

## CHECKLIST TO DESIGNATE AREAS OF EVALUATION FOR REQUESTS FOR PROPOSAL (RFP)

MDOT PROJECT MANAGER Doug Adelman			JOB NUMBER (JN) JN 107026C	CONTROL SECTION (CS) Multiple
DESCRIPTION IF NO JN/CS Traffic Signal Equipment and Foundation Analysis, Design and Detailing				
<b>MDOT PROJECT MANAGER:</b> Check all items to be included in RFP.  WHITE = REQUIRED GRAY SHADING = OPTIONAL			<b>CONSULTANT:</b> Provide only checked items below in proposal.	
Check the appropriate Tier in the box below				
<input type="checkbox"/> <b>TIER I</b> (\$25,000-\$99,999)	<input checked="" type="checkbox"/> <b>TIER II</b> (\$100,000-\$250,000)	<input type="checkbox"/> <b>TIER III</b> (>\$250,000)		
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Understanding of Service	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Innovations</i>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Safety Program</i>	
N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Organization Chart	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Qualifications of Team	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Past Performance	
Not required as part of official RFP	Not required as part of official RFP	<input type="checkbox"/>	Quality Assurance/Quality Control	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>Location:</b> The percentage of work performed in Michigan will be used for all selections unless the project is for on-site inspection or survey activities, then location should be scored using the distance from the consultant office to the on-site inspection or survey activity.	
N/A	N/A	<input type="checkbox"/>	Presentation	
N/A	N/A	<input type="checkbox"/>	Technical Proposal (if Presentation is required)	
3 pages (MDOT forms not counted) <b>(No Resumes)</b>	7 pages (MDOT forms not counted)	19 pages (MDOT forms not counted)	Total maximum pages for RFP <b>not including key personnel resumes</b>	

The Michigan Department of Transportation (MDOT) is seeking professional services for the project contained in the attached scope of services.

If your firm is interested in providing services, please indicate your interest by submitting a Proposal, Proposal/Bid Sheet or Bid Sheet as indicated below. The documents must be submitted in accordance with the latest "Consultant/Vendor Selection Guidelines for Service Contracts" and "Guideline for Completing a Low Bid Sheet(s)", if a low bid is involved as part of the selection process. **Referenced Guidelines are available on MDOT's website under Doing Business > Vendor/Consultant Services > Vendor/Consultant Selections.**

## RFP SPECIFIC INFORMATION

BUREAU OF HIGHWAYS       BUREAU OF TRANSPORTATION PLANNING \*\*       OTHER

THE SERVICE WAS POSTED ON THE ANTICIPATED QUARTERLY REQUESTS FOR PROPOSALS

NO       YES      DATED \_\_\_\_\_ THROUGH \_\_\_\_\_

**Prequalified Services** – See page 1 of the attached Scope of Services for required Prequalification Classifications.

**Non-Prequalified Services** - If selected, the vendor must make sure that current financial information, including labor rates, overhead computations, and financial statements, if overhead is not audited, is on file with MDOT's Office of Commission Audits. This information must be on file for the prime vendor and all sub vendors so that the contract will not be delayed. **(Form 5100J Required with Proposal)**

**Qualifications Based Selection** – Use Consultant/Vendor Selection Guidelines

**For all Qualifications Based Selections**, the section team will review the information submitted and will select the firm considered most qualified to perform the services based on the proposals. The selected vendor will be contacted to confirm capacity. Upon confirmation, that firm will be asked to prepare a priced proposal. Negotiations will be conducted with the firm selected.

**\*\*For RFP's that originate in Bureau of Transportation Planning only**, a priced proposal must be submitted at the same time as, but separate from, the proposal. Submit directly to the Contract Administrator/Selection Specialist, Bureau of Transportation Planning (see address list, page 2). The priced proposal must be submitted in a sealed envelope, clearly marked "**PRICE PROPOSAL.**" The vendor's name and return address **MUST** be on the front of the envelope. The priced proposal will only be opened for the highest scoring proposal. Unopened priced proposals will be returned to the unselected vendor(s). Failure to comply with this procedure may result in your priced proposal being opened erroneously by the mail room.

