



## **Notice of Request for Proposals**

**BID: P06-103**

**TO: ALL PROSPECTIVE BIDDERS**

**FROM: COCO HALL, PURCHASING COORDINATOR**

**SUBJECT: REQUEST FOR PROPOSALS: FOR REAL TIME PASSENGER  
INFORMATION SYSTEM FOR CHAPEL HILL TRANSIT**

**DATE: SEPTEMBER 14, 2005**

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Proposals will be received until 4:00 P.M., November 10, 2005, in the office of the Purchasing Coordinator, Town of Chapel Hill, 405 Martin Luther King Jr. Boulevard, Chapel Hill, North Carolina 27514

## Advertisement

### Real Time Passenger Information System for Chapel Hill Transit

Town Of Chapel Hill, North Carolina

#### **BID: P06-103**

Pursuant to Section 143-129.8 of the General Statutes of North Carolina, the Town of Chapel Hill will receive Proposals for a Real Time Passenger Information System for Chapel Hill Transit. The Town of Chapel Hill will serve as the Lead Procuring Agency. The Town of Chapel Hill will allow other transit agencies in the Triangle Region to purchase this system based on their individual needs and fleet characteristics over a 5-year period. These systems include: Triangle Transit Authority, Durham Area Transit Authority, Capital Area Transit, NCSU Wolfline and Cary Transit.

Proposal documents for this project may be obtained from Coco Hall, Purchasing Coordinator, Town of Chapel Hill, (919) 968-2712, extension 334, [chall@townofchapelhill.org](mailto:chall@townofchapelhill.org), during regular business hours. Proposals will be received until 4:00 P.M., November 10, 2005, in the office of the Purchasing Coordinator, Town of Chapel Hill, 405 Martin Luther King Jr. Boulevard, Chapel Hill, North Carolina 27514

General information and questions regarding the Request for Proposals shall be directed to Jeanmarie Curtis, Transportation Department, (919) 968-2755, extension 112 or [jcurtis@townofchapelhill.org](mailto:jcurtis@townofchapelhill.org). Submittal procedure questions should be directed to Coco Hall, Purchasing Coordinator, (919) 968-2712 extension 334 or [chall@townofchapelhill.org](mailto:chall@townofchapelhill.org).

The Town of Chapel Hill reserves the right to reject any and all submittals, to waive technicalities and be the sole judge of the proposal most favorable to the Town of Chapel Hill.

W. CALVIN HORTON  
TOWN MANAGER

COCO HALL  
PURCHASING COORDINATOR

#### PUBLICATIONS:

PASSENGER TRANSPORT:  
CHAPEL HILL NEWS:

Monday, September 12, 2005  
Sunday, September 11, 2005

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# ***Section 1: General Information and Introduction***

## **A. Purpose of Solicitation**

The Town of Chapel Hill, as a lead agency, is soliciting proposals for the procurement of a Real Time Passenger Information (RTPI) system for Chapel Hill Transit (CHT). The RTPI system will be integrated with the Regional Trip Planning Application operated by the Triangle Transit Authority (TTA) and could eventually cover all of the fixed-route transit systems in the Research Triangle region of North Carolina. This procurement will allow other transit agencies in the region to procure similar systems over a five-year period. The RTPI system is to be based on the National Intelligent Transportation System (ITS) architecture to allow for future growth and seamless integration of various ITS components in the region.

The purpose of this Request for Proposal (RFP) for an RTPI system is to define the Town's minimum requirements, solicit proposals for the project, and gain adequate information by which the Town may evaluate the available products and services offered by the vendors. This procurement will be awarded based on competitive proposal procedures. Competitive proposal contracts shall be awarded in accordance with G.S. Section 143-129.

## **B. Project Description**

The real-time passenger information project will provide Chapel Hill Transit with an integrated automatic vehicle location (AVL) and passenger information system. The system will use GPS-based positioning and the data networks to provide vehicle location status and arrival information for transit agency and passenger access, including dispatch, bus stop shelters, homes, and offices, via signs, the Internet and potentially to other technologies. It will be integrated with the regional trip planner, operated through Triangle Transit Authority. In the future, it may be integrated with other technologies including cell phones, personal data assistants, automatic stop annunciation system, electronic fareboxes and electronic destination signs.

The management tools provided by this system will enable Chapel Hill Transit to effectively deal with the dramatic increase in ridership following the transition to fare-free transit. Schedule adherence information, headway reports and the database of information will allow Chapel Hill Transit to better manage the changes to our service and aid in future planning.

Installation of this system on all Chapel Hill vehicles will allow the transit agency to better manage their system in a time of crisis and provide vital real-time information to the public and aid them in making informed transportation and safety decisions. This system facilitates emergency management response and can aid in maintaining the personal safety of passengers. The system is secure, ensuring only designated personnel access to system information. Agencies with access to this information could include police, fire and other emergency response agencies, and will lead to a faster, more efficient response.

## C. Project Management

The vendor shall appoint a Project Manager who will be permanently assigned in this capacity through the warranty period. The Project Manager assigned to the project shall have the authority to make commitments and decisions that are binding for the vendor. The Project Manager shall assure the Town that the system provided meets both the near and long term needs of CHT's operation as spelled out in this RFP. The Project Manager shall ensure that a service contract is in place for the vendor's complete system, including all hardware, software, and maintenance.

The Town also will designate a Project Manager to coordinate all project activities on behalf of the Town. All project-related communications between the Town and the vendor will be coordinated through and by the respective Project Manager(s):

Designated project manager for the Town is:

Jeanmarie Curtis

Transportation Department

Town of Chapel Hill, NC 27516

(o) 919-968-2755 x 112

(e) [jcurtis@townofchapelhill.org](mailto:jcurtis@townofchapelhill.org)

Written questions may be submitted, but only for purposes of clarifying this RFP. All questions should be mailed or emailed to the Town of Chapel Hill, 405 Martin Luther King Jr. Boulevard, Chapel Hill, North Carolina 27514, Attention: Coco Hall, Purchasing Coordinator or [chall@townofchapelhill.org](mailto:chall@townofchapelhill.org). Questions are due by **5:00 PM on September 29, 2005**. Questions received after this deadline may be answered at the discretion of the Town of Chapel Hill.

## D. Project Goals and Objectives

The Real Time Passenger Information system will provide Chapel Hill Transit with multiple opportunities for growth and improvement. Full system implementation will enable CHT to achieve the following objectives:

1. Disseminate vehicle arrival information to passengers; improve information access for Chapel Hill / Carrboro's disabled community.
  - A. Implement Real Time Passenger Information System that interfaces with Automatic Vehicle Location on 83 vehicles
  - B. Output the AVL data to approximately 14 Digital Message Signs in Chapel Hill and to various websites (e.g. [www.chtransit.org](http://www.chtransit.org) and link to [www.gotriangle.org](http://www.gotriangle.org)).
  - C. Minimize long term operational costs through the use of low cost data transmission capabilities. Considerations should include commercially available methods and newer broadband technologies such as WiMAX.
2. Implement a system that interfaces with the regional trip planning application; while complying with the National and Regional ITS architecture and standards.
  - A. Interface with the regional trip planning application.
  - B. Comply with the National and Regional ITS Architecture and Standards throughout the project.
3. Improve operations and management of transit operations and the vehicle fleet.

- A. Build and maintain a single set of core data in the regional trip planner application ([www.gotriangle.com](http://www.gotriangle.com)) and set up data collection and update processes (GIS/Street network, bus stops, vehicles, bus routes/schedules, employees, route adherence).
  - B. Implement a system that allows Chapel Hill Transit to own the data collected on the vehicle and used in all of the applications throughout this project.
  - C. Create schedule adherence, safety, service interruption and planning interfaces and reports.
4. Continue to plan for and improve the system.
    - A. Obtain stakeholder buy-in for the project and minimize institutional and cultural barriers.
    - B. Train employees on a regular basis on the use of the system as well as use of the data outputs.
    - C. Promote collaboration and integration of the application for the entire region.
    - D. Ensure that all the data used for and collected by the system is easy to update, access, and share with other transit systems.
  5. Ensure Operability of Information
    - A. The RTPI system must be developed with an open architecture and that additional technologies can be integrated with this project as funding becomes availability. Plans for these technologies may include:
      - On the Vehicle: Automatic Passenger Counters, fleet wide Automatic Stop Announcement System, and a single log in to all vehicle technologies.
      - Voice Technologies: Integrate an interactive voice response (IVR) telephone system that supports the statewide traveler information system (511) and enhancing DMS with audio output.
      - Data Publishing Technologies: Delivery of the bus arrival information to clients by email, phone (cellular and traditional), and
      - Data Communication Technologies: Two way communications between vehicles and base stations via broadband data communications such as WiMAX.
      - Wireless offload of vehicle telemetry data either ad-hoc or at the garage.

#### E. Profiles of Existing Transit Systems in the Research Triangle Region

There are four public transit agencies in the Research Triangle region of North Carolina, that work together to provide local and regional bus service: Capital Area Transit (CAT) in Raleigh, Durham Area Transit Authority (DATA) in Durham, Chapel Hill Transit (CHT) in Chapel Hill, and Triangle Transit Authority (TTA), which provides regional service. Additional transit services are provided by: Duke University Transit, North Carolina State University Wolfline, Orange Public Transportation in Orange County, C-Tran in Cary, Wake Coordinated Transportation Services in Wake County, Amtrak, and Carolina Trailways/Greyhound.

#### Chapel Hill Transit

Chapel Hill Transit (CHT) serves the Town of Chapel Hill, the University of North Carolina, and the Town of Carrboro. The three partners share in the cost of operating the transit system and in capital expenditures. The service area covers approximately 25 square miles, and a population of 67,700.

The system currently operates 83 vehicles on 26 routes with 600 stops. The full weekday service period varies by route but generally operates from 5:15AM until 7:00PM with a peak-hour fleet of 61 buses. A reduced evening service is operated with four routes until after midnight. On Saturday seven routes operate from 8:30AM until 7:00PM. Two routes operate on Sunday. There are also demand-responsive shared-ride services that extend the service area beyond the fixed-route service area. ADA paratransit service is provided through a special van service, called EZ Rider.

CHT operates 5 million passenger miles annually. The commitment to transit was evidenced in January 2002, when the partners decided to make the transit system fare-free. There continues to be steady increases in ridership since that time. There were more than 4.8 million riders in 2003 and more than 5.3 million riders in 2004. Significant service expansions are expected as the free-fare system continues to generate more riders, and because of continued growth and development in both the Towns and the University. <http://www.chtransit.org>

### Triangle Transit Authority (TTA)

TTA is the only transit provider in the region that provides regional transit connections among the cities and towns in Durham, Orange and Wake Counties. TTA operates a fleet of 67 buses of which 46 are required during peak hours. The Triangle Regional Bus Service is comprised of fifteen routes: Routes 105 and 107 - between Raleigh and RTP; Routes 402, 403, 412, 413 - bi-directionally from RTP to Durham to Chapel Hill to RTP; Routes 301 and 302 - between Raleigh, Cary, and RTP; Routes 201 and 202 - North Raleigh to RTP; Route 311 - Apex to RTP; and Route 102 - Garner to Downtown Raleigh. Shuttle vehicles operate from TTA's RTP Transfer Center to RTP-area businesses and to Raleigh-Durham International Airport (RDU). Weekday service generally runs from 6:00AM until 10:30PM on routes between Raleigh, Chapel Hill, Durham and RTP. Other routes are provided during peak commuting periods only. TTA also provides Saturday service on routes between Raleigh, Chapel Hill, Durham, and RTP between 6:00AM and 6:00PM. TTA also provides complementary ADA paratransit bus service. In addition to the Triangle Regional Bus Service, TTA leases 15-passenger vans to commuters who have one end of their trip in the region. As of January 2005, there are 58 TTA vanpools in operation.

