td>
<td>10</td>
</tr>
<tr>
<td>Second Most Satisfactory</td>
<td>8</td>
</tr>
<tr>
<td>Third Most Satisfactory</td>
<td>6</td>
</tr>
<tr>
<td>Fourth Most Satisfactory</td>
<td>4</td>
</tr>
<tr>
<td>Fifth Most Satisfactory</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Maximum Possible Points for This Category = 10

6. DELIVERY SCHEDULE

Delivery time points shall be awarded as follows:

<table>
<thead>
<tr>
<th>Points</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 90 Days</td>
<td>10</td>
</tr>
<tr>
<td>90-150 Days</td>
<td>5</td>
</tr>
<tr>
<td>more than 150 Days</td>
<td>0</td>
</tr>
</tbody>
</table>

Total Maximum Possible Points for This Category = 10

7. OPERATOR SATISFACTION

<table>
<thead>
<tr>
<th>Points</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Satisfactory</td>
<td>20</td>
</tr>
<tr>
<td>Second Most Satisfactory</td>
<td>15</td>
</tr>
<tr>
<td>Third Most Satisfactory</td>
<td>10</td>
</tr>
<tr>
<td>Fourth Most Satisfactory</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Maximum Possible Points for This Category = 20

Ratings shall be assigned based on ease of operation, operator comfort, and operating noise levels.

Note: Proper evaluation of Bid proposal can be made “ONLY” if Bidder provided all information requested.
<table>
<thead>
<tr>
<th>Bidder</th>
<th>Bid #1</th>
<th>Bid #2</th>
<th>Bid #3</th>
<th>Bid #4</th>
<th>Bid #5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bigbad Trucks, Inc.</td>
<td>Niceboy Trucks, Inc.</td>
<td>Elcheapo Trucks, Inc.</td>
<td>Toohigh Trucks, Inc.</td>
<td>Toohigh2 Trucks, Inc.</td>
</tr>
<tr>
<td>Bid Summary:</td>
<td>Price</td>
<td>Rank</td>
<td>Price</td>
<td>Rank</td>
<td>Price</td>
</tr>
<tr>
<td>Date:</td>
<td>Truck</td>
<td>$55,000.00</td>
<td>3</td>
<td>$50,000.00</td>
<td>2</td>
</tr>
<tr>
<td>Sub. #1:</td>
<td>Body</td>
<td>$20,000.00</td>
<td>5</td>
<td>$16,000.00</td>
<td>2</td>
</tr>
<tr>
<td>Sub. #2:</td>
<td>Hydraulics</td>
<td>$4,000.00</td>
<td>2</td>
<td>$4,500.00</td>
<td>3</td>
</tr>
<tr>
<td>Sub. #3:</td>
<td>Plow</td>
<td>$4,500.00</td>
<td>3</td>
<td>$4,450.00</td>
<td>2</td>
</tr>
<tr>
<td>Sub. #4:</td>
<td>Spreader</td>
<td>$2,500.00</td>
<td>3</td>
<td>$1,950.00</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>$86,000.00</td>
<td>3</td>
<td>$86,900.00</td>
<td>2</td>
<td>$68,550.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>15</td>
<td>2</td>
<td>20</td>
<td>1</td>
<td>25</td>
<td>4</td>
<td>10</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Conformance</th>
<th>Deviations</th>
<th>Points (60)</th>
<th>Deviations</th>
<th>Points (60)</th>
<th>Deviations</th>
<th>Points (60)</th>
<th>Deviations</th>
<th>Points (60)</th>
<th>Deviations</th>
<th>Points (60)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7</td>
<td>25</td>
<td>4</td>
<td>40</td>
<td>2</td>
<td>50</td>
<td>1</td>
<td>55</td>
<td>1</td>
<td>55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Service</th>
<th>Distance</th>
<th>Points (15)</th>
<th>Distance</th>
<th>Points (15)</th>
<th>Distance</th>
<th>Points (15)</th>
<th>Distance</th>
<th>Points (15)</th>
<th>Distance</th>
<th>Points (15)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>47</td>
<td>10</td>
<td>0</td>
<td>15</td>
<td>52</td>
<td>1</td>
<td>125</td>
<td>0</td>
<td>125</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Parts</th>
<th>Rank</th>
<th>Points (10)</th>
<th>Rank</th>
<th>Points (10)</th>
<th>Rank</th>
<th>Points (10)</th>
<th>Rank</th>
<th>Points (10)</th>
<th>Rank</th>
<th>Points (10)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>10</td>
<td>2</td>
<td>8</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Warranty</th>
<th>Rank</th>
<th>Points (10)</th>
<th>Rank</th>
<th>Points (10)</th>
<th>Rank</th>
<th>Points (10)</th>
<th>Rank</th>
<th>Points (10)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. Delivery</th>
<th># of days</th>
<th>Points (10)</th>
<th># of days</th>
<th>Points (10)</th>
<th># of days</th>
<th>Points (10)</th>
<th># of days</th>
<th>Points (10)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90</td>
<td>5</td>
<td>88</td>
<td>10</td>
<td>175</td>
<td>0</td>
<td>120</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Satisfaction</th>
<th>Rank</th>
<th>Points (20)</th>
<th>Rank</th>
<th>Points (20)</th>
<th>Rank</th>
<th>Points (20)</th>
<th>Rank</th>
<th>Points (20)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>20</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>15</td>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total</th>
<th>Rank</th>
<th>Points (150)</th>
<th>Rank</th>
<th>Points (150)</th>
<th>Rank</th>
<th>Points (150)</th>
<th>Rank</th>
<th>Points (150)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>89</td>
<td>1</td>
<td>104</td>
<td>5</td>
<td>109</td>
<td>4</td>
<td>94</td>
</tr>
</tbody>
</table>

**INSTRUCTIONS:**
1. If there are more than 5 bidders, manually shortlist them to the top 5 for evaluation.
2. Fill in the shaded areas with the requested data.
3. Play the "SORT" macro, under Tools, Macro, Play, Sort.
4. View the results of the evaluation in the bottom row of the worksheet.
# Bid Evaluation Form

<table>
<thead>
<tr>
<th>Bidder</th>
<th>Bid #1</th>
<th>Bid #2</th>
<th>Bid #3</th>
<th>Bid #4</th>
<th>Bid #5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bid Summary:</td>
<td>Price</td>
<td>Rank</td>
<td>Price</td>
<td>Rank</td>
<td>Price</td>
</tr>
<tr>
<td>Base:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub. #1:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub. #2:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub. #3:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub. #4:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Conformance: | Deviations | Points (60) | Deviations | Points (60) | Deviations | Points (60) | Deviations | Points (60) | Deviations | Points (60) |
3. Service: | Distance | Points (15) | Distance | Points (15) | Distance | Points (15) | Distance | Points (15) | Distance | Points (15) |
4. Parts: | Rank | Points (10) | Rank | Points (10) | Rank | Points (10) | Rank | Points (10) | Rank | Points (10) |
5. Warranty: | Rank | Points (10) | Rank | Points (10) | Rank | Points (10) | Rank | Points (10) | Rank | Points (10) |
6. Delivery: | # of days | Points (10) | # of days | Points (10) | # of days | Points (10) | # of days | Points (10) | # of days | Points (10) |
7. Satisfaction: | Rank | Points (20) | Rank | Points (20) | Rank | Points (20) | Rank | Points (20) | Rank | Points (20) |

Total | Rank | Points (150) | Rank | Points (150) | Rank | Points (150) | Rank | Points (150) | Rank | Points (150) |

**INSTRUCTIONS:**

1. If there are more than 5 bidders, manually shortlist them to the top 5 for evaluation.
2. Fill in the shaded areas with the requested data.
Equipment Specifications
6. Equipment Specifications

6.1 Tandem Axle Dump Truck
6.2 Single Axle Dump Truck
6.3 Central Hydraulics System for Single or Tandem Axle Dump Trucks
6.4 Snow/Ice Control Attachments
6.5 Sign Truck
6.6 Service Truck
6.7 Front End Loader
6.8 Motor Grader
6.9 Chip Spreader
6.10 Asphalt Distributor
6.11 Patching Machine
6.12 Wheel Excavator
6.13 Rubber Tire Roller
6.14 Mowers
6.15 Street Sweeper
6.16 Rubber Tire Loader / Backhoe
6.1

Tandem Dump Truck
6.1 Tandem Axle Dump Truck

6.1.1 Chassis

6.1.2 Traditional Dump Body

6.1.3 Cross-Memberless Dump Body

6.1.4 Vendor Listing
Task Force

Chuck Scholer  Director  HERPICC
Tom Martin  Research Engineer  HERPICC
Jerry Halperin  Buyer  InDOT
Jim Conner  Specifications Writer  InDOT
Larry McLin  County Highway Supervisor  Daviess County
Eugene Shurtle  County Highway Supervisor (Ret)  LaPorte County
Chuck Everett  Utility Manager  Town of Flora

User Input Checklist

User input is required on the following pages of this Specification:

Entered  Page  Description
☐  1  Bid Bond Amount
☐  4  User to select one of the three alternatives for transmission type, including the number of speeds if the manual transmission is selected.
☐  6-7  User to select one of the two alternatives for frame reinforcement.
☐  6  Horizontal or vertical muffler mounting
☐  7  Minimum hinge to rear (overhang)
☐  10  Cast spoke or disc type wheels - front axle
☐  11  Cast spoke or disc type wheels - rear axle
☐  12  Use profile
☐  16  Paint color
☐  17  Location of Owner’s base of operations
☐  18  Delivery schedule
☐  18  Penalty for late delivery
☐  19  Pintle hitch capacity
☐  19  Trade in information

Section 6.1.1 - Tandem Axle Dump Truck - Chassis
SPECIFICATIONS

for

56,000 GVW Tandem Axle Dump Truck

GENERAL

It is the intent of these specifications to describe a new tandem axle dump truck in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The truck shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, with Non Collusion Affidavit and Bid Bond equal to __________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Item Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs,
devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

**Term "or Equal"** Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
ENGINE AND ENGINE EQUIPMENT

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Item Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine shall be diesel V8 or in-line 6 cylinder four cycle turbo charged engine with the following minimum specifications:</td>
<td></td>
</tr>
<tr>
<td>Horsepower: 250 hp</td>
<td>Horsepower: __________ hp @ ________ rpm</td>
</tr>
<tr>
<td>Torque: 800 ft-lbs</td>
<td>Torque: ________ ft-lbs @ ________ rpm</td>
</tr>
<tr>
<td>Engine Make:</td>
<td>Engine Make: __________________</td>
</tr>
<tr>
<td>Model:</td>
<td>Model: ___________________________</td>
</tr>
<tr>
<td>Cylinders: __________ Cycle: _______________</td>
<td>Cylinders: __________ Cycle: ________</td>
</tr>
<tr>
<td>Bore / Stroke: ________ in x ________ in</td>
<td>Bore / Stroke: ________ in x ________</td>
</tr>
<tr>
<td>Displacement: ________ CID ________ liter</td>
<td>Displacement: ________ CID ________ liter</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

_________________________________________________________________________________________

_________________________________________________________________________________________

_________________________________________________________________________________________

Section 6.1.1 - Tandem Axle Dump Truck - Chassis
AUTOMATIC TRANSMISSION EQUIPMENT

Minimum Requirements of Local Agency

Transmission shall be Allison automatic Model MD 3060 (World Transmission) or equal, capable of accepting the maximum torque output of the engine being bid.

Temperature gauge to be provided

In-line transmission filter on the return line to be provided.

Note: Auxiliary cooler is NOT to be included with this transmission per recommendations of the manufacturer.

Provided by Item Proposed by Bidder

Make: ______________________

Model: ______________________

Speeds

Forward: __________

Reverse: __________

Shift Selector

Floor: __________

Dash: __________

Yes [ ] No [ ] Yes [ ] No [ ]

*** LPA should select one of the three alternates for the transmission (page 4). ***

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
AUTOMATIC TRANSMISSION EQUIPMENT

Minimum Requirements of Local Agency

Transmission shall be Allison automatic Model MT-653, or equal, capable of accepting the maximum torque output of the engine being bid.

Auxiliary cooler to be included which should be standard of the industry for the engine and transmission being bid.

Temperature gauge to be provided

In-line transmission filter on the return line to be provided.

Provided by Item Proposed by Bidder

Make: ____________________________

Model: __________________________

Speeds

Forward: ________
Reverse: ________

Shift Selector

Floor: ________
Dash: ________

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

*** LPA should select one of the three alternates for the transmission (page 4).***

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
MANUAL TRANSMISSION / CLUTCH EQUIPMENT

Minimum Requirements of Local Agency

____________________ Speed manual transmission shall be that which is required to accept the maximum torque output of the engine being bid.

Clutch shall be that which is required to accept the maximum torque output of the engine being bid under fully loaded snow plowing conditions.

Clutch shall have hydraulic assist.

Provided by Item Proposed by Bidder

Make: ______________________

Model: ______________________

Speeds

  Forward: _________
  Reverse: _________

Shift Selector

  Floor: _________
  Dash: _________

Make: ______________________

Model: ______________________

Size: _________

Number of disks: _________

Type of disks: _________

Yes [ ]  No [ ]

*** LPA should select one of the three alternates for the transmission (page 4).

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
**COOLING SYSTEM**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Item Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>The unit shall be equipped with the following items within the cooling system:</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Overflow Recovery System</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Corrosion Resistor Mechanism.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Silicone Hose System, or equal</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine Block Heater(s), 1000 watt min. Watts:</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Weather head connector for Block heater (to be located below left door, front corner)</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Radiator Fan shall be modulated type.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Fin and tube type radiator core having maximum frontal opening available for the engine and transmission being bid.</td>
<td>Frontal Area: __________ sq. in.</td>
</tr>
<tr>
<td></td>
<td>Radiator Capacity: __________ gal</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Minimum Requirements of Local Agency

Wheelbase and cab to axle spacing shall be minimum required for proper fit of the dump body and specified exhaust:

- Exhaust muffler shall be mounted:
  - horizontal: __________
  - vertical: __________
  with a vertical exhaust pipe.

Note: Units to be used with underbody scrapers may require the vertical muffler to avoid interference problems. If no underbody scraper is to be used, the horizontal muffler is recommended to reduce cab to axle spacing.

Heavy duty frame, extended in front to accommodate front mounted PTO pump, including any special radiator or engine modifications required for front mount PTO pump.

Frame rails (side rail and reinforcement) shall be continuous full length.

Frame rail yield strength 110,000 PSI (minimum)

Section modulus 30"³ minimum

Resistant Bending Moment (RBM) 3,000,000 "#  

Provided by Item Proposed by Bidder

Wheelbase: ________________ "

Cab to axle spacing: ________________ "

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yield Strength: _____________ psi

Section Modulus: _____________ "³

RBM: _________________ "#  

Describe exceptions to the Specifications:

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

Section 6.1.1 - Tandem Axle Dump Truck - Chassis
CHASSIS / FRAME (con't)

Minimum Requirements of Local Agency

<table>
<thead>
<tr>
<th>Provided by Item Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yes [ ] No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hinge to rear dimension: __________&quot;</td>
</tr>
</tbody>
</table>

Heavy Duty Front Bumper, Swept back steel channel design (minimum 12"), with Tow Hooks (Front hooks to be frame mounted with access through front bumper by installation contractor)

Single rear tow loop

A minimum hinge to rear (overhang) dimension of __________" is required to accommodate paving and sealing equipment used with this unit.

*** LPA should select one of the two alternates for the frame (pages 6-7). These stronger frame specifications will generate bids on a severe service truck, such as a Navistar 2574 or 2654. Some other truck manufacturers may require frame strengthening by the dump body contractor to meet these specifications.

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.1.1 - Tandem Axle Dump Truck - Chassis
CHASSIS / FRAME

Minimum Requirements of Local Agency

Wheelbase and cab to axle spacing shall be minimum required for proper fit of the dump body and specified exhaust

Exhaust muffler shall be mounted:
  horizontal: _________
  vertical: _________
with a vertical exhaust pipe.

Note: Units to be used with underbody scrapers may require the vertical muffler to avoid interference problems. If no underbody scraper is to be used, the horizontal muffler is recommended to reduce cab to axle spacing.

Heavy duty frame, extended in front to accommodate front mounted PTO pump, including any special radiator or engine modifications required for front mount PTO pump.

Frame rails (side rail and reinforcement) shall be continuous full length.

Frame rail yield strength 110,000 PSI (minimum)
Section modulus 25"^3 minimum
Resistant Bending Moment (RBM) 2,500,000 "#

Provided by Item Proposed by Bidder

Wheelbase: _______________

Cab to axle spacing: _______________

  Yes [ ]  No [ ]

Yield Strength: __________ psi
Section Modulus: __________ "^3
RBM: __________ "#

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
CHASSIS / FRAME (con't)

Minimum Requirements of Local Agency

Heavy Duty Front Bumper, Swept back steel channel design (minimum 12"), with Tow Hooks (Front hooks to be frame mounted with access through front bumper by installation contractor)

Single rear tow loop

A minimum hinge to rear (overhang) dimension of ______" is required to accommodate paving and sealing equipment used with this unit.

Provided by Item Proposed by Bidder

Yes [ ] No [ ]

Yes [ ] No [ ]

Hinge to rear dimension: ________"

*** LPA should select one of the two alternates for the frame (pages 6-7). These lighter frame specifications will generate bids on a medium service truck, such as a Navistar 4000 Series. Most other truck manufacturers will be able to meet these specifications.

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
FILTERS

**Minimum Requirements of Local Agency**

- Air Filter shall be replaceable paper type, heavy duty, dual element.
- Capability to switch air intake from outside to underhood from within the cab.
- Oil filters shall be full flow, spin on type.
- Engine shall be equipped with primary and secondary fuel filters.
- Engine shall be equipped with water filter.

<table>
<thead>
<tr>
<th>Provided by Item Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
ELECTRICAL SYSTEM

Minimum Requirements of Local Agency

Starter shall be rated Heaviest Duty for this application by the manufacturer.

Provided by Item Proposed by Bidder

Yes [ ] No [ ]

Alternator shall be 130 amp brushless Delco Remy Model 29-SI type 300, or equal.

Yes [ ] No [ ]

Engine shall be equipped with a minimum of three Group 31 heavy duty, 170 amp-hour, 1950 total cold crank power at 0 degree F, 15 plates / cell.

Yes [ ] No [ ]

Electrical system shall be weatherproof Betts system, or equal, equipped with circuit breakers.

Yes [ ] No [ ]

Special tail lights shall be part of the Dump Body Specifications.

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.1.1 - Tandem Axle Dump Truck - Chassis
**FRONT AXLE EQUIPMENT**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Item Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>16,000 # front axle rating</td>
<td>Front axle rating: _______________ #</td>
</tr>
<tr>
<td>16,000 # suspension</td>
<td>Front axle suspension: ___________ #</td>
</tr>
<tr>
<td>Heavy duty dual power steering gears</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Heavy duty shock absorbers to be factory installed</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Front tires to be tubeless, radial type, 315/80R22.5, load range 14 PR ply rating, rib type tread.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Wheels to be 8.25 x 22.5 tubeless rims.</td>
<td>Type: ____________________________</td>
</tr>
<tr>
<td>cast spoke _____</td>
<td>Size: ___________________________</td>
</tr>
<tr>
<td>disc _____</td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.1.1 - Tandem Axle Dump Truck - Chassis
REAR AXLE EQUIPMENT

Minimum Requirements of Local Agency

40,000 # rear axle rating

40,000 # suspension

Rear auxiliary springs - 4500 # capacity total

Rear tires shall be tubeless, radial type, 11.00R22.5, load range 14 PR ply rating, rib lug type tread.

Wheels to be 8.25 x 22.5 tubeless rims.
	cast spoke _____
	disc _____

Rear axle to be No-Spin type with automatic positive locking power

Provided by Unit Proposed by Bidder

Rear axle rating: ________________ #

Rear axle suspension: ________________ #

Rear auxiliary suspension: ________________ #

Yes [ ] No [ ]

Type: ________________

Size: ________________

No-Spin: Yes [ ] No [ ]

Automatic Control: Yes [ ] No [ ]

Describe exceptions to the Specifications:

__________________________

__________________________

__________________________

__________________________

__________________________
REAR AXLE EQUIPMENT (con't)

Minimum Requirements of Local Agency

Bidder shall provide an analysis of several rear axle ratios based on the following profile:

Normal Operating Speed: ____________ mph

Terrain:
Level ____________ %
Rolling ____________ %
Hilly ____________ %

Total 100 %

Type of Use:
Plowing Snow ____________ %
Stockpiling ____________ %
Paving/Sealing ____________ %
Off road ____________ %

Total 100 %

Note: The decision on the axle ratio will be made based on the analysis included with this Bid and communicated to the Bidder with the acceptance of the Bid. It is requested by the Owner that the rear axle ratio not be the limiting factor for speed. Rather, the speed should be controlled electronically through the transmission, or via the governor. The rear axle ratio shall be that which provides the best fuel economy at the normal highway speed.

Describe exceptions to the Specifications:

---------------------------------------------

---------------------------------------------

---------------------------------------------

Provided by Unit Proposed by Bidder

Analysis Attached: 
Yes [ ] No [ ]
AIR / BRAKE EQUIPMENT

Minimum Requirements of Local Agency

Service air brakes shall be dual air, with anti-lock braking system.

Shoe size to be 16.5" x 5" S-cam front, and 16.5" x 7" S-cam rear.

Air compressor to be 13.2 cfm minimum.

Air compressor shall be equipped with Bendix AD-9 air dryer, or equal.

Parking brake shall be piggy-back, spring actuated, dual diaphragm, min. 30 sq. in..

Parking brake chamber to be provided for both rear axles for tandem units.

Pancakes shall be mounted in front of rear axle with 4" clearance from the tires.

Unit shall be equipped with 25 ft of standard air hose with a quick connect/disconnect coupler directly to the air tank. A hand nozzle shall also be provided with the same type of coupler.

Provided by Unit Proposed by Bidder

<table>
<thead>
<tr>
<th>Yes [ ]</th>
<th>No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shoe size:</td>
<td>Front: ________________</td>
</tr>
<tr>
<td>Rear: ________________</td>
<td></td>
</tr>
<tr>
<td>Capacity: ________________ cfm</td>
<td></td>
</tr>
<tr>
<td>Make:</td>
<td></td>
</tr>
<tr>
<td>Model:</td>
<td></td>
</tr>
<tr>
<td>Size:</td>
<td></td>
</tr>
</tbody>
</table>

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
FUEL TANKS

Minimum Requirements of Local Agency

The fuel tanks shall be mounted on the left and right side of the vehicle, with a total combined capacity of at least 80 gallons.

Fuel tank shall be located so that refueling can be accomplished without raising the dump body.

A fuel/water separator shall be included in the fuel system, Raycom or equal.

Each tank shall be clearly marked DIESEL FUEL ONLY.

Note: A minimum of 24" ground clearance is required for movement of the underbody scraper if one is to be provided.

Provided by Unit Proposed by Bidder

Dual tanks: [ ] Yes [ ] No [ ]
Left tank capacity: [ ] gal
Right tank capacity: [ ] gal

[ ] Yes [ ] No [ ]

[ ] Yes [ ] No [ ]

[ ] Yes [ ] No [ ]

Describe exceptions to the Specifications:

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________
### Minimum Requirements of Local Agency

Cab shall be equipped with the following standard features:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Provided by Unit</th>
<th>Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilated and insulated</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>All window tinted glass</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Door operated dome light</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Cigar lighter</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Rigid cab mount</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Driver’s seat to be Bostrum Air, intermediate back, or equal</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Companion’s seat, placed at least 13” from driver’s seat</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Dual air horns</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Heavy duty heater and defroster</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Dual sun visors</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Dual arm rests</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Insulated head liner</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>AM/FM Radio</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Intermittent electric windshield wipers, to be mounted at the top of the windshield, if available</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Driver operated electric right side window</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Dual bright finish, heated, West Coast style mirrors (16” x 7”), with 8” adjustable convex mirror, both sides</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Backup alarm</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Exterior grab handles</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Locking hand throttle</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Marker lights</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Minimum Requirements of Local Agency

Dash mounted gauges

Fuel
Tachometer
Hour meter (Hobb's or equal)
Ammeter (needle type, calibrated)
Oil pressure "
Water temperature "
Air pressure "
Transmission temperature "

High water temperature/low oil pressure emergency shutdown / alarm mechanism shall be dash mounted.

Tilt hood shall be capable of opening over stationary grill and snow plow hitch, and shall be solid with an access hatch, each side.

Paint color shall be ___________________.

Paint color is ___________________.

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Describe exceptions to the Specifications:

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________
WARRANTY / REPAIR PARTS

Minimum Requirements of Local Agency

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts Book and Service Manual provided.

Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner’s base of operations, which is located at

_____________________________________________________________________

_____________________________________________________________________

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner’s base of operations.

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Location of warranty facility:

_____________________________________________________________________

Distance from Owner’s base of operations:

_____________________________________________________________________

__________ mi

_______ % available within 48 hours

_________ hours delivery for PM Parts

Describe exceptions to the Specifications:

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________
DATE OF DELIVERY

Minimum Requirements of Local Agency

Unit must be delivered to the Owner with all attachments and components substantially completed, within ____________ days of the acceptance of the bid.

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of ____________ $/day for each calendar day of delay after the Owner's specified date of delivery.

Provided by Unit Proposed by Bidder

Estimated Delivery Time: ____________ days

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

Factory installed air conditioning  Add: ____________ $

# Capacity Pintle Hitch  Add: ____________ $
(recommend 20,000 or 40,000 # capacity)

DEDUCT ALTERNATES

Trade In(s)  Deduct: ____________ $

Year: ______________________________
Make: ______________________________
Model: ______________________________
S/N: ______________________________
Location: ______________________________

Net Price: ____________ $

Bidder Name, Address, Phone, Contact:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
6.1.2 Tandem Axle Dump Truck - Traditional Dump Body

Task Force

Chuck Scholer
Tom Martin
Jerry Halperin
Jim Conner
Larry McLin
Eugene Shurte
Chuck Everett
Director
Research Engineer
Buyer
Specifications Writer
County Highway Supervisor
County Highway Supervisor (Ret)
Utility Manager

HERPICC
HERPICC
InDOT
InDOT
Daviess County
LaPorte County
Town of Flora

User Input Checklist

User input is required on the following pages of this Specification:

Entered Page Description
☐ 1 Dump body color
SPECIFICATIONS

for

Traditional Dump Body

for

56,000 GVW Tandem Axle Dump Truck

GENERAL

It is the intent of these specifications to describe a dump body for use with a 56,000 GVW tandem axle dump truck used for general highway maintenance including snow and ice control. Unless otherwise approved, all component parts of this system shall be made in the USA. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.
Minimum Requirements of Local Agency

Body

The dimensions shall be 14 ft long by 7 ft wide inside measurements. The sides to be 13 cy capacity, the ends to be 15 cy capacity.

Floor to be of 3/16" HSLA, 65,000 psi min. tensile strength with radius sides and end.

One piece sides and headboard to be 10 ga HSLA steel, 65,000 psi min tensile strength, with boxed top rail, one horizontal side brace, and bottom rub rail, all seamless and sloped downward to shed loose material and all shall be rigidly attached to the front and rear corner posts.

Tail Gate

Tail gate to be of 7 ga HSLA, 65,000 psi min. tensile strength, with heavy duty hardware, double acting type, and 6" offset type upper hinges.

It shall be equipped with 5/16" chain spreading device and fasteners.

It shall be a formed boxed 9 panel (min) gate.

It shall have an air operated tail gate latching/unlatching mechanism with the control conveniently located for the operator in the cab.

Provided by Unit Proposed by Bidder

Length: _____________ ft
Width: _____________ ft
Capacity: _________cy (sides)
___________cy (ends)

Thickness: ______________ "
Tensile Strength: ______________ psi

Thickness: ______________ ga
Tensile Strength: ______________ psi

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________

________________________________________________________

________________________________________________________
Welding

All welds shall be continuous.

Yes [ ] No [ ]

Cab Protector

Full cab shield designed, manufactured, and installed to meet all State and Federal Safety Regulations.

Yes [ ] No [ ]

Shall accommodate exhaust type specified in the truck chassis specifications without modifications.

Yes [ ] No [ ]

Long Sills and Cross Members

Long sills to be one piece, 8" x 14 #/ft I beam section

Size: _____" x ____________ #/ft
Number: __________________

Cross members to be 4" x 5.4 lb/ft structural channels or equal. There shall be a minimum of 14 cross members. The floor is to be continuously welded to both the cross members and the main longitudinals to prevent washboarding of the floor.

Yes [ ] No [ ]

Area reinforcements not specifically mentioned but necessary to counteract severe stress concentrations shall be completed.

Safety Strut

Safety strut shall comply with OSHA and FMVSS requirements.

Yes [ ] No [ ]

Front and Rear Corner Posts

Front corner post shall be 7 ga, 4 3/4" x 12", one piece, tapered, with 4" side board pockets.

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

Section 6.1.2 - Tandem Axle Dump Truck - Traditional Dump Body
Rear corner posts shall be 7 ga, 4 3/4" x 12", one piece, full depth and tied to an 8" structural channel rear apron, with no openings for lights.

Hoist

Hoist shall be a Class 90, 28 ton as specified in NTEA Classifications. Hoist shall be telescopic, single cylinder, three stage, with the largest stage mounted at the bottom. Upper cylinder connection shall be trunnion mounted to limit the size of the doghouse within the dump body.

Hoist cylinder shall have a 2 year warranty.

Rear Hinge Assembly

The rear hinge assembly shall be constructed of a 6" x 6" x 1/2" structural angle, with 2" diameter nitrited pins connecting through 2 1/2" hinge blocks incorporating greaseless composite bushings.

Lighting

The body shall be equipped with a sufficient number of armored lights and reflectors so placed as to meet Indiana State and FMVSS Specifications. Bed lights to be of lexan lenses with replaceable bulbs. All wiring to be weatherproofed in polyurethane tubing, Betts or equal. Wiring shall be placed and fastened so that it will be protected from outside chafing.

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Lights shall consist of:

<table>
<thead>
<tr>
<th>top</th>
<th>white sealed beam strobe</th>
<th>Yes [ ] No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>next</td>
<td>red stop, turn, and hazard</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>next</td>
<td>red tail</td>
<td></td>
</tr>
<tr>
<td>bottom</td>
<td>white backup light</td>
<td></td>
</tr>
</tbody>
</table>

and shall be rigidly attached to the rear corner posts.

Ladder

Ladder shall be provided on drivers side, rigidly mounted directly behind the cab, and shall meet all OSHA and FMVSS safety regulations.

Reflective Sheeting

Reflective sheeting shall be installed in accordance with standard industry practice and shall be Scotchlite 980 Diamond grade reflective tape, or equal.

Painting

Preparation - All metal shall be chemically cleaned before being primed.

Unit shall be primed with a high quality zinc oxide primer before painting.

Finish paint shall be Imron polyurethane enamel, or equal. Color to be ________________.

| Brand: | ____________________ |
| Grade: | ____________________ |
| Yes [ ] No [ ] | Yes [ ] No [ ] |
| Color: | ____________________ |

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Undercoating

Dump body undercoating material and thickness to be factory recommendation to best industry standards.

Material: __________________________
Thickness: ________________________

Tail Gate Identification Number

Serial number of dump body shall be permanently marked on outside of each tail gate.

Yes [ ] No [ ]

Mud Flaps

Mud flaps shall be mounted behind the rear wheels only according to FMVSS Specifications.

Yes [ ] No [ ]

Describe exceptions to the Specifications:

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

1. Reinforced floor to full 1/4" thick HSLA, 65000 psi tensile strength
   Add: ___________ $

2. Reinforced floor w/ 3/16" thick T-1, 130,000 psi tensile strength
   Add: ___________ $

3. Reinforced floor to full 1/4" thick T-1, 130,000 psi tensile strength
   Add: ___________ $

4. 409 stainless steel dump body, painted, w/ 3/16" floor plate
   Add: ___________ $  

5. 409 stainless steel dump body, painted, w/ 1/4" floor plate
   Add: ___________ $  

6. 304 stainless steel dump body, unpainted, w/ 3/16" floor plate  
   Add: ___________ $  

7. 304 stainless steel dump body, unpainted, w/ 1/4" floor plate
   Add: ___________ $  

DEDUCT ALTERNATES

Trade In (s)

Deduct: ___________ $  

Year: ____________________________
Make: ___________________________
Model: ___________________________
S/N: _____________________________
Location: _________________________

Net Price: ___________ $  

Bidder Name, Address, Phone, Contact:

____________________________________________________________________

____________________________________________________________________

Describe exceptions to the Specifications:

____________________________________________________________________

____________________________________________________________________
6.1.3 Tandem Axle Dump Truck - Cross-memberless Dump Body

Task Force

Chuck Scholer Director HERPICC
Tom Martin Research Engineer HERPICC
Jerry Halperin Buyer InDOT
Jim Conner Specifications Writer InDOT
Larry McLin County Highway Supervisor Daviess County
Eugene Shurte County Highway Supervisor (Ret) LaPorte County
Chuck Everett Utility Manager Town of Flora

User Input Checklist

User input is required on the following pages of this Specification:

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dump body color</td>
</tr>
</tbody>
</table>
SPECIFICATIONS

for

Cross-Memberless Type Dump Body

for

56,000 GVW Tandem Axle Dump Truck

GENERAL

It is the intent of these specifications to describe a cross-memberless dump body for use with a 56,000 GVW tandem axle dump truck used for snow and ice control. Unless otherwise approved, all component parts of this system shall be made in the USA. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial conformance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.
Minimum Requirements of Local Agency

Body

The dimensions shall be 14 ft long by 7 ft wide inside measurements. The sides to be 13 cy capacity, the ends to be 15 cy capacity.

Floor to be of 3/16" HSLA, 65,000 psi min. tensile strength with radius sides and end.

One piece sides and headboard to be 10 ga HSLA steel, 65,000 psi min tensile strength, with boxed top rail, one horizontal side brace, and bottom rub rail, all seamless and sloped downward to shed loose material and all shall be rigidly attached to the front and rear corner posts.

Tail Gate

Tail gate to be of 7 ga HSLA, 65,000 psi min. tensile strength, with heavy duty hardware, double acting type, and 6" offset type upper hinges.

It shall be equipped with 5/16" chain spreading device and fasteners.

It shall be a formed boxed 9 (min) panel gate.

It shall have an air operated tail gate latching/unlatching mechanism with the control conveniently located for the operator in the cab.

Describe exceptions to the Specifications:

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length: _____________ ft</td>
</tr>
<tr>
<td>Width: _____________ ft</td>
</tr>
<tr>
<td>Capacity: ____________ cy (sides)</td>
</tr>
<tr>
<td>____________ cy (ends)</td>
</tr>
<tr>
<td>Thickness: _____________ &quot;</td>
</tr>
<tr>
<td>Tensile Strength: _____________ psi</td>
</tr>
</tbody>
</table>

| Thickness: _____________ ga |
| Tensile Strength: _____________ psi |
| Yes [ ] No [ ] |

| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
Welding

All welds shall be continuous.

Yes [ ] No [ ]

Cab Protector

Full cab shield designed, manufactured, and installed to meet all State and Federal Safety Regulations.

Yes [ ] No [ ]

Shall accommodate exhaust type specified in the truck chassis specifications without modifications.

Yes [ ] No [ ]

Long Sills and Cross Members

Long sills to be one piece, 8" x 14#/ft I beam section

There shall be no cross members required for floor support.

Area reinforcements not specifically mentioned but necessary to counteract severe stress concentrations shall be completed.

Yes [ ] No [ ]

Safety Strut

Safety strut shall comply with OSHA and FMVSS requirements.

Yes [ ] No [ ]

Front and Rear Corner Posts

Front corner post shall be 7 ga, 4 3/4" x 12", one piece, tapered, with 4" side board pockets.

Rear corner posts shall be 7 ga, 4 3/4" x 12", one piece, full depth and tied to an 8" structural channel

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________
________________________________________
________________________________________

Section 6.1.3 - Tandem Axle Dump Truck - Cross-Memberless Dump Body
rear apron, with no openings for lights.

**Hoist**

Hoist shall be a Class 90, 28 ton as specified in NTEA Classifications. Hoist shall be telescopic, single cylinder, three stage, with the largest stage mounted at the bottom. Upper cylinder connection shall be trunnion mounted to limit the size of the doghouse within the dump body.

Hoist cylinder shall have a 2 year warranty.

**Rear Hinge Assembly**

The rear hinge assembly shall be constructed of a 6" x 6" x 1/2" structural angle, with 2" diameter nitrited pins connecting through 2 1/2" hinge blocks incorporating greaseless composite bushings.

**Lighting**

The body shall be equipped with a sufficient number of armored lights and reflectors so placed as to meet Indiana State and FMVSS Specifications. Bed lights to be of lexan lenses with replaceable bulbs. All wiring to be weatherproofed in polyurethane tubing, Betts or equal. Wiring shall be placed and fastened so that it will be protected from outside chafing.

Lights shall consist of:

- top - white sealed beam strobe
- next - red stop, turn, and hazard
- next - red tail
- bottom - white backup light

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

Class: ______________________
Capacity: _______________________ ton

Trunnion mounted: Yes [ ] No [ ]
Extension into dump body: ______________________

Warranty Period: ___________________________ yrs

Yes [ ] No [ ]
Lights shall be rigidly attached to the rear corner posts.  

Yes [ ]  No [ ]

Ladder

Ladder shall be provided on drivers side, rigidly mounted directly behind the cab, and shall meet all OSHA and FMVSS safety regulations.  

Yes [ ]  No [ ]

Reflective Sheeting

Reflective sheeting shall be installed in accordance with standard industry practice and shall be Scotchlite 980 Diamond grade reflective tape, or equal.  

Brand: _______________________
Grade: ______________________

Painting

Preparation - All metal shall be chemically cleaned before being primed.  

Yes [ ]  No [ ]

Unit shall be primed with a high quality zinc oxide primer before painting.  

Yes [ ]  No [ ]

Finish paint shall be Imron polyurethane enamel, or equal.  Color to be _______________________.  

Yes [ ]  No [ ]

Color: _______________________

Undercoating

Dump body undercoating material and thickness to be factory recommendation to best industry standards.  

Material: ______________________
Thickness: ____________________

Tail Gate Identification Number

Serial number of dump body shall be permanently marked on outside of each tail gate.  

Yes [ ]  No [ ]

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
Mud Flaps

Mud flaps shall be mounted behind the rear wheels only according to FMVSS Specifications.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

Describe exceptions to the Specifications:

____________________________________________________________________________________

____________________________________________________________________________________
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

1. Reinforced floor to full 1/4" thick HSLA, 65000 psi tensile strength
   Add: ___________ $

2. Reinforced floor w/ 3/16" thick T-1, 130,000 psi tensile strength
   Add: ___________ $

3. Reinforced floor to full 1/4" thick T-1, 130,000 psi tensile strength
   Add: ___________ $

4. 409 stainless steel dump body, painted, w/ 3/16" floor plate
   Add: ___________ $

5. 409 stainless steel dump body, painted, w/ 1/4" floor plate
   Add: ___________ $

6. 304 stainless steel dump body, unpainted, w/ 3/16" floor plate
   Add: ___________ $

7. 304 stainless steel dump body, unpainted, w/ 1/4" floor plate
   Add: ___________ $

DEDUCT ALTERNATES

Trade In (s)

Year: ____________________________
Make: ____________________________
Model: ____________________________
S/N: ____________________________
Location: ____________________________

Deduct: ___________ $

Net Price: ___________ $

Bidder Name, Address, Phone, Contact:

________________________________________________________________________

________________________________________________________________________

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

Section 6.1.3 - Tandem Axle Dump Truck - Cross-Memberless Dump Body
6.1.4 Tandem Axle Dump Truck - Vendor Listings

Section 1 - Chassis Vendors

Section 2 - Traditional Dump Body Vendors

Section 3 - Cross-Memberless Dump Body Vendors

All three reports are sorted first by district, then alphabetically.
<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bradley Chevrolet, Inc.</td>
<td>317-736-5141</td>
<td>317-736-8846</td>
<td>GMC</td>
<td></td>
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<tr>
<td>1550 N. Morton</td>
<td></td>
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<tr>
<td>Franklin</td>
<td>IN</td>
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<td>46131-1156</td>
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<tr>
<td>Bud Wolf Chevrolet, Inc.</td>
<td>317-257-4461</td>
<td>317-254-3382</td>
<td>GMC</td>
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<tr>
<td>5350 N. Keystone</td>
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<td>46220-3649</td>
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<tr>
<td>Central Indiana Mack Sales and Service, Inc</td>
<td>317-247-6221</td>
<td>317-244-5442</td>
<td>Mack</td>
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<tr>
<td>4501 W. Bradbury Ave., P.O. Box 510</td>
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<tr>
<td>Dan Young Chevrolet, Inc.</td>
<td>317-575-9966</td>
<td>317-573-8469</td>
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<td>3210 E. 96th St.</td>
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<td>46240-1413</td>
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<tr>
<td>Discover Volvo-GMC Trucks, Inc.</td>
<td>317-244-2428</td>
<td>317-486-2315</td>
<td>GMC</td>
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<td>3150 W. Morris St.</td>
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<td>IN</td>
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<tr>
<td>General Truck Sales</td>
<td>317-289-4481</td>
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<tr>
<td>4300 N. Broadway</td>
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<td>General Truck Sales</td>
<td>800-382-7717</td>
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<td>Hubler Chevrolet, Inc.</td>
<td>317-882-4389</td>
<td>317-881-2954</td>
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<tr>
<td>8220 S. U.S. 31</td>
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<tr>
<td>Company Name and Address</td>
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<td>Fax</td>
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<td>Lehman International Truck Sales</td>
<td>800-886-2895</td>
<td>317-284-7544</td>
<td>Navistar</td>
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<tr>
<td>3801 E. McGalliard</td>
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<tr>
<td>Russ Dellen, Inc.</td>
<td>317-462-5591</td>
<td>317-462-2667</td>
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<tr>
<td>2640 West Main St.</td>
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<td>Greenfield, IN</td>
<td>46140-2725</td>
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<tr>
<td>Speedway International, Inc.</td>
<td>317-247-6631</td>
<td>317-243-7676</td>
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<tr>
<td>5730 Fortune Circle West. P.O. Box</td>
<td></td>
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<td>International</td>
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<td>Indianapolis, IN</td>
<td>46241</td>
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<tr>
<td>Stoops Freightliner - Muncie</td>
<td>800-515-2393</td>
<td>219-</td>
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<tr>
<td>4500 S. Madison, P.O. Box 2463</td>
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<tr>
<td>Muncie, IN</td>
<td>47307-0463</td>
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<tr>
<td>Stoops Freightliner - Quality Trailer, Inc.</td>
<td>800-899-1533</td>
<td>317-781-4376</td>
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<td>1851 W. Thompson Rd.</td>
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<tr>
<td>Studebaker International, Inc.</td>
<td>800-338-1770</td>
<td>317-962-7390</td>
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<tr>
<td>Richmond, IN</td>
<td>47374</td>
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<tr>
<td>Utility/Peterbilt of Indianapolis</td>
<td>317-788-0299</td>
<td>317-780-2889</td>
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<tr>
<td>4255 S. Harding St.</td>
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<td>46217</td>
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</table>
Tandem Axle Dump Truck Chassis Vendors

### District: BC (East Central)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
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<tbody>
<tr>
<td>W. Hare and Son, Inc.</td>
<td>317-773-1090</td>
<td>317-776-5038</td>
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<td>GMC</td>
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<tr>
<td>1700 South 10th Street</td>
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<tr>
<td>Noblesville</td>
<td></td>
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<tr>
<td>IN 46060-3835</td>
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</tr>
<tr>
<td>Wabash Ford Truck Sales</td>
<td>317-244-6811</td>
<td>317-244-2291</td>
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<td>Sterling (Ford)</td>
</tr>
<tr>
<td>1301 S. Holt Rd.</td>
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<tr>
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<tr>
<td>IN 46241</td>
<td></td>
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</tr>
<tr>
<td>White GMC of Indianapolis</td>
<td>800-635-7856</td>
<td>317-486-2315</td>
<td>Bud Myer</td>
<td>Volvo</td>
</tr>
<tr>
<td>3150 West Morris St.</td>
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<td>IN 46241</td>
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### District: NB (Northeast)

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<td>Truck City of Gary</td>
<td>7360 West Chicago Ave., P.O. Box 61 Gary IN 46406</td>
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<td>W &amp; W Truck Sales</td>
<td>1631 W. Market, P.O. Box 1022 Logansport IN 46947</td>
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<td>Whiteford Ford Truck, Inc.</td>
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<td>Whiteford Kenworth, Inc.</td>
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<td>317-234-6764</td>
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<td>10000 Hwy 57, P.O. Box 3304</td>
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| Broerman Chevrolet Co. | 812-874-2216 812-874-3409|            |             |         | GMC                       |
| Hwy. 165 N. & Frontage Rd. | Pobeyville      |            |             |         |                           |
| IN                       | 47633                   |            |             |         |                           |

| Chastain International, Inc. | 888-336-6302 812-333-9426|            |             |         | Navistar International    |
| 3951 S. Hwy 37, P.O. Box 1353 | Bloomington    |            |             |         |                           |
| IN                       | 47402                   |            |             |         |                           |

| Hasenour Motor Company, Inc. | 812-326-2321 812-326-2220|            |             |         | GMC                       |
| Hwy. 64                     | St. Anthony           |            |             |         |                           |
| IN                       | 47575                   |            |             |         |                           |

| Hoeffling Truck and Tractor, Inc. | 800-533-4599 812-254-3994|            |             |         | Navistar International    |
| 101 S. Meridian St.          | Washington            |            |             |         |                           |
| IN                       | 47501                   |            |             |         |                           |

<p>| McCormick, Inc. | 800-777-1952 812-885-2164|            |             |         | Volvo, Freightliner       |
| 2409 U.S. 41 South       | Vincennes              |            |             |         |                           |
| IN                       | 47591                   |            |             |         |                           |</p>
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<tr>
<td>Bill Andrews OLDS-GMC, Inc.</td>
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<td>3838 State Road 38 East</td>
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<td>Bill Defouw Chevy-BMW-Geo</td>
<td>317-449-2800</td>
<td>317-449-2874</td>
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### District: WC (West Central)

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<td>Mike Raisor Ford, Inc.</td>
<td>765-447-9444</td>
<td>765-449-4564</td>
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<td>765-449-8688</td>
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<td>Speedway International Trucks, Inc.</td>
<td>812-466-2182</td>
<td>812-460-0315</td>
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<td>5052 W. 13th St.</td>
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<td>20 W. Margaret Drive</td>
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<td>W &amp; W Truck Sales</td>
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<tr>
<td>Allied Truck Equipment</td>
<td>317-545-1227</td>
<td>317-542-7402</td>
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<td>Flink, Western, Crysteel, Knapheide</td>
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<td>Fontaine Truck Equipment</td>
<td>317-787-0718</td>
<td>317-787-0794</td>
<td>Joe Stoutner</td>
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<td>Henderson, Henke</td>
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<td>11020 Allisonville Rd.</td>
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<td>Dickason Truck &amp; Equip.</td>
<td>219-543-2464</td>
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<td>Ernst Truck Equipment, Inc.</td>
<td>2727 McDonald St.</td>
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<td>Hoosier Truck and Trailer Equipment, Inc.</td>
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<td>W. A. Jones and Son</td>
<td>1171 S. Williams Dr., P.O. Box 450</td>
<td>219-244-7661</td>
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<td>Bill Remmert</td>
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<td>2203 N. Michigan</td>
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<td>Dwyer Equipment</td>
<td>51465 Bittersweet Rd.</td>
<td>219-272-3840</td>
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<td>Galion, Crysteel, Western</td>
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<td>Whiteford Trailer and Equipment Co.</td>
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<td>Midwest Truck Equipment</td>
<td>217-465-8785</td>
<td>217-463-1236</td>
<td>Fred Alwardt</td>
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<td>Rental Service Corp. - Roesch Division</td>
<td>217-367-3781</td>
<td>217-367-0259</td>
<td>Chris Rahn</td>
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<td>1414 E. Triumph Dr.</td>
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<td>5311 U.S. Highway 31</td>
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District: SW (Southwest)

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<td>812-479-1481</td>
<td>812-479-1941</td>
<td>Larry Kloshier</td>
<td>Galion, Knapheide, Henderson, Gledhill, Good Roads, Meyer</td>
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<tr>
<td>Meyer Truck Equipment</td>
<td>812-695-3451</td>
<td>812-695-3397</td>
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<td>Good Roads, Western, Perfection, Knapheide</td>
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<tr>
<td>196 W. State Rd. 56</td>
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<tr>
<td>Jasper</td>
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<td>Miller Truck Equipment, Inc.</td>
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<td>5900 Old Boonville Hwy.</td>
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<td>Sternberg Truck Equipment, Inc.</td>
<td>800-264-9004</td>
<td>812-867-7423</td>
<td>Ken Martin</td>
<td>Flink, Viking, Crysteel</td>
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District: WC (West Central)

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<td>Clark Truck Equipment</td>
<td>765-362-4101</td>
<td>765-362-4103</td>
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<td>Rowe Truck Equipment, Inc.</td>
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<td>Gallion, Godwin, Knapheide, Flink, Good Roads, Meyer, Western</td>
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<tr>
<td>Mid-State Truck Equipment Co.</td>
<td>317-849-4903</td>
<td>317-849-6441</td>
<td>Mike Eby</td>
<td>Henderson, Henske</td>
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<tr>
<td>11020 Allisonville Rd. Fishers IN 46038</td>
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<tr>
<td>Nick's Automotive, Inc.</td>
<td>317-964-6823</td>
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### District: NE (Northeast)

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<tr>
<td>Ernst Truck Equipment, Inc.</td>
<td>800-552-3399</td>
<td>219-422-8698</td>
<td>Kenny Ernst</td>
<td>Perfection, Swenson, Henske</td>
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<tr>
<td>2727 McDonald St. Ft. Wayne IN 46803</td>
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<tr>
<td>Hoosier Truck and Trailer Equipment, Inc.</td>
<td>219-422-7564</td>
<td>219-422-1682</td>
<td>Max Nusbaum</td>
<td>Heil, Monroe, Henderson, Meyer</td>
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<tr>
<td>4830 Todd Dr. Ft. Wayne IN 46803</td>
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### District: NW (Northwest)

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<tbody>
<tr>
<td>Northern Equipment</td>
<td>219-936-9683</td>
<td>219-936-8656</td>
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<td>Monroe, Perfection, Root</td>
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<tr>
<td>16465 W. Lincoln Hwy. Plymouth IN 46563</td>
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District: NW (Northwest)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scherer Truck Equipment</td>
<td>800-257-6873</td>
<td>???</td>
<td>???</td>
<td>Western, Galion, Perfection</td>
</tr>
<tr>
<td>Schneider</td>
<td>219-946-7965</td>
<td>219-946-7891</td>
<td>Bob Terry</td>
<td>Western, Henderson, Knapheide</td>
</tr>
<tr>
<td>Winamac</td>
<td>219-288-2541</td>
<td>219-234-6273</td>
<td>Gerald Rife</td>
<td>Henderson</td>
</tr>
</tbody>
</table>

District: OS (Out of State)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwest Truck Equipment</td>
<td>217-465-8785</td>
<td>217-463-1236</td>
<td>Fred Alwardt</td>
<td>Midwest</td>
</tr>
<tr>
<td>825 N. Main</td>
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</tr>
<tr>
<td>Rental Service Corp. - Roesch Division</td>
<td>217-367-3781</td>
<td>217-367-0259</td>
<td>Chris Rahn</td>
<td>Heil, Knapheide, Swenson, Henke, Western</td>
</tr>
<tr>
<td>1414 E. Triumph Dr.</td>
<td></td>
<td></td>
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<td>Urbana</td>
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<tr>
<td>61802</td>
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District: SW (Southwest)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evansville Truck Equipment, Inc.</td>
<td>812-479-1481</td>
<td>812-479-1941</td>
<td>Larry Klossher</td>
<td>Galion, Knapheide, Henderson, Gledhill, Good Roads, Meyer</td>
</tr>
<tr>
<td>5600 Booneville Hwy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evansville</td>
<td></td>
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<tr>
<td>47715</td>
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</tr>
<tr>
<td>District: SW (Southwest)</td>
<td>Company Name and Address</td>
<td>Phone</td>
<td>Fax</td>
<td>Contact</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------------</td>
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<td>-------------</td>
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<tr>
<td></td>
<td>Meyer Truck Equipment</td>
<td>812-695-3451</td>
<td>812-695-3397</td>
<td>???</td>
</tr>
<tr>
<td></td>
<td>196 W. State Rd. 56</td>
<td></td>
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<td>Jasper</td>
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<td>IN 47546</td>
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<td></td>
<td>Miller Truck Equipment, Inc.</td>
<td>812-479-9700</td>
<td></td>
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<tr>
<td></td>
<td>5900 Old Boonville Hwy.</td>
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<td></td>
<td>Evansville</td>
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<td>IN 47716-5364</td>
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<table>
<thead>
<tr>
<th>District: WC (West Central)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clark Truck Equipment</td>
<td>765-362-4101</td>
<td>765-362-4103</td>
<td>Larry Smith</td>
<td>Henderson, Western, Viking, Henke</td>
</tr>
<tr>
<td></td>
<td>U.S. 231 South</td>
<td></td>
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<td></td>
<td>Linden</td>
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<td></td>
<td>IN 47955</td>
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</tbody>
</table>

End of report.
6.2

Single Axle Dump Truck
6.2 Single Axle Dump Truck

6.2.1 Chassis

6.2.2 Traditional Dump Body

6.2.3 Vendor Listing

Section 6.2 - Single Axle Dump Truck
6.2.1 Single Axle Dump Truck - Chassis

Task Force

Chuck Scholer  Director  HERPICC
Tom Martin  Research Engineer  HERPICC
Jerry Halperin  Buyer  InDOT
Jim Conner  Specifications Writer  InDOT
Larry McLin  County Highway Supervisor  Daviess County
Eugene Shurte  County Highway Supervisor (Ret)  LaPorte County
Chuck Everett  Utility Manager  Town of Flora

User Input Checklist

User input is required on the following pages of this Specification:

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<th>Page</th>
<th>Description</th>
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Section 6.2.1 - Single Axle Dump Truck - Chassis
SPECIFICATIONS

for

37,000 GVW Single Axle Dump Truck

GENERAL

It is the intent of these specifications to describe a new single axle dump truck in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The truck shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, with Non Collusion Affidavit and Bid Bond equal to __________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).
Term "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
ENGINE AND ENGINE EQUIPMENT

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine shall be diesel V8 or in-line 6 cylinder four cycle turbo charged</td>
<td>Horsepower: ______ hp @ ______ rpm</td>
</tr>
<tr>
<td>Engine with the following minimum specifications:</td>
<td>Torque: ______ ft-lbs @ ______ rpm</td>
</tr>
<tr>
<td>Horsepower: ______ 210 hp</td>
<td>Engine Make: ____________________</td>
</tr>
</tbody>
</table>
| Torque: ______ 600 ft-lbs                                                | Model: __________________________
|                                                                         | Cylinders: ______ Cycle: ________ |
|                                                                         | Bore / Stroke: ______ in x ________ in |
|                                                                         | Displacement: ______ CID ________ liter |

Describe exceptions to the Specifications:

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________
AUTOMATIC TRANSMISSION EQUIPMENT

Minimum Requirements of Local Agency

Transmission shall be Allison automatic Model MD3060 (World Transmission) or equal, capable of accepting the maximum torque output of the engine being bid.

Temperature gauge to be provided

In-line transmission filter on the return line to be provided.

Note: Auxiliary cooler is NOT to be included with this transmission per recommendations of the manufacturer.

Provided by Unit Proposed by Bidder

Make: ____________________

Model: ____________________

Speeds

Forward: _________

Reverse: _________

Shift Selector

Floor: _________

Dash: _________

Yes [ ] No [ ]

Yes [ ] No [ ]

*** LPA to select one of the three alternates for the transmission (page 4).***

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
AUTOMATIC TRANSMISSION EQUIPMENT

Minimum Requirements of Local Agency

Transmission shall be Allison automatic Model MT-653, or equal, capable of accepting the maximum torque output of the engine being bid.

Auxiliary cooler to be included which should be standard of the industry for the engine and transmission being bid.

Temperature gauge to be provided

In-line transmission filter on the return line to be provided.

Provided by Unit Proposed by Bidder

Make: _________________________

Model: _________________________

Speeds

Forward: _________

Reverse: _________

Shift Selector

Floor: _________

Dash: _________

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

***LPA to select one of the three alternates for the transmission (page 4).***

Describe exceptions to the Specifications:

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________
MANUAL TRANSMISSION / CLUTCH EQUIPMENT

Minimum Requirements of Local Agency

Speed manual transmission shall be that which is required to accept the maximum torque output of the engine being bid.

Clutch shall be that which is required to accept the maximum torque output of the engine being bid under fully loaded snow plowing conditions.

Clutch shall have hydraulic assist.

Provided by Unit Proposed by Bidder

Make: ____________________________
Model: __________________________

Speeds
Forward: ______________
Reverse: ____________

Shift Selector
Floor: ____________
Dash: ____________

Make: ____________________________
Model: __________________________
Size: ____________
Number of disks: __________________________
Type of disks: __________________________

Yes [ ] No [ ]

*** LPA to select one of the three alternates for the transmission (page 4).

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Section 6.2.1 - Single Axle Dump Truck - Chassis
**COOLING SYSTEM**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>The unit shall be equipped with the following items within the cooling system:</td>
<td></td>
</tr>
<tr>
<td>Overflow Recovery System</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Corrosion Resistor Mechanism.</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Silicone Hose System, or equal</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Engine Block Heater(s), 1000 watt min.</td>
<td>Yes [ ]  No [ ]  Watts: ___________</td>
</tr>
<tr>
<td>Weather head connector for Block heater (to be located below left door, front corner)</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Radiator Fan shall be modulated type.</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Fin and tube type radiator core having maximum frontal opening available for the engine and transmission being bid.</td>
<td>Frontal Area: ____________ sq.in.  Radiator Capacity: ____________ gal</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
CHASSIS / FRAME

Minimum Requirements of Local Agency

Wheelbase and cab to axle spacing shall be minimum required for proper fit of the dump body and specified exhaust:

Exhaust muffler shall be mounted:
  horizontal: __________
  vertical: __________
with a vertical exhaust pipe.

Note: Units to be used with underbody scrapers may require the vertical muffler to avoid interference problems. If no underbody scraper is to be used, the horizontal muffler is recommended to reduce cab to axle spacing.

Heavy duty frame, extended in front to accommodate front mounted PTO pump, including any special radiator or engine modifications required for front mount PTO pump

Frame rails (side rail and reinforcement) shall be continuous full length

Frame rail yield strength 110,000 PSI (minimum)

Section modulus 30\textsuperscript{n3} minimum

Resistant Bending Moment (RBM) 3,000,000 "#

Provided by Unit Proposed by Bidder

Wheelbase: ________________ "

Cab to axle spacing: ________________ "

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yield Strength: ____________ psi

Section Modulus: _______________ \textsuperscript{n3}

RBM: _______________ "#

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Section 6.2.1 - Single Axle Dump Truck - Chassis
CHASSIS / FRAME (con't)

Minimum Requirements of Local Agency

Heavy Duty Front Bumper, Swept back steel channel design (minimum 12"), with Tow Hooks (Front hooks to be frame mounted with access through front bumper by installation contractor)

Single rear tow loop

A minimum hinge to rear (overhang) dimension of _______" is required to accommodate paving and sealing equipment used with this unit.

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]

Yes [ ] No [ ]

Hinge to rear dimension: __________"
CHASSIS / FRAME

Minimum Requirements of Local Agency

Wheelbase and cab to axle spacing shall be minimum required for proper fit of the dump body and specified exhaust:

Exhaust muffler shall be mounted:
  horizontal:  
  vertical:  
with a vertical exhaust pipe.

Note: Units to be used with underbody scrapers may require the vertical muffler to avoid interference problems. If no underbody scraper is to be used, the horizontal muffler is recommended to reduce cab to axle spacing.

Heavy duty frame, extended in front to accommodate front mounted PTO pump, including any special radiator or engine modifications required for front mount PTO pump

Frame rails (side rail and reinforcement) shall be continuous full length

Frame rail yield strength 110,000 PSI (minimum)

Section modulus 25"³ minimum

Resistant Bending Moment (RBM) 2,600,000 "#

Provide by Unit Proposed by Bidder

Wheelbase:  
Cab to axle spacing:  

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yield Strength:  psi

Section Modulus:  "³

RBM:  "#

Describe exceptions to the Specifications:

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________
CHASSIS / FRAME (con't)

Minimum Requirements of Local Agency

Heavy Duty Front Bumper, Swept back steel channel design (minimum 12"), with Tow Hooks (Front hooks to be frame mounted with access through front bumper by installation contractor)

Single rear tow loop

A minimum hinge to rear (overhang) dimension of ____________" is required to accommodate paving and sealing equipment used with this unit.

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]

Yes [ ] No [ ]

Hinge to rear dimension: ____________"

*** LPA should select one of the two alternates for the frame (pages 6-7). These lighter frame specifications will generate bids on a medium service truck, such as a Navistar 4000 Series. Most other truck manufacturers will be able to meet these lighter specifications without modification by the dump body contractor.

Describe exceptions to the Specifications:

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________
**FILTERS**

<table>
<thead>
<tr>
<th><strong>Minimum Requirements of Local Agency</strong></th>
<th><strong>Provided by Unit Proposed by Bidder</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Filter shall be replaceable paper type, heavy duty, dual element.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Capability to switch air intake from outside to underhood from within the cab.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Oil filters shall be full flow, spin on type.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine shall be equipped with primary and secondary fuel filters.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine shall be equipped with water filter.</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
**ELECTRICAL SYSTEM**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starter shall be rated Heaviest Duty for this application by the manufacturer.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Alternator shall be 130 amp brushless Delco Remy Model 29-SI type 300, or equal.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine shall be equipped with a minimum of three Group 31 heavy duty, 170 amp-hour, 1950 total cold crank power at 0 degree F, 15 plates / cell.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Electrical system shall be weatherproof Betts system, or equal, equipped with circuit breakers.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Special tail lights shall be part of the Dump Body Specifications.</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:


Section 6.2.1 - Single Axle Dump Truck - Chassis
# FRONT AXLE EQUIPMENT

## Minimum Requirements of Local Agency

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>14,000 # front axle rating</td>
<td></td>
</tr>
<tr>
<td>14,000 # suspension</td>
<td></td>
</tr>
<tr>
<td>Heavy duty dual power steering gears.</td>
<td></td>
</tr>
<tr>
<td>Heavy duty shock absorbers to be factory installed</td>
<td></td>
</tr>
<tr>
<td>Front tires to be tubeless, radial type, 11R22.5, load range 14 PR ply rating, rib type tread</td>
<td></td>
</tr>
<tr>
<td>Wheels to be 8.25 x 22.5 tubeless rims.</td>
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</tr>
<tr>
<td>cast spoke</td>
<td></td>
</tr>
<tr>
<td>disc</td>
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</table>

## Provided by Unit Proposed by Bidder

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front axle rating</td>
<td>_______</td>
</tr>
<tr>
<td>Front axle suspension</td>
<td>_______</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
<td>_______</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
<td>_______</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
<td>_______</td>
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<tr>
<td>Type</td>
<td>_______</td>
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<tr>
<td>Size</td>
<td>_______</td>
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</table>

Describe exceptions to the Specifications:

______________________________
______________________________
______________________________

Section 6.2.1 - Single Axle Dump Truck - Chassis
REAR AXLE EQUIPMENT

Minimum Requirements of Local Agency

23,000 # rear axle rating

23,000 # suspension

Rear auxiliary springs - 4500 # capacity total

Rear tires shall be tubeless, radial type, 11.00R22.5, load range 14 PR ply rating, rib lug type tread

Wheels to be 8.25 x 22.5 tubeless rims.
  cast spoke ____
  disc ____

Rear axle to be No-Spin type with automatic positive locking power

Provided by Unit Proposed by Bidder

Rear axle rating: ________________ #

Rear axle suspension: ________________ #

Rear auxiliary suspension: ________________ #

Yes [ ] No [ ]

Type: ________________

Size: ________________

No-Spin: Yes [ ] No [ ]

Automatic Control: Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________

________________________________________

________________________________________
REAR AXLE EQUIPMENT (cont’)

Minimum Requirements of Local Agency

Bidder shall provide an analysis of several rear axle ratios based on the following profile:

Normal Highway Speed: ___________ mph

Terrain:

- Level ______ %
- Rolling ______ %
- Hilly ______ %

Total ___________ 100 %

Type of Use:

- Plowing Snow ______ %
- Stockpiling ______ %
- Paving/Sealing ______ %
- Off road ______ %

Total ___________ 100 %

Note: The decision on the axle ratio will be made based on the analysis included with this Bid and communicated to the Bidder with the acceptance of the Bid. It is requested by the Owner that the rear axle ratio not be the limiting factor for speed. Rather, the speed should be controlled electronically through the transmission, or via the governor. The rear axle ratio shall be that which provides the best fuel economy at the normal highway speed.

Describe exceptions to the Specifications:

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

Provided by Unit Proposed by Bidder

Analysis Attached:

Yes [ ] No [ ]
AIR / BRAKE EQUIPMENT

Minimum Requirements of Local Agency

Service air brakes shall be dual air, with anti-lock braking system.

Shoe size to be 16.5" x 5" S-cam front, and 16.5" x 7" S-cam rear.

Air compressor to be 13.2 cfm minimum.

Air compressor shall be equipped with Bendix AD-9 air dryer, or equal.

Parking brake shall be piggy-back, spring actuated, dual diaphragm, min. 30 sq. in.

Pancakes shall be mounted in front of rear axle with 4" clearance from the tires.

Unit shall be equipped with 25 ft of standard air hose with a quick connect/disconnect coupler directly to the air tank. A hand nozzle shall also be provided with the same type of coupler.

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Shoe size
Front: ________________
Rear: ________________

Capacity: ________________ cfm

Make: ___________________
Model: ___________________

Size: ________________ sq. in.

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
**FUEL TANKS**

**Minimum Requirements of Local Agency**

The fuel tanks shall be mounted on the left and right side of the vehicle with a total combined capacity of at least 80 gallons.

Fuel tank shall be located so that refueling can be accomplished without raising the dump body.

A fuel/water separator shall be included in the fuel system.

Each tank shall be clearly marked DIESEL FUEL ONLY.

Note: A minimum of 24" ground clearance is required for movement of the underbody scraper if one is to be provided.

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual tanks: Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Left tank capacity: _____________ gal</td>
</tr>
<tr>
<td>Right tank capacity: _____________ gal</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________

________________________________________

________________________________________

Section 6.2.1 - Single Axle Dump Truck - Chassis
### Minimum Requirements of Local Agency

Cab shall be equipped with the following standard features:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Provided by Unit</th>
<th>Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilated and insulated</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>All window tinted glass</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Door operated dome light</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cigar lighter</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Rigid cab mount</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Driver's seat to be Bostrum Air, intermediate back, or equal</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Companion's seat, placed at least 13&quot; from driver's seat</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dual air horns</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Heavy duty heater and defroster</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dual sun visors</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dual arm rests</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Insulated head liner</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>AM/FM Radio</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Intermittent electric windshield wipers, to be mounted at top of windshield, if available</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Driver operated electric right side window</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Dual bright finish, heated West Coast style mirrors</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>(16&quot; x 7&quot;), with 8&quot; adjustable convex mirror, both sides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backup alarm</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Exterior grab handles</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Locking hand throttle</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Marker lights</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

_________________________________________________________

_________________________________________________________

_________________________________________________________
CAB (con’t)

**Minimum Requirements of Local Agency**

<table>
<thead>
<tr>
<th>Dash mounted gauges</th>
<th>Provided by Unit</th>
<th>Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Tachometer</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Hour meter (Hobb’s or equal)</td>
<td>Yes [ ]</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Ammeter (needle type, calibrated)</td>
<td>Yes [ ]</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Oil pressure</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Water temperature</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Air pressure</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Transmission temperature</td>
<td>Yes [ ]</td>
<td>Yes [ ]</td>
</tr>
</tbody>
</table>

High water temperature/low oil pressure emergency shutdown / alarm mechanism shall be dash mounted.

Tilt hood shall be capable of opening over stationary grill and snow plow hitch, and shall be solid with an access hatch on each side.

Paint shall be ______________________.

Paint is ______________________.

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
## Warranty / Repair Parts

### Minimum Requirements of Local Agency

- Bidder to provide description of all warranties and component warranties available.

- Bidder shall provide warranty from date of delivery of completed unit(s).

- Parts Book and Service Manual provided.

- Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner’s base of operations, which is located at:

  ________________

  ________________

  ________________

  Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

- Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner’s base of operations.

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

**Location of warranty facility:**

______________________________

**Distance from Owner’s base of operations:**

______________________________ mi

________ % available within 48 hours

________ hours delivery for PM Parts

### Describe exceptions to the Specifications:

______________________________

______________________________

______________________________
DATE OF DELIVERY

Minimum Requirements of Local Agency

Unit must be delivered to the Owner with all attachments and components substantially completed, within __________ days of the acceptance of the bid.

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of __________ $/day for each calendar day of delay after the Owner's specified date of delivery.

