

STATE OF MICHIGAN
 DEPARTMENT OF MANAGEMENT AND BUDGET
 ACQUISITION SERVICES
 P.O. BOX 30026, LANSING, MI 48909
 OR
 530 W. ALLEGAN, LANSING, MI 48933

May 14, 2008

CHANGE NOTICE NO. 1
OF
CONTRACT NO. 071B420007
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF VENDOR High Leah Electronics, Inc. DBA/Diamond Traffic Products P.O. Box 1455 Oakridge, OR 97463 sales@diamondtraffic.com	TELEPHONE (503) 782-3903 Guy Gibson
	VENDOR NUMBER/MAIL CODE
	BUYER (517) 373-0305 Jeffrey A. White, Buyer Manager
Contract Administrator Portable Traffic Counter Classifier – MDOT/Electronics Services Unit	
CONTRACT PERIOD: From: October 1, 2003 To: September 30, 2009	
TERMS Net	SHIPMENT 30 days ARO
F.O.B. Delivered	SHIPPED FROM Oakridge, OR
MINIMUM DELIVERY REQUIREMENTS One Unit	

THIS CONTRACT IS EXTENDED TO LOCAL UNITS OF GOVERNMENT.

NATURE OF CHANGE:

This Contract is hereby **EXTENDED** by Execution of option terms provided within the Contract to **September 30, 2009**.

The price of the equipment has been changed as follows:

The UNIL-4RT W/Solar, Unicorn Limited – 4 Road Tubes with Solar Panel Unit has changed from \$452.00 each to \$483.25 each.

Unit still includes all required items:
 Unicorn LTD KD 4RT, Limited Classifier (keyboard/display) 4 Road Tubes
 Solar Panel – UNIL, Add Solar Panel to Unicorn LTB/Apollo
 8.5 MEG of RAM from 512K to UNIL/APL

All other terms and conditions remain the same.

AUTHORITY/REASON:

Per Vendor contact (Beth Ann Ritz) by letter dated April 11, 2008, Agency contact (Rick Dolan) and DMB Purchasing Operations agreement.

INCREASE: \$241,625.00

TOTAL REVISED ESTIMATED CONTRACT VALUE: \$512,625.00

STATE OF MICHIGAN
DEPARTMENT OF MANAGEMENT AND BUDGET
ACQUISITION SERVICES
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

November 17, 2003

NOTICE
OF
CONTRACT NO. 071B420007
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF VENDOR High Leah Electronics, Inc. DBA/Diamond Traffic Products P.O. Box 1455 Oakridge, OR 97463	TELEPHONE (503) 782-3903 Guy Gibson
	VENDOR NUMBER/MAIL CODE
	BUYER (517) 241-2619 Duane Cortright, CPPB
Contract Administrator Portable Traffic Counter Classifier – MDOT/Electronics Services Unit	
CONTRACT PERIOD: From: October 1, 2003 To: September 30, 2008	
TERMS Net	SHIPMENT 30 days ARO
F.O.B. Delivered	SHIPPED FROM Oakridge, OR
MINIMUM DELIVERY REQUIREMENTS One Unit	

THIS CONTRACT IS EXTENDED TO LOCAL UNITS OF GOVERNMENT.

The terms and conditions of this Contract are those of **ITB #071I3000115** this Contract Agreement and the vendor's quote dated **April 11, 2003**. In the event of any conflicts between the specifications, terms and conditions indicated by the State and those indicated by the vendor, those of the State take precedence.

Estimated Contract Value: \$ 271,200.00

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Attachments:

- Preference Certification
- Non-State Agency Statement
- Attachment #1 – Vehicle Type Classification
- Attachment #2 – Pneumatic Hose Specification
- Attachment #3 – Count Format
- Attachment #4 – Vehicle Classification
- Attachment #5 – Speed Data Format



SECTION I - GENERAL CONTRACT PROVISIONS

I-A GENERAL

This Contract is for Portable Traffic Counters for the State of Michigan. Exact quantities to be purchased are unknown, however the Contractor will be required to furnish all such materials and services as may be ordered during the CONTRACT period. Quantities specified if any, are estimates based on prior purchases, and the State is not obligated to purchase in these or any other quantities. Orders for delivery will be issued directly to the Contractor by Michigan Department of Transportation on the Purchase Order Contract Release Form.

This Contract is a Unit Price Contract.

Indicated on the Contract cover page is the "ship to" address for the participating agency. However, if the Contractor and the State agree, additional State agencies may participate should the need develop.

I-B ISSUING OFFICE

This Contract is issued by Acquisition Services, State of Michigan, Department of Management and Budget, hereinafter known as Acquisition Services, for the Michigan Department of Transportation, hereinafter known as MDOT. Where actions are a combination of those of Acquisition Services and MDOT, the authority will be known as the State.

Acquisition Services is the sole point of contact in the State with regard to all procurement and contractual matters relating to the commodities and/or services described herein. Acquisition Services is the only office authorized to change, modify, amend, alter, clarify, etc., the specifications, terms, and conditions of the Contract. Acquisition Services will remain the SOLE POINT OF CONTACT throughout the procurement process. All communications covering this procurement must be addressed to:

Department of Management and Budget
Acquisition Services
Attn: Duane S. Cortright, Buyer, CPPB
2nd Floor, Mason Building
P.O. Box 30026
Lansing, Michigan 48909
(517) 241-2619
e-mail: cortrightd1@michigan.gov

**I-C CONTRACT ADMINISTRATOR**

Upon receipt at Acquisition Services of the properly executed Contract Agreement(s), the person named below will be allowed to administer the Contract on a day-to-day basis during the term of the Contract. However, administration of the Contract implies no authority to change, modify, clarify, amend, or otherwise alter the terms, conditions, and specifications of such Contract(s). That authority is retained by Acquisition Services. The Contract Administrator for this project is:

Mary Rutledge
MDOT/Transportation Planning-Electronics Unit
7575 Crowner Drive
Lansing, MI 48909
Ph: 517/322-1497
e-mail: RutledgeM@michigan.gov

I-D CONTRACT TERM

The term of this Contract will be for a five (5) year period and will commence with the issuance of a Contract. This will be approximately October 1, 2003 through September 30, 2008. At the sole option of the State, the Contract may be extended for up to 2 (two) additional years. Contractor performance, quality of products, price, and the Contractor's ability to deliver on time are some of the criteria that will be used as a basis for any decision by Acquisition Services to extend the Contract.

I-E ENTIRE AGREEMENT AND ORDER OF PRECEDENCE

The following documents constitute the complete and exclusive agreement between the parties. The following order of precedence shall apply (in descending order):

- A. Any contract resulting from the State's ITB No. 07113000115.
- B. Any addenda to that ITB.
- C. The Contractor's response to that ITB.

The State of Michigan shall not be bound by any part(s) of the bidder's response to the ITB which contains information, options, conditions, terms, or prices neither requested nor required in the ITB. In the event of any conflicts between the specifications, terms and conditions indicated by the State and those indicated by the Contractor, those of the State take precedence. The contract supercedes all proposals or other prior agreements, oral or written, and all other communications between the parties relating to this subject.