The TTA Regional Rail Transit System is planned to open in 2008 with 12 rail stations linking Durham to Raleigh. The stations will provide access to major activity and employment centers, including Duke University, downtown Durham, NC Central University, Research Triangle Park, the Town of Cary, the state fairgrounds and sports complexes, NC State University, downtown Raleigh and the state government center. TTA will construct a new 28-mile double-track system to be used exclusively by TTA rail trains in the existing NC Railroad and CSX rail corridors. Initially, rail service will operate every fifteen minutes during peak hours and every thirty minutes during off-peak hours, from 6:00AM to midnight, seven days a week. <http://www.rideTTA.org>

### Capital Area Transit (CAT)

CAT operates within the city of Raleigh with 26 bus routes serving Raleigh, the State Government Complex, NCSU, other area colleges and universities, hospitals, shopping centers, and other major activity centers. The system is primarily a radial network of routes that converge on the Moore Square Transit Station in downtown Raleigh. A downtown trolley service operates during evening hours. The service operates from

4:30AM until 12:30AM on weekdays, and 7:00AM until 7:00PM on Saturday and 8:00AM to 8:00PM on Sunday. Complementary ADA paratransit service is provided through Accessible Raleigh Transportation (ART) – see <http://www.raleigh-nc.org/transit/index.htm>

### Durham Area Transit Authority (DATA)

DATA operates 16 bus routes that link residential areas with downtown Durham, Duke University, North Carolina Central University (NCCU), hospitals, shopping centers, and other major employment centers. Of these routes, thirteen are radial routes connecting at a Transfer Terminal in downtown Durham. There are also two cross-town routes and one route providing shuttle service to NCCU. The service operates on all routes from 5:30AM until 12:30AM on weekdays, on 14 routes from 5:30AM until 12:30AM on Saturdays, and on eight routes from 6:30AM until 7:30PM on Sundays. All buses are compliant with the Americans with Disabilities Act (ADA). Complementary ADA paratransit service is provided within the city limits through a special van service called ACCESS. <http://www.ci.durham.nc.us/deprtments/works/divisions/data>

### C-Tran (Town of Cary)

C-Tran began operations in August 2001 and currently provides demand responsive public transit services for anyone who wants to travel anywhere within the Town. The system also provides medical transportation to destinations within Wake, Durham and Orange Counties for seniors (55+) and persons with disabilities and provides employment transportation within the three counties for persons with disabilities only.

### Wolfline – NCSU (North Carolina State University)

NCSU Wolfline buses run every day during which the classes are in session, serving three NCSU campuses, three park & ride lots and official NCSU housing. During the fall and spring semester, Wolfline consists of ten daytime routes and two night routes. All routes run every day when students have classes or exams, with three routes continuing to run for staff and faculty during student break days. During 2002-2003, NCSU Transportation is offering a 1-year, pilot U-PASS program. With the U-PASS, all students, faculty and staff are entitled to ride Capital Area Transit (CAT) and Triangle Transit Authority (TTA) for free, using the NCSU ID card as a boarding pass.

## General Service Characteristics

	CAT	CHT	DATA	TTA	NCSU	C-Tran
Service Start Time (weekday)	4:30am	5:45am	5:30am	5:30am	7:00am	6:00am
Service End Time (weekday)	12:00am	1:30am	12:30am	11:00 pm	2:00am (3 am Thurs, Fri)	7:00pm
Sunday Service	Yes	2 UNC routes plus weekend Shared Ride	Yes	No	Night-time only on weekend	No
Service Area (square miles)	125	25	93	1,525	5	44
Peak Frequency of Service (# of routes: peak frequency)	All: 30min	3 : 10 min 4 : 15 min 5 : 20 min 5 : 30 min 1 : 40 min 1 : 45 min 1 : 60 min	1 :15min 9 : 30min 4 : 60min	4 : 20min 7 : 30min 1 : 40min 4 : 60min	3 : 10min 5 : 15min 1 : 20min 1 : 25min	N/A
Average Speed of buses (mph)	13.4	12.6	14.5	23.1	1 1.9	N/A
Peak Bus Routes	26	20	16	16 excluding shuttles	10 daytime	N/A
Express Routes	0	5	0	4	1	N/A
Full Adult Fare	\$0.75	Free	\$0.75	\$1.50	Free	\$2.00
Demand Response Service	Yes	Yes	Yes	Yes	No	Yes
Park & Ride Service	5 lots	9 lots	None	11 lots	3 lots	N/A
Note: Reflects April 2003 service levels – taken from AECOM Regional Consolidation Study, 2003						

## F. Procurement Method

The Town of Chapel Hill will follow the provisions of G.S: 143-129.8 for the purchase for the information technology goods and services, which requires:

- Notice with accordance with G.S: 143-129(a), and
- Contracts to be awarded based on the best overall proposal as determined by the Town.

The selection criteria that will be considered in the award of the contract are listed in Section 4.

The Town of Chapel Hill, serving as the Lead Procuring Agency for the other regional transit providers, intends to purchase real time passenger information system over the course of a five-year contract period.

The Town intends to proceed with their procurement as expeditiously as possible. The other agencies may elect to purchase systems over a five-year period at the unit prices negotiated in this RFP. The other agencies may include: Triangle Transit Authority, City of Raleigh, Town of Cary, City of Durham, North Carolina State University Wolfline, Duke University Transit, Orange County, Durham County and Wake County. Inter-local agreements will be signed with each organization to allow them to issue their individual purchase orders from this RFP.

## G. (ITS) Intelligent Transportation System

### Regional and National Architecture and Standards

The National ITS Architecture (the Architecture) was developed by the United States Department of Transportation (USDOT) to facilitate seamless, integrated deployment of intelligent transportation systems across the United States. The Architecture supports a structured, systematic analysis of transportation problems and issues and provides a framework for providing technological solutions to these local, regional, and national transportation issues.

The Triangle Region of NC has developed a regional ITS Architecture plan that is available at <http://www.ncsmartlink.org/strategic/default.htm>. The needs to be addressed by this project include lack of real time information for travelers and when a vehicle will arrive at a particular stop. This project will be integrated with the regional trip planner and the statewide 511 Traveler information system.

This project must adhere to the full range of ITS standards whose development is being sponsored by the USDOT. These standards spell out specifically how data are to be defined, packaged, and shared between and among ITS systems. The table in Appendix C, lists known ITS Standards. It is the responsibility of the vendor to make CHT aware of any other standards that shall apply to this project AND to use the latest standards developed.

## H. Project Time Line and Implementation

### Project Time Line

<i>DATE</i>	<i>EVENT</i>
September 11, 2005	<i>Advertised in Chapel Hill News</i>
September 12, 2005	<i>Advertised in Passenger Transport</i>
September 12, 2005	<i>Issuance of RFP.</i>
September 29, 2005	<i>Submission of Written Questions.</i> Proposers are permitted to submit written questions, but only for purposes of clarifying this RFP. All submissions shall be mailed or emailed to the Town of Chapel Hill, directed to Coco Hall, Purchasing Coordinator, 405 Martin Luther King Jr Boulevard, Chapel Hill, North Carolina 27514, (919) 968-2712 extension 334 or <a href="mailto:chall@townofchapelhill.org">chall@townofchapelhill.org</a> . Questions are due by <b>5:00 PM</b> . Questions received after this deadline may be answered at the discretion of the Town of Chapel Hill.
October 14, 2005	<i>Questions Answered</i>
November 10, 2005	<i>Proposal Submission.</i> Complete proposals are due by <b>4:00 PM</b> as described above.
November 29 - 30, 2005	<i>Demonstration of Product:</i> Selected proposers will be scheduled to make a demonstration of their product in Chapel Hill, NC.
December 1 – December 16, 2005	<i>Evaluation.</i> During this period, the Evaluation Committee will conduct a full detailed evaluation of Proposals and References.
January 9, 2006	<i>Awarded by the Chapel Hill Town Council.</i>
January 10, 2006	<i>Contract negotiations start, notice of selection issued (approximate).</i>
August 1, 2006	<i>System must be fully tested, accepted and operational</i>

### Implementation

1. Testing Stage – The vendor shall submit for approval a comprehensive Test Plan and Acceptance Criteria. The Test Plan and Acceptance Criteria shall be finalized no later than March 1, 2006. The vendor shall also actively participate with appropriate CHT personnel in testing the functionality of the system to ascertain conformance with the Acceptance Criteria.

The System shall demonstrate its ability to pull the required data from the regional trip planner by March 1, 2006.

The System shall undergo functional testing onsite in a test environment for a minimum of 2 weeks prior to May 1, 2006. Confidence testing shall occur during production use of the System between May 1, 2006 and June 15, 2006. Every route must be assigned an equipped vehicle and data collected for comparison to the actual. CHT will issue written Acceptance of the System within 15 days of establishing that the System meets all contract requirements and upon completion of the Confidence testing period.

During testing periods, Vendor shall have in place, a process to document, resolve, respond and rectify any System issues within an acceptable period of time. In all cases, Vendor shall respond to critical System issues within 2 hours of being notified of a problem and shall keep CHT advised as the issue is worked to resolution. Critical system issues are generally defined as those significantly interfering with or preventing basic production use of the system.

2. Complete installation of in-vehicle hardware on remaining fleet – The vendor shall install the system on the remainder of the fleet and test the system in its entirety. Town acceptance is required at the completion of this phase. Work will begin on testing 2 to 3 Dynamic Message Signs.
3. Integrate with DMS – The vendor will complete the installation of the DMS and conduct testing that all signs are operating correctly.
4. Internet Interface – The vendor will work with CHT to test the website. After acceptance by CHT, the website will be linked with the CHT website.
5. System must be fully tested, accepted and operational by August 1, 2006.

## Section 2: Town of Chapel Hill

### A. Chapel Hill Transit Bus Fleet Description

Chapel Hill Transit Fleet Inventory (83 vehicles)						
#	Manufacturer	Year	Fare box	Head sign	Stop Annunciation	Radio
13	TMC RTS 35'	1990	GFI CENTSaBILL	Twin Vision	Digital Radio DR600	Motorola CDm1250
20	GILLIG 35'	1995	GFI CENTSaBILL	Luminator	None	Motorola Radius
8	GILLIG 35'	1996	GFI CENTSaBILL	Luminator	None	Motorola Radius
12	Nova 35'	1998	GFI CENTSaBILL	Luminator	None	Motorola Radius
3	Champion 25'	2000	GFI CENTSaBILL	Twin Vision	Digital Radio DR500C+	Motorola CDm1250
18	Nova/Volvo 35'	2001	GFI CENTSaBILL	Twin Vision	Digital Radio DR500C+	Motorola CDm1250
9	Nova/Volvo 35'	2002	GFI CENTSaBILL	Twin Vision	Digital Radio DR500C+	Motorola CDm1250

**Note: the 13 TMC RTS coaches are currently being re-manufactured.**

### B. Chapel Hill Transit Selected Bus Stops

CHT and its partners have agreed to place the Dynamic Message Signs at 14 bus stops. Additional bus stops may be added after the procurement. Appendix A shows the service area. The selected stop locations are included in Appendix B and additional documents (trip times by route and stop, location, ridership, routes and pictures).