Provided by Unit Proposed by Bidder

Estimated Delivery Time: __________ days

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

Factory installed air conditioning  Add: ___________ $

# Capacity Pintle Hitch  Add: ___________ $
(recommend 20,000 or 40,000 # capacity)

DEDUCT ALTERNATES

Trade In(s)  Deduct: ___________ $

Year: __________________________
Make: __________________________
Model: __________________________
S/N: __________________________
Location: __________________________

Net Price: ___________ $

Bidder Name, Address, Phone, Contact:

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

Describe exceptions to the Specifications:

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

Section 6.2.1 - Single Axle Dump Truck - Chassis
6.2.2 Single Axle Dump Truck - Traditional Dump Body

Task Force

Chuck Scholer Director HERPICC
Tom Martin Research Engineer HERPICC
Jerry Halperin Buyer InDOT
Jim Conner Specifications Writer InDOT
Larry McLin County Highway Supervisor Daviess County
Eugene Shurte County Highway Supervisor (Ret) LaPorte County
Chuck Everett Utility Manager Town of Flora

User Input Checklist

User input is required on the following pages of this Specification:

<table>
<thead>
<tr>
<th>Entered</th>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>Dump body color</td>
</tr>
</tbody>
</table>

Section 6.2.2 - Single Axle Dump Truck - Traditional Dump Body
SPECIFICATIONS

for

Traditional Dump Body

for

37,000 GVW Single Axle Dump Truck

GENERAL

It is the intent of these specifications to describe a dump body for use with a 37,000 GVW single axle dump truck used for general highway maintenance, including snow and ice control. Unless otherwise approved, all component parts of this system shall be made in the USA. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial conformance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.
Minimum Requirements of Local Agency

Body

The dimensions shall be 10 ft long by 7 ft wide inside measurements. The sides to be 5 cy capacity, the ends to be 6 cy capacity.

Floor to be of 3/16" HSLA, 65,000 psi tensile strength minimum, with radius sides and front end.

One piece sides and headboard to be 10 ga HSLA, 65,000 psi min. tensile strength, with boxed top rail, one horizontal side brace, and bottom rub rail, all seamless and sloped downward to shed loose material and all shall be rigidly attached to the front and rear corner posts.

Tail Gate

Tail gate to be of 7 ga HSLA, 65,000 psi minimum tensile strength, with heavy duty hardware, double acting type, with 6" offset type upper hinges.

It shall be equipped with 5/16" chain spreading device and fasteners.

It shall be a formed boxed 9 panel gate.

It shall have an air operated tail gate latching/unlatching mechanism with the control conveniently located for the operator in the cab.

Provided by Unit Proposed by Bidder

Length: ____________ ft
Width: ____________ ft
Capacity: ____________ cy (sides)

Thickness: ____________ "
Tensile Strength: ____________ psi

Thickness: ____________ ga
Tensile Strength: ____________ psi

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

Section 6.2.2 - Single Axle Dump Truck - Traditional Dump Body
Welding

All welds shall be continuous.

Yes [ ] No [ ]

Cab Protector

Full cab shield designed, manufactured, and installed to meet all State and Federal Safety Regulations and shall accommodate the exhaust type specified in the truck chassis specifications.

Yes [ ] No [ ]

Long Sills and Cross Members

Long sills to be one piece, 8" x 13 #/ft I beam section.

Cross members to be 4" x 5.4 lb/ft structural channels or equal. There shall be a minimum of 10 cross members. The floor is to be continuously welded to both the cross members and the main longitudinals to prevent washboarding of the floor.

Area reinforcements not specifically mentioned but necessary to counteract severe stress concentrations shall be completed.

Yes [ ] No [ ]

Safety Strut

Safety strut shall comply with OSHA and FMVSS requirements.

Yes [ ] No [ ]

Front and Rear Corner Posts

Front corner post to be 7 ga, 4 3/4" x 12", one piece, tapered, with 4" side board pockets.

Yes [ ] No [ ]

Rear corner posts shall be full depth 7 ga, 4 3/4" x 12",

Yes [ ] No [ ]

Describe exceptions to the Specifications:

______________________________

______________________________

Section 6.2.2 - Single Axle Dump Truck - Traditional Dump Body
and tied to an 8" structural channel rear apron with no opening for lights.

**Hoist**

Hoist shall be a Class 50, 20 ton as specified in NTEA Classifications. Hoist shall be telescopic, single cylinder, three stage, with the largest stage mounted at the bottom. Upper cylinder connection shall be trunnion mounted to limit the size of the doghouse within the dump body.

Hoist cylinder shall have a 2 year warranty.

**Lighting**

The body shall be equipped with a sufficient number of armored lights and reflectors so placed as to meet Indiana State and FMVSS Specifications. Bed lights to be of lexan lenses with replaceable bulbs. All wiring to be weatherproofed in polyurethane tubing, Betts or equal. Wiring shall be placed and fastened so that it will be protected from outside chafing.

Lights shall consist of:

- **top** - white sealed beam strobe
- **next** - red stop, turn, and hazard
- **next** - red tail
- **bottom** - white backup light

and shall be rigidly attached to the rear corner posts.

Class: ________________
Capacity: ________________ ton
Trunnion mounted: ____________
Extension into dump body: ____________

Warranty Period: ________________ yrs

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

____________________________________

____________________________________

Section 6.2.2 - Single Axle Dump Truck - Traditional Dump Body
**Reflective Sheeting**

Reflective sheeting shall be installed in accordance with standard industry practice, and shall be Scotchlite 980 Diamond grade reflective tape, or equal.

**Painting**

Preparation - All metal shall be chemically cleaned before being primed.

Unit shall be primed with a high quality zinc oxide primer before painting.

Finish paint shall be Imron polyurethane enamel, or equal. Color to be ________________________.

| Color: ________________________ |
| Yes [ ] | No [ ] |

**Ladder**

Ladder shall be provided on drivers side, rigidly mounted directly behind the cab, and shall meet all OSHA and FMVSS safety regulations.

| Yes [ ] | No [ ] |

**Undercoating**

Dump body undercoating material and thickness to be factory recommendation to best industry standards.

| Yes [ ] | No [ ] |

**Tail Gate Identification Number**

Serial number of dump body shall be permanently marked on outside of each tail gate.

| Yes [ ] | No [ ] |

**Mud Flaps**

Mud flaps shall be mounted behind the rear wheels only according to FMVSS Specifications.

| Yes [ ] | No [ ] |

Describe exceptions to the Specifications:

__________________________________________

__________________________________________

__________________________________________

__________________________________________

__________________________________________

__________________________________________
BASE PRICE FOR UNIT BEING BID

___________ $

ADD-ON ALTERNATES

1. Reinforced floor to full 1/4" thick HSLA, 65000 psi tensile strength
   Add: _____________ $

2. Reinforced floor w/ 3/16" thick T-1, 130,000 psi tensile strength
   Add: _____________ $

3. Reinforced floor to full 1/4" thick T-1, 130,000 psi tensile strength
   Add: _____________ $

4. 409 stainless steel dump body, painted, w/ 3/16" floor plate
   Add: _____________ $

5. 409 stainless steel dump body, painted, w/ 1/4" floor plate
   Add: _____________ $

6. 304 stainless steel dump body, unpainted, w/ 3/16" floor plate
   Add: _____________ $

7. 304 stainless steel dump body, unpainted, w/ 1/4" floor plate
   Add: _____________ $

DEDUCT ALTERNATES

Trade In(s)

Deduct: _____________ $

Year: ____________________________
Make: ____________________________
Model: ____________________________
S/N: ____________________________
Location: ____________________________

Net Price: _____________ $

Bidder Name, Address, Phone, Contact:

________________________________________________________________________
________________________________________________________________________

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________

Section 6.2.2 - Single Axle Dump Truck - Traditional Dump Body
6.2.3 Single Axle Dump Truck - Vendor Listings

Section 1 - Chassis Vendors

Section 2 - Traditional Dump Body Vendors

All three reports are sorted first by district, then alphabetically.
<table>
<thead>
<tr>
<th>District: BC (East Central)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Company Name and Address</strong></td>
</tr>
<tr>
<td>Bradley Chevrolet, Inc.</td>
</tr>
<tr>
<td>1550 W. Morton Franklin IN 46131-1256</td>
</tr>
<tr>
<td>Bud Wolf Chevrolet, Inc.</td>
</tr>
<tr>
<td>5350 N. Keystone Indianapolis IN 46220-3649</td>
</tr>
<tr>
<td>Dan Young Chevrolet, Inc.</td>
</tr>
<tr>
<td>3210 E. 96th St. Indianapolis IN 46240-1413</td>
</tr>
<tr>
<td>Discover Volvo-GMC Trucks, Inc.</td>
</tr>
<tr>
<td>3150 W. Morris St. Indianapolis IN 46241-2719</td>
</tr>
<tr>
<td>General Truck Sales</td>
</tr>
<tr>
<td>4300 M. Broadway Muncie IN 47303-1016</td>
</tr>
<tr>
<td>General Truck Sales</td>
</tr>
<tr>
<td>4300 N. Broadway Muncie IN 47303</td>
</tr>
<tr>
<td>Hubler Chevrolet, Inc.</td>
</tr>
<tr>
<td>8220 S. U.S. 31 Indianapolis IN 46227-0991</td>
</tr>
<tr>
<td>Lehman International Truck Sales</td>
</tr>
<tr>
<td>3801 E. McGalliard Muncie IN 47303</td>
</tr>
</tbody>
</table>
Single Axle Dump Truck Chassis Vendors

**District: EC (East Central)**

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russ Delen, Inc.</td>
<td>317-462-5591</td>
<td>317-462-2667</td>
<td></td>
<td>GMC</td>
</tr>
<tr>
<td>2640 W. Main St.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenfield, IN</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>46150-2725</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speedway International, Inc.</td>
<td>317-247-6631</td>
<td>317-243-7676</td>
<td></td>
<td>Navistar International</td>
</tr>
<tr>
<td>5730 Fortune Circle West, P.O. Box</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indianapolis, IN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46241</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strudebaker International, Inc.</td>
<td>800-338-1770</td>
<td>317-962-7390</td>
<td></td>
<td>Navistar International</td>
</tr>
<tr>
<td>3200 E. Main St., P.O. Box 2037</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Richmond, IN</td>
<td></td>
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<tr>
<td>47374</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Tom Wood Pontiac GMC, Inc.</td>
<td>317-352-9311</td>
<td>317-351-3261</td>
<td></td>
<td>GMC</td>
</tr>
<tr>
<td>7550 E. Washington St.</td>
<td></td>
<td></td>
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<tr>
<td>Indianapolis, IN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46219-6793</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W. Hare and Son, Inc.</td>
<td>317-773-1090</td>
<td>317-776-5038</td>
<td></td>
<td>GMC</td>
</tr>
<tr>
<td>1700 South 10th Street</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noblesville, IN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46060-3835</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wabash Ford Truck Sales</td>
<td>317-244-6811</td>
<td>317-244-2291</td>
<td></td>
<td>Sterling (Ford)</td>
</tr>
<tr>
<td>1301 S. Holt Rd.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Indianapolis, IN</td>
<td></td>
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</tr>
<tr>
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**District: NE (Northeast)**

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burgess Truck Sales and Service, Inc.</td>
<td>800-367-1535</td>
<td>219-844-4604</td>
<td></td>
<td>Navistar International</td>
</tr>
<tr>
<td>7020 Cline Ave.</td>
<td></td>
<td></td>
<td>Hammond IN</td>
<td></td>
</tr>
<tr>
<td>Decatur Truck &amp; Tractor, Inc.</td>
<td>219-724-2166</td>
<td>219-724-2209</td>
<td></td>
<td>Navistar International</td>
</tr>
<tr>
<td>1850 W. Hwy 224, P.O. Box 447</td>
<td></td>
<td></td>
<td>Decatur IN</td>
<td></td>
</tr>
<tr>
<td>Donney Motor Sales, Inc.</td>
<td>219-563-1175</td>
<td>219-563-2278</td>
<td></td>
<td>GMC</td>
</tr>
<tr>
<td>50 E. Water Street</td>
<td></td>
<td></td>
<td>Wabash IN</td>
<td></td>
</tr>
<tr>
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District: NW (Northwest)

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### Single Axle Dump Truck Chassis Vendors

#### District: NW (Northwest)

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<td>T. A. Brouillette &amp; Son, Inc.</td>
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<td>800-365-1845</td>
<td>812-235-3351</td>
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<td>W &amp; W Truck Sales 510 S. 500B</td>
<td>317-448-9950</td>
<td>317-447-8824</td>
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<td>Navistar International</td>
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<td>Lafayette IN 47905</td>
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End of report.
### Single Axle Dump Body Vendors

#### District: BC (East Central)

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<tr>
<td>Allied Truck Equipment</td>
<td>317-545-1227</td>
<td>317-542-7402</td>
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<tr>
<td>4821 Massachusetts Ave.</td>
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<td>Deeds Equipment Co., Inc.</td>
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<tr>
<td>Fontaine Truck Equipment</td>
<td>317-787-0718</td>
<td>317-787-0794</td>
<td>Joe Stoutner</td>
<td>Crysteel, Fontaine, Knapheide, Monroe</td>
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<td>2770 Bluff Rd.</td>
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<td>Mid-State Truck Equipment Co.</td>
<td>317-849-4903</td>
<td>317-849-6441</td>
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<td>11020 Allisonville Rd.</td>
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<td>Fishers</td>
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<tr>
<td>Nick's Automotive, Inc.</td>
<td>317-964-6823</td>
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<td>219 S. Howard St.</td>
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<td>Dickason Truck &amp; Eqp.</td>
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<td>0726 West U.S. 224</td>
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<td>Ernst Truck Equipment, Inc.</td>
<td>800-552-3399</td>
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<td>2727 McDonald St.</td>
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District: NW (Northeast)

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<td>Hoosier Truck and Trailer Equipment, Inc.</td>
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<td>219-422-1682</td>
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<td>W. A. Jones and Son</td>
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<td>219-244-7662</td>
<td>Bill Emmert</td>
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<td>1171 S. Williams Dr., P.O. Box 450</td>
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<td>Deeds Equipment Co., Inc.</td>
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<td>Dwyer Equipment</td>
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<td>219-946-7891</td>
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<td>Midwest Truck Equipment</td>
<td>825 W. Main</td>
<td>217-465-8785</td>
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<td>Fred Alwardt</td>
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<td>Rental Service Corp. -</td>
<td>1414 E. Triumph Dr.</td>
<td>217-367-3781</td>
<td>217-367-0259</td>
<td>Chris Rahn</td>
<td>Heil, Knapheide, Swenson, Henke, Western</td>
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<td>Urbana</td>
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### District: SW (Southwest)

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<td>Meyer Truck Equipment</td>
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<td>812-695-3397</td>
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<td>812-867-7423</td>
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<td>765-362-4101</td>
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<td>Rowe Truck Equipment, Inc.</td>
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<td>765-583-2907</td>
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End of report.
6.3

Central Hydraulics System
6.3 Central Hydraulics System - Single or Tandem Axle Dump Trucks

Task Force

Chuck Scholer  Director  HERPICC
Tom Martin  Research Engineer  HERPICC
Jerry Halperin  Buyer  InDOT
Jim Conner  Specifications Writer  InDOT
Larry McLin  County Highway Supervisor  Daviess County
Eugene Shurte  County Highway Supervisor (Ret)  LaPorte County
Chuck Everett  Utility Manager  Town of Flora
Larry Campbell  Fleet Manager  Allen County

User Input Checklist

No user input is required in this Specification:
SPECIFICATIONS

for

Central Hydraulics System

for

Single or Tandem Axle Dump Trucks

GENERAL

It is the intent of these specifications to describe a front mounted crank shaft driven central hydraulics system for a single or tandem axle dump truck to be used for general highway maintenance, including snow and ice control. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled within this system must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.
HYDRAULIC SYSTEM

Minimum Requirements of Local Agency

Hydraulic Pump

A tandem gear pump shall be provided to ensure adequate flow of oil to the various components acting in combination.

The tandem hydraulic pump shall be rated at 13 gpm at 1000 rpm on the main pump section which will service the hoist, plow, and underbody scraper. The secondary pump section shall be rated at 7 gpm at 1000 rpm and will service the spreader functions. Rotation is to be counterclockwise. Inlet fitting size to be 1 3/4" diameter, outlet fitting size to be 1" diameter.

The pump shall be connected to the engine by means of a double universal splined shaft or other method as approved by the truck manufacturer and Owner. The pump shall be mounted in front of the hood of the truck between frame extensions on a suitable cross member.

Hydraulic Oil Reservoir

The hydraulic reservoir shall have a minimum capacity of 35 gallons. Tank shall be mounted beneath the dump bed and on the right side of the truck frame to permit easy servicing. It shall be constructed of minimum 7 ga A36HRPO 1020 ASTM mild steel. It shall be baffled to separate suction and reservoir return oil. It shall contain a 6" x 6" clean out port, a stand up filler neck and a filler screen to prevent contamination.

Provided by Item Proposed by Bidder

Yes [ ]  No [ ]

Main Pump Capacity:

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ gpm

@ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ rpm

Secondary Pump Capacity:

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ gpm

@ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ rpm

Yes [ ]  No [ ]

Capacity: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ gal

Thickness: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ ga

Baffled: Yes [ ]  No [ ]

Clean Out Port: Yes [ ]  No [ ]

SU Filler Neck: Yes [ ]  No [ ]

Filler Screen: Yes [ ]  No [ ]

Breather Cap: Yes [ ]  No [ ]

Site Glass: Yes [ ]  No [ ]

Describe exceptions to the Specifications:

________________________________________

________________________________________

Section 6.3 - Central Hydraulics System - Single or Tandem Axle Dump Trucks  Page 2
of the oil. A site glass shall be provided to check the oil level in the reservoir, mounted on the outside drivers side of the tank. The filler cap shall be of the breather type. No hoses shall hang beneath the engine and or suspension.

Hydraulic Oil

Reservoir and entire hydraulic system shall be filled with anti-wear and non-foaming hydraulic oil as recommended by pump and valve manufacturer. Unit shall be filled and kept full from time of installation to time of delivery. Manufacturer’s recommendation for grade and type of hydraulic oil shall be labeled directly on the reservoir.

Hydraulic Oil Filter

An in-line 50 gpm cartridge type oil filter with a 10 micron element shall be installed in the hydraulic circuit so that all return oil shall pass through it before re-entering the reservoir. The filter shall be equipped with a built-in bypass.

Temperature

The entire system shall be of the design that normal operating speeds and conditions existing during summer paving and sealing and winter snow and ice control do not cause temperatures to exceed 160 degrees F.

Describe exceptions to the Specifications:

________________________________________

________________________________________

________________________________________

Yes [ ] No [ ]

Capacity: __________ gpm

Filter: __________ micron

Bypass: Yes [ ] No [ ]

Yes [ ] No [ ]
Hydraulic Valves

The following bank valve assembly shall be capable of a flow rate of at least 26 gpm at 1000 psi and shall be equipped with an adjustable pilot operated pressure relief valve and individual spool load checks. All porting shall be SAE “O” ring type for ease of servicing.

The first valve spool shall be single acting spring return spool to control power up/power down of the dump body hoist.

Yes [ ]  No [ ]

Note: If the dump body utilizes an underbody hoist rather than the front mount telescopic hoist described in these specifications, then it is recommended that the first valve spool be a double acting spool for power down of the dump body.

Yes [ ]  No [ ]

The second valve spool shall be double acting spring return spool to control power up/power down of the snow plow hoist.

Yes [ ]  No [ ]

The third valve spool shall be double acting spring return spool to control power reversing cylinders on the snow plow.

Yes [ ]  No [ ]

The fourth valve spool shall be double acting spring return spool to control power up/power down of the underbody scraper, if this is to be provided.

Yes [ ]  No [ ]

The fifth valve spool shall be double acting spring return spool to control power reversing cylinders on the underbody scraper, if this is to be provided.

Yes [ ]  No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.3  - Central Hydraulics System - Single or Tandem Axle Dump Trucks  Page 4
The bank valve assembly shall be installed behind the truck cab between the truck frame in such a manner to facilitate easy servicing. Linkage to cab levers shall be Morse type sealed cables with Bonnet to attach to valve body. Control levers shall be installed in the cab between the seats within convenient reach of the driver.

Hydraulic Hoses

Inlet (suction) line to pump -

1½" - SAE100R4

Main pressure line from pump to valves -

1" - SAE100R2

Spreader valve conveyor line -

¾" - SAE100R2

Spreader valve spinner line -

1½" - SAE100R2

Spreader auger and spinner lines shall be equipped with double shutoff quick disconnects with storage plugs and caps attached.

Spreader return line -

1" - SAE100S1

Dump body cylinder lines -

¾" - SAE100R2

Snow plow cylinder lines -

1½" - SAE100R2

Power reverse lines to the plow shall be equipped with double shutoff quick disconnects with storage plugs and caps attached.

Underbody scraper cylinder lines -

½" - SAE100R2

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Describe exceptions to the Specifications:


Section 6.3 - Central Hydraulics System - Single or Tandem Axle Dump Trucks
All return lines shall be tee’d before entering the return line filter.

Yes [ ] No [ ]

Hoses shall have swivel connection on both ends.

Yes [ ] No [ ]

Hoses shall be bracketed or shielded at points where rubbing against metal or exposed to intense heat. Suitable piping (with equal safety SAE rating) shall be used where the installation of hoses is impractical, such as along truck framing, etc.

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

Add: 

Add:

DEDUCT ALTERNATES

Trade In(s)

Deduct: 

Year:
Make:
Model:
S/N:
Location:

Net Price: 

Bidder Name, Address, Phone, Contact:

Describe exceptions to the Specifications:
6.4

Snow and Ice Control Equipment
6.4 Snow and Ice Control Equipment

6.4.1 Reversible Snow Plow - Single Axle Dump Truck
6.4.2 Reversible Snow Plow - Tandem Axle Dump Truck
6.4.3 One Way Snow Plow - Single Axle Dump Truck
6.4.4 One Way Snow Plow - Tandem Axle Dump Truck
6.4.5 Underbody Scraper
6.4.6 Tailgate Spreader
6.4.7 V-Box Spreader - Single Axle Dump Truck
6.4.8 V-Box Spreader - Tandem Axle Dump Truck
6.4.9 Snow and Ice Control Vendor Listings
6.4.1 Reversible Snow Plow - Single Axle Dump Truck

Task Force

Chuck Scholer Director HERPICC
Tom Martin Research Engineer HERPICC
Jerry Halperin Buyer InDOT
Jim Conner Specifications Writer InDOT
Larry McLin County Highway Supervisor Daviess County
Eugene Shurte County Highway Supervisor (Ret) LaPorte County
Chuck Everett Utility Manager Town of Flora
Larry Campbell Fleet Manager Allen County

User Input Checklist

User input is required on the following pages of this Specification:

Entered Page Description
☐ 1 Bid Bond Amount

Section 6.4.1 - Reversible Snow Plow - Single Axle Dump Truck
SPECIFICATIONS

for

Reversible Snow Plow - Single Axle Dump Truck

GENERAL

It is the intent of these specifications to describe a reversible snow plow in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

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Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).
Term "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
<table>
<thead>
<tr>
<th><strong>Minimum Requirements of Local Agency</strong></th>
<th><strong>Provided by Item Proposed by Bidder</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Moldboard Length: 11 ft Height: 36 in</td>
<td>Moldboard Length: Height:</td>
</tr>
<tr>
<td>Moldboard Thickness: 10 ga, Grade 50</td>
<td>Moldboard Thickness: ga</td>
</tr>
<tr>
<td>Cutting Edge: 1/2&quot; x 6&quot; x 11&quot;</td>
<td>Cutting Edge:</td>
</tr>
<tr>
<td>Vertical Ribs: 6 - 1/2&quot; x 3&quot;</td>
<td>Vertical Ribs:</td>
</tr>
<tr>
<td>No. of Trip Springs: 1</td>
<td>Trip Spring:</td>
</tr>
<tr>
<td>Hinge Points: 2 - 1&quot; diam.</td>
<td>Hinge Points:</td>
</tr>
<tr>
<td>Outside Hinge Spread: 72&quot;, min</td>
<td>Outside Hinge Spread:</td>
</tr>
<tr>
<td>Bearing Surface: Carbide Shoe</td>
<td>Bearing Surface:</td>
</tr>
<tr>
<td>Semicircle: 3 1/2&quot; x 3 1/2&quot; x 1/2&quot;</td>
<td>Semicircle:</td>
</tr>
<tr>
<td>Moldboard Bottom Angle: 4&quot; x 4&quot; x 3/4&quot;</td>
<td>Moldboard Bottom Angle:</td>
</tr>
<tr>
<td>Top Moldboard Stiffener: 2&quot; x 3&quot; x 3/8&quot;</td>
<td>Top Moldboard Stiffener:</td>
</tr>
</tbody>
</table>

48" Sight Markers
Yes [ ] No [ ]

Hustling Hitch (34"), w/ automatic lock
Yes [ ] No [ ]

Back side of plow to be painted non-reflecting black.
Yes [ ] No [ ]

Blade to lift at least 12" above ground.
Yes [ ] No [ ]

Hydraulic fittings to be equipped with quick connect/disconnect
Yes [ ] No [ ]

Describe exceptions to the Specifications:

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

Section 6.4.1 - Reversible Snow Plow - Single Axle Dump Truck
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

Pneumatic Wheels
Add: ____________ $

3/16" Moldboard Thickness
Add: ____________ $

Nitrated Cylinders
Add: ____________ $

DEDUCT ALTERNATES

Trade In (s)
Deduct: ____________ $

Year: ____________________________

Make: ____________________________

Model: ____________________________

S/N: ____________________________

Location: ____________________________

Net Price: ____________ $

Bidder Name, Address, Phone, Contact:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.4.1 - Reversible Snow Plow - Single Axle Dump Truck
6.4.2 Reversible Snow Plow - Tandem Axle Dump Truck

Task Force

Chuck Scholer    Director    HERPICC
Tom Martin      Research Engineer    HERPICC
Jerry Halperin  Buyer    InDOT
Jim Conner      Specifications Writer    InDOT
Larry McLin     County Highway Supervisor    Daviess County
Eugene Shurte   County Highway Supervisor (Ret)    LaPorte County
Chuck Everett   Utility Manager    Town of Flora
Larry Campbell  Fleet Manager    Allen County

User Input Checklist

User input is required on the following pages of this Specification:

Entered  Page  Description
☐  1  Bid Bond Amount

Section 6.4.2 - Reversible Snow Plow - Tandem Axle Dump Truck
SPECIFICATIONS

for

Reversible Snow Plow - Tandem Axle Dump Truck

GENERAL

It is the intent of these specifications to describe a reversible snow plow in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

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Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).
Term "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
Minimum Requirements of Local Agency

Moldboard Length: 12'  Height: 48"
Moldboard Thickness: 10 ga, Grade 50
Cutting Edge: 9/16" x 8" x 12'
Vertical Ribs: 6 - ½" x 3"
No. of trip springs: 2
Hinge Points: 3 - 1" diam.
Outside Hinge Spread: 72", min
Bearing Surface: Carbide Shoe
Semicircle: 3 ½" x 3 ½" x ½"
Moldboard Bottom Angle: 4" x 4" x ¾"
Top Moldboard Stiffener: 2" x 3" x ¾"

48" Sight Markers

Husting Hitch (34"), w/ automatic lock

Back side of plow to be painted non-reflecting black.

Blade to lift at least 12" above ground.

Hydraulic fittings to be equipped with quick connect/disconnect.

Describe exceptions to the Specifications:

<table>
<thead>
<tr>
<th>Yes [ ]</th>
<th>No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
</tbody>
</table>

Provided by Item Proposed by Bidder

Moldboard Length: ________ Height: ________
Moldboard Thickness: ______________
Cutting Edge: ______________
Vertical Ribs: ______________
Trip Spring: ______________
Hinge Points: ______________
Outside Hinge Spread: ______________
Bearing Surface: ______________
Semicircle: ______________
Moldboard Bottom Angle: ______________
Top Moldboard Stiffener: ______________

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yes [ ]  No [ ]
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

Pneumatic Wheels  Add: __________ $
3/16" Moldboard Thickness  Add: __________ $
Nitrate Cylinders  Add: __________ $

DEDUCT ALTERNATES

Trade In (s)  Deduct: __________ $

Year: ____________________________
Make: ____________________________
Model: ____________________________
S/N: ____________________________
Location: ____________________________

Net Price: __________ $

Bidder Name, Address, Phone, Contact:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
6.4.3 One Way Snow Plow - Single Axle Dump Truck

Task Force

Chuck Scholer - Director - HERPICC
Tom Martin - Research Engineer - HERPICC
Jerry Halperin - Buyer - InDOT
Jim Conner - Specifications Writer - InDOT
Larry McLin - County Highway Supervisor - Daviess County
Eugene Shurte - County Highway Supervisor (Ret) - LaPorte County
Chuck Everett - Utility Manager - Town of Flora
Larry Campbell - Fleet Manager - Allen County

User Input Checklist

User input is required on the following pages of this Specification:

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☐        | 1    | Bid Bond Amount

Section 6.4.3 - One Way Snow Plow - Single Axle Dump Truck
SPECIFICATIONS

for

One Way Snow Plow - Single Axle Dump Truck

GENERAL

It is the intent of these specifications to describe a one way snow plow in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

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Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).
Term "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
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<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Item Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moldboard Length (cutting edge):</td>
<td>Moldboard Length:</td>
</tr>
<tr>
<td>11'</td>
<td></td>
</tr>
<tr>
<td>Moldboard Thickness: 10 ga, Grade 50</td>
<td>Moldboard Thickness:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle of cut: 35 deg. min.</td>
<td>Angle of cut:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Height at nose: 30&quot;, min.</td>
<td>Height at nose:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Height at tip: 60&quot;, min.</td>
<td>Height at tip:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Cutting Edge: ½&quot; x 6&quot; x 11'</td>
<td>Cutting Edge:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Bearing Surface: Carbide Shoe</td>
<td>Bearing Surface:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight: 1700#, min.</td>
<td>Weight:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>48&quot; Sight Markers</td>
<td></td>
</tr>
<tr>
<td>Hustling Hitch (34&quot;), w/ automatic lock</td>
<td></td>
</tr>
<tr>
<td>Back side of plow to be painted non-reflecting black.</td>
<td></td>
</tr>
<tr>
<td>Blade to lift at least 12&quot; above ground.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td></td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td></td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td></td>
<td>Yes [ ]  No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Section 6.4.3 - One Way Snow Plow - Single Axle Dump Truck
6.4.4 One Way Snow Plow - Tandem Axle Dump Truck

Task Force

Chuck Scholer  Director  HERPICC
Tom Martin  Research Engineer  HERPICC
Jerry Halperin  Buyer  InDOT
Jim Conner  Specifications Writer  InDOT
Larry McLin  County Highway Supervisor  Daviess County
Eugene Shurte  County Highway Supervisor (Ret)  LaPorte County
Chuck Everett  Utility Manager  Town of Flora
Larry Campbell  Fleet Manager  Allen County

User Input Checklist

User input is required on the following pages of this Specification:

Entered  Page  Description
☐  1  Bid Bond Amount
SPECIFICATIONS

for

One Way Snow Plow - Tandem Axle Dump Truck

GENERAL

It is the intent of these specifications to describe a one way snow plow in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be a current model under standard production by the manufacturer.

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Term "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

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<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Item Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moldboard Length (cutting edge): ___ 12' ___</td>
<td>Moldboard Length: __________</td>
</tr>
<tr>
<td>Moldboard Thickness: ___ 10 ga, Grade 50 ___</td>
<td>Moldboard Thickness: __________</td>
</tr>
<tr>
<td>Angle of cut: ___ 35 deg. min ___</td>
<td>Angle of cut: __________</td>
</tr>
<tr>
<td>Height at nose: ___ 30&quot;, min. ___</td>
<td>Height at nose: __________</td>
</tr>
<tr>
<td>Height at tip: ___ 60&quot;, min. ___</td>
<td>Height at tip: __________</td>
</tr>
<tr>
<td>Cutting Edge: ___ 5/8&quot; x 8&quot; x 12' ___</td>
<td>Cutting Edge: __________</td>
</tr>
<tr>
<td>Bearing Surface: ___ Carbide Shoe ___</td>
<td>Bearing Surface: __________</td>
</tr>
<tr>
<td>Weight: ___ 2000#, min. ___</td>
<td>Weight: __________</td>
</tr>
</tbody>
</table>

- 48" Sight Markers  
- Husting Hitch (34"), w/ automatic lock  
- Back side of plow to be painted non-reflecting black.  
- Blade to lift at least 12" above ground.

Describe exceptions to the Specifications:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Section 6.4.4 - One Way Snow Plow - Tandem Axle Dump Truck
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

Pneumatic Wheels

Add: $__________

3/16" Moldboard Thickness

Add: $__________

Nitrate Cylinders

Add: $__________

DEDUCT ALTERNATES

Trade In (s)

Deduct: $__________

Year: ____________________________

Make: ____________________________

Model: ____________________________

S/N: ____________________________

Location: ____________________________

Net Price: $__________

Bidder Name, Address, Phone, Contact:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

DEDUCT ALTERNATES

Trade In (s)

Year: ___________________________  Deduct: ____________ $
Make: ___________________________
Model: ___________________________
S/N: _____________________________

Trade in(s) can be viewed at the following location:

________________________________________________________________________
________________________________________________________________________

Bidder Name, Address, Phone, Contact:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
6.4.5 Underbody Scraper

Task Force

Chuck Scholer  Director  HERPICC
Tom Martin  Research Engineer  HERPICC
Jerry Halperin  Buyer  InDOT
Jim Conner  Specifications Writer  InDOT
Larry McLin  County Highway Supervisor  Daviess County
Eugene Shurte  County Highway Supervisor (Ret)  LaPorte County
Chuck Everett  Utility Manager  Town of Flora
Larry Campbell  Fleet Manager  Allen County

User Input Checklist

User input is required on the following pages of this Specification:

Entered  Page  Description
☐  1  Bid Bond Amount

Section 6.4.5 - Underbody Scraper
SPECIFICATIONS

for

Underbody Scraper

GENERAL

It is the intent of these specifications to describe an underbody scraper in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

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A certificate of origin shall be furnished with each unit as it is delivered.
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<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Item Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moldboard Length: 10 ft</td>
<td>Moldboard Length:</td>
</tr>
<tr>
<td>Moldboard Height: 20 in</td>
<td>Moldboard Height:</td>
</tr>
<tr>
<td>Moldboard Thickness: 1 in</td>
<td>Moldboard Thickness:</td>
</tr>
<tr>
<td>Moldboard to be of heat treated, carbon steel.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Hangerboard: 10&quot; x 30# structural channel</td>
<td>Hangerboard:</td>
</tr>
<tr>
<td>Hangerboard to be reinforced by ½&quot; x 8&quot; plate and by 4&quot; x 13.8# channel the entire length of the hinge line with center bolt bushing.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Hinge Line: Solid, 96&quot;, w/ 660 sq in bearing surface</td>
<td>Hinge Line:</td>
</tr>
<tr>
<td>Hinge Shaft: 2 ½&quot; O.D. carbon steel</td>
<td>Hinge Shaft:</td>
</tr>
<tr>
<td>Shock Absorbers: 2 - heavy duty</td>
<td>Shock Absorbers:</td>
</tr>
<tr>
<td>Cylinders: 2 - 3&quot; double acting</td>
<td>Cylinders:</td>
</tr>
<tr>
<td>Cylinders shall have chrome plated piston rods, mounted horizontally on the scraper by ¾&quot; thick reinforced steel trunnion brackets.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Trunnion Bearings: 2&quot; x 1¼&quot; carbon steel</td>
<td>Trunnion Bearings:</td>
</tr>
<tr>
<td>Circle to be of 1&quot; solid steel one piece design with four independent heavy duty mounting legs of 4&quot; x 13.8# channel</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Minimum Requirements of Local Agency

Power reverse shall be by dual cylinders with 2 - 4" double acting cylinders with chrome plated piston rods and cross over relief valve.

Plowing Positions: 7, min.

All moving parts shall be fitted with grease fittings.

Note: Installation contractor must coordinate with the truck chassis manufacturer to ensure adequate clearance for operation of the underbody scraper. A minimum of 24" ground clearance for the fuel tanks, air tanks, and exhaust system is normally adequate for operation of the underbody scraper.

Provided by Item Proposed by Bidder

Yes [ ] No [ ]

Plowing Positions: 

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

______________________________
Add:

______________________________
Add:

______________________________
Add:

DEDUCT ALTERNATES

Trade In (s)

Deduct: ____________________ $

Year: _______________________
Make: _______________________
Model: _______________________
S/N: _________________________
Location: _____________________

Net Price: ____________________ $

Bidder Name, Address, Phone, Contact:

______________________________

______________________________

______________________________

Describe exceptions to the Specifications:

______________________________

______________________________

______________________________

Section 6.4.5 - Underbody Scraper
Task Force

Chuck Scholer                      Director                     HERPICC
Tom Martin                        Research Engineer             HERPICC
Jerry Halperin                    Buyer                       InDOT
Jim Conner                        Specifications Writer        InDOT
Larry McLin                       County Highway Supervisor     Daviess County
Eugene Shurte                     County Highway Supervisor (Ret) LaPorte County
Chuck Everett                     Utility Manager               Town of Flora
Larry Campbell                    Fleet Manager                Allen County

User Input Checklist

User input is required on the following pages of this Specification:

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<tbody>
<tr>
<td>☐</td>
<td>1</td>
<td>Bid Bond Amount</td>
</tr>
<tr>
<td>☐</td>
<td>4</td>
<td>Spinner Material</td>
</tr>
</tbody>
</table>
SPECIFICATIONS

for

Tailgate Spreader

GENERAL

It is the intent of these specifications to describe a tailgate spreader in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, with Non Collusion Affidavit and Bid Bond equal to _________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Item Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).
Term "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
Minimum Requirements of Local Agency

<table>
<thead>
<tr>
<th>Provided by Item Proposed by Bidder</th>
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</thead>
<tbody>
<tr>
<td>Trough Length:</td>
</tr>
<tr>
<td>Yes [ ]</td>
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<tr>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
</tr>
</tbody>
</table>

Trough

Trough length should be approximately 96" overall and shall be manufactured out of 7 ga steel. The endplates shall be ¼" thick. All interior seams are to be welded.

One piece combination cover and upper rear panel hinges at the bottom to provide access to auger for cleanout.

Cleanout door in bottom of trough opens in combination with top cover to allow access to the auger from top and bottom for complete cleanout.

Spreader should not interfere with normal operation of dump body and/or tailgate.

Trough may have an auxiliary opening on the curbside for high volume shouldering applications.

Hopper discharge opening shall have a shield to prevent the loss of material while auger is stopped.

Auger

Auger diameter shall be at least 9".

<table>
<thead>
<tr>
<th>Auger Diameter:</th>
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</thead>
</table>

Flighting to be manufactured from ½" stock and welded to 2½" O.D. Schedule 80 pipe, supported by a 1¼" shaft mounted in greaseable ball bearings.

<table>
<thead>
<tr>
<th>Flighting thickness:</th>
<th>Shaft Diameter:</th>
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</thead>
</table>

Describe exceptions to the Specifications:

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________
<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Item Proposed by Bidder</th>
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</thead>
<tbody>
<tr>
<td><strong>Auger Drive</strong></td>
<td></td>
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<tr>
<td>High torque hydraulic motor directly coupled to the auger.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td><strong>Spinner Assembly</strong></td>
<td></td>
</tr>
<tr>
<td>The spinner assembly shall be 18&quot; diameter, with six replaceable fins of the same material.</td>
<td>Spinner Diameter: ___________</td>
</tr>
<tr>
<td>Spinner material shall be:</td>
<td>Number of Fins: ___________</td>
</tr>
<tr>
<td>__________ 10 ga, 409 stainless steel.</td>
<td>Spinner Material: __________________</td>
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<tr>
<td>__________ polyurethane</td>
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<tr>
<td>Spinner assembly is driven by high torque, low speed (550 RPM max) hydraulic motor mounted under the spinner.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Spinner shall be adjustable left to right, and shall remain parallel to the road surface at all dump body angles.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>The spinner shall have a shield in front of the spinner to protect the truck undercarriage from thrown material.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td><strong>Trough Mounting</strong></td>
<td></td>
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<tr>
<td>Spreader shall have quick disconnect mounting pins to allow easy removal without using tools.</td>
<td>Yes [ ] No [ ]</td>
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</table>

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
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<table>
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<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Item Proposed by Bidder</th>
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</thead>
<tbody>
<tr>
<td><strong>Hoses</strong></td>
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<tr>
<td>All hoses fittings (w/ quick connect/disconnects) shall be provided as required.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td><strong>Rate Charts</strong></td>
<td></td>
</tr>
<tr>
<td>Bidder to furnish auger rate application chart and spinner speed/spread width chart, similar to those attached.</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
BASE PRICE FOR UNIT BEING BID

___________ $

ADD-ON ALTERNATES

409 Stainless Steel

Add: ___________ $

______________________________

Add: ___________ $

DEDUCT ALTERNATES

Trade In (s)

Deduct: ___________ $

Year: ________________________

Make: ________________________

Model: ________________________

S/N: ________________________

Location: ________________________

Net Price: ___________ $

Bidder Name, Address, Phone, Contact:

______________________________

______________________________

______________________________

Describe exceptions to the Specifications:

______________________________

______________________________

______________________________
## Auger Rate Application Chart

<table>
<thead>
<tr>
<th>Valve Setting</th>
<th>GPM</th>
<th>Auger RPM</th>
<th>Auger Torque</th>
<th>Ft³/min (1500 psi)</th>
<th>#/min sand (100 #/cf)</th>
<th>#/min salt (65 #/cf)</th>
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</tbody>
</table>

**Note:** All values are approximate and theoretical, individual performance may vary.
# Spinner Speeds and Spread Width

<table>
<thead>
<tr>
<th>Valve Setting</th>
<th>Flow (GPM)</th>
<th>Spinner RPM</th>
<th>Spread Width (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>11</td>
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</tr>
</tbody>
</table>

Note: All values are approximate and theoretical, individual performance may vary.
6.4.7 V-Box Spreader - Single Axle Dump Truck

Task Force

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chuck Scholer</td>
<td>Director</td>
<td>HERPICC</td>
</tr>
<tr>
<td>Tom Martin</td>
<td>Research Engineer</td>
<td>HERPICC</td>
</tr>
<tr>
<td>Jerry Halperin</td>
<td>Buyer</td>
<td>InDOT</td>
</tr>
<tr>
<td>Jim Conner</td>
<td>Specifications Writer</td>
<td>InDOT</td>
</tr>
<tr>
<td>Larry McLin</td>
<td>County Highway Supervisor</td>
<td>Daviess County</td>
</tr>
<tr>
<td>Eugene Shurte</td>
<td>County Highway Supervisor (Ret)</td>
<td>LaPorte County</td>
</tr>
<tr>
<td>Chuck Everett</td>
<td>Utility Manager</td>
<td>Town of Flora</td>
</tr>
<tr>
<td>Larry Campbell</td>
<td>Fleet Manager</td>
<td>Allen County</td>
</tr>
</tbody>
</table>

User Input Checklist

User input is required on the following pages of this Specification:

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<th>Entered</th>
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</thead>
<tbody>
<tr>
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<td>1</td>
<td>Bid Bond Amount</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Spinner Material</td>
</tr>
</tbody>
</table>
SPECIFICATIONS

for

V-Box Spreader for Single Axle Dump Truck

GENERAL

It is the intent of these specifications to describe a V-Box spreader in sufficient detail to secure bids on comparable equipment. The unit must be capable of hauling and spreading free flowing granular materials. The unit shall consist of a steel body, discharge/feed conveyor, spinner disc, power drive, and any other components which are necessary to provide a complete unit. The unit shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, with Non Collusion Affidavit and Bid Bond equal to ________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Item Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).
Term "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
Minimum Requirements of Local Agency

Body Requirements

Capacity (struck): 5 cy
Inside length: 10 ft
Side slope: 45 deg. min.
Front and rear panel slope: 18 deg. min.
Side, sills, ends, and side supports: 10 ga, HSLA
Floor thickness: 7 ga, HSLA

Chain shields are 10 ga, bolt-in replaceable. “Formed-in” shields are not acceptable.

Feedgate is 10 ga, 10" x 18", with curbside adjustable screwjack control.

Lift hooks on each corner are ¼" x 2" formed steel plate.

Hold down kit shall be supplied for dump body mounting.

All hardware to be zinc plated.

Conveyor

Conveyor chain to be 24" overall width. Cross bars are ¼" x 1½" at 4½" c/c spacing.

Provided by Item Proposed by Bidder

Capacity: 
Inside length:
Side slope:
Front and rear panel slope:
Side, sills, ends, and side supports:
Floor thickness:

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Width: 
Cross Bars Dimensions: " x ", " c/c

Describe exceptions to the Specifications:
### Minimum Requirements of Local Agency

**Spinner Chute Assembly**

- 10 ga, one piece construction, totally enclosed.
- Two internal adjustable baffles to direct material onto the spinner disc.
- Four external adjustable deflectors with overlapping corners.
- Both deflectors and baffles are hand adjustable without tools.
- The spinner assembly shall be 18" diameter, with six replaceable fins of the same material.
- Spinner material shall be:
  - 10 ga, 409 stainless steel.
  - polyurethane

**Paint**

- All metal surfaces shall be high pressure cleaned with a chemical phosphate solution.
- Entire body is to be primed with an epoxy ester primer.
- Finish paint shall be an industrial grade enamel, color to be standard of manufacturer.

### Provided by Item Proposed by Bidder

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Yes [ ]</th>
<th>No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material thickness:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spinner diameter:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of fins:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spinner material:</td>
<td></td>
<td></td>
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<tr>
<td>Color:</td>
<td></td>
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<tr>
<td>Paint No.:</td>
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</tbody>
</table>

Describe exceptions to the Specifications:

---

Section 6.4.7 - V-Box Spreader - Single Axle Dump Truck
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

409 Stainless Steel, painted         Add:  $  
304 Stainless Steel, unpainted       Add:  $  
Top grate screens, 3/8" rods          Add:  $  
Liquid pre-wetting system            Add:  $  
Tilt-up spinner                       Add:  $  

DEDUCT ALTERNATES

Trade In (s)                          Deduct:  $  
Year:  
Make:  
Model:  
S/N:  
Location:  

Net Price:  $  

Bidder Name, Address, Phone, Contact:
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

Describe exceptions to the Specifications: 
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

Section 6.4.7 - V-Box Spreader - Single Axle Dump Truck
### Auger Rate Application Chart

<table>
<thead>
<tr>
<th>Valve Setting</th>
<th>GPM</th>
<th>Auger RPM</th>
<th>Auger Torque</th>
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<th>#/min sand (100 #/cf)</th>
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Note: All values are approximate and theoretical, individual performance may vary.
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</table>

**Note:** All values are approximate and theoretical, individual performance may vary.
6.4.8 V-Box Spreader - Tandem Axle Dump Truck

Task Force

Chuck Scholer  Director  HERPICC
Tom Martin  Research Engineer  HERPICC
Jerry Halperin  Buyer  InDOT
Jim Conner  Specifications Writer  InDOT
Larry McLin  County Highway Supervisor  Daviess County
Eugene Shurtle  County Highway Supervisor (Ret)  LaPorte County
Chuck Everett  Utility Manager  Town of Flora
Larry Campbell  Fleet Manager  Allen County

User Input Checklist

User input is required on the following pages of this Specification:

Entered  Page  Description
☐  1  Bid Bond Amount
☐  4  Spinner Material
SPECIFICATIONS

for

V-Box Spreader for Tandem Axle Dump Truck

GENERAL

It is the intent of these specifications to describe a V-Box spreader in sufficient detail to secure bids on comparable equipment. The unit must be capable of hauling and spreading free flowing granular materials. The unit shall consist of a steel body, discharge/feed conveyor, spinner disc, power drive, and any other components which are necessary to provide a complete unit. The unit shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, with Non Collusion Affidavit and Bid Bond equal to ____________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading "Provided by Item Proposed by Bidder" and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner's minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners's evaluation of the bids.

Bidder shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).
**Term** "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
Minimum Requirements of Local Agency

Body Requirements

Capacity (struck): _____ 7.5 cy _____

Inside length: _____ 14 ft _____

Side slope: _____ 45 deg. min. _____

Front and rear panel slope: _____ 18 deg. min. _____

Side, sills, ends, and side supports: 10 ga. HSLA

Floor thickness: _____ 7 ga. HSLA _____

Chain shields are 10 ga, bolt-in replaceable. "Formed-in" shields are not acceptable.

Feedgate is 10 ga, 10" x 18", with curbside adjustable screwjack control.

Lift hooks on each corner are ¼" x 2" formed steel plate.

Hold down kit shall be supplied for dump body mounting.

All hardware to be zinc plated.

Conveyor

Conveyor chain to be 24" overall width. Cross bars are ¼" x 1½" at 4½" c/c spacing.

Provided by Item Proposed by Bidder

Capacity: ____________

Inside length: ____________

Side slope: ______________

Front and rear panel slope: ____________

Side, sills, ends, and side supports: ____________

Floor thickness: ____________

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Width: ____________

Cross Bars Dimensions: _____ " x _____ ", _____ c/c

Describe exceptions to the Specifications:

________________________________________________________

________________________________________________________

Section 6.4.8 - V-Box Spreader - Tandem Axle Dump Truck
<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Item Proposed by Bidder</th>
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<tbody>
<tr>
<td><strong>Spinner Chute Assembly</strong></td>
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</table>
| 10 ga, one piece construction, totally enclosed. | Material thickness:  
Yes [ ] No [ ] |
| Two internal adjustable baffles to direct material onto the spinner disc. |                                     |
| Four external adjustable deflectors with overlapping corners. | Yes [ ] No [ ] |
| Both deflectors and baffles are hand adjustable without tools. | Yes [ ] No [ ] |
| The spinner assembly shall be 18" diameter, with six replaceable fins of the same material. | Spinner diameter:  
Number of fins: |
| Spinner material shall be: | Spinner material: |
| 10 ga, 409 stainless steel. |  |
| polyurethane | |
| Paint | |
| All metal surfaces shall be high pressure cleaned with a chemical phosphate solution. | Yes [ ] No [ ] |
| Entire body is to be primed with an epoxy ester primer. | Yes [ ] No [ ] |
| Finish paint shall be an industrial grade enamel, color to be standard of manufacturer. | Color:  
Paint No.: |

Describe exceptions to the Specifications:

__________________________
__________________________
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

409 Stainless Steel, painted
Add: ___________ $

304 Stainless Steel, unpainted
Add: ___________ $

Top grate screens, %6" rods
Add: ___________ $

Liquid pre-wetting system
Add: ___________ $

Tilt-up spinner
Add: ___________ $

DEDUCT ALTERNATES

Trade In (s)
Deduct: ___________ $

Year: ________________________________
Make: ________________________________
Model: ________________________________
S/N: ________________________________
Location: _______________________________________________________

Net Price: ___________ $

Bidder Name, Address, Phone, Contact:
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

Describe exceptions to the Specifications:
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
Auger Rate Application Chart

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<tr>
<th>Valve Setting</th>
<th>GPM</th>
<th>Auger RPM</th>
<th>Auger Torque</th>
<th>Ft³/min (1500 psi)</th>
<th>#/min sand (100 #/cf)</th>
<th>#/min salt (65 #/cf)</th>
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Note: All values are approximate and theoretical, individual performance may vary.
### Spinner Speeds and Spread Width

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<th>Valve Setting</th>
<th>Flow (GPM)</th>
<th>Spinner RPM</th>
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**Note:** All values are approximate and theoretical, individual performance may vary.
Section 1 - All Vendors

All reports are sorted first by district, then alphabetically.
<table>
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<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
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<tbody>
<tr>
<td>Allied Truck Equipment</td>
<td>317-545-1227</td>
<td>317-542-7402</td>
<td>John Schlenk</td>
<td>Flink, Western, Crysteel, Knapheide</td>
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<tr>
<td>4621 Massachusetts Ave.</td>
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<td>Brandeis Equipment Co.</td>
<td>317-872-8410</td>
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<td>Carlisle Equipment Co.</td>
<td>317-244-7801</td>
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<td>Deeds Equipment Co., Inc.</td>
<td>317-545-3331</td>
<td>317-545-3334</td>
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<tr>
<td>Fontaine Truck Equipment</td>
<td>317-787-0718</td>
<td>317-787-0794</td>
<td>Joe Stoutner</td>
<td>Crysteel, Fontaine, Knapheide, Monroe</td>
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<tr>
<td>2770 Bluff Rd.</td>
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<tr>
<td>Mid-State Truck Equipment Co.</td>
<td>317-849-4903</td>
<td>317-849-6441</td>
<td>Mike Eby</td>
<td>Henderson, Henke</td>
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<tr>
<td>11020 Allisonville Rd.</td>
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<td>Reynolds Construction Equipment Co.</td>
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<td>Robinson Corporation</td>
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## Snow and Ice Control Equipment

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<td></td>
<td>Thibco</td>
<td>317-787-2244</td>
<td>317-787-4088</td>
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<tr>
<td>Ernst Truck Equipment, Inc.</td>
<td>2727 McDonald St.</td>
<td>800-552-3399</td>
<td>219-422-8698</td>
<td>Kenny Ernst</td>
<td>Perfection, Swenson, Henke</td>
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<tr>
<td>Gardner's RTP</td>
<td>219-533-8668</td>
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<td>Hoosier Truck and Trailer Equipment, Inc.</td>
<td>4830 Todd Dr.</td>
<td>219-422-7564</td>
<td>219-422-1682</td>
<td>Max Nusbaum</td>
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<td>Industrial Equipment Co.</td>
<td>219-482-8576</td>
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<td>Bill Emmert</td>
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<td>Dwyer Equipment</td>
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<td>Paris IL</td>
<td>61944-6702</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### District: OS (Out of State)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rental Service Corp. - Roesch Division 1414 E. Triumph Dr. Urbana IL 61802</td>
<td>217-367-3781</td>
<td>217-367-0259</td>
<td>Chris Rahn</td>
<td>Heil, Knaphide, Swenson, Henke, Western</td>
</tr>
</tbody>
</table>

### District: SE (Southeast)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaffenbarger Truck Equipment Co. 3260 E. Kemper Rd. Cincinnati OH 45241</td>
<td>437-772-6000</td>
<td>???</td>
<td>???</td>
<td>Gledhill</td>
</tr>
</tbody>
</table>

### District: SW (Southwest)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meyer Truck Equipment 196 W. State Rd. 56 Jasper IN 47546</td>
<td>812-695-3451</td>
<td>812-695-3397</td>
<td>???</td>
<td>Good Roads, Western, Perfection, Knaphide</td>
</tr>
<tr>
<td>Miller Truck Equipment, Inc. 5900 Old Boonville Hwy. Evansville IN 47716-5364</td>
<td>812-479-9700</td>
<td></td>
<td></td>
<td>Heil, Swenson, Western</td>
</tr>
<tr>
<td>Rudd Equipment Co. Evansville IN</td>
<td>812-867-6661</td>
<td></td>
<td></td>
<td>Henke Industrial</td>
</tr>
<tr>
<td>District: SW (Southwest)</td>
<td>Company Name and Address</td>
<td>Phone</td>
<td>Fax</td>
<td>Contact</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td></td>
<td>Sternberg Truck Equipment</td>
<td>800-264-9004</td>
<td>812-867-7423</td>
<td>Ken Martin</td>
</tr>
<tr>
<td></td>
<td>8950 N. Kentucky Ave.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Evansville</td>
<td>IN 47711</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Universal Products and Services</td>
<td>812-339-6783</td>
<td>???</td>
<td>Marion Reeves</td>
</tr>
<tr>
<td></td>
<td>2333 North Industrial Drive, 24 AGR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bloomington</td>
<td>IN 47404</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District: WC (West Central)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clark Truck Equipment</td>
<td>765-362-4101</td>
<td>765-362-4103</td>
<td>Larry Smith</td>
<td>Henderson, Western, Viking, Henke</td>
</tr>
<tr>
<td></td>
<td>U.S. 231 South</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Linden</td>
<td>IN 47955</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MacAllister Equipment Co.</td>
<td>812-877-9773</td>
<td></td>
<td></td>
<td>Henke Industrial</td>
</tr>
<tr>
<td></td>
<td>Terre Haute</td>
<td>IN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MacAllister Equipment Co.</td>
<td>317-423-5553</td>
<td></td>
<td></td>
<td>Henke Industrial</td>
</tr>
<tr>
<td></td>
<td>W. Lafayette</td>
<td>IN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reynolds Construction Equipment Co.</td>
<td></td>
<td></td>
<td></td>
<td>Henke Industrial</td>
</tr>
<tr>
<td></td>
<td>W. Lafayette</td>
<td>IN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rowe Truck Equipment, Inc., 1501 1st St., P.O. Box 386</td>
<td>765-583-4461</td>
<td>765-583-2907</td>
<td></td>
<td>Galion, Godwin, Knapheide, Flink, Good Roads, Meyer, Western</td>
</tr>
<tr>
<td></td>
<td>Otterbein</td>
<td>IN 47970</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

End of report.
6.5

Sign Truck
6.5 Sign Maintenance Truck

6.5.1 Sign Maintenance Truck

6.5.2 Vendor List
6.5.1 Sign Maintenance Truck

Task Force

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tom Martin</td>
<td>Program Manager</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>John Habermann</td>
<td>Research Engineer</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>Jerry Halperin</td>
<td>Buyer</td>
<td>INDOT</td>
</tr>
<tr>
<td>Jim Conner</td>
<td>Specifications Writer</td>
<td>INDOT</td>
</tr>
<tr>
<td>Larry McLin</td>
<td>County Highway Supervisor</td>
<td>Daviess County Highway Dept.</td>
</tr>
<tr>
<td>Phil Cornelius</td>
<td>Shop Foreman</td>
<td>Daviess County Highway Dept.</td>
</tr>
<tr>
<td>Eugene Shurte</td>
<td>County Highway Supervisor (Ret)</td>
<td>LaPorte County Highway Dept.</td>
</tr>
<tr>
<td>Chuck Everett</td>
<td>Utility Manager</td>
<td>Town of Flora</td>
</tr>
<tr>
<td>Larry Campbell</td>
<td>Fleet Manager</td>
<td>Allen County Highway Dept.</td>
</tr>
</tbody>
</table>

These specifications have been developed to be modular as much as possible with respect to the various components making up the sign maintenance body. Separate specifications have been developed for the truck chassis and each of the major components, as listed below. It should be noted that, although these specifications may produce a unit capable of serving as a one man operation, however, for safety reasons it is recommended that sign installation and maintenance be considered an two man operation. These specifications are developed assuming a two man operation.

Part 1 - Truck Chassis

Part 2 - Truck Bed

Part 3 - Sign Boom
   a - Telescopic Sign Boom
   b - Articulated Sign Boom

Part 4 - Work Platform
   a - Telescopic Work Platform
   b - Aerial Telescopic Work Platform
   c - Aerial Telescopic Bucket

Part 5 - Modular Sign and Tool Storage
6.5.1 Sign Maintenance Truck

Task Force

<table>
<thead>
<tr>
<th>Name</th>
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<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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<tr>
<td>Chuck Everett</td>
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<tr>
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<td>Fleet Manager</td>
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</tr>
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</table>

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Part 2 - Truck Bed

Part 3 - Sign Boom
   a - Telescopic Sign Boom
   b - Articulated Sign Boom

Part 4 - Work Platform
   a - Telescopic Work Platform
   b - Aerial Telescopic Work Platform
   c - Aerial Telescopic Bucket

Part 5 - Modular Sign and Tool Storage
Owner Input Checklist

Owner input is required on the following pages of this Specification:

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GENERAL</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ 1  Bid Bond Amount</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PART 1 - CHASSIS REQUIREMENTS</td>
</tr>
<tr>
<td></td>
<td>□ 5  Front bumper type</td>
</tr>
<tr>
<td></td>
<td>□ 8  Paint color</td>
</tr>
<tr>
<td></td>
<td>□ 9  Owner’s base of operations</td>
</tr>
<tr>
<td></td>
<td>□ 10 Delivery schedule</td>
</tr>
<tr>
<td></td>
<td>□ 10 Penalty for late delivery</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PART 2 - TRUCK BED</td>
</tr>
<tr>
<td></td>
<td>□ 12 Drivers side outriggers</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PART 3a - TELESCOPIC SIGN BOOM/WINCH</td>
</tr>
<tr>
<td></td>
<td>□ 13 Boom extension options</td>
</tr>
<tr>
<td></td>
<td>□ 13 Boom/winch capacity</td>
</tr>
<tr>
<td></td>
<td>□ 13 Boom/winch power option</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PART 3b - ARTICULATED SIGN BOOM</td>
</tr>
<tr>
<td></td>
<td>No Owner input required in this Part.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*** Note: Owner is to select one of the two options (Part 3a or 3b) for the sign boom.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PART 4a - AERIAL TELESCOPIC WORK PLATFORM</td>
</tr>
<tr>
<td></td>
<td>□ 14 Manual foldout extension ramp</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PART 4b - TELESCOPIC WORK PLATFORM</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Section 6.5.1 - Sign Maintenance Truck</td>
</tr>
</tbody>
</table>

PART 4c - AERIAL TELESCOPIC BUCKET

- □ 15  Bucket leveling and mounting options

***Note: Owner is to select one of the three options (Part 4a, 4b, or 4c) for the work platform.

PART 5 - MODULAR SIGN AND TOOL STORAGE

- □ 17  Storage cabinet size and type
- □ 18-19  Tool checklist
- □ 20  Owner is to select one of the standard storage unit configurations or design a custom configuration.

BID SUMMARY SHEET

- □ 21  Trade in information

Section 6.5.1 - Sign Maintenance Truck
SPECIFICATIONS

for

15,000 GVW Sign Maintenance Truck

GENERAL

It is the intent of these specifications to describe a new truck to be used for traffic sign installation and maintenance, with sufficient detail to secure bids on comparable equipment. The system shall be designed to take into consideration the safety of the traveling public, as well as the safety of the highway worker. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The truck shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, with Non Collusion Affidavit and Bid Bond equal to __________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall deliver the completed unit with all tools and functions operational and present a safety and operations class, taught by an instructor qualified for such a
class.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

**Term "or Equal"** Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
PART 1 - CHASSIS REQUIREMENTS

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engine and Engine Equipment</strong></td>
<td></td>
</tr>
<tr>
<td>Engine shall be diesel V8 or in-line 6 cylinder four cycle turbo charged engine with the following minimum specifications:</td>
<td></td>
</tr>
<tr>
<td>Horsepower: ____ 190 hp</td>
<td>Horsepower: ____ hp @ ____ rpm</td>
</tr>
<tr>
<td>Torque: ____ 385 ft-lbs</td>
<td>Torque: ____ ft-lbs @ ____ rpm</td>
</tr>
<tr>
<td></td>
<td>Engine Make: ______________________</td>
</tr>
<tr>
<td></td>
<td>Model: ___________________________</td>
</tr>
<tr>
<td></td>
<td>Cylinders: ____ Cycle: ____________</td>
</tr>
<tr>
<td></td>
<td>Bore / Stroke: ____ in x ____ in</td>
</tr>
<tr>
<td></td>
<td>Displacement: ____ CID ____ liter</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Automatic Transmission Equipment</strong></td>
<td></td>
</tr>
<tr>
<td>Transmission shall be standard of manufacturer automatic transmission, with selectable drive/overdrive position.</td>
<td>Make: ____________________________</td>
</tr>
<tr>
<td></td>
<td>Model: ___________________________</td>
</tr>
<tr>
<td></td>
<td>Speeds: ______________________</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Rear axle ratio as required to maintain cruising speed of 65 mph with specified tires and transmission as described herein.  

Bidder of the chassis shall communicate with the suppliers of each of the major components of the body to determine the need for the auxiliary transmission cooler. If it is determined to be required, it shall be factory or chassis dealer installed prior to delivery of the completed unit.

Cooling System

The unit shall be equipped with the following items within the cooling system:

Engine Block Heater(s), 1000 watt min.

Weather head connector for Block heater

Fin and tube type radiator core having maximum frontal opening available for the engine and transmission being bid.

Frame

Wheelbase and cab to axle (CA) dimension shall be the minimum required for proper fit of the specified body and equipment.

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Frontal Area: _____________ sq. in.

Capacity: _____________ gal

Wheelbase: _____________"

Cab-Axle spacing: ____________"

Describe exceptions to the Specifications:


Section 6.5.1 - Sign Maintenance Truck
Frame rail strength and section to be heaviest available from the manufacturer for the model being bid.

Front bumper to be heaviest available from the manufacturer for the model being bid, finish to be

- paint color: __________, or
- chrome: □

There shall be a total of four frame mounted tow hooks, two each front and rear, left and right. Hooks shall be easily accessible, with no interference to their use for pulling or towing the vehicle.

.................................................................

Electrical System

Starter shall be rated heaviest duty for this application by the manufacturer.

Alternator shall be rated heaviest duty for the engine model being bid, 120 amp (min).

Yield Strength: __________ psi
Section Modulus: __________ in³
RBM: __________ in²
Front bumper finish: __________

Color: __________

Yes [ ] No [ ]

.................................................................

Amperage: __________ amp
Engine shall be equipped with a minimum of two batteries, with highest cold cranking amps (CCA) available.

Special light requirements shall be as described in the in the body section of these specifications.

.................................................................

Tires, Wheels, and Suspension Equipment

5,000# front axle rating

5,000# suspension

10,000# rear axle rating

10,000# rear suspension

Rear auxiliary springs to be factory installed, heaviest available from the manufacturer.

Power steering to be standard of the manufacturer.

Tires and steel wheels to standard of the manufacturer, all season steel belted radials as required for GVW and equipment specified.

.................................................................

A like, full size, wheel and tire shall be provided for use as a spare, with rear frame mount.

Heavy duty shock absorbers to be factory installed.

.................................................................

No. of batteries: ________________

CCA: ________________ amps

Yes [ ] No [ ]

.................................................................

Front axle rating: ____________#

Front suspension: ____________#

Rear axle rating: ____________#

Rear axle suspension: ____________#

Aux. Springs: ____________#

Yes [ ] No [ ]

Tire size: ________________

Make: ________________

Model: ________________

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

.................................................................

.................................................................

.................................................................

Section 6.5.1 - Sign Maintenance Truck
A heavy duty jack and lug wrench to be provided.

Brake Equipment

Service brakes shall be of power, antilock braking type, both front and rear.

Parking brake shall be standard of manufacturer.

Fuel System and Tanks

The fuel tank(s) shall be largest capacity available for the make and model being bid.

Fuel filler inlet shall be clearly marked DIESEL FUEL ONLY!!!

Cab and Safety Features

- Cab to be ventilated and insulated
- All window tinted glass
- Door operated dome light
- Cigar lighter
- Heavy duty 60/40 split vinyl bench seat with head restraints and safety belts
- Full width, black, rubber floor covering
- Tilt wheel
- Cruise control
- Dual sun visors
- Insulated head liner

<table>
<thead>
<tr>
<th></th>
<th>Yes [ ]</th>
<th>No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABS</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dual tanks</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Combined Capacity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Section 6.5.1 - Sign Maintenance Truck
<table>
<thead>
<tr>
<th>Feature</th>
<th>Yes [ ]</th>
<th>No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM/FM Radio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermittent electric windshield wiper, with washer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automatically adjusting backup alarm, 87-112 dB range</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marker lights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One day/night inside rearview mirror and left and right outside rearview mirrors to allow a clear view behind the body supplied.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driver and passenger side airbags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dash mounted gauges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tachometer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hour meter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ammeter(needle type, calibrated)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black (no logo), anti-sail mud flaps shall be installed behind the rear wheels.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paint color shall be</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paint color is:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A bracket shall be mounted behind the seat, drivers side, for a fire extinguisher and reflectorized triangle kit.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A basic first aid kit shall be rigidly attached behind the seat, passenger side.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:
Warranty / Repair Parts

Bidder to provide description of all warranties and component warranties available.
Yes [ ] No [ ]

Bidder shall provide warranty from date of delivery of completed unit(s).
Yes [ ] No [ ]

Parts Book and Service Manual provided.
Yes [ ] No [ ]

Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner’s base of operations, which is located at

Location of warranty facility:

Distance from Owners base of operations:

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner’s base of operations.

Describe exceptions to the Specifications:

Section 6.5.1 - Sign Maintenance Truck
Delivery Information

Unit must be delivered to the Owner with all attachments and components substantially completed, within ____________ days of the acceptance of the bid.

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of ____________ $/day for each calendar day of delay after the Owner’s specified date of delivery.

Estimated delivery time: ____________ days

Acknowledged: Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
PART 2 - TRUCK BED

Minimum Requirements of Local Agency

Minimum Dimensions:

Width: 95"
Length: 14'

Construction shall be of standard structural steel consisting of 6" frame rails, 8" stringers, 3" cross-members, positioned and reinforced to accommodate modular signing equipment.

1/8" diamond plate steel deck. Skip weld deck to frame rails, stringers, and cross members.

Underbed storage for steel and/or wood posts to be provided, compartmentalized for storage of posts of various lengths and to prevent shorter posts from sliding forward (out of reach) or rearward (out of the compartment).

Bulkhead shall be full width of bed, 48" (min) high, and 12" deep to accommodate storage of large signs and/or barricades. Framework shall consist of 2" x 2" square tubing, mesh to be of 3/4" x 9 gauge.

Lights shall be provided to meet FHMV Safety Standards.

Access ladder with handrail.

Rear bumper.

Describe exceptions to the Specifications:

__________________________

__________________________

__________________________

Provided by Unit Proposed by Bidder

Width: ____________"
Length: ____________'

Rail size: ____________"
Stringer size: ____________"
Cross members size: ____________"

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Bulkhead height: ____________"
Bulkhead depth: ____________"

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Section 6.5.1 - Sign Maintenance Truck
Two outriggers are to be provided on the ditch (passenger) side, mounted under frame, to stabilize boom and work platform. Provisions for adding two more outriggers in the future shall be included. Outriggers to be of square tube construction, with 3" double acting cylinders, with controls at the work station on the truck bed.

Drivers side outriggers to be factory installed to enable truck to be used in off road conditions.

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Minimum Requirements of Local Agency

Telescopic sign boom/winch, Signmaster Model 3015, manufactured by Flannegan Western, or equal, shall be provided to handle attachments for signing and other maintenance equipment, such as post drivers.

Boom may consist of up to three sections, utilizing

___ hydraulic, or
___ manual, or
___ a combination of manual and hydraulic telescoping sections.

Fully extended reach shall be at least 15'0", fully retracted shall be not more than 8'6".

Boom winch capacity shall be at least:

___ 1,500#, or
___ 3,000#

Winch shall be

___ electronically, or 
___ hydraulically operated with at least 15'0" of coiled cord on the control box.

Boom rotation shall be 360 degree, non-continuous, hydraulically driven with controls located on the work station on the bed.

