REQUEST FOR BID

Project Summary
Seattle Monorail Services (SMS) is seeking bids from qualified firms to fabricate and assemble wheel rims. The objective of the project is to build a wheel rim that will fit a new tire size (385/55R22.5) and will adapt to the existing wheel hub. The work will be done in two stages: build two working prototypes and then do a production run of 38-40 more rims. Disadvantaged business enterprise (DBE) firms are encouraged to respond.

Relevant Dates
- Notify of interest in the work: Immediately
- Bids due to SMS: Friday August 31, 2012 @ 5:00 pm PDT
- Notification of Award: Friday September 7, 2012

Background
Seattle Monorail Services, LLC (SMS) operates and maintains the Seattle Center Monorail, which is owned by the City of Seattle.

The Seattle Center Monorail System was constructed in 1962 by the ALWEG Rapid Transit Company. The trains first entered service in 1962, operating on a one-mile dual beam guideway between downtown Seattle and the site of the Seattle World's Fair. The two monorail trains (Red Train and Blue Train) have been in nearly continuous operation since then, each logging over 1,000,000 miles of use. Each train is about 120 ft long and is comprised of four car sections, designated ‘A’ through ‘D.’ There are sixteen load-carrying wheels on each train (two per bogie).

SCOPE OF WORK
The load rim assembly consists of four steel components: one 22.5" x 12.25" blank rim and one reinforcing band, machined from a 20"OD x 14"ID C1026 seamless tubing, and two small drivers. Components are to be assembled by press fitting and then welding. Prior to press-fitting, the ID of the rim and OD of the reinforcing band shall be measured to ensure the appropriate interference fit. It may be necessary to lightly machine the inside of the rim to correct run-out. Fabricator must be a certified weld shop and follow protocols outlined in AWS D1.1/D1.1M:2006. Additionally, wet fluorescent magnetic particle inspections shall be performed on all welds prior to coating. After press-fitting and prior to welding, the valve stem hole shall be drilled and spotfaced. After welding, the assembly shall undergo post-weld heat treatment to reduce residual stresses. The inside diameter of the mounting band shall be finalized after PWHT is complete and shall make consideration for the specified coating thickness. The completed rim shall be primed and powdercoated as specified. See attached drawings for details of the assembly and components.

Load rim manufacturing will be completed in two stages:
1) Prototype: Two completed assemblies must be accepted by SMS prior to starting Stage 2.
   a. All welds must pass wet fluorescent magnetic particle inspection done by a certified weld inspector—the results for which shall be provided to SMS.
   b. Prototype rims must meet dimensional inspection by SMS before powder coating.
   c. SMS will have tires mounted on the prototype rims and then send them to be load tested in a laboratory.
2) Production: After the prototypes have been tested and approved, production of up to 40 additional rims will commence (may be several months after the prototypes are built).
   a. SMS will inspect all rims prior to powder coating.
   b. All welds must pass wet fluorescent magnetic particle inspection done by a certified weld inspector—the results for which shall be provided to SMS.

SMS shall provide Fabricator with blank rims and C1026 20"OD x 14"ID seamless hot finished mild steel tubing. Completed assemblies shall be inspected by the Fabricator and an SMS Representative. Issues found during inspection shall be remedied promptly by the Fabricator.

The following photos show several blank rims (left) and an example of a similar completed rim (right):

BIDS
Please notify SMS immediately of interest to receive any updates for this project.

Bid form (attached) shall be submitted via email by Friday August 31, 2012 @ 5:00 pm PDT. Send an email to the address below to submit a bid or to request additional information.

   To:  projects@seattlemonorail.com
   Subject:  2012 Load Wheel Rim Manufacturing

It is preferred that bids are sent via email; however, a hard copy may be mailed or delivered to:
   Seattle Monorail Services
   Attn:  Eno Yliniemi, Ph.D.
   370 Thomas Street
   Seattle, WA 98109

General Requirements
Fabricator shall:

- Meet all City of Seattle and Federal Transit Administration (FTA) requirements as necessary to qualify for funding.
- Abide by related code requirements and industry standards.
- Have the capability of performing a 0.020" (on diameter) press-fit between the rim and band.
• Have the capability of machining the reinforcing band starting from a 20"OD x14"ID tube.
• Have experience post-weld heat treating steel (PWHT) components.
• Have the knowledge and appropriate skill levels to perform the work. All tradespersons are to be suitably trained and all welders are required to be qualified according AWS standards.
• Complete work according to drawing(s) and specifications.
• Maintain quality standards in workmanship. Any deficient work shall be corrected at the Contractor’s expense. SMS holds a high quality standard.
• Be deemed a responsible party as described in FTA Circular 4220.1E. Contractor shall have
  • Financial resources adequate to perform the contract, or the ability to obtain them.
  • Ability to meet the required delivery or performance schedule, taking into consideration all existing commercial and governmental business commitments.
  • A satisfactory performance record;
  • A satisfactory record of integrity and business ethics;
  • The necessary organization, experience, accounting, and operational controls, and technical skills, or the ability to obtain them;
  • Compliance with applicable licensing and tax laws and regulations;
  • The necessary production, construction, and technical equipment and facilities, or the ability to obtain them;
  • Compliance with Affirmative Action and Disadvantaged Business Program requirements;
  • Other qualifications and eligibility criteria necessary to receive an award under applicable laws and regulations.
• Not be on the “Excluded Parties List” https://www.epls.gov/.