**For a cost plus fixed fee contract**, the selected vendor must have a cost accounting system to support a cost plus fixed fee contract. This type of system has a job-order cost accounting system for the recording and accumulation of costs incurred under its contracts. Each project is assigned a job number so that costs may be segregated and accumulated in the vendor's job-order accounting system.

**Qualifications Review / Low Bid** - Use Consultant/Vendor Selection Guidelines. See Bid Sheet Instructions for additional information.

For Qualification Review/Low Bid selections, the selection team will review the proposals submitted and post the date of the bid opening on the MDOT website. The notification will be posted at least two business days prior to the bid opening. Only bids from vendors that meet proposal requirements will be opened. The vendor with the lowest bid will be selected. The selected vendor may be contacted to confirm capacity.

**Best Value** - Use Consultant/Vendor Selection Guidelines. See Bid Sheet Instructions below for additional information. The bid amount is a component of the total proposal score, not the determining factor of the selection.

**Low Bid** (no qualifications review required - no proposal required.) See Bid Sheet Instructions below for additional instructions.

## BID SHEET INSTRUCTIONS

A bid sheet(s) must be submitted in accordance with the "Guideline for Completing a Low Bid Sheet(s)" (available on MDOT's website). The Bid Sheet(s) is located at the end of the Scope of Services. Submit bid sheet(s) separate from the proposal, to the address indicated below. The bid sheet(s) must be submitted in a sealed manila envelope, clearly marked "**SEALED BID.**" The vendor's name and return address **MUST** be on the front of the envelope. Failure to comply with this procedure may result in your bid being opened erroneously by the mail room and the bid being rejected from consideration.

**PROPOSAL SUBMITTAL INFORMATION**

REQUIRED NUMBER OF COPIES FOR PROJECT MANAGER 5	PROPOSAL/BID DUE DATE 7/16/09	TIME DUE 4:00 P.M
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**PROPOSAL AND BID SHEET MAILING ADDRESSES**

Mail the multiple proposal bundle to the MDOT Project Manager or Other indicated below.

- MDOT Project Manager  MDOT Other

Douglas Adelman, Signal Design Supervisor  
Traffic & Safety Division, MDOT  
Murray D. Van Wagoner Building  
P.O. Box 30050, Lansing, MI 48909

Mail one additional stapled copy of the proposal to the Lansing Office indicated below.

**Lansing Regular Mail****OR****Lansing Overnight Mail**

- Secretary, Contract Services Div - B470  
Michigan Department of Transportation  
PO Box 30050  
Lansing, MI 48909

Secretary, Contract Services Div - B470  
Michigan Department of Transportation  
425 W. Ottawa  
Lansing, MI 48933

- Contract Administrator/Selection Specialist  
Bureau of Transportation Planning B470  
Michigan Department of Transportation  
PO Box 30050  
Lansing, MI 48909

Contract Administrator/Selection Specialist  
Bureau of Transportation Planning B470  
Michigan Department of Transportation  
425 W. Ottawa  
Lansing, MI 48933

**GENERAL INFORMATION**

Any questions relative to the scope of services must be submitted by e-mail to the MDOT Project Manager. Questions must be received by the Project Manager at least four (4) working days prior to the due date and time specified above. All questions and answers will be placed on the MDOT website as soon as possible after receipt of the questions, and at least three (3) days prior to the RFP due date deadline. The names of vendors submitting questions will not be disclosed.

MDOT is an equal opportunity employer and MDOT DBE firms are encouraged to apply. The participating DBE firm, as currently certified by MDOT's Office of Equal Opportunity, shall be listed in the Proposal

**MDOT FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION**

- 5100D** – Request for Proposal Cover Sheet
- 5100G** – Certification of Availability of Key Personnel
- 5100I** – Conflict of Interest Statement
- 5100J** - Consultant Data and Signature Sheet (Required only for Non-Prequalified Work)

**(These forms are not included in the proposal maximum page count.)**

## **Notification**

### **ARRA MONTHLY EMPLOYMENT REPORTS**

**Note: This Notification is only applicable for those projects/contracts funded with ARRA funds. If you have questions, please contact MDOT Contract Services Division at (517) 335-0071.**

The American Recovery and Reinvestment Act of 2009 (ARRA), requires states receiving stimulus funds for highway projects to provide monthly reports to the Federal Highway Administration (FHWA) regarding the number of employees of prime contractors, all-tier subcontractors and consultants on ARRA funded projects.