I-F MINIMUM ORDER

It is requested that the minimum order is one (1) complete unit. If the bidder's minimum order requirement is less than one (1) unit, that minimum, which will become the minimum order if a Contract is awarded to the bidder, shall be indicated in the space provided on the attached Item Listing.

**I-G F.O.B. POINT**

Prices shall be quoted "F.O.B. Delivered" with transportation charges prepaid on all orders. Other F.O.B. terms will not be accepted and shall disqualify a bidder from further consideration. This supersedes Instruction #8 on the reverse side of the Invitation To Bid cover page.

Freight Charges - Should an agency order below the minimum order requirement of a Contract, or should a vendor quote F.O.B. Shipping Point on one-time purchases, one of the following carriers must be used by the Contractor for shipping products. Orders being shipped from or to in the State of Michigan or the States of Illinois, Indiana, Ohio, and Wisconsin, use Alvan Motor Freight (Tel: (800) 632-4172, attention Earl Batenburg); orders being shipped from or to ALL other states, use Roadway Express, Inc. (Tel: (800) 253-3193, attention David Lewis).

United Parcel Service (UPS) must be used in instances where the weight of the shipment is less than 150 lbs., or where shipments could be separated into smaller parcels such as three (3) 50 lb. packages. Also if the shipment weighs less than 150 lbs., but costs \$3000 or more, it must be sent by the appropriate carrier listed above.

If the Contractor fails to follow these shipping instructions, the State shall pay the carrier used and deduct the difference from the Contractor's invoice for the amount which was charged and the amount which would have been charged if the requested carrier had been used.

I-H PALLETIZING

Shipments shall be palletized whenever possible and shall conform to the following:

- Manufacturers standard 4-way shipping pallets are acceptable.
- Maximum height: 5'6"; including pallet.
- Maximum weight: 3500 pounds; including pallet.
- Pallets are to be securely banded or shrink-wrapped.
- The cost of palletizing must be included in the unit price.

I-I NO WAIVER OF DEFAULT

The failure of a party to insist upon strict adherence to any term of the Contract shall not be considered a waiver or deprive the party of the right thereafter to insist upon strict adherence to that term or any other term of the Contract.

I-J REVISIONS, CONSENTS, AND APPROVALS

The Contract may not be modified, amended, extended, or augmented except by a writing executed by the parties hereto, and any breach or default by a party shall not be waived or released other than in writing signed by the other party.

I-K SEVERABILITY

Each provision of the Contract shall be deemed to be severable from all other provisions of the Contract and, if one or more of the provisions of the Contract shall be declared invalid, the remaining provisions of the Contract shall remain in full force and effect.

**I-L SURVIVOR**

Any provisions of the Contract that impose continuing obligations on the parties including, but not limited to the Contractor's indemnity and other obligations shall survive the expiration or cancellation of the Contract for any reason.

I-M GOVERNING LAW

The Contract shall in all respects be governed by, and construed in accordance with, the laws of the State of Michigan. Any dispute arising herein shall be resolved in the State of Michigan.

I-N RELATIONSHIP OF THE PARTIES (INDEPENDENT CONTRACTOR)

The relationship between the State and the Contractor is that of client and independent Contractor. No agent, employee, or servant of the Contractor or any of its subcontractors shall be or shall be deemed to be an employee, agent, or servant of the State for any reason. The Contractor will be solely and entirely responsible for its acts and the acts of its agents, employees, servants and subcontractors during the performance of this Contract.

I-O HEADINGS

Captions and headings used in the Contract are for information and organization purposes. Captions and headings, including inaccurate references, do not, in any way, define or limit the requirements or terms and conditions of this Contract.

I-P INCURRING COSTS

The State of Michigan is not liable for any cost incurred by the Contractor prior to signing of the Contract. The State fiscal year is October 1st through September 30th. The Contractor(s) should realize that payments in any given fiscal year are contingent upon enactment of legislative appropriations. Total liability of the State is limited to terms and conditions of the Contract.

I-Q NEWS RELEASES

News releases (including promotional literature and commercial advertisements) pertaining to the ITB and Contract or project to which it relates shall not be made without prior written State approval, and then only in accordance with the explicit written instructions from the State. No results of the activities associated with the ITB and Contract are to be released without prior written approval of the State and then only to persons designated.

**I-R CONTRACTOR RESPONSIBILITIES**

The Contractor will be required to assume responsibility for all contractual activities, whether or not that Contractor performs them. Further, the State will consider the Contractor to be the sole point of contact with regard to contractual matters, including payment of any and all charges resulting from the anticipated Contract. If any part of the work is to be subcontracted, the Contract must include a list of subcontractors, including firm name and address, contact person and a complete description of work to be subcontracted. The State reserves the right to approve subcontractors and to require the Contractor to replace subcontractors found to be unacceptable. The Contractor is totally responsible for adherence by the subcontractor to all provisions of the Contract. Any change in subcontractors must be approved by the State, in writing, prior to such change.

I-S PERFORMANCE REVIEWS

Acquisition Services in conjunction with MDOT may review with the Contractor their performance under the Contract. Performance reviews shall be conducted quarterly, semi-annually or annually depending on Contractor's past performance with the State. Performance reviews shall include, but not limited to, quality of products/services being delivered and provided, timeliness of delivery, percentage of completion of orders, the amount of back orders, status of such orders, accuracy of billings, customer service, completion and submission of required paperwork, the number of substitutions and the reasons for substitutions, and other requirements of the Contract.

Upon a finding of poor performance, which has been documented by Acquisition Services, the Contractor shall be given an opportunity to respond and take corrective action. If corrective action is not taken in a reasonable amount of time as determined by Acquisition Services, the Contract may be canceled for default. Delivery by the Contractor of unsafe and/or adulterated or off-condition products to any State agency is considered a material breach of Contract subject to the cancellation provisions contained herein.

I-T AUDIT OF CONTRACT COMPLIANCE

The Contractor agrees that the State may, upon 24-hour notice, perform an audit at Contractor's location(s) to determine if the Contractor is complying with the requirements of the Contract. The Contractor agrees to cooperate with the State during the audit and produce all records and documentation that verifies compliance with the Contract requirements.

I-U SAFETY AND ACCIDENT PREVENTION

In performing work under this Contract on State premises, the Contractor shall conform to any specific safety requirements contained in the Contract or as required by law or regulation. The Contractor shall take any additional precautions as the State may reasonably require for safety and accident prevention purposes. Any violation by the Contractor of such safety requirements, rules, laws or regulations shall be a material breach of the Contract subject to the cancellation provisions contained herein.