Hydraulic system shall be designed to provide

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Provided by Unit Proposed by Bidder

Make: __________________________

Model: __________________________

No. of sections: __________

<table>
<thead>
<tr>
<th>Section</th>
<th>Length</th>
<th>Manual/Hydraulic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>______&quot;</td>
<td>________________</td>
</tr>
<tr>
<td>2</td>
<td>______&quot;</td>
<td>________________</td>
</tr>
<tr>
<td>3</td>
<td>______&quot;</td>
<td>________________</td>
</tr>
</tbody>
</table>

Reach extended: __________"

retracted: __________"

Winch capacity: ______________#

Winch power: __________________________

Describe exceptions to the Specifications:

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________
proper flow and pressure to operate all boom functions and hydraulic tools requested within these specifications.

*** LPA to select one of the two alternatives for the sign boom (Part 3). The stick boom described on this sheet is appropriate for equipment used to drive steel posts, but not for equipment used for augering and the installation of wood posts. If augering is required, the articulated sign boom described herein is recommended.

Describe exceptions to the Specifications:

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
**PART 3b - ARTICULATED SIGN BOOM**

**Minimum Requirements of Local Agency**

Articulated sign boom, Flannegan Western Model 6x8, or equal, shall be provided to handle attachments for signing and other maintenance equipment, such as post drivers and earth augers.

Design shall allow maximum boom movement for below ground level tasks, such as augering in roadside ditches.

Reach shall be 13' (min) beyond the side of the bed.

Boom rotation shall be 360 degree, non-continuous, hydraulically driven with controls located on the work station on the bed.

Minimum 10 gallon oil reservoir with filter.

Hydraulic hoses to be 2700 psi (min) working pressure.

Hydraulic lines with quick connects/disconnects shall be attached to boom for operation of tools.

Boom shall be capable of storing the auger and any other requested tools neatly under the boom wasting as little bed space as possible.

**Provided by Unit Proposed by Bidder**

<table>
<thead>
<tr>
<th>Provided by Unit</th>
<th>Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Reach:</td>
<td></td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Reservoir capacity:</td>
<td>_________ gal</td>
</tr>
<tr>
<td>Working pressure:</td>
<td>_________ psi</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Hydraulic system shall be designed to provide proper flow and pressure to operate all boom functions and hydraulic tools requested within these specifications.

*** LPA to select one of the two alternatives for the sign boom (Part 3). The articulated sign boom described on this sheet is appropriate for augering equipment used in the installation of wood posts. LPA's in Indiana typically do not have a need for this type of equipment for sign installation, but it is included here as an option available to LPA's with such a need.

Describe exceptions to the Specifications:

__________________________________________________________________________________________________________________

__________________________________________________________________________________________________________________

__________________________________________________________________________________________________________________

Section 6.5.1 - Sign Maintenance Truck
PART 4a - AERIAL TELESPOIC WORK PLATFORM

Minimum Requirements of Local Agency

Platform to be of square tube construction, the length of which should be approximately equal to the full width of the bed.

The width of the platform shall be at least 32".

The platform shall be capable of being raised vertically to a height of 13' above ground level, assuming the standard operator reach of 5', this allows a total working height of at least 18'.

The platform shall be capable of being extended 6' horizontally while in the folded position, maximum working reach of the unit shall be at least 15' from the edge of the truck, using the combination of horizontal reach and vertical lift, and assuming the standard operator reach of 2'.

The platform shall include a manual foldout extension ramp of 42" with rigid corner posts.

The platform shall have a minimum capacity of 600 lbs.

The platform shall have a fully enclosed railing and a mid-height chain rail and 4" toe strip to meet ANSI Standards.

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]

Platform width: __________"'

Platform working height: __________'

Platform working reach: __________'

Yes [ ] No [ ]

Platform capacity: __________"'

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.5.1 - Sign Maintenance Truck
Platform shall be activated by a double acting cylinder with an integral mounted holding valve to prevent freefall in the event of hydraulic line failure.

Platform flooring shall be expanded metal with safety tread.

Hydraulic system shall be designed to provide proper flow and pressure to operate all platform functions and hydraulic tools requested within these specifications.

Platform shall be furnished with one full body harness complete with shock load cell and D ring attachment.

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

*** LPA to select one of the three alternatives for the work platform (Part 4). The aerial telescopic platform offers a greater working area and the capacity for two men, but with limited working height.

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform to be of square tube construction, the length of which should be approximately equal to the full width of the bed.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>The width of the platform shall be at least 32&quot;.</td>
<td></td>
</tr>
<tr>
<td>The platform shall be capable of being extended 6' horizontally, producing a maximum working reach of at least 8' from the edge of the truck, using the 6' extension and assuming the standard operator reach of 2'.</td>
<td>Platform width: ___________&quot;</td>
</tr>
<tr>
<td>The platform shall include a manual foldout extension ramp of 42&quot; with rigid corner posts. Yes [ ] No [ ]</td>
<td>Platform working reach: __________</td>
</tr>
<tr>
<td>The platform shall have a minimum capacity of 600 lbs.</td>
<td></td>
</tr>
<tr>
<td>The platform shall have a fully enclosed railing and a mid-height chain rail and 4&quot; toe strip to meet ANSI Standards.</td>
<td>Platform capacity: ___________#</td>
</tr>
<tr>
<td>Platform flooring shall be expanded metal with safety tread.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Hydraulic system shall be designed to provide proper flow and pressure to operate all platform functions and hydraulic tools requested within these specifications.</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

---

---

---
*** LPA to select one of the three alternatives for the work platform (Part 4). The aerial telescopic platform offers a greater working area and the capacity for two men, but with limited working height.

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.5.1 - Sign Maintenance Truck
PART 4c - AERIAL TELESCOPIC BUCKET

Minimum Requirements of Local Agency

Bucket floor shall have minimum height above ground of at least 29 ft, producing 34 ft working height assuming the standard 5 ft operator reach.

Bucket shall have minimum reach of 21 ft from the base.

Stowed height maximum of 11.5 ft.

Rated bucket capacity to be 350 lb, minimum.

Bucket floor area to be 24" x 24" minimum.

Bucket opening to be shall be on the side or front (facing cab) for easy access from bed of truck.

Bucket shall be furnished with one full body harness complete with shock load cell and D ring attachment.

Bucket shall be furnished with a cover to prevent water from entering.

Pedestal to be mounted to frame through the body.

Boom main section to be steel tube, telescoping section to be insulated fiberglass, ANSI Category C rated.

Provided by Unit Proposed by Bidder

Bucket working height: _______ '

Bucket working reach: _______ '

Stowed height: _______ '

Bucket capacity: _______ #

Bucket dimensions: _______ " x _______ "

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

Section 6.5.1 - Sign Maintenance Truck
Boom shall be capable of 360 deg, continuous rotation by hydraulic motor. Hydraulic motor shall be equipped with a crossover relief valve to prevent over torquing.

Yes [ ]  No [ ]

Boom and bucket to face rear of vehicle in travel position, with provided boom rest and means to secure boom during transit.

Yes [ ]  No [ ]

Each boom cylinder shall be equipped with a counter balance holding valve to prevent creeping and lock cylinder in place in case of hydraulic failure, with provision for emergency descent.

Yes [ ]  No [ ]

Boom and bucket to provide minimum tipping load, horizontal extension, of 450 lbs on level ground and 400 lbs on a 5 deg slope.

Tipping load:
level: __________  *
5 deg slope: __________  *

Yes [ ]  No [ ]

There shall be no open or exposed gears in the pedestal.

Bucket is to be:

- [ ] hydraulically leveled
- [ ] self leveled with lock mechanism

Yes [ ]  No [ ]

Bucket is:

- [ ] hydraulically leveled
- [ ] self leveled with lock mechanism

Yes [ ]  No [ ]

and,

- [ ] side mount
- [ ] end hung.

Bucket is:

- [ ] side mount
- [ ] end hung.

Boom, bucket and all components to be manufactured and tested in accordance with OSHA and ANSI A92-2 requirements with all safety features included.

Yes [ ]  No [ ]

Full hydraulic control from bucket, with manual

Yes [ ]  No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.5.1 - Sign Maintenance Truck
override actuators to be easily accessible.

Emergency start, stop, and emergency descent function in bucket control panel.

Engine throttle system shall be located at lower and upper control stations.

Hydraulic system operating pressure to be a maximum 2400 psi relief pressure.

Hydraulic system operating volume to be a minimum of 5 gpm.

Hydraulic system shall have a suction line metal screen (minimum 100 micron).

Hydraulic system shall be designed to provide proper flow and pressure to operate all platform functions and hydraulic tools requested within these specifications.

Yes [ ] No [ ]

Yes [ ] No [ ]

Relief pressure: ___________ psi

Operating volume: ___________ gpm

Screen size: ___________ micron

Yes [ ] No [ ]

*** LPA to select one of the three alternatives for the work platform (Part 4). The aerial telescopic bucket offers a greater working height and reach, but has a limited capacity.

Describe exceptions to the Specifications:

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________
PART 5 - MODULAR SIGN AND TOOL STORAGE

Minimum Requirements of Local Agency

A sign and tool storage cabinet shall be provided similar to the attached.

_______ Type A - 6'
_______ Type B - 6'
_______ Type C - 8'
_______ Type D - 10'
_______ Custom
(Buyer to provide sketch of the desired configuration on the attached sheet.)

The top of the storage unit shall be approximately 40" high to allow use as a workbench/preparation area.

The vertical dividers shall be adjustable to accommodate signs of various widths.

The angles shall be at a slight incline to prevent the signs from sliding out of the storage unit.

The face of the unit shall face the interior of the truck bed.

Drawers and doors for the storage areas shall be equipped with a locking mechanism.

Provided by Unit Proposed by Bidder

Storage cabinet dimensions:

____" long x ____" wide x ____" high

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Section 6.5.1 - Sign Maintenance Truck
Tools

Cradles and or storage areas shall be provided on the bed or in the storage compartment for safe and secure storage of all requested tools.

____ Hydraulic post driver, for:

<table>
<thead>
<tr>
<th>Type</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>steel</td>
<td></td>
</tr>
<tr>
<td>wood</td>
<td></td>
</tr>
</tbody>
</table>

____ Earth auger

______________
______________
______________

____ Power inverter:

110 volt 3000 watt AC/DC power inverter, with outlets to be 2 - 110 volt, one located on the work platform/bucket control panel, the other located at the right rear of the bed. Inverter to have it's own disconnect switch.

____ Air compressor:

______________
______________
______________

Describe exceptions to the Specifications:

__________________________________________________________

__________________________________________________________

__________________________________________________________

Yes [ ] No [ ]

Make:__________ Model:__________

Literature attached: Yes [ ] No [ ]

Make:__________ Model:__________

Literature attached: Yes [ ] No [ ]

Make:__________ Model:__________

Literature attached: Yes [ ] No [ ]

Make:__________ Model:__________

Literature attached: Yes [ ] No [ ]

Section 6.5.1 - Sign Maintenance Truck
___ welder/generator: 

___ Sign puller/post jack

___ Oxygen/acetylene tank holders

___ Traffic cone holders

___ Hose reel

___ Bumper mounted utility box

___ Ladder rack

___ Expanded metal shovel box

Make: __________ Model: __________

Literature attached: Yes [ ] No [ ]

Make: __________ Model: __________

Literature attached: Yes [ ] No [ ]

Make: __________ Model: __________

Literature attached: Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
SUMMARY SHEET

BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

Factory installed air conditioning

Add: ___________ $

60/40 split cloth seats

Add: ___________ $

Frame hitch

Add: ___________ $

Class three frame mounted receiver with removable 2" ball/16,000# (min) pintle to include six way Cole/Hersee plug #1235 mounted in a weatherproof enclosure and safety chain attaching points

Add: ___________ $

Add: ___________ $

Add: ___________ $

DEDUCT ALTERNATES

Trade In (s)

Deduct: ___________ $

Year: ____________________________
Make: ____________________________
Model: ____________________________
S/N: ____________________________
Location: ____________________________

Net Price: ___________ $

Bidder Name, Address, Phone, Contact:

________________________________________________________

________________________________________________________

________________________________________________________

Section 6.5.1 - Sign Maintenance Truck
Section 1 - All Vendors

*All reports are sorted first by district, then alphabetically.*
Sign Truck Vendors

District: OS (Out of State)

Company Name and Address | Phone    | Fax       | Contact     | Manufacturers Represented
----------------------------|----------|-----------|-------------|-------------------------
Flannegan Western          | 712-852-3996 | 712-852-3997 | Mike Flannegan | Flannegan Western
Highway 18 E., PO Box 487  |          |           |             |                         
Humbertburg                |          |           |             |                         
IA                          |          |           |             |                         
50536                      |          |           |             |                         

End of report.
6.6

Shop Service Truck
6.6 Shop Service Truck

6.6.1 Shop Service Truck

6.6.2 Vendor List
6.6.1 Shop Service Truck - 15,000 GVW

Task Force

Tom Martin  Program Manager  Indiana LTAP-HERPICC
John Habermann  Research Engineer  Indiana LTAP-HERPICC
Jim Conner  Specifications Writer  InDOT
Larry McLin  County Highway Supervisor  Daviess County
Phil Cornelius  Shop Foreman  Daviess County
Eugene Shurte  County Highway Supervisor (Ret)  LaPorte County
Chuck Everett  Utility Manager  Town of Flora
Larry Campbell  Fleet Manager  Allen County

These specifications have been developed to be modular as much as possible with respect to the various components making up a shop service truck. This section contains the different parts to a shop service truck.

Part 1 - Truck Chassis

Part 2 - Truck Service Body

Part 3 - Optional Equipment
## Owner Input Checklist

Owner input is required on the following pages of this Specification:

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>GENERAL</strong></td>
</tr>
<tr>
<td>□ 1</td>
<td>Bid Bond Amount</td>
</tr>
</tbody>
</table>

### Part 1 - Truck Chassis

- □ 4 Four-wheel drive with manual shift
- □ 5 Bumper Paint Color or Chrome Bumper
- □ 8 Paint Color of Truck
- □ 9 Base of Operation Address
- □ 10 Delivery Schedule
- □ 10 Penalty for late delivery

### Part 2 - Truck Service Body

- □ 12 Service Body Compartment Layout
- □ 12 Service Body Compartment Shelving and Divider Layout
- □ 13 Diagram for Compartment Layout
- □ 14 Location of Rear Brake Lights and Reverse Lights on Service Body

### Part 3 - Optional Equipment

- □ 15 Owner to choose all desired Optional Equipment
- □ 15 Air Compressor
- □ 15 Location of Compressor/Tool Air Circuit
- □ 16 Tool Air Circuit
- □ 17 Welder
- □ 17 Location of the Welder
- □ 18 Battery Charger/ Starter
- □ 18 Location of the Battery Charger/ Starter
- □ 19 Auxiliary Starter Circuit
- □ 19 Lift Gate
- □ 20 Bracket for Triangle Kits/Fire Extinguisher
- □ 20 Winch
- □ 20 Frame Hitch
- □ 21 Electric Crane
- □ 21 Fuel Tank Dispenser
- □ 21 Oil Tank Dispenser
- □ 22 Alternates/Trade-In Equipment

---

6.6.1 Shop Service Truck - 15,000 GVW
SPECIFICATIONS

for

Shop Service Truck - 15,000 GVW

GENERAL

It is the intent of these specifications to describe a Shop Service Truck to be used for routine maintenance and repair of equipment with sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be a current model, new equipment, under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any unit not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on the approved local agency bid form, with Non Collusion Affidavit and Bid Bond equal to _________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided on Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered and all attachments and options with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).
**Term** "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
PART 1 - TRUCK CHASSIS

Minimum Requirements of Local Agency

GVW: Minimum 15,000 lbs.

Engine and Engine Equipment

Engine shall be diesel V8 or in-line 6 cylinder four cycle turbo charged engine with the following minimum specifications:

Horsepower: _____ 190 hp
Torque: _____ 385 ft-lbs

Engine Block Heater(s), 1000 watt min.

Engine control module shall include auxiliary idle control circuit to regulate engine speed during stationary operations

Automatic Transmission Equipment

Lockout overdrive switch

Transmission shall be standard of manufacturer automatic transmission, with selectable drive/overdrive position.

Provided on Unit Proposed by Bidder

G.V.W. ______________ Lbs.

Horsepower: ______ hp @ _______ rpm
Torque: ______ ft-lbs @ _______ rpm
Engine Make: _______________________
Model: ___________________________
Cylinders: _______ Cycle: __________
Bore / Stroke: _______ in x _______ in
Displacement: _______ CID _______ liter

Yes [ ] No [ ]
Watts: ____________________________

Yes [ ] No [ ]

Describe exceptions to the Specifications:

____________________________________________________

____________________________________________________

____________________________________________________

6.6.1 Shop Service Truck - 15,000 GVW
Minimum Requirements of Local Agency

Rear axle ratio as required to maintain cruising speed of 65 mph with specified tires and transmission as described herein.

☐ Four-wheel drive with manual shift

Bidder of the chassis shall communicate with the suppliers of each of the major components of the body to determine the need for the auxiliary transmission cooler. If it is determined to be required, it shall be factory or chassis dealer installed prior to delivery of the completed unit.

Cooling System

The unit shall be equipped with the following items within the cooling system:

Weather head connector for Block heater

Fin and tube type radiator core having maximum frontal opening available for the engine and transmission being bid.

Frame

Wheel base: 64" or as required for 132" service body

Cab to Axle: 84" or as required for 132" service body

Describe exceptions to the Specifications:

Provided by Unit Proposed by Bidder

Axle Ratio: __________

Yes [ ] No [ ]

Yes [ ] No [ ]

Frontal Area: __________ sq. in.
Capacity: __________ gal

Wheelbase: __________ "

Cab-Axle spacing: __________ "

6.6.1 Shop Service Truck - 15,000 GVW
Minimum Requirements of Local Agency

Frame rail strength and section to be heaviest available from the manufacturer for the model being bid.

Front bumper to be heaviest available from the manufacturer for the model being bid, finish to be

paint color: __________, or
chrome: ☐

There shall be a total of four frame mounted tow hooks, two each front and rear, left and right. Hooks shall be easily accessible, with no interference to their use for pulling or towing the vehicle.

Electrical System

Starter shall be rated heaviest duty for this application by the manufacturer.

Alternator shall be rated heaviest duty for the engine model being bid, 120 amp (min).

Engine shall be equipped with a minimum of two batteries, with highest cold cranking amps (CCA) available.

Provided on Unit Proposed by Bidder

Yield Strength: __________ psi
Section Modulus: __________ in³
RBM: __________ in²

Front bumper finish: __________, or
Color: __________

Yes [ ] No [ ]

Amperage: __________ amps

No. of batteries: __________
CCA: __________ amps

Describe exceptions to the Specifications:

________________________________________

________________________________________

________________________________________

________________________________________
Minimum Requirements of Local Agency

Special light requirements shall be as described in the body section of these specifications.

Tires, Wheels, and Suspension Equipment

Truck shall be Dual Rear Wheel

5,000# front axle rating and suspension

10,000# rear axle rating and suspension

Rear auxiliary springs to be factory installed, heaviest available from the manufacturer.

Power steering to be standard of the manufacturer.

Tires and steel wheels to standard of the manufacturer and minimum 245 75Rx19.5, all season steel belted radials as required for GVW and equipment specified.

A like, full size, wheel and tire shall be provided for use as a spare, with rear frame mount.

Heavy duty shock absorbers to be factory installed.

Black (no logo), anti-sail mud flaps shall be installed behind the rear wheels

A heavy duty jack and lug wrench to be provided.

<table>
<thead>
<tr>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
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<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
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<tr>
<td>Yes [ ] No [ ]</td>
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</table>

Front axle rating: __________#

Rear axle rating: __________#

Aux. Springs: __________#

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<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
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</table>

Tire size: _____ x _______

Make:____________________

Model:___________________

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<td>Yes [ ] No [ ]</td>
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<tbody>
<tr>
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</tbody>
</table>

Describe exceptions to the Specifications:

__________________________

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__________________________

__________________________

__________________________

6.6.1 Shop Service Truck - 15,000 GVW
Minimum Requirements of Local Agency

Brake Equipment

Service brakes shall be of power, anti-lock braking type, both front and rear.

Parking brake: Foot operated, hand release

Fuel System and Tanks

The fuel tank(s) shall be largest capacity available for the make and model being bid.

Fuel filler inlet shall be clearly marked DIESEL FUEL ONLY!!!

Heated fuel/water separator to be included, standard of manufacturer

Cab and Safety Features

- Cab to be ventilated and insulated
- All window tinted safety glass
- Door operated dome light
- Cigar lighter, ashtray, & auxiliary power point
- Heavy duty 60/40 split vinyl bench seat with head restraints and adjustable safety belts
- Full width, black, rubber floor covering
- Tilt wheel
- Cruise control
- Dual sun visors
- Insulated head liner

Provided on Unit Proposed by Bidder

Yes [  ] No [  ]

Power: Yes [  ] No [  ]

ABS: Yes [  ] No [  ]

Yes [  ] No [  ]

Dual tanks: Yes [  ] No [  ]

Combined Capacity: _______________ gal

Yes [  ] No [  ]

Yes [  ] No [  ]

Describe exceptions to the Specifications:

______________________________

______________________________

______________________________

6.6.1 Shop Service Truck - 15,000 GVW

Page 7
Minimum Requirements of Local Agency

Left and right door trim panels with armrests and map pockets
AM/FM Radio
Intermittent electric windshield wiper, with washer
Automatically adjusting backup alarm, 87-112 dB range

Marker lights
One day/night inside rearview mirror
Left and right outside rearview mirrors that are largest available by manufacturer for clear view behind service body supplied

Driver and passenger side air bags
Electric Horn
Dash mounted gauges
Fuel
Tachometer
Hour meter (dash mounted)
Ammeter (needle type, calibrated)
Oil pressure "
Water temperature "
Speedometer "
All other gauges/indicators that are standard of manufacturer for model bid

☐ Paint color shall be ____________

A bracket shall be mounted behind the seat, drivers side, for a fire extinguisher and reflectorized triangle kit.

A basic first aid kit shall be rigidly attached behind the seat, passenger side.

Fire Extinguisher

Describe exceptions to the Specifications:

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Manufacturer: ________________
Model: ________________
dB Range: ________________

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Paint color is: ________________

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]
Minimum Requirements of Local Agency

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).


Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner’s base of operations, which is located at

________________________________________

________________________________________

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner’s base of operations.

Extended Transmission Warranty

Provided on Unit Proposed by Bidder

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Location of warranty facility:

________________________________________

Distance from Owner’s base of operations:

__________________________________________ mi

% available within 48 hours

_______

% available within 48 hours

_______ hours delivery for PM Parts

Yes [ ]  No [ ]

Describe exceptions to the Specifications:

________________________________________

________________________________________

________________________________________

6.6.1 Shop Service Truck - 15,000 GVW
Minimum Requirements of Local Agency

Unit must be delivered to the Owner with all attachments and components substantially completed, within _________ days of the acceptance of the bid.

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of _________ $/day for each calendar day of delay after the Owner's specified date of delivery.

Provide on Unit Proposed by Bidder

Estimated delivery date: ____________

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

6.6.1 Shop Service Truck - 15,000 GVW
PART 2 - TRUCK SERVICE BODY

Minimum Requirements of Local Agency

Service Body

Body Length shall be at least 132 inches

Rear bumper to be standard of manufacturer, full width utility step bumper with non-skid surface

Service Body shall be all steel

Front and rear panels to be 14 gage galvanized construction

Top and bottom panels to be 14 gage galvanized construction

Shelf and divider trays to be 16 gage galvanized construction

All doors on the service body shall be able to be locked with the same key

All doors on the service body shall have positive hinge stops

All doors on the service body shall be constructed as to prevent water penetration

The left and right front compartments shall have an aluminum rock guard protector, minimum 12" x 12", mounted at lower front of compartment

Describe exceptions to the Specifications:

Provided by Unit Proposed by Bidder

Body Length: ________ inches

Yes [ ] No [ ]

Yes [ ] No [ ]

_________ gage

_________ gage

_________ gage

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

6.6.1 Shop Service Truck - 15,000 GVW
<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
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</thead>
<tbody>
<tr>
<td>Service Body (cont)</td>
<td></td>
</tr>
<tr>
<td>All compartments to have an interior light and light guard. Lights shall be controlled by a rocker switch, mounted on control panel in cab.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Tops of compartments on both sides shall have tread plate with a non-skid surface applied. The floor (top surface) of the body shall also have a non-skid surface applied.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Compartment inside shall be painted white for better visibility</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>☐ Compartment configuration shall be of the</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Driver side: ☐ Vertical configuration</td>
<td></td>
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<tr>
<td>☐ Horizontal configuration</td>
<td></td>
</tr>
<tr>
<td>Passenger side: ☐ Vertical configuration</td>
<td></td>
</tr>
<tr>
<td>☐ Horizontal configuration</td>
<td></td>
</tr>
<tr>
<td>Compartment shelving and dividers shall be:</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>☐ Standard of manufacturer</td>
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</tr>
<tr>
<td>☐ Custom per attached sheet (next page)</td>
<td></td>
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<td>........................................................</td>
</tr>
<tr>
<td>Service Body Lighting</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Unit to have two (2) Federal Signal model SIGM2F with Amber/Red lenses one mounted on each side of the rear top of body, circuit breaker protected</td>
<td></td>
</tr>
<tr>
<td>Describe exceptions to the Specifications:</td>
<td></td>
</tr>
<tr>
<td>Minimum Requirements of Local Agency</td>
<td>Provided by Unit Proposed by Bidder</td>
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<tr>
<td>Service Body Lighting (cont)</td>
<td></td>
</tr>
<tr>
<td>□ Rear brake and Reverse lights to be at a location as determined by the Owner</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>There shall be two (2) work lights, one left and one right side, telescopic pedestal, mounted at top of rear compartments, and controlled by a rocker switch on the cab mounted control panel. The lights shall also have on/off control on each light.</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>A fused and circuit protected switch control panel, minimum six (6) rocker switches, shall be installed in the cab. All lighting shall be controlled from labeled, illuminated rocker switch(s) on the control panel.</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>All standard lighting, including clearance, cab marker, reflectors, stop/tail/turn/back-up as required by Indiana State Law and FMVSS approval</td>
<td>Yes [ ]  No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:


6.6.1 Shop Service Truck - 15,000 GVW
PART 3 - OPTIONAL EQUIPMENT
Minimum Requirements of Local Agency

Check off items to be included:
□ COMPRESSOR/TOOL AIR CIRCUIT

System for the shaft drive compressor package shall include safety switch for power only when vehicle is in park and parking brake is set. System shall be operationally tested for a minimum of 2 hours by installer to assure proper setting of all controls, valves, switches etc

□ Final location of all components shall be reviewed and approved by Owner prior to completion of installation of unit

COMPRESSOR (AIR END)
(BOSS B600 or approved equal) Rotary screw oil flooded air compressor to be mounted on the street side, under deck, front of the service body or as per location as determined by Owner. Minimum 60 CFM @ 110 PSIG continuously, with:

- moisture trap
- oil receiver tank with filler port
- lubricant level sight glass
and all other components frame mounted, plumbed, and wired for installation

Unit shall include:
- electric hour meter
- compressor lubricant gauge
- air pressure gauge

Installation of unit shall include all required and necessary safety devices, warning and informational decals, and operational, parts, and maintenance manuals.

Describe exceptions to the Specifications:

Provided on Unit Proposed by Bidder

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
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</tbody>
</table>

Compressor manufacturer:__________
Model:____________________

CFM bid:__________ @ _______ PSIG

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
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<td>Yes</td>
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<td>No</td>
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<tr>
<td>Minimum Requirements of Local Agency</td>
<td>Provided on Unit Proposed by Bidder</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>TOOL/AIR CIRCUIT</td>
<td></td>
</tr>
<tr>
<td>Valve block to accommodate both compressor and tool circuit, selector switch with three positions; off, compressor on, tool circuit on, all solenoids, valves, hoses, fittings, switches, etc. as required to complete installation.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Rear curb side compartment shall house a 50 foot, spring loaded, retractable hose reel using ( \frac{1}{2} )&quot; line rated at minimum ( 1\frac{1}{2} ) times maximum capacity of air compressor, and be supplied with quick disconnects. Hose end accessibility by means of 4-way roller fair lead through rear curb-side compartment.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>One (1) ( \frac{1}{2} )&quot; quick disconnect coupler for additional air tool to be mounted on a common bracket in the rear curbside compartment.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>System shall have a velocity fuse (for operator safety), water separator, and oil lubricator to prevent moisture contamination of air tools.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Control system to match speed to compressor by automatic engine speed control. When no demand, engine must return to idle.</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

6.6.1 Shop Service Truck - 15,000 GVW
Minimum Requirements of Local Agency

☐ WELDER (gasoline)

There shall be an AC/DC gasoline powered welder provided with each unit. Minimum rating shall be CC/AC 225A @ 25V, CC/DC 210A @ 25V, CV/DC 200A @20V, with an 8 KW/KVA 120/240 Auxiliary power.

The welder engine shall be a two cylinder 16 hp with:
- solid state ignition
- automatic shutdown protection
- muffler
- electric starter
- battery
- gauges (standard of manufacturer)
- two (2) 110 volt outlets
- one (1) 240 volt outlet.

Removable, attached, weatherproof cover

Welder mounting shall provide approximately 6" clearance above body floor, if so located.

Two cables minimum length 35' shall be supplied:
- One (1) electrode cable with insulated electrode holder and jack plug.
- One (1) No. 2 work cable with work clamp and jack plug.

☐ Location of welder determined by Owner

Provided on Unit Proposed by Bidder

Welder manufacturer:__________________
Model:__________________

CC/AC ________A @ 25V
CC/DC ________A @ 25V
CV/DC ________A @20V

__________________ Auxiliary power

__________________ hp

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________

________________________________________

________________________________________

6.6.1 Shop Service Truck - 15,000 GVW
Minimum Requirements of Local Agency

- BATTERY CHARGER/STARTER

6/12/24 Volt AC battery charger/starter with:

- 60/40/30 charging amp output
- Peak output of 430 amps.
- Surge protected
- Ammeter/voltmeter
- Continuous power AC generator of welder when required
- Securely mounted at location determined by Owner
- Output from charger/starter shall go to plug in the rear panel/bumper of #1/0 welding cable
- Vehicle mounted end of circuit shall be in a weatherproof stainless steel housing, and be polarity protected
- Clamp end shall be #1/0 welding cable with a minimum length of 25' on a storage rack

Manufacturer & Model to be listed

Provided on Unit Proposed by Bidder

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Manufacturer:_____________________

Model:_____________________

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________
Minimum Requirements of Local Agency

☐ AUXILIARY STARTER CIRCUIT

Shall be connected directly from the vehicle battery to a plug in socket mounted in the front bumper/grill of #1/0 welding cable

Vehicle mounted end of circuit shall be in a weatherproof stainless steel housing, and be polarity protected, and use the same clamp end as the battery charger/starter

Provided on Unit Proposed by Bidder

Yes [ ] No [ ]

Yes [ ] No [ ]

☐ LIFT GATE
Unit shall be supplied with:

1,250lb capacity electrically controlled hydraulic lift gate

12 gauge platform, size 50” x 25” with tapered edge

Unit supplied shall be sealed to protect power unit and operating components from damage due to weather. All operating components shall be within the unit frame. Master switch shall be cab mounted to disconnect power to lift gate

Electrical connections for lift gate shall be circuit breaker protected to prevent overloading of chassis manufacturer supplied fuse box

Lift gate supplied shall include all reinforcements necessary to assure lifting capacity as rated by the manufacturer

Manufacturer & Model of Lift Gate to be listed

Manufacturer:________________
Model:________________

Yes [ ] No [ ]

Yes [ ] No [ ]

Capacity:______________ lbs.
Platform gauge:__________
Platform size:__________” by __________”

Describe exceptions to the Specifications:
Minimum Requirements of Local Agency

☐ BRACKET FOR TRIANGLE KITS/ FIRE EXTINGUISHER

A bracket, including all mounting hardware required, but not mounted, to retain three (3) triangles, shall be supplied with each truck.

Provided on Unit Proposed by Bidder

Yes [ ]  No [ ]

☐ WINCH

12 volt reversible winch mounted in front center of truck with a minimum capacity of 8,000 lb. line pull. Winch shall include 90' of 5/16" galvanized wire rope, remote control w/10' cable, roller fair lead, permanently wired and fused circuit.

Manufacturer: __________________

Model: __________________

☐ FRAME HITCH

Class three frame mounted receiver w/removable 2" ball/16,000lb(min) pintle to include 6 way Cole/Hersee plug #1235 or approved equal mounted in a weatherproof enclosure and safety chain attaching points.

Manufacturer: __________________

Model: __________________

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

6.6.1 Shop Service Truck - 15,000 GVW  Page 20
Minimum Requirements of Local Agency

☐ ELECTRIC CRANE

Electric crane, 12 volt DC 2,000 lb. capacity, with remote control pendant, power rotation capability to 345°, mounted on top rail of body above rear curb-side compartment

Service Body supplier shall communicate with crane supplier to determine modifications required to service body including strengthening and outriggers

☐ FUEL TANK DISPENSER

☐ OIL TANK DISPENSER

Provided on Unit Proposed by Bidder

Manufacturer:_____________________

Model:__________________________

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

_________________________________________________________________________________

_________________________________________________________________________________

_________________________________________________________________________________
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

Unit(s) shall have a light bar mounted over the cab roof with an illuminated rocker switch mounted on panel control. Whelen model 4200/2SI (or approved equal) with the strobes facing rear. Lenses to be Red street side facing rear and Clear on curbside facing rear. Unit must display full Amber to the front, circuit breaker protected.

Four-wheel drive with standard shift lever

Add: ____________ $

Add: ____________ $

Add: ____________ $ 

DEDUCT ALTERNATES

Trade In(s)

Deduct: ____________ $ 

Year: ____________________
Make: ____________________
Model: ____________________
S/N: ____________________
Location: ____________________

Net Price: ____________ $ 

Bidder Name, Address, Phone, Contact:

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________
Section 1 - All Vendors

All reports are sorted first by district, then alphabetically.
District: NW (Northwest)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Equipment Co., Inc.</td>
<td>800-322-4922</td>
<td></td>
<td></td>
<td>Monroe</td>
</tr>
<tr>
<td>16465 W. Lincoln Hwy.</td>
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<td>Plymouth</td>
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<td>46563</td>
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<tr>
<td>Scherer Truck Equipment</td>
<td>800-257-6873</td>
<td></td>
<td></td>
<td>FibreBody, Omaha Standard</td>
</tr>
<tr>
<td>24031 Laverne Drive, PO Box 158</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schneider</td>
<td></td>
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<tr>
<td>46376</td>
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District: WC (West Central)

<table>
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<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clark Truck Equipment</td>
<td>765-362-4101</td>
<td>765-362-4103</td>
<td>Larry Smith</td>
<td>Henderson, Western, Viking, Henke, Omaha Standard</td>
</tr>
<tr>
<td>U.S. 231 South</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Linden</td>
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</tr>
</tbody>
</table>

End of report.
6.7

Front End Loader
6.7 Front End Loader

6.7.1 Front End Loader - 2½cy Capacity

6.7.2 Front End Loader - 4cy Capacity

6.7.3 Vendor List
Task Force

Tom Martin      Program Manager      Indiana LTAP-HERPICC
John Habermann  Research Engineer    Indiana LTAP-HERPICC
Jerry Halperin  Buyer              InDOT
Jim Conner      Specifications Writer InDOT
Larry McLin     County Highway Supervisor Daviess County
Phil Cornelius  Shop Foreman        Daviess County
Eugene Shurte   County Highway Supervisor (Ret) LaPorte County
Chuck Everett   Utility Manager      Town of Flora
Larry Campbell  Fleet Manager       Allen County

These specifications have been developed to be modular as much as possible with respect to the various components making up a front end loader. The following minimum requirements are dependent on the bucket size. Therefore the Front End Loader Section has been broken into two subsections: 2.5 CY Bucket, and 4.0 CY Bucket. This subsection will address the 2.5 CY Bucket.

Part 1 - Operating Information/Bucket
Part 2 - Engine/Cooling System
Part 3 - Transmission
Part 4 - Driveline
Part 5 - Steering/Articulation
Part 6 - Hydraulic System
Part 7 - Brakes
Part 8 - Tires
Part 9 - Electrical System
Part 10 - Operator Station/Environment
Part 11 - Additional Equipment
Part 12 - Attachments
Part 13 - Service/Parts Warranty/Delivery
# Owner Input Checklist

Owner input is required on the following pages of this Specification:

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td></td>
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</tbody>
</table>

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Section 6.7.1 Front End Loader - 2.5 CY Bucket
SPECIFICATIONS

for

2.5 CY (Heaped) Bucket Front End Loader

GENERAL

It is the intent of these specifications to describe a front end loader to be used for loading gravel, snow, sand, salt, etc., with sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be a current model, new equipment, under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any unit not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on the approved local agency bid form, with Non Collusion Affidavit and Bid Bond equal to _________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided on Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered and all attachments and options with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).
**Term** "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
PART 1 - OPERATING INFORMATION/BUCKET

Minimum Requirements of Local Agency

Operating Weight, 24,300 pounds, minimum

2.5 CY (Heaped) Capacity General Purpose Bucket, minimum

Bolt on Cutting Edges
Bolt on Heal Wear Plates
Corner Guards
Spill Guard
Automatic Leveler
Grab Hooks
Loader boom service locking bar to be in accordance with SAE J38

Tipping Load 17,000 pounds, minimum @ Full Turn (lbs)

Break-Out Force, 22,000 pounds, minimum

(These capacities are for basic machine with specified bucket and tire size, and no hydroinflation. Bidder to list counterweight required to meet minimum tipping load.)

Distance from front of tires to front edge of bucket at maximum dumping height and 45 degree dump angle shall be 45 inches, minimum.

The bucket shall have a dump clearance of 108", minimum, with a 45 degree dump angle.

Provided on Unit Proposed by Bidder

Operating Weight,__________ pounds

Heaped Capacity,__________, CY

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Tipping Load - Full Turn:_______________ (lbs)

Break-Out Force:_______________ (lbs)

w/_____________ lbs., counterweight

Specified distance,__________ in.

Dump clearance,__________ in.

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

Section 6.7.1 Front End Loader - 2.5 CY Bucket
PART 2 - ENGINE/COOLING SYSTEM

Minimum Requirements of Local Agency

Engine must be diesel, 6 cylinders, four cycle, turbo-charged engine with the following minimum specifications:

Horsepower (SAE Gross), min: 130 hp

Torque (SAE Net), min: 400 ft-lb

Engine Block Heater, 1000 watt, minimum, with weatherhead connector
Fuel Filter Water Separator
Fuel Heater
Engine Oil Cooler
Pre-cleaner
Dry-type air cleaner with safety element and restriction indicator
Overflow Recovery System
Spin-on type coolant filter
Silicone Hose System, or equal
Fin and tube type radiator core having maximum frontal opening available for the engine and transmission being bid.

Provided by Unit Proposed by Bidder

Make: ____________
Model: ____________
Bore/Stroke: ____________
Displacement: ____________

Horsepower:
SAE Gross: ____________
SAE Net: ____________
@___________ rpm

Torque: ____________ SAE Net
@___________ rpm

Yes [ ] No [ ]

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Frontal Area: ____________ sq. in.

Radiator Capacity: ____________ gal

Describe exceptions to the Specifications:

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

Section 6.7.1 Front End Loader - 2.5 CY Bucket
## PART 3 - TRANSMISSION

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Power Shuttle Shift w/ Torque Converter</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>4 Speeds Forward</td>
<td>Number of Speeds Forward:___________</td>
</tr>
<tr>
<td>3 Speeds Reverse</td>
<td>Number of Speeds Reverse:___________</td>
</tr>
<tr>
<td>Top Speed Forward, 20 mph minimum</td>
<td>Top Speed Forward:___________ mph</td>
</tr>
<tr>
<td>Auxiliary Transmission Oil Cooler</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Auxiliary Filter</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Single Lever Electronic Shift Control</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Auto shift and 2\textsuperscript{nd} gear to 1\textsuperscript{st} gear down shift loading features</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

_________________________________________________________________________________
_________________________________________________________________________________

Section 6.7.1 Front End Loader - 2.5 CY Bucket
<table>
<thead>
<tr>
<th>PART 4 - DRIVELINE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minimum Requirements of Local Agency</strong></td>
<td><strong>Provided on Unit Proposed by Bidder</strong></td>
</tr>
<tr>
<td>Front and Rear differential to be limited slip</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Rear Axle Oscillation 24 degrees, Stop to stop, minimum</td>
<td>Oscillating Rear [ ] degrees</td>
</tr>
<tr>
<td>Outboard Planetary Drive Axles</td>
<td>Yes [ ]  No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

______________________________________________________________________________________________

______________________________________________________________________________________________

______________________________________________________________________________________________

Section 6.7.1 Front End Loader - 2.5 CY Bucket
PART 5 - STEERING/ARTICULATION

Minimum Requirements of Local Agency

Articulation minimum 40 degrees each direction
Full hydraulic power steering, with supplemental
steering capabilities.
Turning radius measured to the centerline of the
outside tire shall not exceed 20 feet
Stop-to-stop steering ratio 4.0 turn, max
Center pin to have double-tapered roller bearings
top & bottom
Two double acting steering cylinders

Articulation locking bar and pin to be provided
and meets SAE J276

Provided on Unit Proposed by Bidder

Articulation _______ degrees
Yes [ ] No [ ]

Turning radius _______ feet

Steering ratio _______ turns
Yes [ ] No [ ]

Yes [ ] No [ ]

Bore: __________________
Piston Diameter: __________
Stroke: __________________
Relief Pressure: __________

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________

Section 6.7.1 Front End Loader - 2.5 CY Bucket
PART 6 - HYDRAULIC SYSTEM

Minimum Requirements of Local Agency

Hydraulic Pump Capacity:
Minimum 40 gpm@2200 rpm, bidder to list operating pressure

Relief pressure at 2800 psi, minimum

Bucket control function to be single lever, dual function valve,
Pull back = Raise  Forward = Lower
Left = Tilt back  Right = Dump

Minimum hydraulic tank capacity of 20 gallons w/sight glass

Hoses routed through alignment clamps

Positive pressure on the hydraulic reservoir

Multiple Attachment Mechanism

Automatic Hydraulic Cylinder Kickout at maximum dump lift arm height

Hydraulic System Filter, 20 micron

Provided by Unit Proposed by Bidder

Hydraulic Pump:
Minimum _____ gpm@2200 rpm
Operating Pressure:_______ psi

Relief Pressure:_______ psi

Yes [ ]  No [ ]

Hydraulic tank capacity of_______ gallons

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Describe exceptions to the Specifications:

_________________________________________________________________________

_________________________________________________________________________

Section 6.7.1 Front End Loader - 2.5 CY Bucket
PART 7 - BRAKES

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple wet disc brakes must be sealed and fully enclosed to allow operation in water, mud, snow,</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>and other adverse conditions without encountering brake failure.</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Self-Adjusting parking/secondary brake must be spring applied, hydraulically released, independent</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>of service brakes and shall have a warning light or buzzer and be of sufficient design to hold</td>
<td>No [ ]</td>
</tr>
<tr>
<td>weight of machine on a 30 degree slope.</td>
<td></td>
</tr>
<tr>
<td>Automatic Transmission disconnect</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td></td>
<td>No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________________________

________________________________________________________________________________________

Section 6.7.1 Front End Loader - 2.5 CY Bucket
PART 8 - TIRES

Minimum Requirements of Local Agency

All tires shall be a minimum of 20.5x25,12PR,L3 with single piece rim with safety lock.

Tires shall not be filled with CaCl₂ for additional weight.

Provided by Unit Proposed by Bidder

Tires:

_____ x _____, _____ PR, _______

Is CaCl₂ used in tires for additional weight?:

Yes [ ]       No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.7.1 Front End Loader - 2.5 CY Bucket
PART 9 - ELECTRICAL SYSTEM

Minimum Requirements of Local Agency

2 - 12 Volt Batteries with 160 minutes of reserve power and 750 cca

Starter shall be rated Heaviest Duty for this application by the manufacturer.

Alternator shall be minimum of 65 amps

Master disconnect switch behind locked panel door

2 front head lights

2 front flood lights

2 rear tail and stop lights

2 rear flood lights

Turn signals, front & rear

4-way flashers

Provided by Unit Proposed by Bidder

<table>
<thead>
<tr>
<th></th>
<th>Yes [ ]</th>
<th>No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starter:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternator:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>amps</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:


PART 10 - OPERATOR STATION/ENVIRONMENT

Minimum Requirements of Local Agency

ROPS fully enclosed, steel sound-suppressed cab (SAE J1040, 72 dBA) with roll-over protection (SAE J394).

30,000 BTU heater, minimum
AM/FM Radio
Air conditioning
- Factory installed (R134A refrigerant)
- No air conditioning
Defroster fan
Front windshield washer/wipers
Rear windshield washer/wipers
Dome light
Tilt Wheel
Floor mat
Full vision, tinted safety glass
Side windows shall be adjustable (operable)
Dual inside rear view mirrors (SAE J985)
Dual outside cab mirrors (SAE J985)
Operator’s seat:
- Deluxe suspension
  - Air or
  - Mechanical
- Cloth or
- Vinyl
Height adjustable
Weight adjustable
Leg reach adjustable
Back angle adjustable

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]

Yes [ ] No [ ]
Air conditioning
- Factory installed (R134A refrigerant)
- No air conditioning
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Deluxe suspension
- Air or
- Mechanical
- Cloth or
- Vinyl
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
PART 10 - OPERATOR STATION/ENVIRONMENT (CONT)

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator's seat (cont):</td>
<td></td>
</tr>
<tr>
<td>Seat belt, 3&quot;, retractable</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Arm rests adjustable</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Hand holds and steps conforming to J185</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Filtered air circulation system independent of air conditioning system</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Instrumentation:</td>
<td></td>
</tr>
<tr>
<td>Speedometer</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Fuel</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Transmission oil temperature</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine coolant temperature</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine oil pressure</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Electric hour meter</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Electric voltage</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Low brake pressure</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Visual Warnings:</td>
<td></td>
</tr>
<tr>
<td>Engine coolant system</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine oil pressure system</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Parking brake warning</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Low brake pressure</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Fasten Seal Belt</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Audible Warnings:</td>
<td></td>
</tr>
<tr>
<td>Engine coolant system</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine oil pressure system</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Parking brake warning</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Low brake pressure</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Filter restrictions on:</td>
<td></td>
</tr>
<tr>
<td>air</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>transmission oil</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>hydraulic oil</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

Section 6.7.1 Front End Loader - 2.5 CY Bucket
**PART 11 - ADDITIONAL EQUIPMENT**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counterweight,__________ pounds</td>
<td>Yes [ ] No [ ],_________ pounds</td>
</tr>
<tr>
<td>Cold weather starting aid</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Front wheel fenders</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Rear fenders with operators platform</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Fixed drawbar</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Hinged and lockable engine side shields</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Automatically adjusting reverse warning alarm, 87-112 dB range</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Model:__________</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dB range:__________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Yes [ ] No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lockable doors</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Complete lock-up vandal protection</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>All locks shall be keyed the same</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Fuel tank 50 U.S. gallons (minimum) to be located under engine</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Fire extinguisher</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Tie down hooks for transport</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Bottom guard for front frame and transmission</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________________

________________________________________________________________________________

Section 6.7.1 Front End Loader - 2.5 CY Bucket
PART 12 - ATTACHMENTS

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following attachments shall be included in base bid:</td>
<td></td>
</tr>
<tr>
<td>Quick attach/detach system for bucket and tools</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
<td></td>
</tr>
<tr>
<td>Fork-Lift</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
<td></td>
</tr>
<tr>
<td>Grapples</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
<td></td>
</tr>
<tr>
<td>V-plow Attachment</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
<td></td>
</tr>
<tr>
<td>Jib-Boom</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

Section 6.7.1 Front End Loader - 2.5 CY Bucket
PART 13-SERVICE/PARTS/WARRANTY/DELIVERY

Minimum Requirements of Local Agency

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).


Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner’s base of operations, which is located at

____________________________________

____________________________________

____________________________________

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner’s base of operations.

Extended Transmission Warranty

Provided on Unit Proposed by Bidder

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Location of warranty facility:

____________________________________

Distance from Owner’s base of operations:

____________________________________ mi

_______ % available within 48 hours

_______ hours delivery for PM Parts

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.7.1 Front End Loader - 2.5 CY Bucket
### PART 13- SERVICE/PARTS/WARRANTY/DELIVERY (CONT)

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit must be delivered to the Owner with all attachments and components substantially completed, within ____________ days of the acceptance of the bid.</td>
<td>Estimated delivery date ____________</td>
</tr>
<tr>
<td>The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of ____________ $/day for each calendar day of delay after the Owner’s specified date of delivery.</td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

________________________
Add: ____________ $

________________________
Add: ____________ $

________________________
Add: ____________ $

DEDUCT ALTERNATES

Trade In(s) 
Deduct: ____________ $

Year: ____________________________
Make: ____________________________
Model: ____________________________
S/N: ____________________________
Location: ____________________________

Net Price: ____________ $

Bidder Name, Address, Phone, Contact:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Section 6.7.1 Front End Loader - 2.5 CY Bucket

Page 18
6.7.2 Front End Loader - 4.0 CY Bucket

Task Force

Tom Martin  Program Manager  Indiana LTAP-HERPICC
John Habermann  Research Engineer  Indiana LTAP-HERPICC
Jerry Halperin  Buyer  InDOT
Jim Conner  Specifications Writer  InDOT
Larry McLin  County Highway Supervisor  Daviess County
Phil Cornelius  Shop Foreman  Daviess County
Eugene Shurte  County Highway Supervisor (Ret)  LaPorte County
Chuck Everett  Utility Manager  Town of Flora
Larry Campbell  Fleet Manager  Allen County

These specifications have been developed to be modular as much as possible with respect to the various components making up a front end loader. The following minimum requirements are dependent on the bucket size. Therefore the Front End Loader Section has been broken into two subsections: 2.5 CY Bucket, and 4.0 CY Bucket. This subsection will address the 4.0 CY Bucket.

Part 1 - Operating Information/Bucket  Part 7 - Brakes
Part 2 - Engine/Cooling System  Part 8 - Tires
Part 3 - Transmission  Part 9 - Electrical System
Part 4 - Driveline  Part 10 - Operator Station/Environment
Part 5 - Steering/Articulation  Part 11 - Additional Equipment
Part 6 - Hydraulic System  Part 12 - Attachments
Part 13 - Service/Parts Warranty/Delivery

Note: At the time these specifications were assembled, the following models are believed to be in substantial completion with the specifications. This list may or may not represent a complete listing of all makes and models currently manufactured in conformance with the specifications.

Case - Model 821C Series  Caterpillar - Model 950F Series
John Deere - Model 644A Series  Volvo - Model L120C Series
Hyundai - Model HL760 Series

Section 6.7.2 Front End Loader - 4.0 CY Bucket
### Owner Input Checklist

Owner input is required on the following pages of this Specification:

<table>
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<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>1 Bid Bond Amount</td>
</tr>
<tr>
<td>☐</td>
<td>12 Air Conditioning</td>
</tr>
<tr>
<td>☐</td>
<td>12 Operator’s Seat</td>
</tr>
<tr>
<td>☐</td>
<td>14 Counter Weight</td>
</tr>
<tr>
<td>☐</td>
<td>15 Attachments Desired</td>
</tr>
<tr>
<td>☐</td>
<td>16 Base of Operation Address</td>
</tr>
<tr>
<td>☐</td>
<td>17 Delivery Schedule</td>
</tr>
<tr>
<td>☐</td>
<td>17 Penalty for late delivery</td>
</tr>
<tr>
<td>☐</td>
<td>18 Trade-In Equipment</td>
</tr>
</tbody>
</table>

Section 6.7.2 Front End Loader - 4.0 CY Bucket
SPECIFICATIONS

for

4.0 CY (Heaped) Bucket Front End Loader

GENERAL

It is the intent of these specifications to describe a front end loader to be used for loading gravel, snow, sand, salt, etc., with sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be a current model, new equipment, under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any unit not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on the approved local agency bid form, with Non Collusion Affidavit and Bid Bond equal to _________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided on Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered and all attachments and options with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).
Term "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
PART 1 - OPERATING INFORMATION/BUCKET

Minimum Requirements of Local Agency

Operating Weight, 35,000 pounds, minimum

4.0 CY (Heaped) Capacity General Purpose Bucket, minimum

Bolt on Cutting Edges
Bolt on Heal Wear Plates
Corner Guards
Spill Guard
Automatic Leveler
Grab Hooks
Loader boom service locking bar to be in accordance with SAE J38

Tipping Load 22,000 pounds, minimum @ Full Turn (lbs)

Break-Out Force, 32,900 pounds, minimum

(These capacities are for basic machine with specified bucket and tire size, and no hydroidinflation. Bidder to list counterweight required to meet minimum tipping load.)

Distance from front of tires to front edge of bucket at maximum dumping height and 45 degree dump angle shall be 45 inches, minimum.

The bucket shall have a dump clearance of 108", minimum, with a 45 degree dump angle.

Provide on Unit Proposed by Bidder

Operating Weight, __________ pounds

Heaped Capacity, __________, CY

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Tipping Load - Full Turn: __________ (lbs)

Break-Out Force: __________ (lbs)

w/, __________ lbs., counterweight

Specified distance, __________ in.

Dump clearance, __________ in.

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.7.2 Front End Loader - 4.0 CY Bucket
PART 2 - ENGINE/COOLING SYSTEM

Minimum Requirements of Local Agency

Engine must be diesel, 6 cylinders, four cycle, turbo-charged engine with the following minimum specifications:

Horsepower (SAE Gross), min: 175 hp

Torque (SAE Net), min: 550 ft-lb

Engine Block Heater, 1000 watt, minimum, with weatherhead connector
Fuel Filter Water Separator
Fuel Heater
Engine Oil Cooler
Pre-cleaner
Dry-type air cleaner with safety element and restriction indicator
Overflow Recovery System
Spin-on type coolant filter
Silicone Hose System, or equal
Fin and tube type radiator core having maximum frontal opening available for the engine and transmission being bid.

Provided by Unit Proposed by Bidder

Make: __________
Model: __________
Bore/Stroke: __________
Displacement: __________

Horsepower:
SAE Gross: __________
SAE Net: __________ @ __________ rpm

Torque: __________ SAE Net @ __________ rpm

Yes [ ]  No [ ]

Yes [ ]  No [ ]
Yes [ ]  No [ ]
Yes [ ]  No [ ]
Yes [ ]  No [ ]
Yes [ ]  No [ ]

Yes [ ]  No [ ]
Yes [ ]  No [ ]
Yes [ ]  No [ ]

Frontal Area: __________ sq. in.

Radiator Capacity: __________ gal

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
PART 3 - TRANSMISSION

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Power Shuttle Shift w/ Torque Converter</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>4 Speeds Forward</td>
<td></td>
</tr>
<tr>
<td>3 Speeds Reverse</td>
<td>Number of Speeds Forward:___________</td>
</tr>
<tr>
<td>Top Speed Forward, 20 mph minimum</td>
<td>Number of Speeds Reverse:___________</td>
</tr>
<tr>
<td>Auxiliary Transmission Oil Cooler</td>
<td></td>
</tr>
<tr>
<td>Auxiliary Filter</td>
<td></td>
</tr>
<tr>
<td>Single Lever Electronic Shift Control</td>
<td></td>
</tr>
<tr>
<td>Auto shift and 2\textsuperscript{nd} gear to 1\textsuperscript{st} gear down shift loading features</td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
PART 4 - DRIVELINE

Minimum Requirements of Local Agency

Front and Rear differential to be limited slip

Rear Axle Oscillation 24 degrees, Stop to stop, minimum

Outboard Planetary Drive Axles

Provided on Unit Proposed by Bidder

Yes [ ] No [ ]

Oscillating Rear___________ degrees

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
### PART 5 - STEERING/ARTICULATION

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articulation minimum 40 degrees each direction</td>
<td>Articulation _______ degrees</td>
</tr>
<tr>
<td>Full hydraulic power steering, with supplemental steering capabilities.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Turning radius measured to the centerline of the outside tire shall not exceed 20 feet</td>
<td>Turning radius _______ feet</td>
</tr>
<tr>
<td>Stop-to-stop steering ratio 4.0 turn, max</td>
<td>Steering ratio _______ turns</td>
</tr>
<tr>
<td>Center pin to have double-tapered roller bearings top &amp; bottom</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Two double acting steering cylinders</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Articulation locking bar and pin to be provided and meets SAE J276</td>
<td>Bore:________________</td>
</tr>
<tr>
<td></td>
<td>Piston Diameter:____________</td>
</tr>
<tr>
<td></td>
<td>Stroke:________________</td>
</tr>
<tr>
<td></td>
<td>Relief Pressure:__________</td>
</tr>
<tr>
<td></td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

__________________________________________________________

__________________________________________________________

__________________________________________________________

Section 6.7.2 Front End Loader - 4.0 CY Bucket
PART 6 - HYDRAULIC SYSTEM

Minimum Requirements of Local Agency

Hydraulic Pump Capacity:
Minimum 65 gpm@2200 rpm, bidder to list operating pressure

Relief pressure at 2800 psi, minimum

Bucket control function to be single lever, dual function valve,
Pull back = Raise Forward = Lower
Left = Tilt back Right = Dump

Minimum hydraulic tank capacity of 30 gallons w/sight glass

Hoses routed through alignment clamps

Positive pressure on the hydraulic reservoir

Multiple Attachment Mechanism

Automatic Hydraulic Cylinder Kickout at maximum dump lift arm height

Hydraulic System Filter, 20 micron

Provided by Unit Proposed by Bidder

Hydraulic Pump:
Minimum ______ gpm@2200 rpm
Operating Pressure: ________ psi

Relief Pressure: ________ psi

Yes [ ] No [ ]

Hydraulic tank capacity of ________ gallons

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Describe exceptions to the Specifications:


PART 7 - BRAKES

Minimum Requirements of Local Agency

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Multiple wet disc brakes must be sealed and fully enclosed to allow operation in water, mud, snow, and other adverse conditions without encountering brake failure.

Self-Adjusting parking/secondary brake must be spring applied, hydraulically released, independent of service brakes and shall have a warning light or buzzer and be of sufficient design to hold weight of machine on a 30 degree slope.

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Automatic Transmission disconnect

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________

Section 6.7.2 Front End Loader - 4.0 CY Bucket
PART 8 - TIRES

Minimum Requirements of Local Agency

All tires shall be a minimum of 23.5x25,16PR,L3, single piece rim with safety lock.

Tires shall not be filled with CaCl₂ for additional weight.

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tires:</td>
</tr>
<tr>
<td>_____ x _____, _____ PR, _____</td>
</tr>
</tbody>
</table>

Is CaCl₂ used in tires for additional weight?:
Yes [ ]  No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
**PART 9 - ELECTRICAL SYSTEM**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - 12 Volt Batteries with 160 minutes of reserve power and 925 cca</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Starter shall be rated Heaviest Duty for this application by the manufacturer.</td>
<td>Starter: Type:________</td>
</tr>
<tr>
<td>Alternator shall be minimum of 80 amps</td>
<td>Alternator:________amps</td>
</tr>
<tr>
<td>Master disconnect switch behind locked panel door</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>2 front head lights</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>2 front flood lights</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>2 rear tail and stop lights</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>2 rear flood lights</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Turn signals, front &amp; rear</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>4-way flashers</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.7.2 Front End Loader - 4.0 CY Bucket

Page 11
PART 10 - OPERATOR STATION/ENVIRONMENT

Minimum Requirements of Local Agency

- ROPS fully enclosed, steel sound-suppressed cab (SAE J1040, 72 dBA) with roll-over protection (SAE J394).
- 30,000 BTU heater, minimum
- AM/FM Radio
- Air conditioning
  - □ Factory installed (R134A refrigerant)
  - □ No air conditioning
- Defroster fan
- Front windshield washer/wipers
- Rear windshield washer/wipers
- Dome light
- Tilt Wheel
- Floor mat
- Full vision, tinted safety glass
- Side windows shall be adjustable (operable)
- Dual inside rear view mirrors (SAE J985)
- Dual outside cab mirrors (SAE J985)

Operator's seat:
- Deluxe suspension
  - □ Air or
  - □ Mechanical
  - □ Cloth or
  - □ Vinyl
- Height adjustable
- Weight adjustable
- Leg reach adjustable
- Back angle adjustable

Provided by Unit Proposed by Bidder

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factory installed (R134A refrigerant)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No air conditioning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deluxe suspension</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cloth or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vinyl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height adjustable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight adjustable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leg reach adjustable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back angle adjustable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________
### PART 10 - OPERATOR STATION/ENVIRONMENT (CONT)

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator's seat (cont):</td>
<td></td>
</tr>
<tr>
<td>Seat belt, 3&quot;, retractable</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Arm rests adjustable</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Hand holds and steps conforming to J185</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Filtered air circulation system independent of air conditioning system</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Instrumentation:</td>
<td></td>
</tr>
<tr>
<td>Speedometer</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Fuel</td>
<td></td>
</tr>
<tr>
<td>Transmission oil temperature</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine coolant temperature</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine oil pressure</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Electric hour meter</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Electric voltage</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Low brake pressure</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Visual Warnings:</td>
<td></td>
</tr>
<tr>
<td>Engine coolant system</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine oil pressure system</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Parking brake warning</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Low brake pressure</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Fasten Seal Belt</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Audible Warnings:</td>
<td></td>
</tr>
<tr>
<td>Engine coolant system</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine oil pressure system</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Parking brake warning</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Low brake pressure</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Filter restrictions on:</td>
<td></td>
</tr>
<tr>
<td>air</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>transmission oil</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>hydraulic oil</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

_________________________________________________________________________

_________________________________________________________________________
PART 11 - ADDITIONAL EQUIPMENT

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counterweight,____________ pounds</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Cold weather starting aid</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Front wheel fenders</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Rear fenders with operators platform</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Fixed drawbar</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Hinged and lockable engine side shields</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Automatically adjusting reverse warning alarm, 87-112 dB range</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>SMV emblem</td>
<td>Model:____________________</td>
</tr>
<tr>
<td>Lockable doors</td>
<td>dB range:________________________</td>
</tr>
<tr>
<td>Complete lock-up vandal protection</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>All locks shall be keyed the same</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Fuel tank 50 U.S. gallons (minimum) to be located under engine</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Fire extinguisher</td>
<td>Fuel Tank_________________________ gallons, Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Tie down hooks for transport</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Bottom guard for front frame and transmission</td>
<td>Yes [ ]  No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

Section 6.7.2 Front End Loader - 4.0 CY Bucket
PART 12 - ATTACHMENTS

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following attachments shall be included in base bid:</td>
<td></td>
</tr>
<tr>
<td>Quick attach/detach system for bucket and tools</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Yes [ ]  No [ ]</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Fork-Lift</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Yes [ ]  No [ ]</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Grapples</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Yes [ ]  No [ ]</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>V-plow Attachment</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Yes [ ]  No [ ]</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Jib-Boom</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Yes [ ]  No [ ]</td>
<td>Yes [ ]  No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
### PART 13- SERVICE/PARTS/WARRANTY/DELIVERY

**Minimum Requirements of Local Agency**

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).


Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner’s base of operations, which is located at

______________________________

______________________________

______________________________

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner’s base of operations.

**Provided on Unit Proposed by Bidder**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

**Location of warranty facility:**

______________________________

Distance from Owner’s base of operations:

______________________________ mi

_____ % available within 48 hours

_____ hours delivery for PM Parts

**Extended Transmission Warranty**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

______________________________

______________________________

______________________________
<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit must be delivered to the Owner with all attachments and components substantially completed, within ____________ days of the acceptance of the bid.</td>
<td>Estimated delivery date____________</td>
</tr>
</tbody>
</table>

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of ____________ $/day for each calendar day of delay after the Owner’s specified date of delivery.

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

Add: ____________  
Add: ____________  
Add: ____________

DEDUCT ALTERNATES

Trade In (s)  Deduct: ____________$

Year: ____________________________
Make: ____________________________
Model: ____________________________
S/N: ____________________________
Location: ____________________________

Net Price: ____________$

Bidder Name, Address, Phone, Contact:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
6.7.3 Front End Loader - Vendor List

Section 1 - All Vendors

All reports are sorted first by district, then alphabetically.
<table>
<thead>
<tr>
<th>District:</th>
<th>RC (East Central)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>McDonald Machinery Co.</td>
<td>317-856-3000 317-856-0200</td>
<td></td>
<td></td>
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<td>Henke Industrial, Case</td>
</tr>
<tr>
<td></td>
<td>Reynolds Construction Equipment Co.</td>
<td>317-849-4888</td>
<td></td>
<td></td>
<td></td>
<td>Henke Industrial</td>
</tr>
<tr>
<td></td>
<td>Fishers Equipment Co.</td>
<td>317-247-9125</td>
<td></td>
<td></td>
<td></td>
<td>Henke Industrial, Champion, Volvo</td>
</tr>
<tr>
<td></td>
<td>Rudd Equipment Co.</td>
<td>317-872-4877 317-872-2811</td>
<td></td>
<td></td>
<td>David Cooper</td>
<td>Hyundai</td>
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<th>District:</th>
<th>NE (Northeast)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
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<tbody>
<tr>
<td></td>
<td>MacAllister Equipment Co.</td>
<td>219-483-6469</td>
<td></td>
<td></td>
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<td>Henke Industrial, Caterpillar</td>
</tr>
<tr>
<td></td>
<td>Pt. Wayne Equipment Co.</td>
<td>219-747-1561 219-747-1319</td>
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<tr>
<td></td>
<td>McDonald Machinery Co.</td>
<td>3911 Limestone Dr. 219-482-3681</td>
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<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>219-288-6622 South Bend IN</td>
<td></td>
<td></td>
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<td>Henke Industrial, Caterpillar</td>
</tr>
<tr>
<td>McCann Power and Equipment</td>
<td>1133 Indianapolis Blvd. Schererville IN 46375</td>
<td>219-865-6545</td>
<td>219-865-0269</td>
<td></td>
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<tr>
<td>McDonald Machinery Co.</td>
<td>219-271-0800 South Bend IN</td>
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<tr>
<td>Hunt Tractor</td>
<td>1000 East Market Louisville KY 40206</td>
<td>502-566-6300</td>
<td>502-566-6323</td>
<td></td>
<td>Case</td>
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<tr>
<td>Rudd Equipment Co.</td>
<td>502-456-4050 Louisville KY</td>
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<td></td>
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<td>Henke Industrial, Champion, Volvo</td>
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<table>
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<th>Company Name and Address</th>
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### District: SW (Southwest)

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<th>Company Name and Address</th>
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<th>Contact</th>
<th>Manufacturers Represented</th>
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</thead>
<tbody>
<tr>
<td>Diamond Construction Equipment</td>
<td>812-425-4428</td>
<td>812-421-1036</td>
<td>Dave Clement</td>
<td>Hyundai</td>
</tr>
<tr>
<td>Evansville, IN</td>
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<tr>
<td>Rudd Equipment Co.</td>
<td>812-867-6661</td>
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<td>Henke Industrial, Champion, Volvo</td>
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<td>Evansville, IN</td>
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### District: WC (West Central)

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<tr>
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<th>Manufacturers Represented</th>
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</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>812-877-9773</td>
<td></td>
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<td>Henke Industrial, Caterpillar</td>
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<tr>
<td>Terre Haute, IN</td>
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<tr>
<td>MacAllister Equipment Co.</td>
<td>317-423-5553</td>
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<td></td>
<td>Henke Industrial, Caterpillar</td>
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<tr>
<td>W. Lafayette, IN</td>
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<tr>
<td>McDonald Machinery Co.</td>
<td>765-742-2080</td>
<td>765-742-2899</td>
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<td>Henke Industrial, Case</td>
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<tr>
<td>2392 St 23 North, Lafayette, IN</td>
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<td>W. Lafayette, IN</td>
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End of report.
6.8

Motor Grader
6.8 Motor Grader

6.8.1 Motor Grader - 150 hp
6.8.2 Motor Grader - 180 hp
6.8.3 Vendor List
6.8.1 150 hp Motor Grader

Task Force

Tom Martin  Program Manager  Indiana LTAP
John Habermann  Research Engineer  Indiana LTAP
Jerry Halperin  Buyer  INDOT
Jim Conner  Specifications Writer  INDOT
Larry McLin  County Highway Supervisor  Daviess County Highway Dept.
Phil Cornelius  Shop Foreman  Daviess County Highway Dept.
Eugene Shurte  County Highway Supervisor (Ret)  LaPorte County Highway Dept.
Chuck Everett  Utility Manager  Town of Flora
Larry Campbell  Fleet Manager  Allen County Highway Dept.

Owner Input Checklist

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<tbody>
<tr>
<td>☐</td>
<td>1  Bid bond amount</td>
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<tr>
<td>☐</td>
<td>3  Variable horsepower</td>
<td>☐</td>
<td>10 Tool box</td>
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<td>☐</td>
<td>4  Automatic front wheel drive</td>
<td></td>
<td>10 Front scarifier</td>
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<td>☐</td>
<td>8  Full height or low profile</td>
<td></td>
<td>10 Rear ripper</td>
</tr>
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<td>☐</td>
<td>8  Air conditioning</td>
<td>☐</td>
<td>11 Owner’s base of operations</td>
</tr>
<tr>
<td>☐</td>
<td>8  Vinyl or cloth seat</td>
<td>☐</td>
<td>12 Delivery schedule</td>
</tr>
<tr>
<td>☐</td>
<td>10 Bottom guard</td>
<td>☐</td>
<td>12 Penalty for late delivery</td>
</tr>
<tr>
<td>☐</td>
<td>10 Front weights</td>
<td>☐</td>
<td>13 Trade in information</td>
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</tbody>
</table>

Note: At the time these specifications were assembled, the following models are believed to be in substantial compliance with the specifications. This list may or may not represent a complete listing of all makes and models currently manufactured in conformance with the specifications.

