



*Joseph H. Vicari, Director
Gary Quinn, Deputy Director
Barbara Jo Crea, Commissioner
Virginia E. Haines, Commissioner
John P. Kelly, Commissioner*

*Tristin J. Collins, Director, Management & Budget
Jennifer L. Bowens, Purchasing Agent*

*County of Ocean
Administration Building
101 Hooper Avenue
Toms River, NJ 08754*

BID

***SOLAR POWERED LED CHEVRON RADAR SIGNS AND CURVE WARNING
SYSTEM***

2023

***ADVERTISEMENT DATE: December 27, 2023
OPENING: January 17, 2024, 11:00 am***

Bid Category: 24- Safety and Protection Equipment and Related Services

Notice to Bidders

NOTICE IS HEREBY GIVEN that sealed bids for the furnishing and delivery of **SOLAR POWERED LED CHEVRON RADAR SIGNS AND CURVE WARNING SYSTEM** for the County of Ocean, will be received by the Purchasing Agent of the County of Ocean on **Wednesday, January 17, 2024 at 11:00 am**, prevailing time.

Bids will be received electronically via the County's Online Procurement Portal. Specifications are available on the Procurement Portal or for viewing only, in the Department of Purchase, Room #224, Administration Building, 101 Hooper Avenue, Toms River, New Jersey. Direct all inquiries to Jennifer L. Bowens, Purchasing Agent.

Bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq. and P.L. 1975 C. 127 (N.J.A.C. 17:27-1 et seq.) regarding equal employment opportunities and with the requirements of P.L. 1977 C.33 regarding corporate and/or partnership ownership.

The right to reject any and all bids is reserved in accordance with applicable law.

By order of the Board of Commissioners of the County of Ocean.

Signed:

JOSEPH H. VICARI, Director

JENNIFER L. BOWENS, Purchasing Agent

Contact Information and Project Timeline

Summary

The purpose of this bid package is to provide the County of Ocean with a Contractor who will supply the materials or services described and specified herein.

Contact Information

For further information regarding these specifications, contact

Jessica Hannold

Buyer

Email: jhannold@co.ocean.nj.us

Phone: [\(732\) 929-2103](tel:(732)929-2103)

Department:

Engineering

Timeline

Advertising Date	December 27, 2023
Bid Opening Date	January 17, 2024, 11:00am Administration Building, 101 Hooper Ave., Room 119, Toms River, NJ, 08753

Important Instructions for Electronic Submittal

Instructions for Electronic Bid Submission

The County is accepting electronic bid submissions with Open Gov by following these instructions:

Sign up for a FREE account at <https://procurement.opengov.com/portal/oceancounty>

Once you have completed account registration, browse back to this page: [County's OpenGov Electronic Bid Portal \(https://procurement.opengov.com/portal/oceancounty/\)](https://procurement.opengov.com/portal/oceancounty/)

Click on the bid of interest, then click "Draft Response".

Follow the instructions to submit the electronic bid.

It is important to note that this process should be completed well in advance of the bid deadline / bid opening. **DO NOT WAIT UNTIL THE LAST MINUTE.** The County's electronic submission system will not allow electronic bids to be submitted once the deadline has passed, even if you've already started the process. The deadline is based on the countdown timer found on the OpenGov bid submission page.

Instructions to Bidders

Bid Opening

All bids will be opened publicly in the Administration Building, Room 119, 101 Hooper Avenue, Toms River, New Jersey, commencing at 11:00 am, prevailing time on Wednesday, January 17, 2024.

Electronic Bid Submissions

Bids must be submitted electronically through Ocean County's Procurement Portal by the date and time stipulated in the Notice to Bidders.

Deadline Instructions

The County will not be responsible for late bids, and no bids will be accepted if received after the time stipulated in the notice to bidders.

Completion of all Documents

Bidders shall complete all documents and acknowledge all terms included with the bid package. All documents should be from this bid package and must not be dated or executed prior to the date of advertising. Failure to follow these instructions is cause for rejection.

NOTE: In order to access any DocuSign forms in this solicitation, you must first click "Draft Response".

Instructions on how to access the forms through DocuSign are available in the Attachments. Please note that in order to view the forms as a .pdf document, you must access DocuSign first. Once you access DocuSign, the option to download, save, print and complete the forms becomes available

Right to Reject

The County reserves the right to reject all bids in accordance with N.J.S.A. 40A:11-13.2, to waive any informalities in the bid and to accept the lowest responsible bid in accordance with applicable law.

Bidder Default

In case of default by the bidder or contractor, the County of Ocean may procure the articles or services from other sources and hold the bidder or contractor responsible for any excess cost occasioned thereby.

Indemnity

The bidder, if awarded a contract, agrees to protect, defend and save harmless the County against any damage for payment for the use of any patented material process, article or device that may

enter into the manufacture, construction or form a part of the work covered by either order or contract, and he further agrees to indemnify and save harmless the County from suits or actions of every nature and description brought against it, for, or on account of injuries or damages received or sustained by any party or parties by, or from any of the negligent acts of the contractor, his servants or agents.

Specifications

It is to be understood by the bidder that this bid is submitted on the basis of specifications prepared by the County and the fact that any bidder is not familiar with these specifications or conditions will not be accepted as an excuse.

Bid Security

NO BID SECURITY

Performance Bond

NO PERFORMANCE BOND

Pricing Proposal

Bidders must use the pricing proposal provided in the bid specifications. Failure to use the pricing proposal in the bid specifications shall be cause for rejection of the bid.

Pricing

Insert prices for furnishing all of the material and/or labor described or required. Prices shall be net, including any charges for packing, crating, containers, etc. and all transportation charges fully prepaid by the contractor F.O.B. destination and placement at locations specified by the County. No additional charges will be allowed for any transportation costs resulting from partial shipments made at the vendor's convenience when a single shipment is ordered.

Payment

Payments will be made upon the approval of vouchers submitted by the successful bidders in accordance with the requirements of the Board of Commissioners and subject to the Board of Commissioners customary procedures. The County will not pay interest or late fees regardless of language provided.

Discrepancy in Pricing

In the event that there is a discrepancy between the unit prices and the extended totals, the unit prices shall prevail. In the event there is an error of the summation of the extended totals, the computation by the OWNER of the extended totals shall govern.

Award Timeframe

Award will be made by Ocean County Board of Commissioners within sixty (60) days after receipt of bids.

Equal or Tie Bids

The County of Ocean reserves the right to award at their discretion to any one of the tie bidders where it is most advantageous for the County to do so, pursuant to N.J.S.A. 40A:11-6.1.

Tax Exempt

The County of Ocean is exempt from any State sales tax or Federal excise tax.

Equivalent Product

For purpose of evaluation where an equivalent product is being furnished, bidder must indicate any variation to our specifications no matter how slight. If no variations are indicated, it will be construed that the bid fully complies with our specifications.

Quantities

The quantities shown on the pricing proposal are **estimates only**, and Ocean County will not guarantee any minimum purchase. The County reserves the right to decrease or omit quantities as needed over the course of the contract. The county will not consider any minimum requirements imposed on order quantities. The County also reserves the right to increase quantities to twenty (20) percent of the maximum quantities listed at the unit price bid, in accordance with N.J.A.C. 5:30-11.3. *Note: Actual orders are placed upon receipt of a Purchase Order, on an as needed basis. The County will not be responsible to pay for any product that was not ordered through a Purchase Order.*

Delivery of Goods and Services

Delivery of items shall only be made upon receipt of a Purchase Order issued by the Ocean County Department of Purchase, upon which delivery locations and needed quantities shall be indicated.

American Goods and Products

All contractors must comply with the provisions of New Jersey Statute Title 40A:11-18, when applicable.

Assignment

This agreement shall not be assigned without the written consent of the County of Ocean.

NJ One Call

By presenting a bid, contractor declares that he is aware of and, if required, will comply with the requirements of the "Underground Facility Protection Act (Public Law 1994, Chapter 118)" prior to commencing any intended excavation. The telephone number to call is 1-800-272-1000.

Public Works Contractor Registration Act, N.J.S.A. 34:11-56.48 et seq

The bidder must comply with the provisions of "The Public Works Contractor Registration Act", if applicable.

- All named contractors must be registered with the Department of Labor and Workforce Development pursuant to the Public Works Contractor Registration Act at the time the proposal is received, or the proposal will be determined to be non-responsive.
- Any non-listed contractor must be registered with the Department of Labor and Workforce Development prior to physically starting work. It is the responsibility of the General Contractor to insure that all non-listed sub-contractors comply.
- Contractors are encouraged to submit their and all named sub-contractors' Public Works Contractor Registration Certificates with the bid.

Prevailing Wage & Labor Laws

The New Jersey Prevailing Wage Act (P.L. 1963, Chapter 150) and provisions of the State Labor Laws must be complied with by the successful bidder, if applicable. The current Prevailing Wage Rates can be found online at <https://www.nj.gov/labor/wageandhour/prevailing-rates/public-works/currentprevailingwage.shtml>

New Jersey Business Registration Requirements

Pursuant to N.J.S.A. 52:32-44, Ocean County ("Contracting Agency") is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of the Treasury.

Prior to contract award or authorization, the contractor shall provide the Contracting Agency with its proof of business registration and that of any named subcontractor(s).

Subcontractors named in a bid or other proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the Contracting Agency prior to the time a contract, purchase order, or other contracting document is awarded or authorized.

During the course of contract performance:

- (1) the contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.
- (2) the contractor shall maintain and submit to the Contracting Agency a list of subcontractors and their addresses that may be updated from time to time.

(3) the contractor and any subcontractor providing goods or performing services under the contract, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into the State. Any questions in this regard can be directed to the Division of Taxation at (609)292-6400. Form NJ-REG can be filed online at <http://www.state.nj.us/treasury/revenue/busregcert.shtml>.

Before final payment is made under the contract, the contractor shall submit to the Contracting Agency a complete and accurate list of all subcontractors used and their addresses.

Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration as required, or that provides false business registration information, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000, for each proof of business registration not properly provided under a contract with a contracting agency.

Pay to Play Requirements

Starting in January 2007, all business entities are advised of their responsibility to file an annual disclosure statement of political contributions with the New Jersey Election Law Enforcement Commission (ELEC) pursuant to N.J.S.A. 19:44A-20.27 if they receive contracts in excess of \$50,000 from public entities in a calendar year. Business entities are responsible for determining if filing is necessary. Additional information on this requirement is available from ELEC at 888-313-3532 or at www.elec.state.nj.us.