**I-V WORKPLACE SAFETY AND DISCRIMINATORY HARASSMENT**

In performing services for the State pursuant to this Contract, the Contractor shall comply with Department of Civil Service Rules 2-20 regarding Workplace Safety and 1-8.3 regarding Discriminatory Harassment. In addition, the Contractor shall comply with Civil Service Regulations governing workplace safety and discriminatory harassment and any applicable state agency rules on these matters that the agency provides to the Contractor. Department of Civil Service Rules and Regulations can be found on the Department of Civil Service website at www.state.mi.us/mdcs/Regindx.

I-W ASSIGNMENT

The Contractor shall not have the right to assign the Contract or to assign or delegate any of its duties or obligations under the Contract to any other party (whether by operation of law or otherwise), without the prior written consent of the State. Any purported assignment in violation of this Section shall be null and void. Further, the Contractor may not assign the right to receive money due under the Contract without the prior written consent of the Director of Acquisition Services.

I-X DELEGATION

The Contractor shall not delegate any duties or obligations under the Contract to a subcontractor other than a subcontractor named and approved in the bid unless the Director of Acquisition Services has given written consent to the delegation.

I-Y DISCLOSURE

All information in a bidder's proposal and the Contract is subject to the provisions of the Freedom of Information Act. 1976 Public Act No. 442, as amended, MCL 15.231, et seq.

I-Z TAXES

- A. Sales Tax: For purchases made directly by the State of Michigan, the State is exempt from State and Local Sales Tax. Prices shall not include such taxes. Exemption Certificates for State Sales Tax will be furnished upon request.
- B. Federal Excise Tax: The State of Michigan may be exempt for Federal Excise Tax, or such taxes may be reimbursable, if articles purchased under this Contract are used for the State's exclusive use. Certificates exclusive use for the purposes of substantiating a tax-free, or tax-reimbursable sale will be sent to the Contractor upon request. If a sale is tax exempt or tax reimbursable under the Internal Revenue Code, prices shall not include the Federal Excise Tax.
- C. Contractors are expected to collect and pay all applicable federal, state, and local employment taxes for all persons involved in the resulting Contract. Also, bidders shall maintain appropriate payroll information on a system that can produce any reports that may be needed by Acquisition Services.

**I-AA PRICE ADJUSTMENTS**

Prices quoted are the maximum for a period of 365 days from the date the Contract becomes effective.

Prices are subject to change at the end of each 365-day period. Such changes shall be based on changes in actual costs incurred. Documentation of such changes must be provided with the request for price change in order to substantiate any requested change. Acquisition Services reserves the right to consider various pertinent information sources to evaluate price increase requests (such as the CPI and PPI, US City Average, as published by the US Department of Labor, Bureau of Labor Statistics). Acquisition Services also reserves the right to consider other information related to special economic and/or industry circumstances, when evaluating a price change request. Changes may be either increases or decreases, and may be requested by either party. Approved changes shall be firm for the remainder of the contract period unless further revised at the end of the next 365-day period.

Requests for price changes shall be RECEIVED IN WRITING AT LEAST TEN DAYS PRIOR TO THEIR EFFECTIVE DATE, and are subject to written acceptance before becoming effective. In the event new prices are not acceptable, the CONTRACT may be cancelled. The continued payment of any charges due after September 30th of any fiscal year will be subject to the availability of an appropriation for this purpose.

I-BB ADDITIONAL PRODUCTS/SERVICES

The State reserves the right to add an item(s) that is not described on the item listing and is available from the Contract vendor. The item(s) may be included on the Contract, only if prior written approval has been granted by Acquisition Services.

I-CC CONTRACTOR'S LIABILITY INSURANCE

The Contractor is required to provide proof of the minimum levels of insurance coverage as indicated below. The purpose of this coverage shall be to protect the State from claims which may arise out of or result from the Contractor's performance of services under the terms of this Contract, whether such services are performed by the Contractor, or by any subcontractor, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.

The Contractor waives all rights against the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees and agents for recovery of damages to the extent these damages are covered by the insurance policies the Contractor is required to maintain pursuant to this Contract. The Contractor also agrees to provide evidence that all applicable insurance policies contain a waiver of subrogation by the insurance company.

All insurance coverages provided relative to this Contract/Purchase Order is PRIMARY and NON-CONTRIBUTING to any comparable liability insurance (including self-insurances) carried by the State.

The Insurance shall be written for not less than any minimum coverage herein specified or required by law, whichever is greater. All deductible amounts for any of the required policies are subject to approval by the State.



The State reserves the right to reject insurance written by an insurer the State deems unacceptable.

BEFORE THE CONTRACT IS SIGNED BY BOTH PARTIES OR BEFORE THE PURCHASE ORDER IS ISSUED BY THE STATE, THE CONTRACTOR MUST FURNISH TO THE DIRECTOR OF ACQUISITION SERVICES, CERTIFICATE(S) OF INSURANCE VERIFYING INSURANCE COVERAGE. THE CERTIFICATE MUST BE ON THE STANDARD "ACCORD" FORM. THE CONTRACT OR PURCHASE ORDER NO. MUST BE SHOWN ON THE CERTIFICATE OF INSURANCE TO ASSURE CORRECT FILING. All such Certificate(s) are to be prepared and submitted by the Insurance Provider and not by the Contractor. All such Certificate(s) shall contain a provision indicating that coverages afforded under the policies WILL NOT BE CANCELLED, MATERIALLY CHANGED, OR NOT RENEWED without THIRTY (30) days prior written notice, except for 10 days for non-payment of premium, having been given to the Director of Acquisition Services, Department of Management and Budget. Such NOTICE must include the CONTRACT NUMBER affected and be mailed to: Director, Acquisition Services, Department of Management and Budget, P.O. Box 30026, Lansing, Michigan 48909.

The Contractor is required to provide the type and amount of insurance checked () below:

1. Commercial General Liability with the following minimum coverages:

\$2,000,000 General Aggregate Limit other than Products/Completed Operations
\$2,000,000 Products/Completed Operations Aggregate Limit
\$1,000,000 Personal & Advertising Injury Limit
\$1,000,000 Each Occurrence Limit

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees and agents as ADDITIONAL INSURED(S) on the Commercial General Liability policy.

2. If a motor vehicle is used to provide services or products under this Contract, the Contractor must have vehicle liability insurance on any auto including owned, hired and non-owned vehicles used in Contractor's business for bodily injury and property damage as required by law.

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees and agents as ADDITIONAL INSURED(S) on the vehicle liability policy.

3. Worker's disability compensation, disability benefit or other similar employee benefit act with minimum statutory limits. NOTE: (1) If coverage is provided by a State fund or if Contractor has qualified as a self-insurer, separate certification must be furnished that coverage is in the state fund or that Contractor has approval to be a self-insurer; (2) Any citing of a policy of insurance must include a listing of the States where that policy's coverage is applicable; and (3) Any policy of insurance must contain a provision or endorsement providing that the insurers' rights of subrogation are waived. This provision shall not be applicable where prohibited or limited by the laws of the jurisdiction in which the work is to be performed.



