SUBJECT: METRO RED LINE TUNNEL LIGHTING

ACTION: APPROVE PURCHASE OF “LED” LIGHT FIXTURES FOR REHABILITATION PROJECT

RECOMMENDATION

Authorize the Chief Executive Officer to award a firm fixed unit price contract for Light Emitting Diode (LED) light fixtures for the next three years under Request for Proposal No.OP39602964 to Alternative Consumption Technologies, Inc. (ACT) doing business as Go Green Solutions. The firm will supply tunnel lighting fixtures and replacement lenses for the existing 5,000 fixtures, and associated equipment, and 200 spare units, for the total contract amount of $2,233,574 inclusive of delivery and sales taxes.

ISSUE

The tunnel lighting retrofit is needed because the current tunnel lighting in Segments 2A, 2B, and 3 do not meet the National Fire Protection Association's (NFPA) 130 code requirements and need to have the lights placed at 25 foot centers instead of the current 50 foot spacing. Additionally, because the current 74 watt fluorescent lighting and wiring are supported by an Un-Interruptible Power Supplies (UPS’s) they currently cannot support doubling the number of fixtures. Metro is required to install a new lighting system that could double the number of fixtures without increasing the power consumption. We are also expecting this retrofit to possibly reduce power consumption in the interest of energy conservation.

DISCUSSION

At the August 2011 meeting the Board approved a Life-of-Project Budget of $9,000,000 for the Metro Red Line Tunnel Lighting Rehabilitation project. Because the rail tunnels are constantly running trains, the access time for this retrofit is restrictive. Additionally, the lighting fixtures will be installed by Metro Operations traction power staff. The
installation by Metro staff will begin approximately one month after award of the equipment contract and extend for approximately four years until the entire Metro Red Line tunnels are converted to this new LED type fixture.

With the proposed new tunnel LED light fixtures, the anticipated 30-Year Life Cycle Cost savings compared with our design and maintenance requirements is estimated at $50,491,195, based on today's electrical and labor costs.

This LED lighting improvement will minimize maintenance, reduce total power consumption, reduce waste management, and ensure long term compliance with lighting regulations.

DETERMINATION OF SAFETY IMPACT

The installation of this new Metro Red Line Tunnel LED Lighting Retrofit Program will bring the rail lines into full compliance with NFPA #130 for Emergency Tunnel Lighting and thereby improve the overall operating safety of the Metro Red and Purple Lines.

FINANCIAL IMPACT

The funding for this project is included in the proposed FY13 budget in cost center 3960, Wayside Systems Engineering, under project number 205066 - Metro Red Line Tunnel Lighting Rehabilitation. Since this is a multi-year contract/project, the cost center manager and Executive Officer – Rail Operations Wayside Systems will be accountable for budgeting the cost in future years, including any option's exercised.

Installation of the tunnel LED fixtures under this project is anticipated to reduce annual power consumption requirements and effectively reduce operations electrical costs for the tunnel lighting.

Impact to Budget

The source of funds for this project is Prop A 35%. These funds are eligible for rail operating and capital expenditures.

ALTERNATIVES CONSIDERED

Metro staff considered two other alternatives for the Metro Red Line to be compliant with the NFPA Code 130 requirement. Specifically, that tunnel light fixtures at the emergency walkway illumination at end of life shall be at least 0.25 foot candles. Currently, in Segments 2A, 2B, and 3 the tunnel lighting spaced at 50 foot centers cannot meet this criterion. The two alternatives considered were replacing the existing fixtures and reducing the tunnel light spacing by doubling the number of fixtures.

In the first alternative to replace existing fixtures only, Metro engineering staff reviewed new technology that could provide the code compliance requirements at 50 foot
spacing. It was determined that while technically possible, the illumination levels in the rail tunnels would be blinding for rail operators. In addition, the intense light fixtures at 50 foot spacing would create a strobe effect on train movement that could cause a safety issue. Therefore, this alternative was not practical for rail operations.