John Deere - Model 670C Series
Caterpillar - Model 120H Series
Champion - Model 710A Series

Section 6.8.1 - 150 hp Motor Grader
SPECIFICATIONS

for

150 hp Motor Grader

GENERAL

It is the intent of these specifications to describe a new motor grader to be used for road construction and maintenance activities with sufficient detail to secure bids on comparable equipment. The system shall be designed to take into consideration the safety of the traveling public, as well as the safety of the operator. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit bid shall be a current model, new equipment, under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, with Non Collusion Affidavit and Bid Bond equal to __________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall deliver the completed unit with all tools and functions operational and present a safety and operations class, taught by an instructor qualified for such a
class.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

**Term "or Equal"** Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
Operating Weight

Unit shall weigh at least 27,500 lbs with standard equipment, not including front scarifier or rear ripper.

Engine and Engine Equipment

Engine shall be in-line 6 cylinder four cycle turbo charged engine with the following minimum specifications:

Gross Horsepower (SAE): 150 hp

Torque: 425 ft-lbs @ 900 rpm

Note: Horsepower rating listed above shall apply to the upper gear range for models with variable horsepower ratings.

Variable Horsepower: Yes [ ] No [ ]

Engine Block Heater(s), 1000 watt min.

Describe exceptions to the Specifications:

Provided by Unit Proposed by Bidder

Weight: _________ lbs

Horsepower: _______ hp @ _________ rpm

Torque: _______ ft-lbs @ _________ rpm

Engine Make: ______________________

Model: ______________________

Cylinders: _______ Cycle: _________

Bore / Stroke: _______ in x _________ in

Displacement: _______ CID _________ liter

Yes [ ] No [ ]

Yes [ ] No [ ]
Weather head connector for Block heater

…………………………………………………………………………………………………………………………

Transmission Equipment

Direct drive, Power shift on-the-go

…………………………………………………………………………………………………………………………

Automatic front wheel drive: Yes [ ] No [ ]

…………………………………………………………………………………………………………………………

Eight speeds forward and four speeds reverse, w/ at least five working speeds forward below 10 mph

…………………………………………………………………………………………………………………………

Speed chart attached for each forward gear (@2000 rpm w/ specified tires)

…………………………………………………………………………………………………………………………

Front Axle

Heavy duty, welded box construction, 32 deg oscillation (total), 18 deg wheel lean (each dir)

…………………………………………………………………………………………………………………………

Frame

Welded box construction

…………………………………………………………………………………………………………………………

Weight/foot: 115 #/ft, minimum

…………………………………………………………………………………………………………………………

Vertical Section modulus: 115"³, minimum

…………………………………………………………………………………………………………………………

Describe exceptions to the Specifications:

…………………………………………………………………………………………………………………………

…………………………………………………………………………………………………………………………

…………………………………………………………………………………………………………………………

Yes [ ] No [ ]

…………………………………………………………………………………………………………………………

Make: ____________________________

…………………………………………………………………………………………………………………………

Model: ____________________________

…………………………………………………………………………………………………………………………

Yes [ ] No [ ]

…………………………………………………………………………………………………………………………

Yes [ ] No [ ]

…………………………………………………………………………………………………………………………

Yes [ ] No [ ]

…………………………………………………………………………………………………………………………

Oscillation: _______ Deg

…………………………………………………………………………………………………………………………

Wheel lean: _______ Deg

…………………………………………………………………………………………………………………………

Yes [ ] No [ ]

…………………………………………………………………………………………………………………………

Weight/foot: _______ #/ft

…………………………………………………………………………………………………………………………

Vertical Section modulus: _______"³
**Electrical System**

- 24 volt with 75 amp alternator
- Yes [ ]  No [ ]
- Two 12 volt batteries, with 950 cca, 150 minute reserve capacity
- Yes [ ]  No [ ]
- Starter shall be rated heaviest duty for this application by the manufacturer.
- Yes [ ]  No [ ]

**Steering**

- Hydraulic power steering, with 20 deg (min) frame articulation both right and left
- Yes [ ]  No [ ]
- Maximum 24 ft turning radius
- Turning radius: _______ ft

**Tires and Wheels**

- 15.5-25 on 12" single piece rims with safety locks
- Tire Size: ______________
- 12 PR L2 tires
- Tread: ______________

**Blade Functions**

- Blade lift: 16" minimum
- Blade lift: ____________"

Describe exceptions to the Specifications:

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
Blade side shift, right or left: 20" minimum

Shoulder reach outside wheels, measured with frame straight, right or left: 69" minimum

Pitch at ground line: 40 deg forward, minimum 5 deg back, minimum

Blade float position required

------------------------------------------

Circle

60" minimum diameter, with inward teeth, 360 deg rotation

Hydraulic motor and worm gear w/ positive position lock

24" minimum side shift, left or right

Blade side shift:
right ___________
left ___________

Shoulder reach:
right ___________
left ___________

Pitch: ___________deg forward
___________deg back

Yes [ ] No [ ]

------------------------------------------

Diameter: ___________

Rotation: __________ Deg.

Yes [ ] No [ ]

Side shift:
right ___________
left ___________

Describe exceptions to the Specifications:

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

Section 6.8.1 - 150 hp Motor Grader  Page 6
Moldboard and Cutting Edge

High strength, wear resistant, high carbon steel, w/ replaceable side shift wear inserts

Yes [ ] No [ ]

Length: 12'

Yes [ ] No [ ]

Height: 24"

Yes [ ] No [ ]

Thickness: 0.875"

Yes [ ] No [ ]

Cutting edge: 5/8" x 6", dual carbide tipped, Kennametal, or equal

Brake Equipment

Foot controlled, hydraulically operated, multiple wet disc brakes, self adjusting

Yes [ ] No [ ]

Spring applied, hydraulically released parking brake

Yes [ ] No [ ]

Both independent braking systems effective on all four tandem wheels

Yes [ ] No [ ]

Fuel System and Tanks

The fuel tank(s) shall be largest capacity available for the make and model being bid, minimum 75 gal.

Capacity: ___________ Gal

Describe exceptions to the Specifications:

______________________________________________________________

______________________________________________________________

______________________________________________________________

Section 6.8.1 - 150 hp Motor Grader
Fuel filler inlet shall be clearly marked DIESEL FUEL ONLY!!!

<table>
<thead>
<tr>
<th>Operator's Station</th>
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<tbody>
<tr>
<td>Ventilated and insulated cab w/ ROPS:</td>
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<tr>
<td>Full Height [ ] or Low Profile [ ]</td>
</tr>
<tr>
<td>Air conditioning (max. available)</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Heater, 40,000 btu</td>
</tr>
<tr>
<td>Deluxe suspension seat, w/ armrests</td>
</tr>
<tr>
<td>Cloth [ ] or Vinyl [ ]</td>
</tr>
<tr>
<td>Adjustable front console, w/ tilt steering</td>
</tr>
<tr>
<td>All window tinted glass</td>
</tr>
<tr>
<td>Door operated dome light</td>
</tr>
<tr>
<td>Defroster fan</td>
</tr>
<tr>
<td>Cigar lighter</td>
</tr>
<tr>
<td>Seat belt, 3&quot;, retractable</td>
</tr>
<tr>
<td>AM/FM Radio</td>
</tr>
<tr>
<td>Lower front window, openable</td>
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<tr>
<td>Front and rear windshield wiper and washer</td>
</tr>
<tr>
<td>Intermittent feature, front windshield wiper</td>
</tr>
<tr>
<td>Backup alarm, 87-112 dB, variable &amp; auto</td>
</tr>
<tr>
<td>Hour meter</td>
</tr>
<tr>
<td>Horn</td>
</tr>
<tr>
<td>One interior rearview mirror, SAE J965</td>
</tr>
<tr>
<td>Two exterior rearview mirrors, SAE J965</td>
</tr>
<tr>
<td>Converter for 2 way or am/fm radio, 10 amp min</td>
</tr>
</tbody>
</table>

Yes [ ] No [ ]

| Full Height [ ] or Low Profile [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Cloth [ ] or Vinyl [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |
| Yes [ ] No [ ] |

Describe exceptions to the Specifications:


Section 6.8.1 - 150 hp Motor Grader
Dash mounted gauges
- Fuel level  Yes [ ]  No [ ]
- Engine coolant temperature  Yes [ ]  No [ ]
- Rear steer indicator  Yes [ ]  No [ ]

Dash mounted warning lights/alarms
- Parking brake  Yes [ ]  No [ ]
- Service brake pressure, w/ alarm  Yes [ ]  No [ ]
- Hydraulic oil temperature  Yes [ ]  No [ ]
- Transmission oil temperature, w/ alarm  Yes [ ]  No [ ]
- Engine oil pressure, w/ alarm  Yes [ ]  No [ ]
- Filter restrictions,  air  Yes [ ]  No [ ]
  transmission oil
- hydraulic oil

Digital or analog display
- Transmission gear and direction  Digital [ ]  Analog [ ]
- Vehicle speed (mph)  Digital [ ]  Analog [ ]
- Engine speed (rpm)  Digital [ ]  Analog [ ]

Describe exceptions to the Specifications:

__________________________________________________________

__________________________________________________________

__________________________________________________________
Lighting

All lights halogen:  Yes [ ]  No [ ]
(2) Outside cab mounted, lower  Yes [ ]  No [ ]
(2) Work lights, front and rear  Yes [ ]  No [ ]
(2) Backup lights  Yes [ ]  No [ ]
(2) Top cab lights  Yes [ ]  No [ ]
(2) Driving lights, front of grader  Yes [ ]  No [ ]
Brake lights  Yes [ ]  No [ ]
Turn signals, front and rear  Yes [ ]  No [ ]
Marker lights  Yes [ ]  No [ ]
Four way flashers  Yes [ ]  No [ ]

Attachments

Bottom guard, heavy duty:  Yes [ ]  No [ ]
Front weight, 500 lb min:  Yes [ ]  No [ ]

Weight: ____________________ #

Front push block:  Yes [ ]  No [ ]
Toolbox:  Yes [ ]  No [ ]
Front scarifier, V type  Yes [ ]  No [ ]

Width of cut: 4' minimum
Lift above ground: std of manufacturer
Penetration: 12", minimum

Describe exceptions to the Specifications:


Section 6.8.1 - 150 hp Motor Grader  Page 10
Rear ripper/scarifier: Yes [ ] No [ ]
rear mounted w/ hitch, three ripper shanks, nine scarifier teeth

Warranty / Repair Parts

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Shop, Operator, Parts, and Service Manuals shall be provided.

Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner’s base of operations, which is located at

Location of warranty facility:

Distance from Owners base of operations:

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner’s base of operations.

Describe exceptions to the Specifications:

---

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Delivery Information

Unit must be delivered to the Owner with all attachments and components substantially completed, within _________ days of the acceptance of the bid.

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of _________ $/day for each calendar day of delay after the Owner’s specified date of delivery.

Estimated delivery time: _________ days

Describe exceptions to the Specifications:

_______________________________

_______________________________

_______________________________
SUMMARY SHEET

BASE PRICE FOR UNIT BEING BID

$__________

ADD-ON ALTERNATES

Add: ____________ $
Add: ____________ $
Add: ____________ $

DEDUCT ALTERNATES

Trade In (s)

Deduct: ____________ $

Year: ________________
Make: ________________
Model: ________________
S/N: ________________
Location: ____________________________

Net Price: ____________ $ 

Bidder Name, Address, Phone, Contact:

______________________________

______________________________

______________________________

Describe exceptions to the Specifications:

______________________________

______________________________

______________________________

Section 6.8.1 - 150 hp Motor Grader
6.8.2 180 hp Motor Grader

Task Force

Tom Martin  Program Manager  Indiana LTAP
John Habermann  Research Engineer  Indiana LTAP
Jerry Halperin  Buyer  INDOT
Jim Conner  Specifications Writer  INDOT
Larry McLin  County Highway Supervisor  Daviess County Highway Dept.
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<td>☐</td>
<td>8  Air conditioning</td>
<td>☐</td>
<td>11  Owner’s base of operations</td>
</tr>
<tr>
<td>☐</td>
<td>8  Vinyl or cloth seat</td>
<td>☐</td>
<td>12  Delivery schedule</td>
</tr>
<tr>
<td>☐</td>
<td>10 Bottom guard</td>
<td>☐</td>
<td>12  Penalty for late delivery</td>
</tr>
<tr>
<td>☐</td>
<td>10 Front weights</td>
<td>☐</td>
<td>13  Trade in information</td>
</tr>
<tr>
<td>☐</td>
<td>10 Front push block</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: At the time these specifications were assembled, the following models are believed to be in substantial compliance with the specifications. This list may or may not represent a complete listing of all makes and models currently manufactured in conformance with the specifications.

John Deere - Model 770CH Series
Caterpillar - Model 140H Series
Champion - Model 720A Series

Section 6.8.2 - 180 hp Motor Grader
SPECIFICATIONS
for
180 hp Motor Grader

GENERAL

It is the intent of these specifications to describe a new motor grader to be used for road construction and maintenance activities with sufficient detail to secure bids on comparable equipment. The system shall be designed to take into consideration the safety of the traveling public, as well as the safety of the operator. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit bid shall be a current model, new equipment, under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, with Non Collusion Affidavit and Bid Bond equal to _________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall deliver the completed unit with all tools and functions operational and present a safety and operations class, taught by an instructor qualified for such a
class.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

Term "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
Minimum Requirements of Local Agency

Operating Weight

Unit shall weigh at least 31,000 lbs with standard equipment, not including front scarifier or rear ripper.

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight: __________ lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engine and Engine Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine shall be in-line 6 cylinder four cycle turbo charged engine with the following minimum specifications:</td>
</tr>
<tr>
<td>Gross Horsepower (SAE): ______ 180 hp</td>
</tr>
<tr>
<td>Torque: ______ 500 ft-lbs @ 900 rpm</td>
</tr>
</tbody>
</table>

| Horsepower: ______ hp @ ______ rpm |
| Torque: ______ ft-lbs @ ______ rpm |
| Engine Make: ____________________ |
| Model: ________________________ |
| Cylinders: ______ Cycle: ________ |
| Bore / Stroke: ______ in x ______ in |
| Displacement: ______ CID ______ liter |

<table>
<thead>
<tr>
<th>Variable horsepower in upper gear range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engine Block Heater(s), 1000 watt min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
Weather head connector for Block heater

Yes [ ]    No [ ]

Transmission Equipment

Direct drive, Power shift on-the-go

Make: __________________________

Automatic front wheel drive: Yes [ ] No [ ]

Model: ________________________

Eight speeds forward and four speeds reverse, w/ at least five working speeds forward below 10 mph

Yes [ ]    No [ ]

Eight speeds forward and four speeds reverse, w/ at least five working speeds forward below 10 mph

Yes [ ]    No [ ]

Speed chart attached for each forward gear (@2000 rpm w/ specified tires)

Yes [ ]    No [ ]

Front Axle

Heavy duty, welded box construction, 32 deg oscillation (total), 18 deg wheel lean (each dir)

Oscillation: _________ Deg

Wheel lean: _________ Deg

Frame

Welded box construction

Yes [ ]    No [ ]

Weight/foot: 115 #/ft, minimum

Weight/foot: _________ #/ft

Vertical Section modulus: 115"³, minimum

Vertical Section modulus: _________ "³

Describe exceptions to the Specifications:

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
Electrical System

24 volt with 75 amp alternator  Yes [ ]  No [ ]
Two 12 volt batteries, with 950 cca, 150 minute reserve capacity  Yes [ ]  No [ ]
Starter shall be rated heaviest duty for this application by the manufacturer.  Yes [ ]  No [ ]

Steering

Hydraulic power steering, with 20 deg (min) frame articulation both right and left  Yes [ ]  No [ ]
Maximum 26 ft turning radius  Turning radius: _______ ft

Tires and Wheels

17.5-25 on 13" single piece rims with safety locks  Tire Size: ___________
12 PR L2 tires  Tread: ___________

Blade Functions

Blade lift: 16" minimum  Blade lift: ___________"

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Section 6.8.2 - 180 hp Motor Grader
Blade side shift, right or left: 20" minimum

Shoulder reach outside wheels, measured with frame straight, right or left: 69" minimum

Pitch at ground line: 40 deg forward, minimum 5 deg back, minimum

Blade float position required

...........................................................................................................

Circle

60" minimum diameter, with inward teeth, 360 deg rotation

Hydraulic motor and worm gear w/ positive position lock

24" minimum side shift, left or right

...........................................................................................................

Blade side shift:
right "
left "

Shoulder reach:
right "
left "

Pitch: deg forward deg back

Yes [ ] No [ ]

...........................................................................................................

Diameter:"

Rotation: Deg.

Yes [ ] No [ ]

Side shift:
right "
left "

...........................................................................................................

Describe exceptions to the Specifications:

.................................................................
Moldboard and Cutting Edge

High strength, wear resistant, high carbon steel, w/ replaceable side shift wear inserts

Yes [ ] No [ ]

Length: 12'

Length: ___________

Height: 24"

Height: ___________"

Thickness: 0.875"

Thickness: ___________"

Cutting edge: 5/8" x 6", dual carbide tipped, Kennametal, or equal

Yes [ ] No [ ]

Brake Equipment

Foot controlled, hydraulically operated, multiple wet disc brakes, self adjusting

Yes [ ] No [ ]

Spring applied, hydraulically released parking brake

Yes [ ] No [ ]

Both independent braking systems effective on all four tandem wheels

Yes [ ] No [ ]

Fuel System and Tanks

The fuel tank(s) shall be largest capacity available for the make and model being bid, minimum 75 gal.

Capacity: ___________ Gal

Describe exceptions to the Specifications:

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________
Fuel filler inlet shall be clearly marked DIESEL FUEL ONLY!!!

Operator's Station

- Ventilated and insulated cab w/ ROPS:
  - Full Height [ ] or Low Profile [ ]
- Air conditioning (max. available):
  - Yes [ ] No [ ]
- Heater, 40,000 btu
- Deluxe suspension seat, w/ armrests
  - Cloth [ ] or Vinyl [ ]
- Adjustable front console, w/ tilt steering
- All window tinted glass
- Door operated dome light
- Defroster fan
- Cigar lighter
- Seat belt, 3", retractable
- AM/FM Radio
- Lower front window, openable
- Front and rear windshield wiper and washer
- Intermittent feature, front windshield wiper
- Backup alarm, 87-112 dB, variable & auto
- Hour meter
- Horn
- One interior rearview mirror, SAE J965
- Two exterior rearview mirrors, SAE J965
- Converter for 2 way or am/fm radio, 10 amp min

Describe exceptions to the Specifications:

---

Section 6.8.2 - 180 hp Motor Grader
Dash mounted gauges
  Fuel level                  Yes [ ] No [ ]
  Engine coolant temperature Yes [ ] No [ ]
  Rear steer indicator       Yes [ ] No [ ]

Dash mounted warning lights/alarms
  Parking brake               Yes [ ] No [ ]
  Service brake pressure, w/ alarm Yes [ ] No [ ]
  Hydraulic oil temperature  Yes [ ] No [ ]
  Transmission oil temperature, w/ alarm Yes [ ] No [ ]
  Engine oil pressure, w/ alarm Yes [ ] No [ ]
  Filter restrictions, air
     transmission oil Yes [ ] No [ ]
     hydraulic oil     Yes [ ] No [ ]

Digital or analog display
  Transmission gear and direction Digital [ ] Analog [ ]
  Vehicle speed (mph)           Digital [ ] Analog [ ]
  Engine speed (rpm)            Digital [ ] Analog [ ]

Describe exceptions to the Specifications:


Lighting

All lights halogen: Yes [ ] No [ ]
(2) Outside cab mounted, lower Yes [ ] No [ ]
(2) Work lights, front and rear Yes [ ] No [ ]
(2) Backup lights Yes [ ] No [ ]
(2) Top cab lights Yes [ ] No [ ]
(2) Driving lights, front of grader Yes [ ] No [ ]
Brake lights Yes [ ] No [ ]
Turn signals, front and rear Yes [ ] No [ ]
Marker lights Yes [ ] No [ ]
Four way flashers Yes [ ] No [ ]

Attachments

Bottom guard, heavy duty: Yes [ ] No [ ]
Front weight, 500 lb min: Yes [ ] No [ ]

Front push block: Yes [ ] No [ ]
 Toolbox: Yes [ ] No [ ]
Front scarifier, V type Yes [ ] No [ ]

Width of cut: 4' minimum
Lift above ground: std of manufacturer
Penetration: 12", minimum

Weight: 

Describe exceptions to the Specifications:
Rear ripper/scarifier: Yes [ ] No [ ]
rear mounted w/hitch, three ripper shanks, nine scarifier teeth

Yes [ ] No [ ]

Warranty / Repair Parts

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Shop, Operator, Parts, and Service Manuals shall be provided.

Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner’s base of operations, which is located at

________________________
________________________

Location of warranty facility:

________________________
________________________

Distance from Owners base of operations:

________________________ miles

_______ % available within 48 hours

_______ hours delivery for PM Parts

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner’s base of operations.

Describe exceptions to the Specifications:

________________________________________
________________________________________
________________________________________
Delivery Information

Unit must be delivered to the Owner with all attachments and components substantially completed, within __________ days of the acceptance of the bid.

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of __________ $/day for each calendar day of delay after the Owner's specified date of delivery.

Estimated delivery time: __________ days

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
SUMMARY SHEET

BASE PRICE FOR UNIT BEING BID

_________________________ $

ADD-ON ALTERNATES

_________________________

_________________________

_________________________

Add: ____________________ $

Add: ____________________ $

Add: ____________________ $

Add: ____________________ $

DEDUCT ALTERNATES

Trade In (s) 

Deduct: ____________________ $

Year: ______________________

Make: ______________________

Model: ______________________

S/N: ______________________

Location: ______________________

Net Price: ____________________ $

Bidder Name, Address, Phone, Contact:

________________________________________

________________________________________

Describe exceptions to the Specifications:

________________________________________

________________________________________

________________________________________
Section 1 - All Vendors

*All reports are sorted first by district, then alphabetically.*
<table>
<thead>
<tr>
<th>District: BC (East Central)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reynolds Construction Equipment Co.</td>
<td>317-849-4888</td>
<td></td>
<td></td>
<td></td>
<td>Henke Industrial</td>
</tr>
<tr>
<td>Fishers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rudd Equipment Co.</td>
<td>317-247-9125</td>
<td></td>
<td></td>
<td></td>
<td>Henke Industrial, Champion, Volvo</td>
</tr>
<tr>
<td>Indianapolis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District: NE (Northeast)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>219-483-6469</td>
<td></td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar</td>
</tr>
<tr>
<td>Ft. Wayne</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rudd Equipment Co.</td>
<td>219-482-3681</td>
<td></td>
<td></td>
<td></td>
<td>Henke Industrial, Champion, Volvo</td>
</tr>
<tr>
<td>Ft. Wayne</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District: NW (Northwest)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>219-288-6622</td>
<td></td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar</td>
</tr>
<tr>
<td>South Bend</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District: OS (Out of State)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rudd Equipment Co.</td>
<td>502-456-4050</td>
<td></td>
<td></td>
<td></td>
<td>Henke Industrial, Champion, Volvo</td>
</tr>
</tbody>
</table>
# Grader Vendors

<table>
<thead>
<tr>
<th>District: SW (Southwest)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rudd Equipment Co.</td>
<td>Evansville</td>
<td>812-867-6661</td>
<td></td>
<td></td>
<td>Henke Industrial, Champion, Volvo</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District: WC (West Central)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>Terre Haute</td>
<td>812-877-9773</td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar</td>
</tr>
<tr>
<td>MacAllister Equipment Co.</td>
<td>W. Lafayette</td>
<td>317-423-5553</td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar</td>
</tr>
<tr>
<td>Reynolds Construction Equipment Co.</td>
<td>W. Lafayette</td>
<td>IN</td>
<td></td>
<td></td>
<td>Henke Industrial</td>
</tr>
</tbody>
</table>

End of report.
Tab for App. I - Vendor Listing
Appendix I - Vendor Listing

The purpose of this listing is to provide the user with a source of vendors for each type of equipment and list the lines of equipment each vendor carries. The vendors are listed by the District corresponding to their given address. They very likely will do business outside their own district, especially those listed in the East Central District, which includes Marion County. They may not however, do business all over the state. It is left to the user to determine the range of these vendors. It is hoped that, by using this listing, the Owner will be able to issue the Bid Specifications to enough vendors to result in a competitive bid.

Vendors for the following lines of equipment have been located and are listed:

Trucks:
Freightliner, GMC, Kenworth, Mack, Navistar International, Peterbilt, Sterling (Ford), Volvo

Dump Bodies:
AirFlow, Crysteel, Fontaine, Galion, Godwin, Heil, Henderson, HiWay, Knapheide, Monroe, Perfection

Snow and Ice Control:
AirFlow, Bonnell, Flink, Gledhill, Good Roads, Henderson, Henke, HiWay, Lawtons, Meyers, Monroe, Root, Swenson, Viking, Western

Sign Maintenance Body:
Flannegan Western

Shop Service Body: *This is not be a complete listing and will be updated.
Monroe, Omaha Standard, FibreBody

Front End Loader
Caterpillar, John Deere, Volvo, Case, Hyundai

Motor Grader
Caterpillar, John Deere, Champion

Each major section of this document includes a listing of Vendors for that particular item. Within the Appendix, the Vendor Listing includes all vendors with a note regarding the types and brands of equipment they sell.

Vendor listings are stored in Paradox 4.5 tables, which are also included on the WordPerfect diskette in Section 8.
<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allied Truck Equipment</td>
<td>317-545-1227</td>
<td>317-542-7432</td>
<td>John Schlenk</td>
<td>Flink, Western, Crysteel, Knapheide</td>
</tr>
<tr>
<td>4321 Massachusetts Ave.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indianapolis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN</td>
<td>46218</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bradley Chevrolet, Inc.</td>
<td>317-736-5141</td>
<td>317-736-8816</td>
<td></td>
<td>GMC</td>
</tr>
<tr>
<td>1350 N. Morton</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Franklin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN</td>
<td>45131-1256</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brandeis Equipment Co.</td>
<td>317-872-8410</td>
<td></td>
<td></td>
<td>Henke Industrial</td>
</tr>
<tr>
<td>Indianapolis</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>IN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bud Wolf Chevrolet, Inc.</td>
<td>317-257-4461</td>
<td>317-254-3382</td>
<td></td>
<td>GMC</td>
</tr>
<tr>
<td>5350 N. Keystone</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Indianapolis</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>IN</td>
<td>46220-2649</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tandem Chassis: X
T/A Eq Body: X
T/A C/M Body: X
Single Chassis: X
S/A Eq Body: X
Snow/Ice Control: X
Sign Body: X
Service Body: X
Wheel Loader: X
Motor Grader: X
<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carlisle Equipment Co.</td>
<td>317-244-7901</td>
<td></td>
<td>Henke Industrial</td>
<td>Tandem Chassis:</td>
</tr>
<tr>
<td>Indianapolis IN</td>
<td></td>
<td></td>
<td></td>
<td>T/A Reg Body:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>T/A C/C Body:</td>
</tr>
<tr>
<td>Central Indiana Mack Sales and Service, In</td>
<td>317-247-6221</td>
<td>317-244-5442</td>
<td>Mack</td>
<td>S/A Reg Body:</td>
</tr>
<tr>
<td>4501 W. Bradbury Ave., P.O. Box 510</td>
<td></td>
<td></td>
<td></td>
<td>Single Chassis:</td>
</tr>
<tr>
<td>Indianapolis IN</td>
<td></td>
<td></td>
<td></td>
<td>S/A Reg Body:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Snow/Ice Control:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Service Body:</td>
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<td></td>
<td>Wheel Loader:</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>Motor Grader:</td>
</tr>
<tr>
<td>Central Indiana Truck Equipment</td>
<td>317-639-4207</td>
<td></td>
<td>Dick Ripsel</td>
<td>Used Equipment</td>
</tr>
<tr>
<td>2123 South Harding</td>
<td></td>
<td></td>
<td></td>
<td>Tandem Chassis:</td>
</tr>
<tr>
<td>Indianapolis IN</td>
<td></td>
<td></td>
<td></td>
<td>T/A Reg Body:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>T/A C/C Body:</td>
</tr>
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<td></td>
<td>Single Chassis:</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>W. A. Jones and Son 1171 S. Williams Dr., P.O. Box 150</td>
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| Dwyer Equipment                            | 219-552-9342 | 219-552-9345 | ???              | Bonnell, Meyer, Swenson, Western   | X             |              |              | X              |              |                 |            |               |              |              |
| 24031 LaVerne Dr.                          |            |             |                  |                                   |               |              |              |                 |              |                 |            |               |              |              |
| Granger                                    |            |             |                  |                                   |               |              |              |                 |              |                 |            |               |              |              |
| IN                                          |            |             |                  |                                   |               |              |              |                 |              |                 |            |               |              |              |
| 46376                                       |            |             |                  |                                   |               |              |              |                 |              |                 |            |               |              |              |

<p>| Dwyer Equipment                            | 219-272-3840 | 219-272-3840 | Karl Fulnecky | Galion, Crysteel, Western          | X             |              |              | X              |              |                 |            |               |              |              |
| 51465 Suttersweat Rd.                      |            |             |                |                                   |               |              |              |                 |              |                 |            |               |              |              |
| South Bend                                  |            |             |                |                                   |               |              |              |                 |              |                 |            |               |              |              |
| IN                                          |            |             |                |                                   |               |              |              |                 |              |                 |            |               |              |              |
| 46674                                       |            |             |                |                                   |               |              |              |                 |              |                 |            |               |              |              |</p>
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### Master Listing - All Vendors

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Section 1 - All Vendors

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<tr>
<td>Reynolds Construction Equipment Co.</td>
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<td>Henke Industrial</td>
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<td>W. Lafayette</td>
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End of report.
Tab for App. I - Vendor Listing
Appendix I - Vendor Listing

The purpose of this listing is to provide the user with a source of vendors for each type of equipment and list the lines of equipment each vendor carries. The vendors are listed by the District corresponding to their given address. They very likely will do business outside their own district, especially those listed in the East Central District, which includes Marion County. They may not however, do business all over the state. It is left to the user to determine the range of these vendors. It is hoped that, by using this listing, the Owner will be able to issue the Bid Specifications to enough vendors to result in a competitive bid.

Vendors for the following lines of equipment have been located and are listed:

Trucks:
  Freightliner, GMC, Kenworth, Mack, Navistar International, Peterbilt, Sterling (Ford), Volvo

Dump Bodies:
  AirFlow, Crysteel, Fontaine, Galion, Godwin, Heil, Henderson, HiWay, Knapheide,
  Monroe, Perfection

Snow and Ice Control:
  AirFlow, Bonnell, Flink, Gledhill, Good Roads, Henderson, Henke, HiWay,
  Lawtons, Meyers, Monroe, Root, Swenson, Viking, Western

Sign Maintenance Body:
  Flannegan Western

Shop Service Body:  *This is not be a complete listing and will be updated.
  Monroe, Omaha Standard, FibreBody

Front End Loader
  Caterpillar, John Deere, Volvo, Case, Hyundai

Motor Grader
  Caterpillar, John Deere, Champion

Each major section of this document includes a listing of Vendors for that particular item. Within the Appendix, the Vendor Listing includes all vendors with a note regarding the types and brands of equipment they sell.

Vendor listings are stored in Paradox 4.5 tables, which are also included on the WordPerfect diskette in Section 8.
District: EC (East Central)

Company Name and Address                     Phone      Fax       Contact                  Manufacturers Represented

Allied Truck Equipment
4321 Massachusetts Ave.
Indianapolis, IN
46218

217-545-1227  317-542-7432  John Schlenk  Flink, Western, Crysteel, Knapheide

Bradley Chevrolet, Inc.
1550 N. Morton
Franklin, IN
45131-1256

317-736-5141  317-736-8846  GM

Brandeis Equipment Co.
Indianapolis, IN

317-872-8410  Henke Industrial

Bud Wolf Chevrolet, Inc.
5350 N. Keystone
Indianapolis, IN
46220-2649

317-257-4461  317-254-3382  GMC

Tandem Chassis: X
T/A Reg Body: X
T/A C/A Body:  X
Single Chassis: X
S/A Reg Body:  X
Snow/Ice Control: X
Sign Body:  X
Service Body: X
Wheel Loader: X
Motor Grader: X

Tandem Chassis: X
T/A Reg Body: X
T/A C/A Body: X
Single Chassis: X
S/A Reg Body: X
Snow/Ice Control: X
Sign Body: X
Service Body: X
Wheel Loader: X
Motor Grader: X

Tandem Chassis: X
T/A Reg Body: X
T/A C/A Body: X
Single Chassis: X
S/A Reg Body: X
Snow/Ice Control: X
Sign Body: X
Service Body: X
Wheel Loader: X
Motor Grader: X
<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
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<tbody>
<tr>
<td>Carlisle Equipment Co.</td>
<td>317-244-7901</td>
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<td>Henke Industrial</td>
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<tr>
<td>Indianapolis, IN</td>
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</tr>
<tr>
<td>Central Indiana Mack Sales and Service, Inc</td>
<td>317-247-6221</td>
<td>317-244-5442</td>
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<td>Mack</td>
</tr>
<tr>
<td>4501 W. Bradford Ave., P.O. Box 510</td>
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<td>Indianapolis, IN</td>
<td>46241</td>
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<tr>
<td>Central Indiana Truck Equipment</td>
<td>317-639-4207</td>
<td>Dick Rippel</td>
<td>Used Equipment</td>
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<tr>
<td>2123 South Harding Ave.</td>
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<td>317-575-9966</td>
<td>317-573-8469</td>
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<td>2210 N. 56th St.</td>
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<td>Indianapolis, IN</td>
<td>46240-1413</td>
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<td>Deeds Equipment Co., Inc.</td>
<td>317-545-3331</td>
<td>317-545-3334</td>
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<td>Galion, Hiway, Root, Swenson, Airflo</td>
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<td>Lawrence IN 45226</td>
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<tr>
<td>Discover Volvo-GMC Trucks, Inc.</td>
<td>317-244-2420</td>
<td>317-406-2315</td>
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<tr>
<td>Indianapolis IN 45241-2719</td>
<td></td>
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<td>Joe Stoutner</td>
<td>Crysteel, Fontaine, Knepheide, Monroe</td>
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<tr>
<td>Fontaine Truck Equipment</td>
<td>317-787-0718</td>
<td>317-787-3794</td>
<td>Joe Stoutner</td>
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<tr>
<td>Indianapolis IN 45225</td>
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<tr>
<td>General Truck Sales</td>
<td>317-289-4481</td>
<td>317-289-5441</td>
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<td>GMC</td>
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<tr>
<td>Muncie IN 47303-1015</td>
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<td>Company Name and Address</td>
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<td>Manufacturers Represented</td>
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| General Truck Sales                          | 600-382-7717 | 317-289-5441 | Volvo         | Tandem Chassis: X
| 4300 N. Broadway                            |           |            |               | T/A Reg Body: X
| Muncie                                       |           |            |               | T/A C/M Body: X
| IN                                           |           |            |               | Single Chassis: X
| 47303                                        |           |            |               | S/A Reg Body: X
|                                               |           |            |               | Snow/Ice Control: X
|                                               |           |            |               | Sign Body: Service Body: Wheel Loader: Motor Grader: |
| 6210 S. U.S. 31                             |           |            |               | T/A Reg Body: X
| Indianapolis                                 |           |            |               | T/A C/M Body: X
| IN                                           |           |            |               | Single Chassis: X
| 46227-0591                                   |           |            |               | S/A Reg Body: X
|                                               |           |            |               | Snow/Ice Control: |
|                                               |           |            |               | Sign Body: Service Body: Wheel Loader: Motor Grader: |
| LeBman International Truck Sales             | 600-886-2895 | 317-284-7544 | Navistar International | Tandem Chassis: X
| 3801 S. McCall Street                        |           |            |               | T/A Reg Body: X
| Muncie                                       |           |            |               | T/A C/M Body: X
| IN                                           |           |            |               | Single Chassis: X
| 47303                                        |           |            |               | S/A Reg Body: X
|                                               |           |            |               | Snow/Ice Control: |
|                                               |           |            |               | Sign Body: Service Body: Wheel Loader: Motor Grader: |
| McDonald Machinery Co.                       | 317-856-3300 | 317-856-0200 | Henke Industrial, Case | Tandem Chassis: X
| 4445 Decatur Blvd                            |           |            |               | T/A Reg Body: X
| Indianapolis                                 |           |            |               | T/A C/M Body: X
| IN                                           |           |            |               | Single Chassis: X
| 46241                                        |           |            |               | S/A Reg Body: X
<p>|                                               |           |            |               | Snow/Ice Control: |
|                                               |           |            |               | Sign Body: Service Body: Wheel Loader: Motor Grader: |</p>
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<tr>
<th>Company Name and Address</th>
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<th>Manufacturers Represented</th>
<th>Tandem Chassis:</th>
<th>T/A Reg Body:</th>
<th>T/A C/H Body:</th>
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<th>S/A Reg Body:</th>
<th>Snow/Ice Control:</th>
<th>Sign Body:</th>
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<td>317-849-4903</td>
<td>317-849-6441</td>
<td>Mike Zby</td>
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<td>peek's Automotive, Inc.</td>
<td>317-964-6623</td>
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<td>Rudd Equipment Co.</td>
<td>317-247-9125</td>
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<td>Henke Industrial, Champion, Volvo</td>
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<td>Russ Dellen, Inc.</td>
<td>317-462-5591 317-462-2667</td>
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<td>317-872-4877 317-872-2611</td>
<td>David Cooper</td>
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<td>Hyundai</td>
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<td>Speedway International, Inc.</td>
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<td>Navistar International</td>
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<td>5710 Fortune Circle West, P.O. Box</td>
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<tr>
<td>District: BC (East Central)</td>
<td>Company Name and Address</td>
<td>Phone</td>
<td>Fax</td>
<td>Contact</td>
<td>Manufacturers Represented</td>
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<td>Tom Wood Pontiac GMC, Inc.</td>
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# Master Listing - All Vendors

### District: BC (East Central)

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<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
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<tbody>
<tr>
<td>White GMC of Indianapolis 3150 West Morris St.</td>
<td>800-635-7056</td>
<td>317-486-2315</td>
<td>Bud Myer</td>
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### District: NE (Northeast)

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<td>Burgess Truck Sales and Service, Inc. 720 Cline Ave.</td>
<td>500-367-1535</td>
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<td>Navistar International</td>
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<td>Decatur Truck &amp; Tractor, Inc. 1150 W. Hwy 224, P.O. Box 447</td>
<td>219-724-2166</td>
<td>219-724-2209</td>
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<tr>
<td>Denney Motor Sales, Inc. 56 E. Water Street</td>
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Single Chassis:
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Snow/Ice Control:
Sign Body:
Service Body:
Wheel Loader:
Motor Grader:
District: NW (Northwest)

Company Name and Address | Phone | Fax | Contact | Manufacturers Represented
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MacAllister Equipment Co. | 219-289-6622 | | Henke Industrial, Caterpillar
South Bend
IN

McCann Power and Equipment
1133 Indianapolis Blvd.
Schererville
IN
46375

219-865-6545 219-865-0269
Henke Industrial, Case, Hyundai

McDonald Machinery Co.
South Bend
IN

219-271-0900
Henke Industrial, Case

Northern Equipment
16465 W. Lincoln Hwy.
Plymouth
IN
46563

219-936-9603 219-936-6656
Monroe, Perfection, Root

Tandem Chassis:
T/A Reg Body:
T/A C/M Body:
Single Chassis:
S/A Reg Body:
Snow/Ice Control:
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Wheel Loader: X
Motor Grader: X

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<td>Whiteford Ford Truck, Inc.</td>
<td>219-234-9331</td>
<td>219-234-7012</td>
<td>Sterling (Ford)</td>
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### District: NW (Northwest)

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<tr>
<td>Whiteford Kenworth, Inc. 4625 Western Ave., P.O. Box 4547 South Bend IN 46634</td>
<td>219-234-9007 317-234-6764</td>
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<td>Kenworth</td>
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| Whiteford Trailer and Equipment Co. 137 Olive St. South Bend IN 46539 | 219-288-2541 219-234-6272 Gerald Rife |          | Henderson             |

| Wiers International Trucks, Inc. 2111 Jim Neu Dr. Plymouth IN 46363-3502 | 219-936-4376 219-936-9301 |          | Navistar International |

| Wise International Trucks, Inc. 4849 W. Western Ave., P.O. Box 112 South Bend IN 46614 | 800-589-0785 219-289-0345 |          | Navistar International |

### District: OS (Out of State)

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- T/A Reg Bdy: X
- T/A C/M Bdy: X
- Single Chassis: X
- S/A Reg Bdy: X
- Snow/Ice Control: X
- Sign Bdy: X
- Service Bdy: X
- Wheel Loader: X
- Motor Grader: X
District: OS (Out of State)

Company Name and Address  Phone  Fax  Contact  Manufacturers Represented

Plannegan Western
Highway 18 E., PO Box 487
Emetsburg
IA
50536
712-852-3996  712-852-3997  Mike Plannegan  Plannegan Western

Hunt Tractor
1000 East Market
Louisville
KY
40206
502-566-6300  502-566-6323  Case

Lawton Machine and Equipment
13065 IL Hwy 133
Paris
IL
61944-6702
600-729-4130  217-463-3089  Russ Lawton, Steve Lawton

Midwest Truck Equipment
825 N. Main
Paris
IL
61944
217-465-8705  217-463-1236  Fred Alwardt  Midwest
### District: OS (Out of State)

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<th>Company Name and Address</th>
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<tr>
<td>Prairie International</td>
<td>217-352-4187</td>
<td>217-352-0490</td>
<td>Lyndal Arnold</td>
<td>Navistar International</td>
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<tr>
<td>800 W. Bradley</td>
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<tr>
<td>Champaign</td>
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<tr>
<td>IL 61820</td>
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<th>Rental Service Corp. - Roesch Division</th>
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<tr>
<td>1414 E. Triumph Dr.</td>
<td>217-367-3781</td>
<td>217-367-3259</td>
<td>Chris Rahn</td>
<td>Heil, Knapheide, Swenson, Henke, Western</td>
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<tr>
<td>Urbana</td>
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<td>Honke Industrial, Champion, Volvo</td>
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### District: SE (Southeast)

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<td>Great American Peterbilt, Inc.</td>
<td>812-288-8007</td>
<td>812-288-8041</td>
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<tr>
<td>4415 Hamburg Pike</td>
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<tr>
<td>Jeffersonville</td>
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<tr>
<td>IN 47130</td>
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<tr>
<td>Indiana Truck Equipment, Inc.</td>
<td>612-285-0120</td>
<td>812-283-4076</td>
<td>Gallion</td>
<td>Tandem Chassis: T/A Reg Body: x</td>
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<tr>
<td>5311 U.S. Highway 31</td>
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<td>Clarksville</td>
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<td>S/A Reg Body:</td>
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<tr>
<td>Kaffenbarger Truck Equipment Co.</td>
<td>437-772-6600</td>
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<td>Snow/Ice Control:</td>
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<tr>
<td>3240 E. Kemper Rd.</td>
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<td>Cincinnati</td>
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<td>OH</td>
<td>45241</td>
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<tr>
<td>Kentuckiana Mack Sales and Service, Inc.</td>
<td>812-283-2100</td>
<td>812-280-2111</td>
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<td>1606 Progress Way</td>
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<td>Kentucky Truck Sales, Inc.</td>
<td>600-928-7172</td>
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<td>1403 Truckers Blvd., P.O. Box 1507</td>
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**District: SE (Southeast)\(^*\)**

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<tr>
<td>11420 U.S. 31 North, Edinburgh</td>
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<td>10200 U.S. Hwy 50, P.O. Box 210, Aurora</td>
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<td>IN 47001</td>
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<td>1026 W. Lincoln St., Greensburg</td>
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<td>IN 47240</td>
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<td>13450 N.E. Hwy 135 South, Palmyra</td>
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**District: SW (Southwest)**

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<tr>
<td>Banner Truck and Trailer Sales, Inc.</td>
<td>612-867-2181</td>
<td>812-867-7610</td>
<td>Mack</td>
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<tr>
<td>10000 Hwy 57, P.O. Box 3304</td>
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<tr>
<td>Broerman Chevrolet Co.</td>
<td>612-874-2216</td>
<td>812-874-3409</td>
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<tr>
<td>Hwy. 165 N. &amp; Frontage Rd.</td>
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<tr>
<td>Diamond Construction Equipment</td>
<td>612-425-4428</td>
<td>812-421-1636</td>
<td>Dave Clement</td>
<td>Hyundai</td>
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<td>1060 E. Diamond Ave.</td>
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<tr>
<td>Evansville Truck Equipment, Inc.</td>
<td>812-479-1401</td>
<td>812-479-1541</td>
<td>Larry Klossler</td>
<td>Galion, Knappheide, Henderson, Gledhill, Good Roads, Meyer</td>
</tr>
<tr>
<td>Hasenour Motor Company, Inc.</td>
<td>812-326-2121</td>
<td>812-326-2220</td>
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<td>Hoefling Truck and Tractor, Inc.</td>
<td>600-533-4599</td>
<td>812-254-3594</td>
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<td>Navistar International</td>
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<tr>
<td>McCormick, Inc.</td>
<td>600-777-1352</td>
<td>812-385-2164</td>
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<td>Volvo, Freightliner</td>
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<tr>
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<tr>
<td>Meyer Truck Equipment</td>
<td>812-695-3451</td>
<td>812-695-3397</td>
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<td>Good Roads, Western, Perfection, Knaufheide</td>
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<td>196 W. State Rd. 56</td>
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<td>5052 N. 13th St.</td>
<td></td>
<td></td>
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<td>Tandem Chassis: X</td>
</tr>
<tr>
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<td></td>
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</tr>
<tr>
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<td></td>
<td>Motor Grader:</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Vigo Truck Center</td>
<td>800-365-1945</td>
<td>812-235-1351</td>
<td></td>
<td>Volvo</td>
</tr>
<tr>
<td>20 W. Margaret Drive</td>
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<tr>
<td>W &amp; W Truck Sales</td>
<td>317-444-9950</td>
<td>317-447-8824</td>
<td></td>
<td>Navistar International</td>
</tr>
<tr>
<td>513 S. 5008</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Motor Grader:</td>
</tr>
</tbody>
</table>

End of report.
6.9

Hydrostatic Drive Chip Spreader
6.9 Hydrostatic Drive Chip Spreader

6.9.1 Hydrostatic Drive Chip Spreader Specifications

6.9.2 Hydrostatic Drive Chip Spreader Vendor List
6.9.1 Chip Spreader

Task Force

Tom Martin  Program Manager  Indiana LTAP
John Habermann  Research Engineer  Indiana LTAP
Chuck Everett  Utilities Manager  Town of Flora
Jerry Larson  Highway Supervisor  Tipton County
Larry Campbell  Fleet Manager  Allen County

Owner Input Checklist

Owner input is required on the following pages of this Specification:

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
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<tr>
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<td>13</td>
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</table>

Section 6.9.1 - Hydrostatic Drive Chip Spreader
SPECIFICATIONS

for

Hydrostatic Drive Self-Propelled Chip Spreader

GENERAL

It is the intent of these specifications to describe a new hydrostatic drive self-propelled chip spreader in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The hydrostatic drive chip spreader shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known engineering standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, with Non Collusion Affidavit and Bid Bond equal to _________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished.
under this proposal at anytime during manufacture and after purchase of the specified unit(s).

**Term "or Equal"** Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
## ENGINE AND POWER TRAIN

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine shall be diesel V8 or in-line 6 cylinder four cycle turbo charged engine, min 185 rated hp.</td>
<td>Engine horsepower ____________</td>
</tr>
<tr>
<td>The engine shall be equipped with the following checked items:</td>
<td>Engine Make ____________</td>
</tr>
<tr>
<td>_____ Electric start</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>_____ Alternator</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>_____ Voltage regulator</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>_____ Heavy duty dual 12 volt batteries</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>_____ Dry type air cleaner</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>_____ Disposable element oil filter</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>_____ Heavy duty cooling system</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>_____ Ether Starting Aid</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Hydrostatic drive pump to be mounted directly to the engine, Bidder to furnish detailed information on the size and capacity of the hydrostatic drive pump and motor.</td>
<td></td>
</tr>
<tr>
<td>Describe exceptions to the Specifications:</td>
<td></td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Minimum Requirements of Local Agency

- Rear receiving hopper to be a minimum of 9ft6in in width, with a struck capacity of 3.5 cy, minimum.
- Heavy duty rubber skirting shall be installed to minimize spillage between the hopper and the truck.
- Unit shall be equipped with two heavy duty conveyor belts, 20in minimum width, independently powered by automatic electric switches.
- Electric switches for each conveyor to have easy access mechanical override.
- Hooded adjustable aggregate deflector to be located at the head of each conveyor.
- Spread hopper to be _____ ft, minimum width.
- Struck capacity of spread hopper to be 0.2 cy per ft width, minimum.
- Spread roller to be 6in minimum diameter machine welded heavy wall tubing.
- Each radial gate to have individual, adjustable, shut-off lever, either manual or spring loaded.

### Provided by Unit Proposed by Bidder

- Rear receiving hopper:
  - Width ________ft
  - Struck capacity _________ cy
  - Yes [ ] No [ ]
  - Conveyor belts:
    - Size _______in
  - Automatic Switches:
    - Yes [ ] No [ ]
    - Yes [ ] No [ ]
    - Yes [ ] No [ ]
  - Spread hopper width _____________ft
  - Spread hopper capacity _____________cy/ft
  - Spread roller diameter _________ in
  - Manual [ ] Pneumatic [ ] N/A [ ]

Describe exceptions to the Specifications:

---

---

---
AGGREGATE HANDLING, CONTINUED

Minimum Requirements of Local Agency

Each radial gate to have adjustable, wear plates.

Radial gates widths are to be:
  6in for exterior ___ ft, each side,
  12in for interior ___ ft.

A full width rock type screen with 1½in (max) openings shall placed over the top of the spread hopper to retain oversized materials and foreign objects.

Provided by Unit Proposed by Bidder

Yes [ ]  No [ ]

Radial gate widths are:
  ___ in for exterior ___ ft, each side,
  ___ in for interior ___ ft.

Yes [ ]  No [ ]
Screen Size _________ in

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
Mininum Requirements of Local Agency

Mechanical front wheel drive steer axle to be fully oscillating, 20,000 lb minimum rating, with single speed limited slip differential.

Rear axle to have 22,500 lb minimum rating, with rear wheel track offset from the front wheel track.

Speed to be infinitely variable from 0 to 19 mph.

Bidder to provide description of front, rear, and parking brake systems.

Provided by Unit Proposed by Bidder

Front axle rating _____________ lb

Rear axle rating _____________ lb

Infinitely variable speed [ ] Yes [ ] No

Maximum speed _____________ mph

Front brake system

                        

                        

Rear brake system

                        

                        

Parking brake system

                        

                        

Tire size ________________

Wheel type ______________

Describe exceptions to the Specifications:

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________
INSTRUMENTATION/CONTROLS

Minimum Requirements of Local Agency

Application rate computer shall monitor the speed of the chip spreader and vary the spread hopper gate openings to maintain the desired application rate regardless of the speed of the unit.

Controls shall be provided to automatically start and stop the conveyor belts to control the aggregate level in the spread hopper, and shall include belt speed control and override capability.

Control/instrument panel to be located in a lockable box on the operator's station to prevent vandalism.

Operator's station shall be located and/or adjustable so that the operator is provided an unobstructed view front and rear, left and right, which may be accomplished by either a movable station or by a front mounted central location.

If control panel is switchable, left to right, it shall be via:

- [ ] Power,
- [ ] Manual operation

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Adjustable control station [ ]

Front mount, central location [ ]

Power [ ] Manual [ ] N/A [ ]

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Section 6.9.1 - Hydrostatic Drive Chip Spreader
**INSTRUMENTATION/CONTROLS. CONTINUED**

### Minimum Requirements of Local Agency

Instrumentation shall be provided to monitor:

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel level</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Engine oil pressure</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Hydrostatic oil temperature</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Engine coolant temperature</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Voltmeter</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Tachometer</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Hourmeter</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Engine hours</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Air pressure (if applicable)</td>
<td>Yes [ ] N/A [ ]</td>
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Audible and visible alarms shall be provided for:

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Provided by Unit Proposed by Bidder</th>
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<tbody>
<tr>
<td>High coolant temperature</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>High hydraulic temperature</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Low engine oil</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Low fuel level</td>
<td>Yes [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

__________________________
__________________________
__________________________
MISCELLANEOUS

Minimum Requirements of Local Agency

Unit shall be equipped with a positive self-locking adjustable truck hitch which may be electrically released from both the drivers and operators (if applicable) station.

Truck hitch shall be capable of hooking and unhooking the loaded trucks without stopping the chip spreader and shall maintain positive contact over irregular terrain.

Front fenders, right and left side

Air or electric horn

Self adjusting backup alarm

A complete light package, including headlights, stop and tail lights, turn signals, and emergency flashers shall be provided.

Safety strobe light(s) to be mounted:

________________________________________________________________________

________________________________________________________________________

Paint color shall be ________________________

Provided by Unit Proposed by Bidder

Adjustability Range

Vertical _____________ in

Horizontal _____________ in

Not Available [ ]

Yes [ ] No [ ]

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Yes [ ] No [ ]

Air [ ] Electric [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

________________________________________________________________________

Paint color is ________________________

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.9.1 - Hydrostatic Drive Chip Spreader
### Minimum Requirements of Local Agency

<table>
<thead>
<tr>
<th>Item</th>
<th>Provided by Unit</th>
<th>Proposed by Bidder</th>
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<tbody>
<tr>
<td>Access ladders, left and right</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Safety handrails</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Lockable tool box</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td><strong>Minimum capacities shall be</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 gal - Hydraulic oil reservoir</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80 gal - Diesel fuel, w/ lockable cap</td>
<td></td>
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</tr>
</tbody>
</table>

### Capacities are:
- ___ gal - hydraulic oil
- ___ gal - diesel fuel

Describe exceptions to the Specifications:

<table>
<thead>
<tr>
<th>Description</th>
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</thead>
<tbody>
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</tbody>
</table>

Section 6.9.1 - Hydrostatic Drive Chip Spreader
WARRANTY / REPAIR PARTS

Minimum Requirements of Local Agency

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts, Service and Operators Manual to be included.

Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner's base of operations, which is located at

______________________________

______________________________

______________________________

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder's warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner's base of operations.

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Location of warranty facility:

______________________________

Distance from Owner's base of operations:

______________________________ m

_______% available within 48 hours

_______ hours delivery for PM Parts

Describe exceptions to the Specifications:

______________________________

______________________________

______________________________

Section 6.9.1 - Hydrostatic Drive Chip Spreader
DATE OF DELIVERY

Minimum Requirements of Local Agency
Unit must be delivered to the Owner with all attachments and components substantially completed, within ___________ days of the acceptance of the bid.

Provided by Unit Proposed by Bidder
Estimated Delivery Time: __________ days

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of ___________ $/day for each calendar day of delay after the Owner's specified date of delivery.

Describe exceptions to the Specifications:

____________________________________________________

____________________________________________________

____________________________________________________

Section 6.9.1 - Hydrostatic Drive Chip Spreader
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

Four wheel drive package:
   includes engine upgrade to _____________ hp, minimum
   Add: _____________ $

Variable width hopper package:
   includes engine upgrade to _____________ hp, minimum
   _____ ft width capability
   Add: _____________ $

Both four wheel drive and variable width hopper package:
   includes engine upgrade to _____________ hp, minimum
   _____ ft width capability
   Add: _____________ $

DEDUCT ALTERNATES

Trade In (s)  Deduct: _____________ $

Year: ____________________________
Make: ____________________________
Model: ____________________________
S/N: ____________________________
Location: ____________________________

Net Price: _____________ $

Bidder Name, Address, Phone, Contact:

________________________________________________________________________
________________________________________________________________________

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Section 6.9.1 - Hydrostatic Drive Chip Spreader
6.9.2 Hydrostatic Drive Chip Spreader - Vendor List

Section 1 - All Vendors

All reports are sorted first by district, then alphabetically.
District: BC (East Central)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>317-545-2151</td>
<td>317-543-0310</td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td>7151 E 30th Street</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Indianapolis</td>
<td>IN</td>
<td></td>
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<tr>
<td>46206</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McDonald Machinery Co.</td>
<td>317-856-3000</td>
<td>317-856-0200</td>
<td></td>
<td>Henke Industrial, Case, Rosco</td>
</tr>
<tr>
<td>4445 Decatur Blvd</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indianapolis</td>
<td>IN</td>
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<tr>
<td>46241</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southeastern Equipment Co.</td>
<td>317-872-4877</td>
<td>317-872-2811</td>
<td>David Cooper</td>
<td>Hyundai, Hitrye</td>
</tr>
<tr>
<td>4961 W. 96th St.</td>
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</tr>
<tr>
<td>Indianapolis</td>
<td>IN</td>
<td></td>
<td></td>
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<tr>
<td>46268</td>
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</tbody>
</table>

District: WB (Northeast)

<table>
<thead>
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<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>219-483-6469</td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td>Ft. Wayne</td>
<td>IN</td>
<td></td>
<td></td>
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</tr>
<tr>
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<td></td>
<td></td>
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</tr>
<tr>
<td>McDonald Machinery Co.</td>
<td>219-747-1561</td>
<td>219-747-6367</td>
<td></td>
<td>Henke Industrial, Case, Rosco</td>
</tr>
<tr>
<td>3911 Limestone Dr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ft. Wayne</td>
<td>IN</td>
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<td>46409</td>
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<tr>
<td>Southeastern Equipment Co.</td>
<td>219-483-8868</td>
<td>219-483-5448</td>
<td>Dan Kreager</td>
<td>Hyundai, Hitrye</td>
</tr>
<tr>
<td>3333 W. Coliseum Blvd.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ft. Wayne</td>
<td>IN</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>46406</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

District: NW (Northwest)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
</table>
### District: NW (Northwest)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
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</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>219-288-6622</td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td>South Bend</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>McDonald Machinery Co.</td>
<td>219-271-0800  219-271-0889</td>
<td></td>
<td></td>
<td>Henke Industrial, Case, Rosco</td>
</tr>
<tr>
<td>52402 Ralph Jones Drive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Bend</td>
<td></td>
<td></td>
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</tbody>
</table>

### District: OS (Out of State)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beatst Mfg.</td>
<td>520-684-7851  520-684-5876</td>
<td>Rick Holl</td>
<td></td>
<td>Bearcat</td>
</tr>
<tr>
<td>3630 Sabin Brown Rd</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wickensburg</td>
<td></td>
<td></td>
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<td>AZ</td>
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### District: WC (West Central)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>812-877-9773</td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td>Terre Haute</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MacAllister Equipment Co.</td>
<td>317-423-5553</td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td>W. Lafayette</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McDonald Machinery Co.</td>
<td>765-742-2080  765-742-2899</td>
<td></td>
<td></td>
<td>Henke Industrial, Case, Rosco</td>
</tr>
<tr>
<td>2691 SR 25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lafayette</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>IN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

End of report.
6.10

Asphalt Distributer
6.10 Asphalt Distributer

6.10.1 Tandem Axle Asphalt Distributer Specifications

6.10.2 Single Axle Asphalt Distributer Vendor List

6.10.3 Asphalt Distributer Vendor List
### Task Force

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tom Martin</td>
<td>Program Manager</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>John Habermann</td>
<td>Research Engineer</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>Walter Evans</td>
<td>County Highway Engineer</td>
<td>Montgomery County</td>
</tr>
<tr>
<td>Larry Campbell</td>
<td>Allen County Fleet Manager</td>
<td>Allen County</td>
</tr>
<tr>
<td>Eugene Shurte</td>
<td>County Highway Supervisor (Ret)</td>
<td>LaPorte County</td>
</tr>
<tr>
<td>Jerry Larson</td>
<td>County Highway Supervisor</td>
<td>Tipton County</td>
</tr>
<tr>
<td>Larry Lee</td>
<td>Street Commissioner</td>
<td>City of Lebanon</td>
</tr>
<tr>
<td>Chuck Everett</td>
<td>Utility Manager</td>
<td>Town of Flora</td>
</tr>
</tbody>
</table>

These specifications have been developed to be modular as much as possible with respect to the various components making up an asphalt distributor. The following minimum requirements are dependent on the distributor tank size. Therefore the Asphalt Distributor Section has been broken into two subsections: Tandem Axle Asphalt Distributor and Single Axle Asphalt Distributor. This subsection will address the Tandem Axle Asphalt Distributor.

**Part 1 - Chassis**

**Part 2 - Asphalt Distributor**
## User Input Checklist

User input is required on the following pages of this Specification:

<table>
<thead>
<tr>
<th>Entered</th>
<th>Page</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>Bid Bond Amount</td>
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<td></td>
<td>6</td>
<td>Horizontal or Vertical Muffler Mounting</td>
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<td></td>
<td>10</td>
<td>Cast Spoke or Disc Type Wheels - Front Axle</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Cast Spoke or Disc Type Wheels - Rear Axle</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Rear Axle, No-Spin Required</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>Normal Operating Speed</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>Use Profile</td>
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<tr>
<td></td>
<td>16</td>
<td>Paint Color</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>Type of Heating Method for Burners on Distributor Tank</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>Spray Bar Length</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>Location of Owner's Base of Operations</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>Delivery Schedule</td>
</tr>
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<td>25</td>
<td>Penalty for Late Delivery</td>
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<td>26</td>
<td>Factory Installed Air Conditioning</td>
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<td></td>
<td>26</td>
<td>CD Player</td>
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<td></td>
<td>26</td>
<td>Trade-In Information</td>
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</table>

Section 6.10.1 - Tandem Axle Asphalt Distributor
SPECIFICATIONS

for

56,000 GVW Tandem Axle Asphalt Distributor

GENERAL

It is the intent of these specifications to describe a new tandem axle asphalt distributor in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be a current model, new equipment, under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any unit not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on the approved local agency bid form, with Non Collusion Affidavit and Bid Bond equal to _______ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided on Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered and all attachments and options with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs,
devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

Term "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
PART 1 - CHASSIS

ENGINE AND ENGINE EQUIPMENT

Minimum Requirements of Local Agency

Engine shall be diesel V8 or in-line 6 cylinder four cycle turbo charged engine with the following minimum specifications:

Horsepower: _______ 275 hp
Torque: _______ 800 ft-lbs

Provided by Item Proposed by Bidder

Horsepower: _______ hp @ _______ rpm
Torque: _______ ft-lbs @ _______ rpm
Engine Make: ______________________
Model: ______________________
Cylinders: _______ Cycle: _______
Bore / Stroke: _______ in x _______ in
Displacement: _______ CID _______ liter

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
AUTOMATIC TRANSMISSION EQUIPMENT

Minimum Requirements of Local Agency

Transmission shall be Allison automatic Model MD 3060 (or Model MD 3560, per Allison recommendation depending on the application), (World Transmission) or equal, capable of accepting the maximum torque output of the engine being bid.

Note:

If engine selected is 300hp or greater, or more than 800 ft-lbs torque, then transmission should be HD 4560.

It should be noted that this will significantly increase the cost of the unit.

Temperature gauge to be provided

In-line transmission filter on the return line to be provided.

Note: Auxiliary cooler is NOT to be included with this transmission per recommendations of the manufacturer.

Provided by Item Proposed by Bidder

Make: _________________________

Model: _________________________

Speeds

Forward: __________
Reverse: __________

Shift Selector

Floor: _______
Dash: _______

Yes [ ] No [ ]

Yes [ ] No [ ]
**COOLING SYSTEM**

**Minimum Requirements of Local Agency**

The unit shall be equipped with the following items within the cooling system:

- Overflow Recovery System
- Corrosion Resistor Mechanism.
- Silicone Hose System, or equal
- Engine Block Heater(s), 1000 watt min.
- Weather head connector for Block heater (to be located below left door, front corner)
- Radiator Fan shall be modulated type.
- Fin and tube type radiator core having maximum frontal opening available for the engine and transmission being bid.

**Provided by Item Proposed by Bidder**

<table>
<thead>
<tr>
<th></th>
<th>Yes [ ]</th>
<th>No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overflow Recovery System</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrosion Resistor Mechanism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silicone Hose System, or equal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine Block Heater(s), 1000 watt min.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Watts:</td>
<td>__________</td>
<td></td>
</tr>
<tr>
<td>Weather head connector for Block heater (to be located below left door, front corner)</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Radiator Fan shall be modulated type.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Fin and tube type radiator core having maximum frontal opening available for the engine and transmission being bid.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Describe exceptions to the Specifications:**

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Frontal Area: ______________ sq. in.

Radiator Capacity: ______________ gal
CHASSIS / FRAME

Minimum Requirements of Local Agency

Wheelbase and cab to axle spacing shall be minimum required for proper fit of the distributor tank and specified exhaust:

Exhaust muffler shall be mounted:
horizontal: ___________
vertical: ___________
with a vertical exhaust pipe.

Heavy duty frame, extended in front to accommodate front mounted PTO pump, including any special radiator or engine modifications required for front mount PTO pump.

Frame rails (side rail and reinforcement) shall be continuous full length.

Frame rail yield strength 110,000 PSI (minimum)

Section modulus 28"³ minimum

Resistant Bending Moment (RBM) 3,000,000 "#

Provided by Item Proposed by Bidder

Wheelbase: _______________ "

Cab to axle spacing: _______________ "

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yield Strength: ___________ psi

Section Modulus: ___________ "³

RBM: ___________ "#
**CHASSIS / FRAME (con’t)**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Item Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy Duty Front Bumper, Swept back steel channel design (minimum 12&quot;), with Tow Hooks (Front hooks to be frame mounted with access through front bumper by installation contractor)</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
# FILTERS

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Item Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Filter shall be replaceable paper type, heavy duty, dual element.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Capability to switch air intake from outside to under hood from within the cab.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Oil filters shall be full flow, spin on type.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine shall be equipped with primary and secondary fuel filters.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine shall be equipped with water filter.</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Section 6.10.1 - Tandem Axle Asphalt Distributor
### ELECTRICAL SYSTEM

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Item Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starter shall be rated Heaviest Duty for this application by the manufacturer.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Alternator shall be 130 amp brushless Delco Remy Model 29-SI type 300, or equal.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine shall be equipped with a minimum of three Group 31 heavy duty, 170 amp-hour, 1950 total cold crank power at 0 degree F, 15 plates / cell.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Electrical system shall be weatherproof Betts system, or equal, equipped with circuit breakers.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Special tail lights shall be part of the Distributor Tank Specifications.</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
# FRONT AXLE EQUIPMENT

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Item Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>16,000 # front axle rating</td>
<td>Front axle rating: _____________ #</td>
</tr>
<tr>
<td>16,000 # suspension</td>
<td>Front axle suspension: ___________ #</td>
</tr>
<tr>
<td>Heavy duty dual power steering gears</td>
<td></td>
</tr>
<tr>
<td>Heavy duty shock absorbers to be factory installed</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Front tires to be tubeless, radial type, 315/80R22.5, load range 14 PR ply rating, rib type tread.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Wheels to be 8.25 x 22.5 tubeless rims.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>cast spoke _____</td>
<td>Type: __________________________</td>
</tr>
<tr>
<td>hub pilot disc _____</td>
<td>Size: __________________________</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
REAR AXLE EQUIPMENT

Minimum Requirements of Local Agency

40,000 # rear axle rating

40,000 # suspension

Rear auxiliary springs - 4500 # capacity total

Rear tires shall be tubeless, radial type, 11.00R22.5, load range 14 PR ply rating, rib lug type tread.

Wheels to be 8.25 x 22.5 tubeless rims.
    cast spoke ______
    hub pilot disc ______

Rear axle to be No-Spin type with automatic positive locking power:

☐ Required
☐ Not Required

Provided by Unit Proposed by Bidder

Rear axle rating: ______________ #

Rear axle suspension: ______________ #

Rear auxiliary suspension: _____________

   Yes [ ]    No [ ]

Type: _______________________

Size: _______________________

No-Spin:    Yes [ ]    No [ ]

Automatic Control:    Yes [ ]    No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________
REAR AXLE EQUIPMENT (con’t)

Minimum Requirements of Local Agency

Bidder shall provide an analysis of several rear axle ratios based on the following profile:

Normal Operating Speed: _____ mph

Terrain:
   Level   _____ %
   Rolling _____ %
   Hilly   _____ %

Total  100 %

Type of Use:
   Seal Coat  100%

Note: The decision on the axle ratio will be made based on the analysis included with this Bid and communicated to the Bidder with the acceptance of the Bid. It is requested by the Owner that the rear axle ratio not be the limiting factor for speed. Rather, the speed should be controlled electronically through the transmission, or via the governor. The rear axle ratio shall be that which provides the best fuel economy at the normal highway speed.

Describe exceptions to the Specifications:

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

Provided by Unit Proposed by Bidder

Analysis Attached:  
   Yes [ ]  No [ ]
AIR / BRAKE EQUIPMENT

Minimum Requirements of Local Agency

Service air brakes shall be dual air, with anti-lock braking system.

Shoe size to be 16.5" x 5" S-cam front, and 16.5" x 7" S-cam rear.

Air compressor to be 13.2 cfm minimum.

Air compressor shall be equipped with Bendix AD-9 air dryer, or equal.

Parking brake shall be piggy-back, spring actuated, dual diaphragm, min. 30 sq. in.

Parking brake chamber to be provided for both rear axles for tandem units.

Pancakes shall be mounted in front of rear axle with 4" clearance from the tires.

Unit shall be equipped with 25 ft of standard air hose with a quick connect/disconnect coupler within the cab or tool box. A hand nozzle shall also be provided with the same type of coupler.

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]

Shoe size:
Front: ______________________
Rear: ______________________

Capacity: ______________________ cfm

Make: ______________________
Model: ______________________

Size: ______________________

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
FUEL TANKS

Minimum Requirements of Local Agency

The fuel tank(s) shall have a total combined capacity of at least 80 gallons.

A fuel/water separator shall be included in the fuel system, Raycom or equal.

Each tank shall be clearly marked DIESEL FUEL ONLY.