The cost for complying with this Notification must be borne by the prime contractor, and all-tiers of subcontractors and consultants, as part of their overhead and is deemed to be included in the payments made under this contract.

Within 10 days after the end of each month in which work is performed on this contract, all prime contractors, and all-tier subcontractors and consultants, must provide the Engineer a monthly report, in a format and on forms approved by the Engineer, which shall include, for work performed in that preceding month:

- The total number of employees who performed work on this contract
- The total number of hours worked by employees who performed work on this contract
- The total wages of employees who performed work on this contract

In addition, the prime contractor must provide a total payment amount made to any subcontractor who is a certified DBE in that preceding month.

This Notification shall be included as a part of each subcontract executed by the prime contractor, and all-tiers of subcontractors and consultants.

If necessary to conform to guidance provided by FHWA concerning the ARRA reporting requirements, the prime contractor, and all-tiers of subcontractors and consultants will revise their reporting as directed by the Engineer.

**Failure to comply with the reporting requirements under ARRA would jeopardize the Department's continued receipt of ARRA funding.**

**Accordingly, if a contractor or any-tier of subcontractor or consultant fails to comply with this Notification, the Department may withhold contract payments until compliance is achieved. If the Department is compelled to incur costs because of such a breach, the amount of those costs may be deducted from payments otherwise to be made under this contract. Additional sanctions may include reduction or elimination of prequalification ratings and removal of bidding privileges.**

**NOTIFICATION**  
**REQUIRED CONTRACT PROVISIONS TO IMPLEMENT AMERICAN**  
**RECOVERY AND REINVESTMENT ACT (ARRA) SECTIONS 902 AND 1515**

**Note: This Notification is only applicable for those projects/contracts funded with ARRA funds. If you have questions, please contact MDOT Contract Services Division at (517) 335-0071.**

In accordance with requirements under section 902 of the American Recovery and Reinvestment Act of 2009 (ARRA), the following language is made a part of this contract and is to be made a part of all tier subcontracts or consultant contracts:

The U.S. Comptroller General and his representatives have the authority:

- (1) to examine any records of the contractor or any of its subcontractors, or any State or local agency administering such contract, that directly pertain to, and involve transactions relating to, the contract or subcontract; and
- (2) to interview any officer or employee of the contractor or any of its subcontractors, or of any State or local government agency administering the contract, regarding such transactions.

The Comptroller General and his representatives have the authority and rights provided under Section 902 of the ARRA with respect to this contract. As provided in section 902, nothing in section 902 shall be interpreted to limit or restrict in any way any existing authority of the Comptroller General.

In accordance with the requirements of section 1515(a) of the ARRA any representatives of the Inspector General have the authority:

- (1) to examine any records of the contractor or grantee, any of its subcontractors or subgrantees, or any State or local agency administering such contract, that pertain to, and involve transactions relating to the contract, subcontract, grant, or subgrant; and
- (2) to interview any officer or employee of the contractor, grantee, subgrantee or agency regarding such transactions.

Nothing set forth in section 1515 of the ARRA shall be interpreted to limit or restrict in any way any existing authority of an inspector general.

**Michigan Department of Transportation**

**SCOPE OF SERVICE  
FOR  
DESIGN SERVICES**

Structural and Foundation Analysis, Design, and Detailing for Traffic Signal Supports

**CONTROL SECTION:** 84900

**JOB NUMBER:** 107026C

**PROJECT LOCATION:** Statewide

**PROJECT DESCRIPTION:**

The change from diagonal span to box span for traffic signal designs has created the need to identify loadings for strain pole and foundation designs and to update construction details as required.

As an interim measure the Michigan Department of Transportation (MDOT) has done several finite element analyses of box span configurations (using GT STRDL), and has developed a strain pole foundation design table.

This project will develop the full range of strain pole and strain pole foundation loadings by performing finite element analyses of numerous box span signal configurations. Analyses of box span signals with wood poles are included.