### C. Town's Rights and Options

The Town reserves the following rights, which may be exercised at the Town's sole discretion:

- To supplement, amend, substitute or otherwise modify this RFP at any time;
- To cancel this RFP with or without the substitution of another RFP;
- To take any action affecting this RFP, this RFP process, or the services or facilities subject to this RFP that would be in the best interests of the Town;
- To issue additional requests for information;
- To require one or more vendors to supplement, clarify or provide additional information in order for the Town to evaluate the proposals submitted;
- To conduct investigations with respect to the qualifications and experience of each vendor;
- To waive any defect or irregularity in any Proposal received;
- To reject any or all Proposals;
- To discuss and negotiate with selected vendor(s) any terms and conditions in the Proposals including but not limited to financial terms; and
- To enter into any agreement deemed by the Town to be in the best interest of the Town, with one or more of the vendors responding,

#### Expense of Submittal Preparation

The Proposer shall be solely responsible for any and all costs in the preparation and submittal of the Proposal. No portion of these costs shall in anyway be incurred by the Town.

### Proposal Binding for 180 Days

Each Proposal shall be signed by an individual authorized to bind the vendor and shall contain a statement to the effect that the Proposal is a firm offer for a one hundred and eighty (180) calendar day period from the date of the opening. The Town reserves the right to negotiate price and services.

The Town assumes no responsibility for conclusions or interpretations derived from the information presented in this RFP, or otherwise distributed or made available during this procurement process. In addition, the Town will not be bound by, or be responsible for, any explanation, interpretation or conclusions of this RFP or any documents provided by the Town other than those given in writing by the Town through the issuance of addenda. In no event may a vendor reply to any oral statement by the Town or its agents, advisers or Service Providers.

Should a vendor find discrepancies or omissions in this RFP or any other documents provided by the Town, the vendor shall immediately notify the Town of such potential discrepancy in writing, and a written addendum will be mailed or delivered to each vendor if the Town determines clarification necessary. Each vendor requesting an interpretation will be responsible for delivering such requests to the Town's designated representatives in writing.

### Subcontracting

The Town intends to contract with the vendor whose proposal is deemed most advantageous to the Town. The successful vendor shall be the prime contractor and shall be solely responsible for contractual performance. In the event of a subcontracting relationship, the successful vendor will assume all responsibility for the performance of the services that are supplied by the subcontractor. All subcontractors and subcontractor team member roles must be listed in the project team and their products clearly defined throughout the proposal.

### Insurance Provisions

The vendor shall be required to have the following insurance coverage:

**Worker's Compensation:** Coverage to apply for all employees for statutory limits in compliance with the applicable state and federal laws. The policy must include employer's liability with a limit of \$100,000 for each accident, \$100,000 bodily injury by disease each employee and \$500,000 bodily injury by disease policy limit.

**Comprehensive General Liability:** Shall have minimum limits of \$1,000,000 per occurrence combined single limit for bodily injury liability and property damage liability. This shall include premises and/or operations, independent contractors, products and/or completed operations, broad form property damage and explosion, collapse and underground damage coverage, sudden and accidental pollution losses, and a contractual liability endorsement.

**Business Auto Policy:** Shall have minimum limits of \$1,000,000 per occurrence combined single limit for bodily injury liability and property damage liability. This shall include: owned vehicles, hired and non-owned vehicles and employee non-ownership.

### Special Requirements:

The Town of Chapel Hill is to be named as an additional insured on the Comprehensive General Liability policy.

Current, valid insurance policies meeting the above requirements shall be maintained for the duration of the project. Renewal certificates shall be sent to the Town of Chapel Hill 30-days prior to any expiration date. There shall also be a 30-day notification to the Town in the event of cancellation or modification of any stipulated insurance coverage. Certificates of Insurance on an Accord 25 (8/84) or similar form meeting the required insurance provisions shall be forwarded to the Town of Chapel Hill. Wording on the Certificate of Insurance, which states that no liability shall be imposed upon the company for failure to provide such notice, is not acceptable. The Town may require original policies or certified copies of policies at any time.

It shall be the responsibility of the Contractor to insure that all subcontractors comply with the same insurance requirements that he is required to meet.

### Hold Harmless:

The Contractor agrees to indemnify and hold harmless the Town of Chapel Hill from all loss, liability, claims or expense (including reasonable attorneys' fees) arising from bodily injury, including death or property damage to any person or persons caused in whole or in part by the negligence or willful misconduct of the Contractor except to the extent same are caused by the negligence or misconduct of the Town.

## ***Section 3: Technical Specifications***

The following technical specifications describe a system that Chapel Hill Transit (CHT) believes will best meet the requirements of its operation. However, vendors are encouraged to recommend alternative hardware/software solutions that they believe will better suit CHT's requirements.

### **A. System Purpose and Functions**

The Town of Chapel Hill intends to purchase a Real Time Passenger Information (RTPI) system for Chapel Hill Transit (CHT). As a lead agency, the Town is soliciting proposals from qualified vendors for the design, implementation and support for the system. The RTPI system will be integrated with the Regional Trip Planning Application operated by the Triangle Transit Authority (TTA) for the fixed-route transit systems in the Research Triangle region of North Carolina. This procurement will allow other transit agencies in the region to procure similar systems over a five-year period under similar terms. The RTPI system is required to be compliant with Regional and National Intelligent Transportation System (ITS) architecture, developing and emerging standards that will allow for future growth and seamless integration of various ITS components in the region. (See Appendix C)

The RTPI system will be hosted by the vendor and use data network(s) that are expandable and upgradeable to exchange data with the CHT vehicles and Dynamic Message Signs (DMS). More detailed requirements are included below.

The purpose of this Request for Proposal (RFP) for an RTPI system is to define the Town's minimum requirements and solicit proposals for the project. It is the responsibility of the

vendor to provide a fully functioning system that meets these requirements. The minimum requirements are:

1. Schedule and Route Adherence – The System will use the information from the Global Positioning System–based Automatic Vehicle Location (AVL) System to alert the Dispatcher when vehicles deviate from established routes and schedules, service interruptions, vehicle breakdowns and communication gaps based upon user defined parameters. The schedule and route adherence alarms must be presented in real time and the vendor must submit definitions and specifications on how this will work. The Dispatcher will be able to clear as well as set and control all alarms.
2. Automatic Vehicle Monitoring – The System will display all vehicle locations on a geographic map of the Chapel Hill Transit service area. The vehicle location map shall allow the operator to click or hover over a vehicle icon to view more detailed information in real time. Vehicle icon shape and color on the map will indicate the vehicle status and vehicle type. The icons should be user definable to allow for future types of vehicles in the vehicle inventory. The reported locations will be accurate within 10 meters and shall be updated based on user defined intervals (preferably one minute or less).
3. Vehicle Arrival Forecasting – The real time vehicle arrival time will be available to passengers viewing the Dynamic Message Signs (DMS) at 14 bus stops, and the website ([www.chtransit.org](http://www.chtransit.org)) for all stops in the system. (see Attachment A)
4. Operational Hours – The System will be available for customers 24 hours per day, 7 days per week. There will be no more than 1 hour unplanned down time per calendar quarter per device and /or subsystem. A proposed service level agreement should be included with the response and is described under Section D – Warranty and Maintenance.
5. Replay of Data – The Supervisor shall have the ability to query data collected for the past fourteen (14) days. Days 15 – 365 will be available from the backup. Days 366 to perpetuity will be available in summary format. This format will be determined during the implementation planning.
6. Downloading / Uploading – if there is a system need for route and / or location data to be stored on the vehicle, CHT desires a transfer method that is reliable (using widely available and understood technology), redundant (allowing for a secondary method should the primary be unavailable) and secure. CHT desires a centralized data transfer as the primary method of uploading / downloading (eliminating the need to go to vehicles or stops in order to accomplish the transfer). The vendor shall describe the proposed process for uploading / downloading data (data network(s), Wireless-Wan, etc).
7. Integration with the Regional Trip Planner – CHT's RTPI System is a component of the Regional Intelligent Transportation System (ITS) for the Triangle Region. CHT updates routes and schedules four times per year. CHT will only enter route and schedule changes in the Regional Trip Itinerary Planning software (<http://www.gotriangle.org>). This data will be used in the RTPI system and is available for export from the Regional Trip Itinerary Planning software in the following (\*.CSV, semicolon-delimited) Data Interchange Format (DIF):
  - Stops Format:  
Location-ID, code, name-1, name-2, name-3, X-coordinate, Y-coordinate, longitude, latitude, company-ID
  - Route Information Format:  
Line-ID, code, code-2, name-1, transport-type-ID

- Patterns Format:  
Line-to-location-ID, line-ID, location-ID, order-number, policy-code
- Calendar Format:  
Date, day
- Runs Format:  
Departure-ID, line-ID, mobility, date-from, date-to
- Run Dates Format:  
Departure-ID, day
- Run Times Format:  
Departure-ID, line-to-location-ID, time-1, time-2, time-point

If preferred, the selected vendor may also directly access the SQL database that is hosted by the Triangle Transit Authority on the Linux servers. The contact person for the regional trip planning application is:

Ian Sheffield  
 Project Lead  
 Ontira Communications Inc.  
 Phone: 604.669.1070 Ext. 237  
 Fax: 604.669.1080  
 Email: [isheffield@ontira.com](mailto:isheffield@ontira.com)

#### Regional Trip Planner - Updating process (approximately four times per year)

The procedures for updating bus stop and schedule data on the trip planner are summarized as follows:

- a. Each participating transit agency is responsible for maintaining their own stop and schedule data.
- b. Whenever an agency wants to make a change to the databases used by the trip planner, the agency must amend the Data Interchange Format (DIF) files for stops, schedules, or schedule patterns.
- c. Changes to the stop data include adding and deleting stops, changing the coordinates, or changing the stop name.
- d. Changes to schedule data include creating new schedules for different service periods, changing timepoints, scheduled times at timepoints, or the names of patterns run during specific trips.
- e. Changes to schedule patterns include the names of the patterns, the sequence of stops on the pattern, and the service rules at each stop (e.g., drop-off only).
- f. The changed DIF files are sent to TTA with a request to upload the them to the database in the “test” server
- g. Once the files are uploaded, the originating agency is notified either that there were errors, or that the data is ready for testing.
- h. Once the originating agency has tested the data to their satisfaction, they either send corrected files (and restart the loading and testing cycle) or notify TTA that the files are ready to be loaded to the “live” server.
- i. For minor changes, staff at each agency can make amendments directly to the “test” and “live” servers. The originating agency still needs to send TTA updated versions of the DIF files following these changes. The originating agency also needs to notify TTA that changes have been made so that the trip routing algorithm can be re-started making the changes apparent to customer service representatives and public users.