4. Employers liability insurance with the following minimum limits:

\$100,000 each accident
\$100,000 each employee by disease
\$500,000 aggregate disease

I-DD INDEMNIFICATION

A. General Indemnification

To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold harmless the State, its departments, divisions, agencies, sections, commissions, officers, employees and agents, from and against all losses, liabilities, penalties, fines, damages and claims (including taxes), and all related costs and expenses (including reasonable attorneys' fees and disbursements and costs of investigation, litigation, settlement, judgments, interest and penalties), arising from or in connection with any of the following:

1. any claim, demand, action, citation or legal proceeding against the State, its employees and agents arising out of or resulting from (1) the product provided or (2) performance of the work, duties, responsibilities, actions or omissions of the Contractor or any of its subcontractors under this Contract.
2. any claim, demand, action, citation or legal proceeding against the State, its employees and agents arising out of or resulting from a breach by the Contractor of any representation or warranty made by the Contractor in the Contract;
3. any claim, demand, action, citation or legal proceeding against the State, its employees and agents arising out of or related to occurrences that the Contractor is required to insure against as provided for in this Contract;
4. any claim, demand, action, citation or legal proceeding against the State, its employees and agents arising out of or resulting from the death or bodily injury of any person, or the damage, loss or destruction of any real or tangible personal property, in connection with the performance of services by the Contractor, by any of its subcontractors, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable; provided, however, that this indemnification obligation shall not apply to the extent, if any, that such death, bodily injury or property damage is caused solely by the negligence or reckless or intentional wrongful conduct of the State;
5. any claim, demand, action, citation or legal proceeding against the State, its employees and agents which results from an act or omission of the Contractor or any of its subcontractors in its or their capacity as an employer of a person.



B. Patent/Copyright Infringement Indemnification

To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold harmless the State, its employees and agents from and against all losses, liabilities, damages (including taxes), and all related costs and expenses (including reasonable attorneys' fees and disbursements and costs of investigation, litigation, settlement, judgments, interest and penalties) incurred in connection with any action or proceeding threatened or brought against the State to the extent that such action or proceeding is based on a claim that any piece of equipment, software, commodity or service supplied by the Contractor or its subcontractors, or the operation of such equipment, software, commodity or service, or the use or reproduction of any documentation provided with such equipment, software, commodity or service infringes any United States or foreign patent, copyright, trade secret or other proprietary right of any person or entity, which right is enforceable under the laws of the United States. In addition, should the equipment, software, commodity, or service, or the operation thereof, become or in the Contractor's opinion be likely to become the subject of a claim of infringement, the Contractor shall at the Contractor's sole expense (i) procure for the State the right to continue using the equipment, software, commodity or service or, if such option is not reasonably available to the Contractor, (ii) replace or modify the same with equipment, software, commodity or service of equivalent function and performance so that it becomes non-infringing, or, if such option is not reasonably available to Contractor, (iii) accept its return by the State with appropriate credits to the State against the Contractor's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

C. Indemnification Obligation Not Limited

In any and all claims against the State of Michigan, or any of its agents or employees, by any employee of the Contractor or any of its subcontractors, the indemnification obligation under the Contract shall not be limited in any way by the amount or type of damages, compensation or benefits payable by or for the Contractor or any of its subcontractors under worker's disability compensation acts, disability benefits acts, or other employee benefits acts. This indemnification clause is intended to be comprehensive. Any overlap in subclauses, or the fact that greater specificity is provided as to some categories of risk, is not intended to limit the scope of indemnification under any other subclause.

D. Continuation of Indemnification Obligation

The duty to indemnify will continue in full force and affect notwithstanding the expiration or early termination of the Contract with respect to any claims based on facts or conditions, which occurred prior to termination.

I-EE CONTRACT DISTRIBUTION

Acquisition Services shall retain the sole right of Contract distribution to all State agencies and local units of government unless other arrangements are authorized by Acquisition Services.

**I-FF ACCOUNTING RECORDS**

The Contractor and all subcontractors shall maintain all pertinent financial and accounting records and evidence pertaining to the Contract in accordance with generally accepted principles of accounting and other procedures specified by the State of Michigan. Financial and accounting records shall be made available, upon request, to the State of Michigan, its designees, or the Michigan Auditor General at any time during the Contract period and any extension thereof, and for three years from expiration date and final payment on the Contract or extension thereof.

I-GG NON-DISCRIMINATION CLAUSE

In the performance of a Contract or purchase order, the Contractor agrees not to discriminate against any employee or applicant for employment, with respect to their hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, color, religion, national origin, ancestry, age, sex, height, weight, marital status, physical or mental handicap or disability. The Contractor further agrees that every subcontract entered into for the performance of any Contract or purchase order resulting herefrom will contain a provision requiring non-discrimination in employment, as herein specified, binding upon each subcontractor. This covenant is required pursuant to the Elliot Larsen Civil Rights Act, 1976 Public Act 453, as amended, MCL 37.2201, et seq, and the Persons With Disabilities Civil Rights Act, 1976 Public Act 220, as amended, MCL 37.1101, et seq, and any breach thereof may be regarded as a material breach of the Contract or purchase order.

I-HH CANCELLATION

The State may cancel this Contract without further liability or penalty to the State, its departments, divisions, agencies, offices, commissions, officers, agents, and employees for any of the following reasons:

1. **Material Breach by the Contractor.** In the event that the Contractor breaches any of its material duties or obligations under the Contract, which are either not capable of or subject to being cured, or are not cured within the time period specified in the written notice of breach provided by the State, or pose a serious and imminent threat to the health and safety of any person, or the imminent loss, damage or destruction of any real or tangible personal property, the State may, having provided written notice of cancellation to the Contractor, cancel this Contract in whole or in part, for cause, as of the date specified in the notice of cancellation.

In the event that this Contract is cancelled for cause, in addition to any legal remedies otherwise available to the State by law or equity, the Contractor shall be responsible for all costs incurred by the State in canceling the Contract, including but not limited to, State administrative costs, attorneys fees and court costs, and any additional costs the State may incur to procure the services required by this Contract from other sources. All excess re-procurement costs and damages shall not be considered by the parties to be consequential, indirect or incidental, and shall not be excluded by any other terms otherwise included in the Contract.

In the event the State chooses to partially cancel this Contract for cause charges payable under this Contract will be equitably adjusted to reflect those services that are cancelled.



In the event this Contract is cancelled for cause pursuant to this section, and it is therefore determined, for any reason, that the Contractor was not in breach of contract pursuant to the provisions of this section, that cancellation for cause shall be deemed to have been a cancellation for convenience, effective as of the same date, and the rights and obligations of the parties shall be limited to that otherwise provided in the Contract for a cancellation for convenience.