Statement of Ownership

The provisions of N.J.S.A. 52:25-24.2 applies to all forms of corporations and partnerships, including, but not limited to, limited partnerships, limited liability corporations, limited liability partnerships, and Subchapter S corporations.

Certification of Non-Involvement in Prohibited Activities in Iran

Certification of Non-Involvement in Prohibited Activities in Iran. Pursuant to N.J.S.A. 52:32-58, the proposer must certify that neither the proposer, nor one of its parents, subsidiaries, and/or affiliates (as defined in N.J.S.A. 52:32-56(e)(3)), is listed on the Department of the Treasury's List of Persons or Entities Engaging in Prohibited Investment Activities in Iran and that neither is involved in any of the investment activities set forth in N.J.S.A. 52:32-56(f). If the proposer is unable to so certify, the proposer shall provide a detailed and precise description of such activities. Prior to contract award or authorization, the contractor shall provide the Contracting Agency with a completed Certification on Non-Involvement in Prohibited Activities in Iran.

Certification of Non-Involvement In Prohibited Activities in Russia or Belarus

Pursuant to N.J.S.A. 52:32-60.1, the "person or entity" (as defined in N.J.S.A. 52:32-60.1, et seq) seeking to enter into or renew a contract for the provision of goods or services or the purchase of bonds or other obligations shall certify that it is not "engaging in prohibited activities in Russia or Belarus" (as such term is defined in as defined in N.J.S.A. 52:32-60.1, et seq. If the person or entity is unable to certify, the person or entity shall provide a detailed and precise description of

such activities. The N.J.S.A. 52:32-60.1 certification form must be completed prior to contract award and is provided in the specification documents (DocuSign).

Vendors may view the Precluded Entities List Here:

<https://www.nj.gov/treasury/administration/pdf/RussiaBelarusEntityList.pdf>

Insurance Requirements

The contractor shall maintain primary insurance to protect against all claims under Workmen's Compensation, Comprehensive General Liability and Automobile. Except for Workmen's Compensation, all coverage shall apply as primary coverage with respect to any other insurance or self-insurance program afforded to the County. There shall be no endorsement or modification of this coverage to make it excess over other available insurance/coverage; alternatively, if the CGL and umbrella, excess of reinsurance states that it is pro rata, it shall be endorsed to be primary with respect to the County. Primary Coverage shall be subject to approval for adequacy of protection as per the following limits:

Worker's Compensation

1. Limits according to Worker's compensation Laws of the State of New Jersey.
2. Contractor's Liability not less than \$100,000.

Comprehensive General Liability

1. Bodily Injury - \$500,000 per person; \$1,000,000 per occurrence.
2. Property Damage - \$1,000,000 per occurrence.

Comprehensive General Liability Details

Comprehensive Automobile Liability shall include the following:

Business auto liability insurance or its equivalent with a minimum limit of \$1,000,000 per accident and including coverage for all of the following:

- A. Liability arising out of the ownership, maintenance or use of any auto;
- B. Auto non-ownership and hired car coverage.
- C. Contractor's Worker's Compensation, Comprehensive General Liability and
- D. Comprehensive Automobile Liability arising out of subcontractor's operations shall be identical as that listed above.

Proof of Insurance

Copies of each insurance certificate shall be furnished to the County when requested.

County Cooperative Contract Purchasing System

The County has established a "COUNTY COOPERATIVE CONTRACT PURCHASING SYSTEM" pursuant to N.J.S.A. 40a:11-1 et seq...

The IDENTIFIER for this system is:
CK-02-OC

This system allows local government contracting entities located within the geographical boundaries of the County to purchase goods and services awarded as a result of this bid proposal if it is extended by the low bidder.

Goods and services must be made available without substitution or deviation from specifications, size, features, quality, price or availability as herein set forth. It is understood that orders, if any, will be placed directly by contracting units, subject to the overall terms of the contract to be awarded by the County of Ocean.

The estimated quantities listed in this specification reflect only the needs of the agencies under the direct control of the Ocean County Board of Commissioners. If the vendor chooses to extend the resulting contract to all other contracting units, the quantities could be higher.

Please check (✓) the YES or NO box in the Vendor Questionnaire to indicate whether or not you will extend contract prices to all contracting units.

Award Method

Contract will be awarded on a lump sum by item basis.

Mandatory Equal Employment Opportunity

N.J.S.A. 10:5-31 et seq. (P.L. 1975, C. 127)

N.J.A.C. 17:27

GOODS, PROFESSIONAL SERVICE AND GENERAL SERVICE CONTRACTS

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union of the contractor's commitments under this chapter and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

The contractor or subcontractor agrees to make good faith efforts to meet targeted county employment goals established in accordance with N.J.A.C. 17:27-5.2.

The contractor or subcontractor agrees to inform in writing its appropriate recruitment agencies including, but not limited to, employment agencies, placement bureaus, colleges, universities, and labor unions, that it does not discriminate on the basis of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, and that it will discontinue the use of any recruitment agency which engages in direct or indirect discriminatory practices.

The contractor or subcontractor agrees to revise any of its testing procedures, if necessary, to assure that all personnel testing conforms with the principles of job-related testing, as established by the statutes and court decisions of the State of New Jersey and as established by applicable Federal law and applicable Federal court decisions.

In conforming with the targeted employment goals, the contractor or subcontractor agrees to review all procedures relating to transfer, upgrading, downgrading and layoff to ensure that all such actions are taken without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, consistent with the statutes and court decisions of the State of New Jersey, and applicable Federal law and applicable Federal court decisions.

The contractor shall submit to the public agency, after notification of award but prior to execution of a goods and services contract, one of the following three documents:

- Letter of Federal Affirmative Action Plan Approval
- Certificate of Employee Information Report
- Employee Information Report Form AA302 (electronically provided by the Division and distributed to the public agency through the Division's website at www.state.nj.us/treasury/contract_compliance)

The contractor and its subcontractors shall furnish such reports or other documents to the Division of Purchase & Property, CCAU, EEO Monitoring Program as may be requested by the office from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Purchase & Property, CCAU, EEO Monitoring Program for conducting a compliance investigation pursuant to **Subchapter 10 of the Administrative Code at N.J.A.C. 17:27.**

Americans with Disabilities Act

Equal Opportunity For Individuals With Disabilities

The CONTRACTOR and the COUNTY do hereby agree that the provisions of title II of the Americans with Disabilities Act of 1990 (the "Act") (42 U.S.C. 12101 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs and activities provided or made available by public entities, and the rules and regulations promulgated pursuant thereto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the COUNTY pursuant to this contract, the CONTRACTOR agrees that the performance shall be in strict compliance with the Act. In the event that the CONTRACTOR, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the CONTRACTOR shall defend the COUNTY in any action or administrative proceeding commenced pursuant to this Act. The CONTRACTOR shall indemnify, protect and save harmless the COUNTY, its agents, servants and employees from and against any and all suits, claims, losses, demands, or damages of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The CONTRACTOR shall, at its own expense, appear, defend and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the COUNTY'S grievance procedure, the CONTRACTOR agrees to abide by any decision of the COUNTY which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the COUNTY or if the COUNTY incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the CONTRACTOR shall satisfy and discharge the same at its own expense.

The COUNTY shall, as soon as practicable after a claim has been made against it, give written notice thereof to the CONTRACTOR along with full and complete particulars of the claim. If any action or administrative proceeding is brought against the COUNTY or any of its agents, servants and employees, the COUNTY shall expeditiously forward or have forwarded to the CONTRACTOR every demand, complaint, notice, summons, pleading, or other process received by the COUNTY or its representatives.

It is expressly agreed and understood that any approval by the COUNTY of the services provided by the CONTRACTOR pursuant to this contract will not relieve the CONTRACTOR of the obligation to comply with the Act and to defend, indemnify, protect and save harmless the COUNTY pursuant to this paragraph.

It is further agreed and understood that the COUNTY assumes no obligation to indemnify or save harmless the CONTRACTOR, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the CONTRACTOR expressly understands and agrees that the provision of this indemnification clause shall in no way limit the CONTRACTOR'S obligations assumed in this Agreement, nor shall they be construed to relieve the CONTRACTOR from any liability, nor preclude the COUNTY from taking any other actions available to it under any other provisions of this Agreement or otherwise at law.

Intent

CONTRACT TERMS

The contract shall be for one (1) year from date of award, or until delivery is complete unless otherwise stated. The County reserves the right to extend the term of the contract pursuant to N.J.S.A. 40A:11-15.

INTENT

The purpose of this bid package is to provide the County of Ocean with a Contractor who will supply the materials described and specified herein.

NO ASSIGNMENT

This agreement shall not be assigned without the written consent of the County of Ocean which consent shall not be unreasonably withheld. Assignee shall promptly prepare and complete such documents as the County shall require.

OWNERSHIP DISCLOSURE

All contractors shall comply with all laws governing the disclosure of all stockholders or partners, as included in N.J.S.A. 52:25-24.2.

BID REVIEW

Bids may be reviewed at the bid opening and results will be made available online through the County's procurement portal once the bid meeting has concluded. Additionally, bid results are available in the Ocean County Purchasing Department on the day following the bid openings for any interested party that may wish to review them.

EVALUATION

The quality of the equipment supplied, their conformity with the specifications, their suitability to requirements, delivery terms, guaranty clauses, price of the materials shall all be taken into consideration. Where equivalent equipment is offered, the County will determine if the proposed item is equal or better than that specified.

AVAILABILITY OF FUNDS

The County's obligation hereunder is contingent upon the availability of appropriated funds from which payment for contract purposes can be made. No legal liability on the part of the County for payment of any money shall arise unless, and until funds are made available each year to the Ocean County Purchasing Agent.

MODIFICATIONS AND WITHDRAWALS

Bids may be withdrawn from the bidder prior to the time fixed for opening. No right for withdrawal exists after the bid has been opened. Written request for withdrawal shall be signed by the bidder or proper corporate officers.

USE OF OTHER NAMES AND REFERENCES

Unless otherwise stated, the use of manufacturers' names and product numbers are for descriptive purposes, and establishing general quality levels only. They are not intended to be restrictive. Bidders are required to state exactly what they intend to furnish, otherwise it is fully understood that they shall furnish all items as stated.