## **B. Hardware Requirements and Features**

All hardware components shall be new and suitable for the purposes specified and from reputable sources. The names of the manufacturers and specifications should be included in the response. The warranty and maintenance requirements are included in Section D.

1. Operational End Hardware – The vendor shall include separate descriptions of their recommended operational end hardware (dispatch console, fixed-end computing and communications equipment) and server hardware. CHT will use these minimum requirements to determine if existing hardware is compliant with the system requirements.
2. Archive and Back Up Devices / Disaster Recovery – The System shall include a high-density archive storage system for perpetual storage of historical data. The vendor shall provide an information lifecycle plan for historical data including on-line, near-line and off-line elements, storage methods, time frames and processing requirements. Additional items to be included are back up options that include tape, CD/DVD-ROM, disk-to-disk, database replication and server failover, which may be more appropriate in a hosted environment. Along with the backup method, a suitably rigorous and robust disaster recovery plan should be proposed in the event of catastrophic failure (such as accidental or malicious destruction of data, theft or destruction of equipment or facilities, etc.) which includes replacement of equipment and restoration of programs and data, with anticipated timeframes to restore full operation of the system.
3. Uninterruptible Power Supply (UPS) / Power Management Plan – The vendor shall specify power management requirements in terms of how power interruptions and restorations will be handled, rather than simply the battery capacity (in minutes). The RTPi system will have many different components, which will have varying power management requirements. For instance, the vehicle communications may require a more robust plan than the message signs at bus stops. The vendor should carefully describe the unique requirements of each subsystem and / or critical components. The vendor shall describe the factors in determining the amount of time required for subsystem operations following the onset of a power interruption event as well as the shutdown and power restoration procedures.
4. Servers – The database services shall be available 24 hours / day, 7 days per week. There will be no more than 1 hour unplanned down time per calendar quarter. A proposed service level agreement should be included in the response and is described under Section D – Warranty and Maintenance.
5. Dynamic Message Signs – CHT has provided pictures, frequency, routes served, and daily boardings at the selected bus stops (see Appendix B) and will be responsible for getting power to the sign locations with the specifications provided by the vendor. Creativity in developing a network of signs that will minimize the ongoing operating and maintenance costs is important. Use of newer wireless data transmission technologies such as WiMAX should be given newer consideration. The vendor shall recommend the appropriate DMS for each of the 14 potential locations and location (pole, inside shelter). The number of routes served and headways will determine the size of the

sign. CHT requires information displayed as follows: route number, destination and minutes until arrival.

The DMS system(s) must be rugged outdoor displays and meet or exceed all ADA requirements found in 49CFR Parts 37.167 and 38.35. Compliance with the NTCIP-compliant Dynamic Message Signs standard is a requirement. Details are available at (<http://www.ntcip.org>). The vendor must describe how it is compliant with the requirements of this paragraph.

Other specific information to be provided is:

- Type of sign (digital, LED, LCD, CRT, or other evolving technology)
- Physical size and characteristics (3-dimensions, materials used, environmental requirements)
- Resolution and/or letter size
- Possibilities of sending system wide and route specific messages to the signs (e.g. reduced service in effect, inclement weather system shutdown)
- Communication with the signs (land-lines, private-radio, data network(s) Wi-Fi, etc)
- Interfaces and requirement to display services provided by other regional transit systems; particularly differentiation between service providers on the signs
- Power requirements and sourcing for each sign (consumption: from grid, solar, batteries)
  - In the case of a solar panel power solution, the vendor shall elaborate on how the sign will remain functional throughout the night (power saving mode(s)), and its battery's recharging cycle(s).
- Pictures and/or technical drawings as well as all other pertinent specifications of the proposed signs shall also be provided.

7. Vehicle Area Network (VAN) – CHT considers the ability to readily interface to a wide variety of on-board devices manufactured by various suppliers as a crucial element in providing facilities and services required to meet future regulatory and service demands. To help meet these demands, all vehicle-based equipment must support industry standard interfaces and protocols, and state which standards that are met and exceeded by the proposed system.
8. Vehicle to Base Station Communications- CHT desires creativity in minimizing the recurring costs of data communication. Areas to be described include: possibility of using one data network subscription, or will the system have to have one data network subscription per endpoint, coverage area with specific limits on weak or dead zones, reliability, quality of service, service level agreements, performance incentives, and ability to migrate to an alternate network in the future. The vendor will describe the vehicle to database server communications network.
9. Environmental Requirements – Vehicle equipment shall be designed to withstand repeated exposure to inclement weather, vibration, under voltage/over voltage conditions, heat and humidity, and other conditions normally present on transit vehicles. The vendor shall provide the minimum conditions under which the on-board vehicle equipment operates (and will continue to operate for a minimum of 5 years), Mean-Time-Between-Failure (MTBF) as well as all applicable standards that are met or exceeded. The conditions to be described include: operating voltages, operating temperature, humidity, shock, vibration and EMI/RFI.

9. Mobile Computer (MDC) and / or Vehicle Logic Unit (VLU) – The vendor shall provide a description (functional, operational, features) of the hardware used for the operator to interface with the system (sign-on, messaging, etc) or state that it is not required.
10. Automatic Vehicle Location (AVL) – CHT desires a Global Positioning Based (GPS) – Automatic Vehicle Location (AVL) System. The vendor shall provide GPS units, antennas and all necessary connections required to monitor the locations of all CHT vehicles. The GPS units shall be parallel (dedicated channel) tracking receivers, capable of simultaneously tracking at least eight (8) GPS satellites in the best geometry for a position fix, and providing time signals to the vendor-provided on-board equipment or equivalent. The vendor will list the information the GPS units will collect and report.

The GPS units shall have a cold start Time To First Fix (TTFF) solution time of two minutes or less and a signal reacquisition time of 15 seconds or less (following the loss of the signal for at least one minute). The GPS units shall support all Block I, Block II, and Block IIR GPS satellites that are operational at the time the GPS equipment is delivered. The minimal positional accuracy must be included in the vendor response.

### **C. Software Requirements and Features**

1. Software Licenses – The vendor shall provide perpetual licenses for all supplied software, exceptions should be noted in the vendor's response. Respondents shall provide a complete schedule of all software products, including detailed product information, complete publisher (license grantor) contact information, license model (per user, per server, per workstation, per vehicle, per concurrent use, etc.), license cost and any other relevant information. This schedule will be thoroughly reviewed by the Town and other CHT partners for products which may be covered by existing license agreements in order to avoid duplication.

CHT is open to owning the software with the vendor hosting the application OR to the vendor owning and hosting the software. The vendor shall describe their proposed approach to this implementation.

2. Prediction Model – The vendor will describe the prediction algorithm / model and the data that are used as input to the algorithm / model that determines the real-time arrival information provided to the customer as well as where the storage location of the data used to predict arrival times (e.g. on the vehicle, server / server location, ...). The accuracy of these predictions and how that is measured should also be included in the proposal.
3. Internet –
  1. The vendor shall describe and show how the internet is used to provide real time information to CHT's customers. Explanations and provision of the bandwidth requirements shall be included both for the customer interface and for seamless connectivity of the Dispatcher and the hosted application will also be provided. The response time for inquiries shall be described and included in the service level agreement.
  2. The vendor shall describe the public web interface and/or website functionality. Additional information will be provided on how the website is ADA (American's with Disabilities Act) compliant (49CFR Parts 37.167 and 38.35). The vendor

will describe the website design process, operations, interoperability with the Triangle Transit Authority and procedures for implementing upgrades, updates, or changes.

4. Operating System – If a hosted application service provider installation is proposed, the vendor shall describe the client software to be installed on the Dispatchers' computers and its minimum requirements. It is preferred that all user functions shall utilize the standard graphical user interface (GUI) of the operating system. This means the Dispatcher may move between different windows without terminating or suspending any processes running in the System.
5. Communications Network – CHT desires creativity in minimizing the recurring costs of data communication. Areas to be described include: possibility of using one data network subscription, or will the system have to have one data network subscription per endpoint, coverage area with specific limits on weak or dead zones, reliability, quality of service, service level agreements, performance incentives, and ability to migrate to an alternate network in the future. The vendor will describe the communications network. The vendor will describe the database server-to-CHT operator console as well as the database server-to-internet data communications networks.
6. Database Software – CHT does not have a preference to the type of database used by the system. However, the vendor will describe the database proposed. The licensing shall be supplied with the system (see C-1). The database must be ODBC (*Open DataBase Connectivity*), XML (*Extensible Markup Language*) and able to support access by third-party commercial packages (such as Microsoft Office, report writers, ESRI formats (ARCInfo coverage, Shapefile and Geobase)) and exchange of data on the web. The vendor shall describe their compliance to these standards.
7. System Security – The System shall provide security controls to prevent unauthorized access to the database as well as limit the availability to application functionality, data records and data elements where appropriate.
8. Data Import / Export – CHT shall own all the data collected. The data shall be easily imported and exported to other desktop and server applications such as Microsoft Excel and reporting tools.
9. Administrative Tools – The vendor shall describe the administrative tools provided to monitor the network, application and database utilization, as well as errors in any of the vital subsystems. This description shall include adjustment of the system parameters.
10. Optional Considerations:
  - a. Cell Phone and Personal Data Assistants (PDA) Interfaces – CHT desires to consider access by these devices as an option in this bid. The vendor shall describe these interfaces and requirements and price separately.
  - b. Single Log In – CHT desires to consider a single log in for the vehicle operator to log onto an automatic stop annunciation system, automatic passenger counters, electronic fareboxes, electronic destination signs and the RTPI systems. The vendor shall describe and price this separately.

#### **D. Warranty and Maintenance**

1. Service Level Agreement – The vendor shall provide a proposed service level agreement that will include the data network(s) and other devices or subsystems (including prediction model) and the incentives / penalties associated with the performance expectations not being met.
2. Confidence Testing Support – The vendor shall provide onsite functional and technical assistance for 60 calendar days after CHT's system acceptance which shall be considered the confidence testing period. This technical assistance shall be provided at any site (stops or vehicles) throughout the system. Such onsite assistance and support shall be available within 2 hours notice during this period of time.
3. Ongoing Support – The vendor shall provide ongoing user and technical support for a period of five years under a Maintenance and Support Agreement. Such agreement shall include providing all generally available product updates and upgrades, support for installing and configuring product updates as they become available as well as user training for upgrades or enhancements, when required, throughout the support period.

The vendor shall provide a single source of technical support for resolution of issues and problems including those pertaining to any third-party vendors. In such cases of a problem involving a third-party vendor, the vendor shall act as the principal point of contact and shall actively work toward resolution of the problem.

The vendor shall provide a typical maintenance support agreement.