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual tanks:                      Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Left tank capacity:    gal</td>
</tr>
<tr>
<td>Right tank capacity:    gal</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.10.1 - Tandem Axle Asphalt Distributor
## CAB

**Minimum Requirements of Local Agency**

Cab shall be equipped with the following standard features:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilated and insulated</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>All window tinted glass</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Door operated dome light</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Cigar lighter</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Rigid cab mount</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Driver’s seat to be Bostrum Air, intermediate back, or equal</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Companion’s seat, placed at least 13&quot; from driver’s seat</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Dual air horns</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Heavy duty heater and defroster</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Dual sun visors</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Dual arm rests</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Insulated head liner</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>AM/FM Radio</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Intermittent electric windshield wipers, to be mounted at the top of the windshield, if available</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Driver operated electric right side window</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Dual bright finish, West Coast style mirrors (16&quot; x 7&quot;), with 8&quot; adjustable convex mirror, both sides</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Exterior grab handles</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Locking hand throttle</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Marker lights</td>
<td>Yes [ ]   No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

_______________________________________________________________________________

_______________________________________________________________________________

_______________________________________________________________________________

Section 6.10.1 - Tandem Axle Asphalt Distributor
**CAB (con’t)**

**Minimum Requirements of Local Agency**

<table>
<thead>
<tr>
<th>Dash mounted gauges:</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Tachometer</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Hour meter (Hobb’s or equal)</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Ammeter(needle type, calibrated)</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Oil pressure</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Water temperature</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Air pressure</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Transmission temperature</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

High water temperature/low oil pressure emergency shutdown / alarm mechanism shall be dash mounted.

Tilt hood shall be capable of opening over stationary grill and shall be solid with an access hatch, each side.

Paint color shall be________________________.

Paint color is________________________.

Describe exceptions to the Specifications:

____________________________________________________________________________________
____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

Section 6.10.1 - Tandem Axle Asphalt Distributor
PART 2 - ASPHALT DISTRIBUTOR

Minimum Requirements of Local Agency

Tank shall be 3500 U.S. gallons and elliptical in shape with 10 gage steel shell, 7 gage reinforced ends with full cross-section and 10 gage surge plates with staggered openings with minimum 2 inches of insulation and weatherproof aluminum jacket.

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank Capacity:____________ U.S. gallons</td>
</tr>
<tr>
<td>Steel Shell:___________ gage</td>
</tr>
<tr>
<td>Reinforced elliptical ends:_________ gage</td>
</tr>
<tr>
<td>Surge Plates:___________ gage</td>
</tr>
<tr>
<td>Staggered openings in surge plates:</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Insulation thickness:___________ inches</td>
</tr>
<tr>
<td>Weatherproof aluminum jacket:</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Openings in the surge plate shall be large enough to allow a person to crawl through

Heads shall be flanged and electronically welded both inside and outside to the shell.

Manhole with minimum diameter of 20 inches with quick opening cover and overflow capability.

Overflow shall extend at least 6 inches above the liquid and drain through the bottom in such a location as to clear all chassis members.

Measuring stick in 50 U.S. gallon increments shall be attached to manhole.

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.10.1 - Tandem Axle Asphalt Distributor
**ASPHALT DISTRIBUTOR (con't)**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>There shall be a strainer around the manhole.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Tank shall have no-slip catwalk.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Tank gage shall be float type, with dial calibrated in 50 U.S. gallon increments. Located at front and rear of tank.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Tank shall meet Federal DOT regulations for transporting hot asphalt.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Shall be a dual, “U” type flues minimum 6 inches inside diameter with vertical exhaust.</td>
<td>Flu diameter: _________ inches</td>
</tr>
<tr>
<td>Exhaust shall be made of 14 gage stainless steel and at rear of the tank with hood.</td>
<td>Vertical exhaust: Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Burners to be:</td>
<td>Stainless Steel: Yes [ ] No [ ]</td>
</tr>
<tr>
<td>☐ LPG w/pressure regulators and plumbing to connect to 50 U.S. gallon (minimum) frame mount tank, outfire control and minimum 600,000 BTU per hour. LPG system shall have electronic control for ignition, out fire, and temperature limit and minimum 600,000 BTU per hour.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>☐ Diesel fired burners shall be self-contained w/ electronic ignition.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Thermostatic controls for propane burners.</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.10.1 - Tandem Axle Asphalt Distributor
ASPHALT DISTRIBUTOR (con’t)

Minimum Requirements of Local Agency

The bitumen pump shall be positive displacement, rotary gear type with a minimum capacity of 400 gallons per minute.

Pump shall be located under and below the bottom level of the tank so the material will flow vertically from the suction to the discharge insuring complete drainage when tank contents valve is closed.

Self flushing line from fuel tank that includes minimum of 20-gallon capacity fuel tank with float level gauge (located away from burners).

Suction strainer.

Liquid sampling valve in hot well.

Full circulating spray bar that is ___ feet in length and hinged to permit folding for traveling. Length of spray in folded position shall not exceed 8 feet.

Nozzles on the spray bar are to be spaced on 4” centers. A set of brass, slotted, high volume nozzles shall be supplied. Nozzles capable of shooting 12 to 21 gallons per foot of bar.

Bar extensions will relieve fore and aft to provide for obstructions.

Provided by Unit Proposed by Bidder

____________________ gallons per minute

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
**ASPHALT DISTRIBUTOR** (con't)

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric-air on-off in 1 foot increments, full length of bar, operated from cab.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Power extensions beyond 8 foot standard width controlled from cab.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Electric/hydraulic power bar lift, shift and wing; switches from front to rear.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Power wash down system with electric fuel pump and 15' hose with gun</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Power bar latches</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Bar end markers</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>The cab shall be equipped with automatic application rate control to monitor gallons per minute, feet per minute, feet traveled, or gallons per square yard, and spray bar width. The controls shall accurately apply application rates regardless of changes in speed or bar width.</td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
**ASPHALT DISTRIBUTOR** (con’t)

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>The cab shall be equipped with the following:</td>
<td></td>
</tr>
<tr>
<td>Circulate/spray control,</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Powered controls for main tank valve,</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Rear suction valve and master power controls,</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Tank “low level” indicator light in control panel.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Radar ground speed measurement.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Air solenoid valves and hydraulic solenoid valves are to be mounted accessible and serviceable from ground without climbing on the machine.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Tank shall have 4 inch dial thermometer on side of tank in pipe well.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Tank shall come with armored pencil inspectors type thermometer up to 500 degrees Fahrenheit.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>The unit shall have a hydrostatic transmission consisting of:</td>
<td></td>
</tr>
<tr>
<td>A pump that has infinitely variable displacement axial piston pump, Fixed displacement motor</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Operation speed to be 2800 RPM</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Section 6.10.1 - Tandum Axle Asphalt Distributor
**ASPHALT DISTRIBUTOR** (con’t)

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic oil to reach 200 degrees w/out damage to the unit</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Internal valving with relief valve and high oil temperature signal in cab</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Crankshaft driven hydrostatic pump driving a motor direct coupled to 400 GPM asphalt pump.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Electronics for setting up asphalt pump discharge rate to be located in truck cab.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Override control to be located in truck cab and at rear of unit.</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

**Functions and Accessories:**

- Fill tank by Distributor pump from an outside source,
  - Circulate material in tank,
  - Circulate material in spray bar,
  - Spray at a constant desired application rate, despite the variance in truck speed,
  - Return material in spray bar to tank by pump suction
- Transfer from one outside source to another without having material enter the tank,
- Pump material back to supply source,
- Automatically go from circulate in spray bar to tank by pump suction

<table>
<thead>
<tr>
<th></th>
<th>Yes [ ] No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td></td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td></td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td></td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.10.1 - Tandem Axle Asphalt Distributor
### Minimum Requirements of Local Agency

**Functions and Accessories (con't)**

- All steel tool box shall be provided
- Fenders and mud flaps shall be provided
- Provide hand spray gun with cold handle and at least one nozzle and 25 feet of 1 inch flexible rubber hand spray hose
- Turn signals shall be provided at rear of distributor
- All lights shall meet Federal requirements, including reflectors, clearance, and identification lights
- All necessary special tools for operation and maintenance of the distributor shall be provided
- Rear bumper
- Back-up alarm, 87-112 dB range, automatically adjusting
- 15 feet steel transfer hose
- Front and rear tank gage

**Self-flushing system to clean the entire circulating system with minimum amount of flushing oil.**

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

**Describe exceptions to the Specifications:**

---

Section 6.10.1 - Tandem Axle Asphalt Distributor
ASPHALT DISTRIBUTOR (con’t)

Minimum Requirements of Local Agency

Functions and Accessories (con’t)

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes [ ]</strong></td>
</tr>
<tr>
<td><strong>Yes [ ]</strong></td>
</tr>
<tr>
<td><strong>Yes [ ]</strong></td>
</tr>
<tr>
<td><strong>Yes [ ]</strong></td>
</tr>
<tr>
<td><strong>Yes [ ]</strong></td>
</tr>
<tr>
<td><strong>Yes [ ]</strong></td>
</tr>
<tr>
<td><strong>Yes [ ]</strong></td>
</tr>
<tr>
<td><strong>Yes [ ]</strong></td>
</tr>
</tbody>
</table>

All steel tool box shall be provided
Fenders and mud flaps shall be provided
Provide hand spray gun with cold handle and at least one nozzle and 25 feet of 1 inch flexible rubber hand spray hose
Turn signals shall be provided at rear of distributor
All lights shall meet Federal requirements, including reflectors, clearance, and identification lights
All necessary special tools for operation and maintenance of the distributor shall be provided
Rear bumper
Back-up alarm, 87-112 dB range, automatically adjusting
15 feet steel transfer hose
Front and rear tank gage
Self-flushing system to clean the entire circulating system with minimum amount of flushing oil.

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Section 6.10.1 - Tandem Axle Asphalt Distributor
**WARRANTY / REPAIR PARTS**

**Minimum Requirements of Local Agency**

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts Book, Service Manual and Operator's Manual to be provided.

Highest consideration will be given to those Bidders whose *Truck* warranty facility is located nearest the Owner's base of operations, which is located at:

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
</tr>
<tr>
<td>No [ ]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
</tr>
<tr>
<td>No [ ]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
</tr>
<tr>
<td>No [ ]</td>
</tr>
</tbody>
</table>

**Location of Truck warranty facility:**

__________________________

Distance from Owner's base of operations:

__________________________ mi

**Location of Asphalt Distributor warranty facility:**

__________________________

Distance from Owner's base of operations:

__________________________ mi

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder's warranty facility) of 95% within 48 hours of the order by the Owner.

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
**DATE OF DELIVERY**

**Minimum Requirements of Local Agency**

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner's base of operations.

Unit must be delivered to the Owner with all attachments and components substantially completed, within ____________ days of the acceptance of the bid.

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of ____________ $/day for each calendar day of delay after the Owner's specified date of delivery.

**Provided by Unit Proposed by Bidder**

_________ hours delivery for PM Parts (Truck)

_________ hours delivery for PM Parts (Distributor)

Estimated Delivery Time: ___________ days

Describe exceptions to the Specifications:

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
BASE PRICE FOR UNIT BEING BID

$____________

ADD-ON ALTERNATES

Factory installed air conditioning  Add:  $___________
CD Player  Add:  $___________

DEDUCT ALTERNATES

Trade In(s)  Deduct:  $___________

Year: ____________________________
Make: ____________________________
Model: ____________________________
S/N: ____________________________
Location: ____________________________

Net Price:  $___________

Bidder Name, Address, Phone, Contact:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Describe exceptions to the Specifications:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
6.10.2 Single Axle Asphalt Distributor

Task Force

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tom Martin</td>
<td>Program Manager</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>John Habermann</td>
<td>Research Engineer</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>Walter Evans</td>
<td>County Engineer</td>
<td>Montgomery County</td>
</tr>
<tr>
<td>Larry Campbell</td>
<td>Fleet Manager</td>
<td>Allen County</td>
</tr>
<tr>
<td>Eugene Shurte</td>
<td>County Highway Supervisor (Ret)</td>
<td>LaPorte County</td>
</tr>
<tr>
<td>Jerry Larson</td>
<td>County Highway Supervisor</td>
<td>Tipton County</td>
</tr>
<tr>
<td>Larry Lee</td>
<td>Street Commissioner</td>
<td>City of Lebanon</td>
</tr>
<tr>
<td>Chuck Everett</td>
<td>Utility Manager</td>
<td>Town of Flora</td>
</tr>
</tbody>
</table>

These specifications have been developed to be modular as much as possible with respect to the various components making up an asphalt distributor. The following minimum requirements are dependent on the distributor tank size. Therefore the Asphalt Distributor Section has been broken into two subsections: Tandem Axle Asphalt Distributor and Single Axle Asphalt Distributor. This subsection will address the Single Axle Asphalt Distributor.

Part 1 - Chassis

Part 2 - Asphalt Distributor

Section 6.10.2 - Single Axle Asphalt Distributor
**User Input Checklist**

User input is required on the following pages of this Specification:

<table>
<thead>
<tr>
<th>Entered</th>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>1</td>
<td>Bid Bond Amount</td>
</tr>
<tr>
<td>☐</td>
<td>6</td>
<td>Horizontal or Vertical Muffler Mounting</td>
</tr>
<tr>
<td>☐</td>
<td>10</td>
<td>Cast Spoke or Disc Type Wheels - Front Axle</td>
</tr>
<tr>
<td>☐</td>
<td>11</td>
<td>Cast Spoke or Disc Type Wheels - Rear Axle</td>
</tr>
<tr>
<td>☐</td>
<td>11</td>
<td>Rear Axle, No-Spin Required</td>
</tr>
<tr>
<td>☐</td>
<td>12</td>
<td>Normal Operating Speed</td>
</tr>
<tr>
<td>☐</td>
<td>12</td>
<td>Use Profile</td>
</tr>
<tr>
<td>☐</td>
<td>16</td>
<td>Paint Color</td>
</tr>
<tr>
<td>☐</td>
<td>18</td>
<td>Type of Heating Method for Burners on Distributor Tank</td>
</tr>
<tr>
<td>☐</td>
<td>19</td>
<td>Spray Bar Length</td>
</tr>
<tr>
<td>☐</td>
<td>24</td>
<td>Location of Owner's Base of Operations</td>
</tr>
<tr>
<td>☐</td>
<td>25</td>
<td>Delivery Schedule</td>
</tr>
<tr>
<td>☐</td>
<td>25</td>
<td>Penalty for Late Delivery</td>
</tr>
<tr>
<td>☐</td>
<td>26</td>
<td>Factory Installed Air Conditioning</td>
</tr>
<tr>
<td>☐</td>
<td>26</td>
<td>CD Player</td>
</tr>
<tr>
<td>☐</td>
<td>26</td>
<td>Trade-In Information</td>
</tr>
</tbody>
</table>

Section 6.10.1 - Tandem Axle Asphalt Distributor
SPECIFICATIONS

for

37,000 GVW Single Axle Dump Truck

GENERAL

It is the intent of these specifications to describe a new single axle asphalt distributor in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The truck shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known Engineering Standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, with Non Collusion Affidavit and Bid Bond equal to _________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’ evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).
Term "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
PART 1 - CHASSIS

ENGINE AND ENGINE EQUIPMENT

**Minimum Requirements of Local Agency**

Engine shall be diesel V8 or in-line 6 cylinder four cycle turbo charged engine with the following minimum specifications:

Horsepower: _____ 240 hp

Torque: _____ 700 ft-lbs

**Provided by Unit Proposed by Bidder**

Horsepower: _____ hp @ _____ rpm

Torque: _____ ft-lbs @ _____ rpm

Engine Make: ______________________

Model: ______________________

Cylinders: _____ Cycle: _________

Bore / Stroke: _____ in x _____ in

Displacement: ____________ CID ____________ liter

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
AUTOMATIC TRANSMISSION EQUIPMENT

Minimum Requirements of Local Agency

Transmission shall be Allison automatic Model MD3560P (World Transmission) or equal, capable of accepting the maximum torque output of the engine being bid.

Temperature gauge to be provided

In-line transmission filter on the return line to be provided.

Note: Auxiliary cooler is NOT to be included with this transmission per recommendations of the manufacturer.

Provided by Unit Proposed by Bidder

Make: _________________________

Model: _________________________

Speeds

Forward: _________
Reverse: _________

Shift Selector

Floor: _________
Dash: _________

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.10.2 - Single Axle Asphalt Distributor
**COOLING SYSTEM**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overflow Recovery System</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Corrosion Resistor Mechanism.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Silicone Hose System, or equal</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine Block Heater(s), 1000 watt min.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Weather head connector for Block heater (to be located below left door, front corner)</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Radiator Fan shall be modulated type.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Fin and tube type radiator core having maximum frontal opening available for the engine and transmission being bid.</td>
<td>Frontal Area: [ ] sq.in.</td>
</tr>
<tr>
<td></td>
<td>Radiator Capacity: [ ] gal</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________
CHASSIS / FRAME

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheelbase and cab to axle spacing shall be minimum required for proper fit of the asphalt distributor and specified exhaust:</td>
<td>Wheelbase: ____________________ &quot;</td>
</tr>
<tr>
<td>Exhaust muffler shall be mounted:</td>
<td>Cab to axle spacing: ____________________ &quot;</td>
</tr>
<tr>
<td>horizontal: ___________</td>
<td>Yes [ ]       No [ ]</td>
</tr>
<tr>
<td>vertical: ___________</td>
<td>Yes [ ]       No [ ]</td>
</tr>
<tr>
<td>with a vertical exhaust pipe.</td>
<td></td>
</tr>
<tr>
<td>Heavy duty frame, extended in front to accommodate front mounted PTO pump, including any special radiator or engine modifications required for front mount PTO pump</td>
<td></td>
</tr>
<tr>
<td>Frame rails (side rail and reinforcement) shall be continuous full length</td>
<td></td>
</tr>
<tr>
<td>Frame rail yield strength 110,000 PSI (minimum)</td>
<td>Yield Strength: __________ psi</td>
</tr>
<tr>
<td>Section modulus 25&quot;³ minimum</td>
<td>Section Modulus: __________ &quot;³</td>
</tr>
<tr>
<td>Resistant Bending Moment (RBM) 2,600,000 &quot;#</td>
<td>RBM: _______________&quot;#</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

Section 6.10.2 - Single Axle Asphalt Distributor
<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Heavy Duty Front Bumper, Swept back steel channel design (minimum 12&quot;), with Tow Hooks (Front hooks to be frame mounted with access through front bumper by installation contractor)</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
**FILTERS**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Filter shall be replaceable paper type, heavy duty, dual element.</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Capability to switch air intake from outside to under hood from within the cab.</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Oil filters shall be full flow, spin on type.</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Engine shall be equipped with primary and secondary fuel filters.</td>
<td>Yes [ ]  No [ ]</td>
</tr>
<tr>
<td>Engine shall be equipped with water filter.</td>
<td>Yes [ ]  No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________
**ELECTRICAL SYSTEM**

**Minimum Requirements of Local Agency**

<table>
<thead>
<tr>
<th>Provided by Unit</th>
<th>Proposed by Bidder</th>
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</thead>
<tbody>
<tr>
<td><strong>Starter</strong></td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>shall be rated</td>
<td></td>
</tr>
<tr>
<td>Heaviest Duty</td>
<td></td>
</tr>
<tr>
<td>for this</td>
<td></td>
</tr>
<tr>
<td>application by</td>
<td></td>
</tr>
<tr>
<td>the manufacturer.</td>
<td></td>
</tr>
</tbody>
</table>

| **Alternator**   | [ ] Yes [ ] No     |
| shall be 130 amp|                    |
| brushless Delco |                    |
| Remy Model 29-SI|                    |
| type 300, or    |                    |
| equal.          |                    |

| **Engine**       | [ ] Yes [ ] No     |
| shall be        |                    |
| equipped with   |                    |
| a minimum of    |                    |
| three Group 31  |                    |
| heavy duty, 170 |                    |
| amp-hour, 1950  |                    |
| total cold      |                    |
| crank power at  |                    |
| 0 degree F, 15  |                    |
| plates / cell.  |                    |

| **Electrical**    | [ ] Yes [ ] No     |
| system shall be  |                    |
| weatherproof     |                    |
| Betts system,    |                    |
| or equal,        |                    |
| equipped with    |                    |
| circuit breakers.|                    |

| **Special tail**  | [ ] Yes [ ] No     |
| lights shall be  |                    |
| part of the      |                    |
| Asphalt Distributor Specifications. | |

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
FRONT AXLE EQUIPMENT

Minimum Requirements of Local Agency

14,000 # front axle rating

14,000 # suspension

Heavy duty dual power steering gears.

Heavy duty shock absorbers to be factory installed

Front tires to be tubeless, radial type, 11R22.5, load range 14 PR ply rating, rib type tread

Wheels to be 8.25 x 22.5 tubeless rims.
    cast spoke _____
    hub pilot disc _____

Provided by Unit Proposed by Bidder

Front axle rating: ________________ #

Front axle suspension: ________________ #

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Type: ____________________________

Size: ____________________________

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
REAR AXLE EQUIPMENT

Minimum Requirements of Local Agency

23,000 # rear axle rating

23,000 # suspension

Rear auxiliary springs - 4500 # capacity total

Rear tires shall be tubeless, radial type, 11.00R22.5, load range 14 PR ply rating, rib lug type tread

Wheels to be 8.25 x 22.5 tubeless rims.
   cast spoke ____
   hub pilot disc ____

Rear axle to be No-Spin type with automatic positive locking power
   □ Required
   □ Not Required

Provided by Unit Proposed by Bidder

Rear axle rating: ________________ #

Rear axle suspension: ________________ #

Rear auxiliary suspension: ________________ #
   Yes [ ]    No [ ]

Type: ________________

Size: ________________

No-Spin:      Yes [ ]    No [ ]
Automatic Control: Yes [ ]    No [ ]

Describe exceptions to the Specifications:

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________
REAR AXLE EQUIPMENT (con't)

Minimum Requirements of Local Agency

Bidder shall provide an analysis of several rear axle ratios based on the following profile:

Normal Operating Speed: _____ mph

Terrain:
- Level: _____ %
- Rolling: _____ %
- Hilly: _____ %

Total: 100 %

Type of Use:
- Seal Coat: 100%

Note: The decision on the axle ratio will be made based on the analysis included with this Bid and communicated to the Bidder with the acceptance of the Bid. It is requested by the Owner that the rear axle ratio not be the limiting factor for speed. Rather, the speed should be controlled electronically through the transmission, or via the governor. The rear axle ratio shall be that which provides the best fuel economy at the normal highway speed.

Provided by Unit Proposed by Bidder

Analysis Attached:
Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
AIR / BRAKE EQUIPMENT

**Minimum Requirements of Local Agency**

Service air brakes shall be dual air, with anti-lock braking system.

Shoe size to be 16.5" x 5" S-cam front, and 16.5" x 7" S-cam rear.

Air compressor to be 13.2 cfm minimum.

Air compressor shall be equipped with Bendix AD-9 air dryer, or equal.

Parking brake shall be piggy-back, spring actuated, dual diaphragm, min. 30 sq. in.

Pancakes shall be mounted in front of rear axle with 4" clearance from the tires.

Unit shall be equipped with 25 ft of standard air hose with a quick connect/disconnect coupler mounted within the cab or tool box. A hand nozzle shall also be provided with the same type of coupler.

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<th>Provided by Unit Proposed by Bidder</th>
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<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
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<table>
<thead>
<tr>
<th>Shoe size</th>
<th>Front:</th>
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<tbody>
<tr>
<td></td>
<td>Rear:</td>
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<table>
<thead>
<tr>
<th>Capacity:</th>
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<tbody>
<tr>
<td>cfm</td>
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<tr>
<th>Make:</th>
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<tr>
<th>Model:</th>
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<th>Size:</th>
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<tr>
<td>sq. in</td>
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<th>Yes [ ] No [ ]</th>
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</table>

Describe exceptions to the Specifications:

__________________________________________________________________

__________________________________________________________________

__________________________________________________________________
FUEL TANKS

Minimum Requirements of Local Agency

The fuel tank(s) shall have a total combined capacity of at least 80 gallons.

A fuel/water separator shall be included in the fuel system.

Each tank shall be clearly marked DIESEL FUEL ONLY.

Provided by Unit Proposed by Bidder

Dual tanks: Yes [ ] No [ ]
Left tank capacity: ____________ gal
Right tank capacity: ____________ gal

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.10.2 - Single Axle Asphalt Distributor
CAB

**Minimum Requirements of Local Agency**

Cab shall be equipped with the following standard features:

- Ventilated and insulated
- All window tinted glass
- Door operated dome light
- Cigar lighter
- Rigid cab mount
- Driver's seat to be Bostrum Air, intermediate back, or equal
- Companion's seat, placed at least 13" from driver's seat
- Dual air horns
- Heavy duty heater and defroster
- Dual sun visors
- Dual arm rests
- Insulated head liner
- AM/FM Radio
- Intermittent electric windshield wipers, to be mounted at top of windshield, if available
- Driver operated electric right side window
- Dual bright finish, West Coast style mirrors (16" x 7"), with 8" adjustable convex mirror, both sides
- Exterior grab handles
- Locking hand throttle
- Marker lights

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<td>Yes [ ] No [ ]</td>
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<td>Yes [ ] No [ ]</td>
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**Describe exceptions to the Specifications:**

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.10.2 - Single Axle Asphalt Distributor
CAR (con't)

Minimum Requirements of Local Agency

Dash mounted gauges:
  Fuel
  Tachometer
  Hour meter (Hobb's or equal)
  Ammeter (needle type, calibrated)
  Oil pressure
  Water temperature
  Air pressure
  Transmission temperature

High water temperature/low oil pressure emergency shutdown / alarm mechanism shall be dash mounted.

Tilt hood shall be capable of opening over stationary grill and shall be solid with an access hatch, each side.

Paint color shall be______________________.

Paint color is______________________.

Provided by Unit Proposed by Bidder

<table>
<thead>
<tr>
<th>Yes [ ]</th>
<th>No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
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<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
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<td>Yes [ ]</td>
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<td>Yes [ ]</td>
<td>No [ ]</td>
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<td>Yes [ ]</td>
<td>No [ ]</td>
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<td>Yes [ ]</td>
<td>No [ ]</td>
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<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Section 6.10.2 - Single Axle Asphalt Distributor
PART 2 - ASPHALT DISTRIBUTOR

Minimum Requirements of Local Agency

Tank shall be 2250 U.S. gallons and elliptical in shape with 10 gage steel shell, 7 gage reinforced ends with full cross-section and 10 gage surge plates with staggered openings with minimum 2 inches of insulation and weatherproof aluminum jacket.

Provided by Unit Proposed by Bidder

Tank Capacity: __________ U.S. gallons

Steel Shell: __________ gage

Reinforced elliptical ends: __________ gage

Surge Plates: __________ gage

Staggered openings in surge plates:
Yes [ ] No [ ]

Insulation thickness: __________ inches

Weatherproof aluminum jacket:
Yes [ ] No [ ]

Openings in the surge plate shall be large enough to allow a person to crawl through

Heads shall be flanged and electronically welded both inside and outside to the shell.

Manhole with minimum diameter of 20 inches with quick opening cover and overflow capability.

Overflow shall extend at least 6 inches above the liquid and drain through the bottom in such a location as to clear all chassis members.

Measuring stick in 50 U.S. gallon increments shall be attached to manhole.

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.10.2 - Single Axle Asphalt Distributor
**ASPHALT DISTRIBUTOR (con’t)**

**Minimum Requirements of Local Agency**

<table>
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<tr>
<th>Provided by Unit Proposed by Bidder</th>
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<tr>
<td>Yes [ ] No [ ]</td>
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<tr>
<td>Yes [ ] No [ ]</td>
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</tbody>
</table>

<table>
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<tr>
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<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

There shall be a strainer around the manhole.

Tank shall have no-slip catwalk.

Tank gage shall be float type, with dial calibrated in 50 U.S. gallon increments. Located at front and rear of tank.

Tank shall meet Federal DOT regulations for transporting hot asphalt.

 Shall be a dual, “U” type flues minimum 6 inches inside diameter with vertical exhaust.

Exhaust shall be made of 14 gage stainless steel and at rear of the tank with hood.

Burners to be:

- [ ] LPG w/pressure regulators and plumbing to connect to 50 U.S. gallon (minimum) frame mount tank, outfire control and minimum 600,000 BTU per hour. LPG system shall have electronic control for ignition, out fire, and temperature limit and minimum 600,000 BTU per hour.

- [ ] Diesel fired burners shall be self-contained w/ electronic ignition.

Thermostatic controls for propane burners.

Describe exceptions to the Specifications:

________________________________________

________________________________________

________________________________________

Section 6.10.2 - Single Axle Asphalt Distributor
**ASPHALT DISTRIBUTOR** (con't)

**Minimum Requirements of Local Agency**

The bitumen pump shall be positive displacement, rotary gear type with a minimum capacity of 400 gallons per minute.

Pump shall be located under and below the bottom level of the tank so the material will flow vertically from the suction to the discharge insuring complete drainage when tank contents valve is closed.

Self flushing line from fuel tank that includes minimum of 20-gallon capacity fuel tank with float level gauge (located away from burners).

Suction strainer.

Liquid sampling valve in hot well.

Full circulating spray bar that is ____ feet in length and hinged to permit folding for traveling. Length of spray in folded position shall not exceed 8 feet.

Nozzles on the spraybar are to be spaced on 4” centers. A set of brass, slotted, high volume nozzles shall be supplied.

Bar extensions will relieve fore and aft to provide for obstructions.

**Provided by Unit Proposed by Bidder**

______ gallons per minute

Yes [ ]   No [ ]

Yes [ ]   No [ ]

Yes [ ]   No [ ]

Yes [ ]   No [ ]

Yes [ ]   No [ ]

Yes [ ]   No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.10.2 - Single Axle Asphalt Distributor
**Minimum Requirements of Local Agency**

<table>
<thead>
<tr>
<th>Provided by Unit</th>
<th>Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric-air on-off in 1 foot increments, full length of the bar, operated from cab.</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Power extensions beyond 8 foot standard width controlled from cab.</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Electric/hydraulic power bar lift, shift and wing; switches from front to rear.</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Power wash down system with electric fuel pump and 15' hose with gun</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Power bar latches</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>Bar end markers</td>
<td>Yes [ ]</td>
</tr>
<tr>
<td>The cab shall be equipped with automatic application rate control to monitor gallons per minute, feet per minute, feet traveled, or gallons per square yard, and spray bar width. The controls shall accurately apply application rates regardless of changes in speed or bar width.</td>
<td>Yes [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
ASPHALT DISTRIBUTOR (con’t)

Minimum Requirements of Local Agency

The cab shall be equipped with the following:

- Circulate/spray control,
- Powered controls for main tank valve,
- Rear suction valve and master power controls,
- Tank “low level” indicator light in control panel.

- Radar ground speed measurement.

- Air solenoid valves and hydraulic solenoid valves are to be mounted accessible and serviceable from ground without climbing on the machine.

- Tank shall have 4 inch dial thermometer on side of tank in pipe well.

- Tank shall come with armored pencil inspectors type thermometer up to 500 degrees Fahrenheit type.

- The unit shall have a hydrostatic transmission consisting of:
  - A pump that has infinitely variable displacement axial piston pump,
  - Fixed displacement motor
  - Operation speed to be 2800 RPM

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Yes [ ] No [ ]
Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Section 6.10.2 - Single Axle Asphalt Distributor
ASPHALT DISTRIBUTOR (con’t)

**Minimum Requirements of Local Agency**

- Hydraulic oil to reach 200 degrees w/out damage to the unit
- Internal valving with relief valve and high oil temperature signal in cab
- Crankshaft driven hydrostatic pump driving motor direct coupled to 400 GPM asphalt pump.
- Electronics for setting up asphalt pump discharge rate to be located in truck cab.
- Override control to be located in truck cab and at rear of unit.

**Functions and Accessories:**

- Fill tank by Distributor pump from an outside source,
  - Circulate material in tank,
  - Circulate material in spray bar,
  - Spray at a constant desired application rate, despite the variance in truck speed,
  - Return material in spray bar to tank by pump suction
  - Transfer from one outside source to another without having material enter the tank,
  - Pump material back to supply source,
  - Automatically go from circulate in spray bar to tank by pump suction

<table>
<thead>
<tr>
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<tr>
<td>Yes [ ] No [ ]</td>
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<td>Yes [ ] No [ ]</td>
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<tr>
<td>Yes [ ] No [ ]</td>
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</table>

Describe exceptions to the Specifications:


Section 6.10.2 - Single Axle Asphalt Distributor
ASPHALT DISTRIBUTOR (con't)

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functions and Accessories (con't)</td>
<td></td>
</tr>
<tr>
<td>All steel tool box shall be provided,</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Fenders and mud flaps shall be provided,</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Provide hand spray gun with cold handle and at least one nozzle and 25 feet of 1 inch flexible</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>rubber hand spray hose,</td>
<td></td>
</tr>
<tr>
<td>Turn signals shall be provided at rear of distributor,</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>All lights shall meet Federal requirements, including reflectors, clearance, and identification lights,</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>All necessary special tools for operation and maintenance of the distributor shall be provided,</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Rear bumper,</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Back-up alarm, 87-112 dB range, automatically adjusting</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>15 feet steel transfer hose,</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Front and rear tank gage.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Self-flushing system to clean the entire circulating system with minimum amount of flushing oil.</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

Section 6.10.2 - Single Axle Asphalt Distributor
WARRANTY / REPAIR PARTS

Minimum Requirements of Local Agency

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts Book, Service Manual and Operator’s Manual to be provided.

Highest consideration will be given to those Bidders whose Truck warranty facility is located nearest the Owner’s base of operations, which is located at:


Highest consideration will be given to those Bidders whose Asphalt Distributor warranty facility is located nearest the Owner’s base of operations, which is located at:


Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

Describe exceptions to the Specifications:


Provided by Unit Proposed by Bidder

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Location of Truck warranty facility:


Distance from Owner’s base of operations:


Location of Asphalt Distributor warranty facility:


Distance from Owner’s base of operations:


___ % available within 48 hours (Truck)

___ % available within 48 hours (Distributor)
DATE OF DELIVERY

Minimum Requirements of Local Agency

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner's base of operations.

Provided by Unit Proposed by Bidder

_________ hours delivery for PM Parts
(Truck)

_________ hours delivery for PM Parts
(Distributor)

Unit must be delivered to the Owner with all attachments and components substantially completed, within ___________ days of the acceptance of the bid.

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of ___________ $/day for each calendar day of delay after the Owner's specified date of delivery.

Estimated Delivery Time: ___________ days

Describe exceptions to the Specifications:

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

Section 6.10.2 - Single Axle Asphalt Distributor
BASE PRICE FOR UNIT BEING BID

$__________

ADD-ON ALTERNATES

Factory installed air conditioning

Add: $__________

Cd Player

Add: $__________

DEDUCT ALTERNATES

Trade In(s)

Deduct: $__________

Year: ____________________________

Make: ____________________________

Model: ____________________________

S/N: ____________________________

Location: ____________________________

Net Price: $__________

Bidder Name, Address, Phone, Contact:

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

Describe exceptions to the Specifications:

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________
6.10.3 Asphalt Distributer - Vendor List

Section 1 - All Vendors

*All reports are sorted first by district, then alphabetically.*
<table>
<thead>
<tr>
<th>District: EC (East Central)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MacAllister Equipment Co.</td>
<td>317-545-2151</td>
<td>317-543-0310</td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td></td>
<td>7137 E 30th Street</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indianapolis</td>
<td>IN</td>
<td>46206</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>McDowall Machinery Co.</td>
<td>317-856-3000</td>
<td>317-856-0200</td>
<td></td>
<td>Henke Industrial, Case, Rosco</td>
</tr>
<tr>
<td></td>
<td>4445 Decatur Blvd</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indianapolis</td>
<td>IN</td>
<td>46241</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Southeastern Equipment Co.</td>
<td>317-872-4877</td>
<td>317-872-2811</td>
<td>David Cooper</td>
<td>Hyundai, Htinye</td>
</tr>
<tr>
<td></td>
<td>4951 W. 56th St.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indianapolis</td>
<td>IN</td>
<td>46268</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District: NE (Northeast)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>219-483-6469</td>
<td></td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td>Ft. Wayne</td>
<td>IN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McDowall Machinery Co.</td>
<td>219-747-1561 219-747-6367</td>
<td></td>
<td></td>
<td></td>
<td>Henke Industrial, Case, Rosco</td>
</tr>
<tr>
<td>1911 Limestone Dr.</td>
<td>Ft. Wayne</td>
<td>IN</td>
<td>46809</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southeastern Equipment Co.</td>
<td>219-483-8868 219-483-5448</td>
<td></td>
<td></td>
<td>Dan Kreager</td>
<td>Hyundai, Htinye</td>
</tr>
<tr>
<td>3333 W. Coliseum Blvd.</td>
<td>Ft. Wayne</td>
<td>IN</td>
<td>46806</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District: NW (Northwest)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
</table>
### District: NW (Northwest)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>219-288-6622</td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td>South Bend IN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| McDonald Machinery Co.          | 219-271-0800 219-271-0889 |          |                 | Henke Industrial, Case, Rosco              |
| 62401 Ralph Jones Drive         |           |          |                 |                                            |
| South Bend IN                  |           |          |                 |                                            |
| 46828                          |           |          |                 |                                            |

### District: OS (Out of State)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearcat Mfg.</td>
<td>520-684-7051 520-684-5876</td>
<td></td>
<td>Rick Holl</td>
<td>Bearcat</td>
</tr>
<tr>
<td>3650 Sabin Brown Rd</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vicksburg AZ</td>
<td>85390</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### District: WC (West Central)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>812-877-9773</td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td>Terre Haute IN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| MacAllister Equipment Co.      | 317-423-5553 |          |                 | Henke Industrial, Caterpillar, Rosco       |
| W. Lafayette IN                |           |          |                 |                                            |

| McDonald Machinery Co.          | 765-742-2080 765-742-2899 |          |                 | Henke Industrial, Case, Rosco              |
| 2651 SR 25                     |           |          |                 |                                            |
| Lafayette IN                   |           |          |                 |                                            |
| 47905                          |           |          |                 |                                            |

End of report.
6.11

Spray Injection
Patching Machine
6.11 Spray Injection Patching Machine

6.11.1 Spray Injection Patching Machine Specifications

6.11.2 Spray Injection Patching Machine Vendor List
6.11.1 Spray Injection Patching Machine

Task Force

Tom Martin  Program Manager  Indiana LTAP
John Habermann  Research Engineer  Indiana LTAP
Chuck Everett  Utilities Manager  Town of Flora
Larry Campbell  Fleet Manager  Allen County
Larry Lee  Street Commissioner  City of Lebanon

Owner Input Checklist

Owner input is required on the following pages of this Specification:

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bid Bond Amount</td>
</tr>
<tr>
<td>3</td>
<td>Engine Options Desired</td>
</tr>
<tr>
<td>8</td>
<td>Paint color</td>
</tr>
<tr>
<td>11</td>
<td>Owner’s base of operations</td>
</tr>
<tr>
<td>12</td>
<td>Delivery schedule</td>
</tr>
<tr>
<td>12</td>
<td>Penalty for late delivery</td>
</tr>
<tr>
<td>13</td>
<td>Add-on and Deduct Alternates</td>
</tr>
</tbody>
</table>

Section 6.11.1 - Spray Injection Patching Machine
SPECIFICATIONS

for

Spray Injection Patching Machine

GENERAL

It is the intent of these specifications to describe a new spray injection patching machine in sufficient detail to secure bids on comparable equipment. The unit is to be trailer mounted and designed to repair potholes, cracks, and broad distressed areas in paved surfaces. The unit shall be capable of clearing all debris from the area to be patched, including water, sand, and gravel up to 2½ in in diameter. The unit shall be capable of applying a uniform coat of tack oil to the area to be patched, then filling the void with aggregate uniformly coated with asphalt emulsion.

All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The spray injection patching machine shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best known engineering standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform with the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, with Non Collusion Affidavit and Bid Bond equal to _________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owners’s evaluation of the bids.
Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

Term "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
ENGINE AND BLOWER SYSTEM

Minimum Requirements of Local Agency

Engine shall be water cooled naturally aspirated diesel, rated gross power of 80 bhp (min).

The engine shall be equipped with the following checked items:

- Electric start
- Alternator, 60 amp min
- Voltage regulator
- Heavy duty 12v battery, 850 cca min
- Dry type air cleaner
- Disposable element oil filter
- Heavy duty cooling system

Engine must be enclosed within an engine compartment equipped with an access door.

Blower shall coupled directly to the flywheel of the engine and capable of producing 450 cfm at 7 psi at 1500 rpm.

The blower unit shall be protected from overheating by a popoff valve set at 10 psi.

Provided by Unit Proposed by Bidder

Engine horsepower __________

Engine make __________

Engine model __________

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

____ cfm @ _____ psi @ 1500 rpm

Yes [ ] No [ ]

Describe exceptions to the Specifications:

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

Section 6.11.1 - Spray Injection Patching Machine
ENGINE AND BLOWER SYSTEM, cont

Minimum Requirements of Local Agency

The blower shall receive intake air from an easily accessible paper element filter of not less than 300 sq in surface area and covered with a foam pre-cleaner element.

The heavy duty air compressor shall be directly driven by the engine, and capable of producing a continuous pressure and 12 cfm of air volume.

Provided by Unit Proposed by Bidder

Yes [ ]    No [ ]

Air volume provided ___________ cfm

Describe exceptions to the Specifications:

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

Section 6.11.1 - Spray Injection Patching Machine
AGGREGATE HANDLING SYSTEM

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>The unit shall be supplied with a modified tailgate for the towing truck for direct feed of the aggregate to the hopper box of the patching machine.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>The hopper box shall be equipped with a safety screen hinged and secured in place which will allow passage of aggregate no greater than 2½ in in diameter.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>The aggregate conduit shall consist of an abrasion resistant 3 in (min) ID schedule 40 pipe connected to a 3 in (min) ID non-kinking reinforced rubber hose. Rubber hose to be neoprene lined and fitted with a flow nozzle.</td>
<td>Conduit and hose ID ___________ in</td>
</tr>
<tr>
<td>The unit shall not produce overspray of the material and shall keep the operator clean and free of emulsion and aggregate.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>The system shall allow the operator to spray at any engine speed between 1200 and 1800 rpm and to vary the engine speed at any time without any adjustments to the machine other than the throttle setting.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>The unit must be capable of dispensing aggregate ¼ to 1¼ in topsize at a rate of at least 125 lbs/min.</td>
<td>Aggregate size range _______ to _______</td>
</tr>
<tr>
<td>Patching rate _________________ lbs/min</td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

____________________________________________________________________
____________________________________________________________________
EMULSION HANDLING AND HEATING SYSTEM

Minimum Requirements of Local Agency

The emulsion tank shall be an ASME pressure vessel certified for a 200 psi working pressure at 500°F with a 250 gal min capacity.

It shall be insulated with a minimum of 2 in fire retardant fiberglass or urethane, covered with weather tight steel or fiberglass jacket.

The emulsion tank shall be heated by one or more thermostatically controlled heater blankets or heating elements, having a total wattage of at least 3000 watts.

Atomized asphalt spray within the nozzle shall be capable of 100% coating of the aggregate prior to discharge.

The heating system shall be capable of operating continuously without damage to the heating elements or other components, regardless of whether the tank is full or empty.

The emulsion system shall be capable of operating at temperatures as low as 20°F.

The entire emulsion handling system shall be heated for low temperature operation by circulation of a heated fluid. The fluid shall pass through the emulsion tank and continue out to the boom and spray nozzle.

Provided by Unit Proposed by Bidder

Pressure Rating ______ psi at ______° F
Capacity _________ gal

Insulation thickness __________ in
" type _________________________

Total wattage provided __________
@ __________ volts

Yes [ ] No [ ]

Yes [ ] No [ ]

Min operating temp __________° F

Describe emulsion heating system

Describe exceptions to the Specifications:

________________________________________

________________________________________

________________________________________
EMULSION HANDLING AND HEATING SYSTEM, cont'

Minimum Requirements of Local Agency

A system shall be provided for using diesel fuel to clean the system of excess emulsion. The reservoir for the diesel fuel shall have a capacity of at least 9 gal. The entire emulsion system shall be cleaned by this system.

Tank should be equipped with contents gauge, easily visible to the operator and 5 in dial type thermometer.

Tank shall be equipped with an 8 in (min) quick open access hatch.

Provided by Unit Proposed by Bidder

Describe cleaning system


Contents gauge  Yes [ ]  No [ ]
Thermometer  Yes [ ]  No [ ]
Access hatch _______________ in

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.11.1 - Spray Injection Patching Machine
**TRAILER**

**Minimum Requirements of Local Agency**

The trailer frame shall be constructed of 1/4 in steel rectangular tubing and have an empty weight of at least 5000 lb.

Tandem axle suspension with 6000 lb capacity each axle and individual leaf springs at each wheel with 3000 lb capacity.

Tires shall be ST225/75R-15, load range C, mounted on disc wheels, with fenders.

Trailer shall have electric brakes rated at 2600 lb each, with brake-away unit.

Trailer to be equipped with brake, tail and directional lights as required by FMVSS requirements.

Trailer to have an elevated amber safety strobe light.

Hitch to be adjustable height pintle type, with safety chains.

Unit is to be painted ________________

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empty weight _________________ lb</td>
</tr>
<tr>
<td>Axle rating _________________ lb, each</td>
</tr>
<tr>
<td>Spring rating _________________ lb, each</td>
</tr>
<tr>
<td>Tire size ______________________</td>
</tr>
<tr>
<td>Wheel type _____________________</td>
</tr>
<tr>
<td>Brake capacity _________________ lb, each</td>
</tr>
</tbody>
</table>

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Unit will be painted ________________

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
**BOOM AND HOSE CARRIER**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexible hose, nozzle, and operator controls shall be fully supported by a boom mounted to the trailer frame.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Boom assembly shall allow the operator to repair an area within a 17 ft (min) working radius of the boom pivot point.</td>
<td>Work radius __________ ft</td>
</tr>
<tr>
<td>Operator controls shall be provided at the end of the boom for controlling the flow of aggregate and emulsion, as well as engine speed and a signal horn.</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>The boom shall be designed so that the operator is able to patch an area near the centerline of the road without any portion of the boom or operator intruding into the opposite lane of traffic.</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
### INSTRUMENTATION/CONTROLS

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumentation shall be provided to monitor:</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Fuel level</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine oil pressure</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Engine coolant temperature</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Voltmeter</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Tachometer</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Hourmeter</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Automatic shutdown shall be provided for</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>High coolant temperature</td>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Low engine oil</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________

________________________

________________________

Section 6.11.1 - Spray Injection Patching Machine
WARRANTY / REPAIR PARTS/REFERENCES

Minimum Requirements of Local Agency

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts, Service and Operators Manual to be included.

Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner’s base of operations, which is located at


Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance (pm) items such as filters, belts, and hoses shall not exceed 24 hours to the Owner’s base of operations.

Bidder shall provide a reference list, including contact information, for units currently in operation in Indiana or surrounding states.

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Location of warranty facility:


Distance from Owner’s base of operations:


% available within 48 hours


hours delivery for pm parts

References attached Yes [ ] No [ ]

Describe exceptions to the Specifications:


Section 6.11.1 - Spray Injection Patching Machine
DATE OF DELIVERY

Minimum Requirements of Local Agency

Unit must be delivered to the Owner with all attachments and components substantially completed, within ____________ days of the acceptance of the bid.

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of ____________ $/day for each calendar day of delay after the Owner’s specified date of delivery.

Provided by Unit Proposed by Bidder

Estimated Delivery Time: ____________ days

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.11.1 - Spray Injection Patching Machine
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

☐ Crack filling attachment  Add: ____________ $

☐ Arrow board attachment  Add: ____________ $

☐ Hydraulic Tailgate Feeder  Add: ____________ $

DEDUCT ALTERNATES

☐ Trade In(s)  Deduct: ____________ $

Year: ____________________________
Make: ____________________________
Model: ____________________________
S/N: ____________________________
Location: ____________________________

Net Price: ____________ $

Bidder Name, Address, Phone, Contact:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Section 1 - All Vendors

*All reports are sorted first by district, then alphabetically.*
### District: EC (East Central)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deeds Equipment Co., Inc.</td>
<td>317-545-3331</td>
<td>317-545-3334</td>
<td>Dan Brennan</td>
<td>Galion, Hiway, Root, Swenson, Airflo, Crafo AMZ</td>
</tr>
<tr>
<td>7720 Record St.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indianapolis</td>
<td>IN</td>
<td>46226</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MacAllister Equipment Co.</td>
<td>317-545-2151</td>
<td>317-543-0310</td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td>7151 E 30th Street</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indianapolis</td>
<td>IN</td>
<td>46206</td>
<td></td>
<td></td>
</tr>
<tr>
<td>McDonald Machinery Co.</td>
<td>317-856-3000</td>
<td>317-856-0200</td>
<td></td>
<td>Henke Industrial, Case, Rosco</td>
</tr>
<tr>
<td>4445 Deer Run Blvd</td>
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<td></td>
<td></td>
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<tr>
<td>Indianapolis</td>
<td>IN</td>
<td>46241</td>
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### District: NE (Northeast)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>219-483-6469</td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td>Ft. Wayne</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McDonald Machinery Co.</td>
<td>219-747-1561</td>
<td>219-747-6367</td>
<td></td>
<td>Henke Industrial, Case, Rosco</td>
</tr>
<tr>
<td>3931 Limestone Dr.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ft. Wayne</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>IN</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### District: NW (Northwest)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deeds Equipment Co., Inc.</td>
<td>219-784-2500</td>
<td>219-784-2636</td>
<td></td>
<td>Galion, Hiway, Root, Swenson, Airflo, Crafo AMZ</td>
</tr>
<tr>
<td>2203 N. Michigan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plymouth</td>
<td>IN</td>
<td>46563</td>
<td></td>
<td></td>
</tr>
<tr>
<td>District: NW (Northwest)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>--------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company Name and Address</td>
<td>Phone</td>
<td>Fax</td>
<td>Contact</td>
<td>Manufacturers Represented</td>
</tr>
<tr>
<td>MacAllister Equipment Co.</td>
<td>219-288-6622</td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td>South Bend</td>
<td>IN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McDonald Machinery Co.</td>
<td>219-271-0800</td>
<td>219-271-0889</td>
<td></td>
<td>Henke Industrial, Case, Rosco</td>
</tr>
<tr>
<td>52401 Ralph Jones Drive</td>
<td></td>
<td>IN 46628</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District: WC (West Central)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Name and Address</td>
</tr>
<tr>
<td>Equipment Marketing Services</td>
</tr>
<tr>
<td>PO Box 697</td>
</tr>
<tr>
<td>Cloverdale</td>
</tr>
<tr>
<td>MacAllister Equipment Co.</td>
</tr>
<tr>
<td>Terra Haute</td>
</tr>
<tr>
<td>MacAllister Equipment Co.</td>
</tr>
<tr>
<td>W. Lafayette</td>
</tr>
<tr>
<td>McDonald Machinery Co.</td>
</tr>
<tr>
<td>2891 SR 25</td>
</tr>
</tbody>
</table>

End of report.
6.12

Wheel Excavator
6.12.1 – Telescoping Boom Wheeled Excavator

Task Force:

Tom Martin  Program Manager   Indiana LTAP
Jerry Larson  Training Specialist   Indiana LTAP
John Habermann  Research Engineer   Indiana LTAP
Larry Campbell  Fleet Manager   City of Fort Wayne
Wanda Hartman  Supervisor   Union County

Owner Input Checklist:

Owner input is required on the following pages of this Specification.

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[]</td>
<td>1  Bid Bond Amount.</td>
</tr>
<tr>
<td>[]</td>
<td>4  4 Wheel Drive Option.</td>
</tr>
<tr>
<td>[]</td>
<td>11 Counter Weight Option.</td>
</tr>
<tr>
<td>[]</td>
<td>11 Cold Weather Starting Aid.</td>
</tr>
<tr>
<td>[]</td>
<td>11 Quick Attach / Detach Option.</td>
</tr>
<tr>
<td>[]</td>
<td>13 Owner’s Base of Operations.</td>
</tr>
<tr>
<td>[]</td>
<td>14 Delivery Time and Penalty.</td>
</tr>
<tr>
<td>[]</td>
<td>15 Deduct Alternates (Trade-in information).</td>
</tr>
</tbody>
</table>

NOTE:
At the time these specifications were assembled, the following models are believed to be in substantial compliance with the specifications. This list may or may not represent a complete listing of all makes and models currently manufactured in conformance with the specifications.

Terex 2205 M, Gradall XL 3100, Badger 460

Section 6.12.1 – Telescoping Boom Wheeled Excavator
SPECIFICATIONS

For

Telescoping Boom Wheel Excavator

GENERAL

It is the intent of these specifications to describe a Telescoping Boom Wheel Excavator to be used for digging operations of the local agency, with sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be current model, new equipment, under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to be the best known Engineering Standards of the trade, relative to design, strength, quality, durability, and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any unit not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform to the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on the approved local agency bid form, with Non Collusion Affidavit and Bid Bond equal to _________ of the bid price. Bidder shall complete blanks in the right hand column of specifications under the heading “Provided on Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owner’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered and all attachments and options with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.
The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

**Term** “or Equal” Where the term “or equal” is used in these specifications and Bidder deviates from the specified item, shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same, and after a properly authorized representative of the “local agency” has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
PART 1- GENERAL INFORMATION

Minimum Requirements of Local Agency

Operating weight: 39,000 pounds minimum.
Travel height: 12’ maximum.

ENGINE

6 cylinders, four cycle, turbo-charged with the following minimum specifications:

Horsepower (SEA Gross), min. 190 HP.
Torque (SAE NET) Min. 520 ft-lb.

Provided on Unit Proposed by Bidder

Operating weight ____________ pounds
Travel height _____ feet ____ inches

Make: ______________________
Model: ______________________

Horsepower
SAE Gross ____________________
SAE Net ______________________

Torque:____________________ SAE NET @ ______________________ RPM

[] Yes [] No
[] Yes [] No
[] Yes [] No
[] Yes [] No
[] Yes [] No
[] Yes [] No
[] Yes [] No
[] Yes [] No

Radiator capacity: ___________ Gallons

Describe exceptions to the specifications:
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
**PART 1 – GENERAL CONT.**

Minimum Requirements of Local Agency

<table>
<thead>
<tr>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRANSMISSION</strong></td>
</tr>
<tr>
<td>Heavy Duty Manual</td>
</tr>
<tr>
<td>9 speeds forward.</td>
</tr>
<tr>
<td>2 speeds reverse.</td>
</tr>
<tr>
<td>Top speed forward, 50 mph min</td>
</tr>
<tr>
<td><strong>CLUTCH</strong></td>
</tr>
<tr>
<td>Hydraulic actuated pull type 2 plate organic disk</td>
</tr>
<tr>
<td><strong>DRIVELINE:</strong></td>
</tr>
<tr>
<td>4 wheel drive.</td>
</tr>
<tr>
<td>2 wheel drive.</td>
</tr>
<tr>
<td>Differential lock.</td>
</tr>
<tr>
<td><strong>TIRES</strong></td>
</tr>
<tr>
<td>Front: 10.00 X 20, 14 Ply rating.</td>
</tr>
<tr>
<td>Rear: 10.00 X 20, 14 Ply rating.</td>
</tr>
</tbody>
</table>

Describe exceptions to the specifications:

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

Section 6.12.1 – Telescoping Boom Wheeled Excavator
### PART 1- GENERAL CONT

**Minimum Requirements of Local Agency**

**Provided by Unit Proposed by Bidder**

#### BRAKES:

- Shall be 4 one each wheel 16.5 x 7.  
  - [ ] Yes  [ ] No

- Cam actuated, air operated, must be sealed and enclosed to allow operation in water, mud, snow, and other adverse conditions without encountering brake failure.  
  - [ ] Yes  [ ] No

- Air operated and shall and be of sufficient design to hold the weight of the machine on a 30-degree slope.  
  - [ ] Yes  [ ] No

#### HYDRAULIC SYSTEM:

- Dual pumps load sensing piston type 0-65 GPM.  
  - [ ] Yes  [ ] No

- Relief pressure at 4500-psi minimum.  
  - Relief pressure ________ psi

- Minimum hydraulic tank capacity of 20 gallons w/sight glass.  
  - Tank capacity of ______ gallons

- Hoses routed through alignment clamps and have SAE standard fittings.  
  - [ ] Yes  [ ] No

- Hydraulic system filter, 10 micron, maximum.  
  - [ ] Yes  [ ] No

- Multiple attachment hydraulic circuit.  
  - [ ] Yes  [ ] No

Describe exceptions to the Specifications:

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________
PART 1 – GENERAL CONT.

Minimum Requirements of Local Agency

ELECTRICAL SYSTEM:

2 – 12 Volt batteries with 810 CCA.

[ ] Yes  [ ] No

Starter shall be rated at the heaviest duty for this application by the manufacturer.

Starter: ______________________
Type: ______________________

Alternator shall be minimum of 100 amps.

[ ] Yes  [ ] No

4 front floodlights.

[ ] Yes  [ ] No

4 rear floodlights.

[ ] Yes  [ ] No

2 rear tail and stop lights.

[ ] Yes  [ ] No

Turn signals, front and rear.

[ ] Yes  [ ] No

4 – way flashers.

[ ] Yes  [ ] No

Describe exceptions to the Specifications:

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
PART 2- OPERATOR STATION / ENVIRONMENT

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHASSIS CAB</strong></td>
<td></td>
</tr>
<tr>
<td>One person, left hand mount, with noise suppression and with roll – over protection.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Tilt steering wheel.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Rear view mirror internal.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Dual outside cab mirrors.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Windshield washer/wipers.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td><strong>UPPERSTRUCTURE CAB</strong></td>
<td></td>
</tr>
<tr>
<td>All weather cab with noise suppression.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Tinted glass.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Skylight.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Dome light.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Front window slides to overhead storage.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Windshield washer/wipers front and rear.</td>
<td>[ ] Yes [ ] No</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

Section 6.12.1 – Telescoping Boom Wheeled Excavator
### Part 2 – OPERATOR STATION / ENVIRONMENT (CONT)

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
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</thead>
<tbody>
<tr>
<td>BOTH CABS</td>
<td></td>
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<tr>
<td>High output heater defroster 20,000 BTU.</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Air conditioning factory installed (134A).</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>AM/FM Radio factory installed.</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Dual outside cab mirrors.</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Deluxe suspension cloth seat air or Mechanical.</td>
<td>[] Air  [] Mechanical</td>
</tr>
<tr>
<td>Height adjustable</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Weight adjustable</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Leg reach adjustable</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Back angle adjustable</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Seat belt 3” retractable</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Arm rest adjustable</td>
<td>[] Yes  [] No</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
<table>
<thead>
<tr>
<th>INSTRUMENTS:</th>
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<tbody>
<tr>
<td>Tachometer</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Fuel Gauge</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Transmission oil temp.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Engine coolant temp.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Engine oil press.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Electric hour meter</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Electric voltage</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Speedometer</td>
<td>[ ] Yes [ ] No</td>
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</table>

<table>
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<tr>
<th>VISUAL WARNINGS:</th>
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<tbody>
<tr>
<td>Engine coolant syst.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Engine oil press syst.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Parking brake warn.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Fasten Seat Belt</td>
<td>[ ] Yes [ ] No</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>AUDIBLE WARNINGS:</th>
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<tbody>
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<td>Engine coolant syst.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Engine oil syst.</td>
<td>[ ] Yes [ ] No</td>
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</tbody>
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<table>
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<tr>
<th>FILTER RESTRICTIONS INDICATOR:</th>
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<tbody>
<tr>
<td>Air</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Transmission oil</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Hydraulic</td>
<td>[ ] Yes [ ] No</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
PART 4 – BOOM

Minimum Requirements of Local Agency

DIGGING SPECIFICATIONS:

Minimum dig depth: 19’

Minimum reach from center pivot: 27’

Minimum loading height: 16’

Minimum loading reach: 18’

Bucket must tilt 110 degrees each side or center

Minimum swing arc 360 degrees.

Minimum lifts capacity 4000 lbs.

Minimum digging force:
Boom  18,000 lbs
Bucket  8,000 lbs

Provided on Unit Proposed by Bidder

Depth: _______ ’

Reach: _______ ’

Loading Height:__________ ’

Loading reach:___________ ’

[ ] Yes    [ ] No

Swing _________ Degrees

Capacity ________ lbs

Digging force:
Boom _________ lbs
Bucket _________ lbs

Describe exceptions to the Specifications:
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
### Minimum Requirements of Local Agency

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>Counterweight, ________ pounds.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cold weather starting aid. [] Yes [] No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automatically adjusting reverse warning 89-112 db.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMV emblem.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lockable doors.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete lock – up vandal protection.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All locks shall be keyed the same.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel tank 70 U.S. gallons minimum.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire extinguisher.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bottom guard for engine and transmission.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quick detach and attach for bucket. [ ] Yes [ ] No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Provide on Unit Proposed by Bidder

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>counterweight ________ lbs</td>
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<td></td>
</tr>
<tr>
<td>[] Yes</td>
<td></td>
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<tr>
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<tr>
<td>[] No</td>
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<tr>
<td>Fuel capacity ______ gallons</td>
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<td></td>
</tr>
<tr>
<td>[] Yes</td>
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<tr>
<td>[] No</td>
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<td>[] Yes</td>
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<td></td>
</tr>
<tr>
<td>[] No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Describe exceptions to the Specifications

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
## PART 6 – ATTACHMENTS

### Minimum Requirements of Local Agency

Attach a complete list of all available buckets for order including price list.

Attach a complete list of all tools and attachments useful to agency daily operation including price list.

### Provided on Unit Proposed by Bidder

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
**PART 7 – SERVICE / PARTS / WARRANTY / DELIVERY**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bidder to provide description of all Warranties and component warranties available.</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Bidder shall provide warranty from date of delivery of completed unit(s).</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Parts manual, safety manual, operator’s manual, and technical manual for base unit and all attachments and options shall be provided.</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Highest consideration will be given to those bidders whose warranty facility is located nearest the owner’s base of operations which is located at:</td>
<td>Location of warranty facility:</td>
</tr>
<tr>
<td></td>
<td>______________________</td>
</tr>
<tr>
<td></td>
<td>______________________</td>
</tr>
<tr>
<td></td>
<td>______________________</td>
</tr>
<tr>
<td>Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at bidder’s warranty facility) of 95% within 48 hours of the order by the owner.</td>
<td>Distance from owner’s base of operations</td>
</tr>
<tr>
<td></td>
<td>______________________</td>
</tr>
<tr>
<td></td>
<td>% available within 48 hours</td>
</tr>
<tr>
<td>Delivery time of preventative maintenance items such as filters, and hoses shall not exceed 24 hours to the owner’s base of operations.</td>
<td>_______ hours delivery for PM parts</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:
______________________________________________________________
______________________________________________________________
______________________________________________________________
**PART 7 – SERVICE / PARTS / WARRANTY / DELIVERY (CONT)**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit must be delivered to owner with all attachments and components substantially completed within ____________ days of the bid.</td>
<td>Estimated delivery date:</td>
</tr>
<tr>
<td>The bidder, and his Surety, shall be liable for and pay the owner at the rate of __________ dollars a day for each calendar day of delay after the owner’s specified date of delivery.</td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

Section 6.12.1 – Telescoping Boom Wheeled Excavator  
Page 14
BASE PRICE FOR UNIT BEING BID

______________________$

ADD – ON ALTERNATES

______________________

Add: __________________$

______________________

Add: __________________$

______________________

Add: __________________$

DEDUCT ALTERNATES

Trade In (s)

Deduct: ______________________$

Year: __________________________

Make: __________________________

Model: __________________________

S / N: __________________________

Location: _________________________

NET PRICE : ______________________$

Bidder name, address, phone, contact:

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________
Rubber Tire Roller
6.13.1 Rubber Tire Roller

Task Force

Tom Martin  Program Manager  Indiana LTAP
Jerry Larson  Training Specialist  Indiana LTAP
Larry Campbell  Fleet Manager  Allen County
Chuck Everett  Utility Manager  Town of Flora
Larry McLin  Highway Supervisor  Daviess County
Heather Ward  Buyer  INDOT
Bill Williams  Buyer  INDOT

Owner Input Checklist

Owner input is required on the following pages of this Specification:

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bid Bond Amount</td>
</tr>
<tr>
<td>3</td>
<td>Engine Options</td>
</tr>
<tr>
<td>5</td>
<td>Instrumentation and Controls</td>
</tr>
<tr>
<td>6</td>
<td>Lights and Paint Color</td>
</tr>
<tr>
<td>7</td>
<td>Owner’s Base of Operations</td>
</tr>
<tr>
<td>8</td>
<td>Delivery Time and Penalty</td>
</tr>
<tr>
<td>9</td>
<td>Deduct Alternates (Trade-in information)</td>
</tr>
</tbody>
</table>
SPECIFICATIONS

for

Hydrostatic Drive Self-Propelled Rubber Tire Roller

GENERAL

It is the intent of these specifications to describe a new hydrostatic drive self-propelled rubber tire roller in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The hydrostatic drive rubber tire roller shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best-known engineering standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform to the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, or form provided by the L.P.A. with Non Collusion Affidavit and Bid Bond equal to _________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owner’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs,
devices, or materials or any trademark or copyright in connection with the specific unit furnished
under this proposal at anytime during manufacture and after purchase of the specified unit(s).

Term "or Equal" Where the term "or equal" is used in these specifications and Bidder
deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his
proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same and
after a properly authorized representative of the "local agency" has given his approval of the
satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
ENGINE AND POWER TRAIN

Minimum Requirements of Local Agency

Size: 9 – Tire

68" Rolling With

Ballast compartment to leave easy access for clean out or drain out

Engine shall be diesel, 4 cylinder, four cycle engine min. 75 rated HP

The engine shall be equipped with the following checked items:

- Electric start [ ] [ ]
- Alternator [ ] [ ]
- Voltage regulator [ ] [ ]
- Heavy duty 12 volt battery [ ] [ ]
- Dry type air cleaner [ ] [ ]
- Disposable element oil filter [ ] [ ]
- Heavy duty cooling system [ ] [ ]
- Ether Starting Aid [ ] [ ]

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Hydrostatic drive pump to be mounted directly to the engine, Bidder to furnish detailed information on the size and capacity type and make of the hydrostatic drive pump and motor.

---

Describe exceptions to the Specifications:

---

---

---

Provided by Unit Proposed by Bidder

Width:

Weight Min.:

With Ballast:

Engine horsepower

Engine Make

Engine Model
### BRAKES, TIRES, AND WATER SYSTEM

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed to be infinitely variable from 0 to 15mph.</td>
<td>Infinitely variable speed Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Service brake is dynamic through hydrostatic transmission.</td>
<td>Maximum speed _____________ mph</td>
</tr>
<tr>
<td>Hydraulic with inter lock device (will not start unless in neutral and brake set, when in neutral with motor running brake is set and have a neutral lockout for towing.)</td>
<td>Service brake system</td>
</tr>
<tr>
<td>Tires 7.50 X 15 – 12 ply Smooth</td>
<td>Parking brake system</td>
</tr>
<tr>
<td>Sprinkler System: Tire spray system with one nozzle per tire hand</td>
<td>Tire size ____________________</td>
</tr>
<tr>
<td>Serviceable, pressurized with electric pump, 100 gallon no rust tank.</td>
<td>Wheel type ____________________</td>
</tr>
<tr>
<td>(Water in this system shall not be considered as ballast in calculation of weight.)</td>
<td>Tire Overlap ____________________</td>
</tr>
</tbody>
</table>

**Describe exceptions to the Specifications:**

_________________________________________________________________________

_________________________________________________________________________

_________________________________________________________________________
**INSTRUMENTATION/CONTROLS**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control/instrument panel to be located in a lockable box on the operator=s station to prevent vandalism.</td>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Operator=s station shall be located and/or adjustable so that the operator is provided an unobstructed view front and rear, left and right, which may be accomplished by either a movable station or by a front mounted central location.

If control panel is switch able, left to right, it shall be via:

- Power,
- Manual operation

Instrumentation shall be provided to monitor:

- Fuel level
- Engine oil pressure
- Hydrostatic oil temperature
- Engine coolant temperature
- Voltmeter
- Tachometer
- Hour meter
- Air pressure (if applicable)

Audible and visible alarms shall be provided for

- High coolant temperature
- High hydraulic temperature
- Low engine oil
- Low fuel level

Describe exceptions to the Specifications:

---

Section 6.13.1 - Rubber Tire Roller
MISCELLANEOUS

Minimum Requirements of Local Agency

Air or electric horn

Self adjusting backup alarm (87 to 100 dz)

A complete light package

Safety strobe light(s) to be mounted:

Paint color shall be ________________________

ROPS and Safety Belts Required

Access ladders, left and right

Safety handrails

Lockable tool box

For safety reasons, highest consideration will be given to the unit with the lowest center of gravity (cg) bidder to furnish height to cg above ground.

Minimum capacities shall be

10 gal – Hydraulic oil reservoir
30 gal – Diesel fuel, with lockable cap

Provided by Unit Proposed by Bidder

Air [ ] Electric [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Paint color is ________________________

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Height to cg : ____________

Capacities are:

____ gal - hydraulic oil
____ gal - diesel fuel

Describe exceptions to the Specifications:

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________
WARRANTY / REPAIR PARTS

Minimum Requirements of Local Agency

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts, Service and Operators Manual to be included.

Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner=s base of operations, which is located at

Location of warranty facility:

Distance from Owner=s base of operations:

% available within 48 hours

hours delivery for PM Part

Describe exceptions to the Specifications:

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Provided by Unit Proposed by Bidder

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder=s warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner=s base of operations.
DATE OF DELIVERY

Minimum Requirements of Local Agency

Unit must be delivered to the Owner with all attachments and components substantially completed, within ____________ days of the acceptance of the bid.

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of ____________ $/day for each calendar day of delay after the Owner=s specified date of delivery.