This project will also determine the loadings for pedestals and pushbutton pedestals and their foundations. This project will develop new construction details for this equipment and associated foundations.

Determining a new method for span wire point of contact height (POCH ) calculations (including field verification) is included in the scope of this project.

**ANTICIPATED SERVICE START DATE:** October 12, 2009

**ANTICIPATED SERVICE COMPLETION DATE:** October 15, 2010

**PRIMARY PREQUALIFICATION CLASSIFICATION(S):**

Short & Medium Span Bridges  
Geotechnical Engineering Services

**SECONDARY PREQUALIFICATION CLASSIFICATION(S):**

N/A

**DBE REQUIREMENT:** N/A

**MDOT PROJECT ENGINEER MANAGER:**

Douglas Adelman  
Division of Operation  
Signal Operation Section  
Signal Design Unit  
Michigan Department of Transportation  
Murray D. Van Wagoner Building  
P.O. Box 30050  
Lansing, MI 48909  
Ph: 517- 373-2363  
Fax: 517- 373-2330  
E-mail: [adelmand@michigan.gov](mailto:adelmand@michigan.gov)

**REQUIRED GUIDELINES AND STANDARDS:**

Determine loadings based on current codes (AASHTO, ANSI, and ACI)

Design per AASHTO Std Spec. for Structural Supports for Hwy Signs, Luminaires, and Traffic Signals, 2001 with 2006 interim.

Work shall conform to current MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards.

Consultant is required to use MDOT's current version of Bentley MicroStation for CADD applications. Consultant shall comply with all MDOT CADD standards and file naming conventions.

**CONSULTANT RESPONSIBILITIES:**

**Initiate kickoff meeting and present project schedule:**

1. The consultant will initiate a kickoff meeting and present a proposed project schedule for review

**Strain poles:**

1. Evaluate existing software for box span (and diagonal span) analysis including but not limited to:
  - a. Software programs used by Ohio and Florida DOT's
  - b. GT STRUDL used by MDOT
2. Propose software that would best meet the design and construction practices of MDOT
3. Using a chosen program, perform finite element analyses of numerous signal span configurations to obtain a full range of strain pole loadings including but not limited to:
  - a. Various box span configurations
    - i. Standard box span with varying span angles
    - ii. Skewed box span with acute span angles
    - iii. Box span configurations "Z", "S", and "V" spans
    - iv. Floating box spans
  - b. Loading from additional equipment including but not limited to:
    - i. Street light and arm

- ii. Camera and arm
  - iii. Antennae and arm
  - iv. Signs
4. Provide new strain pole designs and construction details for various strain poles including but not limited to the currently used 30', 36', and 40' strain pole heights
    - a. New strain pole design must be able to accommodate the following:
      - i. One 4 ½" diameter hole for conduit from a pole mounted controller
      - ii. One access hole near the bottom of the pole for cable pulling purposes

**Strain pole foundations:**

1. Using the loads for the new strain pole designs, develop a strain pole foundation design table based on soil parameters including but not limited to
  - a. Unconfined shear resistance (Suc) of cohesive soils
  - b. Blows per foot (N) of non-cohesive soils
  - c. Water table depth
2. Provide new foundation designs and construction details including but not limited to:
  - a. Foundation diameters and depths for drilled shaft foundations
  - b. Spread footing foundation alternatives
  - c. Reinforcement requirements
  - d. Number of anchor bolts required
  - e. Standardized anchor bolt diameter, length, and bolt circle (as much as feasible)

**Pedestals and pedestal foundations:**

1. Determine appropriate loadings on pedestals including:
  - a. Low level traffic signal(s)
  - b. Pedestrian signals
2. Evaluate and recommend alternative materials for pedestals
3. Analyze, evaluate, and recommend alternative foundation designs for pedestals including but not limited to:
  - a. Concrete foundation similar to existing detail
  - b. Metal "screw in" type anchor
  - c. Flush mount anchor bolt stud foundation. The hardware for this foundation will be provided to the consultant by MDOT
4. Provide new foundation design and construction details including but not limited to:
  - a. Foundation diameters and depths
  - b. Reinforcement requirements
  - c. Number of anchor bolts required
  - d. Actual part numbers from manufacturers for special foundation equipment including but not limited to:
    - i. Screw-in type anchors
    - ii. Couplings to be cast in the foundation
    - iii. Anchor bolt studs
    - iv. Flush mounted base