QUALITY

The materials and supplies called for herein, shall be the best of their grade and types, prepared according to the best available standards or accepted formulas, and thoroughly tested and subjected to rigid examinations and standardization. Items not meeting these requirements shall be replaced at no cost to the County upon due notice of deficiency.

WARRANTY

Manufacturer's warranty shall apply.

MODEL INFORMATION REQUIRED

The manufacturer, make or exact models proposed as substitutes shall also be submitted on bidder's letterhead with any proposal contended to be "equivalent."

AVAILABILITY AND DELIVERY

The bidder should indicate the number of days required for the delivery After Receipt of Order (A.R.O.). If not submitted with the bid proposal, the County reserves the right to request this information prior to the award of contract.

TRANSITIONAL PERIOD

In the event services are terminated by contract expiration or by voluntary termination by either the Contractor or the County of Ocean, the Contractor shall continue all terms and conditions of said contract for a period not to exceed one (1) month at the County's request.

COMPLIANCE TO MINIMUM BID REQUIREMENTS / EQUIVALENT PROPOSALS

It is the intent of these specifications to describe and govern the purchase of a new and unused SOLAR POWERED LED CHEVRON RADAR SIGNS AND CURVE WARNING SYSTEM with any and all accessories as noted herein. The unit shall conform to the highest quality of manufacturing and design standards. Any item or items not specifically mentioned herein, but which would be required to produce a complete working unit, shall be supplied by the vendor.

All bidders must answer compliance questions in full. A general exception cannot be taken for any paragraph or item. If a bidder is basing his proposal on equipment other than what is specified in these bid documents and wishes the equipment he proposes to be considered as an "approved equal", he shall submit on a separate sheet, in the exact format of the technical specifications contained herein, an item by item description of that which he proposes to substitute including any and all variations from or exceptions to the conditions and specifications of this bid. Failure to comply may result in rejection of bid.

CURRENT BID RESULTS

If there is a current contract in place for this bid, those results may be obtained by accessing our procurement portal at the below link:

<https://procurement.opengov.com/portal/oceancounty>

Once you have clicked the link, click "Advanced Search" to begin searching for the current opportunity.

Specifications and Scope of Work

SCOPE OF WORK

Please see Question # 8 in the Vendor Questionnaire for the Compliance Pages for this bid. Please download, Complete, and Upload the Compliance pages to the appropriate question in the vendor questionnaire.

Vendor Questionnaire

County Cooperative Contract Purchasing System*

Vendor will extend contract prices to "County Cooperative Contract Purchasing System" Participants as described in [Instruction to Bidders](#) .

Yes

No

*Response required

BID DOCUMENTS TO BE EXECUTED*

Documents include:

- Signature Page
- Non-Collusion Certification
- Affirmative Action Questionnaire
- **Statement of Ownership (N.J.S.A. 52:25-24.2) (Mandatory Document)**
- Prohibited Russia-Belarus Activities & Iran Investment Activities

FAILURE TO SUBMIT ANY OF THESE DOCUMENTS MAY BE CAUSE FOR REJECTION OF YOUR PROPOSAL.

All documents should be from this proposal package as forms change frequently and the most updated forms are provided in this specification. The forms must not be dated or executed prior to the date of advertising.

NOTE: For detailed instructions on how to complete the forms via DocuSign, please access the "Instructions for Completing Forms in DocuSign" document available in the Attachments.

Please note: The County's preferred method of submission is DocuSign.

[Click here to go to the form](#)

*Response required

Copy of Bidder's Certificate of Employee Information Report

Within seven (7) days after receipt of the notification of intent to award the contract or receipt of the contract, whichever is sooner, a Contractor should present one of the following to the County of Ocean:

- (a) An existing federally approved or sanctioned affirmative action program.
- (b) A New Jersey Certificate of Employee Information Report Approval.
- (c) If the Contractor cannot present "a" or "b", the Contractor is required to submit a completed Employee Information Report (Form AA302 for Goods and Services; Form AA201 for Construction). This form is available [here](#).

QUESTIONS BELOW MUST BE ANSWERED BY ALL CONTRACTORS ON THE AFFIRMATIVE ACTION DOCUMENT:

1. Do you have a Federally approved or sanctioned Affirmative Action Program?

If yes, please upload a photocopy of such approval.

2. Do you have a State of New Jersey "Certificate of Employee Information Report" approval?

If yes, please upload a photocopy of such certificate.

Please note, the only acceptable file forms are as follows:

Documents (doc, docx, rtf, txt, xls, xlsx, pdf)

Images (jpg, png, bmp, tif)

Copy of Bidder's New Jersey Business Registration Certificate

Please use this area to upload your company's BRC.

Use this link to verify your company's BRC:

https://www1.state.nj.us/TYTR_BRC/jsp/BRCLoginJsp.jsp

Please note that a BRC is not required at the time of bid submission but shall be required prior to the award of a contract.

Please note, the only acceptable file forms are as follows:

Documents (doc, docx, rtf, txt, xls, xlsx, pdf)

Images (jpg, png, bmp, tif)

Mandatory Equal Employment Opportunity Statement*

Does the BIDDER comply with the [#Mandatory Equal Employment Opportunity Statement?](#)

Yes

No

*Response required

Americans with Disabilities Act Provisions*

Does the BIDDER comply with the [#Americans with Disabilities Act Provisions?](#)

Yes

No

*Response required

Descriptive Literature and Warranty Details*

Please supply all descriptive literature and warranty details for all items being bid as well as a list of all diagnostic tools and testing equipment, if applicable.

Please note, the only acceptable file forms are as follows:

Documents (doc, docx, rtf, txt, xls, xlsx, pdf)

Images (jpg, png, bmp, tif)

*Response required

COMPLIANCE PAGES FOR SOLAR POWERED LED CHEVRON RADAR SIGNS*

Please download the attached Compliance Pages. Complete each compliance line by placing a check mark in the box for yes or no. Once finished, upload the completed document. If you are taking any exceptions to any of the compliance lines, please list and explain each exception in detail on company letterhead. Please upload the exceptions letter with the completed compliance pages.

- [COMPLIANCE PAGES – SOLAR PO...](#)

*Response required

ADDITIONAL VENDOR DOCUMENTATION

Please submit any additional information you wish to be considered as part of your bid package.

Please note, the only acceptable file forms are as follows:

Documents (doc, docx, rtf, txt, xls, xlsx, pdf)

Images (jpg, png, bmp, tif)

Acknowledgement of Submission of Forms from Current Bid Package*

Bidders shall complete all documents and acknowledge all terms included with the bid package. All documents should be from this bid package as forms change frequently and the most updated forms are provided in this specification. The forms must not be dated or executed prior to the date of advertising. Failure to follow these instructions is cause for rejection.

Please confirm

*Response required

Submission of Bid Package*

By submitting a response to this solicitation, the Vendor understands and acknowledges that all required documents to this solicitation must be submitted and that failure to do so may be cause for rejection.

Bidder also understands that only one (1) bid submission shall be considered. Please DO NOT Submit a manual bid response. Submitting a manual response in addition to the electronic response is cause for rejection of your bid.

Please confirm

*Response required

Pricing Proposal

ITEM #1 - SOLAR CHEVRON RADAR SIGN, 30" X 36", AS SPECIFIED OR EQUAL

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	No Bid	Mfr./Make/Model:	Warranty:	Delivery, A.R.O.:	Comments:
1	Solar Chevron Radar Sign, 30" X 36", As Specified or Equal	4	EA							
OPTIONS										
1A	Sign Assembly, As Specified or Equal	4	EA							
1B	Cabinet, As Specified or Equal	4	EA							
1C	Round Pole Banding Bracket, As Specified or Equal	4	EA							
1D	Square Pole Bolt-Through Bracket, As Specified or Equal	4	EA							
1E	Multi-Purpose Bracket, As Specified or Equal	4	EA							
1F	Controller, As Specified or Equal	4	EA							
1G	Wireless Radio, As Specified or Equal	4	EA							
1H	Solar Panel, As Specified or Equal	4	EA							

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	No Bid	Mfr./Make/Model:	Warranty:	Delivery, A.R.O.:	Comments:
1I	Top-of-Pole Bracket, As Specified or Equal	4	EA							
1J	Side-of-Pole Bracket, As Specified or Equal	4	EA							
1K	Battery, As Specified or Equal	4	EA							
1L	Radar Detection, As Specified or Equal	4	EA							
1M	Heavy Duty Pole Package with Anchor Bolts, As Specified or Equal	4	EA							
TOTAL										

ITEM #2 - SOLAR CHEVRON RADAR SIGN, 30" X 36", RUGGEDIZED, AS SPECIFIED OR EQUAL

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	No Bid	Mfr./Make/Model:	Warranty:	Delivery, A.R.O.:	Comments:
2	Solar Chevron Radar Sign, 30" X 36", Ruggedized, As Specified or Equal	10	EA							
OPTIONS										
2A	Sign Assembly, As Specified or Equal	10	EA							
2B	Cabinet, As Specified or Equal	10	EA							

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	No Bid	Mfr./Make/Model:	Warranty:	Delivery, A.R.O.:	Comments:
2C	Round Pole Banding Bracket, As Specified or Equal	10	EA							
2D	Square Pole Bolt-Through Bracket, As Specified or Equal	10	EA							
2E	Multi-Purpose Bracket, As Specified or Equal	10	EA							
2F	Controller, As Specified or Equal	10	EA							
2G	Wireless Radio, As Specified or Equal	10	EA							
2H	Solar Panel, As Specified or Equal	10	EA							
2I	Top-of-Pole Bracket, As Specified or Equal	10	EA							
2J	Side-of-Pole Bracket, As Specified or Equal	10	EA							
2K	Battery, As Specified or Equal	10	EA							
2L	Radar Detection, As Specified or Equal	10	EA							
2M	Heavy Duty Pole Package with Anchor Bolts, As Specified or Equal	10	EA							

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	No Bid	Mfr./Make/Model:	Warranty:	Delivery, A.R.O.:	Comments:
TOTAL										

ITEM #3 - CURVE WARNING SYSTEM, AS SPECIFIED OR EQUAL

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	No Bid	Mfr./Make/Model:	Warranty:	Delivery, A.R.O.:	Comments:
3	Curve Warning System, As Specified or Equal	10	EA							
TOTAL										

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, AS SPECIFIED OR EQUAL**COMPLIANCE**
YES **NO****DESCRIPTION:**

Solar-powered sign assembly which alerts traffic to upcoming roadway curvature, including illuminated LEDs activated via radar detection.