4. Spare Parts – A complete list of spare parts along with corresponding prices must be included in the proposal. The effective period for the price list must be supplied. All spare parts must be available for a period of seven (7) years unless otherwise identified. Adequate spare parts must be provided to ensure timely system restoration.
5. Warranty – A warranty will be provided for the software, implementation services, hardware and the operability of the System for a minimum of one year, which is to begin on the date of system acceptance. A copy of the vendor's warranty will be provided.
6. Software – The vendor (software licensor) warrants that the software conforms in all material respects to the requirements and specifications. The vendor warrants that the software's capabilities satisfy the functional requirements herein. Furthermore, the warranty shall be valid for the duration of the implementation and three years after final acceptance.
7. Implementation Services – Vendor warrants implementation services (e.g., work products, developed modifications, and system configuration) for three years after final acceptance date.
8. The System – The vendor shall warrant that the System shall properly operate for five years after final acceptance.

CHT expects to receive full support during hardware and software configuration of the system.

## **E. Reporting**

1. Standard Reports – The system shall include a report generating capability. The vendor shall provide reports that include delay times, on time performance and vehicles operating outside a selectable on-time performance standard(s). In addition, the vendor shall provide a list and samples of the standard AVL reports provided in the system. A robust query and reporting function must be incorporated with the system, allowing the creation, storage and regeneration of user-defined reports from current and historical information, on both an ad hoc and scheduled basis and subject to appropriate security constraints.
2. Report Query – The vendor shall describe the report query tools available to the user.
3. Monthly Reports – The hosting agency shall generate system utilization reports for CHT. The contents of these reports will be determined during the implementation planning.

## **F. Training**

The vendor should provide a recommendation for CHT on the level of training and support needed to configure, operate and maintain the system adequately. The recommendation should specify training facilities needed, number of hours and number of people to be included in the training, materials and cost. A sample training plan will be submitted with the proposal and finalized during contract negotiations.

Training should begin shortly after contract award. The cost of providing additional / follow up training should also be provided.

## ***Section 4: Selection Process***

### **A. Vendor Qualifications / Expectations**

The Town of Chapel Hill is looking to contract with a single vendor to design, deploy, and provide long-term support of this project. This vendor must have at least one reference listed that has been designed, deployed and is in full operation. CHT encourages partnerships in meeting the project requirements. CHT requires a single point of contact and that all partners are included in the team and product information provided..

### **B. Selection Criteria**

This procurement will be conducted using competitive proposal procedures. It is the intent of the Town to conduct technical evaluations of proposals received, hold vendor interviews, conduct negotiations with one or more vendors, and select a vendor, with the goal of promoting fairness and competition.

The Purchasing Coordinator shall appoint a Selection Committee to evaluate and determine which proposals are responsive and will rank them according to the evaluation criteria. The Committee shall make its findings to and award recommendations to the Town Council. The Council shall award all competitive proposal contracts to the responsible firm whose proposal is most advantageous to the Town considering price and technical requirements. The Council, however, reserves the right to reject any or all proposals as provided in G.S. 143-129(b).

Proposals received will first be reviewed for completeness and inclusion of the information requested in the Request for Proposal. The absence of required information may result in exclusion from further consideration. The following criteria will be used to evaluate the proposals.

Responsiveness of the technical proposal to the requirements stated in the RFP	40%
Creativity in minimizing communication expenses	10%
Functionality and ease of use	10%
References	15%
Experience and qualifications of the project team	15%
Cost	10%

### **C. Submissions, Information, Requirements, Instructions**

#### General Requirements

Vendors must prepare and submit seven (7) copies (including one original and six copies) of their submission organized in the manner and sequence in which the information is requested in this section. Proposals shall be concisely prepared in letter size form (8 1/2" x 11"), preferably bound to ensure that portions of the submission do not become separated. Proposals submitted by facsimile or e-mail will not be accepted. Failure to include all of the requested information may result in the elimination of the vendor from consideration.

#### Contents of Submission

- Exhibit 1 Pricing Schedule
- Exhibit 2 Form of Proposal and Acknowledgement of Addenda
- Exhibit 3 Firm Profile, Experience and References
- Exhibit 4 Proposed System Description and Compliance with Technical Specifications
- Exhibit 5 Anticipated Project Timeline
- Exhibit 6 Certification of Compliance with Requirements for the Participation of Disadvantaged Business Enterprises (DBEs)
- Exhibit 7 Certification of Primary Participants Regarding Debarment, Suspension, and Other Responsibility Matters
- Exhibit 8 Certification of Restrictions on Lobbying
- Exhibit 9 Federal Requirements and Special Conditions for Technology Goods and Services

**Exhibit 1: Pricing**

The vendors are to supply a fully descriptive quote of all costs, inclusive of all components and services, required to complete and deliver a fully functioning RTPi system meeting the requirements of this RFP. Costs will be shown per unit, subtotal, recurring and grand total for all portions of the system. Costs for annual system maintenance beyond the initial warranty period shall be included. CHT expects different size signs to be used at the stops depending on the activity level and wants options priced.

<b>Pricing Schedule</b>			
<b>Communication System (use appropriate line items)</b>	<b># Of Units</b>	<b>Unit Price</b>	<b>Extended Price</b>
Fixed-End Hardware	1		
Vehicle Hardware	83		
<b>Data Communication Costs</b>			
Year 1 Cost (proposed usage of _____)	83		
Year 2 Cost (proposed usage of _____)	83		
Year 3 Cost (proposed usage of _____)	83		
Year 4 Cost (proposed usage of _____)	83		
Year 5 Cost (proposed usage of _____)	83		
<b>Total</b>			
<b>Required</b>			
Vehicle Logic Unit or MDC (See Section 3.B. 9)	83		
Automatic Vehicle Location	83		
Fixed-End-Computer – Servers	1		
Fixed-End-Computer – Software	1		
License Fees			
Real Time on Internet			
Training			
Other _____			
Other _____			
Other _____			
<b>Total</b>			
<b>Dynamic Message Sign types as proposed for the Stops:</b>			
Sign #1:			
Sign #2:			
Sign #3:			
Sign #4:			
<b>Total</b>			
<b>Maintenance / Operating Fees</b>			
Year 1			
Year 2			
Year 3			
Year 4			
Year 5			
<b>Total Warranty</b>			
<b>Options</b>			
Cell Phone Interface			
PDA Interface			
Single Log In			
<b>Total</b>			
<b>Hourly Labor Rate</b>			

- Each vendor will provide a listing of spare parts.
- CHT will use the unit prices to purchase spare components AND equipment for an expansion fleet (if funded).

**EXHIBIT 2: Form of Proposal & Acknowledgement of Addenda**

I understand that Town of Chapel Hill reserves the right to reject this proposal, but that this proposal shall remain open and shall not be withdrawn for a period of sixty (60) days from the date of its submission. Prices submitted in response to the RFP will be valid for a minimum of 180 days from the date of proposal submission.

The price quoted in any proposal shall include all labor, materials, tools, equipment and other costs necessary to fully complete the design, manufacture, delivery and implementation of the system pursuant to the negotiated specifications.

Name of Firm: \_\_\_\_\_

Name & Title of Authorized Official: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_/\_\_\_/2005

Business Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone Number: (\_\_\_\_) \_\_\_\_ - \_\_\_\_

Fax Number: (\_\_\_\_) \_\_\_\_ - \_\_\_\_

Email Address: \_\_\_\_\_

**Acknowledgement Of Addenda Received:**

Addendum No.: Date Received: \_\_\_\_\_

Addendum No.: Date Received: \_\_\_\_\_

Addendum No.: Date Received: \_\_\_\_\_

If no addenda were received, write "N/A" in each "Addendum No." blank. Failure to acknowledge receipt of all addenda may cause the proposal to be considered non-responsive to the solicitation. Acknowledged receipt of each addendum must be clearly established.

Please attach a copy of each addendum received to this Exhibit.

### **EXHIBIT 3: Firm Profile, Experience, References and Financial Capacity**

The following information must be provided:

1. Name and address of firm;
2. Number of regular employees of the firm and an organizational chart;
3. Name, mailing and physical addresses, telephone and facsimile numbers and e- mail address of the Project Manager designated by the vendor (the Project Manager shall be the primary contact person with the Town);
4. Names, titles and brief statements of qualifications and experience of all personnel who will work on the Town's project and the relevancy of similar assignments completed by key personnel – this must include any and all partners included on the Project Team.
5. A reference list, including at least two installations that are currently active. The references should be of comparable or greater size than CHT, with at least 25 vehicles tracked and information relayed to passenger information displays; Internet site and/ or cellular phones. For each separate project, include the following: name, telephone number and e-mail address of contact person at the procuring agency; a description of the project including the number of vehicles and the communication devices, approximate number of days from contract execution to full implementation of the project; and approximate number of days (if applicable) that contract time was exceeded;

This is the data to be provided in a table or excel spreadsheet for all references:

- Transit Authority / Company Name
  - Contact name and title
  - Address / phone / e-mail
  - Description of the company business
  - Date started project; duration of original installation; Go Live Date
  - Total Number of Vehicles; Peak Vehicles – list by type (bus, LTV, ...)
  - Release level and system modules currently installed
  - Customizations, if any
  - Hardware and network configuration
  - Cost of project installation
  - Communication devices used: DMS, Internet, cell phones, PDAs, other
6. Provide a chronology of company history. Include any mergers, acquisitions or divestitures in the last ten years.

## **EXHIBIT 4: Proposed RTPI System Description and Compliance with the Technical Specifications**

The vendor shall include the following information formatted in accordance with the outline listed below. Please note that while the Town expects vendors to meet all requirements of this solicitation; alternative approaches may be necessary or desirable to achieve the same functional goals. Please refer to the sections noted below for additional detail on what should be included:

1. Meeting the Requirements of the System
  - a. Describe in detail how the proposed systems' components will satisfy the Town's RFP System Requirements and Functions.
  - b. Hardware Requirements and Features
  - c. Software Requirements and Features
  - d. Warranty and Maintenance
  - e. Reporting
  - f. Training
2. Meeting the Implementation Plan
  - a. Describe in detail the implementation plan and meeting the system acceptance testing.

## **EXHIBIT 5: Timeline**

The timeline shall begin at contract execution and end at full implementation and acceptance of the system the Town. Please include a time line that shows the system fully tested, accepted and operational by August 1, 2006. Refer to Section I. Implementation for interim dates that the Town expects for testing to occur. Post award activities will include completing this time line with tasks assigned appropriately.

**EXHIBIT 6: Certification of Compliance with Requirements for the Participation of Disadvantaged Business Enterprises (DBEs)**

The bidder hereby certifies that it will comply with the requirements of Section 19 of the FTAct, Section 105(f) of the Surface Transportation Assistance Act of 1982, Section 106(c) of the Surface Transportation and Uniform Relocation Assistance Act of 1987, and the DOT implementing regulations of 49 CFR Part

23. The certification must be completed to be eligible for award.

DATE \_\_\_\_\_

SIGNATURE \_\_\_\_\_

TITLE \_\_\_\_\_

FIRM \_\_\_\_\_

State of \_\_\_\_\_

County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

Notary Public \_\_\_\_\_

My Appointment Expires \_\_\_\_\_

**EXHIBIT 7: Certification of Primary Participants Regarding Debarment, Suspension, and Other Responsibility Matters**

CERTIFICATION REGARDING DEBARMENT, SUSPENSION,  
INELIGIBILITY and VOLUNTARY EXCLUSION  
LOWER TIER COVERED TRANSACTION

*(To be submitted with all bids or offers exceeding \$25,000.)*

The prospective lower tier participant (Bidder/Contractor) certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. §29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

\_\_\_If the prospective lower tier participant (Bidder/Contractor) is unable to certify to the statements in this certification, such prospective participant (Bidder/Contractor) shall attach an explanation to this proposal. (Check if applicable)

The lower tier participant (Bidder/Contractor), \_\_\_\_\_, certifies or affirms the truthfulness and accuracy of this statement of its certification and disclosure, if any.