**Pushbutton pedestals and foundations:**

1. Determine appropriate loadings on pushbutton pedestals.
2. Evaluate and recommend alternative materials for pushbutton pedestals

3. Analyze, evaluate, and recommend alternative foundation designs for pushbutton pedestals including but not limited to:
  - a. Concrete foundation similar to existing detail
  - b. Metal “screw in” type anchor
  - c. Flush mount anchor bolt stud foundation. The hardware for this foundation will be provided to the consultant by MDOT
4. Provide new foundation designs and construction details including but not limited to:
  - a. Foundation type, diameter and depth
  - b. Reinforcement requirements
  - c. Number of anchor bolts required
  - d. Initiate and follow up on any testing requirements required by MDOT Construction and Technology staff
  - e. Actual part numbers from manufacturers for special foundation equipment including but not limited to:
    - i. Screw-in type anchors
    - ii. Couplings to be cast in the foundation
    - iii. Anchor bolt studs
    - iv. Flush mounted base

**Mast arm standard foundations**

1. Evaluate the adequacy of the existing mast arm foundation detail and design table
2. Redesign mast arm foundation as required using loads provided by MDOT
3. Develop a revised mast arm standard foundation design table based on soil parameters including but not limited to
  - a. Unconfined shear resistance (Suc) of cohesive soils
  - b. Blows per foot (N) of non-cohesive soils
  - c. Water table depth
4. Provide new foundation designs and construction details including but not limited to:
  - a. Foundation diameters and depths
  - b. Reinforcement requirements
  - c. Number of anchor bolts required
  - d. Standardized anchor bolt diameter, length, and bolt circle (as much as feasible)

**Wood poles:**

1. Using a chosen program, analyze numerous signal span configurations and combinations including wood poles to obtain a full range of wood pole loadings including but not limited to:
  - a. Standard diagonal span
  - b. Standard box spans with varying span angles
  - b. Skewed box spans with acute span angles
  - c. Box span configurations “Z”, “S”, and “V” spans
  - d. Floating box spans
  - e. Signal layouts including both wood and steel poles
2. Provide wood pole loadings and proposed designs including but not limited to
  - a. Required wood pole sizes assuming standard pole types used by power companies
  - b. Anchor guy loads and required hardware assuming wood pole is guyed at the span attachment points
  - c. Required wood pole embedment depths as a function of soil parameters

**Propose new method for span wire POCH calculations including field verification:**

1. Evaluate existing design softwares for determining span attachment heights, span static tension, span sag, and signal stem lengths (including the currently used “spancalc”)
2. Propose software that would best fit MDOT design practices and the results of field verification
3. Conduct a field study of a box span test installation including but not limited to:
  - a. Measure actual installed static span tension, sag, stem lengths, and point of contact heights (POCH's)
  - b. Compare design calculations with field measurements

**Monthly progress meetings:**

1. The consultant will hold monthly progress meetings with all stake holders to facilitate interim decisions necessary to keep the project on schedule
2. The MDOT team includes but is not limited to the following: Douglas Adelman, Erik Smalley, Mohammad Hammad, Steve Wohlscheid, Dick Endres, Jose Garcia, Matt Filcek, Jeff Weiler, Peter Jansson, Gary Rose, Jim Kwapiszewski
3. Prepare all meeting minutes and revisions
4. Document decisions as an ongoing draft report to be reviewed at the monthly progress meetings

**Prepare final report, design tables, and construction details:**

1. The consultant will prepare a final report documenting all assumptions, calculations, recommendations, meeting minutes, calculations, and deliverables.