SIGN ASSEMBLY:

Sign assembly shall be compatible with TAPCO® BlinkerSign interconnectivity.

Sign assembly shall conform to TAPCO-Integrated BlinkerSign® or equal and shall conform to TAPCO® drawing number 2180-00225DF, except the sign size shall be 30” W X 36” H.

Sign shall conform to Section 2A.08 of the Manual on Uniform Traffic Control Devices for Streets and Highways 2009 Edition (MUTCD), as it relates to retroreflectivity and illumination.

Sign face shall conform to designation W1-8L or W1-8R as described in Section 2C.09 of the MUTCD, except for 10 holes situated along the outline of the black chevron, of a size and shape appropriate for the display of light-emitting diodes (LEDs).

Sign shall measure 30” W x 36” H in accordance with MUTCD Table 2C-2.

Sign blanks shall be aluminum, with a thickness of 0.080”.

Sheeting used shall be 3M DG3 diamond grade, or approved equal, with anti-graffiti overlay.

Sign assembly shall include an LED string with 10 amber LEDs and 18” leads, fastened to the rear of the sign blank with aluminum wire channels, arranged in such a way that each LED can be seen through its own hole in the sign blank. This arrangement shall conform to TAPCO® drawing number 2180-00225DF.

All electronic wiring shall be protected with liquid-tight conduit, and all connections shall conform to an Ingress Protection rating of IP-65 or better.

CABINET:

NEMA 3R type certification.

The cabinet shall be made of 0.080” aluminum.

The cabinet shall have two tamper-resistant stainless steel hinges.

The cabinet shall have four stainless steel studs for various mounting bracket options including banding, U-bolt, wall-mount, square pole, and wood post.

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, AS SPECIFIED OR EQUAL (CONT’D)**COMPLIANCE**
YES **NO****CABINET: (CONT’D)**

- The cabinet shall have replaceable #2 traffic lock with keys.
- The cabinet shall have screened vents on the side and door.
- The cabinet shall have screened drainage holes on the bottom.
- The cabinet shall have UV resistant labels applied to the exterior of the cabinet outlining model number, serial number, and date of manufacture, as well as any applicable regulatory information.
- All circuit components of the cabinet are attached or connected to a removable control panel for maintenance.
- The cabinet shall have a door mounted pouch containing system documents.
- The enclosure dimensions of the cabinet shall not exceed 12.5”W x 15”H x 9.9”D.

ROUND POLE BANDING BRACKET:

- The bracket shall be made of aluminum.
- The bracket shall fit 2 3/8” and larger, round poles.
- The hardware needed to mount the bracket to the cabinet shall be stainless steel and included.
- The hardware needed to mount to the bracket to a pole shall be banding up to 3/4” width (customer supplied). Worm drive clamp shall be included to assist in installation.
- There shall be 2 brackets per cabinet.
- The dimensions of the bracket shall not exceed 6.8”W x 3.7”H x 1.1”D.

SQUARE POLE BOLT-THROUGH BRACKET:

- The bracket shall be made of aluminum.
- The bracket shall fit 2” to 6” square poles.
- The hardware needed to mount the bracket to the cabinet shall be stainless steel and included.
- There shall be 2 brackets per cabinet.

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, AS SPECIFIED OR EQUAL (CONT’D)**COMPLIANCE****YES** **NO****MULTI-PURPOSE BRACKET:**

The bracket shall be made of aluminum.

The bracket shall fit a 2 3/8” to 4 1/2” round pole, square wood post or wall mount.

The hardware needed to mount the bracket to the cabinet shall be stainless steel and included.

The hardware needed to mount to the bracket to a pole will be included:

- Stainless steel U-bolts for round pole mount
- Lag bolts for square wood mount

There shall be 2 brackets per cabinet.

The dimensions of the bracket shall not exceed 7”W x 7.2”H x 0.7”D.

CONTROLLER:

The controller shall be an IBM® Workload Scheduler controller.

The controller shall be 6V and 12VDC with a power indicator light.

The controller shall have 2 digital inputs.

The controller shall have 2 two-channel outputs (able to drive two warnings per output).

The controller shall be programmable locally using a serial input (RS232) or remotely using a cellular modem.

The controller shall have 24/7, Dusk ‘til Dawn, BlinkLink® Scheduling, Time Clock, and Custom input program activation options.

The Controller shall have LED-Warning Control compatibility with BlinkerSign®, BlinkerBeacon™, and RRFB-XL2™.

The controller shall have dimmable which will be:

- Auto-adjustable via solar panel (6V systems)
- Auto-adjustable via photocell sensor (12V systems)

The controller shall include an internal system clock (with on-board battery backup) and provide options for activation scheduling, including user-programmable adjustments for Daylight Saving Time.

The controller shall be capable of automatic brightness control.

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, AS SPECIFIED OR EQUAL (CONT'D)**COMPLIANCE**
YES **NO****CONTROLLER: (CONT'D)**

The controller shall include an internal temperature monitor.

The controller shall be capable of operation within the temperature range of -40°F to 176°F (-40°C to 80°C).

The controller enclosure shall conform to an Ingress Protection rating of IP-67 or better.

The dimensions of the controller enclosure shall not exceed 3.2”W x 3.7”H x 2.5”D.

WIRELESS RADIO:

The sign assembly shall include a BlinkerBeam® wireless radio for interconnectivity.

The radio shall be 6V and 12VDC with a power indicator light.

The radio shall have 1 digital input, micro USB.

The radio shall have 2 digital output lines, host serial lines for over the air serial.

The radio shall be programmable locally using USB port or front-mounted joystick.

The radio shall have a backlit LCD display with 4 lines at 21 characters per line.

The radio types for this radio shall be:

- Low Power Device Radio.
- Low Power Activation Radio.
- Standard Low Power Radio.
- Standard Medium Power Radio.
- Standard High Power Radio.

The radio shall have a connectivity to up to 16 devices on one network.

The frequency of the radio shall be license free 900 MHz frequency hopping spread spectrum with 10 different RF patterns to prevent interference between collocated radio systems.

The radio shall have a range up to 900 feet standard, or longer with optional antennas.

The color of the status LEDs shall be red, green, yellow, and amber.

The radio shall be FCC and ISED compliant.

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30” X 36” AS SPECIFIED OR EQUAL (CONT’D)

COMPLIANCE
YES **NO**

WIRELESS RADIO: (CONT’D)

The radio shall have optional outdoor antennas:

- Omni Whip
- Omni Dome
- Omni Base Station
- Yagi (for specific applications)

The radio shall operate in temperatures ranging from -40°F to 176°F (-40°C to 80°C) and in less than 90% relative humidity.

The dimensions of the radio shall not exceed 3.2”W x 3.7”H x 2.5”D.

SOLAR PANEL:

The solar panel shall be 55W.

The nominal voltage shall be 12V.

The open circuit voltage shall be 22.1V.

The short circuit current shall be 3.31A.

The maximum power voltage shall be 18.18V.

The maximum power current shall be 3.1A.

The solar panel shall have tempered glass.

The frame shall be anodized aluminum.

The solar panel shall be constructed with silicon cells encapsulated in double-layer EVA with a white polymer backing.

The solar panel shall weigh 14 lbs.

The solar panel shall be IP67 rated.

The solar panel shall have various options available for mounting hardware.

The operating temperature shall be -40°F to 194°F (-40°C to 90°C).

The dimensions of the solar panel shall not exceed 25”W x 26”H x 1.5”D.

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, AS SPECIFIED OR EQUAL (CONT'D)**COMPLIANCE****YES** **NO****TOP-OF-POLE BRACKET:**The bracket shall be aluminum. The bracket shall fit a 4 ½” or 3” round pole. The brackets hardware shall be set screws. **SIDE-OF-POLE BRACKET:**The bracket shall be aluminum. The bracket is universal. The bracket shall have mounting hardware that includes banding, U-Bolt, or bolt. **BATTERY:**The voltage of the battery shall be 12V. The capacity at C/100 shall be 50Ah. The vent of the battery shall be valve regulated. The terminal type shall be I6. The battery shall be non-spillable as defined by the Department of Transportation, International Commercial Airline Organization and International Airline Transport Association definitions. The battery weight shall not exceed 32.23 lbs. The dimensions of the battery shall not exceed 7.75”L x 6.49”W x 6.69”H. The battery shall operate in a temperature range of -40°F to 176°F (-40°C to 80°C). **RADAR DETECTION:**The power input shall be 6 to 18V DC. The Icc@ 12V DC shall be 4.5 mA (0.054 watts). The radar RF out shall be 5 mW maximum. The radar F center shall be 24.125 GHz or 24.200 GHz. The pickup distance shall be up to 300 feet.

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, AS SPECIFIED OR EQUAL (CONT’D)

COMPLIANCE
YES **NO**

RADAR DETECTION: (CONT’D)

The beam angle shall be 38° x 45°.

The operating temperature shall be -40°F to 185°F (-40°C to 85°C).

The beam polarization shall be linear.

The serial port shall be RS232.

The FCC ID shall be TIASS300.

The dimensions of the radar shall not exceed 1.9”W x 2.1”H x 0.9”D

HEAVY DUTY POLE PACKAGE WITH ANCHOR BOLTS:

The domed pole cap shall be:

- Cast Aluminum
- Zinc Plated
- Fits 4 ½” outer diameter pole
- (3X) ¼” x ½” square head machine screws

The mounting brackets shall have:

- (2X) Z-bracket single sided round pole mounting bracket made of aluminum.
- (2X) 5/16” x 5/8” bolt and nut set.
- (2X) 5/16” x 1 ¾” bolt and nut set.

The round aluminum pole shall be: (10’ 373-10, 13’ 373-13, 15’ 373-15)

- Schedule 40 aluminum pole.
- 4 ¼” outer diameter
- One end threaded

The pedestal base shall be:

- Cast Aluminum
- Threaded Collar
- Have an aluminum access door.
- FHWA Certified
- Meets or exceeds AASHTO break-away requirements.

The bent anchor volt shall be:

- (4X) ¾” x 18”, galvanized steel bent anchor (foundation bolt), nut and washer (for frost free areas).
- (4X) 1” x 42”, galvanized steel bent anchor (foundation bolt), nut and washer (for frost or snow-covered areas).