SIGNATURE \_\_\_\_\_

TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

DATE \_\_\_\_\_

State of \_\_\_\_\_

County of \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_ day of \_\_\_\_\_, 20\_\_\_.

Notary Public \_\_\_\_\_

My Appointment Expires \_\_\_\_\_

\_\_\_\_\_  
Date

## EXHIBIT 8: Certification Of Restrictions On Lobbying

(To be submitted with all bids or offers exceeding \$100,000; must be executed prior to Award)

The undersigned \_\_\_\_\_ certifies, to the best of his or her knowledge and belief, that:  
(Contractor)

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any persons for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding to any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions [as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, *et seq.*.)]
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance is placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transactions imposed by 31, U.S.C. 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

[Note: Pursuant to 31 U.S.C. 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 for each such expenditure or failure.]

The Contractor, \_\_\_\_\_, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Section A 3801 *et seq.*, apply to this certification and disclosure, if any.

\_\_\_\_\_  
Date  
Official

\_\_\_\_\_  
Signature of Contractor's Authorized

\_\_\_\_\_  
Name and Title of Contractors Authorized Official

Subscribed and sworn to before me this \_\_\_ day of \_\_\_\_\_, 20\_\_\_, in the State of \_;  
and the County of \_\_\_\_\_.

Notary Public \_\_\_\_\_  
My Appointment Expires \_\_\_\_\_

## **EXHIBIT 9: FEDERAL REQUIREMENTS AND SPECIAL CONDITIONS for TECHNOLOGY GOODS and SERVICES**

### **1. General**

The equipment provided and work performed under this contract will be financed, in part, by grants provided under programs of the Federal Transit Act, as amended. The Contractor understands that federal laws, regulations, policies, and related administrative practices applicable to this contract may be modified from time to time. The Contractor agrees that the most recent of such federal requirements will govern this contract at any particular time, unless the federal government determines otherwise. Likewise, new federal laws, regulations, policies and administrative practices may be established after the contract is executed and may apply to this contract. The following identifies, but is not limited to, the federal requirements that shall apply to this contract.

### **2. No Government Obligation to Third Parties**

The Purchaser and Contractor acknowledge and agree that, notwithstanding any concurrence by the federal government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the federal government, the federal government is not a party to this contract and shall not be subject to any obligations or liabilities to the Purchaser, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

The Contractor agrees to include the above clause in each subcontract financed in whole or in part with federal assistance provided by the Federal Transit Administration. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

### **3. False or Fraudulent Statements and Claims**

(1) The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 et seq . and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this Project. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

(2) The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the

penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

(3) The Contractor agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

#### 4. Access to Records

The following access to records requirements apply to this Contract:

- a Where the Purchaser is not a State but a local government or a subgrantee of the Purchaser in accordance with 49 CFR 18.36(i), the Contractor agrees to provide the Purchaser, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives, access to any books, documents, papers and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts and transcriptions. Contractor also agrees, pursuant to 49 CFR 633.17 to provide the FTA Administrator or his authorized representatives including any Project Management Oversight Contractor access to Contractor's records and construction sites pertaining to a major capital project, defined at 49 USC 5302(a)1, which is receiving federal financial assistance through the programs described at 49 USC 5307, 5309 or 5311.
- b Where the Purchaser is a State and or a subgrantee of the Purchaser in accordance with 49 C.F.R. 633.17, the Contractor agrees to provide the Purchaser, the FTA Administrator or his authorized representatives, including any Project Management Oversight Contractor, access to the Contractor's records and construction sites pertaining to a major capital project, defined at 49 U.S.C. 5302(a)1, which is receiving federal financial assistance through the programs described at 49 U.S.C. 5307, 5309 or 5311. By definition, a major capital project excludes contracts of less than the simplified acquisition threshold currently set at \$100,000.

The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

- c The Contractor agrees to maintain all books, records, accounts and reports required under this contract for a period of not less than three years after the date of termination or expiration of this contract, except in the event of litigation or settlement of claims arising from the performance of this contract, in which case Contractor agrees to maintain same until the Purchaser, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto. Reference 49 CFR 18.39(i)(11).

FTA does not require the inclusion of these requirements in subcontracts.

## 5. Federal Changes

The Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the [Master Agreement](#) between the Purchaser and the FTA, as they may be amended or promulgated from time to time during the term of this contract. The Contractor's failure to so comply shall constitute a material breach of this contract.

## 6. Civil Rights

The following requirements apply to the underlying contract:

(1) Nondiscrimination - In accordance with Title VI of the Civil Rights Act, as amended, 42 USC § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 USC § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 USC § 12132, and federal transit law at 49 USC § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the Contractor agrees to comply with applicable federal implementing regulations and other implementing requirements the FTA may issue.

(2) Equal Employment Opportunity - The following equal employment opportunity requirements apply to the underlying contract:

(a) Race, Color, Creed, National Origin, Sex - In accordance with Title VII of the Civil Rights Act, as amended, 42 USC § 2000e, and federal transit laws at 49 USC § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 CFR. Parts 60 et seq ., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 USC § 2000e note), and with any applicable federal statutes, executive orders, regulations, and federal policies that may in the future affect construction activities undertaken in the course of the Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action 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. In addition, the Contractor agrees to comply with any implementing requirements the FTA may issue.

(b) Age - In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 USC § 623 and federal transit law at 49 USC § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements the FTA may issue.

(c) Disabilities - In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12101 *et seq.*, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with all applicable requirements of the following regulations and any subsequent amendments thereto:

- (1) U.S. DOT regulations "Transportation Services for Individuals with Disabilities (ADA)" 49 C.F.R. Part 37;
- (2) U.S. DOT regulations "Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance," 49 C.F.R. Part 27;
- (3) Joint U.S. Architectural and Transportation Barriers Compliance Board (U.S. ATBCB) U.S. DOT regulations, "Americans with Disabilities (ADA) Accessibility Specifications for Transportation Vehicles," 36 C.F.R. Part 1192 and 49 C.F. R. Part 38;
- (4) U.S. DOJ regulations "Nondiscrimination on the Basis of Disability in State and Local Government Services," 28 C.F.R. Part 35;
- (5) U.S. DOJ regulations "Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities." 28 C.F.R. Part 36;
- (6) U.S. GSA regulations "Accommodations for the Physically Handicapped," 41 C.F.R. Subpart 101-19;
- (7) U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630;
- (8) U.S. Federal Communications Commission regulations "Telecommunications Relay Services and Related Customer Premises Equipment for the Hearing and Speech Disabled," 49 C.F.R. Part 64, Subpart F;
- (9) U.S. Architectural and Transportation Barriers Compliance Board regulations, "Electronic and Information Technology Accessibility Standards." 36 C.F.R. Part 1194;

(10) FTA regulations, "Transportation of Elderly and Handicapped Persons," 49 C.F.R. part 609; and

(11) Any implementing requirement FTA may issue.

(d) Access to Services for Persons with Limited English Proficiency. The Contractor agrees to comply with Executive Order No. 13166, "Improving Access to Services for Persons with Limited English Proficiency," 42 U.S.C. § 2000d-1 note, and U.S. DOT Notice, "DOT Guidance to Recipients on Special Language Services to Limited English Proficient (LEP) Beneficiaries," 66 Fed. Reg. 6733 et seq., January 22, 2001.

(e) Environmental Justice. The Contractor agrees to comply with the policies of Executive Order No. 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," 42 U.S.C. § 4321 note.

(f) Other Nondiscrimination Statutes. The Contractor agrees to comply with all applicable requirements of any other nondiscrimination statute(s) that may apply to this Contract.

The Contractor also agrees to include these requirements in each subcontract financed in whole or in part with federal assistance provided by the FTA, modified only if necessary to identify the affected parties.

## 7. Termination

Termination for Convenience (General Provision) - The Purchaser may terminate this contract, in whole or in part, at any time by written notice to the Contractor when it is in the government's best interest. The Contractor shall be paid its costs, including contract close-out costs, and profit on work performed up to the time of termination. The Contractor shall promptly submit its termination claim to the Purchaser to be paid the Contractor. If the Contractor has any property in its possession belonging to the Purchaser, the Contractor will account for the same, and dispose of it in the manner the Purchaser directs.

Termination for Default [Breach or Cause] (General Provision) - If the Contractor does not deliver supplies in accordance with the contract delivery schedule, or, if the contract is for services, the Contractor fails to perform in the manner called for in the contract, or if the Contractor fails to comply with any other provisions of the contract, the Purchaser may terminate this contract for default. Termination shall be effected by serving a notice of termination on the Contractor setting forth the manner in which the Contractor is in default. The Contractor will only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner of performance set forth in the contract. If it is later determined by the Purchaser that the Contractor had an excusable reason for not performing, such as a strike, fire, or flood, events which are not the fault of or are beyond the control of the Contractor, the Purchaser, after setting up a new delivery of performance

schedule, may allow the Contractor to continue work, or treat the termination as a termination for convenience.

Opportunity to Cure (General Provision) - The Purchaser in its sole discretion may, in the case of a termination for breach or default, allow the Contractor time (to be determined by the Purchaser) in which to cure the defect. In such case, the notice of termination will state the time period in which cure is permitted and other appropriate conditions

If the Contractor fails to remedy to the Purchaser's satisfaction the breach or default of any of the terms, covenants, or conditions of this Contract within ten days after receipt by Contractor of written notice from the Purchaser setting forth the nature of said breach or default, the Purchaser shall have the right to terminate the Contract without any further obligation to Contractor. Any such termination for default shall not in any way operate to preclude the Purchaser from also pursuing all available remedies against Contractor and its sureties for said breach or default.

- a. Termination for Default (Supplies and Service) - If the Contractor fails to deliver supplies or to perform the services within the time specified in this contract or any extension or if the Contractor fails to comply with any other provisions of this contract, the Purchaser may terminate this contract for default. The Purchaser shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of the default. The Contractor will only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner or performance set forth in this contract.

If, after termination for failure to fulfill contract obligations, it is determined that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the Purchaser.

If this contract is terminated while the Contractor has possession of the Purchaser's goods, the Contractor shall, upon direction of the Purchaser, protect and preserve the goods until surrendered to the Purchaser or its agent. The Contractor and the Purchaser shall agree on payment for the preservation and protection of goods. Failure to agree on an amount will be resolved under the Dispute clause.

If, after termination for failure to fulfill contract obligations, it is determined that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the Purchaser.