**DELIVERABLES:**

Proposed project schedule for kickoff meeting

Interim reports (electronic format expected on a monthly basis) including:

1. Progress to date
2. Last meeting minutes
3. Current meeting agenda
4. Updated schedule

Final report (one 3 ring binder copy in addition to electronic files) including:

1. Meeting minutes and revisions
2. Calculations and assumptions
3. Recommendations and decisions
4. Foundation design tables (.xls format)
5. Construction details (.dgn format)

**MDOT RESPONSIBILITIES:**

MDOT will provide the following information:

Existing details

Existing signal plans of various box span configurations

Existing foundation design table

Results of analysis and design that MDOT has conducted on box span signals, strain poles, and strain pole foundations

Design spreadsheets

Existing details provided on the Traffic & Safety website:

[http://mdotwas1.mdot.state.mi.us/public/tands/Details\\_Web/mdot\\_signal-statewide\\_sp-det\\_e17.pdf](http://mdotwas1.mdot.state.mi.us/public/tands/Details_Web/mdot_signal-statewide_sp-det_e17.pdf)

SIG-028-B: Pedestal Foundation and Signal Mounting Details  
SIG-120-A Pedestrian Push Button Details

SIG-120-A: Pedestrian Push Button Details

SIG-150-A: Anchor Base Steel Strain Pole and Foundation

SIG-280-A: TS Mast Arm Standard Foundations

SIG-281-A: TS Mast Arm Pole/Mast Arm Details - Category I

SIG-282-A: TS Mast Arm Pole/Mast Arm Details - Category II

SIG-283-A: TS Mast Arm Pole/Mast Arm Details - Category III

Existing signal plans of various box span configurations including:

120' box span

144' box span

S span

Skewed box span

Suspended SPUI box span

V span

Z span

Suspended box span

Diagonal span

Existing foundation design table provided on the Traffic & Safety website:

[http://mdotwas1.mdot.state.mi.us/public/tands/Details\\_Web/strain\\_pole\\_foundation.pdf](http://mdotwas1.mdot.state.mi.us/public/tands/Details_Web/strain_pole_foundation.pdf)

Results of analysis and design that MDOT has conducted on box span signals, strain poles, and strain pole foundations:

Spreadsheet "Span Wire Loads and Analysis 5-4-09.xls" with preliminary loadings on signal heads (dead, wind, and ice loads). This spreadsheet needs to be verified and completed by the consultant.

Correspondence documenting results of three dimensional finite element analysis of 144' and 120' box spans

Design spreadsheets:

The latest "SPANCALC" spreadsheet

Span Wire Loads and Analysis 5-4-09.xls

### **Department Review:**

The department will review and comment on all interim and final report submittals.

### **CONSULTANT PAYMENT – Actual Cost Plus Fixed Fee:**

Compensation for this project shall be on an **actual cost plus fixed fee** basis. This basis of payment typically includes an estimate of labor hours by classification or employee, hourly labor rates, applied overhead, other direct costs, subconsultant costs, and applied fixed fee.

All billings for services must be directed to the Department and follow the current guidelines. The latest copy of the "Professional Engineering Service Reimbursement Guidelines for Bureau of Highways" is available on MDOT's website. This document contains instructions and forms that must be followed and used for billing. Payment may be delayed or decreased if the instructions are not followed.

Payment to the Consultant for services rendered shall not exceed the maximum amount unless an increase is approved in accordance with the contract with the Consultant. Typically, billings must be submitted within 60 days after the completion of services for the current billing. The final billing must be received within 60 days of the completion of services. Refer to your contract for your specific contract terms.

Direct expenses, if applicable, will not be paid in excess of that allowed by the Department for its own employees in accordance with the State of Michigan's Standardized Travel Regulations. Supporting documentation must be submitted with the billing for all eligible expenses on the project in accordance with the Reimbursement Guidelines. The only hours that will be considered allowable charges for this contract are those that are directly attributable to the activities of this project.

The use of overtime hours is not acceptable unless prior written approval is granted by the MDOT Region Engineer/Bureau Director and the MDOT Project Manager. Reimbursement for overtime hours that are allowed will be limited to time spent on this project in excess of forty hours per person per week. Any variations to this rule should be included in the priced proposal submitted by the Consultant and must have prior written approval by the MDOT Region Engineer/Bureau Director and the MDOT Project Manager.

The fixed fee for profit allowed for this project is 11.0% of the cost of direct labor and overhead.