2. Cancellation For Convenience By the State. The State may cancel this Contract for its convenience, in whole or part, if the State determines that such a cancellation is in the State's best interest. Reasons for such cancellation shall be left to the sole discretion of the State and may include, but not limited to (a) the State no longer needs the services or products specified in the Contract, (b) relocation of office, program changes, changes in laws, rules, or regulations make implementation of the Contract services no longer practical or feasible, and (c) unacceptable prices for additional services requested by the State. The State may cancel the Contract for its convenience, in whole or in part, by giving the Contractor written notice 30 days prior to the date of cancellation. If the State chooses to cancel this Contract in part, the charges payable under this Contract shall be equitably adjusted to reflect those services that are cancelled.
3. Non-Appropriation. In the event that funds to enable the State to effect continued payment under this Contract are not appropriated or otherwise made available. The Contractor acknowledges that, if this Contract extends for several fiscal years, continuation of this Contract is subject to appropriation or availability of funds for this project. If funds are not appropriated or otherwise made available, the State shall have the right to cancel this Contract at the end of the last period for which funds have been appropriated or otherwise made available by giving written notice of cancellation to the Contractor. The State shall give the Contractor written notice of such non-appropriation or unavailability within 30 days after it receives notice of such non-appropriation or unavailability.
4. Criminal Conviction. In the event the Contractor, an officer of the Contractor, or an owner of a 25% or greater share of the Contractor, is convicted of a criminal offense incident to the application for or performance of a State, public or private Contract or subcontract; or convicted of a criminal offense including but not limited to any of the following: embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, attempting to influence a public employee to breach the ethical conduct standards for State of Michigan employees; convicted under State or federal antitrust statutes; or convicted of any other criminal offense which in the sole discretion of the State, reflects upon the Contractor's business integrity.
5. Approvals Rescinded. The State may terminate this Contract without further liability or penalty in the event any final administrative or judicial decision or adjudication disapproves a previously approved request for purchase of personal services pursuant to Constitution 1963, Article 11, section 5, and Civil Service Rule 4-6. Termination may be in whole or in part and may be immediate as of the date of the written notice to Contractor or may be effective as of the date stated in such written notice.

**I-II NOTICE AND RIGHT TO CURE**

In the event of a curable breach by the Contractor, the State shall provide the Contractor written notice of the breach and a time period to cure said breach described in the notice. This section requiring notice and an opportunity to cure shall not be applicable in the event of successive or repeated breaches of the same nature or if the State determines in its sole discretion that the breach poses a serious and imminent threat to the health or safety of any person or the imminent loss, damage or destruction of any real or tangible personal property.

I-JJ ELECTRONIC FUNDS TRANSFER

Electronic transfer of funds is available to State contractors. Vendors are encouraged to register with the State of Michigan Office of Financial Management so the State can make payments related to this Contract electronically at www.cpexpress.state.mi.us.

I-KK MODIFICATION OF CONTRACT

Acquisition Services reserves the right to modify this contract at any time during the contract term. Such modification may include changing the locations to be serviced, additional locations to be serviced, method or manner of performance of the work, number of days service is to be performed, addition or deletion of tasks to be performed, addition or deletion of items, and/or any other modifications deemed necessary. Any changes in pricing proposed by the Contractor resulting from the proposed changes are subject to acceptance by the State. Changes may be increases or decreases. IN THE EVENT PRICES ARE NOT ACCEPTABLE TO THE STATE, THE CONTRACT SHALL BE SUBJECT TO COMPETITIVE BIDDING BASED UPON THE NEW SPECIFICATION.

I-LL UNFAIR LABOR PRACTICES

Pursuant to 1980 Public Act 278, as amended, MCL 423.231, et seq, the State shall not award a Contract or subcontract to an employer whose name appears in the current register of employers failing to correct an unfair labor practice compiled pursuant to Section 2 of the Act. A Contractor of the State, in relation to the Contract, shall not enter into a Contract with a subcontractor, manufacturer, or supplier whose name appears in this register. Pursuant to Section 4 of 1980 Public Act 278, MCL 423.324, the State may void any Contract if, subsequent to award of the Contract, the name of the Contractor as an employer, or the name of the subcontractor, manufacturer or supplier of the Contractor appears in the register.

I-MM FORM, FUNCTION, AND UTILITY

If the Contract is for use of more than one State agency and if the good or service provided under this Contract do not the meet the form, function, and utility required by a State agency, that agency may, subject to State purchasing policies, procure the good or service from another source.

**I-NN CONTRACT PAYMENT SCHEDULE**

The specific payment schedule for the Contract(s) will be mutually agreed upon by the State and the Contractor(s). The schedule should show payment amount and should reflect actual work done by the payment dates, less any penalty cost charges accrued by those dates. As a general policy statements shall be forwarded to the designated representative by the 15th day of the following month.

I-OO PROHIBITED PRODUCTS

The State will not accept salvage, distressed, outdated or discontinued merchandise. Shipping of such merchandise to any State agency, as a result of an order placed against the Contract, shall be considered default by the Contractor of the terms and conditions of the Contract and may result in cancellation of the Contract by the State. The brand and product number offered for all items shall remain consistent for the term of the Contract, unless Acquisition Services has approved a change.

I-PP RECYCLED CONTAINERS

Bidders are encouraged to offer products packaged in containers using recovered materials suitable for the intended use. 'Recovered material' is defined as post-consumer waste (any products generated by a business or consumer which have served their intended end use, and which have been separated or diverted from solid waste for the purpose of collection, recycling, and disposition) and 'secondary waste' (industrial by-products and wastes generated after completion of a manufacturing process that would normally not be reused).

I-QQ RIGHT TO KNOW ACT (Act 80 of 1986)

The "Right to Know Act" is intended to provide protection and information to employees who encounter hazardous substances in the workplace. To comply with this act, it is necessary that you fulfill the following:

Labels on all incoming containers of hazardous chemicals must (1) clearly State the identity of the contents, (2) display appropriate hazard warning(s), (3) include first aid information, and (4) list the name and address of the chemical manufacturer, importer, or other responsible party.

Material Safety Data Sheets must be included with shipment of chemical or hazardous material to the receiving State agency. It is necessary to send this document only on the first shipment for each chemical formulation or hazardous material ordered by a specific agency except when there has been a change in the formulation of the specified chemical or hazardous material, in which case, a revised material safety data sheet shall accompany the first shipment of the changed formulation. It is the responsibility of the shipping vendor to maintain this record. The receiving agency will not accept first shipment unless the above is complied with. It is recommended that OSHA Material Safety Data Sheet No. 174 be used.

**I-RR ASSIGNMENT OF ANTITRUST CAUSE OF ACTION**

For and in consideration of the opportunity to submit a quotation and other good and valuable consideration, the bidder hereby assigns, sells and transfers to the State of Michigan all rights, title and interest in and to all causes of action it may have under the antitrust laws of the United States or this State for price fixing, which causes of action have accrued prior to the date of payment and which relate solely to the particular goods, commodities, or services purchased or procured by this State pursuant to this transaction.

I-SS QUALITY ASSURANCE

The State reserves the right to periodically test products which have been received to verify compliance with specifications. If laboratory analysis shows that the product does not meet specifications or fails to perform satisfactorily at any time, the Contractor shall be responsible for:

1. All costs of testing and laboratory analysis.
2. Disposal and/or replacement of all products which fail to meet specifications.
3. All costs of repair and/or replacement of equipment deemed to have been damaged by substandard products as determined by the State.