The second alternative evaluated was the reduction of tunnel light spacing. This alternative was evaluated by Metro staff and the Los Angeles Fire Department to double the existing fluorescent type fixtures in areas of non compliance. This would require a complete rewiring of the tunnels with new conduit, new five wire lines, and duplicating the current station UPS’s to support these additional power requirements. Additionally, it would increase the rail operating costs and also increase the maintenance work due to the short life expectancy and failure rates. Therefore, the cost impact to retrofit with similar short term fluorescent fixtures was not the most cost effective means and not considered a viable option.

After evaluation of both alternatives Metro staff opted for the tunnel light spacing with the LED technology which provides lower power consumption while still providing the necessary illumination to meet code compliance. Along with lower power consumption, the LED type fixture will reduce maintenance costs due to longevity of the fixtures.

NEXT STEPS

Following execution of the contract, the vendor will commence delivery of the number of units required by Metro to begin in June 2012. Metro staff will begin installation of the LED light fixtures at the North Hollywood Station of the Metro Red Line.

The current tunnel lights will be replaced with the new LED replacement or modified fixtures between North Hollywood and Universal Station and concurrently add the required additional conduit and wire in order to reconfigure the tunnel light centers to the required 25 distances. The installation will then proceed to complete the tunnel portions of the Metro Red and Purple Lines to bring the entire Metro Red Line into compliance. This process will complete the Metro Rehabilitation Project and bring the entire subway rail system into code compliance by the end of 2016.

ATTACHMENT

A. Procurement Summary

Prepared by: F. G. Wyman Jones, Manager & Supervising Engineer
Michelle Lopes Caldwell  
Chief Administrative Services Officer

Frank Alejandro  
Chief Operations Officer

Arthur T. Leahy  
Chief Executive Officer
A. Procurement Background

This RFP was issued in accordance with Metro's Acquisition Policy utilizing a technically acceptable and lowest 30-year life cycle cost criteria, and the contract is Firm Fixed Unit Rate.

Fourteen amendments were issued during the solicitation phase of this RFP:

- Amendment No. 1 issued on February 21, 2012 provided answers to a list of questions 1 through 4 regarding the RFP requirements;
- Amendment No. 2 issued February 23, 2012, provided answers to a list of questions 5 through 13 regarding the RFP and publication of the Pre-Proposal Conference Sign In sheet;
- Amendment No. 3 issued February 28, 2012 provided answers to questions 14 and 15 regarding the RFP requirements;
- Amendment No. 4 issued March 1, 2012 amended the initial minimum lumens required per fixture and provided answers to questions 16 through 18;
- Amendment No. 5 issued March 2, 2012 provided answers to questions 19 through 31 regarding the RFP requirements, including a list of the planholders in response to question no. 23;
Amendment No. 6 issued March 7, 2012 clarified responses to questions no. 23 and 20, and provided answers to questions 32 through 39 regarding the RFP requirements;
Amendment No. 7 issued March 8, 2012 clarified the answer to question no. 34 regarding the requirements for the third party photometry report;
Amendment No. 8 issued March 12, 2012 provided clarifications regarding the sales tax exclusion from the Pricing Proposal and question regarding the financial capability minimum requirement;
Amendment No. 9 issued March 26, 2012 after receipt of proposals provided notice regarding the anticipated date for the Shop and Field Demonstration Phase;
Amendment No. 10 issued April 13, 2012 to the Proposers within the Competitive Range requiring the submittal of Electro Magnetic Interference (EMI) reports for the proposed LED tunnel light fixtures and information on the BAFO offers due date;
Amendment No. 11 issued April 17, 2012 to the Proposers within the Competitive Range provided answers to questions regarding the required EMI reports and the due dates for the submittal of the EMI report and BAFO offers;
Amendment No. 12 issued April 24, 2012 to the Proposers within the Competitive Range provided answers to further questions regarding the EMI reports and the BAFO Demonstration phase schedule;
Amendment No. 13 issued April 25, 2012 to the Proposers within the Competitive Range clarified the submittal requirements for the BAFO offer submittals; and
Amendment No. 14 issued May 16, 2012 to the Proposers within the Competitive Range clarified the submittal requirements for the BAFO offer submittals.