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, AS SPECIFIED OR EQUAL (CONT'D)**COMPLIANCE****YES** **NO****OPTIONS:****1A – Sign Assembly**

Sign assembly shall be compatible with TAPCO® BlinkerSign interconnectivity.

Sign assembly shall conform to TAPCO-Integrated Blinkersign® or equal and shall conform to TAPCO® drawing number 2180-00225DF, except the sign size shall be 30” W X 36” H.

Sign shall conform to Section 2A.08 of the Manual on Uniform Traffic Control Devices for Streets and Highways 2009 Edition (MUTCD), as it relates to retroreflectivity and illumination.

Sign face shall conform to designation W1-8L or W1-8R as described in Section 2C.09 of the MUTCD, except for 10 holes situated along the outline of the black chevron, of a size and shape appropriate for the display of light-emitting diodes (LEDs).

Sign shall measure 30” W x 36” H in accordance with MUTCD Table 2C-2.

Sign blanks shall be aluminum, with a thickness of 0.080”.

Sheeting used shall be 3M DG3 diamond grade, or approved equal, with anti-graffiti overlay.

Sign assembly shall include an LED string with 10 amber LEDs and 18” leads, fastened to the rear of the sign blank with aluminum wire channels, arranged in such a way that each LED can be seen through its own hole in the sign blank. This arrangement shall conform to TAPCO® drawing number 2180-00225DF.

All electronic wiring shall be protected with liquid-tight conduit, and all connections shall conform to an Ingress Protection rating of IP-65 or better.

1B – Cabinet

NEMA 3R type certification.

The cabinet shall be made of 0.080” aluminum.

The cabinet shall have two tamper-resistant stainless steel hinges.

The cabinet shall have four stainless steel studs for various mounting bracket options including banding, U-bolt, wall-mount, square pole, and wood post.

The cabinet shall have replaceable #2 traffic lock with keys.

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, AS SPECIFIED OR EQUAL (CONT’D)

<u>COMPLIANCE</u>	
<u>YES</u>	<u>NO</u>

OPTIONS: (CONT’D)**1B – Cabinet (Cont’d)**

- | | | |
|---|--------------------------|--------------------------|
| The cabinet shall have screened vents on the side and door. | <input type="checkbox"/> | <input type="checkbox"/> |
| The cabinet shall have screened drainage holes on the bottom. | <input type="checkbox"/> | <input type="checkbox"/> |
| The cabinet shall have UV resistant labels applied to the exterior of the cabinet outlining model number, serial number, and date of manufacture, as well as any applicable regulatory information. | <input type="checkbox"/> | <input type="checkbox"/> |
| All circuit components of the cabinet are attached or connected to a removable control panel for maintenance. | <input type="checkbox"/> | <input type="checkbox"/> |
| The cabinet shall have a door mounted pouch containing system documents. | <input type="checkbox"/> | <input type="checkbox"/> |
| The enclosure dimensions of the cabinet shall not exceed 12.5”W x 15”H x 9.9”D. | <input type="checkbox"/> | <input type="checkbox"/> |

1C – Round Pole Banding Bracket

- | | | |
|--|--------------------------|--------------------------|
| The bracket shall be made of aluminum. | <input type="checkbox"/> | <input type="checkbox"/> |
| The bracket shall fit 2 3/8” and larger, round poles. | <input type="checkbox"/> | <input type="checkbox"/> |
| The hardware needed to mount the bracket to the cabinet shall be stainless steel and included. | <input type="checkbox"/> | <input type="checkbox"/> |
| The hardware needed to mount to the bracket to a pole shall be banding up to 3/4” width (customer supplied). Worm drive clamp shall be included to assist in installation. | <input type="checkbox"/> | <input type="checkbox"/> |
| There shall be 2 brackets per cabinet. | <input type="checkbox"/> | <input type="checkbox"/> |
| The dimensions of the bracket shall not exceed 6.8”W x 3.7”H x 1.1”D. | <input type="checkbox"/> | <input type="checkbox"/> |

1D – Square Pole Bolt-Through Bracket

- | | | |
|--|--------------------------|--------------------------|
| The bracket shall be made of aluminum. | <input type="checkbox"/> | <input type="checkbox"/> |
| The bracket shall fit 2” to 6” square poles. | <input type="checkbox"/> | <input type="checkbox"/> |
| The hardware needed to mount the bracket to the cabinet shall be stainless steel and included. | <input type="checkbox"/> | <input type="checkbox"/> |
| There shall be 2 brackets per cabinet. | <input type="checkbox"/> | <input type="checkbox"/> |

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, AS SPECIFIED OR EQUAL (CONT’D)**COMPLIANCE****YES** **NO****OPTIONS: (CONT’D)****1E – Multi-Purpose Bracket**

The bracket shall be made of aluminum.	<input type="checkbox"/>	<input type="checkbox"/>
The bracket shall fit a 2 3/8” to 4 1/2” round pole, square wood post or wall mount.	<input type="checkbox"/>	<input type="checkbox"/>
The hardware needed to mount the bracket to the cabinet shall be stainless steel and included.	<input type="checkbox"/>	<input type="checkbox"/>
The hardware needed to mount to the bracket to a pole will be included:		
• Stainless steel U-bolts for round pole mount	<input type="checkbox"/>	<input type="checkbox"/>
• Lag bolts for square wood mount	<input type="checkbox"/>	<input type="checkbox"/>
There shall be 2 brackets per cabinet.	<input type="checkbox"/>	<input type="checkbox"/>
The dimensions of the bracket shall not exceed 7”W x 7.2”H x 0.7”D.	<input type="checkbox"/>	<input type="checkbox"/>

1F – Controller

The controller shall be an IBM® Workload Scheduler controller.	<input type="checkbox"/>	<input type="checkbox"/>
The controller shall be 6V and 12VDC with a power indicator light.	<input type="checkbox"/>	<input type="checkbox"/>
The controller shall have 2 digital inputs.	<input type="checkbox"/>	<input type="checkbox"/>
The controller shall have 2 two-channel outputs (able to drive two warnings per output).	<input type="checkbox"/>	<input type="checkbox"/>
The controller shall be programmable locally using a serial input (RS232) or remotely using a cellular modem.	<input type="checkbox"/>	<input type="checkbox"/>
The controller shall have 24/7, Dusk ‘til Dawn, BlinkLink® Scheduling, Time Clock, and Custom input program activation options.	<input type="checkbox"/>	<input type="checkbox"/>
The Controller shall have LED-Warning Control compatibility with BlinkerSign®, BlinkerBeacon™, and RRFB-XL2™.	<input type="checkbox"/>	<input type="checkbox"/>
The controller shall have dimmable which will be:		
• Auto-adjustable via solar panel (6V systems)	<input type="checkbox"/>	<input type="checkbox"/>
• Auto-adjustable via photocell sensor (12V systems)	<input type="checkbox"/>	<input type="checkbox"/>
The controller shall include an internal system clock (with on-board battery backup) and provide options for activation scheduling, including user-programmable adjustments for Daylight Saving Time.	<input type="checkbox"/>	<input type="checkbox"/>

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, AS SPECIFIED OR EQUAL (CONT’D)

COMPLIANCE
YES **NO**

OPTIONS: (CONT’D)

1F – Controller (Cont’d)

The controller shall be capable of automatic brightness control.

The controller shall include an internal temperature monitor.

The controller shall be capable of operation within the temperature range of -40°F to 176°F (-40°C to 80°C).

The controller enclosure shall be conform to an Ingress Protection rating of IP-67 or better.

The dimensions of the controller enclosure shall not exceed 3.2”W x 3.7”H x 2.5”D.

1G – Wireless Radio

The sign assembly shall include a BlinkerBeam® wireless radio for interconnectivity.

The radio shall be 6V and 12VDC with a power indicator light.

The radio shall have 1 digital input, micro USB.

The radio shall have 2 digital output lines, host serial lines for over the air serial.

The radio shall be programmable locally using USB port or front-mounted joystick.

The radio shall have a backlit LCD display with 4 lines at 21 characters per line.

The radio types for this radio shall be:

- Low Power Device Radio.
- Low Power Activation Radio.
- Standard Low Power Radio.
- Standard Medium Power Radio.
- Standard High Power Radio.

The radio shall have a connectivity to up to 16 devices on one network.

The frequency of the radio shall be license free 900 MHz frequency hopping spread spectrum with 10 different RF patterns to prevent interference between collocated radio systems.

The radio shall have a range up to 900 feet standard, or longer with optional antennas.

The color of the status LEDs shall be red, green, yellow, and amber.

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, AS SPECIFIED OR EQUAL (CONT’D)

COMPLIANCE
YES **NO**

OPTIONS: (CONT’D)

1G – Wireless Radio (Cont’d)

The radio shall be FCC and ISED compliant.

The radio shall have optional outdoor antennas:

- Omni Whip
- Omni Dome
- Omni Base Station
- Yagi (for specific applications)

The radio shall operate in temperatures ranging from -40°F to 176°F (-40°C to 80°C) and in less than 90% relative humidity.

The dimensions of the radio shall not exceed 3.2”W x 3.7”H x 2.5”D.

1H – Solar Panel

The solar panel shall be 55W.

The nominal voltage shall be 12V.

The open circuit voltage shall be 22.1V.

The short circuit current shall be 3.31A.

The maximum power voltage shall be 18.18V.

The maximum power current shall be 3.1A.

The solar panel shall have tempered glass.

The frame shall be anodized aluminum.

The solar panel shall be constructed with silicon cells encapsulated in double-layer EVA with a white polymer backing.

The solar panel shall weigh 14 lbs.

The solar panel shall be IP67 rated.

The solar panel shall have various options available for mounting hardware.

The operating temperature shall be -40°F to 194°F (-40°C to 90°C).

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, AS SPECIFIED OR EQUAL (CONT’D)

COMPLIANCE**YES** **NO****OPTIONS: (CONT'D)****1H – Solar Panel (Cont'd)**

The dimensions of the solar panel shall not exceed 25"W x 26"H x 1.5"D.

1I – Top-Of-Pole Bracket

The bracket shall be aluminum.

The bracket shall fit a 4 ½" or 3" round pole.

The brackets hardware shall be set screws.

1J – Side-Of-Pole Bracket

The bracket shall be aluminum.