I-TT INSPECTION

All goods are subject to inspection and testing. In the event goods are defective in material or workmanship, or otherwise fail to meet the requirements of the Contract, the State shall have the right to reject the goods or retain the goods and correct the defects. The Contractor shall pay the State for expenses incurred in correcting defects. Rejected goods will be held for 45 days after delivery. The Contractor must arrange for the return of said goods, including paying for handling, packing, and transportation costs. The State has the authority to dispose of the goods without further liability to the State in the event the Contractor fails to make arrangements within the specified time period.



SECTION II - SPECIFICATIONS

II-A GENERAL

The following specification is suitable for the procurement of a low cost portable Traffic Analysis Device. The device shall be capable of multiple lane vehicle classification, speed monitoring, volume counting and gap (headway) timing.

A Traffic Analysis Device consists of a stand-alone recorder placed at the roadside, which collects, stores, and processes data from vehicle sensors installed on the road. Data is stored in memory and is optionally available in real time using an RS-232 com-port to feed an on-site printer or PC. The stored data may be collected at any time. For fully automatic remote data retrieval, the device can be linked to the telephone network using a modem and the data transferred directly to Central Office.

This specification is for the purchase of approximately 600 multi-lane classifiers to be delivered over a five (5) year period in lots of approximately thirty to fifty units per calendar quarter.

MDOT is requesting that this contract be extended to Local Units of Government.

TERMS: The terms Traffic Analysis Device, Automatic Classification Device, Automatic Vehicle Classifier, AVC, Device, Classifier, Unit are interchangeable.

Shall is a mandatory requirement. Failure to comply will result in disqualification.

II-B DESCRIPTION

This specification describes the **minimum** requirements for a two-lane Automatic Vehicle Classification Device (AVC).

1. The counters must have road tube inputs. All air switches must be automatically adjusted by the counter. The unit must have a field sensitivity adjustment by way of entering a sensitivity value on the keypad. Air switch must be compatible with the rubber hose that the State of Michigan currently uses, per attachment 2.
2. Each unit shall be supplied with all connectors and cables needed to connect to a laptop computer or modem. Each AVC shall be delivered with a mating power plug.
3. The operator shall be able to set individual lane parameters for measuring vehicles and storing data. The intent is to allow the operator to set each lane's sensor spacing for accurate speed.
4. The AVC shall be supplied with a minimum 256k of RAM that is expandable.
5. The operator should have the option of selecting English or Metric data formats.



6. The counter shall have a keypad with 16 keys and an easy to read four line, 80 character low power LCD display. An on/off switch shall be located on the top of the front panel so as to cut power to the unit when not in use. A solar/charging port socket shall be accessible on the front panel to allow for recharging of the batteries via an AC adapter/charger or solar panel.

II-C MATERIALS

All electronic components shall be new, unused and of solid-state design with high noise immunity and low power consumption. Logic and data components shall be mounted on replaceable plug-in circuit boards. Circuit boards shall be firmly mounted and housed so that they will not be damaged by jolts, shocks and vibrations encountered during transportation and use. Electronic components shall be fully protected against overloads, power surges, static electrical discharge and transients.

All materials shall be free from all defects and imperfections that might affect the serviceability of the finished product. The equipment shall be standard manufactured products in order to facilitate prompt and continuous service and delivery of spare parts.

The AVC shall operate within a temperature range of at least -40° to 150° F with a humidity range to 95% noncondensing relative humidity.

The basic enclosure shall be weatherproof and watertight, with a sturdy handle for carrying. The enclosure shall be equipped with a hasp capable of using a Masters type #1 padlock. The padlock shall hang straight down when the device is in use and each part of the hasp shall be capable of supporting the device without breaking.

II-D POWER

The unit to contain rechargeable sealed lead acid gel cell battery(ies) with sufficient capacity to power the device for **45 days** shall be used. The device shall be designed to permit recharging the internal battery(ies) through external connector from low voltage AC, less than 20 VAC or DC voltage. The device shall be protected internally from polarity reversal of the battery or external power supply. The battery(ies) shall be protected from excessive discharging (deep discharging) through internal voltage cutout circuit which will electrically remove the battery from the load when the battery terminal falls below 22% of the charged battery Open Circuit Voltage.

- ie. In a typical fully charged 6-volt lead-acid gel cell battery, the Open Circuit Voltage is equal to 6.45 volts (2.15 volts/cell x 3) and the deep discharge voltage level would be equal to 5.01 volts (1.67 volts/cell x 3). OCV (6.45 volts) – 22% = 5.03 volts.

The counter shall have a solar panel mounted flush on the counter lid.



II-E PERFORMANCE REQUIREMENTS

The device shall be capable of storing classification, speed or speed by class data on all vehicles operating at normal highway speeds.

The State of Michigan permits eleven (11) axle vehicles to operate on all Interstate, US and State trunklines.

Vehicle type classification shall use FHWA 2-digit (13-type) scheme, shown in attachment #1. the accuracy shall be as follows:

Less than 10% of all vehicles erroneously classified.

Classification accuracy will be determined by MDOT personnel.

During operational acceptance test period (section), five (5) 400 vehicle samples will be collected and compared to visual observations.

The device shall be capable of counting and storing all types of vehicles. The accuracy shall be as follows:

Less than 10% error of all vehicles monitored from axle sensors.
(AASHTO recommends +/- 10% error)

The device shall be capable of measuring 'GAP' (headway) times between vehicles in each lane.

The device shall be capable of recording and storing a minimum of 60,000 individual vehicle records for all vehicles in two lanes. Each vehicle record shall contain the following:

Lane number
Vehicle arrival time to nearest 1/100 of a second
Number of axles
Vehicle speed
Vehicle classification
Axle spacing to nearest 1/10 of an inch

II-F SOFTWARE

User programmable factors shall include initial setup parameters required for initialization of the system, including site identification, time, date, etc.

The AVC program shall include a subroutine which will restore the AVC to its previously selected operational mode in case or program malfunctions.

Modes of operation and parameters for data processing and storage shall be user-programmable. These options shall include: count, speed, classification and individual vehicle records.



Diagnostic checks of system operation and performance shall include, as a minimum, check for axle sensor failure, condition of stored data and battery voltage.

Provision shall be made for input of all the system operating parameters on-site using a portable laptop microcomputer or from the keyboard on the front of the panel.

The AVC program shall include an operator option to stop collecting data when the memory is filled or to replace the oldest data with the current data.

All software provided shall be Windows 95 and above compatible.

II-G DATA FILES

The operator shall be able to set the AVC to store Daily, Weekly or Manual files. Each data file shall have a file name which uniquely identifies the file. The file must uniquely identify the recording unit and site.

The AVC equipment shall be capable of storing data in 15 minute and one hour periods. The operator shall have the option of selecting additional recording periods.