A Pre-Proposal Conference was held on February 22, 2012 with eighteen firms attending. Eleven firms participated at the Job Walk held at the Metro Red Line Union Station tunnel on February 23, 2012.

Thirteen firms submitted, with two of the firms submitting two LED light fixtures options, for a total of fifteen proposals received on March 15, 2012.

B. Evaluation of Proposals/Bids

A total of thirteen firms, with two of the firms submitting two LED light fixtures options, proposals responded to this solicitation. A Source Selection Committee (SSC) consisting of staff from Corporate Safety; Wayside Systems Traction Power, Rail Wayside Systems Engineering and Corporate Safety/LA Fire Department were convened and conducted a comprehensive technical evaluation of the proposals received.
Proposers were initially evaluated and deemed qualified by the SSC to supply the LED tunnel light fixture based on their capability to meet the RFP Minimum Requirements Criteria on a pass/fail basis. Those Criteria consisted of:

1) Past Performance/Experience: Must have been in the LED Solid State Lighting Business for a minimum of three years and must provide at least three projects as references.

2) Proposer’s Financial Capability: Provide evidence of minimum sales revenues of at least six million dollars ($6,000,000) for the last three (3) years; and

3) Provide evidence of UL certifications of the LED fixture and component parts.

Among the thirteen Proposers, only three firms passed the Minimum Requirements criteria and were determined to be within the competitive range.

The three firms within the competitive range are listed below in alphabetical order:

1. Alternative Consumption Technologies, Inc. (ACT) dba Go Green Solutions
2. Autronic Plastics, Inc.
3. Ruud Lighting, Inc./CREE

Technically Acceptable, Lowest Life-Cycle Cost Award Recommendation

After first meeting the minimum qualifications defined in the RFP, the LED light fixtures proposed by these three firms were then evaluated for technical acceptability based upon compliance with the Technical Specifications, Requirements and Standards specified in the RFP. The technical acceptability of the LED fixtures is based on the Proposers written submittals which were validated during the Demonstration Phase of the RFP. The Demonstration Phase consisted of two sections: 1) Shop Demonstration and 2) Field Demonstration. The validated data was then utilized in calculating the 30-year life cycle cost analysis. The LED light fixtures proposed by the three firms all met the technical acceptability criteria established by the RFP.

Demonstration Phases

Proposers whose fixtures were determined to be Technically Acceptable based on Metro’s Technical Specifications, Requirements and Standards participated in the Demonstration Phase. The Demonstration Phase was divided into two sections: 1) Shop Demonstration and 2) Field Demonstration.

A. Shop Demonstration – At the scheduled date and time, Proposer’s own staff personnel demonstrated, through random selection of 1 of the 6 sample units, the 10-minute time standard for the removal, diagnosis, replacement, and maintenance of non-functioning LED lighting fixture. The Proposers demonstrated and validated
the repair or component exchange information / timings provided for in the
Proposer’s submittal form(s).

B. Field Demonstration - At the scheduled date and time, Proposers’ six units of
proposed Tunnel “LED” Light Fixture were temporarily installed at a section of the
Metro Red Line tunnel to validate the information in the third party reports regarding
the light deterioration rates during the life cycle period. The purpose of this exercise
was to:
- Measure the actual FOOT CANDLE readings at the various measurements along
the center of the emergency tunnel walkways to determine if the Proposer’s
product meets Metro acceptance criteria. If the measurements obtained during
the field demonstration are not consistent with the data provided by the
Contractor in the evaluation forms, the necessary adjustments/revisions will be
made in order to calculate the End of Life data to be used for the life cycle cost
analysis.
- Measure the actual FOOT CANDLE readings at the various measurements along
the center of the emergency tunnel walkways to determine if the Proposer’s
product meets the STROBE EFFECT Differential (7.0 Foot Candles +/- 20%)
between the area directly under the lights and those at the Mid-Point between the
test lights situated at 25 foot centers.