The bracket is universal.

The bracket shall have mounting hardware that includes banding, U-Bolt, or bolt.

1K – Battery

The voltage of the battery shall be 12V.

The capacity at C/100 shall be 50Ah.

The vent of the battery shall be valve regulated.

The terminal type shall be I6.

The battery shall be non-spillable as defined by the Department of Transportation, International Commercial Airline Organization and International Airline Transport Association definitions.

The battery weight shall not exceed 32.23 lbs.

The dimensions of the battery shall not exceed 7.75"L x 6.49"W x 6.69"H.

The battery shall operate in a temperature range of -40°F to 176°F (-40°C to 80°C).

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30" X 36", AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE**YES** **NO****OPTIONS: (CONT'D)****1L – Radar Detection**

The power input shall be 6 to 18V DC.	<input type="checkbox"/>	<input type="checkbox"/>
The icc@ 12V DC shall be 4.5 mA (0.054 watts).	<input type="checkbox"/>	<input type="checkbox"/>
The radar RF out shall be 5 mW maximum.	<input type="checkbox"/>	<input type="checkbox"/>
The radar F center shall be 24.125 GHz or 24.200 GHz.	<input type="checkbox"/>	<input type="checkbox"/>
The pickup distance shall be up to 300 feet.	<input type="checkbox"/>	<input type="checkbox"/>
The beam angle shall be 38° x 45°.	<input type="checkbox"/>	<input type="checkbox"/>
The operating temperature shall be -40°F to 185°F (-40°C to 85°C).	<input type="checkbox"/>	<input type="checkbox"/>
The beam polarization shall be linear.	<input type="checkbox"/>	<input type="checkbox"/>
The serial port shall be RS232.	<input type="checkbox"/>	<input type="checkbox"/>
The FCC ID shall be TIASS300.	<input type="checkbox"/>	<input type="checkbox"/>
The dimensions of the radar shall not exceed 1.9"W x 2.1"H x 0.9"D	<input type="checkbox"/>	<input type="checkbox"/>

1M – Heavy Duty Pole Package With Anchor Bolts

The domed pole cap shall be:

- | | | |
|---|--------------------------|--------------------------|
| • Cast Aluminum | <input type="checkbox"/> | <input type="checkbox"/> |
| • Zinc Plated | <input type="checkbox"/> | <input type="checkbox"/> |
| • Fits 4 ½" outer diameter pole | <input type="checkbox"/> | <input type="checkbox"/> |
| • (3X) ¼" x ½" square head machine screws | <input type="checkbox"/> | <input type="checkbox"/> |

The mounting brackets shall have:

- | | | |
|---|--------------------------|--------------------------|
| • (2X) Z-bracket single sided round pole mounting bracket made of aluminum. | <input type="checkbox"/> | <input type="checkbox"/> |
| • (2X) 5/16" x 5/8" bolt and nut set. | <input type="checkbox"/> | <input type="checkbox"/> |
| • (2X) 5/16" x 1 ¾" bolt and nut set. | <input type="checkbox"/> | <input type="checkbox"/> |

The round aluminum pole shall be: (10' 373-10, 13' 373-13, 15' 373-15)

- | | | |
|------------------------------|--------------------------|--------------------------|
| • Schedule 40 aluminum pole. | <input type="checkbox"/> | <input type="checkbox"/> |
| • 4 ¼" outer diameter | <input type="checkbox"/> | <input type="checkbox"/> |
| • One end threaded | <input type="checkbox"/> | <input type="checkbox"/> |

ITEM #1 – SOLAR CHEVRON RADAR SIGN, 30" X 36", AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE
YES **NO**

OPTIONS: (CONT'D)

1M – Heavy Duty Pole Package With Anchor Bolts (Cont'd)

The pedestal base shall be:

- | | | |
|--|--------------------------|--------------------------|
| • Cast Aluminum | <input type="checkbox"/> | <input type="checkbox"/> |
| • Threaded Collar | <input type="checkbox"/> | <input type="checkbox"/> |
| • Have an aluminum access door. | <input type="checkbox"/> | <input type="checkbox"/> |
| • FHWA Certified | <input type="checkbox"/> | <input type="checkbox"/> |
| • Meets or exceeds AASHTO break-away requirements. | <input type="checkbox"/> | <input type="checkbox"/> |

The bent anchor bolt shall be:

- | | | |
|--|--------------------------|--------------------------|
| • (4X) 3/4" x 18", galvanized steel bent anchor (foundation bolt), nut and washer (for frost free areas). | <input type="checkbox"/> | <input type="checkbox"/> |
| • (4X) 1" x 42", galvanized steel bent anchor (foundation bolt), nut and washer (for frost or snow-covered areas). | <input type="checkbox"/> | <input type="checkbox"/> |

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30" X 36", RUGGEDIZED, AS SPECIFIED OR EQUAL

COMPLIANCE**YES** **NO****DESCRIPTION:**

Ruggedized solar-powered sign assembly which alerts traffic to upcoming roadway curvature, including illuminated LEDs activated via radar detection.

SIGN ASSEMBLY:

Sign assembly shall be compatible with TAPCO® BlinkerSign interconnectivity.

Sign assembly shall conform to TAPCO-Integrated Blinkersign® - Ruggedized specifications or equal and shall conform to TAPCO® drawing number 30R011 except the sign size shall be 30" W x 36" H.

Sign shall conform to Section 2A.08 of the Manual on Uniform Traffic Control Devices for Streets and Highways 2009 Edition (MUTCD), as it relates to retroreflectivity and illumination.

Sign face shall conform to designation W1-8L or W1-8R as described in Section 2C.09 of the MUTCD, except for 10 holes situated along the outline of the black chevron, of a size and shape appropriate for the display of light-emitting diodes (LEDs).

Sign shall measure 30" W x 36" H in accordance with MUTCD Table 2C-2.

Sign substrate shall consist of extra thick 0.10" aluminum front plate and standard 0.080" aluminum back plate. An extra thick 0.750" HDPE substrate with routed enclosure channels High Density Polyethylene substrate shall be between the front and back plates.

Sheeting used shall be 3M DG3 diamond grade, or approved equal, with anti-graffiti overlay.

Sign shall have environmentally sealed, high power 1 watt LEDs which have a life expectancy of 100,000 hours.

Sign assembly shall include an LED string with 10 amber LEDs and 18" leads, fastened to the rear of the sign blank with aluminum wire channels, arranged in such a way that each LED can be seen through its own hole in the sign blank. This arrangement shall conform to TAPCO® drawing number 30R011.

All electronic wiring shall be protected with liquid-tight conduit, and all connections shall conform to an Ingress Protection rating of IP-65 or better.

Sign shall be visible for more than 1,000 feet in the daytime and for more than 1 mile in the nighttime.

Sign shall have Z-bar standard, single post and double post mounting brackets.

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30" X 36", RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE**YES** **NO****SIGN ASSEMBLY: (CONT'D)**

Sign shall be capable of operating in temperature that range from -40°F to 122°F (-40°C to 50°C).

CABINET:

NEMA 3R type certification.

The cabinet shall be made of 0.080" aluminum.

The cabinet shall have two tamper-resistant stainless steel hinges.

The cabinet shall have four stainless steel studs for various mounting bracket options including banding, U-bolt, wall-mount, square pole, and wood post.

The cabinet shall have replaceable #2 traffic lock with keys.

The cabinet shall have screened vents on the side and door.

The cabinet shall have screened drainage holes on the bottom.

The cabinet shall have UV resistant labels applied to the exterior of the cabinet outlining model number, serial number, and date of manufacture, as well as any applicable regulatory information.

All circuit components of the cabinet are attached or connected to a removable control panel for maintenance.

The cabinet shall have a door mounted pouch containing system documents.

The enclosure dimensions of the cabinet shall not exceed 12.5"W x 15"H x 9.9"D.

ROUND POLE BANDING BRACKET:

The bracket shall be made of aluminum.

The bracket shall fit 2 3/8" and larger, round poles.

The hardware needed to mount the bracket to the cabinet shall be stainless steel and included.

The hardware needed to mount to the bracket to a pole shall be banding up to 3/4" width (customer supplied). Worm drive clamp shall be included to assist in installation.

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30" X 36", RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE**YES** **NO****ROUND POLE BANDING BRACKET: (CONT'D)**

There shall be 2 brackets per cabinet.

The dimensions of the bracket shall not exceed 6.8"W x 3.7"H x 1.1"D.

SQUARE POLE BOLT-THROUGH BRACKET:

The bracket shall be made of aluminum.

The bracket shall fit 2" to 6" square poles.

The hardware needed to mount the bracket to the cabinet shall be stainless steel and included.

There shall be 2 brackets per cabinet.

MULTI-PURPOSE BRACKET:

The bracket shall be made of aluminum.

The bracket shall fit a 2 3/8" to 4 1/2" round pole, square wood post or wall mount.

The hardware needed to mount the bracket to the cabinet shall be stainless steel and included.

The hardware needed to mount to the bracket to a pole will be included:

- Stainless steel U-bolts for round pole mount
- Lag bolts for square wood mount

There shall be 2 brackets per cabinet.

The dimensions of the bracket shall not exceed 7"W x 7.2"H x 0.7"D.

CONTROLLER:

The controller shall be an IBM® Workload Scheduler controller.

The controller shall be 6V and 12VDC with a power indicator light.

The controller shall have 2 digital inputs.

The controller shall have 2 two-channel outputs (able to drive two warnings per output).

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30" X 36", RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE**YES** **NO****CONTROLLER: (CONT'D)**

The controller shall be programmable locally using a serial input (RS232) or remotely using a cellular modem.

The controller shall have 24/7, Dusk 'til Dawn, BlinkLink® Scheduling, Time Clock, and Custom input program activation options.

The Controller shall have LED-Warning Control compatibility with BlinkerSign®, BlinkerBeacon™, and RRFB-XL2™.

The controller shall have dimmable which will be:

- Auto-adjustable via solar panel (6V systems)
- Auto-adjustable via photocell sensor (12V systems)

The controller shall include an internal system clock (with on-board battery backup) and provide options for activation scheduling, including user-programmable adjustments for Daylight Saving Time.

The controller shall be capable of automatic brightness control.

The controller shall include an internal temperature monitor.

The controller shall be capable of operation within the temperature range of -40°F to 176°F (-40°C to 80°C).