**Warranty**
Fabricator shall warranty its workmanship for a period of 24 months after the acceptance date of the completed work set by the SMS Project Manager. During the warranty period, the Fabricator shall be responsible for performing any required adjustments or corrections resulting from defects in the Fabricator’s workmanship that were not discovered during post-assembly inspections, but developed or became visible during their operation. Determination of Fabricator’s defective workmanship shall be at the sole discretion of the SMS Project Engineer.
NOTE: DO NOT LET WELD EXCEED BEYOND OUTSIDE SURFACES OF DRIVERS (2 PLCs)

NOTES:
1. DRIVERS TO BE .75 X .75 X .25 CR MILD STEEL, DWG SHEET 3 OF 3
2. DRIVERS MUST BE FLUSH WITH CONTACT SURFACE BEFORE WELDING
3. BARE RIM ACCURIDE NO. 29846, STYLE NV (NO STOCK VALVE HOLE)
4. MOUNTING BAND TO BE MADE FROM HOT-FINISHED SEAMLESS C1020 MILD STEEL TUBING (STOCK 9283, 14" ID, 20" OD)
5. VALVE HOLE TO BE SPOT FACED TO .58
6. DEBURR ALL SHARP EDGES AND VALVE HOLE
7. VALVE STEM HOLE MUST BE 180 DEG FROM RIM WELD SEAM
8. RIMS MUST PASS AND BE ACCOMPANIED BY RECORD OF WET FLORESCENT MAGNETIC PARTICLE INSPECTION DONE BY A CERTIFIED WELD INSPECTOR
9. WELDER MUST BE AWS QUALIFIED, WELD IN ACCORDANCE WITH AWS D1.1/D1.1M:2006 AND USE 7018 ELECTRODE
10. POST WELD HEAT TREAT TO RELIEVE STRESSES
11. THE BEADSEATS AND HUB MOUNTING AREA MUST BE FREE OF PAINT RUNS OR BUILD-UP
12. FINISH TO BE ZINC-RICH EPOXY PRIMER WITH HIGH GLOSS WHITE POWDER COATING (MIN THICKNESS 3 MILS)
NOTES:
1. MOUNTING BAND TO BE MADE FROM HOT FINISHED SEAMLESS 1026 MILD STEEL TUBING (STOCK SIZE 14" ID, 20" OD).
2. MOUNTING BAND MUST BE INTERFERENCE FIT OF .020-.024. SURFACE FINISH OF MOUNTING BAND SHALL BE 63 MICROINCH MAXIMUM.
3. SURFACE FINISH OF MOUNTING BAND SHALL BE 63 MICROINCH MAXIMUM.
NOTES:
1. DEBURR ALL EDGES
2. MATERIAL: CR MILD STEEL

DIMENSIONS ARE IN INCHES.
TOLERANCES DO NOT ACCUMULATE
AND UNLESS OTHERWISE NOTED:
NONE ± .1
X.X ± .1
X.XX ± .01
X.XXX ± .005

SEATTLE CENTER MONORAIL

NOTE: 3 OF 3
# SEATTLE CENTER MONORAIL
Load Rim Manufacturing
2012 BID FORM
(complete entire form—include attachments if necessary)

<table>
<thead>
<tr>
<th>Company Name, Address, and Phone No.:</th>
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<tbody>
<tr>
<td>Contact name, phone, email:</td>
</tr>
<tr>
<td>Fed. ID#:</td>
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<tr>
<td>State. ID#:</td>
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<tr>
<td>Are you certified as a state or federal minority or disadvantaged business enterprise?</td>
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<td>Are you willing and able to meet all of the general requirements listed above? If no, please list exceptions.</td>
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<tr>
<td>List qualifications and technical capabilities of your firm and of all subcontractors (please name any subs).</td>
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<td>How long will it take to complete the prototype rim? Are you able to start immediately?</td>
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## Description

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<th>Description</th>
<th>QTY</th>
<th>Amount/ea</th>
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<tbody>
<tr>
<td>Prototype machining (include initial setup/program)</td>
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<td></td>
<td></td>
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<tr>
<td>Prototype assembly (press-fit, welding, inspection, and coating)</td>
<td>2</td>
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### Prototype Total

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount/ea</th>
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<tbody>
<tr>
<td>Production machining</td>
<td></td>
<td></td>
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<tr>
<td>Production assembly</td>
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</tbody>
</table>

### Production Total

Submit form via email to projects@seattlemonorail.com by Friday August 31, 2012 @ 5:00 pm PDT