30-Year Life Cycle Cost Analysis

The data provided by the Proposers in the written submittals and validated during
the Demonstration Phase were utilized to conduct the 30-year life cycle cost
calculations and analysis. The proposed technically qualified LED tunnel light fixture
with the lowest evaluated 30-year life cycle cost is recommended for contract award.

Qualifications Summary of Firms Within the Competitive Range:

Alternative Consumption Technologies, Inc. (ACT) dba Go Green Solutions

ACT dba Go Green Solutions has been in the LED linear retrofit business since
2008 and is a manufacturer of energy saving solid state LED Lighting. Go Green
offers replacement LED tubes for existing fluorescent fixtures which are
manufactured in the United States and are UL certified. LED tubes are
manufactured under a UL Global Services Agreement by Birns & Sawyer, Inc., a
California corporation wholly owned by Go Green President, William Meurer.
Go Green provided more than 4,000 LED retrofit tubes for the Central Library, police
station and other municipal buildings for the City of Pasadena, in addition to LED
retrofit projects for the Jet Propulsion Labs and other private companies such as
UPM Global, LLC and Hollywood Film Vaults. Go Green’s key suppliers for the
fixtures include CREE, Inc. for the LED chips, Arrow Electronics, Inc. for LED drivers
and circuit boards and Holophane, a division of Acuity Brands, for the lighting
fixtures.
Autronic Plastics, Inc.

Autronic Plastics, Inc. (API) was founded in 1953 and has been a manufacturer of plastic injection molded components for over 50 years and an OEM supplier to the lighting industry for 25 years. API has designed, developed, manufactured, assembled and tested LED based emergency exit signs, traffic signals and pedestrian crossing signals. Clear Vu Lighting was created as a brand for products that API internally develops, markets and distributes to end users direct, primarily catering to the transit and construction industries.

API began doing business under the Clear Vu Lighting name in 2008 and its first customer was the New York City Transit Authority (NYCT). In 2011 NYCT, through the New York Power Authority, initially procured 500 units of LED based portable lamp bank and contracted for an additional 3,500 units for a total contract value of $2.2 million with an expected completion date of 1.5 years. Other projects include the Harvard Art Museum for temporary LED lighting and temporary lighting system for the construction site of TD America Headquarters in Omaha, Nebraska.

Rudd Lighting, Inc./CREE

Rudd Lighting, Inc. is a wholly owned subsidiary of Cree, Inc. purchased in August 2011. Rudd Lighting consists of multiple divisions and product lines to serve the lighting industry. CREE was founded in 1982 and has grown into a global company employing more than 700 people. Companies and divisions of Rudd Lighting develop, manufacture and sell a range of products through various channels for residential, commercial and industrial lighting applications. Products manufactured by Rudd Lighting are sold internationally through Rudd Lighting Europe based in Italy and Rudd Lighting based in Toronto. Other sales partner offices are located in Australia, New Zealand, Singapore, India and the Middle East.

Rudd has dedicated resources to the use of LED technology and established the BetaLED architectural grade luminaries in various sub-brand names. BetaLED luminaries are available for various applications including street/roadway, tunnel, canopy, security, parking structure, flood and pathway. Rudd/CREE has provided street lighting projects for the City of Los Angeles for the purchase of 33,000 LED luminaries; City of Boston for 8,000 LED luminaries; 1,100 LED luminaries for Smithtown, New York; Pacific Gas & Electric Co., San Francisco, CA; Watsonville, CA and Pittsburg, CA.

Summary of the Technically Qualified Fixtures

The LED tunnel light fixtures included in the BAFO offers were as follows:

1) ACT dba Go Green – Light Fixture: Option 1, 2 and 3:
Go Green offered three proposed lighting fixture options. The First Option is an LED fixture with an eight-year warranty; the Second Option includes a 10-year warranty and aluminum finish; and the Third Option is for the same fixture with the 10-year warranty, coated with Prismatech corrosion protection paint. The design of all three options of the proposed LED light utilizes the current and existing light fixture housing installed at the Metro Red Line, with fluorescent tubes replaced by the LED light tubes and the ballast removed. As a result, the pricing for all three proposed fixture options are lower than the pricing for any of the other two proposed new fixtures from Autronic Plastics and RUUD/CREE.