The controller enclosure shall be conform to an Ingress Protection rating of IP-67 or better.

The dimensions of the controller enclosure shall not exceed 3.2"W x 3.7"H x 2.5"D.

 WIRELESS RADIO:

The sign assembly shall include a BlinkerBeam® wireless radio for interconnectivity.

The radio shall be 6V and 12VDC with a power indicator light.

The radio shall have 1 digital input, micro USB.

The radio shall have 2 digital output lines, host serial lines for over the air serial.

The radio shall be programmable locally using USB port or front-mounted joystick.

The radio shall have a backlit LCD display with 4 lines at 21 characters per line.

 ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30" X 36", RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE
YES **NO**

WIRELESS RADIO: (CONT'D)

The radio types for this radio shall be:

- Low Power Device Radio.
- Low Power Activation Radio.
- Standard Low Power Radio.
- Standard Medium Power Radio.
- Standard High Power Radio.

The radio shall have a connectivity to up to 16 devices on one network.

The frequency of the radio shall be license free 900 MHz frequency hopping spread spectrum with 10 different RF patterns to prevent interference between collocated radio systems.

The radio shall have a range up to 900 feet standard, or longer with optional antennas.

The color of the status LEDs shall be red, green, yellow, and amber.

The radio shall be FCC and ISED compliant.

The radio shall have optional outdoor antennas:

- Omni Whip
- Omni Dome
- Omni Base Station
- Yagi (for specific applications)

The radio shall operate in temperatures ranging from -40°F to 176°F (-40°C to 80°C) and in less than 90% relative humidity.

The dimensions of the radio shall not exceed 3.2"W x 3.7"H x 2.5"D.

SOLAR PANEL:

The solar panel shall be 55W.

The nominal voltage shall be 12V.

The open circuit voltage shall be 22.1V.

The short circuit current shall be 3.31A.

The maximum power voltage shall be 18.18V.

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30" X 36", RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE**YES** **NO****SOLAR PANEL: (CONT'D)**

The maximum power current shall be 3.1A.	<input type="checkbox"/>	<input type="checkbox"/>
The solar panel shall have tempered glass.	<input type="checkbox"/>	<input type="checkbox"/>
The frame shall be anodized aluminum.	<input type="checkbox"/>	<input type="checkbox"/>
The solar panel shall be constructed with silicon cells encapsulated in double-layer EVA with a white polymer backing.	<input type="checkbox"/>	<input type="checkbox"/>
The solar panel shall weigh 14 lbs.	<input type="checkbox"/>	<input type="checkbox"/>
The solar panel shall be IP67 rated.	<input type="checkbox"/>	<input type="checkbox"/>
The solar panel shall have various options available for mounting hardware.	<input type="checkbox"/>	<input type="checkbox"/>
The operating temperature shall be -40°F to 194°F (-40°C to 90°C).	<input type="checkbox"/>	<input type="checkbox"/>
The dimensions of the solar panel shall not exceed 25"W x 26"H x 1.5"D.	<input type="checkbox"/>	<input type="checkbox"/>

TOP-OF-POLE BRACKET:

The bracket shall be aluminum.	<input type="checkbox"/>	<input type="checkbox"/>
The bracket shall fit a 4 ½" or 3" round pole.	<input type="checkbox"/>	<input type="checkbox"/>
The brackets hardware shall be set screws.	<input type="checkbox"/>	<input type="checkbox"/>

SIDE-OF-POLE BRACKET:

The bracket shall be aluminum.	<input type="checkbox"/>	<input type="checkbox"/>
The bracket is universal.	<input type="checkbox"/>	<input type="checkbox"/>
The bracket shall have mounting hardware that includes banding, U-Bolt, or bolt.	<input type="checkbox"/>	<input type="checkbox"/>

BATTERY:

The voltage of the battery shall be 12V.	<input type="checkbox"/>	<input type="checkbox"/>
The capacity at C/100 shall be 50Ah.	<input type="checkbox"/>	<input type="checkbox"/>
The vent of the battery shall be valve regulated.	<input type="checkbox"/>	<input type="checkbox"/>
The terminal type shall be I6.	<input type="checkbox"/>	<input type="checkbox"/>

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30" X 36", RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE

YES **NO**

BATTERY: (CONT'D)

The battery shall be non-spillable as defined by the Department of Transportation, International Commercial Airline Organization and International Airline Transport Association definitions.

The battery weight shall not exceed 32.23 lbs.

The dimensions of the battery shall not exceed 7.75”L x 6.49”W x 6.69”H.

The battery shall operate in a temperature range of -40°F to 176°F (-40°C to 80°C).

RADAR DETECTION:

The power input shall be 6 to 18V DC.

The icc@ 12V DC shall be 4.5 mA (0.054 watts).

The radar RF out shall be 5 mW maximum.

The radar F center shall be 24.125 GHz or 24.200 GHz.

The pickup distance shall be up to 300 feet.

The beam angle shall be 38° x 45°.

The operating temperature shall be -40°F to 185°F (-40°C to 85°C).

The beam polarization shall be linear.

The serial port shall be RS232.

The FCC ID shall be TIASS300.

The dimensions of the radar shall not exceed 1.9”W x 2.1”H x 0.9”D

HEAVY DUTY POLE PACKAGE WITH ANCHOR BOLTS:

The domed pole cap shall be:

- Cast Aluminum
- Zinc Plated
- Fits 4 ½” outer diameter pole
- (3X) ¼” x ½” square head machine screws

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE
YES **NO**

HEAVY DUTY POLE PACKAGE WITH ANCHOR BOLTS: (CONT'D)

The mounting brackets shall have:

- (2X) Z-bracket single sided round pole mounting bracket made of aluminum.
- (2X) 5/16" x 5/8" bolt and nut set.
- (2X) 5/16" x 1 3/4" bolt and nut set.

The round aluminum pole shall be: (10' 373-10, 13' 373-13, 15' 373-15)

- Schedule 40 aluminum pole.
- 4 1/4" outer diameter
- One end threaded

The pedestal base shall be:

- Cast Aluminum
- Threaded Collar
- Have an aluminum access door.
- FHWA Certified
- Meets or exceeds AASHTO break-away requirements.

The bent anchor bolt shall be:

- (4X) 3/4" x 18", galvanized steel bent anchor (foundation bolt), nut and washer (for frost free areas).
- (4X) 1" x 42", galvanized steel bent anchor (foundation bolt), nut and washer (for frost or snow-covered areas).

OPTIONS:

2A – Sign Assembly

Sign assembly shall be compatible with TAPCO® BlinkerSign interconnectivity.

Sign assembly shall conform to TAPCO-Integrated Blinkersign® - Ruggedized specifications or equal and shall conform to TAPCO® drawing number 30R011 except the sign size shall be 30" W x 36" H.

Sign shall conform to Section 2A.08 of the Manual on Uniform Traffic Control Devices for Streets and Highways 2009 Edition (MUTCD), as it relates to retroreflectivity and illumination.

Sign face shall conform to designation W1-8L or W1-8R as described in Section 2C.09 of the MUTCD, except for 10 holes situated along the outline of the black chevron, of a size and shape appropriate for the display of light-emitting diodes (LEDs).

Sign shall measure 30" W x 36" H in accordance with MUTCD Table 2C-2.

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30" X 36", RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE
YES **NO**

OPTIONS:

2A – Sign Assembly (Cont’d)

Sign substrate shall consist of extra thick 0.10” aluminum front plate and standard 0.080” aluminum back plate. An extra thick 0.750” HDPE substrate with routed enclosure channels High Density Polyethylene substrate shall be between the front and back plates.

Sheeting used shall be 3M DG3 diamond grade, or approved equal, with anti-graffiti overlay.

Sign shall have environmentally sealed, high power 1 watt LEDs which have a life expectancy of 100,000 hours.

Sign assembly shall include an LED string with 10 amber LEDs and 18” leads, fastened to the rear of the sign blank with aluminum wire channels, arranged in such a way that each LED can be seen through its own hole in the sign blank. This arrangement shall conform to TAPCO® drawing number 30R011.

All electronic wiring shall be protected with liquid-tight conduit, and all connections shall conform to an Ingress Protection rating of IP-65 or better.

Sign shall be visible for more than 1,000 feet in the daytime and for more than 1 mile in the nighttime.

Sign shall have Z-bar standard, single post and double post mounting brackets.

Sign shall be capable of operating in temperature that range from -40°F to 122°F (-40°C to 50°C).

2B – Cabinet

NEMA 3R type certification.

The cabinet shall be made of 0.080” aluminum.

The cabinet shall have two tamper-resistant stainless steel hinges.

The cabinet shall have four stainless steel studs for various mounting bracket options including banding, U-bolt, wall-mount, square pole, and wood post.

The cabinet shall have replaceable #2 traffic lock with keys.

The cabinet shall have screened vents on the side and door.

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT’D)

COMPLIANCE

YES **NO**

OPTIONS: (CONT'D)

2B – Cabinet (Cont'd)

The cabinet shall have screened drainage holes on the bottom.

The cabinet shall have UV resistant labels applied to the exterior of the cabinet outlining model number, serial number, and date of manufacture, as well as any applicable regulatory information.

All circuit components of the cabinet are attached or connected to a removable control panel for maintenance.

The cabinet shall have a door mounted pouch containing system documents.

The enclosure dimensions of the cabinet shall not exceed 12.5”W x 15”H x 9.9”D.

2C – Round Pole Banding Bracket

The bracket shall be made of aluminum.

The bracket shall fit 2 3/8” and larger, round poles.

The hardware needed to mount the bracket to the cabinet shall be stainless steel and included.

The hardware needed to mount to the bracket to a pole shall be banding up to 3/4” width (customer supplied). Worm drive clamp shall be included to assist in installation.

There shall be 2 brackets per cabinet.

The dimensions of the bracket shall not exceed 6.8”W x 3.7”H x 1.1”D.

2D – Square Pole Bolt-Through Bracket

The bracket shall be made of aluminum.

The bracket shall fit 2” to 6” square poles.

The hardware needed to mount the bracket to the cabinet shall be stainless steel and included.

There shall be 2 brackets per cabinet.