Provided by Unit Proposed by Bidder

Estimated Delivery Time: ____________ days

Describe exceptions to the Specifications:

__________________________________________________________________

__________________________________________________________________

__________________________________________________________________

Section 6.13.1 - Rubber Tire Roller
BASE PRICE FOR UNIT BEING BID

___________ $

ADD ON ALTERNATES

Canopy

Add: ____________ $

DEDUCT ALTERNATES

Trade In (s)

Deduct: ____________ $

Year: __________________________
Make: __________________________
Model: __________________________
S/N: __________________________
Location: __________________________

Net Price: ____________ $

Bidder Name, Address, Phone, Contact:

_____________________________________________________________________

_____________________________________________________________________

Describe exceptions to the Specifications:

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________
Section 1 – All Vendors

*All reports are sorted first by district, then alphabetically.*
<table>
<thead>
<tr>
<th>District: BC (East Central)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufactures Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brandeis Equipment Co.</td>
<td>8410 Zionville Rd, PO Box 68555 Indianapolis IN 46268-0552</td>
<td>317-872-8410</td>
<td></td>
<td></td>
<td>Henke Industrial, Ingersoll-Rand</td>
</tr>
<tr>
<td>MacAllister Equipment Co.</td>
<td>7151 E 30th Street</td>
<td>317-545-2151 317-543-0310</td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td>Newman Equipment</td>
<td>1115 Terminal Rd</td>
<td>317-781-8100 317-781-8720</td>
<td></td>
<td></td>
<td>Hypac</td>
</tr>
<tr>
<td>Southeastern Equipment Co.</td>
<td>4951 W. 94th St.</td>
<td>317-872-4877 317-872-2811 David Cooper</td>
<td></td>
<td></td>
<td>Hyundai, Rtnyre, Bomag</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District: NE (Northeast)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufactures Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>2410 W. Coliseum Blvd</td>
<td>219-483-6469 217-471-9932</td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
<tr>
<td>Southeastern Equipment Co.</td>
<td>3333 W. Coliseum Blvd.</td>
<td>219-483-8868 219-483-5448 Dan Kreager</td>
<td></td>
<td></td>
<td>Hyundai, Rtnyre, Bomag</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District: NW (Northwest)</th>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufactures Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacAllister Equipment Co.</td>
<td>25774 State Hwy 2 South Bend IN 46619-4811</td>
<td>219-288-6622 219-288-0423</td>
<td></td>
<td></td>
<td>Henke Industrial, Caterpillar, Rosco</td>
</tr>
</tbody>
</table>
District: NW (Northwest)

Company Name and Address               Phone    Fax     Contact       Manufacturers Represented
Roland Machinery Company                219-764-8080 219-764-8613 Bomag
6450 Melton Rd
Portage
IN
46368

District: OS (Out of State)

Company Name and Address               Phone    Fax     Contact       Manufacturers Represented
Carlisle Equipment Co.                  502-361-7000 502-367-1537 Bomag, Rosco
3800 Crittenden Drive
Louisville
KY
40209

District: WC (West Central)

Company Name and Address               Phone    Fax     Contact       Manufacturers Represented
MacAllister Equipment Co.              812-877-9773 812-478-9246 Henke Industrial, Caterpillar, Rosco
20 W. Margaret Dr
Terre Haute
IN
47802-3757

MacAllister Equipment Co.              317-423-5553 765-449-7077 Henke Industrial, Caterpillar, Rosco
500 Hape Dr
Lafayette
IN
47905-7944

End of report.
6.14

Roadside Mower
6.14 Roadside Mower

6.14.1 Mower / Utility Tractor

6.14.2 Mower / Boom

6.14.3 Mower / Batwing

6.14.4 Mower / Side Mount

6.14.5 Mower / Standard 3 Point Hitch
6.14.1 Mower / Utility Tractor

Task Force:

Tom Martin  Program Manager  Indiana LTAP
Jerry Larson  Training Specialist  Indiana LTAP
John Habermann  Research Engineer  Indiana LTAP
Chuck Everett  Utility Manager  Town of Flora
Larry Campbell  Fleet Manager  Allen County

Owner Input Checklist:

Owner input is required on the following pages of this Specification.

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bid Bond Amount.</td>
</tr>
<tr>
<td>4</td>
<td>4 Wheel Drive Option.</td>
</tr>
<tr>
<td>3</td>
<td>Operating Weight</td>
</tr>
<tr>
<td>3</td>
<td>Horse Power</td>
</tr>
<tr>
<td>7</td>
<td>Cab / No Cab</td>
</tr>
<tr>
<td>9</td>
<td>Counter Weight Option.</td>
</tr>
<tr>
<td>9</td>
<td>Cold Weather Starting Aid.</td>
</tr>
<tr>
<td>10</td>
<td>Owner’s Base of Operations.</td>
</tr>
<tr>
<td>11</td>
<td>Delivery Time and Penalty.</td>
</tr>
<tr>
<td>12</td>
<td>Deduct Alternates (Trade-in information).</td>
</tr>
</tbody>
</table>

NOTE:
At the time these specifications were assembled, the following models are believed to be in substantial compliance with the specifications. This list may or may not represent a complete listing of all makes and models currently manufactured in conformance with the specifications.

John Deere, Ford, New Holland

Section 6.14.1 – Mower / Utility Tractor
SPECIFICATIONS

For

Utility Tractor

GENERAL

It is the intent of these specifications to describe a Utility Tractor for mowing operations of the local agency, with sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be current model, new equipment, under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to be the best known Engineering Standards of the trade, relative to design, strength, quality, durability, and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any unit not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform to the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on the approved local agency bid form, with Non Collusion Affidavit and Bid Bond equal to __________ of the bid price. Bidder shall complete blanks in the right hand column of specifications under the heading “Provided on Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owner’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered and all attachments and options with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.
The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

Term “or Equal” Where the term “or equal” is used in these specifications and Bidder deviates from the specified item, shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same, and after a properly authorized representative of the “local agency” has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
PART 1- GENERAL INFORMATION

Minimum Requirements of Local Agency
Operating weight: 9000 pounds minimum.

ENGINE

4 cylinders, four cycle, turbo-charged with
the following minimum specifications:

Horsepower (SEA Gross), min. 90HP.

Torque (SAE NET) Min. 270 ft-lb.

Provided on Unit Proposed by Bidder
Operating weight ___________ pounds

Make: ______________________
Model: ____________________

Horsepower
SAE Gross ____________________
SAE Net ____________________

Torque: ___________ SAE NET @ ________________ RPM

Engine block heater 1000-watt min.
Fuel filter water separator.
Engine oil cooler.
Pre-cleaner (air intake).
Dry-type air filter two stage with restriction indicator.
Over flow recovery.
Spin-on type coolant filter.
Silicone hose system or equal.
Fin and tube type radiator having maximum cooling
capacity.

[] Yes [] No
[] Yes [] No
[] Yes [] No
[] Yes [] No
[] Yes [] No
[] Yes [] No
[] Yes [] No
[] Yes [] No

Radiator capacity: ___________ Gallons

Describe exceptions to the specifications:

____________________________________________________________________

____________________________________________________________________
PART 1 – GENERAL INFORMATION CONT.

Minimum Requirements of Local Agency

TRANSMISSION / PTO

540 RPM PTO
16 X 16 Electro Shift Transmission

Top speed forward, 20mph maximum.
Auxiliary transmission cooler.
Electro hydraulic engagement
Flip up guard on PTO shaft.

DRIVELINE:

Front axle adjustable 56” to 80”
Rear axle adjustable 60” to 80”

[] 4 wheel drive.
[] 2 wheel drive.

Differential lock.

TIRES

Front: 11L X 16 10 Ply rating. (F3)
Rear: 18.4 X 34, 6 Ply rating. (R1)

Provided on Unit Proposed by Bidder

[] Yes [] No
Number of speeds forward _________
Number of speeds reverse _________
Top speed forward _________ mph

[] Yes [] No
[] Yes [] No
[] Yes [] No

[] Manual [] Electronic [] None

Describe exceptions to the specifications:

________________________________________________________________________
________________________________________________________________________
PART 1- GENERAL INFORMATION CONT.

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BRAKES:</strong></td>
<td></td>
</tr>
<tr>
<td>Multiple wet disk brakes must be sealed and fully enclosed to allow operation in water, mud, snow, and other adverse conditions without encountering brake failure.</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-adjusting parking/secondary brake must be mechanically applied, independent of service brake and shall and be of sufficient design to hold the weight of the machine on a 30-degree slope.</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HYDRAULIC SYSTEM:</strong></td>
<td></td>
</tr>
<tr>
<td>Pump minimum 20 GPM</td>
<td>_____ GPM</td>
</tr>
<tr>
<td>Live hydraulic</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Automatic Flow Control</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Hoses routed through alignment clamps and have SAE standard fittings.</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Hydraulic system filter, 10 micron, maximum.</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Two selective control valves</td>
<td>[] Yes  [] No</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________
**ELECTRICAL SYSTEM:**

2 – 12 Volt batteries with 1400 CCA.

Starter shall be rated at the heaviest duty for this application by the manufacturer.

Alternator shall be minimum of 100 amps.

4 front floodlights.

4 rear floodlights.

2 rear tail and stop lights.

Turn signals, front and rear.

4 – way flashers.

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] Yes</td>
</tr>
</tbody>
</table>

Starter: ________________________

Type: ________________________

| [ ] Yes | [ ] No |
| [ ] Yes | [ ] No |
| [ ] Yes | [ ] No |
| [ ] Yes | [ ] No |

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
### PART 2 - OPERATOR STATION / ENVIRONMENT

#### Minimum Requirements of Local Agency

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROPS fully enclosed steel sound – suppressed cab (SAE J1040, 80 dBA) with roll – over protection (SAE J 394). With roof vent hatch.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High output heater</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air conditioning factory installed (134A).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AM/FM Radio factory installed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defroster fan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windshield washer/wipers front and rear.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tilt steering wheel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear view mirror internal.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dual outside cab mirrors.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deluxe suspension cloth seat air or mechanical.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height adjustable</td>
<td>Air</td>
<td></td>
</tr>
<tr>
<td>Weight adjustable</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Leg reach adjustable</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Back angle adjustable</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Seat belt 3” retractable</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Arm rest adjustable</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

#### Provided by Unit proposed by Bidder

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROPS fully enclosed steel sound – suppressed cab (SAE J1040, 80 dBA) with roll – over protection (SAE J 394). With roof vent hatch.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High output heater</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air conditioning factory installed (134A).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AM/FM Radio factory installed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Defroster fan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Windshield washer/wipers front and rear.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tilt steering wheel</td>
<td></td>
<td></td>
</tr>
<tr>
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</tr>
<tr>
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<td>Yes</td>
<td></td>
</tr>
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</table>

#### Describe exceptions to the Specifications:


Section 6.14.1 Mower / Utility Tractor
### Part 2 – OPERATOR STATION / ENVIRONMENT (CONT)

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INSTRUMENTS:</strong></td>
<td></td>
</tr>
<tr>
<td>Tachometer / Hour meter</td>
<td>Yes</td>
</tr>
<tr>
<td>Fuel Gauge</td>
<td>Yes</td>
</tr>
<tr>
<td>Transmission oil temperature</td>
<td>Yes</td>
</tr>
<tr>
<td>Engine coolant temperature</td>
<td>Yes</td>
</tr>
<tr>
<td>Engine oil pressure</td>
<td>Yes</td>
</tr>
<tr>
<td>Electric hour meter</td>
<td>Yes</td>
</tr>
<tr>
<td>Electric voltage</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>VISUAL WARNINGS:</strong></td>
<td></td>
</tr>
<tr>
<td>Engine coolant system</td>
<td>Yes</td>
</tr>
<tr>
<td>Engine oil pressure system</td>
<td>Yes</td>
</tr>
<tr>
<td>Parking brake warning</td>
<td>Yes</td>
</tr>
<tr>
<td>Fasten Seat Belt</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>AUDIBLE WARNINGS:</strong></td>
<td></td>
</tr>
<tr>
<td>Engine coolant system</td>
<td>Yes</td>
</tr>
<tr>
<td>Engine oil system</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>FILTER RESTRICTIONS INDICATOR:</strong></td>
<td></td>
</tr>
<tr>
<td>Air</td>
<td>Yes</td>
</tr>
<tr>
<td>Transmission oil</td>
<td>Yes</td>
</tr>
<tr>
<td>Hydraulic</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

---

Section 6.14.1 Mower / Utility Tractor
PART 5 – ADDITIONAL EQUIPMENT

**Minimum Requirements of Local Agency**

- Counterweight, ________ pounds.
- Cold weather starting aid. [ ] Yes [ ] No
- Automatically adjusting reverse warning 89-112 db.
- SMV emblem.
- Lockable doors.
- Complete lock – up vandal protection.
- All locks shall be keyed the same.
- Fuel tank 40 U.S. gallons minimum.
- Fire extinguisher.
- Tie down hooks for transport.
- Bottom guard for engine and transmission.
- Toolbox

**Provide on Unit Proposed by Bidder**

- Counterweight ________ lbs
- [ ] Yes [ ] No
- [ ] Yes [ ] No
- [ ] Yes [ ] No
- [ ] Yes [ ] No
- [ ] Yes [ ] No
- Fuel capacity ________ gallons
- [ ] Yes [ ] No
- [ ] Yes [ ] No
- [ ] Yes [ ] No
- [ ] Yes [ ] No

Describe exceptions to the Specifications

________________________________________________________________________

________________________________________________________________________
PART 7–SERVICE/PARTS/WARRANTY/Delivery

Minimum Requirements of Local Agency

Bidder to provide description of all Warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts manual, safety manual, operator’s manual, and technical manual for base unit and all attachments and options shall be provided.

Highest consideration will be given to those bidders whose warranty facility is located nearest the owner’s base of operations which is located at:

______________________________

______________________________

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at bidder’s warranty facility) of 95% within 48 hours of the order by the owner.

Delivery time of preventative maintenance items such as filters, and hoses shall not exceed 24 hours to the owner’s base of operations.

Provided on Unit Proposed by Bidder

[ ] Yes [ ] No

[ ] Yes [ ] No

[ ] Yes [ ] No

Location of warranty facility:

______________________________

Distance from owner’s base of operations

______________________________

_______% available within 48 hours

_______ hours delivery for PM parts

Describe exceptions to the Specifications:

_____________________________________________________________________

_____________________________________________________________________

Section 6.14.1 Mower / Utility Tractor
PART 7 – SERVICE / PARTS / WARRANTY / DELIVERY (CONT)

Minimum Requirements of Local Agency

Unit must be delivered to owner with all attachments and components substantially completed within ___________ days of the bid.

The bidder, and his Surety, shall be liable for and pay the owner at the rate of ___________ dollars a day for each calendar day of delay after the owner’s specified date of delivery.

Provided on Unit Proposed by Bidder

Estimated delivery date:

____________________________________

Describe exceptions to the Specifications:

____________________________________

____________________________________

____________________________________
BASE PRICE FOR UNIT BEING BID

__________________________ $

ADD - ON ALTERNATES

__________________________ Add: ____________________ $

__________________________ Add: ____________________ $

DEDUCT ALTERNATES

Trade In (s)  

Deduct: ____________________ $

Year: ______________________
Make: ______________________
Model: _____________________
S / N: ______________________
Location: ___________________

NET PRICE : ____________________ $

Bidder name, address, phone, contact:

__________________________________________________________________________

__________________________________________________________________________

Section 6.14.1 Mower / Utility Tractor
6.14.2 Mower / Boom

Task Force:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tom Martin</td>
<td>Program Manager</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>Jerry Larson</td>
<td>Training Specialist</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>John Habermann</td>
<td>Research Engineer</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>Chuck Everett</td>
<td>Utility Manager</td>
<td>Town of Flora</td>
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<tr>
<td>Larry Campbell</td>
<td>Fleet Manager</td>
<td>Allen County</td>
</tr>
</tbody>
</table>

Owner Input Checklist:

Owner input is required on the following pages of this Specification.

<table>
<thead>
<tr>
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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Bid Bond Amount.</td>
</tr>
<tr>
<td>8</td>
<td>Owner’s Base of Operations.</td>
</tr>
<tr>
<td>9</td>
<td>Delivery Time and Penalty.</td>
</tr>
<tr>
<td>10</td>
<td>Deduct Alternates (Trade-in information).</td>
</tr>
</tbody>
</table>

NOTE:
At the time these specifications were assembled, the following models are believed to be in substantial compliance with the specifications. This list may or may not represent a complete listing of all makes and models currently manufactured in conformance with the specifications.

Tiger, Alamo

Section 6.14.2 Mower / Boom
SPECIFICATIONS

For

Boom Mower

GENERAL

It is the intent of these specifications to describe a Boom Mower for mowing operations of the local agency, with sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be current model, new equipment, under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to be the best known Engineering Standards of the trade, relative to design, strength, quality, durability, and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any unit not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform to the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on the approved local agency bid form, with Non Collusion Affidavit and Bid Bond equal to _________ of the bid price. Bidder shall complete blanks in the right hand column of specifications under the heading "Provided on Unit Proposed by Bidder" and include this with the other items mentioned above. The Bidder shall also specifically mention items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owner’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered and all attachments and options with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.
The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

**Term “or Equal”** Where the term “or equal” is used in these specifications and Bidder deviates from the specified item, shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same, and after a properly authorized representative of the “local agency” has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
PART 1- GENERAL INFORMATION

Minimum Requirements of Local Agency
Operating weight: 440 pounds minimum. 520 pounds maximum

Blades and Cut
Cutting width 5’ minimum
Maximum cut of 4” in diameter
Cutting cycle up to 60-times per minute
Cutting blade is one piece (T-1 Steel)
Base blade is one piece (T-1 Steel)
Cutting bar shall have a pitmanless drive

Frame
Mounting rail frame will be full-length 4x4x1/4 steel tubing mounted to the front bolster housing and to rear axle.
Mainframe will be no less than 4x4x1/4 steel tubing Bracing frame with 4x6x3/16 steel tubing main Structure mounted over the hood of the tractor to 4x4 mounting rails.
Minimum counterweight of 1300 lbs.

Provided on Unit Proposed by Bidder
Operating weight ___________ pounds

[ ] Yes  [ ] No
[ ] Yes  [ ] No
[ ] Yes  [ ] No
[ ] Yes  [ ] No
[ ] Yes  [ ] No
[ ] Yes  [ ] No

Describe exceptions to the specifications:

__________________________________________________________________________
__________________________________________________________________________

Section 6.14.2 Mower / Boom
**PART 1 – GENERAL CONT.**

**Minimum Requirements of Local Agency**

<table>
<thead>
<tr>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] Yes</td>
</tr>
</tbody>
</table>

**Hydraulics**

Front mount reservoir for improved visibility and operator access.

17 gallon reservoir with sight glass

System pressure of 1500 PSI

16-micron full flow of 35 GPM filter

Cylinder diameter 3", stroke 5-7/8", rod diameter 1-1/4".

Closed-loop piston pump rated at 46GPM @ 3500 RPM and 5000 PSI

Pump to be idle during transport.

Front pump drive shaft to be rated at 350 ft. lbs. of torque.

Motor circuit hose to be 1" four wire braid.

Dipper boom hoses to be metal tubing fastened inside of boom.

Inter boom hoses to be metal tubing fastened to back of boom.

| [ ] Yes | [ ] No |

Describe exceptions to the specifications:

____________________________________________________________________

____________________________________________________________________

Section 6.14.2 Mower / Boom
PART 1- GENERAL CONT

Minimum Requirements of Local Agency

Provided by Unit Proposed by Bidder

Hydraulics

Mower deck hoses to be four-wire braid with protective sleeving.

[] Yes  [] No

Five spool, electronic, proportional, pressure-compensating with relief type valve.

[] Yes  [] No

Valve shall allow four function simultaneously.

[] Yes  [] No

Swing, lift, and dipper sections to have individual work port relief valve.

[] Yes  [] No

Five function boom control valve to be controlled by a single electronic joystick.

[] Yes  [] No

King Post

Two 2-1/2 ID bearings with a 2-1/2 diameter chrome plated pin.

[] Yes  [] No

5” diameter x ¼” polyethylene thrust washer.

[] Yes  [] No

Minimum total bearing surface of 46in2.

[] Yes  [] No

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

Section 6.14.2 Mower / Boom
PART 1 – GENERAL CONT.

Minimum Requirements of Local Agency

Boom Arm

Two piece design with all pivot points to have replaceable Teflon bearings.

All pivot points to be 1-1/2” diameter.

Inner boom to be made of 6x6x1/4 steel tubing with 50,000 lb yield strength.

Dipper to be made of 5x5x14 steel tubing with 50,000 lb yield strength.

All hinge points to be T-1 steel reinforced.

Horizontal boom swing to be 120- degrees.

Swing Cylinder to be mounted in a way that breakaway forces are on cylinder barrel and not on rod side.

Boom rest to take pressure off dipper and swing Cylinders when in transport.

Provided by Unit Proposed by Bidder

[ ] Yes [ ] No

[ ] Yes [ ] No

[ ] Yes [ ] No

[ ] Yes [ ] No

[ ] Yes [ ] No

Describe exceptions to the Specifications:

__________________________________________________________

__________________________________________________________

Section 6.14.2 Mower / Boom
**PART 1- GENERAL CONT.**

**Minimum Requirements of Local Agency**

<table>
<thead>
<tr>
<th>Provided by Unit proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boom Reach</td>
</tr>
<tr>
<td>Machete 60 head</td>
</tr>
<tr>
<td>Minimum reach up to be 21’</td>
</tr>
<tr>
<td>Minimum reach out to be 21’</td>
</tr>
<tr>
<td>Minimum reach down to be 21’</td>
</tr>
<tr>
<td>Boom mower head shall be able to mow within 3’ of rear tractor tire.</td>
</tr>
<tr>
<td>Four bar linkage to allow a 205 degree head rotation.</td>
</tr>
<tr>
<td>Safety</td>
</tr>
<tr>
<td>Mower cutter to have a emergency shut down.</td>
</tr>
<tr>
<td>Mower head motor to take 6 seconds to full RPM for no shock, no load start up.</td>
</tr>
<tr>
<td>Safety cage to be installed to operator's position. Right side glass to be harden polycarbonate tinted safety glass.</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________
PART 2 – SERVICE / PARTS / WARRANTY / DELIVERY

Minimum Requirements of Local Agency

Bidder to provide description of all Warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts manual, safety manual, operator’s manual, and technical manual for base unit and all attachments and options shall be provided.

Highest consideration will be given to those bidders whose warranty facility is located nearest the owner’s base of operations which is located at:

______________________________
______________________________

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at bidder’s warranty facility) of 95% within 48 hours of the order by the owner.

Delivery time of preventative maintenance items such as filters, and hoses shall not exceed 24 hours to the owner’s base of operations.

Provided on Unit Proposed by Bidder

[ ] Yes   [ ] No

[ ] Yes   [ ] No

[ ] Yes   [ ] No

Location of warranty facility:

______________________________

Distance from owner’s base of operations

______________________________

_____ % available within 48 hours

_____ hours delivery for PM parts

Describe exceptions to the Specifications:

_________________________________________________________________________________________

_________________________________________________________________________________________

_________________________________________________________________________________________
PART 2 – SERVICE / PARTS / WARRANTY / DELIVERY (CONT)

Minimum Requirements of Local Agency

Unit must be delivered to owner with all attachments and components substantially completed within __________ days of the bid.

The bidder, and his Surety, shall be liable for and pay the owner at the rate of __________ dollars a day for each calendar day of delay after the owner’s specified date of delivery.

Provided on Unit Proposed by Bidder

Estimated delivery date:

________________________________________

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
BASE PRICE FOR UNIT BEING BID

ADD-ON ALTERNATES

Add: _______________$

Add: _______________$

Add: _______________$

DEDUCT ALTERNATES

Trade In(s)

Deduct: _______________$

Year: __________________________
Make: __________________________
Model: __________________________
S/N: __________________________
Location: __________________________

NET PRICE: _______________$

Bidder name, address, phone, contact:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.14.2 Mower / Boom
6.14.3 Mower / Batwing

Task Force:

Tom Martin  Program Manager  Indiana LTAP
Jerry Larson  Training Specialist  Indiana LTAP
John Habermann  Research Engineer  Indiana LTAP
Chuck Everett  Utility Manager  Town of Flora
Larry Campbell  Fleet Manager  Allen County

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</tr>
<tr>
<td>3</td>
<td>Width</td>
</tr>
<tr>
<td>6</td>
<td>Owner’s Base of Operations.</td>
</tr>
<tr>
<td>7</td>
<td>Delivery Time and Penalty.</td>
</tr>
<tr>
<td>8</td>
<td>Deduct Alternates (Trade-in information).</td>
</tr>
</tbody>
</table>

NOTE:
At the time these specifications were assembled, the following models are believed to be in substantial compliance with the specifications. This list may or may not represent a complete listing of all makes and models currently manufactured in conformance with the specifications.

John Deere, Alamo, Tiger, Woods

Section 6.14.3 Mower / Batwing
SPECIFICATIONS

For

Batwing Mower

GENERAL

It is the intent of these specifications to describe a Batwing Mower for mowing operations of the local agency, with sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be current model, new equipment, under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to be the best know Engineering Standards of the trade, relative to design, strength, quality, durability, and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any unit not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform to the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on the approved local agency bid form, with Non Collusion Affidavit and Bid Bond equal to _______ of the bid price. Bidder shall complete blanks in the right hand column of specifications under the heading “Provided on Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owner’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered and all attachments and options with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.
The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

**Term** “or **Equal**” Where the term “or equal” is used in these specifications and Bidder deviates from the specified item, shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same, and after a properly authorized representative of the “local agency” has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
### PART 1- GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Width</strong></td>
<td></td>
</tr>
<tr>
<td>Over all width to be 138”</td>
<td>[] Yes   [] No  Width________</td>
</tr>
<tr>
<td>Transport width to be 95”</td>
<td>[] Yes   [] No  Width________</td>
</tr>
<tr>
<td>Transport width at tires to be 120”</td>
<td>[] Yes   [] No  Width________</td>
</tr>
<tr>
<td><strong>Length</strong></td>
<td></td>
</tr>
<tr>
<td>Over all length to be 175’</td>
<td>[] Yes   [] No  Length________</td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td></td>
</tr>
<tr>
<td>2” to 4”</td>
<td>[] Yes   [] No  Height________</td>
</tr>
<tr>
<td>Height to be adjustable by hydraulic cylinder.</td>
<td>[] Yes   [] No</td>
</tr>
<tr>
<td><strong>Horsepower</strong></td>
<td></td>
</tr>
<tr>
<td>Required horsepower to be 50 to 100 HP</td>
<td>[] Yes   [] No  HP________</td>
</tr>
<tr>
<td><strong>Driveline</strong></td>
<td></td>
</tr>
<tr>
<td>Input ASAE category 5.</td>
<td>[] Yes   [] No</td>
</tr>
<tr>
<td>Wing ASAE category 5.</td>
<td>[] Yes   [] No</td>
</tr>
<tr>
<td>Center gearbox to be 200HP.</td>
<td>[] Yes   [] No</td>
</tr>
<tr>
<td>Wing gearbox to be 150HP.</td>
<td>[] Yes   [] No</td>
</tr>
<tr>
<td>Output shaft to be 2-1/8 diameter.</td>
<td>[] Yes   [] No</td>
</tr>
</tbody>
</table>

Describe exceptions to the specifications:

_________________________________________________________________
_________________________________________________________________
**PART 1 – GENERAL CONT.**

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yokes to be spring wheel</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>U-joints to be CVI universal.</td>
<td>[ ] Yes [ ] No</td>
</tr>
</tbody>
</table>

**Blades**

| Six blade tips.                      | [ ] Yes [ ] No |
| Overlap to be 6”.                    | [ ] Yes [ ] No |
| Size to be .5x4x25 inches.           | [ ] Yes [ ] No |
| Center blade speed to be 15,000FPM @ 540 PTO. | [ ] Yes [ ] No |
| Wing blade speed to be 16,000FPM @ 540 PTO. | [ ] Yes [ ] No |

**Wing**

| Wing angle range to be 22 degrees down to 90 degrees up. | [ ] Yes [ ] No |

**Clutches**

| Quick- disconnect friction-type slip clutches. | [ ] Yes [ ] No |

Describe exceptions to the specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
## PART 1- GENERAL CONT

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chain Shielding</strong></td>
<td></td>
</tr>
<tr>
<td>Single row front and rear 5/16 chain.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td><strong>Center Section</strong></td>
<td></td>
</tr>
<tr>
<td>Dual wheel yoke assemblies.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Wheel yokes to be clamp type and adjustable.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Two skids.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Two stump jumpers.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Dual wheels to be 10” with pneumatic tires.</td>
<td>[ ] Yes [ ] No</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

__________________________________________________________________________
__________________________________________________________________________

Section 6.14.3 Mower / Batwing
PART 2 – SERVICE / PARTS / WARRANTY / DELIVERY

Minimum Requirements of Local Agency

Bidder to provide description of all Warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts manual, safety manual, operator’s manual, and technical manual for base unit and all attachments and options shall be provided.

Highest consideration will be given to those bidders whose warranty facility is located nearest the owner’s base of operations which is located at:

[ ] Yes  [ ] No

[ ] Yes  [ ] No

[ ] Yes  [ ] No

Location of warranty facility:

______________________________

Distance from owner’s base of operations

______________________________

% available within 48 hours

_____  hours delivery for PM parts

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at bidder’s warranty facility) of 95% within 48 hours of the order by the owner.

Delivery time of preventative maintenance items such as filters, and hoses shall not exceed 24 hours to the owner’s base of operations.

Describe exceptions to the Specifications:

______________________________________________________________________________

______________________________________________________________________________
PART 2 – SERVICE / PARTS / WARRANTY / DELIVERY (CONT)

Minimum Requirements of Local Agency

Unit must be delivered to owner with all attachments and components substantially completed within ___________ days of the bid.

The bidder, and his Surety, shall be liable for and pay the owner at the rate of ___________ dollars a day for each calendar day of delay after the owner’s specified date of delivery.

Provided on Unit Proposed by Bidder

Estimated delivery date:

________________________

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________
BASE PRICE FOR UNIT BEING BID


ADD - ON ALTERNATES


ADD: __________________$  

ADD: __________________$  

ADD: __________________$

DEDUCT ALTERNATES

Trade In (s)  

Deduct: __________________$

Year: ____________________  

Make: ____________________  

Model: ____________________  

S / N: ____________________  

Location: __________________

NET PRICE: __________________$

Bidder name, address, phone, contact:

________________________________________________________________________  

________________________________________________________________________  

________________________________________________________________________  

Section 6.14.3 Mower / Batwing
6.14.4 Mower / Side Mount

Task Force:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tom Martin</td>
<td>Program Manager</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>Jerry Larson</td>
<td>Training Specialist</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>John Habermann</td>
<td>Research Engineer</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>Chuck Everett</td>
<td>Utility Manager</td>
<td>Town of Flora</td>
</tr>
<tr>
<td>Larry Campbell</td>
<td>Fleet Manager</td>
<td>Allen County</td>
</tr>
</tbody>
</table>

Owner Input Checklist:

Owner input is required on the following pages of this Specification.

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bid Bond Amount.</td>
</tr>
<tr>
<td>5</td>
<td>Owner’s Base of Operations.</td>
</tr>
<tr>
<td>6</td>
<td>Delivery Time and Penalty.</td>
</tr>
<tr>
<td>7</td>
<td>Deduct Alternates (Trade-in information).</td>
</tr>
</tbody>
</table>

NOTE:
At the time these specifications were assembled, the following models are believed to be in substantial compliance with the specifications. This list may or may not represent a complete listing of all makes and models currently manufactured in conformance with the specifications.

Tiger, Alamo, Woods
SPECIFICATIONS

For

Side Mount Mower

GENERAL

It is the intent of these specifications to describe a Side Mount Mower for mowing operations of the local agency, with sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be current model, new equipment, under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to be the best know Engineering Standards of the trade, relative to design, strength, quality, durability, and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any unit not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform to the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on the approved local agency bid form, with Non Collusion Affidavit and Bid Bond equal to \[ \text{____________}\] of the bid price. Bidder shall complete blanks in the right hand column of specifications under the heading "Provided on Unit Proposed by Bidder" and include this with the other items mentioned above. The Bidder shall also specifically mention items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner's minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owner's evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered and all attachments and options with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.
The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

**Term** or **Equal** Where the term “or equal” is used in these specifications and Bidder deviates from the specified item, shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same, and after a properly authorized representative of the “local agency” has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
PART 1- GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Width</strong></td>
<td></td>
</tr>
<tr>
<td>Cutting width to be 60”</td>
<td>[ ] Yes  [ ] No Width_____________</td>
</tr>
<tr>
<td><strong>Cutter Assembly</strong></td>
<td></td>
</tr>
<tr>
<td>Rotary hydraulically powered</td>
<td>[ ] Yes  [ ] No</td>
</tr>
<tr>
<td>Cutter disc to be dish type, 3/4x37.5</td>
<td>[ ] Yes  [ ] No</td>
</tr>
<tr>
<td>Cutter knives to be 6 1/2x4 full swinging heat-treated.</td>
<td>[ ] Yes  [ ] No</td>
</tr>
<tr>
<td><strong>Cutter Head</strong></td>
<td></td>
</tr>
<tr>
<td>To have 3/8 steel sidewalls.</td>
<td>[ ] Yes  [ ] No</td>
</tr>
<tr>
<td>To have full-length replaceable skid shoes.</td>
<td>[ ] Yes  [ ] No</td>
</tr>
<tr>
<td>Cutter head weight to be 1250 lb.</td>
<td>[ ] Yes  [ ] No</td>
</tr>
<tr>
<td>Cutter head ark to be 180 degrees 90 plus or minus ground level.</td>
<td>[ ] Yes  [ ] No</td>
</tr>
<tr>
<td>Chain guards front and rear.</td>
<td>[ ] Yes  [ ] No</td>
</tr>
<tr>
<td><strong>Drive Line</strong></td>
<td></td>
</tr>
<tr>
<td>Spindle 7-1/4 x 10-7/8 forged steel mounted in double tapered roller bearings, sealed and in oil bath.</td>
<td>[ ] Yes  [ ] No</td>
</tr>
<tr>
<td>Spindle drive to be flexible coupler with dust shield.</td>
<td>[ ] Yes  [ ] No</td>
</tr>
<tr>
<td>Spindle speed to be 1200RPM.</td>
<td>[ ] Yes  [ ] No</td>
</tr>
</tbody>
</table>

Describe exceptions to the specifications:

__________________________________________________________________________

__________________________________________________________________________

Section 6.14.4 Mower / Side Mount
### PART 1 - GENERAL CONT.

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hydraulic System</strong></td>
<td></td>
</tr>
<tr>
<td>Pump is to be gear type rated at 98 HP.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Motor is to be gear type rated at 128 HP.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Filter to be rated at 75 GPM, 25 microns with restriction gauge.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Reservoir to be 26 gallon.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Main control valve to be nonrestrictive, electric solenoid type, with starter lockout switch.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Suction hose to be 1-1/2&quot; ID.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Pressure hose drive and return to be 1&quot; ID.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td><strong>Main Frame</strong></td>
<td></td>
</tr>
<tr>
<td>Solid mount front, mid and rear.</td>
<td>[ ] Yes [ ] No</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Section 6.14.4 Mower / Side Mount
PART 2 – SERVICE / PARTS / WARRANTY / DELIVERY

Minimum Requirements of Local Agency

Bidder to provide description of all Warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts manual, safety manual, operator’s manual, and technical manual for base unit and all attachments and options shall be provided.

Highest consideration will be given to those bidders whose warranty facility is located nearest the owner’s base of operations which is located at:

____________________________________________________________________

____________________________________________________________________

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at bidder’s warranty facility) of 95% within 48 hours of the order by the owner.

Delivery time of preventative maintenance items such as filters, and hoses shall not exceed 24 hours to the owner’s base of operations.

Provided on Unit Proposed by Bidder

[ ] Yes          [ ] No

[ ] Yes          [ ] No

[ ] Yes          [ ] No

Location of warranty facility:

________________________________________

Distance from owner’s base of operations

________________________________________

_______% available within 48 hours

_______ hours delivery for PM parts

Describe exceptions to the Specifications:

____________________________________________________________________

____________________________________________________________________

Section 6.14.4 Mower / Side Mount
PART 2 – SERVICE / PARTS / WARRANTY / DELIVERY (CONT)

Minimum Requirements of Local Agency

Unit must be delivered to owner with all attachments and components substantially completed within ___________ days of the bid.

The bidder, and his Surety, shall be liable for and pay the owner at the rate of __________ dollars a day for each calendar day of delay after the owner’s specified date of delivery.

Provided on Unit Proposed by Bidder

Estimated delivery date:

__________________________

Describe exceptions to the Specifications:

______________________________________________________________

______________________________________________________________

______________________________________________________________
BASE PRICE FOR UNIT BEING BID

__________________

ADD - ON ALTERNATES

__________________
Add: ________________

__________________
Add: ________________

__________________
Add: ________________

DEDUCT ALTERNATES

Trade In (s)

Deduct: ________________

Year: ____________________
Make: ____________________
Model: ____________________
S / N: ____________________
Location: ____________________

NET PRICE: ________________

Bidder name, address, phone, contact:


Section 6.14.4 Mower / Side Mount
6.14.5 Mower / Standard 3 Point Hitch

Task Force:

Tom Martin          Program Manager          Indiana LTAP
Jerry Larson        Training Specialist       Indiana LTAP
John Habermann      Research Engineer        Indiana LTAP
Chuck Everett       Utility Manager          Town of Flora
Larry Campbell      Fleet Manager            Allen County

Owner Input Checklist:

Owner input is required on the following pages of this Specification.

Page  Description
1       Bid Bond Amount.
3       Cutting Width
4       Horse Power Rating
4       Hitch
5       Owner’s Base of Operations.
6       Delivery Time and Penalty.
7       Deduct Alternates (Trade-in information).

NOTE:
At the time these specifications were assembled, the following models are believed to be in substantial compliance with the specifications. This list may or may not represent a complete listing of all makes and models currently manufactured in conformance with the specifications.

John Deere, Alamo, Tiger, Woods

Section 6.14.5 Mower / Standard 3 Point Hitch
SPECIFICATIONS

For

Standard Rotary Mower

GENERAL

It is the intent of these specifications to describe a Standard Rotary Mower for mowing operations of the local agency, with sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be current model, new equipment, under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to be the best know Engineering Standards of the trade, relative to design, strength, quality, durability, and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any unit not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform to the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on the approved local agency bid form, with Non Collusion Affidavit and Bid Bond equal to __________ of the bid price. Bidder shall complete blanks in the right hand column of specifications under the heading "Provided on Unit Proposed by Bidder" and include this with the other items mentioned above. The Bidder shall also specifically mention items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner's minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owner's evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered and all attachments and options with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.
The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

**Term** “or **Equal**” Where the term “or equal” is used in these specifications and Bidder deviates from the specified item, shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same, and after a properly authorized representative of the “local agency” has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
### PART 1 - GENERAL INFORMATION

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Width</strong></td>
<td></td>
</tr>
<tr>
<td>Cutting width to be 84”</td>
<td>![Yes] ![No] Width_________</td>
</tr>
<tr>
<td><strong>Cutter Assembly</strong></td>
<td></td>
</tr>
<tr>
<td>Rotary cut with blades mounted on blade pan.</td>
<td>![Yes] ![No]</td>
</tr>
<tr>
<td>Blades shall be ½” x 4” heat treated steel with up draft design.</td>
<td>![Yes] ![No]</td>
</tr>
<tr>
<td><strong>Cutter Head</strong></td>
<td></td>
</tr>
<tr>
<td>To have ¼” x 9” steel sidewalls.</td>
<td>![Yes] ![No]</td>
</tr>
<tr>
<td>To have full-length replaceable skid shoes.</td>
<td>![Yes] ![No]</td>
</tr>
<tr>
<td>Deck shall be a minimum of 10 gauge steel with welded gussets at stress points.</td>
<td>![Yes] ![No]</td>
</tr>
<tr>
<td>Chain guards front and rear.</td>
<td>![Yes] ![No]</td>
</tr>
<tr>
<td><strong>Drive Line</strong></td>
<td></td>
</tr>
<tr>
<td>Single spindle PTO tractor powered.</td>
<td>![Yes] ![No]</td>
</tr>
<tr>
<td>PTO shaft to be shielded category 4 with slip clutch.</td>
<td>![Yes] ![No]</td>
</tr>
<tr>
<td>Gear box to be rated at 90 HP minimum.</td>
<td>![Yes] ![No]</td>
</tr>
</tbody>
</table>

Describe exceptions to the specifications:

---

---
PART 1 – GENERAL CONT.

Minimum Requirements of Local Agency

**Tail Wheel**

The tail wheel shall be laminated and castering.

[] Yes  [] No

**Cutting Height**

Shall be adjustable from 2” to 12”.

[] Yes  [] No

**Mounting Hitch**

Shall be category 2 three point hitch.

[] Yes  [] No

**HP Rating**

This shall be rated between 40 and 90 PTO HP with 540 and 1000 RPM PTO.

[] Yes  [] No

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.14.5 Mower / Standard  Page 4
PART 2 – SERVICE / PARTS / WARRANTY / DELIVERY

Minimum Requirements of Local Agency

Bidder to provide description of all Warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts manual, safety manual, operator’s manual, and technical manual for base unit and all attachments and options shall be provided.

Highest consideration will be given to those bidders whose warranty facility is located nearest the owner’s base of operations which is located at:

<table>
<thead>
<tr>
<th>Location of warranty facility:</th>
</tr>
</thead>
<tbody>
<tr>
<td>____________________________</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at bidder’s warranty facility) of 95% within 48 hours of the order by the owner.

Delivery time of preventative maintenance items such as filters, and hoses shall not exceed 24 hours to the owner’s base of operations.

<table>
<thead>
<tr>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>[] Yes</td>
</tr>
<tr>
<td>[] No</td>
</tr>
</tbody>
</table>

| [] Yes                               |
| [] No                                |

| [] Yes                               |
| [] No                                |

<table>
<thead>
<tr>
<th>Location of warranty facility:</th>
</tr>
</thead>
<tbody>
<tr>
<td>____________________________</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance from owner’s base of operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>________________________________________</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

| ___% available within 48 hours |
|________________________________|

| ____ hours delivery for PM parts |
|_________________________________|

Describe exceptions to the Specifications:

| ___________________________________________________________ |
|_________________________________________________________ |
|                                                        |
|                                                        |
|                                                        |
|                                                        |
|                                                        |
|                                                        |
PART 2 – SERVICE / PARTS / WARRANTY / DELIVERY (CONT)

Minimum Requirements of Local Agency

Unit must be delivered to owner with all attachments and components substantially completed within __________ days of the bid.

The bidder, and his Surety, shall be liable for and pay the owner at the rate of __________ dollars a day for each calendar day of delay after the owner’s specified date of delivery.

Provided on Unit Proposed by Bidder

Estimated delivery date:

__________________________________

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
BASE PRICE FOR UNIT BEING BID

________________________$  

ADD - ON ALTERNATES

________________________  
Add: ____________________$

________________________  
Add: ____________________$

________________________  
Add: ____________________$

DEDUCT ALTERNATES

Trade In (s)

Deduct: ____________________$

Year: __________________________
Make: __________________________
Model: __________________________
S / N: __________________________
Location: _________________________

NET PRICE: ____________________$

Bidder name, address, phone, contact:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Section 6.14.5 Mower / Standard  Page 7
6.15

Street Sweeper
6.15 Street Sweeper

6.15.1 Street Sweeper Mechanical
6.15.2 Street Sweeper Vacuum
6.15.3 Self Propelled Broom
6.15.4 Pull Type Broom
6.15.1 Street Sweeper Mechanical

Task Force

Jerry Larson
John Habermann
Larry Campbell
Chuck Everett
Larry McLin
Chuck Crouch
Training Specialist
Research Engineer
Fleet Manager
Utility Manager
Highway Supervisor
Highway Supervisor
Indiana LTAP
Indiana LTAP
City of Ft. Wayne
Town of Flora
Daviess County
Morgan County

Owner Input Checklist

Owner input is required on the following pages of this Specification:

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bid Bond Amount</td>
</tr>
<tr>
<td>4</td>
<td>Engine Options</td>
</tr>
<tr>
<td>8</td>
<td>Paint Color</td>
</tr>
<tr>
<td>11</td>
<td>Owner’s Base of Operations</td>
</tr>
<tr>
<td>12</td>
<td>Delivery Time and Penalty</td>
</tr>
<tr>
<td>13</td>
<td>Deduct Alternates (Trade-in information)</td>
</tr>
</tbody>
</table>
SPECIFICATIONS

for

Hydrostatic Drive Self-Propelled Street Sweeper with Mechanical Pickup

GENERAL

It is the intent of these specifications to describe a new Street Sweeper with Mechanical Pickup and three wheel chassis configuration in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The Street Sweeper shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best-known engineering standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform to the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, or form provided by the L.P.A. with Non Collusion Affidavit and Bid Bond equal to _________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “provided by Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owner’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs,
devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

**Term** "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
### Minimum Requirements of Local Agency

**Size:**
- Wheel Base 120”
- Turning Radius: 15’
- Overall Length: 215”
- Height: 115” maximum
- Width: 98”
- Sweeping Width: 120” minimum
- Weight Empty: 13,500 lbs

3.2 Cubic Yards Hopper Capacity

Hopper shall have 9,000 lbs lifting capacity

Hopper shall have:
- Safety Lockout System:
- Automatic open and close discharge door:
- Single switch dump control in cab:
- Shall be capable of dumping in single axle dump truck:

### Provided by Unit Proposed by Bidder

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Specification</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheel Base:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turning Radius:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Length:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Height:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweeping With:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight Empty:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hopper capacity:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifting capacity:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety Lockout System:</td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Automatic open and close discharge door:</td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Single switch dump control in cab:</td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Shall be capable of dumping in single axle dump truck:</td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### Engine:

Engine shall be diesel, 4 cylinder, four cycle engine min. 100 HP rated.

Fuel tank shall be 35 gallon minimum

Fuel and water separator

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Minimum Requirements of Local Agency

The engine shall be equipped with the following checked items:

- Electric start
- Alternator 120 amp min.
- Voltage regulator
- Heavy duty 12 volt (900CCA) battery
- Dry type air cleaner
- Disposable element oil filter
- Heavy duty liquid cooling system

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Provided by Unit Proposed by Bidder

Drive train:

Hydrostatic drive pump to be mounted directly to the engine, Bidder to furnish detailed information on the size and capacity type and make of the hydrostatic drive pump and motor.

Pump: ________________________________

______________________________

Speed to be infinitely variable from 0 to 20 mph.

Infinitely variable speed Yes [ ] No [ ]
Maximum speed __________ mph

Yes [ ] No [ ]

Road speed control shall be a single pedal automotive foot type.

Describe exceptions to the Specifications:

______________________________________________________________________________________________

______________________________________________________________________________________________

______________________________________________________________________________________________
Minimum Requirements of Local Agency

Brake:
Dynamic braking through hydrostatic transmission. Shall have dual hydraulic brakes on drive wheels sized to stop sweeper in emergency.

Parking brake:
Hydraulic with interlock device (will not start unless in neutral and brake set, torque hubs to have manual release for towing.)

Electrical System:
Shall be 12 volt negative ground.
All electrical connections, junction boxes, wires, and switches shall be sealed to prevent moisture from entering.

Yes [ ] No [ ]

Two sealed beam head lights.

Yes [ ] No [ ]

Break, tail, and turn lights

Yes [ ] No [ ]

One cab and one rear mounted strobe lights with limb guards.

Yes [ ] No [ ]

A rear mounted flashing arrow-stick light.

Yes [ ] No [ ]

Describe exceptions to the Specifications:

______________________________

______________________________

______________________________
Minimum Requirements of Local Agency

Wheels and Tires:

Steering wheels 6.75 10 hole steel disc
Drive wheels 8.25 X 22.5 steel disc
Steering tires 10R 75 radial tires load range H
Drive tires 11R 22.5 radial tires load range G

Provided by Unit Proposed by Bidder

Steering wheels: ______________________
Drive wheels: ______________________
Steering tires: ______________________
Drive tires: ______________________

Hydraulic System:

System capacity 40 gallons.

Hydraulic tank(s) shall have fill strainer and drain plug.

Suction and high pressure filter with restriction indicator.

Capacity: ______________________

Yes [ ]    No [ ]

Yes [ ]    No [ ]

Steering:

Steering shall be hydraulic power assisted.

Yes [ ]    No [ ]

Describe exceptions to the Specifications:

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
Minimum Requirements of Local Agency

Cab and Instruments:

Instruments:
Instrumentation shall be provided to monitor:

Fuel level
Engine oil pressure
Hydrostatic oil temperature
Engine coolant temperature
Voltmeter
Tachometer
Hour meter

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Audible and visible alarms shall be provided for:

High coolant temperature
High hydraulic temperature
Low engine oil

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Provided by Unit Proposed by Bidder

Cab:
Cab shall be fully enclosed, dust and weather sealed, and insulated with noise level not to exceed 85db.

Yes [ ] No [ ]

Cab shall be mounted for maximum operator vision.

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
### Minimum Requirements of Local Agency

Cab shall be equipped with the following items:

<table>
<thead>
<tr>
<th>Item</th>
<th>Provided by Unit</th>
<th>Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factory air conditioning.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Heater.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Defroster.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Tinted safety glass.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Sliding windows right and left side.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Dual west coast mirrors.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Tilt and telescoping steering wheel.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>High back air suspension operator's seat.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Secondary seat.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Safety belts for both seats.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>AM/FM stereo CD radio.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Cigarette lighter and ash tray.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Space and power supply for two way radio.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Lockable toolbox.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
</tbody>
</table>

Air or electric horn

Self adjusting backup alarm (87 to 100 db)

**Paint:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Provided by Unit</th>
<th>Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paint color shall be _____________________</td>
<td>Paint color is ___________________</td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

---

Section 6.15.1 – Street Sweeper Mechanical
Minimum Requirements of Local Agency

Sweeping:

Pickup Broom:
- Shall be 32” diameter and 58” long minimum.
- Shall be hydraulic direct drive and variable speed.
- Shall be hydraulic raised and lowered from cab.
- Shall be self adjusting for wear and pressure.

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
</tbody>
</table>

Gutter Brooms:
- Shall be right and left sides.
- Shall be 36” diameter minimum.
- Shall be hydraulic direct drive.
- Shall be hydraulic raised and lowered from cab.
- Shall be tilting adjusted from cab(right side).
- Shall be down pressure adjustable from cab.

<table>
<thead>
<tr>
<th></th>
<th>Dia.</th>
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</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
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<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
</tbody>
</table>

Dirt Conveyance System:
- Shall be hydraulic direct drive, variable speed, and reversible from cab.
- Shall have provisions for easy replacement.
- Shall have water flushing for dirt conveyance system and hopper with high output fixed spray jets.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
## Minimum Requirements of Local Agency

### Water System:
- Shall have 220 gallon corrosion proof, tank.
- Shall have low water indicator in cab.
- Shall have pump(s) with adequate flow to provide dust control and lubricate sweeping system.
- Shall have individual, adjustable, valves to control water flow to main and both gutter brooms.
- Shall have a 20 mesh inline filter.
- Shall have a 15’ hydrant hose, coupler, and wrench.

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
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<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

### Dirt Shoes:
- Shall be rubber construction and capable of floating over uneven surfaces.

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ] No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
WARRANTY / REPAIR PARTS

Minimum Requirements of Local Agency

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts, Service and Operators Manual to be included.

Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner’s base of operations, which is located at

____________________________________

____________________________________

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner’s base of operations.

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Location of warranty facility:

____________________________________

Distance from Owner’s base of operations:

____________________________________ mi

% available within 48 hours

_______ hours delivery for PM Parts

Describe exceptions to the Specifications:

____________________________________

____________________________________

____________________________________

Section 6.15.1 – Street Sweeper Mechanical
DATE OF DELIVERY

Minimum Requirements of Local Agency

Unit must be delivered to the Owner with all attachments and components substantially completed, within ____________ days of the acceptance of the bid.

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of ____________ $/day for each calendar day of delay after the Owner’s specified date of delivery.

Provided by Unit Proposed by Bidder

Estimated Delivery Time: __________ days

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.15.1 – Street Sweeper Mechanical
BASE PRICE FOR UNIT BEING BID

ADD ON ALTERNATES

List all vendors recommended add on items and their total cost.

Add: ___________ $

DEDUCT ALTERNATES

Trade In (s)

Deduct: ___________ $

Year: ____________________________
Make: ____________________________
Model: ____________________________
S/N: ____________________________
Location: ____________________________

Net Price: ___________ $

Bidder Name, Address, Phone, Contact:
________________________________________________________________________________________
________________________________________________________________________________________

Describe exceptions to the Specifications:
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
6.15.2 Street Sweeper Vacuum

Task Force

Jerry Larson Training Specialist Indiana LTAP
John Habernam Research Engineer Indiana LTAP
Larry Campbell Fleet Manager City of Ft. Wayne
Chuck Everett Utility Manager Town of Flora
Larry McLin Highway Supervisor Daviess County
Chuck Crouch Highway Supervisor Morgan County

Owner Input Checklist

Owner input is required on the following pages of this Specification:

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bid Bond Amount</td>
</tr>
<tr>
<td>3</td>
<td>Truck Options</td>
</tr>
<tr>
<td>3</td>
<td>Vacuum Type</td>
</tr>
<tr>
<td>5</td>
<td>Engine Options</td>
</tr>
<tr>
<td>10</td>
<td>Paint Color</td>
</tr>
<tr>
<td>11</td>
<td>Owner’s Base of Operations</td>
</tr>
<tr>
<td>12</td>
<td>Delivery Time and Penalty</td>
</tr>
<tr>
<td>13</td>
<td>Deduct Alternates (Trade-in information)</td>
</tr>
</tbody>
</table>
SPECIFICATIONS

for

Truck Mounted Self-Propelled Street Sweeper with Vacuum Pickup

GENERAL

It is the intent of these specifications to describe a new Street Sweeper with Vacuum Pickup in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The Street Sweeper shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best-known engineering standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform to the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, or form provided by the L.P.A. with Non Collusion Affidavit and Bid Bond equal to ________ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owner’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs,
devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

**Term or Equal** Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
Minimum Requirements of Local Agency

Cab and Chassis

[ ] The truck that unit is to be mounted on will be supplied by Local Agency.
Make: __________________________
Model: __________________________
Year: __________________________

[ ] The truck that unit is to be mounted on will be supplied by vendor model specified by Local Agency.
Make: __________________________
Model: __________________________
Year: __________________________

[ ] The truck that unit is to be mounted on will be supplied and specified by vendor.
Make: __________________________
Model: __________________________
Year: __________________________

A complete set of truck specifications to be attached to bid.

Yes [ ] No [ ]

Sweeper:
Vacuum type: [ ] Standard Vacuum
[ ] Regenerative Vacuum

[ ] Standard Vacuum
[ ] Regenerative Vacuum

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Minimum Requirements of Local Agency

**Hopper Body:**
8.0 Cubic Yards Hopper Capacity

Hopper shall have a fully sealed, top hinged, hydraulic open and close, rear door with water drain valve.

Body shall have tool free removable filter screens.

Body roof shall have removable plates to inspect and clean upper air chamber.

Body to be raised and lowered by means of a two stage hydraulic cylinder, minimum of 54 degree dump angle.

Body shall be equipped with catch basin cleaner.

Catch basin cleaner shall be spring raised and lowered, with 10’ feet of interlocking extension tubes.

---

Provided by Unit Proposed by Bidder

Hopper capacity: ____________________

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

---

Describe exceptions to the Specifications:

________________________________________

________________________________________

________________________________________

Section 6.15.2 – Street Sweeper Vacuum
### Minimum Requirements of Local Agency

**Sweeper Engine:**

- Engine shall be diesel, 4 cylinder, four cycle, turbo charged engine min. 99 rated HP
- Fuel tank shall be 50 gallon minimum
- Fuel and water separator.
- High coolant temperature and low oil pressure shut down system.
- Tachometer and hour meter.

The engine shall be equipped with the following checked items:

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric start</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternator 55 amp min.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage regulator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy duty 12 volt (900CCA) battery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry type air cleaner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disposable element oil filter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy duty liquid cooling system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gear driven water pump</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Provided by Unit Proposed by Bidder

- Make: ___________________________
- Model: _________________________
- Horsepower: ___________________

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tbody>
</table>

Describe exceptions to the Specifications:

_________________________________________________________________________________

_________________________________________________________________________________

_________________________________________________________________________________
**Minimum Requirements of Local Agency**

**Electrical System:**

Shall be 12 volt negative ground.

All electrical connections, junction boxes, wires, and switches shall be sealed to prevent moisture from entering.

Two sealed beam head lights.

Break, tail, and turn lights

One cab and one rear mounted strobe lights with limb guards.

Self adjusting backup alarm (87 to 100 db).

A rear mounted flashing arrow-stick light.

All wiring to be color coded and in weather proof loom.

**Provided by Unit Proposed by Bidder**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Yes [ ]</th>
<th>No [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shall be 12 volt negative ground.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All electrical connections, junction boxes, wires, and switches shall be</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sealed to prevent moisture from entering.</td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
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</tr>
<tr>
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</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Self adjusting backup alarm (87 to 100 db).</td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>All wiring to be color coded and in weather proof loom.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.15.2 – Street Sweeper Vacuum
Minimum Requirements of Local Agency

Hydraulic System:

System capacity 20 gallons.

Hydraulic tank(s) shall have fill strainer and drain plug and sight glass.

Filter with restriction indicator and water separator.

Vacuum Impeller Fan:

Fan shall be:

Direct drive via set-up gearbox or belts.

31” x 3” stainless anti-abrasion steel.

Hardened steel vanes.

Capable of generating suction to left heavy materials off road surface.

Fan to exhaust through sound suppressed sealed vent.

Provided by Unit Proposed by Bidder

Capacity:

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Describe exceptions to the Specifications:


Section 6.15.2 – Street Sweeper Vacuum
Minimum Requirements of Local Agency

**Vacuum Hose:**

Hoses shall be 10” diameter minimum, steel reinforced flexible rubber.

Provided by Unit Proposed by Bidder

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**Suction Nozzles:**

Nozzles shall be of heavy duty construction with replaceable skirts, liners, and curb guards.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

Nozzles shall have water jets.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

Nozzles shall be raised and lowered hydraulically and be independent of each other.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**Air System:**

Air to be supplied by truck compressor in a fashion not to effect truck breaking system.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

Shall have automatic air dryer.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

Shall have independent air reservoir for sweeper.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

Air system shall operate wide sweep, nozzle, and gutter broom raise and lower.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

Describe exceptions to the Specifications:

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________
Minimum Requirements of Local Agency

Sweeping:

**Wide Sweep Broom:**
Shall be 16” diameter and 50” long.
Shall be hydraulic direct drive.
Shall be pneumatic raised and lowered from cab.
Shall be self adjusting for wear and pressure.
Shall be enclosed with minimum of 4 water jets.
Shall be independent of other sweeping gear.

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
</tbody>
</table>

**Gutter Brooms:**
Shall be right side.
Shall be 28” diameter.
Shall be hydraulic direct drive.
Shall be pneumatic raised and lowered from cab.
Shall be tilting adjusted from cab.
Shall be rotational speed controlled from cab.
Shall be down pressure adjustable from cab.
Shall be equipped 2 water jets.
Shall be interchangeable right or left side.

<table>
<thead>
<tr>
<th></th>
<th>Dia. [ ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
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<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
### Minimum Requirements of Local Agency

**Water System:**
- Shall have 300 gallon corrosion proof, tank.  
  - Yes [ ] No [ ]
- Shall have low water indicator in cab.  
  - Yes [ ] No [ ]
- Shall have pump(s) capable of flow to control dust and lubricate sweeping system.  
  - Yes [ ] No [ ]
- Shall have individual, adjustable, valves to control water flow to wide sweep and gutter broom(s).  
  - Yes [ ] No [ ]
- Shall have a 20 mesh inline filter.  
  - Yes [ ] No [ ]
- Shall have a 15’ hydrant hose, coupler, and wrench.  
  - Yes [ ] No [ ]
- Shall have a 25’ wash down hose with trigger nozzle.  
  - Yes [ ] No [ ]
- Shall have all corrosion proof water lines.  
  - Yes [ ] No [ ]
- Shall have high pressure spray bar mounted on front bumper for road surface wash down.  
  - Yes [ ] No [ ]
- Shall air purge system wide to prevent freezing.  
  - Yes [ ] No [ ]

**Paint:**
- Paint color shall be __________________________  
  - Paint color is __________________________

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
WARRANTY / REPAIR PARTS

Minimum Requirements of Local Agency

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts, Service and Operators Manual to be included.

Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner’s base of operations, which is located at


Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner’s base of operations.

Provided by Unit Proposed by Bidder

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Yes [ ]  No [ ]

Location of warranty facility:

Distance from Owner’s base of operations:

% available within 48 hours

hours delivery for PM Parts

Describe exceptions to the Specifications:


Section 6.15.2 – Street Sweeper Vacuum

Page 11
DATE OF DELIVERY

Minimum Requirements of Local Agency

Unit must be delivered to the Owner with all attachments and components substantially completed, within ____________ days of the acceptance of the bid.

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of ____________ $/day for each calendar day of delay after the Owner’s specified date of delivery.

Provided by Unit Proposed by Bidder

Estimated Delivery Time: ____________ days

Describe exceptions to the Specifications:

____________________________________________________________________________________________________________________________

____________________________________________________________________________________________________________________________

____________________________________________________________________________________________________________________________
BASE PRICE FOR UNIT BEING BID


ADD ON ALTERNATES

List all vendors recommended add on items and their total cost.       Add: _________ $

DEDUCT ALTERNATES

Trade In (s)       Deduct: _________ $

Year: ____________________________
Make: ____________________________
Model: ____________________________
S/N: ____________________________
Location: ____________________________

Net Price: _________ $

Bidder Name, Address, Phone, Contact:
________________________________________________________________________________
________________________________________________________________________________

Describe exceptions to the Specifications:
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

Section 6.15.2 – Street Sweeper Vacuum
6.15.3 - Self Propelled Broom

Task Force

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jerry Larson</td>
<td>Training Specialist</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>John Habermann</td>
<td>Research Engineer</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>Larry Campbell</td>
<td>Fleet Manager</td>
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</tr>
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<td>Chuck Everett</td>
<td>Utility Manager</td>
<td>Town of Flora</td>
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<td>Highway Supervisor</td>
<td>Daviess County</td>
</tr>
<tr>
<td>Chuck Crouch</td>
<td>Highway Supervisor</td>
<td>Morgan County</td>
</tr>
</tbody>
</table>

Owner Input Checklist

Owner input is required on the following pages of this Specification:

- Page 1: Bid Bond Amount
- Page 4: Engine Options
- Page 8: Cab Equipment
- Page 8: Paint Color
- Page 11: Owner’s Base of Operations
- Page 12: Delivery Time and Penalty
- Page 13: Deduct Alternates (Trade-in information)
SPECIFICATIONS

for

Hydrostatic Drive Self-Propelled Power Broom

GENERAL

It is the intent of these specifications to describe a new hydrostatic drive self-propelled power broom in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The Power Broom shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best-known engineering standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform to the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, or form provided by the L.P.A. with Non Collusion Affidavit and Bid Bond equal to _______ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owner’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs,
devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

**Term "or Equal"** Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance of Unit Payment** for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
Minimum Requirements of Local Agency

Size:
Turning Radius: 13.5’
Overall Length: 170”
Height: 100”
Width: 96”
Sweeping Width: 90” minimum.
Weight Empty: less than 5000 lbs

Provided by Unit Proposed by Bidder

Turning Radius
Overall Length:
Height:
Width:
Sweeping With:
Weight Empty:

Engine:

Engine shall be diesel, 4 cylinder, four cycle engine min. 75 rated HP

Fuel tank shall be 35 gallon minimum

Fuel and water separator

Make:
Model:
Horsepower:

Yes [ ]    No [ ]

Yes [ ]    No [ ]

Describe exceptions to the Specifications:

_____________________________________________________

_____________________________________________________

_____________________________________________________

Section 6.15.3- Self Propelled Broom
Minimum Requirements of Local Agency

The engine shall be equipped with the following checked items:

____ Electric start
____ Alternator 120 amp min.
____ Voltage regulator
____ Heavy duty 12 volt (900CCA) battery
____ Turbo 2 Precleaner or Sy-Klone
____ Extended air stack
____ Disposable element oil filter
____ Heavy duty liquid cooling system
____ Ether Starting Aid

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Drive train:

Hydrostatic drive pump and motor to be mounted to two speed with neutral for towing

Low gear 0-13 MPH.

High gear 0-30 MPH.

Road speed control shall be a single pedal automotive foot type.

Pump: ________________________________

______________________________

Yes [ ] No [ ]
Yes [ ] No [ ]

Maximum speed ____________ mph

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Minimum Requirements of Local Agency

**Brake:**
4 wheel hydraulic with dual master cylinders.

**Parking brake:**
Mechanical with hand lever.

**Electrical System:**
Shall be 12 volt negative ground.
All electrical connections, junction boxes, wires, and switches shall be sealed to prevent moisture from entering.
Two sealed beam head lights and two rear facing work light.
Break, tail, and turn lights
One cab and one rear mounted strobe lights.
A rear mounted flashing arrow-stick light.

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service brake system</td>
</tr>
<tr>
<td>Parking brake system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:


Section 6.15.3- Self Propelled Broom
Minimum Requirements of Local Agency

Wheels and Tires:

Wheels 15” 5 blot heavy duty.

Tires P235/75 R15 radial tires load range C.

Axles:

Front axle heavy duty oscillating with drum breaks with fenders.

Rear axle ¾ ton heavy duty with drum breaks.

Hydraulic System:

System capacity 20 gallons.

Hydraulic tank(s) shall have fill strainer and drain plug.

Suction and high pressure filter with restriction indicator and water separator.

Pump capacity 27 GPM @ 2500 PSI.

Steering:

Steering shall be orbital type power steering.

Provided by Unit Proposed by Bidder

Wheels:__________________________

Tires:__________________________

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cab and Instruments:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Instruments:</strong></td>
<td></td>
</tr>
<tr>
<td>Instrumentation shall be provided to monitor:</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Fuel level</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Engine oil pressure</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Hydrostatic oil temperature</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Engine coolant temperature</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Voltmeter</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Tachometer</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Hour meter</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Audible and visible alarms shall be provided for</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>High coolant temperature</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>High hydraulic temperature</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Low engine oil</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Low fuel level</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Engine safety shut down system.</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td><strong>Cab:</strong></td>
<td></td>
</tr>
<tr>
<td>Cab shall be fully enclosed, dust and weather sealed, and insulated with noise level not to exceed 80db with roll over protection to met federal standards.</td>
<td>Yes [ ]   No [ ]</td>
</tr>
<tr>
<td>Cab shall be mounted front and center for maxim operator vision.</td>
<td>Yes [ ]   No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:


Section 6.15.3 – Self Propelled Broom
Minimum Requirements of Local Agency

Cab shall be equipped with the following items if checked.

- Factory air conditioning.
- Heater.
- Defroster.
- Tinted safety glass.
- Rear view mirrors.
- Tilt and telescoping steering wheel.
- Standard seat with arm rest.
- Suspension seat with arm rest.
- Safety belts.
- AM/FM stereo CD radio.
- Cigarette lighter and ash tray.
- Space and power supply for two way radio.
- Lockable toolbox.
- Electric horn
- Self adjusting backup alarm (87 to 100 db)
- Windshield washer front and rear.
- Windshield wiper front and rear.

Provided by Unit Proposed by Bidder

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factory air conditioning</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Heater</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Defroster</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Tinted safety glass</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Rear view mirrors</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Tilt and telescoping steering wheel</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Standard seat with arm rest</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Suspension seat with arm rest</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Safety belts</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>AM/FM stereo CD radio</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cigarette lighter and ash tray</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Space and power supply for two way radio</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Lockable toolbox</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Electric horn</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Self adjusting backup alarm (87 to 100 db)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Windshield washer front and rear</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Windshield wiper front and rear</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Paint:

Paint color shall be ___________________________  Paint color is ___________________________

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Minimum Requirements of Local Agency

Provided by Unit Proposed by Bidder

**Sweeping:**

**Broom:**
Shall be 32” diameter and 96” long.
Shall be hydraulic direct drive, enclosed in broom core, and operate at 240RPM.
Shall be hydraulic raised and lowered from cab.
Brush core shall be 8” steel welded construction.
Core cover shall be 140 degrees 16 gauge steel with rock deflector.
Swing frame shall be mounted on heavy duty sealed bearings.
Sweeping angle shall be adjustable to 45 degrees left or right.
Broom controls shall be single lever joystick control to adjust down pressure, sweep angle, height, and float.

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
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<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
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<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
</tbody>
</table>

**Other:**

Spare tire with mount.
Tow hitch with safety chains.
Front and rear bumpers.

Yes [ ]  No [ ]
Yes [ ]  No [ ]
Yes [ ]  No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
**Minimum Requirements of Local Agency**

**Provided by Unit Proposed by Bidder**

<table>
<thead>
<tr>
<th><strong>Water System:</strong></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shall have 150 gallon corrosion proof, tank.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Shall have low water indicator in cab.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Shall have 2.5 GPM electric pump.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Shall have strainer filter.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Shall have 8 spray nozzles.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
<tr>
<td>Shall have a back flow valve to prevent draining when not in use.</td>
<td>Yes [ ]</td>
<td>No [ ]</td>
</tr>
</tbody>
</table>

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
WARRANTY / REPAIR PARTS

Minimum Requirements of Local Agency

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts, Service and Operators Manual to be included.

Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner’s base of operations, which is located at

__________________________

__________________________

__________________________

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner’s base of operations.

Provided by Unit Proposed by Bidder

Yes [  ]   No [  ]

Yes [  ]   No [  ]

Yes [  ]   No [  ]

Location of warranty facility:

__________________________

Distance from Owner’s base of operations:

__________________________mi

% available within 48 hours

__________

hours delivery for PM Parts

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.15.3 – Self Propelled Broom
DATE OF DELIVERY

Minimum Requirements of Local Agency

Unit must be delivered to the Owner with all attachments and components substantially completed, within ____________ days of the acceptance of the bid.