Data for each vehicle shall be stored within one time interval of the vehicle's passing through the site, and the current files shall be available for downloading at any time during the day.

The operator shall have the capability of selecting one or more files to download from the AVC. The operator shall have the option to select files for deletion.

II-H DATA TRANSFER/COMMUNICATION/OUTPUT

All procedures contained within the on-site classifier which controls data recording, storage, display and data transmittal shall be designed to prevent any inadvertent actions such as destruction of data contained in memory. All operator commands which would have this result shall provide a warning and require that the instruction be confirmed through a password before it is executed. Failure to confirm shall return the program to normal operation with all stored data intact. All associated cables and/or equipment necessary to perform data transfer shall be supplied by the Vendor, one for every 10 machines purchased. Cables provided for communication with a Windows compatible computer shall connect via a RS-232-C.

Provision shall be made for on-site data retrieval from the Automatic Vehicle Classifier by means of downloading to a portable laptop computer.

All on-site communications shall be via a RS-232-C communications port at baud rates in excess of 14.4k baud.

PCMCIA memory cards, if used, shall be transparent to the Automatic Vehicle Classifier's normal operation.



II-I SYSTEM COMPATIBILITY

The AVC equipment provided for in this specification shall be configured to allow all vehicle data gathered to be directly transferred to the portable laptop microcomputer.

It shall be the responsibility of the vendor to identify all restrictions and constraints on the use of the software and programs such as copyrights, etc.

Either the AVC program or supplemental software for a portable computer shall be provided to analyze the data and produce standard reports and data files for traffic volumes; vehicle classification reports; vehicle speed reports; current FHWA Card 4 report and data file. The operator shall be able to display the reports on the computer screen, output to a printer or save directly to a file, in a text or spreadsheet format.

Additional data processing software shall provide for the traffic volume and vehicle classification data being collected to be available in the specific format shown in attachment #3 and attachment #4 respectively. The additional data processing software shall:

Split the Site-ID from the set up into the fields County and Statnum (Station number).

Update the Year, Month, Date, Day of Week from the count data start date. Day of Week code is: 1=Sunday through 7=Saturday.

The User shall have the ability to enter the following fields:

Direction (values 1-12)

Lane Number

Construction Code

Machine Number

Type of Count

The start_hour field will be the starting hour of recording plus one hour.

Additional data processing software shall provide for the collected Speed data to be available in the specific format shown in Attachment #5. The additional processing shall be:

Split the Site-ID from the setup into fields County and Station

The Start_time is the hour recording started

End_time is the last full hour of recording

Study date is the date recording started

The User shall have the ability to enter data in the following fields:

Req_yr, Study_no, Mile_pt, Study, Road Name, Direction,

Descrp, Spd_limit, Cosign, Study_per, Comments

The speed data shall be compiled into a 24-hour total. Speed bins shall be 1-10 mph, then every mile per hour up to 90 mph. All records over 90 mph will be discarded.



For all three data types, the user shall have the ability to name the processed file name. Processed data shall have the ability to be appended to existing files, at the users discretion. For count data the file extension shall be - .FMT; for classification data the file extension shall be - .CFM; and for speed data the file extension shall be - .SPD

It is the responsibility of the vendor to update software when the FHWA revises TMG Card formats at no additional cost to the State. AVC's shall be delivered with new card formats.

II-J MANUALS

The vendor shall provide the Department with one (1) complete set of manuals for every ten (10) units delivered. The sets shall include: Operational Manual, Maintenance Manual, and a Software Manual. The manuals shall be contained in individual binders suitable for field and office use and storage.

The Operations Manual shall provide instructions for initialization of the equipment, including calibration procedures and operational checks. Basic installation and a malfunction-troubleshooting table shall also be included in the operations manual.

The Maintenance Manuals shall include schematics, circuit diagrams, photographic parts location diagrams, parts lists, recommended list of spare parts and their cost, and instructions suitable for MDOT technicians to perform services and repairs.

The Software Manuals shall give detailed instructions for producing reports, checking data transmission operation, setting default and calibration values. The Software Manual should include a program flow chart and general description of the processing program used to process sensor data and data transmission sub-routines. All system passwords and their function shall also be included.

The Vendor shall provide as part of the bid proposal two (2) complete sets of manuals.

II-K TRAINING

Vendor shall provide one (1) 4-day training period during the period of this contract. Training will include: Maintenance procedures for all of the Vendor supplied equipment, operation of the equipment in the field, and software options for data summary and storage. Manuals for each segment of training will be made available to MDOT at least 5 days before the training session.

The training periods shall be determined and mutually agreed upon between the vendor and MDOT. The training program, at a minimum, shall provide a designated technical staff of MDOT personnel with:

1. understanding of all components in the system along with their function;
2. knowledge of the system hardware and software and training in system operation and maintenance; and
3. training in trouble-shooting, checking, and repair of system for satisfactory operation.

The Vendor shall include in the bid proposal a copy of the training plan.

The training plan shall be subject to review and approval by the State.

**II-L GENERAL PROVISIONS**

The Department shall be licensed by the manufacturer to upgrade the equipment and software. These upgrades will be at the option of the Department and at no cost to the manufacturer. Upgrades will be limited to the classifiers delivered under this contract.



ATTACHMENT 1
VEHICLE TYPE CLASSIFICATION
CLASSIFICATION CRITERIA
(FHWA SCHEME F)