## 8. Contracting with Disadvantaged Business Enterprises

The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The requirements of 49 CFR. Part 23 and the recipient's U.S. DOT-approved Disadvantaged Business Enterprise (DBE) program are incorporated in contract by reference. Failure by the Contractor to carry out these requirements is a material breach of the contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

The Federal Transit Administration (FTA) requires that eligible Contractors must certify that "good faith" efforts have been made to use Disadvantaged Business Enterprises (DBEs). DBEs are defined as small business concerns which are at least 51% owned by one or more socially and economically disadvantaged individuals, or in the case of publicly owned businesses, at least 51% of the stock must be owned by one or more socially and economically disadvantaged individuals. This also includes businesses whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it. Pursuant to the requirements of 49 CFR 23.43, the following statements are incorporated:

- a) Policy. It is the policy of the Department of Transportation that Disadvantaged Business Enterprises as defined in 49 CFR Part 23 have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with federal funds under this agreement. Consequently, the DBE requirements of 49 CFR Part 23 apply to this agreement.
- b) DBE Obligation. The recipient or its Contractor agrees to ensure that DBEs as defined in 49 CFR Part 23 have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with federal funds provided under this agreement. In this regard, all recipients or Contractors shall take all necessary and reasonable steps in accordance with 49 CFR Part 23 to ensure that DBEs have the maximum opportunity to compete for and perform contracts. Recipients and their Contractors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of contracts assisted by the Department of Transportation.

As a minimum, necessary and reasonable steps ("good faith effort") to assure that DBEs are used when ever possible include:

1. Placing qualified Disadvantaged Business Enterprises on solicitation lists;
2. Assuring that DBEs are solicited whenever they are potential sources;
3. Dividing total requirements, when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs;
4. Establishing delivery schedules, where the requirement permits, that encourage participation by DBEs;

5. Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce;
6. Contractor shall maintain records by which to document steps taken and achieved with DBE firms and of all DBE substitutions made, as applicable; and
7. Requiring the prime Contractor, if subcontracts are to be let, to have sub - Contractors take the affirmative steps listed above in subparagraphs 1 through 6.

Section 19 of the Federal Transit Act, as amended, Section 105(f) of the Surface Transportation Assistance Act of 1982, Section 106(c) of the Surface Transportation and Uniform Relocation Assistance Act of 1987, and DOT implementing regulations at 49 CFR Part 26 impose additional requirements for the participation of disadvantaged business enterprises (DBEs) in FTA programs.

Also, it is required that whenever contract alternatives, amendments, or extra work orders are made individually or in the aggregate, which increase the total value of the original contract, the contract shall make a good faith effort to increase the M/WBE utilization such that the amounts subcontracted are consistent with the established goals.

#### 9. Incorporation of Federal Transit Administration (FTA) Terms

The preceding provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, as set forth in [FTA Circular 4220.1E](#) are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any (name of grantee) requests which would cause (name of grantee) to be in violation of the FTA terms and conditions.

#### 10. Debarment and Suspensions

Executive Order 12549, as implemented by 49 CFR Part 29 prohibits FTA recipients and sub-recipients from contracting for goods and services from organizations that have been suspended or debarred from receiving Federally assisted contracts.

Contractors are required to pass this requirement on to subcontractors seeking subcontracts over \$100,000. Thus, the terms "lower tier covered participant" and "lower tier covered transaction" include both contractors and subcontractors and contracts and subcontracts over \$100,000.

Instructions for Certification:

- (1) By signing and submitting this bid or proposal, the prospective lower tier participant is providing the signed certification set out in "Debarment and Suspension Certification".

- (2) The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Purchaser may pursue available remedies, including suspension and/or debarment.
- (3) The prospective lower tier participant shall provide immediate written notice to the Purchaser if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- (4) The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "persons," "lower tier covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 [49 CFR Part 29]. You may contact (Recipient) for assistance in obtaining a copy of those regulations.
- (5) The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by the Purchaser.
- (6) The prospective lower tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction", without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- (7) A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List issued by U.S. General Service Administration.
- (8) Nothing contained in the foregoing shall be construed to require establishment of system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- (9) Except for transactions authorized under Paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies

available to the Federal Government, the Purchaser may pursue available remedies including suspension and/or debarment.

***The requisite Debarment and Suspension Certification is included as Exhibit 7 (attach additional statement if necessary) and must be executed for contracts of \$100,000 or more and prior to the award of the contract.***

## 11. Disputes

Disputes arising in the performance of this Contract which are not resolved by agreement of the parties shall be decided in writing by the authorized representative of the Purchaser. This decision shall be final and conclusive unless within ten (10) days from the date of receipt of its copy, the Contractor mails or otherwise furnishes a written appeal to the Purchaser. In connection with any such appeal, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. The decision of the Town official shall be binding upon the Contractor and the Contractor shall abide by the decision.

Performance During Dispute - Unless otherwise directed by the Purchaser, Contractor shall continue performance under this Contract while matters in dispute are being resolved.

Claims for Damages - Should either party to the Contract suffer injury or damage to person or property because of any act or omission of the party or of any of his employees, agents or others for whose acts he is legally liable, a claim for damages therefore shall be made in writing to such other party within a reasonable time after the first observance of such injury or damage.

Remedies - Unless this contract provides otherwise, all claims, counterclaims, disputes and other matters in question between the Purchaser and the Contractor arising out of or relating to this agreement or its breach will be decided by arbitration if the parties mutually agree, or in a court of competent jurisdiction within the State in which the Purchaser is located.

Rights and Remedies - The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by the Purchaser, or Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

Bid Protest Procedures – Bidders wishing to protest impropriety or solicitation should contact the Town of Chapel Hill’s Purchasing Coordinator within three days of the occurrence of the event which is the basis of the objection.

## 12. Lobbying

Contractors who apply or bid for an award of \$100,000 or more shall file the certification required by 49 CFR part 20, “new Restrictions on Lobbying.” Each tier

certifies to the tier above that it will not and has not used federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any federal contract, grant or any other award covered by 31 USC 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-federal funds with respect to that federal contract, grant or award covered by 31 USC 1352. Such disclosures are forwarded from tier to tier up to the Purchaser.

***The requisite "Lobbying Certification" is included as EXHIBIT 8 (attach Standard Form-LLL if necessary) and must be executed for contracts of \$100,000 or more and prior to the award of the contract.***

### 13. Clean Air

(1) The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 USC § 7401 et seq . The Contractor agrees to report each violation to the Purchaser and understands and agrees that the Purchaser will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

(2) The Contractor also agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with federal assistance provided by FTA.

### 14. Clean Water

(1) The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the federal Water Pollution Control Act, as amended, 33 USC 1251 et seq . The Contractor agrees to report each violation to the Purchaser and understands and agrees that the Purchaser will, in turn, report each violation as required to assure notification to FTA and the appropriate Environmental Protection Agency Regional Office.

(2) The Contractor also agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with federal assistance provided by FTA.

### 15. Environmental Protection

The Contractor agrees to comply with all applicable requirements of the National Environmental Policy Act of 1969, as amended 42 U.S.C. subsection 4321 et seq. in accordance with Executive Order No. 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," 59 Fed. Reg. 7629, Feb. 16, 1994, FTA statutory requirements on environmental matters at 49 U.S.C. section 5324(b); Council on Environmental Quality regulations on compliance with the National Environmental Policy Act of 1969, as amended, 40 C.F.R. Part 1500 et seq. and joint FHWA FTA regulations, "environmental Impact and Related procedures," 23 C.F.R. Part 771 and 49 C.F.R. Part 622; and when promulgated,

FHWA/FTA joint regulations, "NEPA and Related Procedures for Transportation Decisionmaking, Protection of Public Parks, Wildlife and Waterfowl Refuges, and Historic Sites," 23 C.F.R. Part 1420 and 49 C.F.R. Part 623.

#### 16. Energy Conservation

The Contractor shall comply with mandatory standards and policies relating to energy efficiency that are contained in applicable State energy conservation plans issued in compliance with the Energy Policy and Conservation Act, 42 USC Sect. 6321 et seq.

#### 17. Recycled Products

The Recycled Products requirement applies to all contracts for items designated by the EPA, when the purchaser or contractor procures \$10,000 or more of one of these items during the fiscal year, or has procured \$10,000 or more of such items in the previous fiscal year, using Federal funds. New requirements for "recovered materials" will become effective May 1, 1996. These regulations apply to all procurement actions involving items designated by the EPA, where the procuring agency purchases \$10,000 or more of one of these items in a fiscal year, or when the cost of such items purchased during the previous fiscal year was \$10,000. These requirements flow down to all contractor and subcontractor tiers.

The contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247. These items include:

***Non-paper office products:***

- (a) Plastic desktop accessories;
- (b) Toner cartridges; and
- (c) Binders.

#### 18. Cargo Preference

46 U.S.C. 1241(b)(1) and 46 CFR Part 381 impose cargo preference requirements in contracts and subcontracts in which equipment, materials or commodities may be transported by ocean vessel in carrying out the project. If the Contractor has knowledge of or anticipates any equipment, materials or commodities that may be shipped by ocean vessel, the Contractor is obligated to inform the Department, so that additional requirements and clauses may be attached to this Contract.

#### 19. Fly America

The Contractor agrees to comply with 49 U.S.C. 40118 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that recipients and subrecipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S. Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of

necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this section in all subcontracts that may involve international air transportation.

## 20. Intelligent Transportation Systems (ITS) National Architecture

Projects funded by the Highway Trust Fund and the Mass Transit Account must conform to the National ITS Architecture, as well as to United States Department of Transportation (DOT) adopted ITS Standards.

ITS projects shall conform to the National ITS Architecture and standards in accordance with the requirements contained in this part. Conformance with the National ITS Architecture is interpreted to mean the use of the National ITS Architecture to develop a regional ITS architecture in support of integration and the subsequent adherence of all ITS projects to that regional ITS architecture. Development of the regional ITS architecture should be consistent with the transportation planning process for Statewide and Metropolitan Transportation Planning (49 CFR Part 613 and 621).