Provided by Unit Proposed by Bidder

Estimated Delivery Time: ____________ days

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of ____________ $/day for each calendar day of delay after the Owner’s specified date of delivery.

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.15.3 – Self Propelled Broom
BASE PRICE FOR UNIT BEING BID


ADD ON ALTERNATES

List all add on items.


DEDUCT ALTERNATES

Trade In (s)

Deduct: $ ________

Year: _______________________
Make: _______________________
Model: _______________________
S/N: _______________________
Location: _______________________

Net Price: $ ________

Bidder Name, Address, Phone, Contact:


Describe exceptions to the Specifications:


6.15.4 – Pull-Type Broom

Task Force

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jerry Larson</td>
<td>Training Specialist</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>John Habermann</td>
<td>Research Engineer</td>
<td>Indiana LTAP</td>
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<tr>
<td>Larry Campbell</td>
<td>Fleet Manager</td>
<td>City of Ft. Wayne</td>
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<td>Chuck Everett</td>
<td>Utility Manager</td>
<td>Town of Flora</td>
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<td>Daviess County</td>
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<td>Highway Supervisor</td>
<td>Morgan County</td>
</tr>
</tbody>
</table>

Owner Input Checklist

Owner input is required on the following pages of this Specification:

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bid Bond Amount</td>
</tr>
<tr>
<td>3</td>
<td>Model Size</td>
</tr>
<tr>
<td>3</td>
<td>Hitch Style</td>
</tr>
<tr>
<td>4</td>
<td>Engine Options</td>
</tr>
<tr>
<td>8</td>
<td>Paint Color</td>
</tr>
<tr>
<td>11</td>
<td>Owner’s Base of Operations</td>
</tr>
<tr>
<td>12</td>
<td>Delivery Time and Penalty</td>
</tr>
<tr>
<td>13</td>
<td>Deduct Alternates (Trade-in information)</td>
</tr>
</tbody>
</table>
SPECIFICATIONS

for

Pull Type Power Broom

GENERAL

It is the intent of these specifications to describe a new Pull Type Power Broom in sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete unit, shall be included in the bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The Power Broom shall be a current model under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to the best-known engineering standards of the trade, relative to design, strength, quality, durability and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any units not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform to the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to the requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on State Form No 95, or form provided by the L.P.A. with Non Collusion Affidavit and Bid Bond equal to _______ of the bid price. Bidder shall complete blanks in the right hand column of the specifications under the heading “Provided by Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention those items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owner’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.

The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs,
devices, or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

**Term** "or **Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, he shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

**Acceptance** of Unit Payment for the above unit(s) shall be made after delivery of same and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
Minimum Requirements of Local Agency

Size:
- 7' Model
- 8' Model
Overall Length: 160" less tow pole
Height: 58" or less
Width: 98" for 7' and 110" for 8' or less
Sweeping Width: 72" for 7' and 84" for 8'
Weight Empty: less than 1600 lbs

Engine:
Engine shall be gasoline, 2 cylinder, four cycle, air cooled, engine min. 18 HP
Fuel tank shall be 7.5 gallon minimum

Hitch:
- Two wheeled bumper style.
- Three wheeled bumper style.
- Two wheeled fifth wheel style.

Provided by Unit Proposed by Bidder

Model Width:
Overall Length:
Height:
Width:
Sweeping With:
Weight

Make:
Model:
Horsepower:

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________

________________________________________

________________________________________

________________________________________
Minimum Requirements of Local Agency | Provided by Unit Proposed by Bidder

The engine shall be equipped with the following checked items:

- [ ] Electric start
- [ ] Alternator
- [ ] Voltage regulator
- [ ] Heavy duty 12 volt (70CCA) battery
- [ ] Turbo 2 Pre cleaner or Sy-Klone
- [ ] Extended air stack
- [ ] Disposable element oil filter

Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]
Yes [ ] No [ ]

Electrical System:

Shall be 12 volt negative ground.

Yes [ ] No [ ]

All electrical connections, junction boxes, wires, and switches shall be sealed to prevent moisture from entering.

Yes [ ] No [ ]

Remote control box weather proof with 30' of cord for in cab control of swing, raise and lower, rotation, engine on off and start.

Yes [ ] No [ ]

Break, tail, and turn lights

Yes [ ] No [ ]

One rear mounted strobe light.

Yes [ ] No [ ]

A rear mounted flashing arrow-stick light.

Yes [ ] No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Section 6.15.4- Pull Type Broom
Minimum Requirements of Local Agency

Wheels and Tires:

Wheels 15" 5 blot heavy duty pressed steel.

Tires G78X15 radial tires load range B or equal.

Axles:

Axles to be heavy duty with tapered roller bearings and five bolt hubs for highway speed operation.

Hydraulic System:

System capacity 5 gallons.

Hydraulic tank shall have fill strainer and drain plug.

Suction filter.

Pump capacity 12 GPM @ 2500 PSI.

Pump shall be gear type directly coupled to engine.

Provided by Unit Proposed by Bidder

Wheels: ____________________________

Tires: ____________________________

Yes [ ]   No [ ]

Capacity: ____________________________

Yes [ ]   No [ ]

Yes [ ]   No [ ]

Yes [ ]   No [ ]

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Section 6.15.4 – Pull Type Broom
**Minimum Requirements of Local Agency**

**Sweeping:**

**Broom:**
Shall be 30” diameter and 96” long.
Shall be hydraulic direct drive.
Shall be hydraulic raised and lowered from cab.
Brush core shall be 8” steel welded construction.
Core cover shall be 180 degrees 16 gauge steel with rock deflector.
Swing frame shall be mounted on heavy duty sealed bearings.
Sweeping angle shall be adjustable to 30 degrees left or right.
Broom controls shall be hydraulically controlled to adjust down pressure, sweep angle, height, and float.

**Other:**
Spare tire with mount.
Tow hitch with safety chains.

**Provided by Unit Proposed by Bidder**

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Length</th>
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<tbody>
<tr>
<td>Yes [ ]</td>
<td>No [ ]</td>
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<td>Yes [ ]</td>
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<td>Yes [ ]</td>
<td>No [ ]</td>
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</tbody>
</table>

Describe exceptions to the Specifications:

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

Section 6.15.4 – Pull Type Broom
Minimum Requirements of Local Agency

**Water System:**
Shall have 150 gallon corrosion proof, tank.
Shall have 2.5 GPM electric pump.
Shall have strainer filter.
Shall have 8 spray nozzles.
Shall have a back flow valve to prevent draining when not in use.

<table>
<thead>
<tr>
<th>Provided by Unit</th>
<th>Proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes [ ]</td>
<td>Yes [ ]</td>
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<td>No [ ]</td>
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<td>Yes [ ]</td>
<td>Yes [ ]</td>
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<tr>
<td>No [ ]</td>
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</tbody>
</table>

**Paint:**

Paint color shall be ______________________

Paint color is ______________________

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
WARRANTY / REPAIR PARTS

Minimum Requirements of Local Agency

Bidder to provide description of all warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts, Service and Operators Manual to be included.

Highest consideration will be given to those Bidders whose warranty facility is located nearest the Owner’s base of operations, which is located at

________________________________________

________________________________________

________________________________________

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at the Bidder’s warranty facility) of 95% within 48 hours of the order by the Owner.

Delivery time of preventative maintenance items such as filters, belts, and hoses shall not exceed 24 hours to the Owner’s base of operations.

Provided by Unit Proposed by Bidder

Yes [ ] No [ ]

Yes [ ] No [ ]

Yes [ ] No [ ]

Location of warranty facility:

________________________________________

Distance from Owner’s base of operations:

________________________________________ mi

% available within 48 hours

% hours delivery for PM Parts

Describe exceptions to the Specifications:

________________________________________

________________________________________

________________________________________

Section 6.15.4 – Pull Type Broom
DATE OF DELIVERY

Minimum Requirements of Local Agency

Unit must be delivered to the Owner with all attachments and components substantially completed, within ____________ days of the acceptance of the bid.

The Bidder, and his Surety, shall be liable for and pay the Owner at the rate of ____________ $/day for each calendar day of delay after the Owner’s specified date of delivery.

Provided by Unit Proposed by Bidder

Estimated Delivery Time: ____________ days

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
BASE PRICE FOR UNIT BEING BID


ADD ON ALTERNATES

List all add on items.

Add: ____________ $

DEDUCT ALTERNATES

Trade In (s)

Deduct: ____________ $

Year: ____________________________________
Make: ____________________________________
Model: ____________________________________
S/N: ____________________________________
Location: ________________________________

Net Price: ____________ $

Bidder Name, Address, Phone, Contact:

________________________________________________________________________
________________________________________________________________________

Describe exceptions to the Specifications:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
6.16

Rubber Tire Loader/Backhoe
6.16 Rubber Tire Loader / Backhoe

6.16.1 Rubber Tire Loader / Backhoe Specifications

6.16.2 Rubber Tire Loader / Backhoe Vendor List
6.16.1 - Rubber Tire Loader/ Backhoe

Task Force:

<table>
<thead>
<tr>
<th>Tom Martin</th>
<th>Program Manager</th>
<th>Indiana LTAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jerry Larson</td>
<td>Training Specialist</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>John Habermann</td>
<td>Research Engineer</td>
<td>Indiana LTAP</td>
</tr>
<tr>
<td>Larry Campbell</td>
<td>Fleet Manager</td>
<td>Allen County</td>
</tr>
</tbody>
</table>

Owner Input Checklist:

Owner input is required on the following pages of this Specification.

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>[]</td>
<td>1 - Bid Bond Amount.</td>
</tr>
<tr>
<td>[]</td>
<td>4 - 4 Wheel Drive Option.</td>
</tr>
<tr>
<td>[]</td>
<td>9 - Loader Bucket Option.</td>
</tr>
<tr>
<td>[]</td>
<td>10 - Extendable Dipper Option.</td>
</tr>
<tr>
<td>[]</td>
<td>11 - Counter Weight Option.</td>
</tr>
<tr>
<td>[]</td>
<td>11 - Cold Weather Starting Aid.</td>
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<tr>
<td>[]</td>
<td>11 - Quick Attach / Detach Option.</td>
</tr>
<tr>
<td>[]</td>
<td>13 - Owner's Base of Operations.</td>
</tr>
<tr>
<td>[]</td>
<td>14 - Delivery Time and Penalty.</td>
</tr>
<tr>
<td>[]</td>
<td>15 - Deduct Alternates (Trade-in information).</td>
</tr>
</tbody>
</table>

NOTE:
At the time these specifications were assembled, the following models are believed to be in substantial compliance with the specifications. This list may or may not represent a complete listing of all makes and models currently manufactured in conformance with the specifications.

New Holland LB90, John Deere 310SG, Cat 420D, Case580 Super M.

Section 6.16.1 - Rubber Tire Loader/ Backhoe
SPECIFICATIONS

For

Rubber Tire Loader / Backhoe

GENERAL

It is the intent of these specifications to describe a loader / backhoe for loading and digging operations of the local agency, with sufficient detail to secure bids on comparable equipment. All parts not specifically mentioned, which are necessary to provide a complete and safe unit, shall be included in bid and shall conform in strength and quality of material and workmanship to what is usually provided to the trade in general. The unit shall be current model, new equipment, under standard production by the manufacturer.

Unit shall be manufactured and assembled with conformance to be the best know Engineering Standards of the trade, relative to design, strength, quality, durability, and workmanship. Every item assembled upon this unit must meet the latest Federal Safety Standards.

Any unit not in substantial compliance with these specifications will be rejected. It will be the responsibility of the Bidder to conform to the requirements unless deviations have been specifically cited by the Bidder and acceptance made on the basis of the exception.

Special attention is particularly called to requirements of the Indiana State Board of Accounts and the local agency in regard to submitting proposals.

All bids are to be submitted on the approved local agency bid form, with Non Collusion Affidavit and Bid Bond equal to __________ of the bid price. Bidder shall complete blanks in the right hand column of specifications under the heading “Provided on Unit Proposed by Bidder” and include this with the other items mentioned above. The Bidder shall also specifically mention items where the unit being bid does not meet the Owners minimum requirements at the bottom of the page where that item is mentioned. It is brought to the attention of the Bidder that not meeting the Owner’s minimum requirements does not necessarily mean that the bid will be rejected. The degree to which the unit conforms to the specifications will be considered in the Owner’s evaluation of the bids.

Bidders shall also attach literature or brochure of the model being offered and all attachments and options with his bid. The Bid shall include the cost for and delivery of a Parts Book and a Service Manual for the model being bid.
The successful Bidder shall indemnify and save harmless the local agency from any and all suits, costs and penalties or claims for infringements by reason of use of any patented designs, devices or materials or any trademark or copyright in connection with the specific unit furnished under this proposal at anytime during manufacture and after purchase of the specified unit(s).

Term "or Equal" Where the term "or equal" is used in these specifications and Bidder deviates from the specified item, shall file (with his bid) a letter fully explaining and justifying his proposed article or equal.

Acceptance of Unit Payment for the above unit(s) shall be made after delivery of same, and after a properly authorized representative of the "local agency" has given his approval of the satisfactory delivery and operation of said unit(s).

A certificate of origin shall be furnished with each unit as it is delivered.
**PART 1- GENERAL INFORMATION**

**Minimum Requirements of Local Agency**

Operating weight: 14000 pounds minimum.

Travel height: 12' maximum.

**ENGINE**

4 cylinders, four cycle, turbo-charged with the following minimum specifications:

Horsepower (SEA Gross), min. 85HP.

Torque (SAE NET) Min. 270 ft-lb.

**Provided on Unit Proposed by Bidder**

Operating weight ___________ pounds

Travel height _____ feet ____ inches

Make: _______________________

Model: ______________________

Horsepower

SAE Gross _________________

SAE Net _________________

Torque: _________________ SAE NET @ __________________________ RPM

Engine block heater 1000-watt min.

Fuel filter water separator.

Engine oil cooler.

Pre-cleaner (air intake).

Dry-type air filter two stage with restriction indicator.

Over flow recovery.

Spin-on type coolant filter.

Silicone hose system or equal.

Fin and tube type radiator having maximum cooling capacity.

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</tbody>
</table>

Radiator capacity: ___________ Gallons

Describe exceptions to the specifications:

______________________________________________________________

______________________________________________________________

Section 6.16.1-Rubber Tire Loader/ Backhoe
PART 1 – GENERAL CONT.

Minimum Requirements of Local Agency

TRANSMISSION

Full power shuttle w/ torque converter.
4 speeds forward.
4 speeds reverse.
Top speed forward, 20mph min.
Auxiliary transmission cooler.
Auxiliary Filter.
Automatic transmission disconnect.

Provided on Unit Proposed by Bidder

[] Yes     [] No
Number of speeds forward ________
Number of speeds reverse ________
Top speed forward ________ mph

[] Yes     [] No
[] Yes     [] No
[] Yes     [] No

DRIVELINE:

Planetary drive axels.

[] 4 wheel drive.
[] 2 wheel drive.

[] Manual    [] Electronic    [] None

Differential lock.

TIRES

Front: 12 X 16.5, 8 Ply rating.

Rear: 19.5 X 24, 10 Ply rating.

______ X ______ , _______ Ply rating
______ X ______ , _______ Ply rating

Describe exceptions to the specifications:

________________________________________________________________________
________________________________________________________________________
### PART 1- GENERAL CONT

**Minimum Requirements of Local Agency**

**BRAKES:**

Multiple wet disk brakes must be sealed and fully enclosed to allow operation in water, mud, snow, and other adverse conditions without encountering brake failure.

Self-adjusting parking/secondary brake must be mechanically applied, independent of service brake and shall and be of sufficient design to hold the weight of the machine on a 30-degree slope.

**HYDRAULIC SYSTEM:**

Pump minimum 35 gpm at 2200 rpm.

Relief pressure at 3000-psi minimum.

Minimum hydraulic tank capacity of 20 gallons w/sight glass.

Hoses routed through alignment clamps and have SAE standard fittings.

Hydraulic system filter, 10 micron, maximum.

Multiple attachment hydraulic circuit.

(Backhoe control style to be determined at time of order.)

<table>
<thead>
<tr>
<th>Provided by Unit Proposed by Bidder</th>
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<tbody>
<tr>
<td>- Yes</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Minimum ____ gpm @ 2200 rpm</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Relief pressure __________ psi</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Tank capacity of ______ gallons</th>
</tr>
</thead>
</table>

<table>
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<tr>
<th>- Yes</th>
<th>- No</th>
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</thead>
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<tr>
<th>- Yes</th>
<th>- No</th>
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<tr>
<th>- Yes</th>
<th>- No</th>
</tr>
</thead>
</table>

### Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________
PART 1 – GENERAL CONT.

Minimum Requirements of Local Agency

ELECTRICAL SYSTEM:

2 – 12 Volt batteries with 1400 CCA.

Starter shall be rated at the heaviest duty for this application by the manufacturer.

Alternator shall be minimum of 65 amps.

4 front floodlights.

4 rear floodlights.

2 rear tail and stop lights.

Turn signals, front and rear.

4-way flashers.

Provided by Unit Proposed by Bidder

[ ] Yes [ ] No

Starter: __________________________

Type: __________________________

[ ] Yes [ ] No

[ ] Yes [ ] No

[ ] Yes [ ] No

[ ] Yes [ ] No

[ ] Yes [ ] No

Describe exceptions to the Specifications:

________________________________________________________________________

________________________________________________________________________
## PART 2- OPERATOR STATION / ENVIRONMENT

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided by Unit proposed by Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROPS fully enclosed steel sound – suppressed cab (SAE J1040, 80 dBA) with roll – over protection (SAE J 394).</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>High output heater.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Air conditioning factory installed (134A).</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>AM/FM Radio factory installed.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Defroster fan.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Windshield washer/wipers front and rear.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Tilt steering wheel.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Rear view mirror internal.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Dual outside cab mirrors.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Deluxe suspension cloth seat air or Mechanical.</td>
<td>[ ] Air [ ] Mechanical</td>
</tr>
<tr>
<td>Height adjustable</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Weight adjustable</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Leg reach adjustable</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Back angle adjustable</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Seat belt 3” retractable</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Arm rest adjustable</td>
<td>[ ] Yes [ ] No</td>
</tr>
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</table>

Describe exceptions to the Specifications:

__________________________________________

__________________________________________

Section 6.16.1 – Rubber Tire Loader/ Backhoe
Part 2 – OPERATOR STATION / ENVIRONMENT (CONT)

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provided on Unit Proposed by Bidder</th>
</tr>
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<tbody>
<tr>
<td><strong>INSTRUMENTS:</strong></td>
<td></td>
</tr>
<tr>
<td>Tachometer / Hour meter</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Fuel Gauge</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Transmission oil temperature</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Engine coolant temperature</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Engine oil pressure</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Electric hour meter</td>
<td>[] Yes  [] No</td>
</tr>
<tr>
<td>Electric voltage</td>
<td>[] Yes  [] No</td>
</tr>
</tbody>
</table>

| **VISUAL WARNINGS:**                  |                                     |
| Engine coolant system                 | [] Yes  [] No                        |
| Engine oil pressure system            | [] Yes  [] No                        |
| Parking brake warning                 | [] Yes  [] No                        |
| Fasten Seat Belt                      | [] Yes  [] No                        |

| **AUDIBLE WARNINGS:**                 |                                     |
| Engine coolant system                 | [] Yes  [] No                        |
| Engine oil system                     | [] Yes  [] No                        |

| **FILTER RESTRICTIONS INDICATOR:**    |                                     |
| Air                                  | [] Yes  [] No                        |
| Transmission oil                     | [] Yes  [] No                        |
| Hydraulic                            | [] Yes  [] No                        |

Describe exceptions to the Specifications:
**PART 3 – FRONT LOADER**

**Minimum Requirements of Local Agency**

**LOADER:**

- [] 4 in 1 multi-purpose bucket.
- [] Standard Bucket.
- 1.25 CY capacity minimum.
- Bolt on cutting edge.
- Spill guard.
- Automatic leveler.
- Chain hooks. (for lifting)
- Forklift style forks.
- Loader boom service locking bar to be In accordance with SAE J38.
- Break-out force 8000 pounds minimum.
- Lift capacity @ ground level 6000 lb minimum.
- Bucket shall have a dump clearance of 8' minimum at a 40 degree dump angle.

**Provided on Unit Proposed by Bidder**

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
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<tr>
<td>Capacity, _____, CY</td>
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<tr>
<td>[] Yes</td>
<td>[] No</td>
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<td>[] Yes</td>
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<td>[] Mounted</td>
<td>[] Quick detach</td>
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<tr>
<td>[] Yes</td>
<td>[] No</td>
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</tbody>
</table>

Break – out force: ________ lbs
Lift capacity ________ lbs
Dump clearance: ________ ft.

Describe exceptions to the Specifications:

_________________________________________________________________________

_________________________________________________________________________
PART 4 – BACKHOE

Minimum Requirements of Local Agency

DIGGING SPECIFICATIONS:

[ ] Extendable dipper  [ ] Standard dipper
(Use retracted specifications as minimums for
standard dipper.)

Minimum dig depth:
14’ retracted
18’ extended

Minimum reach from center pivot:
18’ retracted
21’ extended

Minimum loading height:
11’ retracted
13’ extended

Minimum loading reach:
5’4” retracted
9’ extended

Minimum swing arc 180 degrees.

Minimum lifts capacity 4000 lbs.

Minimum digging force:
Bucket cylinder 12,000 lbs
Crowd cylinder 8000 lbs.(retracted)
(5600 extended)

Stabilizers are to have nine feet spread
and a leveling capacity of 12 degrees.

Provide on Unit Proposed by Bidder

[ ] Yes  [ ] No

Depth:
_____ retracted
_____ extended

Reach:
_____ retracted
_____ extended

Loading Height:
_____ retracted
_____ extended

Loading reach:
_____ retracted
_____ extended

Swing ______ Degrees

Capacity ______ lbs

Digging force:
Bucket ______ lbs
Crowd ______ lbs

Spread ______ feet
Leveling ______ degrees

Describe exceptions to the Specifications:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Section 6.16.1 – Rubber Tire Loader / Backhoe
PART 5 – ADDITIONAL EQUIPMENT

<table>
<thead>
<tr>
<th>Minimum Requirements of Local Agency</th>
<th>Provide on Unit Proposed by Bidder</th>
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<tbody>
<tr>
<td>Counterweight, _______ pounds.</td>
<td>counterweight _______ lbs</td>
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<tr>
<td>Cold weather starting aid. [ ] Yes [ ] No</td>
<td>[ ] Yes [ ] No</td>
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<tr>
<td>Automatically adjusting reverse warning 89-112 db.</td>
<td>[ ] Yes [ ] No</td>
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<tr>
<td>SMV emblem.</td>
<td>[ ] Yes [ ] No</td>
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<tr>
<td>Lockable doors.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>Complete lock – up vandal protection.</td>
<td>[ ] Yes [ ] No</td>
</tr>
<tr>
<td>All locks shall be keyed the same.</td>
<td>[ ] Yes [ ] No</td>
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<tr>
<td>Fuel tank 30 U.S. gallons minimum.</td>
<td>[ ] Yes [ ] No</td>
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<td>Fire extinguisher.</td>
<td>[ ] Yes [ ] No</td>
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<td>Tie down hooks for transport.</td>
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<tr>
<td>Bottom guard for engine and transmission.</td>
<td>[ ] Yes [ ] No</td>
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<tr>
<td>Quick detach and attach for backhoe bucket. [ ] Yes [ ] No</td>
<td>[ ] Yes [ ] No</td>
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</tbody>
</table>

Describe exceptions to the Specifications


Section 6.16.1 – Rubber Tire Loader / Backhoe
PART 6 – ATTACHMENTS

Minimum Requirements of Local Agency

Attach a complete list of all available Backhoe buckets for order including price list.

Attach a complete list of all tools and attachments useful to agency daily operation including price list.

Provided on Unit Proposed by Bidder

[ ] Yes [ ] No

[ ] Yes [ ] No

Describe exceptions to the Specifications

__________________________________________________________________________________

__________________________________________________________________________________
PART 7 – SERVICE / PARTS / WARRANTY / DELIVERY

Minimum Requirements of Local Agency

Bidder to provide description of all Warranties and component warranties available.

Bidder shall provide warranty from date of delivery of completed unit(s).

Parts manual, safety manual, operator’s manual, and technical manual for base unit and all attachments and options shall be provided.

Highest consideration will be given to those bidders whose warranty facility is located nearest the owner’s base of operations which is located at:

________________________________________
________________________________________

Parts inventory shall be of sufficient size and diversification as to offer a level of parts availability (at bidder’s warranty facility) of 95% within 48 hours of the order by the owner.

Delivery time of preventative maintenance items such as filters, and hoses shall not exceed 24 hours to the owner’s base of operations.

Provided on Unit Proposed by Bidder

[ ] Yes [ ] No

[ ] Yes [ ] No

[ ] Yes [ ] No

Location of warranty facility:

________________________________________

Distance from owner’s base of operations

________________________________________

_______% available within 48 hours

_______ hours delivery for PM parts

Describe exceptions to the Specifications:

________________________________________
________________________________________
PART 7 – SERVICE / PARTS / WARRANTY / DELIVERY (CONT)

Minimum Requirements of Local Agency

Unit must be delivered to owner with all attachments and components substantially completed within ________ days of the bid.

The bidder, and his Surety, shall be liable for and pay the owner at the rate of ________ dollars a day for each calendar day of delay after the owner’s specified date of delivery.

Provided on Unit Proposed by Bidder

Estimated delivery date:

________________________

Describe exceptions to the Specifications:

__________________________________________________________

__________________________________________________________

__________________________________________________________
BASE PRICE FOR UNIT BEING BID

ADD - ON ALTERNATES

______________________
Add: ________________$

______________________
Add: ________________$

______________________
Add: ________________$

DEDUCT ALTERNATES

Trade In (s) 

Deduct: ____________________$

Year: _______________________
Make: _______________________
Model: _______________________
S / N: _______________________
Location: _______________________

NET PRICE : ________________$

Bidder name, address, phone, contact:

______________________________

______________________________

Section 6.16.1 – Rubber Tire Loader / Backhoe

Page 15
Section 1 – All Vendors

All reports are sorted first by district, then alphabetically.
### District: EC (East Central)

<table>
<thead>
<tr>
<th>Company Name and Address</th>
<th>Phone</th>
<th>Fax</th>
<th>Contact</th>
<th>Manufacturers Represented</th>
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</thead>
<tbody>
<tr>
<td>Holt Equipment Company, LLC</td>
<td>317-849-4888</td>
<td></td>
<td>Kevin Lee</td>
<td>John Deere</td>
</tr>
<tr>
<td>MacAllister Equipment Co.</td>
<td>317-545-2151</td>
<td>317-543-0310</td>
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<tr>
<td>McDonald Machinery Co.</td>
<td>317-856-3000</td>
<td>317-856-0200</td>
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<tr>
<td>Southeaster Equipment Co.</td>
<td>317-872-4877</td>
<td>317-872-2811</td>
<td>David Cooper</td>
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<td>219-483-6469</td>
<td>217-471-9932</td>
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<td>McDonald Machinery Co.</td>
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<td>219-747-6367</td>
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<td>Southeaster Equipment Co.</td>
<td>219-483-8868</td>
<td>219-483-5448</td>
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<td>McCann Power and Equipment</td>
<td>219-865-6545</td>
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End of report.
### Listing of Websites for Equipment Manufacturers

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Website</th>
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<tbody>
<tr>
<td><strong>6.1 and 6.2 Tandem and Single Axle Dump Trucks and Bodies</strong></td>
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<tr>
<td>Freightliner</td>
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<td><strong>6.3 Central Hydraulics System for Single or Tandem Axle Dump Trucks</strong></td>
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<td><strong>6.4 Snow/Ice Control Attachments</strong></td>
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7. Glossary of Terms

![Truck Diagram]

- **W.B.** Wheelbase
- **CA** Back of cab to C/L rear axle
- **CE** Back of cab to end of frame
- **BA** Front bumper to C/L front axle
- **AC** C/L front axle to back of cab
- **BBC** Front bumper to back of cab
- **CL** Clearance back of cab and body
- **BL** Length of body
- **AE** C/L rear axle tandem to end of frame
- **OA** Overall length of chassis
- **FG** Front of body to C/L payload
- **KP** C/L payload to C/L tandem
- **PL** C/L of payload
- **1-2** Front frame height - laden and unladen
- **2-3** Rear frame height - laden and unladen
- **T** og to C/L front axle

Also list:
- Tire size, front and rear
- Height of cab from frame
- Track - front and rear axles
- Width - overall
- Frame depth

- **F/X** = front axle
- **R/X** = rear axle
- **L** = payload (P/L) + body weight
- **D** = distance between first and last X's
- **GVW** = Gross Vehicle Weight, total weight of fully equipped truck, body and payload.
- **GTW (GCW)** = Gross train (combination) weight, total weight of fully equipped tractor, trailers or combination, plus payload
- **C.G.** = center of gravity, an imaginary point within the length and width of a vehicle about which all the weight is balanced

*Body Builder's Truck Diagram.*
Chassis of a 10-Wheel Truck

Radiator
Front spring
Engine
Steering linkage
Steering wheel
Unit transmission
Frame
Aux. transmission
Propeller shaft
Rear springs
Torque rods
Gussets
Rear bumper
Pintle hook
Front bumper
Spring hanger
Wheel & tire
Front axle
Steering gear
Spring shackle
Battery
Brackets, fuel tanks
Crossmembers
Dual wheels & tires
Suspension trunnion
Tandem axles

Truck Chassis.
Afterburner - A combustor in which heat is added to the working fluid after the last expansion state (SAE J604c).

Aftercooler - Device for cooling air after compression in turbocharger.

Air Cleaner - Filtering and screening device for air entering engine.

Air Cleaner, Dry - Filter Element made from dry material such as paper, fabric or metal.

Air Cleaner, Wet - Air cleaned through oil bath filter.

Air Reservoir - Storage tank for compressed air.

Air Resistance - Air or wind resistance to moving vehicle.

Alemite Fitting - Grease fitting.

Alloy Steel - A steel to which any alloying element other than carbon is added to strengthen physical properties.

Alternator - Generator producing alternating current.

Ambient - The conditions of the surrounding or background medium, as ambient temperature or sound.

Ammeter - Gauge for measuring amperes in electrical system.

Ampere - Unit of measure for flow of electric current.

Annealing - The process of heating or cooling the metal for the purpose of softening or removing stresses.

Aspect Ratio - Ratio of section height to section width.

Atomize - Breaking up fuel to mist - like form.

Auxiliary Transmission - A separate transmission often used is extra heavy duty applications to create greater gear ratios or finer steps. It requires a second shift tower or lever in the cab.

Axle - Beam running crosswise to and supporting chassis.

Axle Elliot - Front axle having forged yokes into which the steering knuckles rotate.

Axle Reverse Elliot - Front axle having forged ends that insert between the bosses of the yoked
steering knuckles.

**Axle Shaft Floating** - Shaft carries no vehicle loads but transmits torque.

**Axle Shaft Semi-floating** - Shaft carries vehicle loads as well as torque.

**Axle, Live** - Driven Axle.

**Axle, Pusher** - Non-powered rear axle, located ahead of drive axle.

**Axle, Tag** - Non-powered rear axle (not driven); follows drive axle.

**Axle Windup** - Oscillatory motion of an axle around the vertical axis through the center of gravity.

**Axle Yaw** - Oscillatory motion of an axle around the vertical axis through the center of gravity.

**Battery** - An electrochemical storage container producing electrical energy.

**BBC Dimension** - Distance from back of cab to end of frame.

**BC Dimension** - Distance from back of cab to end of frame.

**Bead** - The reinforcing part of a tire which is shaped to fit the rim. It is made up of high-tensile strength steel wrapped and reinforced by the body plies.

**Bead Seat** - Surface of a rim that contacts the tire bead. The bead seat angle is usually 5 degrees for tube-type tires and 15 degrees for tubeless tires.

**Belted Construction** - A type of tire construction which includes one or more reinforcing belts of fabric or steel. These belts run circumferentially around the crown of the tire.

**Bending Moment** - The product of force and distance from point of support to point where force is applies causing bending or distortion.

**Bendix Drive** - Drive mechanism on cranking motor.

**bhp** - Brake horsepower.

**Bias - Ply** - Construction where cords run diagonally to the tire’s bead or directional of rotation. In conversation, “bias - ply” has come to mean and old-style tire.

**Bleeding** - The practice of reducing air pressure build-up in a tire. Never bleed a tire when it is hot.
Blowby - Engine gases leaking past the piston rings and/or valves and entering the crankcase.

Blower - Sometimes called supercharger, rotor type device providing air pressure above atmospheric to engine.

BMEP - Brake mean effective pressure.

Bobtail - Solo tuck with short rear overhang.

Body - Structure mounted on chassis for cargo or passengers.

Bogie - A combination of two axles usually pivoting about a common trunnion.

Bolt Circle - The diameter of the circle which traces through the centerline of the bolt holes. It defines the bolt hole spacing around the disc in a wheel.

Bore & Stroke - Bore if the diameter of a cylinder; the stroke is the maximum distance a piston moves during one complete stroke.

Bottom Dead Center - Lowest point of periphery of flywheel when crank throw is in lowest position.

Brake - Mechanism for retarding or stopping vehicle.

Brake Actuation - They physical act of applying the brakes, or as a system, the mechanism for applying the brakes.

Brake Application Valve - A control unit which controls air pressure to the brake cylinders or brake chambers.

Brake Booster - A vacuum mechanical means for increasing brake pedal pressure.

Brake Burnish - The conditioning of a brake’s friction surfaces by wear and temperature, either by a test procedure or in - service operation.

Brake Chamber - A unit in which a diaphragm converts pressure to mechanical force for actuation of the brake.

Brake Diaphragm - Bellow - type chamber used to convert comp - air pressure to mechanical force.

Brake Effectiveness - The ration of input force to output torque in a brake.

Brake Hop - A hopping motion of wheel or wheels when brakes are applied.
**Brake Limiting Valve** - A valve in the brake application system which limits the maximum permissible pressure passed on to the front axle brakes.

**Brake Rating** - Proving performance. In terms of horsepower, the maximum power that the brakes will absorb or dissipate as heat in a specific period of time. See SAE J880, Exhibit C.

**Brake Release** - The opposite to brake actuation.

**Brake System** - A combination of one or more brakes and the means of operation and control.

**Brake System Application & Braking Time or Distance (Stopping Time or Distance)** - The time elapsed or the distance traveled between the instant or point at which the braking system is actuated and the instant or point at which the vehicle or combination comes to rest.

**Brake System Application Time or Distance** - The time elapsed or distance traveled between the instant or point at which the driver starts to move the braking controls and the instant or point of first retardation by the brakes.

**Brake, Emergency** - Secondary chassis brakes independent in application from service brake. Used or parking the vehicle and for controlling it when the service brake is incapacitated.

**Brake, Engine** - Brake device using engine compression pressure as retarding medium.

**Brake, Service** - Primary brake system for stopping vehicle.

**Brake—Exhaust** - Brake device using engine exhaust back pressure as retarding medium.

**Braking Torque** - Negative wheel torque.

**Breakaway Valve** - The equipment added to a tractor or trailer brake system which safeguards the air supply on leading units and automatically applies the brakes on any trailer which accidentally become separated.

**Bridge Formula** - A formula used to determine the maximum gross weight permissible on any groups of axles.

**C. G.** - Center of gravity or point within the length and width of a vehicle about which all the vehicle weight is balanced.

**CA** - Distance from back of cab to centerline of rear axle.

**Camber** - Amount of tilt in vertical axis of wheel.
Cardan Universal Joint - A non-constant universal joint consisting of two yokes joined by a cross.

Casing - Also called the carcass, this is basic structure of a tire including bead, belts, cord, sidewalls and shoulders, but not necessarily the tread.

Caster - Amount of tilt in fore and aft axis of axle beam.

Cetane - Rating applies to diesel fuel similar to octane rating for gasoline.

Chain Drive - Rear axle driven by means of chain belt.

Charge Air Cooling - The cooling of engine intake air after compression by turbocharger.

Chassis - The framework of a vehicle including all parts necessary for its operation.

COE - Cab - over - engine chassis.

Coil Spring - Spring stock coiled in cylindrical form.

Combination - Truck coupled to one or more trailers.

Companion Flange - Circular flanged plate connecting driveshaft with transmission or axle.

Compression Ratio - Ratio of volume in cylinder when piston is at top of stroke and at bottom of stroke.

Compressor - Engine driven mechanism for generating and maintaining air pressure in brake system.

Concentric - Having a common center.

Constant Mesh - Transmission gears which are constantly in mesh.

Constant - Velocity Universal Joint - A universal joint which transmits rotation with constant velocity between output and input shafts.

Controlled Stop - The ability or retard the vehicle(s) to a complete stop from any speed without wheel hop, chatter or lockup.

Converter - Hydraulic - type clutch multiplying the torque of the engine in infinitely variable ratios.

Coolant - Liquid used in cooling system to dissipate engine heat.
Core - Tubular - fin structure acting as heat exchanger in radiator.

Cramp Angle - Maximum turn of steering wheels in either direction, measured in degrees.

Crankcase Ventilation - Vent systems for crankcase, provides for burning of oil vapor rather than exhausting to atmosphere.

Cross - member - Structural shape tying in side rails of frame.

Cruise Speed - 90% of maximum geared speed.

Cubing Out - Utilizing full cargo space provided by truck or trailer body or container.

Curb Weight - The weight of a motor truck with standard equipment only, with maximum capacity of oil and coolant.

DC - Direct current.

Deadhead - Traveling without a load.

Deceleration - The average rate of change of a decreasing velocity of speed.

Deflection Rate - Generally refers to rate of spring deflection in inches per 1000 lb.

Demountable Rim - A rim with valve locators which is used with a cast spoke wheel to provide the method of attaching tires to the vehicle.

Detonation - Sharp knock resulting from too rapid burning of fuel charge in combustion chamber.

Diesel Engine - A compression ignition internal combustion engine.

Differential - Rear axle gear assembly permitting one axle shaft and wheel to turn more slowly or faster than the other when negotiating a turn.

Disc Brake - A brake which provides a friction force upon the faces of a disc.

Disc Wheel - A permanent assembly of a disc and a rim.

Displacement - The stroke of the piston multiplied by the area of the cylinder bore, the product multiplied by the number of cylinders in the engine.

Distributor - An engine - driven device in ignition system to produce, time, and deliver spark to
the spark plugs.

**Dolly** - Two wheel trailer equipped with drawbar and the lower portion of a fifth wheel and other components necessary to permit a semitrailer and dolly combination to operate a full trailer, sometimes called a “PUP.”

**Dolly Hitch** - Coupling device between leading trailer and dolly consisting of pintle hook and drawbar connection.

**Double Cap Nut** - The inner and outer nuts used to secure stud - mount wheels to a vehicle. The inner dual wheel is attached by an innercap nut with a spherical radius and the outer dual wheel is attached by an outer cap with a spherical radius.

**Double Clutching** - Disengagement of clutch twice prior to making shift in Transmission.

**Double Reduction** - Dual gear reduction generally used in rear axles.

**Doubles (Double Bottom)** - Semitrailer and full trailer combination.

**Downshift** - A shift which results in an increase in torque ration and decrease in speed ratio.

**Drag Link** - Connection between Pitman arm and steering ball on front axle.

**Driveline** - The universal joint, any bearing, and the drive shaft(s) that transmit power from the transmission to the drive axle.

**Driveshaft** - An assembly of one or two universal joints connected to a solid tubular member.

**Drivetrain** - Clutch, transmission, driveline, and drive axles.

**Dual Axle** - Tandem axle or two axles n combination.

**Dual Spacing** - Lateral distance from wheel centerline to wheel centerline in a dual wheel arrangement. It is determined by adding two offsets (disc wheels) or two offsets plus one spacer bandwidth (demountable rims).

**Dump Body** - Metal body generally hinged at rear and dumped b hydraulic means. Size usually given in cubic yard water level capacity.

**Durameter** - An instrument which measure the hardness of rubber.

**Dust Shield** - Sheet metal disc or place placed on brake assembly to keep debris from brake assembly.
**Dynamometer** - Electric or hydraulic instrument used in determining power output of engine or friction in chassis components.

**EGR** - Exhaust gas recirculation.

**Electronic Integration** - Making electronically controlled components work together.

**Emergency Stop** - This term as used in this book is a stop made by use of the emergency brake system alone.

**End Yoke** - Yoke - shaped forging forming part of the universal joint connecting driveshaft to transmission or axle.

**Fifth Wheel** - Circular metal plate secured to chassis frame, engages trailer kingpin permitting trailer to pivot.

**Fish Plate** - Plate attached to web of frame running along frame length for the purpose of reinforcement.

**Flame Arrester** - Grid or closely spaced metal louvers which permit air to flow into carburetor but quenches any flame backfiring from engine.

**Flange Yoke** - Yoke with circular flange matching end yoke on driveshaft to make a universal joint.

**Floating Mainshaft** - A heavy - duty central shaft and several gears that turn freely when not engaged. It can move to allow for equalization of the loading on the counter shafts. When engaged, the floating main shaft transfers torque evenly through its gears to the rest of the transmission and ultimately to the real axle.

**Flotation** - Ability to float generally referring to large low - pressure tires.

**Footprint** - The portion of the tread that is in contact with the ground.

**Foot Brave Valve** - Valve controlling the air pressure delivered to or released from the axle brake chambers.

**Foot - Pound** - English unit of force required to life one pound a distance of one foot.

**Frame** - The backbone structure around which the vehicle is assembled.

**Frequency** - The number of atmospheric pressure variations (vibrations) per second. Expressed in Hertz (Hz) or cycles per second.
**Fuel Filter** - Filtering or screening device for cleaning the engine fuel.

**Full - Floating Axle** - Axle shaft which transmits torque only and carries no vehicle load.

**GAWR** - Lowest rated member from following components: tires, suspension, hubs/wheels, rims, bearings, beam and brakes.

**GCW** - Grow combination weight. Total weight of fully equipped tractor, trailer or trailers and payload.

**GCWR** - Manufacturer’s rating for maximum allowable weight of truck of combination.

**Geared Speed** - Calculated speed

**Gear Ratio, Axle** - Ratio of the speed of the propeller shaft to the speed of the rear axle shaft.

**Gear Ration, Fast** - Low numerical ration as 3.00/1.00 (high speed).

**Gear Ration, Sow** - High numerical ration as 9.00/1.00 (low speed).

**Gear Ration, Trans.** - Ratio of input shaft speed to the speed of output shaft.

**Generator** - Engine - driven accessory for changing mechanical energy into electrical energy.

**Glad Hands** - A separable mechanical connector used to join air line hoses when combination vehicles are coupled together.

**Glider** - Truck that has been rebuilt, particularly component - wise.

**Governor, Air** - Device for controlling air pressure.

**Governor, Engine** - Device to automatically control maximum rpm.

**Gradability** - Percent grade that a vehicle will negotiate.

**Grille** - Screen or protective structure located in from of radiator.

**GTW** - Gross train weight. Same as GCW.

**Gusset** - Flat steel or aluminum plates tying in cross - members to frame rails.

**GVW** - Gross Vehicle Weight. Total weight of fully equipped truck and payload.

**Hand Hole** - Opening in the disc area of a wheel for the purpose of valve stem access to inside
dual tire and chain application.

**Heat Exchanger** - Radiator - type device for cooling self - contained fluid such as oil or water.

**Helper Spring** - Additional spring device permitting great load on axle.

**Hitch, Air** - A trailer - to - dolly hitch mechanism where all slack is taken up by admission of air to a suitable air chamber equipped mechanism.

**Horsepower (hp)** - English unit used to denote the amount of work done in a given period of time, equal to 33,000 foot - pounds per minute.

**Horsepower, Brake (bhp)** - Maximum power available from an engine as measured by a dynamometer.

**Horsepower, Friction (fhp)** - Power required to drive the engine as equipped during power test.

**Horsepower, Gross** - The brake hp determined under conditions defined by dynamometer test of the stripped engine, that is, the brake horsepower of the engine with only those accessories and attachments necessary to the functioning of the engine during test.

**Horsepower, Indicated (ihp)** - Power developed in the cylinders and equal to the sum of the brake horsepower and the friction horsepower.

**Horsepower, Net** - The brake horsepower delivered to the clutch, or its equivalent, with all accessories and attachments functioning (including exhaust pipe, muffler and air pipe) which are standard or regular equipment on the engine as installed in the particular chassis.

**Hotchkiss Drive** - Rear axle drive where driving force, thrust and torque, are transmitted from the rear axle to the frame through the rear springs.

**Hub Mount Wheel** - Wheels that are designed to center on the hub at the bore of the wheel. These wheels generally have straight - through bolt holes, since the bolt holes only supply clearance for the stud. Hub mount wheels are used with two - piece flange nuts.

**Hypoid Gear** - Gear with diagonally positioned teeth.

**Inertia** - The tendency of a body at rest to remain at rest and a body in motion to persist in motion.

**Interaxle Differential** - Gear device dividing power equally between axles and compensating for unequal tire diameters.
Jack Shaft - An intermediate driving shaft.

Kingpin - Front axle pin allowing wheels to steer vehicle.

Limited - Slip Differential - Mechanical action which resists the free working of an ordinary differential, thus distributing a greater torque to the slower - turning wheel or axle.

Load Range - A letter designation that indicates the load permissible on the tire.

Loaded Radius - The distance from the center of the tire contact to the wheel center.

Lock Ring - Third piece of a three - piece rim assembly that locks the size ring to the rim base.

Low - Pressure Indicator - A unit or combination of units that provides visible or audible warning signal whenever the system pressure is below a predetermined value.

Low - Profile Radial - Aspect ratio of 80 (or 75) or less.

LPG - Liquefied petroleum gas, used as engine fuel.

Mechanical Efficiency - The ratio between the brake horsepower and the indicated or total horsepower.

Multipiece Rim - A Rim consisting of more than one part. Usually two pieces (rim abase and side ring), or three pieces (rim base, side ring, and lock ring).

Naturally Aspirated - Refers to a diesel engine in which the charge air enters the cylinders by atmospheric pressure, i.e., 101.2 kPa (14.7 psi), which is known as 1 atmosphere.

Nozzle - Injector tip with venturi to atomize fuel.

Octane - Rating applies to gasoline.

Odometer - Mileage recording instrument.

OEM - Original Equipment Manufacturer. Refers to the truck manufacturer.

Ohm - Unit of measure for electrical resistance.
Ohm’s Law - Voltage (in volts) is equal to the current (amps) multiplies by resistance (ohms).

\[ E = IR \]

\( E = \) volts or voltage
\( I = \) amperes or current
\( R = \) ohms or resistance

Off - Tracking - The difference in radii from the running center to the vehicle centerline at the foremost and rearmost axles of a vehicle or combination, and represents the increase beyond the tangent track caused by a turn.

Oil Filter - Filtering and screening device for cleaning and purifying engine lubricating oil.

On - Off Highway - Refers to trucking operation that involve traveling both on highways and on roads of lesser standards; typical of this is in some timber haulage wherein logs are hauled on forest tracks or roads, and then on the highway to a mill or rail siding. Also livestock haulage when the loading point is some distance along a rough road, and the load is then moved to abatoirs or elsewhere on a highway or similar road.

Overall Ratio - Ration of the lowest to the highest forward gear in the transmission.

Overhand, Front - Distance from centerline of front axle to front of vehicle or BA dimension.

Overhand, Rear - Distance from centerline of rear axle to rear of vehicle frame or AE dimension.

Outsert - Reinforcing metal channel pressed over main frame rail.

Payload - Actual weight of useful cargo carried by vehicle.

Pintle Hook - Coupling at rear of truck for the purpose of towing trailer or other units.

Pitman Arm - Coupling at rear of truck for the purpose of towing trailer or other units.

Planetary Drive - Gear reduction system with sun gear transmitting reduction through planetary gears to main output shaft.

Plumbing - The pipes, hoses, fixtures and other apparatus concerned in the distribution and use of compressed air in the vehicle’s brake system.

Ply Rating - A unit of measurement used in tire construction to denote strength of tires.

Polarity - Indicating positive or negative electrical system; positive polarity indicates positive ground and vice versa.
Ports - An aperture in engine block or manifolding for the passage or gas or liquid.

Powertrain - Engine plus drivetrain.

Propeller Shaft - Driveshaft used to transmit torque from engine or transmission to rear axle.

psi - Pounds per square inch—English unit of pressure.

P.T.O. - Power take-off, used to transmit power from engine to auxiliary equipment.

Pusher Axle - A non-driven (dead) axle installed forward of the driven axle(s) to increase the permissible gross weight, and consequently the payload.

Quick - Release Valve - Valve used to accelerate the release of air pressure to and from the axle brake chambers.

Radial - Tire construction where cords run at a 90-degree angle to the bead or the tire's direction of rotation. "Radial" has come to mean the more modern of the two basic tire types.

Radius Rods - Metal arms attached to frame and axles for alignment.

Rated Horsepower - The maximum brake horsepower output of an engine as certified by the manufacturer.

Rated Torque - The maximum torque produced by an engine as certified by the manufacturer.

Regulator - Instrument to control voltage and current in vehicle electrical system.

Relay Valve - Valve to speed application and release of rear wheel brakes in air brake system.

Retarder - Auxiliary speed-reducing device.

Rim(also see Demountable Rim) - The item that supports the tire. It may consist of one piece (tubeless drop center type) or two or three pieces (tube type.)

Rolling Radius - Distance in inches form center of tire to ground under rated tire capacity.

rpm - Revolutions per minute—Rate of engine speed.

rpm Drop - Drop in rpm between shifts in transmission.

Rzeppa Universal Joint - A disc-type constant-velocity joint.

Scavenge - Discharge of exhaust by means of air pressure.
**Section Height** - Distance between the rim base and surface of the tread. The unloaded section height at the “top” of the tire will be greater than the loaded section height being compressed against the pavement.

**Section Modulus** - Measure of beam strength in frame rails; must equal the bending moment imposed.

**Shift Tower** - Consisting of a gearshift lever, pivot pin, spring and boot and housing, it is the main interface between the driver and the transmission.

**Section Width** - Width of the tire at its bulging sidewall, not including raised numbers and lettering.

**Shackle** - Pivoting link between spring eye and frame bracket.

**Shift Forks** - Y-shaped components located between the gears on the mainshaft which, when actuated, cause the gears to engage or disengage via sliding clutches. Shift forks are located between low and reverse, first and second, and third and fourth gears.

**Shimmy** - Vibration causing front wheels to “wobble.”

**Shock Absorber** - Vibration - dampening device used with chassis springs to lessen road bounce.

**Shroud** - Housing located around engine fan for the purpose of utilizing full drawing power of fan.

**Slack Adjuster** - Part of braking system that transmits brake application force and compensates for lining wear.

**Slip Joint** - Adjustable driveshaft component.

**Slip Torque** - Engine torque required to slip wheels.

**Solenoid** - Electric magnetic device for push - pull operation used as switch or on controls

**Solid Infection** - Injection of solid fuel in diesel engines.

**Specific Gravity** - Weight of given volume of substance compared to that of an equal volume of water.

**Spline** - Series of parallel keys cut along the driveshaft that mate with corresponding slots in hub or fitting.

**Split Ratio** - Total reduction in next lower step of transmission.
Spoke Wheel - A casting with 3, 5, or 6 spokes that attaches to the axle and provides a means of attaching a demountable rim to a vehicle. Also called "Cast Spoke Wheel."

Spring - Flexible or elastic member supporting sprung weight of vehicle with recovering properties of returning to original shape when released after being distorted.

Spring Brake - Emergency or auxiliary brake system utilizing a spring load as a force for brake may be automatically actuated by low air pressure or mechanically controlled for use as a parking brake.

Spring Clip - U - bolts anchoring spring to axle.

Spring Rate - Rate at which spring force grows as deflection increases (pounds per inch). Also referred to as "spring stiffness."

Spring Seat - Seat or support on which spring is anchored.

Sprung Mass - Includes body, frame, powertrain, payload and driver.

Sprung Weight - Total weight supported by the suspension, including portions of suspension weight.

Spur Gear - A gear having the teeth positioned straight across the face of gear.

Stabilizer - Device used to stabilize vehicle during turns, sometimes referred to as a sway bar.

Standard Radial - Tire with aspect ratio above 80 (75 for tires using North American standard designations), and usually in the 90s.

Starter - Electric motor used for cranking engine.

Steering Arms - Arms attached to front axle steering system to effect turn of wheels.

Steering, Center Point - Front axle having kingpin perpendicular to the ground line and intersecting centerline of it.

Stinger - V - shaped configuration of rear frame rails to accept tow bar or trailer coupling.

Strain - To effect a change in size or form by application of external force.

Stress - The forces exerted on, within, or by a body during either tension or compression.

Stress Relief - A process involving heat treatment for the purpose of reducing internal residual stresses in a metal.
Stroke - The distance traveled by the piston from top dead center to bottom dead center of crankshaft.

Stud Mount Wheels - Wheels that are designed to center on the studs of a hub. These wheels have chamfers at the bolt holes into which a ball seat or conical nut is installed to center the wheel. The center bore of the wheel is only for clearance of the axle end.

Suspension - Attaching parts including springs for securing axle or axles to chassis frame.

Syncro - Mesh - A synchronizing mechanism to slow down the faster gear, so that engagement of the shifting mechanism can be made quickly and noiselessly without double clutching.

Synchronize - Two or more events or operations occurring at the proper sequence in relation to each other.

Tachograph - Instrument to record vehicle trip record and operation as mph, rpm, "stop" and "go" periods.

Tachometer - Instrument to indicate revolutions per minute (rpm).

Tag Axle - A non-driven (dead) axle installed behind the drive axle(s) to increase the permissible gross weight, and consequently the payload. Also termed "trailing axle."

Tandem Drive - Tow - axle drive combination.

Taper - cone-shaped object or form.

Thermostat - Device in cooling system to maintain water temperature within a definite range.

Thrust - Force exerted endwise usually through a shaft.

Tie Rod - Connecting rod between steering arms.

Toe - In - The amount inward tilt on most - forward part of front wheels to relative to centerline of fore and aft track.

Tolerance - An allowable variation in dimension.

Torque - Force having a twisting or turning effect.

Torque Balance (Effectiveness Balance) - That condition of design or adjustment where each pair of brakes on the axles of a vehicle or combination vehicle develop, at the same applied pressure, that proportion of torque consistent with the manufacturer's load rating of the axle. For purposes of interchange, this torque should be sufficient to develop 9 fpsps deceleration when 42
psi air is applies to the brake chambers when the axle is at rated load.

**Torque Converter** - A hydraulic dive which transmits power with ability to change torque.

**Torque Rods** - See stabilizers.

**Torsion Springs** - Spring effect developed through torsional stress in steel rod(s).

**Track, Axle** - Distance between centerlines or tire tread at ground on front or rear axles.

**Tractive Effort** - The maximum force developed by vehicle powertrain at contact between driven wheels and road surface with 100% traction.

**Tractive Effort** - The amount of power required to move a vehicle.

**Transfer Case** - Split power gear box transmitting drive to front and rear axles.

**Transmission (Auxiliary)** - Additional gearbox increasing the gear ration combinations when used with main transmission or multi-speed axles.

**Transmission (Main)** - Selective gearbox providing various combinations of gear ratios.

**Tread** - The rubble portion of the tire that meets the road. The area of contact is called the “foot-print” or “contact patch.”

**Treadle Valve** - A foot-operated air service brake actuation valve.

**Tri - Drive** - Vehicle having three rear axles driving.

**Trunnion** - Journals allowing pivoting or turning such as tandem axle spring or waling beam assembly.

**Turbine Engine** - An engine in which the working medium is a gaseous fluid throughout the cycle with the principal mechanical parts driven by turbines.

**Turbocharger** - A turbine using the energy from exhaust gases to drive a centrifugal blower to force greater weight of air into the engine cylinders.

**Turning Circle** - Twice the turning radius

**Turning Radius** - Radius of minimum turning circle.

**Twin Screw** - Truck with tandem drive axles.
Two - Speed Axle - Axle having tow selective gear ratios.

Under Drive - Lowest ratio in auxiliary transmission or multi-speed transmission.

Universal Joint - A coupling providing transmission of power through an angle.

Unsprung Mass - Includes axles, spindles, brakes, wheels and tires.

Unsprung Weight - Vehicle weight not supported by springs such as tire, wheel and axle assembly.

Vibration Dampener - A Device used to dynamically balance a rotating mass such as an engine crankshaft.

Viscosity - Internal resistance of a fluid to flow.

Volutility - Ability of a liquid to diffuse of vaporize.

Volt - A unit of electrical measurement of potential.

Watt - Unit of electrical measurement of power.

Wheel Alignment - The mechanics of keeping all the parts of the steering system in correct relation to each other.

Wheelbase - Distance between centerlines of front and rear axles or to centerline of tandem axles.

Wheel Hop - Tendency of tire and wheel to hop during braking or acceleration of vehicle.

Wheel Track - Lateral distance between tire centers.

Wheelbase - Distance between centerlines of front and rear axles or to centerline of tandem axles.

Winch - Manual or power device employing a drum with cable or rope for pulling objects where great power is required. Power generated by vehicle engine and transmitted through power take-off on transmission.

Worm Gear - Rear axle gear assemble having corkscrew-type pinion.

Zerk - Lubrication fitting.
References
9. References


Dump Body and Conversion Hoist Charts, 4th Edition, Prepared by the NTEA Body and Hoist Manufacturers Committee, Published by the National Truck Equipment Association, 37400 Hills Tech Drive, Farmington Hills, MI 48331-3414, Ph: (810) 489-7090, Fx: (810) 489-8590


1997 Diesel Truck Index, Specifications of Current Model Diesel Highway Trucks and Tractors, Published by Truck Index, Inc., Santa Ana, CA, 92711
Appendix I

Manufacturer’s Websites
6.5 Sign Maintenance Truck Body

Flannegan Western  http://www.fwcrane.com/

6.6 Shop Service Truck Body

Omaha Standard  http://www.omahastdtrk.com/productlines.htm
FibreBody  http://www.fibrebody.com/products.htm

6.7 Front End Loader

John Deere  http://WWW.JOHNDEERE.COM/nr/deerecom/static/ushome/
Caterpillar  http://caterpillar.com/
Volvo  http://www.volvoCE.com/
Hyundai  http://www.hceusa.com/

6.8 Motor Grader

John Deere  See URL listed above
Caterpillar  See URL listed above
Volvo/Champion  See URL listed above

6.9 Hydrostatic Drive Chip Spreader

Rosco  http://www.roscomfg.com/
Etnyre  http://www.etnyre.com/
Bearcat  http://www.bearcatmfg.com/asphalt_dist/super_spreader.htm

6.10 Asphalt Distributor

Rosco  See URL listed above
Etnyre  See URL listed above

6.11 Spray Injection Patching Machine

Crafco/AMZ  http://www.crafco.com/Crafco/Equipmentspec.htm/
Rosco  See URL listed above
DuraPatcher  http://www.durapatcher.com/

6.12 Wheel Excavator
6.13 Rubber Tire Roller

Bomag  http://www.bomag-americas.com/
Caterpillar  See URL listed above
Rosco  See URL listed above
Hypac  http://www.hypac.com/
Ingersoll-Rand  http://www.road-development.irco.com/index_read.html

6.14 Roadside Mower

6.15 Street Sweeper

6.16 Rubber Tiered Loader/Backhoe

John Deere  See URL listed above
New Holland  http://www.newholland.com/construction/
Caterpillar  See URL listed above
Case  See URL listed above
Appendix II

Product Specifications
November 18, 1997

Ms. N. Katherine Oswalt
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Dear Ms. Oswalt:

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HOW TO DEVELOP AND USE EQUIPMENT PERFORMANCE SPECIFICATIONS
HOW TO DEVELOP AND USE
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SPECIFICATIONS

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SELECTING THE RIGHT MACHINE

Equipment purchasing officials are often called on to purchase a wide variety of goods and services without the aid of prior experience or working knowledge of the products. This process becomes critical when the official is asked to purchase major products such as four wheel drive (4WD) loaders, backhoe loaders, motor graders or other heavy equipment which often remain in use for several years.

Armed with limited information, it is possible for an organization using the traditional, "award going to the low bidder meeting specifications," method of purchasing to end up with a unit that can’t do the job for which it was purchased. Experienced specification writers have developed numerous techniques to avoid this situation. This Circular documents some of these techniques and how they can be used.

Equipment performance on the job reflects on how skillfully it was selected for the task. Done well, machine selection follows a systemic process.

FIVE EASY STEPS TO SUCCESSFUL SPECIFICATION WRITING

The five step method to successful specification writing is an excellent approach for reducing guesswork and post-purchase surprises. The basic steps include:

1. Understand Job Requirements
2. Determine What’s Most Important
3. Evaluate Equipment On-The-Job
4. Clearly State What Is To Be Purchased
5. Identify the Bid Award Criteria

STEP ONE - Understand the Job Requirements

The specification writer must understand what the machine will be doing on the job. An elaborate checklist is not needed, but some basic questions should be answered.

- Approximately, what percentage of the machine’s time will be spent doing prime job functions?
  ✓ Loading material
  ✓ Digging trenches or ditches
  ✓ Transporting to and from job site
  ✓ Grading
  ✓ Cleaning job site
  ✓ Other appropriate activities

- What are the physical restrictions on the machine during storage or transport?
  ✓ Length, width, height
  ✓ Operating weight
  ✓ Size of existing transport trailers

- What are the machine performance requirements to do the job?
  ✓ Lifting capacity
  ✓ Digging depth
  ✓ Horsepower
  ✓ Blade pull
  ✓ Break-out force
  ✓ Material carrying capacity
  ✓ Job versatility
  ✓ Servicing ease
  ✓ Convenience of switching attachments
  ✓ Other appropriate performance requirements
What are the time requirements for completing job assignments?

How well has the current machine performed?
- Ability to do job
- Reliability
- Operating cost
- Dealer/manufacturer service support
- Purchasing flexibility
- Ease of repair

Knowing approximately what percentage of time the machine will be doing different job functions will help identify what major machine type is appropriate for your requirements—A backhoe loader or a 4WD loader? High transport speeds between job sites to help eliminate the need for a transport trailer? High traction effort in difficult excavating or soft soil conditions?

Identifying the actual physical characteristics of the machine required will help to avoid purchasing a machine that is too tall to fit through the opening of the old storage garage, or too long or heavy to fit safely on the old transport trailer.

Knowing the machine performance requirements will help avoid purchasing the wrong machine. If the unit is to be used to lift and set a 4,000 pound manhole section, certainly this performance requirement must be met by any machine purchased. If a proposed machine can’t do that, no matter what its bid price, it is of little value to the organization.

The time requirements for completing jobs influences the size of the machine needed. Theoretically, if a 4WD loader is being considered, the only major difference between a 2.5 cubic yard loader and a 3 cubic yard loader, should be how much material per hour each can move. Examining job productivity requirements can help size the machine required to handle the anticipated job.

A source of information often overlooked in identifying job requirements is the organization’s success and satisfaction with its current equipment. Don’t ignore the favorable or unfavorable track record a piece of equipment/bidder/manufacturer has already established with the organization when the time comes for specifying a replacement unit.
STEP TWO - Determine What’s Most Important

Now that the job requirements are known, a clear statement of what is most important must be developed. Key considerations should include at least the following:

- Machine performance characteristics
- Evaluation of dealer/manufacturer’s prompt parts and service support, warranty, and machine field availability (up time)
- Machine delivery schedule
- Life-cycle cost analysis

Certain machine performance characteristics, such as versatility, can be essential for its satisfactory performance. If the machine will be needed for loading trucks and handling debris, plus be the prime mover for a snowblower in the winter, then this versatility must be identified in the purchase specifications.

Prompt parts and service support, good warranty and machine field availability are usually very important to an organization, yet often do not appear in purchase specifications. If prompt dealer parts and service are important, then they should be included. An organization needs to know about a bidder’s parts and service capability before it experiences a winter when it’s 40 degrees below zero, the roads are drifted shut, and the machine is down. The example shown below illustrates one approach for specifying bidder parts and service.

Since the continuous operation of this machine is of the utmost importance and sometimes of an emergency nature, the successful bidder must be able to render prompt parts and service. The successful bidder shall maintain or have access to parts inventory within [city, county, state, or mileage requirement]. Said parts inventory shall be of sufficient size and variety to offer a level of parts availability of 95% within 48 hours from time of order by the customer. Availability of normal wear items, such as filters, vee belts, hydraulic lines, and hoses shall not exceed 24 hours. Review of bidder’s ability to provide prompt parts and service will be used in determining the qualified bidder.

The delivery schedule for a machine sometimes is critical. If there is a specific time schedule to be met, then that information should be included in the purchase specifications. In an emergency situation when delivery becomes a primary purchasing consideration, the organization may elect to accept a machine immediately off a dealer’s yard.

Many organizations confuse machine bid price with machine cost and often incorrectly conclude that the lowest priced machine represents the best value. How much importance should be placed on the actual bid price? Should the organization buy any machine as long as it is low bid? Why purchase a machine if it can’t lift and set a 4,000 pound manhole section, if that is part of the job performance requirements? The bid price must be put in proper perspective to the overall capabilities of the machine, parts and service, field availability, and other requirements before the organization can determine the importance of the bid price.

A more important element to consider, other than bid price, is the life cycle cost of the machine. What is the fuel consumption rate? What level of repair parts and labor costs can be expected over the life of the machine? These two items alone could easily outweigh a low bid price. The example shown below details some of the items to consider in determining life cycle cost.

**Example 1 Life-cycle cost analysis.**

<table>
<thead>
<tr>
<th>Bidder</th>
<th>Bidder</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>#2</td>
</tr>
<tr>
<td>A. Acquisition &amp; Finance Costs</td>
<td></td>
</tr>
<tr>
<td>✓ Down Payment</td>
<td></td>
</tr>
<tr>
<td>✓ Trade-In</td>
<td></td>
</tr>
<tr>
<td>✓ Total Payments</td>
<td></td>
</tr>
<tr>
<td>✓ Acquisition &amp; Finance Costs</td>
<td></td>
</tr>
<tr>
<td>Sub-Total - A</td>
<td></td>
</tr>
<tr>
<td>B. Ownership Period Operating Costs</td>
<td></td>
</tr>
<tr>
<td>✓ Fuel Cost</td>
<td></td>
</tr>
<tr>
<td>✓ Lube, oil, filter, grease cost</td>
<td></td>
</tr>
<tr>
<td>✓ Tire Cost</td>
<td></td>
</tr>
<tr>
<td>✓ Undercarriage Cost</td>
<td></td>
</tr>
<tr>
<td>✓ Repair, Parts &amp; Labor Cost</td>
<td></td>
</tr>
<tr>
<td>✓ Ownership Period Operating Cost</td>
<td></td>
</tr>
<tr>
<td>Sub-Total - B</td>
<td></td>
</tr>
<tr>
<td>C. Critical Use Hours Cost</td>
<td></td>
</tr>
<tr>
<td>D. Equipment Resale Value</td>
<td></td>
</tr>
<tr>
<td>E. Life Cycle Cost (A+B+C-D)</td>
<td></td>
</tr>
</tbody>
</table>

STEP THREE - Evaluate Equipment On-The-Job

If an organization is going to invest thousands of dollars in a machine, it makes good sense to see what the machine will do on-the-job before spending purchasing dollars. After reading the product literature and listening to presentations by sales representatives, organization officials should request a demonstration to see if the machine will do what the manufacturer/dealer claims it will do. Some organizations use a short-term rental as a method for evaluating equipment on-the-job.
A demonstration (or rental) is also a good opportunity for evaluating key machine features. If sealed brakes are important, then placing the machine in muddy or water conditions will help show how a particular machine's brakes function under these conditions. If a certain attachment is being considered, a demonstration (or rental) is also a good time to verify its merits in overall job operation.

On the manufacturer's specification sheet all machines may look identical. For example, they may all have a 150 horsepower rated engine. However, a demonstration (or rental) may reveal that the working power of each machine under actual job conditions may not be equal. Example 3 illustrates a field evaluation form for a backhoe loader. The demonstration (or rental) is a true "try before you buy" approach where the organization has a low-cost opportunity to discover the meaning of a manufacturer's machine specifications based on actual machine performance on the job. The results of Step Three for several machines should be compared to and integrated with the results of Steps One and Two.

Following the field evaluation, adjustments in the purchasing specifications should be made to insure that all job requirements are included. There's no better way to determine if a machine can lift and set a 4,000 pound manhole section than to see it in action.

STEP FOUR - Clearly State What Is To Be Purchased

To write effective purchase specifications you must understand the job requirements, know what's most important, and evaluate equipment on-the-job. When you complete these steps, you are ready to start the actual writing of the purchase specifications.

Technical vs Performance Specifications. Technical specifications for the purchase of equipment are often drafted after reading several manufacturers' published technical brochures. As a result, it sometimes appears that an organization has described one manufacturer's machine. The description and requirements developed in this manner may be difficult to justify and too restrictive to allow more than one bidder to qualify, and may encourage bid protests from suppliers precluded.

Technical specifications normally describe machine requirements only. The bid award is often based on only a few considerations such as "lowest bid price meeting specifications as written." Adding the clause "reserve the right to accept bids in the best interest of the organization" is a smart choice for providing purchasing flexibility.
Example 2  Field evaluation form for a backhoe loader.