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE

YES **NO****OPTIONS: (CONT'D)****2E – Multi-Purpose Bracket**

The bracket shall be made of aluminum. YES NO

The bracket shall fit a 2 3/8" to 4 1/2" round pole, square wood post or wall mount. YES NO

The hardware needed to mount the bracket to the cabinet shall be stainless steel and included. YES NO

The hardware needed to mount to the bracket to a pole will be included:

- Stainless steel U-bolts for round pole mount YES NO
- Lag bolts for square wood mount YES NO

There shall be 2 brackets per cabinet. YES NO

The dimensions of the bracket shall not exceed 7"W x 7.2"H x 0.7"D. YES NO

2F – Controller

The controller shall be an IBM® Workload Scheduler controller. YES NO

The controller shall be 6V and 12VDC with a power indicator light. YES NO

The controller shall have 2 digital inputs. YES NO

The controller shall have 2 two-channel outputs (able to drive two warnings per output). YES NO

The controller shall be programmable locally using a serial input (RS232) or remotely using a cellular modem. YES NO

The controller shall have 24/7, Dusk 'til Dawn, BlinkLink® Scheduling, Time Clock, and Custom input program activation options. YES NO

The Controller shall have LED-Warning Control compatibility with BlinkerSign®, BlinkerBeacon™, and RRFB-XL2™. YES NO

The controller shall have dimmable which will be:

- Auto-adjustable via solar panel (6V systems) YES NO
- Auto-adjustable via photocell sensor (12V systems) YES NO

The controller shall include an internal system clock (with on-board battery backup) and provide options for activation scheduling, including user-programmable adjustments for Daylight Saving Time. YES NO

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30" X 36", RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)**COMPLIANCE**

YES **NO****OPTIONS: (CONT'D)****2F – Controller (Cont'd)**

The controller shall be capable of automatic brightness control.

The controller shall include an internal temperature monitor.

The controller shall be capable of operation within the temperature range of -40°F to 176°F (-40°C to 80°C).

The controller enclosure shall be conform to an Ingress Protection rating of IP-67 or better.

The dimensions of the controller enclosure shall not exceed 3.2"W x 3.7"H x 2.5"D.

2G – Wireless Radio

The sign assembly shall include a BlinkerBeam® wireless radio for interconnectivity.

The radio shall be 6V and 12VDC with a power indicator light.

The radio shall have 1 digital input, micro USB.

The radio shall have 2 digital output lines, host serial lines for over the air serial.

The radio shall be programmable locally using USB port or front-mounted joystick.

The radio shall have a backlit LCD display with 4 lines at 21 characters per line.

The radio types for this radio shall be:

- Low Power Device Radio.
- Low Power Activation Radio.
- Standard Low Power Radio.
- Standard Medium Power Radio.
- Standard High Power Radio.

The radio shall have a connectivity to up to 16 devices on one network.

The frequency of the radio shall be license free 900 MHz frequency hopping spread spectrum with 10 different RF patterns to prevent interference between collocated radio systems.

The radio shall have a range up to 900 feet standard, or longer with optional antennas.

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30" X 36", RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)**COMPLIANCE**

YES **NO**

OPTIONS: (CONT'D)

2G – Wireless Radio (Cont'd)

- The color of the status LEDs shall be red, green, yellow, and amber.
- The radio shall be FCC and ISED compliant.
- The radio shall have optional outdoor antennas:
 - Omni Whip
 - Omni Dome
 - Omni Base Station
 - Yagi (for specific applications)
- The radio shall operate in temperatures ranging from -40°F to 176°F (-40°C to 80°C) and in less than 90% relative humidity.
- The dimensions of the radio shall not exceed 3.2”W x 3.7”H x 2.5”D.

2H – Solar Panel

- The solar panel shall be 55W.
- The nominal voltage shall be 12V.
- The open circuit voltage shall be 22.1V.
- The short circuit current shall be 3.31A.
- The maximum power voltage shall be 18.18V.
- The maximum power current shall be 3.1A.
- The solar panel shall have tempered glass.
- The frame shall be anodized aluminum.
- The solar panel shall be constructed with silicon cells encapsulated in double-layer EVA with a white polymer backing.
- The solar panel shall weigh 14 lbs.
- The solar panel shall be IP67 rated.
- The solar panel shall have various options available for mounting hardware.

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE

YES **NO**

OPTIONS: (CONT'D)

2H – Solar Panel (Cont'd)

The operating temperature shall be -40°F to 194°F (-40°C to 90°C).

The dimensions of the solar panel shall not exceed 25”W x 26”H x 1.5”D.

2I – Top-Of-Pole Bracket

The bracket shall be aluminum.

The bracket shall fit a 4 ½” or 3” round pole.

The brackets hardware shall be set screws.

2J – Side-Of-Pole Bracket

The bracket shall be aluminum.

The bracket is universal.

The bracket shall have mounting hardware that includes banding, U-Bolt, or bolt.

2K – Battery

The voltage of the battery shall be 12V.

The capacity at C/100 shall be 50Ah.

The vent of the battery shall be valve regulated.

The terminal type shall be I6.

The battery shall be non-spillable as defined by the Department of Transportation, International Commercial Airline Organization and International Airline Transport Association definitions.

The battery weight shall not exceed 32.23 lbs.

The dimensions of the battery shall not exceed 7.75”L x 6.49”W x 6.69”H.

The battery shall operate in a temperature range of -40°F to 176°F (-40°C to 80°C).

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30” X 36”, RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE

YES **NO**

OPTIONS: (CONT'D)

2L – Radar Detection

- The power input shall be 6 to 18V DC.
- The icc@ 12V DC shall be 4.5 mA (0.054 watts).
- The radar RF out shall be 5 mW maximum.
- The radar F center shall be 24.125 GHz or 24.200 GHz.
- The pickup distance shall be up to 300 feet.
- The beam angle shall be 38° x 45°.
- The operating temperature shall be -40°F to 185°F (-40°C to 85°C).
- The beam polarization shall be linear.
- The serial port shall be RS232.
- The FCC ID shall be TIASS300.
- The dimensions of the radar shall not exceed 1.9"W x 2.1"H x 0.9"D

2M – Heavy Duty Pole Package With Anchor Bolts

- The domed pole cap shall be:
- Cast Aluminum
 - Zinc Plated
 - Fits 4 ½" outer diameter pole
 - (3X) ¼" x ½" square head machine screws
- The mounting brackets shall have:
- (2X) Z-bracket single sided round pole mounting bracket made of aluminum.
 - (2X) 5/16" x 5/8" bolt and nut set.
 - (2X) 5/16" x 1 ¾" bolt and nut set.
- The round aluminum pole shall be: (10' 373-10, 13' 373-13, 15' 373-15)
- Schedule 40 aluminum pole.
 - 4 ¼" outer diameter
 - One end threaded

ITEM #2 – SOLAR CHEVRON RADAR SIGN, 30" X 36", RUGGEDIZED, AS SPECIFIED OR EQUAL (CONT'D)

COMPLIANCE

YES **NO**

OPTIONS: (CONT'D)

2M – Heavy Duty Pole Package With Anchor Bolts (Cont'd)

The pedestal base shall be:

- | | | |
|--|--------------------------|--------------------------|
| • Cast Aluminum | <input type="checkbox"/> | <input type="checkbox"/> |
| • Threaded Collar | <input type="checkbox"/> | <input type="checkbox"/> |
| • Have an aluminum access door. | <input type="checkbox"/> | <input type="checkbox"/> |
| • FHWA Certified | <input type="checkbox"/> | <input type="checkbox"/> |
| • Meets or exceeds AASHTO break-away requirements. | <input type="checkbox"/> | <input type="checkbox"/> |

The bent anchor bolt shall be:

- | | | |
|--|--------------------------|--------------------------|
| • (4X) 3/4" x 18", galvanized steel bent anchor (foundation bolt), nut and washer (for frost free areas). | <input type="checkbox"/> | <input type="checkbox"/> |
| • (4X) 1" x 42", galvanized steel bent anchor (foundation bolt), nut and washer (for frost or snow-covered areas). | <input type="checkbox"/> | <input type="checkbox"/> |

ITEM #3 – CURVE WARNING SYSTEM, AS SPECIFIED OR EQUAL

COMPLIANCE
YES **NO**

DESCRIPTION:

Solar powered chevron sign retrofit that outlines the standard chevron sign legend with LEDs.

SIGN RETROFIT:

Sign retrofit shall conform to TrafficCalm® Curve Warning System, Flashing Sign System.

FLUSH MOUNT LED FLASHER RINGS:

Size – Standard Chevron Legend Size for 30” x 36” sign size. Reference MUTCD. 0.08” 5052 grade, black powder coated aluminum.

Mounting – Bolt-Mounting directly to sign and post.

LEDs – Amber (590 nM): 15 degree cone view; Rated 100,000 hours; 2.4K CDA/M², Auto Dimming Employed

Power – 10V to 18V, OW standby or OFF (No power required)

Flash Patterns – 50 – 60 flashes per minute; 50% Duty Cycle. Additional alternative flash patterns available and are user programmable.

Dimming – 100 levels as determined by solar panel illumination or light sensor (AC).

RADAR:

3.75” W X 2.5” H X 2.25” D

Weatherproof NEMA 4 enclosure.

K-band (24.15GHz)

Average Range – 1,000’ / 305m

CONTROLLER / COLLABATOR UNIT – SOLAR:

Weight with Battery – 20W = 25 lbs (11.3 kg) 30 Watt = 28 lbs (12.7 kg) excluding poles

Voltage – 12VDC Nominal

Charger – Smart solar charger 14.6VDC, 28W temperature protected

ITEM #3 – CURVE WARNING SYSTEM, AS SPECIFIED OR EQUAL

COMPLIANCE
YES **NO**

CONTROLLER / COLLABATOR UNIT – SOLAR: (CONT'D)

Communications – Wireless Meshnet integration (device 2 device, +1,000ft range, repeatable signal, configurable network ID, AES-128 Encryption security, DSSS transmission on selectable channels)

Battery Reserve – 28 days at standard load (standard load = 25% activations per day with a single flasher ring) with no sunlight

Isolation Required – 2 hours of good sunlight each day at standard load

Panel Supplied – 20W, 30W, 50W, and 60W available

Outputs – 2 chevrons at 10W each

Enclosure Rating – NEMA 4

Mounting – Universal Pole Mount included (Optional Top of Pole and Side of Pole extension mounts available)

SYSTEM OPERATING TEMPERATURE RANGE:

Components: -40°C to +74°C

Battery: -40°C to +60°C (Low Temp “E” Variation required)