2) Autronic Plastics, Inc. – Autonic's proposed light fixture is an entirely new fixture designed specifically to meet the requirements of the RFP, and will therefore require changing out the existing fixtures for the modification/replacement units. This feature is reflected in the same pricing for the new and modification/replacement units.

3) Ruud/CREE – Ruud’s proposed light fixture is also an entirely new fixture designed specifically to meet the requirements of the RFP, and will therefore require changing out the existing fixtures for the modification/replacement units. This feature is reflected in the same pricing for the new and modification/replacement units.

Based on the data provided in the written BAFO submittals of the Proposers within the competitive range, and validated by Metro during the BAFO Demonstration Phase, the 30-year life cycle cost analysis was performed on all qualified offers.

The lighting fixture with the lowest calculated 30-year life cycle cost was Go Green’s Option 3 light fixture, with a 10-year warranty and coated with Prismatech corrosion protection paint. The table below summarizes Metro’s 30-year life-cycle cost analysis:

<table>
<thead>
<tr>
<th>30-Year Life Cycle Cost Summary</th>
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<tbody>
<tr>
<td>Autronic Plastics</td>
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<td>$15,291,070</td>
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C. **Price Analysis**

The recommended prices per unit of the LED fixtures have been determined to be fair and reasonable based upon adequate competition, the independent cost estimate prepared by Metro and negotiations.

<table>
<thead>
<tr>
<th>Bidder/Proposer Name</th>
<th>Proposal Amount</th>
<th>Negotiated</th>
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<tbody>
<tr>
<td>1. Alternative Consumption Technologies, Inc. (ACT) dba Go Green Solutions</td>
<td>$2,466,171.60</td>
<td>$2,233,574.00</td>
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</tbody>
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Based on the 30-year life cycle cost analysis performed on the technically acceptable proposals, Go Green’s Option 3 provides Metro the lowest cycle costs over the defined 30 year period that the light fixtures are expected to operate, and is therefore recommended for contract award. While the Option three light fixture is not the lowest price fixture, it is lower in price than the two light fixtures proposed by Autronic Plastics and Ruud/CREE. The estimated 30-year life cycle cost savings to Metro for Go Green’s Option 3 LED light fixture is $50,491,195.78. That life cycle cost savings value is based on a comparison of our current operational costs over 30 years, versus the savings to be gained by implementing the change to the recommended lighting fixture.

D. Background on Recommended Contractor

The recommended firm, Alternative Consumption Technologies, Inc. (ACT) dba Go Green Solutions, a registered California corporation located in Pasadena, has been in business since 2008, and is a manufacturer of energy saving solid state LED lighting. Its product offerings target replacement LED tubes for existing fluorescent fixtures. The LED fixtures are manufactured here in the United States and are UL certified. Their replacement LED tubes reduces energy consumption from traditional fluorescents from 50% to 75%. It is the first company in the United States to receive UL listing on the 4-foot T8 light tube. It has a patent pending on replaceable end caps making its product the first ever reusable light bulb. The LED light tubes is a direct retrofit replacement for the fluorescent light tubes with no ballast required, no UV rays, EMF or recycling costs.

The LED light tubes proposed by Go Green for the MRL project is a self-ballasted lamp replaced into the Holophane Prismatic fixture, which is identical to the current fixture housing currently installed in Metro’s tunnels. The manufacturer of the fixture,
Holophane, is currently conducting engineering tests to replace the fixture with clear end caps that may provide additional lighting at the nodal points between fixtures. GO Green's BAFO proposal provides an offer for the clear end caps on new fixtures at no additional cost to Metro, should both Metro and Go Green agree that such an modification is desirable.

E. Small Business Participation

The Diversity and Economic Opportunity Department (DEOD) did not recommend a Small Business Enterprise (SBE) goal for this solicitation. Alternative Consumption Technologies, Inc. (ACT) dba Go Green Solutions did not make a commitment to utilize SBE subcontractors.