<table>
<thead>
<tr>
<th>FIELD EVALUATION OF BACKHOE LOADER</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SIZE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The operating weight is approximately 11,100 pounds. Does this size ...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Have adequate weight and balance to provide good operational stability?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Have good digging stability, so it’s not jerked around when working with backhoe in tough ground conditions?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. ENGINE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The unit develops 60 SAE net hp and uses a wet-sleeve, four cylinder design.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Does the engine provide good lugging power?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Is the engine fuel consumption level acceptable?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. TRANSMISSION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The unit has a four speed transmission and full power shift direction reverser.</td>
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</tr>
<tr>
<td>✓ Is on-the-go shifting ability from 2nd-3rd-4th gear important?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Is full power reversing of transmission important for such jobs as back filling trenches or working in narrow rights-of-way?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. STEERING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Does the steering system have sufficient power to turn from full-left to full-right when the loader bucket is fully loaded?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Is the unit’s turning clearance circle acceptable?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. BRAKES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Do the brakes effectively stop the machine and provide good control?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Is any fade or waver of the service brakes noticed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Is any fade or waver noticed after operation in mud and water?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. LOADER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Is the loader’s lift capacity of 4,600 pounds at full height adequate?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Is bucket return-to-dig a desirable feature?</td>
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</tr>
<tr>
<td>✓ Is the loader’s breakout force of 6,700 pounds adequate?</td>
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</tr>
<tr>
<td>✓ Does the bucket cut-width cover the full width of rear tires?</td>
<td></td>
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</tr>
<tr>
<td>✓ What attachments would be beneficial for year around versatility? (e.g.: quick coupler hitch, clamp bucket, jaw bucket, forklift)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. BACKHOE</td>
<td></td>
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</tr>
<tr>
<td>✓ Does the standard backhoe provide adequate digging depth and reach?</td>
<td></td>
<td></td>
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<tr>
<td>✓ Would an extendable dipper-stick be a desirable feature?</td>
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</tr>
<tr>
<td>✓ Is the unit’s rated lifting power available through the full 180-degree swing arc? Was it adequate for most jobs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Is the unit’s backhoe bucket digging force adequate?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Should a backhoe with less digging depth, digging power, or lifting power be considered?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ What attachments would be beneficial for year around job versatility? (e.g.: quick coupler hitch, jaw bucket, hydraulic hammer, hydraulic drill, thumb, compactor wheel, earth auger)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIELD EVALUATION OF BACKHOE LOADER</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>8. OPTIONAL FRONT WHEEL DRIVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Is the front wheel drive beneficial for most job applications?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Is the ability to engage or disengage the drive in any gear or direction, on-the-go, and under full engine rpm important?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Does the drive improve loader bucket fill in hard materials?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. OPTIONAL CAB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Is the cab certified to meet SAE roll-over protection and falling overhead objects protection standards?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Does the cab meet requirements of visibility, ventilation, noise level, and comfort?</td>
<td></td>
<td></td>
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<tr>
<td>✓ Are the operating controls convenient, easy to access, and comfortable to work?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. TIRES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Are the tires on the demo unit adequate for most jobs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o If not adequate, what tire size is required?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. DIFFERENTIAL LOCK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Is the ability to engage the differential lock on-the-go in any gear or direction under full engine rpm important for job performance?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. HYDRAULIC SYSTEM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Are the hydraulics responsive, easy-to-use, and do they provide good control throughout the engine rpm range?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Is the hydraulic system cooling capacity adequate?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. RECOMMENDATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Based on your evaluation of the demo unit, would you recommend that this size/class of backhoe loader be considered for purchase?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Performance purchase specifications, on the other hand, accurately describe the organization's requirements for not only the performance of the equipment but also the performance of the dealer and manufacturer that is supporting the machine. Performance specifications requirements should be formulated based on knowledge of job requirements, information gained by actual machine demonstrations, and a thorough understanding of available equipment designs and dealer/manufacturer support capabilities. Bid award is determined by several performance considerations.

Organizations sometimes accept features or performance below their requirement level to qualify many bidders. This will most often result in the purchase of inadequate equipment and poor dealer support. Effective performance bid specifications can be written in a manner that allows numerous bidders to qualify. Performance specifications are described in terms of the performance level required rather than the manufacturer's technical specifications. This will allow a bidder or manufacturer to decide if they can add a particular performance feature to their machine (or alert the
organization to the cost) instead of crying "foul" when faced with restrictive technical requirements. The example below illustrates the difference between technical and performance specifications.

Technical:
Service brakes shall be at least 2-wheel, oil cooled, wet disc, self-adjusting type brakes.

Performance:
Service brakes must be sealed and fully enclosed to allow operation in water, mud, snow, and other adverse conditions without encountering brake fade.

Quality performance bid specifications also include a checklist of how many manufacturers meet or do not meet a particular requirement when the specification was written. This listing allows the organization to evaluate the importance of a particular requirement considering the number of manufacturers that can meet the requirement. In writing specifications, it's important to state clearly what the organization intends to purchase.

Getting Started. Suppose the organization wants to draft a four or five page specification for a backhoe loader. Many organizations may begin with the technical specification as shown below:

One, new, backhoe loader, 14-foot digging depth, 60 hp, etc.

This style will certainly get bidders to respond, but normally will not get the machine the organization requires. Is there a better way to state what the organization wants to purchase? The next example is better, but it is still a technical specification:

One, new, backhoe loader, 14-foot SAE 2-foot flat bottom rated digging depth, 60 SAE net hp, 1-cu. yd. bucket, etc.

The SAE (Society of Automotive Engineering) rating is a manufacturing industry standard, so all bidders will have to measure their bid machines the same way. The organization wants 60 SAE net hp, and a 1-cubic yard rated loader bucket, which helps to more precisely define the size of the machine needed.

Is there a better way to state what the organization wants to purchase? The next example shows the organization stating they want a current-year manufactured machine to ensure that the organization is not actually buying a new zero-hour, two-year-old machine that is starting to rust:

One, new, current year manufactured (list specific manufacturers and models) backhoe loaders or approved equal complete per following specifications and all manufacturer's standard equipment, etc.

The organization is also clearly stating they are looking at a specific model and manufacturer of backhoe loader or its approved equal. This is a very accurate way to identify the type, size, and class of machine that the organization has evaluated and has determined will meet its performance requirements. The words "or approved equal" signals to all bidders and manufacturers that the organization will also consider their machine as long as it is equal to the identified unit which the organization knows will do the job. It is important to understand that the wording in the third example is not restrictive. It states that the organization is willing to accept anyone's
proposal, but the organization is reserving the right to evaluate any proposed machine to see if it indeed is equal to what the organization requires. To further protect its right to evaluate an unknown machine before its purchase, an organization should include a machine bid evaluation clause in its specifications:

The vendor or manufacturer of a machine which is considered for award shall, at the request of the organization, demonstrate the equipment, at a location chosen by the organization and in the presence of authorized organization personnel, to prove any features or performance capabilities which may be in question. Failure of the demonstration machine to meet organization requirements may be adjudged as non-conformance to bid specifications.

If parts and service availability is important to an organization, this requirement must also be clearly stated in the performance specifications:

Since the continuous operation of this machine is of the utmost importance and sometimes of an emergency nature, the successful bidder must be able to render prompt parts and service. The successful bidder shall maintain or have access to parts inventory within __________ (list city, county, state, or mileage requirement). Said parts inventory shall be of sufficient size and variety to offer a level of parts availability of 95% within 48 hours from time of order by the customer. Availability of normal wear items such as filters, vee belts, hydraulic lines, and hoses shall not exceed 24 hours. Review of bidder's ability to provide prompt parts and service will be used in determining the qualified bidder.

If an organization wants recourse with a bidder for non-performance under terms of the parts and service performance specification requirements, additional wording can be very effective:

If the bidder fails to provide parts within the time limits specified, said parts shall be provided at no cost to the customer. If the parts delivery exceeds more than ___ hours past the time limit specified, the bidder shall provide a replacement machine (of similar size and capacity) to the organization at a nominal cost of $___/hour until said parts are delivered. Continued failure to deliver parts, as required, may be used as a basis for disqualification of the bidder on future solicitations.

Warranties and Repair Contracts. Standard warranty, extended warranty, purchased warranty, and maintenance guarantees can sometimes be confusing and require detailed documentation to insure that all bidders are offering similar coverage. Simply stating that the machine shall be fully covered for a certain time and usage doesn't insure that the coverage expected by the organization will be provided.

To clarify the issue, request in the purchase specifications that a copy of the warranty be provided with the bidder's proposal. Remember, most manufacturer's warranties do not cover wear items.

Manufacturer's warranty shall be a minimum of six months on entire machine and 18 additional months on power train. Bidder shall attach copy of warranty.

If additional coverage is required (including wear items), then the additional requirements should be addressed in a separate heading for clarity.

In addition to the manufacturer's warranty, the bidder shall provide a machine repair parts and labor contract covering all items as specified on attached table for a minimum of months or ___ hours, whichever occurs first. Bidder shall attach copy of proposed extended coverage.

Examples 3 and 4 provide examples of performance specifications for additional power train coverage and for full machine coverage of all major components, respectively. These examples show how an organization can accurately list those items (in addition to the standard manufacturer's warranty) that the bidder must warrant. This helps insure that all bidders are providing the minimum coverage required and have included the cost (if any) for the coverage in their bid proposal.
EXAMPLE 3  Additional power train coverage.

ITEMS TO BE COVERED BY
THE BIDDER'S REPAIR CONTRACT

OPTION I: POWER TRAIN COVERAGE

Items in Power Train Coverage shall include:

ENGINE
Rocker Arm Cover and Gasket, Cylinder Head and Gasket, Oil Pan and Gasket, Injection Pump and Gasket, Water Pump and Gasket, Engine Block, Ring Gear and Flywheel, Timing Gear and Flywheel, Timing Gear Cover, Front and Rear Engine Seals, Turbocharger and Gaskets, Flywheel Housing and Gasket, all parts fully enclosed within above components, Manifold and Gaskets, Front Damper, Oil Coolers and Inter-coolers, and Engine Thermostats.

TRANSMISSIONS & TORQUE CONVERTERS
Electronic or Hydraulic Control Valves, Clutch Housing (except Dry Clutch Disc), Torque Converter, Reverse with Control Valve, Splitter Drive, Transfer Drive, Drive Shaft with Universal Joints, Hydrostatic Transmission, Pump or Motor Assemblies (including Control Valve, Hoses, and Lines), Propel Motor, Pump, Brakes and their Control Valves, Swing Motor and Brake, Swing Gearbox and Bearings, Rotary Manifold, Control Valves for propel and swing functions only (not dig functions).

FRONT & REAR DIFFERENTIALS/AXLES
Axle(s) and Differential(s), Final Drive and Axles, Wet Steering Brakes, Wet Brakes and Wet Disk Parking Brakes, Mechanical Front Wheel Drive: Differential/Axle Assembly with its Drive Shaft with Universal Joint and Control, Hydraulic Front Wheel Drive: Axle and Wheel Drive Assembly (including the Drive Pump and Motor, Electronic Control, and Solenoid Control Valve and Divider Valve), Front Wheel Drive Sensors (not Wire Harness), Park Brake Pinon Shaft and Bearing Quill, Bearing on motor grader only.

EXAMPLE 4  Additional full machine coverage.

ITEMS TO BE COVERED BY
THE BIDDER'S REPAIR CONTRACT

OPTION II: ALL MAJOR COMPONENTS & SYSTEMS

Items covered by the All Major Components and Systems Option II, include those items covered by the Power Train Only Option I, and the following listed additional items:

ENGINE

TRANSMISSION
Shift Control Linkage, Levers, Pedals, Control Rods, Sending Units, and Senders, External Oil Lines, Filter Tubes, Filter Screens, Accumulator and related Relief Valves, Transmission Oil Cooler.

DIFFERENTIAL
Differential Lock Valve and associated parts.

STEERING
Steering Pump, Steering Valve and Cylinder(s), Axle, Spindles and Supports, Tie Rods and Tie Rod Ends, Axle Steering Linkage, All secondary Steering System Components, Crossover Relief Valve, and Priority Valve.

HYDRAULIC COMPONENTS

ELECTRICAL
Starter Motor, Starter Drive, and Solenoid, Alternator and Voltage Regulator, Charging System Wiring, Wiring Harness, Instruments, Indicators, and Sensors, Wiper Motor(s).

BRAKES
Brake Pump, Brake Valve(s), Accumulator(s), Unloading Valve, Pressure Reducing Valve.

FACTORY AIR CONDITIONING

OTHER
STEP FIVE - Establish Bid Award Criteria

The last step in developing clear, accurate, and useful performance specifications is to establish how the organization will select the best proposal. The bid award point system provides a means of integrating the results of the first four steps into a comprehensive process for selecting the best overall proposal. To develop this system, the organization must establish and test its bid proposal evaluation criteria before bid opening, and must identify the relative importance of each criterion. The following example shows the components and the processes required in the development of a bid award point system. This information is provided to all prospective bidders with the bid solicitation.

Example 5 Basis of award.

Successful bidder shall be determined using the following point system. Any bidder not providing mandatory features, or not meeting minimum requirements, may be disqualified. Bidder receiving the highest number of points shall be considered the successful bidder.

**AWARD CRITERIA POINTS**

- A. Conformance to Bid Specifications ..... 60 Points
- B. Machine Job Performance ............... 60 Points
- C. Warranty ................................ 40 Points
- D. Parts & Service Availability ............ 40 Points
- E. Lowest Bid Price ......................... 40 Points
- F. Previous Experience with Bidder ........ 20 Points
- G. Machine Delivery ......................... 10 Points

MAXIMUM POSSIBLE SCORE .... 270 Points

The decision on number of points awarded to each proposal will be a judgment by the organization evaluation committee. This committee will rank each bid in each category and award a percentage of possible points based on the following judgments: "Outstanding" = 100%, "Good" = 80%, "Fair" = 60%, "Poor" = 40%, "Unacceptable" = 0%.

NOTE: The technique of making a bid award based on a point system may be viewed as "subjective" under some organization/state purchasing guidelines. Although effective for many organizations, the point method of bid evaluation should be examined by the organization's legal staff to ensure conformance with applicable state's bid laws.

Example 5 shows just one way an organization might decide to award points in their evaluation process. This time the organization has decided that conformance to bid specifications is worth 60 points. (They could have used 100, 1000, or even a dollar amount). Any bidder meeting all specifications as written would receive 60 points. Based on a pre-established scoring procedure, a bidder meeting all but one or two minor items in the specifications might get 45 to 50 points.

The organization could also decided that machine performance gets 60 points. The high relative point value for the first two criteria indicates to the bidders that the organization has carefully researched what machine is needed and will award points to those who bid the machine of the size and performance the organization needs. Fewer points or no points, depending on what the organization pre-establishes, will be given to any bidder who chooses not to bid such a machine. This helps prevent a bidder from second-guessing the organization and bidding a smaller machine, in the interest of lowering the bid price, than what the organization needs.

Some of the non-technical areas important to the organization include the type of warranty provided with the machine (40 points), and parts and service availability (40 points). Lowest bid price is worth 40 points. By alerting bidders of its criteria for low bid price, the organization is indicating it will not sacrifice machine specifications, the ability of the machine to do the job, the warranty, or parts and service availability simply for a low bid price. The organization is showing that it believes that bid price needs to be part of the evaluation, but not the total evaluation. Thus, they are considering the best overall value.

Previous experience with a bidder enables the organization to award points for good past performance and to keep a successful bidder committed to earning future business from the organization. On the other hand, poor past performance will "come back to haunt a bidder" in the form of fewer or no points in this area. Previous experience with the bidder could be based on a variety of areas including: past performance under similar bids, past performance as a vendor of parts, or past performance as a vendor of repair service and warranty.

With proper planning and scheduling, delivery should not be a major issue. This time the organization assigned 10 points to machine delivery. In an emergency situation where the organization needs a machine quickly, machine delivery could be assigned a higher priority.

NOTE: For those organizations that require that the bid be awarded to the lowest bid price, the point system still works. If bidders meet all requirements of the bid—machine specifications, job performance, warranty, parts and service, etc—then the award will be made to the bidder with the lowest bid price. Bidders not meeting requirements of the bid, no matter what bid price, would be disqualified.
UTILIZING THE FIVE STEP METHOD

Successful specification writing involves more than just putting technical information on paper. It requires that the specification writer understand how the machine is going to be used on-the-job. This information will be used to determine the required size and performance capabilities of the machine. It means an organization must determine the relative importance of the machine's performance, prompt parts and service support, acquisition price, warranty, and delivery schedule.

Demonstrating equipment on-the-job to evaluate key machine features and performance, along with clearly stating what is being purchased, are important steps to ensure bidders understand what is required. Identifying the bid award criteria clearly communicates the basis for selection of successful bidder.

By conscientiously following the five step method, an organization can discover just how easy it is to write successful specifications. Development of quality performance specifications, however, takes a serious dedication of time, personnel, and effort.

As a reference, the following pages show some examples of how an organization might layout a spread sheet analysis—using yes, no, or can answer—of their purchasing specifications for: 1) industrial wheel backhoe loader, 2) four wheel drive loader, and 3) all-hydraulic, articulated frame, tandem drive motor grader. This style of spread sheet format can also be used when considering other capital goods such as: automobiles, trucks, cranes, crawlers, and mowing tractors.

Analyzing the specification wording before mailing solicitations (similar to the manner shown in the examples) will allow the organization to clearly pre-determine if the bid specifications meet all of its requirements. Knowing which bidder or model/manufacturer of equipment meets or doesn't meet the performance requirements (as written) and resolving the issue before bid opening will also go a long way in helping make sure the organization can acquire a machine that can do the job for which it was purchased.

The spread sheet format shown in the examples can also prove handy for pre-bid specification review conference meetings with bidders and organization end users. After bid opening, the spread sheet can serve as a quick guide to review bidder responses.

ADDITIONAL INFORMATION

"Making the right machine decision" for some organizations will also mean understanding various purchasing alternatives, acquisition alternatives, and financing options. It is the intent of the Committee on Maintenance Equipment to investigate and develop future Circulars that address areas of interest to Maintenance Operations.

If you would like to receive information on new Circulars, have questions on any of the material presented in this booklet, or would like to make a recommendation on subject matter for future Circulars, please contact the Committee thru:

Committee on Maintenance Equipment (A3C08)
Transportation Research Board
National Research Council
2101 Constitution Avenue, N.W.
Washington, D.C. 20418
APPENDIX
PERFORMANCE SPECIFICATION WORKSHEET
(STEP FOUR - Clearly State What Is Being Purchased)

This Appendix contains sample performance specification worksheets for (A1) an industrial wheel backhoe loader - 60 SAE NET HP & 14-foot digging depth class, (A2) a four wheel drive loader - 16,400 pound full turn tipping load class, and (A3) an all-hydraulic, articulated frame, tandem drive motor grader - 27,500 pound operating weight class.

EXAMPLE A1  Sample performance specification worksheet for a backhoe loader.

<table>
<thead>
<tr>
<th>INDUSTRIAL WHEEL BACKHOE LOADER</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 SAE NET HP &amp; 14-FOOT DIGGING DEPTH CLASS</td>
</tr>
</tbody>
</table>

Unit described below shall be a new, current year manufacture, Backhoe Loader that is manufacturer’s latest design and production, complete, serviced, ready for work, and includes all standard equipment.

**LEGEND:**
- YES = Unit meets or exceeds requirements; NO = Unit does not meet requirements;
- CAN = Unit can meet requirements, but is not standard equipment;
- CAN? = Appears unit can meet requirements, but is not standard equipment;
- DNA = Data not available from published specifications.

<table>
<thead>
<tr>
<th></th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>OTHER</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. SIZE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Equipped per following specs, unit shall have a maximum SAE digging depth of at least 14 feet.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td><strong>2. OPERATING WEIGHT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ SAE minimum operating weight of 12,000 pounds exclusive of tire ballast and equipped per the following specs.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td><strong>3. ENGINE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Four cylinder diesel.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>✓ Wet-sleeve cylinder liner design.</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>✓ Minimum SAE net hp - 60.</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td><strong>4. TRANSMISSION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Transmission shall have a full power shift direction reverser. Minimum 4F-4R speeds.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>✓ Maximum transport speed shall be no less that 20 mph.</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td><strong>5. STEERING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Full power steering with emergency dead engine steering capability.</td>
<td>YES</td>
<td>YES</td>
<td>DNA</td>
<td>YES</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>✓ Turning clearance circle to outside bucket edge shall not exceed 34 feet 9 inches without brakes applied.</td>
<td>YES</td>
<td>DNA</td>
<td>DNA</td>
<td>DNA</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>✓ Turning radius to outside tire edge shall not exceed 13 feet 4 inches without brakes applied.</td>
<td>YES</td>
<td>DNA</td>
<td>DNA</td>
<td>DNA</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td><strong>6. DRIVE AXLES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Inboard planetary gear drive to each wheel.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>___</td>
<td>___</td>
</tr>
<tr>
<td>✓ Foot-operated, automatic release, rear axle differential lock engageable under full engine rpm required. Torque proportioning rear axle not acceptable due to the tire scuffing and work surface damage it can generate.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>___</td>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>
### INDUSTRIAL WHEEL BACKHOE LOADER
**60 SAE NET HP & 14-FOOT DIGGING DEPTH CLASS**

Unit described below shall be a new, current year manufacture, Backhoe Loader that is manufacturer’s latest design and production, complete, serviced, ready for work, and includes all standard equipment.

**LEGEND:**
- **YES** = Unit meets or exceeds requirements;
- **NO** = Unit does not meet requirements;
- **CAN** = Unit can meet requirements, but is not standard equipment;
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- **OTHER** = Data not available from published specifications.

<table>
<thead>
<tr>
<th><strong>7. BRAKES</strong></th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>OTHER</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Service brakes shall be 2-wheel, disk type, sealed and fully enclosed to allow operation in water, mud, snow and other adverse conditions without encountering brake fade.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Service brakes shall be self-adjusting.</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Service brake engagement shall be all-hydraulic.</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ The parking/secondary brake system shall be independent of service brakes and be of sufficient design to hold weight of machine on slope.</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ The parking/secondary brake system shall have a warning light or buzzer.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>8. TIRES</strong> (for units without MFWD)</th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>OTHER</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Front tires shall be a minimum of 7.50-16, 10PR, F3. Rear tires shall be a minimum of 16.9-24, 8PR, R4.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>9. VEHICLE FRAME</strong></th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>OTHER</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Unit shall feature a single piece weldment, full-length unitized main frame for increased operating reliability and component serviceability.</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>10. OPTIONAL FRONT WHEEL DRIVE</strong></th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>OTHER</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Mechanical front wheel drive shall be engageable on-the-go.</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Front axle shall have a limited slip differential.</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Front tires shall be a minimum 12.00-16.5, 8PR. Rear tires shall be a minimum 16.9-24, 8PR, R4.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Turning clearance circle to outside bucket edge shall not exceed 34 feet 4 inches without brakes applied.</td>
<td>YES</td>
<td>NO</td>
<td>DNA</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Turning radius to outside tire edge shall not exceed 13 feet 4 inches without brakes applied.</td>
<td>YES</td>
<td>DNA</td>
<td>DNA</td>
<td>DNA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>11. LOADER</strong></th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>OTHER</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Loader shall be self-leveling.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Equipped with an automatic return-to-dig.</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Equipped with a G.P. bucket rated at a minimum 87 cubic yards SAE heaped capacity and cuts the full width of rear tires.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Minimum SAE J732C bucket breakout force of 6,500 lbs required.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Minimum SAE loader lift rating of 4,500 pounds to full height required.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>12. HYDRAULIC SYSTEM</strong></th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>OTHER</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ System shall have a minimum flow of 24 gpm to the backhoe and provide adequate cooling for hydraulic tools and attachments.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Backhoe stabilizer hydraulic lock-outs shall be provided in both the work and transport positions.</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>13. BACKHOE</strong></th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>OTHER</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ SAE maximum digging depth of at least 14 feet.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ SAE J31 minimum backhoe lifting capacity of 2,200 pounds to 12-foot lift height through the full 180 degrees swing arc.</td>
<td>YES</td>
<td>DNA</td>
<td>YES</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Minimum backhoe bucket cylinder digging force of 10,000 pounds.</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>14. OPTIONAL EXTENDABLE DIPPER-STICK</strong></th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>UNIT</th>
<th>OTHER</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Extendable dipper-stick shall have a minimum extension of 4 feet.</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ A minimum of 175-degree bucket rotation shall be maintained to help decrease bucket spillage during truck loading operations.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
INDUSTRIAL WHEEL BACKHOE LOADER
60 SAE NET HP & 14-FOOT DIGGING DEPTH CLASS

Unit described below shall be a new, current year manufacture, Backhoe Loader that is manufacturer's latest design and production, complete, serviced, ready for work, and includes all standard equipment.

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<table>
<thead>
<tr>
<th>UNIT #1</th>
<th>UNIT #2</th>
<th>UNIT #3</th>
<th>UNIT #4</th>
<th>OTHER</th>
<th>OTHER</th>
</tr>
</thead>
</table>

**15. COOLING SYSTEM**
✓ Pressurized liquid cooling system with thermostat. Radiator shall be filled with manufacturer's approved anti-freeze solution that provides protection to at least -30 degrees F.

**YES CAN CAN CAN__________**

**16. ELECTRICAL**
✓ Batteries shall have a minimum reserve capacity rating of minutes. Alternator shall be a minimum of 78 amps. Unit shall have a minimum of two front halogen work/driving lights, one combination stop/tail light, and a lighted instrument panel.

**YES CAN CAN CAN__________**

**17. STANDARD INSTRUMENTATION**
✓ Unit shall have side mounted gauges or monitoring system that includes: transmission temperature, engine coolant temperature, engine oil pressure, parking brake engagement, hydraulic filter restriction, fuel, alternator, and electric hour meter. Engine coolant temperature, engine oil pressure and parking brake system shall include audible and visual warning.

**YES CAN CAN CAN__________**

**18. OPERATOR’S STATION**
✓ Station shall be SAE ROPS/FOPS certified. Station shall be isolation mounted and include a roof panel and seat belt. Instrumentation vandalism protection shall be included on ROPS canopy unit.

**YES CAN CAN CAN__________**

**19. OPTIONAL CAB**
✓ Cab shall be SAE ROPS/FOPS certified. Fully enclosed cab shall be isolation mounted and include seat belt, front defroster fan, heater, front and rear windshield wipers, tinted safety glass, latched windows, and lockable cab doors. Must also include additional lighting package of: two rear halogen work lights, two front and two rear turn and flashing lights, two stop lights, one tail light, dome light.
✓ A minimum of one cab entry door shall open within the width of the machine to avoid opening into traffic lanes for improved operator safety.

**YES NO NO NO__________**

**20. ADDITIONAL EQUIPMENT**
✓ Unit shall have all standard equipment and shall include: key ignition switch w/safety start, hand and foot throttle, horn, cold weather starting aid, dry-type air cleaner and restriction indicator, muffler, lockable engine side shields, reverse warning alarm and SMV emblem, engine fuel filter, mounting steps and safety hand holds, and backhoe boom transport locks.

**YES CAN CAN CAN__________**

**21. WARRANTY**
✓ Manufacturer's warranty shall be a minimum of six months on entire machine and 18 additional months on power train. Bidder shall attach copy of warranty.

**YES CAN CAN CAN__________**

**22. EXTENDED COVERAGE CONTRACT**
✓ In addition to manufacturer's warranty, bidder shall provide an extended coverage contract for machine repair, parts, and labor covering all items as specified on the attached sheet for a minimum of ____ months and ____ hours, whichever occurs first. Bidder shall attach copy of proposed extended coverage contract.

**YES CAN CAN CAN__________**
INDUSTRIAL WHEEL BACKHOE LOADER
60 SAE NET HP & 14-FOOT DIGGING DEPTH CLASS

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<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>#2</td>
<td>#3</td>
<td>#4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

23. REPAIR PARTS AND SERVICE
✓ Since the continuous operation of this backhoe loader is of the utmost importance and sometimes of an emergency nature, it is necessary that the successful bidder be able to render prompt parts and service. The successful bidder shall maintain or have access to parts inventory within _____ hours of order by the customer. Availability of normal maintenance items such as filters, vee belts, hydraulic lines, and hoses shall not exceed 24 hours. Bidder shall attach his proposed program for parts and service availability for evaluation. Review of the bidder's ability to provide prompt parts and service will be used in determining low, qualified bidder.

YES CAN? CAN? CAN? __ __

24. MANUALS
✓ Successful bidder shall provide _____ copies of Operator's Manual and _____ copies current parts and repair manuals.

CAN CAN CAN CAN __ __

25. TRAINING
✓ Successful bidder shall provide _____ hours of on-site operator or preventive maintenance training. Any costs for such training must be noted by bidder.

CAN CAN CAN CAN __ __

26. DEMONSTRATION
✓ The vendor or manufacturer of the backhoe loader which is considered for award may be required to demonstrate his backhoe loader at a location chosen by the customer and in the presence of authorized customer representatives to prove out any features which may be in question. Failure of the demonstration machine to meet customer requirements may be adjudged as non-conformance to these specifications.

CAN? CAN? CAN? CAN? __ __

27. DELIVERY
✓ Time of delivery may be an important factor in determining successful bidder.

28. BASIS OF AWARD
✓ Successful bidder shall be determined using the following point system. Any bidder not providing mandatory features or not meeting minimum requirements may be disqualified. Bidder receiving the highest number of points shall be considered the successful bidder.

* * * AWARD CRITERIA POINTS * * *

A. CONFORMITY TO BID SPECIFICATIONS .................................................. 60 POINTS
B. MACHINE JOB PERFORMANCE ............................................................. 60 POINTS
C. WARRANTY PROVIDED ........................................................................... 40 POINTS
D. PARTS AND SERVICE AVAILABILITY ..................................................... 40 POINTS
E. LOWEST BID PRICE ............................................................................ 40 POINTS
F. PREVIOUS EXPERIENCE WITH BIDDER ............................................... 20 POINTS
G. MACHINE DELIVERY ........................................................................... 10 POINTS

MAXIMUM POSSIBLE SCORE ..................................................................... 270 POINTS

The decision as to the number of points awarded will be a judgement by the agency evaluation committee. The evaluation committee will rank the bidder in each category and award a percentage of possible points based on the following judgements of: "Outstanding" = 100%; "Good" = 80%; "Fair" = 60%; "Poor" = 40%; or "Unacceptable" = 0%.
**EXAMPLE A2**  Sample performance specification worksheet for a four wheel drive loader.

<table>
<thead>
<tr>
<th><strong>FOUR WHEEL DRIVE LOADER</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>16,400 POUND FULL TURN TIPPING LOAD CLASS</strong></td>
</tr>
</tbody>
</table>

Unit described below shall be a new, current year manufacture, Four-Wheel-Drive Loader that is manufacturer's latest design and production, complete, serviced, ready for work, and includes all standard equipment.

**LEGEND:**
- **YES** = Unit meets or exceeds requirements;
- **NO** = Unit does not meet requirements;
- **CAN** = Unit can meet requirements, but is not standard equipment;
- **CAN?** = Appears unit can meet requirements, but is not standard equipment;
- **DNA** = Data not available from published specifications.

<table>
<thead>
<tr>
<th>LEGEND:</th>
<th>UNIT #1</th>
<th>UNIT #2</th>
<th>UNIT #3</th>
<th>UNIT #4</th>
<th>OTHER</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. OPERATING WEIGHT</strong></td>
<td>✓ SAE minimum operating weight of 23,500 pounds exclusive of tire ballast and equipped per the following specs.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td><strong>2. SIZE</strong></td>
<td>✓ Equipped per following specs, unit shall have a minimum 40- degree turn tipping load of 16,400 pounds.</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td><strong>3. ENGINE</strong></td>
<td>✓ Six cylinder, turbocharged, diesel.</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>✓ Wet-sleeve cylinder liner design.</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓ Minimum SAE net hp - 115.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4. TRANSMISSION</strong></td>
<td>✓ Full power shift with torque converter. Minimum 4F - 3R speeds.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td><strong>5. STEERING</strong></td>
<td>✓ Full hydraulic articulated frame steering. Loader clearance turning circle shall not exceed 37 feet 6 inches.</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td><strong>6. DRIVE AXLES</strong></td>
<td>✓ Inboard planetary gear drive to each wheel.</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>✓ Lock/unlock differential or No-Spin in at least one axle. Torque proportioning axles alone DO NOT meet this specification requirement.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7. BRAKES</strong></td>
<td>✓ Brakes must be sealed and fully enclosed to allow operation in water, mud, snow, and other adverse conditions without encountering brake fade.</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>✓ Parking/secondary brake shall be independent of service brakes and shall have a warning light or buzzer and be of sufficient design to hold weight of machine on slope.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>8. TIRES</strong></td>
<td>✓ All tires shall be a minimum of 17.5-25 12PR, L2.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td><strong>9. LOADER</strong></td>
<td>✓ Loader shall have a General Purpose bucket that has a minimum SAE heaped capacity of 2.25 cubic yards. Loader shall include automatic return-to-dig and bucket self-leveling.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>✓ Minimum SAE J792C bucket breakout force of 22,600 pounds required.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>10. DUMP CLEARANCE</strong></td>
<td>✓ Loader shall have a minimum dump clearance to the cutting edge of 111 inches at full height.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td><strong>11. HYDRAULIC SYSTEM</strong></td>
<td>✓ Loader shall feature hydraulic lift, lower, dump, roll-back, and float.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>✓ Bucket shall have sufficient &quot;wrap-out&quot; to knock sticky material out of the bucket.</td>
<td>YES</td>
<td>CAN?</td>
<td>CAN?</td>
<td>CAN?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FOUR WHEEL DRIVE LOADER
16,400 POUND FULL TURN TIPPING LOAD CLASS

Unit described below shall be a new, current year manufacture, Four-Wheel-Drive Loader that is manufacturer's latest design and production, complete, serviced, ready for work, and includes all standard equipment.

| LEGEND: YES = Unit meets or exceeds requirements; NO = Unit does not meet requirements; CAN = Unit can meet requirements, but is not standard equipment; CAN? = Appears unit can meet requirements, but is not standard equipment; DNA = Data not available from published specifications. |
|---|---|---|---|---|
| **UNIT** | **UNIT** | **UNIT** | **OTHER** | **OTHER** |
| #1 | #2 | #3 | #4 | |

12. COOLING SYSTEM
✓ Pressurized liquid cooling system with thermostat. Radiator shall be filled with manufacturer approved anti-freeze solution that provides protection to at least -30 degrees F.

| YES | CAN | CAN | CAN | |

13. ELECTRICAL
✓ Batteries shall have a minimum reserve capacity rating of 160 minutes. Alternator shall be a minimum of 65 amps. Unit shall have a minimum of two front and two rear work lights, two separate front driving lights, two separate combination stop and tail lights, front and rear turn and flashing signals, lighted instrumental panel.

| YES | CAN | CAN | CAN | |

14. CAB
✓ Unit shall have a fully enclosed steel sound-suppressed cab that provides roll-over protection in accord with SAE J394. Cab shall include: heater, defroster, pressurizer, front & rear windshield washers/wipers, dome light, floor mat, tinted safety glass, dual inside rear view mirrors. Operator’s seat shall be fabric deluxe mechanical or air suspension type that is adjustable for operator height, weight, leg reach, and back angle preference. Seat belt and adjustable arm rests shall be included.

| YES | CAN | CAN | CAN | |

15. CAB INSTRUMENTATION
✓ Cab instrumentation shall include dash-mounted gauges or monitor system to include: transmission oil temp., transmission oil pressure, fuel, engine coolant temp., engine oil pressure, electric hour meter, electric voltage. Engine coolant and engine pressure system shall include audible and visual warning.

| YES | CAN | CAN | CAN | |

16. ADDITIONAL EQUIPMENT
✓ Unit shall have all standard equipment and shall include: key ignition switch w/safety start, foot throttle, horn, cold weather starting aid, pre-cleaner, dry-type air cleaner with safety element and restriction indicator, muffler, front wheel fenders, fixed drawbar, hinged lockable engine side shields, reverse warning alarm and SMV emblem, articulation locking bar and pin, engine fuel filter, lockable cab doors, mounting steps and safety hand holds. All locks shall be keyed the same.

| YES | CAN | CAN | CAN | |

17. WARRANTY
✓ Manufacturer’s warranty shall be a minimum of six months on entire machine and 18 additional months on power train. Bidder shall attach copy of warranty.

| YES | CAN | CAN | CAN | |

18. EXTENDED COVERAGE CONTRACT
✓ In addition to manufacturer’s warranty, bidder shall provide an extended coverage contract for machine repair, parts, and labor covering all items as specified on the attached sheet for a minimum of ___ months and ___ hours, whichever occurs first. Bidder shall attach copy of proposed extended coverage contract.

| YES | CAN | CAN | CAN | |
FOUR WHEEL DRIVE LOADER
16,400 POUND FULL TURN TIPPING LOAD CLASS

Unit described below shall be a new, current year manufacture, Four-Wheel-Drive Loader that is manufacturer's latest design and production, complete, serviced, ready for work, and includes all standard equipment.

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|-----------------|-----------------|-----------------|-----------------|-----------------|
| UNIT #1 | UNIT #2 | UNIT #3 | UNIT #4 | OTHER | OTHER |
| YES | CAN? | CAN? | CAN? | CAN? | CAN? |

19. REPAIR PARTS AND SERVICE
✓ Since the continuous operation of this loader is of the utmost importance and sometimes of an emergency nature, it is necessary that the successful bidder be able to render prompt parts and service. The successful bidder shall maintain or have access to parts inventory within _________ (list city, county, state or mileage requirement). Said parts inventory shall be of sufficient size and variety to offer a level of parts availability of 95% within 48 hours from time of order by the customer. Availability of normal maintenance items such as filters, vece belts, hydraulic lines, and hoses shall not exceed 24 hours. Bidder shall attach his proposed program for parts and service availability for evaluation. Review of the bidder’s ability to provide prompt parts and service will be used in determining low, qualified bidder.

20. MANUALS
✓ Successful bidder shall provide ____ copies of Operator’s Manuals and ____ copies of current parts and repair manuals.

21. TRAINING
✓ Successful bidder shall provide ____ hours of on-site operator or preventive maintenance training. Costs for such training shall be noted by bidder.

22. DEMONSTRATION
✓ The vendor or manufacturer of the loader which is seriously considered for award shall, at the request of the customer, demonstrate his loader at a location chosen by the customer and in the presence of authorized customer representatives to prove out any features which may be in question. Failure of the demonstration machine to meet customer requirements may be adjudged as nonconformance to these specifications.

23. DELIVERY
✓ Time of delivery may be an important factor in determining successful bidder.

24. BASIS OF AWARD
✓ Successful bidder shall be determined using the following point system. Any bidder not providing mandatory features or not meeting minimum requirements may be disqualified. Bidder receiving the highest number of points shall be considered the successful bidder.

* * * AWARD CRITERIA POINTS * * *

| A. CONFORMITY TO BID SPECIFICATIONS | 60 POINTS |
| B. MACHINE JOB PERFORMANCE | 60 POINTS |
| C. WARRANTY PROVIDED | 40 POINTS |
| D. PARTS AND SERVICE AVAILABILITY | 40 POINTS |
| E. LOWEST BID PRICE | 40 POINTS |
| F. PREVIOUS EXPERIENCE WITH BIDDER | 20 POINTS |
| G. MACHINE DELIVERY | 10 POINTS |
| MAXIMUM POSSIBLE SCORE | 270 POINTS |

The decision on the number of points awarded will be a judgement by the agency evaluation committee. The evaluation committee will rank the bidder in each category and award a percentage of possible points based on the following judgements of "Outstanding" = 100%; "Good" = 80%; "Fair" = 60%; "Poor" = 40%; or "Unacceptable" = 0%.
**EXAMPLE A3** Sample performance specification worksheet for a motor grader.

**ALL-HYDRAULIC, ARTICULATED FRAME, TANDEM DRIVE MOTOR GRADER**

**27,500 POUND OPERATING WEIGHT CLASS**

Unit described below shall be a new, current year manufacture, Motor Grader that is manufacturer’s latest design and production, complete, serviced, ready for work, and includes all standard equipment.

**LEGEND:** YES = Unit meets or exceeds requirements; NO = Unit does not meet requirements; CAN = Unit can meet requirements, but is not standard equipment; DNA = Appears unit can meet requirements, but is not standard equipment; DNA = Data not available from published specifications.

<table>
<thead>
<tr>
<th>1. SIZE</th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>✓ Equipped per following specifications, SAE minimum operating weight without add-on weights or wheel ballast shall be at least 27,500 pounds.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. TYPE</th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>✓ Six wheels, four-wheel tandem drive, articulated frame.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. ENGINE</th>
<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Six cylinder, turbocharged diesel.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>✓ Wet-sleeve cylinder liner design.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>✓ If grader has a torque converter transmission, engine shall develop a minimum of 150 SAE net hp. If grader has a FULL power shift, direct-drive transmission, engine shall develop at least 135 SAE net hp.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. TRANSMISSION</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>✓ Full power shift. No operator clutching required for direction or gear changes.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>✓ Transmission shall provide five working speeds below 9 mph to better match engine rpm and travel speed to load for improved fuel economy and increased engine life.</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>✓ Maximum transport speed shall be no less than 24 mph.</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. STEERING</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ FULL hydraulic power steering. Minimum machine turning radius shall not be greater than 24 feet.</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. DRIVE AXLES</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Inboard planetary gear drive to each wheel.</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>✓ No-Spin or foot-operated, hydraulically actuated rear axle differential lock-unlock engageable on-the-go under full engine rpm in any gear.</td>
<td>YES</td>
<td>CAN</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. BRAKES</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Brakes must be sealed and fully enclosed to allow operation in water, mud, snow, and other adverse conditions without encountering brake fade.</td>
<td>YES</td>
<td>CAN</td>
<td>DNA</td>
<td>DNA</td>
<td>YES</td>
</tr>
<tr>
<td>✓ If air brake equipped, air dryer must be provided.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>CAN</td>
</tr>
<tr>
<td>✓ The parking/secondary brake system shall be independent of service brakes and shall have warning light or buzzer and be of sufficient design to hold weight of machine on a slope.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. TIRES</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ All six tires shall be minimum of 14.00-24, 12PR, G2 on 10-inch rims.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9. FRONT AXLE &amp; WHEELS</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Oscillating axle and left/right hydraulic power wheel lean.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>✓ Axle of sufficient strength to allow mounting of front V-plow, blade or attachments.</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10. SCARIFIER</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Scarifier to be mounted ahead of front tires to serve as mounting point for V-plow, blade or other attachments.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
</tr>
<tr>
<td>✓ V-type scarifier, 5 teeth with replaceable tips.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
</tr>
<tr>
<td>✓ Minimum cut width of 48&quot;.</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>✓ Hydraulically controlled, including float.</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>✓ Scarifier to have adjustable pitch.</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>
### ALL-HYDRAULIC, ARTICULATED FRAME, TANDEM DRIVE MOTOR GRADER
#### 27,500 POUND OPERATING WEIGHT CLASS

Unit described below shall be a new, current year manufacture, Motor Grader that is manufacturer's latest design and production, complete, serviced, ready for work, and includes all standard equipment.

**LEGEND:**
- YES = Unit meets or exceeds requirements; NO = Unit does not meet requirements; CAN = Unit can meet requirements, but is not standard equipment; CAN? = Appears unit can meet requirements, but is not standard equipment; DNA = Data not available from published specifications.

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<th>UNIT #4</th>
<th>UNIT #5</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. MOLDBOARD &amp; BLADE</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>✓ 12-foot length, 24-inch height, 0.88-inch thickness.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>✓ Boron steel or equal cutting edges guaranteed against breakage.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>✓ Full hydraulic control including circle sideshift, blade sideshift, circle rotation, saddle rotation, blade pitch, and blade float. 90 degree and 2:1 bank cutting angle left or right obtainable without leaving operator's cab.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>12. COOLING SYSTEM</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>✓ Pressurized liquid cooling system with thermostat. Radiator shall be filled with manufacturer approved anti-freeze solution that provides protection to at least -30 degrees F.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
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</tr>
<tr>
<td>13. ELECTRICAL</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>✓ Batteries shall have a minimum reserve capacity rating of 180 minutes. Alternator shall be a minimum of 42 amps. Unit shall have a minimum of two front and rear work lights, two combination stop/tail lights, turn and flashing lights, and a lighted instrument panel.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>14. INSTRUMENTATION</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>✓ Unit shall have dash mounted gauges or monitoring system that will include: transmission temperature, engine coolant temperature, engine oil pressure, parking brake engagement, rear steer indicator, hydraulic filter restriction, fuel, alternator, and electric hour meter. Engine coolant and engine oil pressure systems shall include audible and visual warning.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>15. CAB</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>✓ Cab shall be low profile design not to exceed 10 foot 2 inch overall height and shall be SAE ROPS certified.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>✓ Cab shall be isolation mounted, sound insulated, and include a seat belt, deluxe cloth suspension seat that is adjustable for operator weight, leg rest, back angle, and arm rests; defroster fan, heater, front and rear windshield wipers, inside mounted rear view mirror, tinted safety glass, dome light, and lockable cab doors.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>16. ADDITIONAL EQUIPMENT</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>✓ Unit shall have all standard equipment and shall include: key ignition switch w/safety start, foot throttle, horn, cold weather starting aid, dry-type air cleaner with safety element and restriction indicator, muffler, hinged &amp; lockable full length engine side shields, reverse warning alarm and SMV emblem, engine fuel filter, mounting steps and safety hand holds, tool box with hinged cover, complete lock-up vandal protection, and transmission bottom guard. All locks shall be keyed the same.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>17. WARRANTY</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>✓ Manufacturer's warranty shall be a minimum of six months on entire machine and 18 additional months on power train. Bidder shall attach copy of warranty.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>18. EXTENDED COVERAGE CONTRACT</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
<tr>
<td>✓ In addition to manufacturer's warranty, bidder shall provide an extended coverage contract for machine repair, parts, and labor covering all items as specified on the attached sheet for a minimum of ___ months and ___ hours, whichever occurs first. Bidder shall attach copy of proposed extended coverage contract.</td>
<td>YES</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td>CAN</td>
<td></td>
</tr>
</tbody>
</table>
## ALL-HYDRAULIC, ARTICULATED FRAME, TANDEM DRIVE MOTOR GRADER
### 27,500 POUND OPERATING WEIGHT CLASS

Unit described below shall be a new, current year manufacture, Motor Grader that is manufacturer's latest design and production, complete, serviced, ready for work, and includes all standard equipment.

| LEGEND: YES = Unit meets or exceeds requirements; NO = Unit does not meet requirements; CAN = Unit can meet requirements, but is not standard equipment; CAN? = Appears unit can meet requirements, but is not standard equipment; DNA = Data not available from published specifications. |
|---|---|---|---|---|---|
| UNIT | UNIT | UNIT | UNIT | UNIT | OTHER |
| #1 | #2 | #3 | #4 | #5 |

### 19. REPAIR PARTS AND SERVICE
✓ Since the continuous operation of this motor grader is of the utmost importance and sometimes of an emergency nature, it is necessary that the successful bidder be able to render prompt parts and service. The successful bidder shall maintain or have access to parts inventory within ____ (list city, county, state or mileage requirement). Said parts inventory shall be of sufficient size and variety to offer a level of parts availability of 95% within 48 hours from time of order by customer. Availability of normal maintenance items such as filters, vee belts, hydraulic lines, and hoses shall not exceed 24 hours. Bidder shall attach his proposed program for parts and service availability for evaluation. Review of the bidder's ability to provide prompt parts and service will be used in determining low, qualified bidder.

| YES | CAN? | CAN? | CAN? | CAN? | __ |

### 20. MANUALS
✓ Successful bidder shall provide ____ copies of Operator's Manual and ____ copies of current parts and repair manuals.

| YES | CAN? | CAN? | CAN? | CAN? | __ |

### 21. TRAINING
✓ Successful bidder shall provide ____ hours of on-site operator or preventive maintenance training. Costs for such training shall be noted by bidder.

| YES | CAN? | CAN? | CAN? | CAN? | __ |

### 22. DEMONSTRATION
✓ The vendor or manufacturer of the motor grader which is seriously considered for award shall, at the request of the customer, demonstrate his motor grader at a location chosen by the customer and in the presence of authorized customer representatives to prove out any features which may be in question. Failure of the demonstration machine to meet customer requirements may be adjudged as nonconformance to these specifications.

| CAN? | CAN? | CAN? | CAN? | CAN? | __ |

### 23. DELIVERY
✓ Time of delivery may be an important factor in determining successful bidder.

### 24. BASIS OF AWARD
✓ Successful bidder shall be determined using the following point system. Any bidder not providing mandatory features or not meeting minimum requirements may be disqualified and not assigned a score. Bidder receiving the highest number of points shall be considered the successful bidder.

| **AWARD CRITERIA POINTS** |
|---|---|
| A. CONFORMITY TO BID SPECIFICATIONS | 60 POINTS |
| B. MACHINE JOB PERFORMANCE | 60 POINTS |
| C. WARRANTY PROVIDED | 40 POINTS |
| D. PARTS AND SERVICE AVAILABILITY | 40 POINTS |
| E. LOWEST BID PRICE | 40 POINTS |
| F. PREVIOUS EXPERIENCE WITH BIDDER | 20 POINTS |
| G. MACHINE DELIVERY | 10 POINTS |
| MAXIMUM POSSIBLE SCORE | 270 POINTS |

The decision on the number of points awarded will be a judgement by the agency evaluation committee. The evaluation committee will rank the bidder in each category and award a percentage of possible points based on the following judgements of "Outstanding" = 100%; "Good" = 80%; "Fair" = 60%; "Poor" = 40%; or "Unacceptable" = 0%. 

Appendix III

Tire Information
Appendix III - Wheel and Tire Information

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Inc.
CHAPTER XIII

WHEELS AND TIRES

A choice of cast spoke or disc wheels is available when purchasing a motor truck. Cast steel wheels are generally used in the midwest and eastern part of the U.S., and the disc wheel is most popular in the western U.S. In recent years the lightweight steel and aluminum disc wheels have become increasingly popular for heavy-duty vehicles throughout the country.

The cast wheel incorporates the hub assembly and offers weight and cost savings over the conventional steel disc. However, tire alignment and wheel balance are more difficult as tire and rim adjustment is more complex (Figure 13-1a and b).

The disc wheel is available in hi-tensile steel or aluminum for weight savings and when used with the aluminum hub assembly on the front axle, provides better steering and improved ride. Aluminum wheels also dissipate tire heat more quickly and assure better tire wear. Wheel alignment is simplified as the entire wheel and tire assembly is secured by six to ten piloted wheel studs or by the new hub piloted wheels (Figure 13-2a and b).

Disc wheels traditionally are mounted by a stud-guided double nut which positions and centers the disc wheels on the hub. This practice creates problems with corrosion which welds the two nuts together. Also it is difficult to keep the inner nut torqued.

A new hub-piloted system permits easier wheel centering onto the hub rather than the studs. Hub-piloted wheels are preferred over stud-piloted because they are easier to service and maintain and inventory is reduced.
Aside from weight savings and the advantages mentioned above, choice of wheels is primarily a matter of geography or standardization for fleet service. However, the rims and wheels must be compatible with the tire type, size and capacity. (See No. 6 under Bibliography.)

The wisdom of selecting the correct tire size and maintaining the correct inflation pressure is clearly illustrated in Figure 13-3. It has been found that the selection of oversize tires has proved economical in the long run. The tire which is seldom overloaded generally gives much greater mileage; good practice indicates that no tire capacity should ever be exceeded by more than 10% for economical service.

Because tires represent about 10% of the new vehicle cost and about 10% of vehicle operating cost, it is important to select the proper tires for the operation. The most critical factor in tire maintenance is proper inflation. Under or over inflation is both hazardous and costly.

Selection of cross-bar-type tread for the driving tires provides increased traction and improved mileage. Conventional tread design for front-axle tires generally permits better handling response.

Current vehicle operation on expressways and toll roads has necessitated radical design changes in tires. A great advance in tire design was made by the introduction of tubeless tires made from synthetic rubber with a nylon or polyester body. These changes have produced tires with increased tread wear, better traction and handling response, and greater safety.

Tube-Type Tire

Bias-ply tires almost always use tubes and multi-piece rims which makes changing tires easier. These tires use flat base rims while tubeless tires are fitted with 15-degree angle rims.

Tubeless Tire

Although some operators have returned to using the tube tire because of unhappy earlier experiences with the tubeless, the many improvements in the current tubeless tire have made it a favorite with many truck operators.

Tubeless tires are generally preferred for line haul operations because they offer reduced down time from punctures and are far less prone to sudden air loss when a minor puncture results. Fewer components greatly simplify mounting/dismounting.

Some of the advantages for the tubeless tire include:
1. Reduction in punctures and road delays
2. Weight saving, up to 136 lb per axle
3. Elimination of tube and flap problems
4. Elimination of lock-ring hazard
5. Easier and quicker mounting
The Hub-mount advantage:
- Elimination of bolt hole chamfer wear.
- Reduces nut wear and nut replacement.
- Higher clamping force for a given torque.
- Consistent clamping force in repeated use.
- Improved nut torque retention.
- No inner cap nuts.
- All right-hand threads.

Figure 13-2b. Stud-Piloted Dual-Mounting Double Cap Nut.

Figure 13-3. Effect of Inflation and Load on Tire Mileage.
Radial Tire

The radial ply and steel cord belts provide strength, stability and puncture protection. Also, inflation stresses in radial tires are distributed more uniformly throughout the tire to reduce carcass fatigue. The Michelin tire, a radial-type concept, has been in truck use for many years. Now, exporters and local tire manufacturers are expanding their range of sizes to include the larger truck size.

The acceptance of steel-belted radial tires has been phenomenal. These tires provide excellent fuel economy and improved road performance by reducing rolling resistance (Figure 13-4a and b). Rolling resistance accounts for about 20% of vehicle fuel consumption. The greater the GVW, the better the fuel saving.

The radial tire is made from natural or synthetic rubber with nylon, polyester or steel cords. The cord layers making up the carcass are placed at 90 degrees to the tire tread centerline in a “hoop” fashion. In the conventional tire, the cords are placed on a “bias” at angles varying from 30 to 40 degrees (Figure 13-5).

The advantages of the radial tire include:
1. Reduced tread wear by elimination of “squirms” or sidewall “scrubbing” as the tire rolls
2. Better traction because tire sidewalls have greater flex, producing a uniform road pressure
3. Less rolling resistance
4. Less noise
5. Excellent recappability
6. High load ratings
7. Cooler running
8. More flexible casing for improved riding

Low-Profile Radials

Low-profile or low-aspect-ratio tires are becoming more popular among truckers. The aspect ratio of a tire expresses the relationship between the tire’s section height (distance from bead to tread), and its section width (distance between the widest inflated points of the sidewall) (Figure 13-6).

<table>
<thead>
<tr>
<th>Smooth concrete</th>
<th>Bias Ply</th>
<th>Radial</th>
<th>Super Single</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worn concrete/Cold blacktop</td>
<td>1.2</td>
<td>0.9</td>
<td>0.82</td>
</tr>
<tr>
<td>Hot blacktop</td>
<td>1.5</td>
<td>1.2</td>
<td>1.1 *</td>
</tr>
<tr>
<td>Hard packed roll</td>
<td>1.5-2.0</td>
<td>1.2-1.6</td>
<td>1.1-1.4 *</td>
</tr>
<tr>
<td>Packed gravel</td>
<td>2.0</td>
<td>1.7</td>
<td>1.5 *</td>
</tr>
<tr>
<td>Loose gravel</td>
<td>7.5</td>
<td>6.5 *</td>
<td>6.0 *</td>
</tr>
<tr>
<td>Sand</td>
<td>12.0</td>
<td>10.5 *</td>
<td>9.0 *</td>
</tr>
</tbody>
</table>

*estimated

Figure 13-4a. Tire Rolling Resistance (Baseline 1.0 for Bias-Ply on Concrete).

<table>
<thead>
<tr>
<th>GVW</th>
<th>Percent improvement in mpg—radials over bias at 55 mph</th>
<th>at 65 mph</th>
</tr>
</thead>
<tbody>
<tr>
<td>125,000 lb (permit)</td>
<td>17.2</td>
<td>—</td>
</tr>
<tr>
<td>80,000 lb (legal gross)</td>
<td>11.6</td>
<td>8.4</td>
</tr>
<tr>
<td>45,000 lb (part load)</td>
<td>7.2</td>
<td>5.3</td>
</tr>
<tr>
<td>25,000 lb (empty)</td>
<td>4.6</td>
<td>3.0</td>
</tr>
<tr>
<td>Average (round trip)</td>
<td>8.1</td>
<td>5.7</td>
</tr>
<tr>
<td>(25,000 and 80,000)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 13-4b. Rolling Resistance Reduced by Bias and Radial Tires.

Radial tires have an aspect ratio of approximately 90% while bias tires have 80%. Approximately half of all radials installed on new trucks are low-profile. Their use is increasing because of less weight and longer life for the casing and tread.

Advantages of low-profile tires compared with conventional radial:
1. Longer tread life, improved traction, improved fuel economy
2. Reduced height, lower center of gravity
3. Reduced weight, approximately 12 lb/tire
4. Reduced rolling resistance, cooler running
5. Less deformation of tread contact area for faster steering response
For tire type comparison, see Figures 13-7 and 13-8.

Wide-Base Tires

Wide-base tires have received recognition in the construction industry particularly in on/off-highway operation. This tire is a large, balloon type with the same diameter as conventional tires. The popularity of this tire in construction operations is due to increased production resulting from better mobility and improved flotation over conventional tires.

Wide-base tires offer more ground contact thereby increasing flotation and maneuverability in soft or sandy soil. The softer tire also is more flexible, absorbs more road shock, and assures a more comfortable ride for man and machine.

Figure 13-5. Radial and Bias-Belted Tire Construction.

Figure 13-6. Low-Profile (Low-Aspect-Ratio) Tire.

Weight savings of 250 lb per axle are possible when replacing dual tires and wheels with the single wide-base tire assembly (Figure 13-9). First costs for the changeover are competitive with conventional dual rear tires and wheels but substantially more for the front axle changeover. These tires provide increased fuel economy.

Inflation pressures are of extreme importance depending on load, speed and terrain. Tire pressure can be reduced for increased flotation or increased for faster highway operation. Inflation pressures are maintained somewhere between 50 and 100 psi depending on traction desired. Low inflation pressure increases rolling resistance and fuel consumption.

When a blowout occurs with a wide-base single tire, the vehicle must stop. With duals, the vehicle can usually proceed to its destination. Some highway engineers claim wide-base singles cut grooves in asphalt pavement up to four times as deep as loaded duals. This has prompted many states to prohibit studded tires except for certain seasons of the year.

The flotation tire is basically a wide-base tire except for its ability to operate at extremely low pressure. Reduction of air pressure allows greater ground contact
Table 13-7. Tire Type Comparison.

<table>
<thead>
<tr>
<th>Load Range</th>
<th>Ply Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>6</td>
</tr>
<tr>
<td>D</td>
<td>8</td>
</tr>
<tr>
<td>E</td>
<td>10</td>
</tr>
<tr>
<td>F</td>
<td>12</td>
</tr>
<tr>
<td>G</td>
<td>14</td>
</tr>
<tr>
<td>H</td>
<td>16</td>
</tr>
<tr>
<td>J</td>
<td>18</td>
</tr>
<tr>
<td>L</td>
<td>20</td>
</tr>
<tr>
<td>M</td>
<td>22</td>
</tr>
<tr>
<td>N</td>
<td>24</td>
</tr>
</tbody>
</table>

and enables the tire to roll over soft terrain. The flotation tire provides wider, more flexible tread area which distributes the load over more surface area (see Figure 13-10).

These tires operate from 6-10 to 35-40 psi inflation pressure depending on load, speed and surface conditions, and are restricted to low-speed operations when inflated at minimum pressure.

Tire flotation is directly proportional to the contact area between tire and road surface. Satisfactory flotation is developed when the tire contact area equals the safe bearing capacity of the soil. Solutions for determining flotation and rolling resistance are quite complicated because of various unknowns involved, therefore an approximate method for determining required tire contact areas follows:
- On/Off-Highway
- On-Highway—one replaces two
- Weight savings—The super single concept offers significant weight savings over the dual assembly.
- Fuel economy—All-steel wide-base radials have less rolling resistance than the dual assembly.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Steel disc dual wheels</th>
<th>Steel wide-base wheels</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of wheels</td>
<td>4 each</td>
<td>2 each</td>
</tr>
<tr>
<td>Weight of wheels only</td>
<td>360 lb (90 lb each)</td>
<td>248 lb (124 lb each)</td>
</tr>
<tr>
<td>Weight of tires only</td>
<td>472 lb (11R22.5 size - 14 ply)</td>
<td>356 lb (15R22.5 size - 16 ply)</td>
</tr>
<tr>
<td>Weight of wheels and ties</td>
<td>832 lb</td>
<td>604 lb</td>
</tr>
<tr>
<td>Weight saved using wide-base wheels</td>
<td>352 lb per axle over steel duals</td>
<td>124 lb per axle over steel wide-base wheels</td>
</tr>
</tbody>
</table>

Figure 13-9. Wide-base Super Single Tire.

Tire impact will increase soil penetration, therefore a factor of safety ranging from 10 to 15% should be added to the load.

Tire manufacturers generally list tire contact areas for various inflation pressures. Next, determine if soil bearing area will support the load imposed on the tire contact area.

Example: Find the tire contact area required with zero surface penetration for supporting a 5000 lb load. Soil bearing pressure is 40 psi and a 15% factor of safety is applicable.
where most skidding accidents occur. On dry pavement, smooth tires provide greater “stopability” than tires with good tread depth. However, it would be a serious safety hazard to operate a vehicle with such tires.

Vehicle tests using various tire tread designs indicate smooth and patterned tires differ as much as 50% in developing their respective coefficients of friction or skid resistance factor. Tread designs with circumferential ribs and transverse slots are more effective on wet surfaces and at higher speeds because the tread pattern drains or breaks up the wet contact area between tire and road surface. Good contact area drainage is essential especially at high speeds, otherwise “hydroplaning” or loss of frictional resistance may result.

Hydroplaning exists, usually at high speed, whenever a film of water or other contaminant is present between tire and road surface. However, the relatively slower speeds and greater axle loads for most heavy-duty trucks probably account for the almost complete absence of hydroplaning. (See also Chapter X, Brakes and Retarders.)

**Steel Studded Tires**

Cornell Aeronautical Laboratory (CAL) has recently completed an extensive investigation of studded tires and has found that they do, indeed, offer motorists substantial improvement in braking and accelerating on ice and packed snow, particularly at temperatures near the freezing mark where ice and snow are the most slippery. Here are some of the major conclusions of this study:

1. Studded tires on the rear wheels of a car will reduce stopping distances on icy pavements by up to approximately 30% at temperatures around 32°F.
2. Studded tires on all four wheels will shorten stopping distances on glare ice by up to nearly 50%.
3. All four tires must be studded if significantly improved cornering performance is to be achieved on icy pavements.
4. Studded tires on drive wheels offer approximately the same improved effectiveness on ice while accelerating from a stopped or moving condition as they do in braking.
5. There is evidence that studded tires provide additional braking and accelerating performance on packed snow, although more research is needed.

6. Studded tires damage highways to an extent, particularly in areas where jackrabbit starts and hard stops are frequent, but it may be that tire studs scuff up dry or wet pavements at these locations to a degree that they become safer for all drivers, even those whose cars do not have studded tires.

7. The researchers found that studs start to lose some of their effectiveness as the ice temperature drops below the freezing level, and there are indications that all benefit of studs is lost when the ice temperature hits -10°F. At this temperature, however, plain tire rubber is twice as effective in stopping a car as it is at 32°F.

In common practice in the U.S., the number of studs in each tire ranges from about 60 to slightly more than 100, with an average of approximately 80, considerably fewer than are generally used in Europe. On bare pavement, the CAL researchers found that with around 200 studs in each tire, stopping distance actually is increased from what it would be with regular highway tires. With 100 or fewer studs in each tire, there is no significant loss of braking performance on bare pavement.

Tungsten-carbide winter tire studs, the most common in use today in the U.S., project only approximately one-sixteenth of one inch from the tire, whether it be on a passenger car or truck.

Additional road testing and laboratory research should soon develop a highly efficient studded tire for winter driving conditions. The chart outlined in Figure 13-11 lists locked wheel stopping distances for trucks on glare ice during recent winter ice tests. Note effectiveness of traction aids in relation to stopping distances. See also Figure 13-12 for coefficients of friction for rubber tires on various road surfaces.

**Siping**

Siping, the practice of cutting slits or small grooves into the tire tread improves traction and is most popular where steep grades or curved and wet roads are encountered. Tire siping should be done by machines designed for the purpose to meet Federal regulations.

**Federal Tire Standard FMVSS-119**

This regulation establishes performance and markings for pneumatic tires used on vehicles other than passenger cars. The tire sidewall markings include type of tire, load range, size, maximum speed, number and type of plies, and others. It also establishes:

(a) No motor vehicle shall be operated on any tire that has fabric exposed through the tread or sidewall.

(b) Any tire on the front wheels of a bus, truck, or truck tractor shall have a tread groove pattern depth of at least 4/32 of an inch when measured at any point
on a major tread groove. The measurements shall not be made where the tie bars, humps, or fillets are located.

(c) Except as provided in paragraph (b), tires shall have a tread groove pattern depth of at least 2/32 inch when measured in a major tread groove. The measurement shall not be made where tie bars, humps or fillets are located.

(d) No bus shall be operated with regrooved, recapped or retreaded tires on the front wheels.

(e) No truck or truck tractor shall be operated with regrooved tires on the front wheels which have a load-carrying capacity equal to or greater than that of 8:25-20 8 ply-rating tires.

The current regulation is enforced by the Bureau of Motor Carrier Safety (BMCS) to cover all vehicles used in Interstate Commerce effective April 1, 1976.

Uniform Tire Quality Grading System (UTQGS)

TREADWEAR is given a number grade, such as 90 or 120. A tire with a treadwear grade of 150 can be expected to last 50% longer on the Government Test Course than a 100 treadwear tire, if the tire is not abused.

TRACTION is graded on three steps: A, B, and C. An “A” tire has better traction than a “B” tire. Grade “C” tires have poor traction on wet roads.

TEMPERATURE RESISTANCE is also graded in three steps. The temperature grades of A (the highest), B, and C, represent the tire’s resistance to the generation of heat when tested under controlled conditions on a specified indoor laboratory test wheel. Sustained high temperature can cause the materials of the tire to degenerate and reduce tire life, and excessive temperature can lead to sudden tire failure. The grade C corresponds to a level of performance which all passenger-car tires must meet under the Federal Motor Vehicle Safety Standard No. 109. Grades B and A represent higher levels of performance on the laboratory test wheel than the minimum required by law.

See Figures 13-13 and 13-14 for further information on tire composition and labeling.
Figure 13-13. Tire Components.

**DECODING TIRE LABELS**

Tires sold in North America use "conventional" and "metric" designations, both of which indicate the type of rim (flat or angled) and a few of a tire's dimensions. Examples:

* **Conventional-size tires used on flat-base rim:**

  10.00-20
  
  - Rim diameter in inches
  - Bias or diagonal construction
  - Nominal (unloaded) section width in inches

* **Conventional-size tires used on 15-degree rim:**

  11R22.5
  
  - Rim diameter in inches
  - Radial construction
  - Nominal section width in inches

* **Metric-size tires used on 15-degree rim:**

  295/75R22.5
  
  - Rim diameter in inches
  - Radial construction
  - Aspect ratio
  - Nominal section width in millimeters

Figure 13-14. Decoding Tire Labels.

**Bibliography**

3. "Going the Distance with Radials," Goodyear Tire & Rubber Co., Akron, OH.
6. Tire & Rim Association Yearbook, Tire and Rim Association, Akron, OH.
8. Truck Tire Data Book, Michelin Tire Corp., N.Y.
10. "Wheels and Rims," The Budd Co., Troy, MI.
Appendix IV

Literature Listing
Appendix IV - Manufacturers’ Literature

Manufacturers’ literature can be a great help in developing new or revising existing equipment specifications. The only problem with them is they are constantly being revised and updated. For this reason, it as decided not to include the literature in this Guideline. Rather, HERPICC will maintain a file of manufacturer’s literature for all of the equipment covered by this guideline, and very likely quite a bit more. Copies of all of the manufacturer’s literature for any type equipment may be obtained by simply calling the HERPICC toll free number.

HERPICC will attempt to keep this literature current by asking to be put on the mailing list of the manufacturer’s and asking for new copies whenever additions or revisions are made.

HERPICC currently has literature for the following types and makes of equipment.

6.1 Tandem Dump Truck

6.1.1 Chassis

Mack Trucks
Sterling (Ford)
Chevrolet
Freightliner
GMC Trucks

6.1.2 Traditional Dump Body

Fontaine
AirFlo
Galion
Godwin
Perfection
Warren

6.1.3 Cross-Memberless Dump Body

Henderson Chief
Perfection

6.2 Single Axle Dump Truck

6.2.1 Chassis

Sterling (Ford)
GMC Trucks (under 6.1.1)
Chevrolet (under 6.1.1)
6.2.2 Traditional Dump Body

Henderson Chief
Fontaine (under 6.1.2)
AirFlo
Warren (under 6.1.2)
Galion
Godwin (under 6.1.2)
Perfection (under 6.1.2)
Omaha Standard
Warren

Cross-Memberless Dump Body

Henderson Chief

Utility, Grain, Livestock, Stake, & Platform Bodies

Henderson Chief
Omaha Standard
Cadet
AirFlo

6.3 Central Hydraulics System for Single or Tandem Axle Dump Trucks

6.4 Snow/Ice Control Attachments

6.4.1,2 Reversible Snow Plows

Henderson
Henke
Monroe
Wausau
Gledhill
Good Roads

6.4.3,4 One Way Snow Plows

Henderson
Henke
Monroe
Wausau (under 6.4.1)
Gledhill (under 6.4.1)
Good Roads (under 6.4.1)
Other Plow Types (Utility, Wing, V)

Henderson
Henke
Monroe
Wausau (under 6.4.1)
Gledhill (under 6.4.1)
Good Roads (under 6.4.1)
Western
BOSS
Meyer
Sno-Way

Hitches

Monroe
Good Roads (under 6.4.1)
Henke

6.4.5 Underbody Scraper

Monroe
Henke

6.4.6 Tailgate Spreader

Henderson Chief
Monroe
Western
Larson
Swenson
HiWay
Good Roads (under 6.4.1)

6.4.7,8 V-Box Spreader

Henderson Chief
Monroe
Western
Larson
Swenson
HiWay
SnoEx
Meyer
Bonnell
Good Roads (under 6.4.1)

Pre-Wetting Systems

Henderson Chief
Monroe