CLASS DESCRIPTION	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11
1 MOTORCYCLE	0.1-6									
2 CAR	6.1-10.29									
2 CAR W/TRAIL	6.1-10.29	6-25								
2 CAR W/TRAIL	6.1-10.29	6-25	1-11.99							
2 CAR W/TRAIL	6.1-10.29	6-25	1-11.99	1-11.99						
3 VAN - TRUCK	10.1-14.5	6-25								
3 V/T W/TRAIL	10.1-14.5	6-25								
3 V/T W/TRAIL	10.1-14.5	6-25	1-11.99							
3 V/T W/TRAIL	10.1-14.5	6-25	1-11.99	1-11.99						
4 BUS	23.1-40									
4 BUS	23.1-40	3.5-6.0								
4 BUS	23.1-40	0.1-6	0.1-6							
5 TRUCK 2/AXL	14.5-23.09									
6 TRUCK 3/AXL	6.1-23	2.5-6.3	2.5-13							
7 TRUCK 4/AXL	6.1-23	2.5-6.3	2.5-6.3							
7 TRUCK 5/AXL	6.1-23	2.5-6.3	2.5-6.3	2.5-6.3						
8 SEMI 3/AXLE	6.1-23	11-40								
8 SEMI 4/AXLE	6.1-23	1-11.99	6.1-44							
8 SEMI 4/AXLE	6.1-23	11-38	2.5-11.99							
9 SEMI 5/AXLE	6.1-26	2.5-6.3	6.1-46	2.5-27						
9 SEMI 5/AXLE	6.1-26	18.1-46	2.5-6.3	2.5-6.3						
10 6/AXL 1/TRL	6.1-23	11-46	2.5-6.3	2.5-6.3	2.5-6.3					
10 6/AXL 1/TRL	6.1-26	2.5-6.3	6.1-46	0.1-16	0.1-11					
10 7/AXL 1/TRL	6.1-26	2.5-6.3	2.5-46	2.5-12	2.5-6.3					
10 7/AXL 1/TRL	6.1-26	2.5-6.3	2.5-46	6-12	6-12					
10 8/AXL 1/TRL	6.1-26	2.5-6.3	3.5-46	2.5-6.3	2.5-6.3					
10 9/AXL 1/TRL	6.1-26	2.5-6.3	2.9-46	2.5-6.3	2.5-6.3					
10 10/AX 1/TRL	6.1-26	2.5-6.3	2.9-46	2.5-6.3	2.5-6.3					
10 11/AX 1/TRL	6.1-26	2.5-6.3	2.9-46	2.5-6.3	2.5-6.3					
11 5/AX MDL/TR	6.1-26	1.1-26	6.1-20	11.1-26	2.5-6.3					
12 6/AX MDL/TR	6.1-26	2.5-6.3	11.1-26	6.1-24	1.1-26					
13 7/AX MDL/TR	6.1-26	2.5-6.3	2.5-45	2.5-45	2.5-45					
13 8/AX MDL/TR	6.1-26	2.5-6.3	2.5-45	2.5-45	2.5-45					
13 9/AX MDL/TR	6.1-26	2.5-6.3	2.5-45	2.5-45	2.5-45					
13 10/AX ML/TR	6.1-26	2.5-6.3	2.5-45	2.5-45	2.5-45					
13 11/AX ML/TR	6.1-26	2.5-6.3	2.5-45	2.5-45	2.5-45					



ATTACHMENT 2

MICHIGAN DEPARTMENT OF TRANSPORTATION
SPECIFICATION FOR
PNEUMATIC HIGHWAY VEHICLE TRAFFIC COUNTER HOSE

THE HOSE SHALL BE FORMULATED TO BE WEATHER RESISTANT. THE BASE POLYMER SHALL BE NATURAL RUBBER, SYNTHETIC RUBBER, OR A BLEND OF BOTH. IT SHALL HAVE THE FOLLOWING PHYSICAL PROPERTIES:

PROPERTY	REQUIREMENT
INSIDE DIAMETER, IN.	0.250 +/- 0.020
WALL THICKNESS, IN.	0.219 +/- 0.030
TENSILE STRENGTH, PSI	1800 MIN
ELONGATION AT BREAK, %	300 MIN
HARDNESS, SHORE A DUROMETER	55 +/- 5
HEAT AGED 96 HOURS AT 70 C	
DECREASE IN TENSILE STRENGTH %	10 MAX
DECREASE IN ELONGATION %	15 MAX



ATTACHMENT 3

Count Format

Field	Field Name	Type	Width
1	County	Character	2
2	Restofsect - Rest of control section	Character	3
3	Milepoint - C.S. mile point	Numeric	5
4	Statnum - Station number	Character	4
5	Prnum - Primary route number	Character	7
6	Prmpt - PR mile point	Numeric	5
7	Year	Character	2
8	Month	Character	2
9	Day	Character	2
10	DOW - Day of week(Sunday=1 to Saturday=7)	Character	1
11	Direction (values 1-12)	Character	2
12	Ln_cd - Lane number (values 0-9)	Character	1
13	Type_cnt - Type of count (value 1-8)	Character	1
14	Start_hour - Hour of first recording	Numeric	4
15	Constr_code - Construction code (value 1-9)	Character	1
16	Machine - Machine number	Character	4
17	Hr_15 - 15 minute(value = 2) or hourly count(value = 1)	Character	1
18	H0a - First 15 min. count/zero for hourly	Numeric	4
19	H0b - Second 15 min./zero for hourly	Numeric	4
20	H0c -Third 15 min./zero for hourly	Numeric	4
21	H1 - Fourth 15 min. or first hourly	Numeric	5
22	Continue using fields 18-21 for 23 more hours.	Numeric	Repeat



ATTACHMENT 4

Vehicle Classification

	Field Name	Type	Width
1	County	Character	2
2	Restofsect - Rest of control section	Character	3
3	Milepoint - C.S. mile point	Numeric	5
4	Statnum - Station number	Character	4
5	Prnum - Primary route number	Character	7
6	Prmpt - PR mile point	Numeric	5
7	Year	Character	2
8	Month	Character	2
9	Day	Character	2
10	DOW - Day of week	Character	1
11	Direction	Character	2
12	Ln_cd - Lane code	Character	1
13	Type_cnt - Type of count	Character	1
14	Start_hour - time of first recording	Character	4
15	Constr_code - Construction code	Character	1
16	Machine - Machine number	Numeric	4
17	Hr_15 - 15 min or hourly count (value always=1)	Character	1
18	Tot_vol - Total volume	Numeric	5
19	Passcars - Passenger cars	Numeric	5
20	Motorcycle	Numeric	2
21	Buses	Numeric	2
22	Trk4tire - Pickups	Numeric	4
23	trk2ax6tir - 2 axle, six tire	Numeric	4
24	trk3axle - 3 axle, single unit	Numeric	4
25	trk4axle - 4 axle or more, single unit	Numeric	4
26	semi4ax - 4 axle or less, single trailer	Numeric	3
27	semi5ax - 5 axle single trailer	Numeric	4
28	semi6ax - 6 or more axle, single trailer	Numeric	3
29	double5axl - five or less axle, multi-trailer	Numeric	4
30	double6axl - six axle, multi trailers	Numeric	4
31	double7axl - seven of more axles, multi-trailers	Numeric	3



ATTACHMENT 5

Speed Data Format

Field	Field Name	Type	Width
1	Req_Yr - Request Year	Character	4
2	Study_No - Study Number	Character	3
3	Station	Character	4
4	County	Character	2
5	RestofSect - Rest of the control Section	Character	3
6	Mile_pt - C.S. Milepoint	Numeric	6 3 decimal
7	Study	Numeric	1
8	Road_Name	Character	15
9	Study_Dt - Start date of the study	Date	8
10	Start_time - time the study started	Numeric	4
11	End_time - time the study ended	Numeric	4
12	Direction - direction of travel	Numeric	2
13	Descrp - Location description	Character	50
14	Spd_Limit - Speed limit in study area	Numeric	2
15	Cosign - an adjustment value	Numeric	3 2 decimal
16	Study_Per	Character	3
17	Comments	Character	50
18	Veh_type (1 = cars, 2 = trucks)	Numeric	1
19	CNT10 - number of vehicles 1-10 MPH	Numeric	5
20	CNT11 - number of vehicles at 11 MPH	Numeric	5
21	CNT12 - number of vehicles at 12 MPH	Numeric	5
22-98	CNT## where ## represents that MPH value from 13 to 89	Numeric	5
99	CNT90 - number of vehicles at 90 MPH	Numeric	5