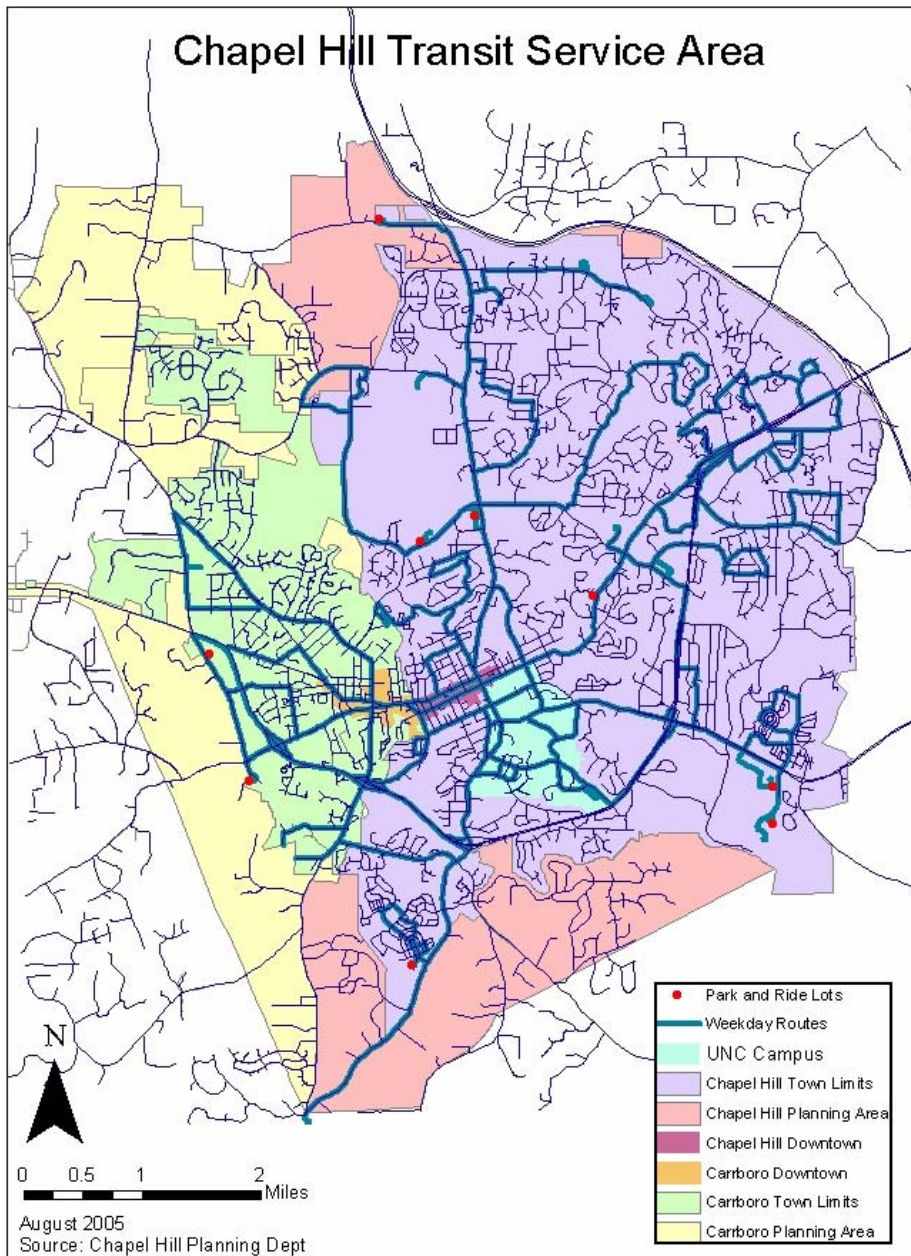
## 21. Notice of Federal Participation

In the announcement of any third party contract award for goods or services (including construction services) having an aggregate value of \$500,000 or more, the Recipient (the State or subrecipient) agrees to specify the amount of federal assistance to be used in financing that acquisition of goods and services and to express the amount of that federal assistance as a percentage of the total cost of that third party contract. (Public Law 102-141).

THIS PROCUREMENT WILL BE FINANCED, IN PART, WITH FEDERAL FUNDS.

# Appendices

## Appendix A: Service Area



## Appendix B: Top 14 Bus Stops

	Stop Name	Total 2003 Boardings	Weekday Routes Served
1	South Columbia at Carrington	1263	A,CL,CM,CPX,CW,D,FCX,G,HU,J,JFX,N,NS,NU,S,T,U,V,TG
2	South Rd at Student Stores	1243	A,FCX,G,NU,S,TG,U,V
3	S Columbia St at Health Sciences Library	838	A,CL,CM,CPX,CW,D,FCX,G,HU,J,JFX,N,NS,NU,S,T, TG,U,V
4	South Rd at Fetzer Gym	854	A, FCX, G, HU, S, V, TG
5	E Franklin St at Coffee Shop	820	CL,D,F,M,NU,U
6	Manning Dr at West Dr	704	A,CL,CM,D,FCX,G,HU,N,NS,NU,S,T,TG,U,V
7	NC 54 Park-Ride Lot	699	HU,S,TG
8	Friday Center Park & Ride (UNC)	687	FCX,V
9	Southern Village Park-Ride Lot	587	NS,V
10	Pittsboro St at Credit Union	531	A,CL,CM,CPX,CW,D,FCX,G,J,JFX,N,NS,RU,S,T,TG,V
11	N Columbia St at Rosemary St	473	A,CW,G,HS,N,NS,NU,T,TG
12	W Franklin St at Caribou Coffee	309	F,J,M
13	Jones Ferry Park and Ride	197	CM,CW,JFX
14	Eubanks Rd Park and Ride	100	NS

Two additional Documents are also part of this RFP:

Appendix B-1: Pictures and ridership information about each stop

Appendix B-2: An MS Excel Spreadsheet of stop times of each route at the selected bus stops.

## Appendix C: Regional & National Architecture Standards

Applicable Standards for a Real-Time Traveler Information System		
SDO	Applicable Standards	Status
National Transportation Communications for ITS Protocol (NTCIP) Joint Committee (ITE, NEMA, and AASHTO)	1101 – Simple Transportation Management Framework (STMF)	Published November 3997
	1102 – Octet Encoding Rules (OER)	Approved August 2002; awaiting publication
	2202 – Internet Transport Profile (TCP/IP and UDP/IP)	Published March 2002
	2301 – Application for Simple Transportation Management Framework (STMF)	Published March 2002
	2302 – Application Profile for Trivial File Transfer Protocol (TFTP)	Published March 2002
	2303 – Application Profile for File Transfer Protocol (FTP)	Published March 2002
	2304 – Application Profile for DATEX-ASN	Approved August 2002; awaiting publication
Society of Automotive Engineers (SAE)	2305 – Application Profile for Common Object Request Broker Architecture (CORBA)	Under development; In "user comment draft"
	J2353 - Data Dictionary for ATIS	Published April 2000
	J2354 – Message Set for ATIS	Published October 2000
	J1708 – Serial Data Communications Between Microcomputer Systems in Heavy-Duty Vehicle Applications	Published October 1993
	J1939 – Recommended Practice for a Serial Control and Communications Vehicle Network	Published April 2000
	J2496 – Transit Area Network Cabling Standard	Published March 2000
	J1587 – Electronic Data Interchange Between Microcomputer Systems in Heavy-Duty Vehicle Applications	Published February 2002
	J2374 – Location Referencing Message Specification	Published July 1999
	J2366-1 – ITS Data Bus -IDB-C Physical Layer	Published November 2001
	J2366-2 – ITS Data Bus - Link Layer	Published November 2001
Institute of Transportation Engineers (ITE)* - Transit Communication Interface Profiles (TCIP)	J2366-4 – ITS Data Bus - Thin Transport Layer	Published March 2002
	J2366-7 – ITS Data Bus - Application Message Layer	Published April 2002
	1400 – TCIP Framework Standard	Published January 2002; Amendment 1 underdevelopment
	1401 – TCIP Common Public Transportation (CPT) Objects	Published April 2001; Amendment 1 under development
	1403 – TCIP Passenger Information (PI) Business Area Standard	Published April 2001; Amendment 1 under development
	1404 – TCIP Scheduling/ Run-cutting (SCH) Business Area Standard	Published April 2001; Amendment 1 under development
Institute of Electrical and Electronics Engineers (IEEE)	1405 – TCIP Spatial Representation (SP) Objects	Published April 2001; Amendment 1 under development
	1407 – TCIP Control Center (CC) Objects	Published January 2002; Amendment 1 under development.
Institute of Electrical and Electronics Engineers (IEEE)	P1488 – Trial Use Standard for Message Set Template for ITS	Published July 2000
	P1489 – Data Dictionaries for ITS	Published December 1999

- APTA is developing dialog to build off the data and set message standards. Specific information on bus standards and the Transit Communication Interface Profiles (TCIP) suite of standards is also available on the American Public Transportation Association (APTA) web site at [www.apta.com](http://www.apta.com)
- Resource for this section:  
<http://www.fta.dot.gov/research/fleet/its/rtist/chap57.htm>

## Appendix D: Definitions

As used throughout this specification, the following definitions shall apply:

ADA - Americans with Disabilities Act: A Federal Law, enacted on July 26, 1990, which provides comprehensive civil rights protections to individuals with disabilities in the areas of employment, public accommodations, State and local government services, etc.

APC - Automatic Passenger Counter: A system that identifies the number of passengers boarding and alighting a transit vehicle at a stop.

Architecture: Refers to the Intelligent Transportation Systems (ITS) architectures. The architecture helps define all pieces (applications, systems, processes) and how they relate.

Archiving: Backing up the data that is used or generated in day-to-day operations.

ASP - Application Service Provider: In this model, the entire application, including the database and data, resides on an off-site, secure server and is accessed through the Internet using a web browser with secure passwords and user names. The ASP vendor is responsible for insuring all servers are maintained and operational. A hosted ASP has the same functionality but the system owns the software and can then move to a locally owned/managed server at any time.

ATIS - Advanced Traveler Information System: ATIS is one of six market packages that make up the National ITS Architecture.

AVAS - Automatic Vehicle Annunciation System: an automated stop announcement and passenger information system that provides audio announcement to riders on – board the coaches as well as potential passengers waiting at the curbside.

AVL - Automatic Vehicle Location System: A system that senses the location of vehicles using global positioning system (GPS) technology. Information used to enhance management of vehicle status and vehicle operators. Also, provides enhanced customer information.

Client/Server: A distributed computing approach where the processing is divided between machines by function. The *server* performs shared functions, such as managing communications, providing database services, etc. The *client* performs individual user functions such as providing customized interfaces, performing screen to screen navigation, offering help functions, etc.

Contract: Refers to a Contract executed by the Town and the Service Provider for all or part of the products and services covered by this RFP.

Core Data: Enterprise core data is the key data that serves the whole organization or is used broadly within the business enterprise. A business sub-area may also have core data.

DDEC – Detroit Diesel Electronic Control: An electronic controller used in transit vehicles supervising functionality and performance of a diesel engine. This device is also responsible for polling for alarms and warning conditions and suggesting action to mitigate damage.

Defect: The term “Defect” shall mean any failure of the System or any component thereof to fully conform to the Specifications and Requirements. *Non-conformity* is not a Defect if it results directly from the Town’s improper use or damage, unless it is

reasonably likely that such non-conformity would have occurred on that or another occasion even without the Town's improper use or damage.

*DMS - Dynamic Message Sign:* An informational display informing passengers of changing conditions. In the transportation industry, these are vehicle overhead units, and roadside signs of various types. They typically are light-emitting diode (LED) displays.

*FEC - Fixed-End-Computer:* The nerve center of the RTPI&AVL system. It is comprised of adequate processing facility to centrally supervise the entire system, control all subsystems, and dynamically track/reallocate the fleet's resources. It provides data storage, analysis, reporting, and inter-agency exchange mechanisms.

*FTA - Federal Transit Administration:* One of the departments of the United States Department of Transportation.

*GIS - Geographic Information System:* A computer-based tool for mapping and analyzing geographic data.

*GPS - Global Positioning System:* A technology that uses the earth's orbiting satellites to locate and describe the items location in terms of latitude and longitude. Signals from three satellites are required in order to compute its terrestrial position.

*Hot Spot (or Hot-spot):* A wireless communications transceiver allowing access from a given location for the purpose of electronic data exchange.

*ITS - Intelligent Transportation Systems:* Technologies developed to improve safety, operations and customer service on our transportation networks.

*IVR - Interactive Voice Response:* A telephone system that provides a caller the ability to find out transit system information without intervention from a customer service attendant.

*MDT/C - Mobile Data Terminal/Computer:* An in-vehicle device that collects, stores, analyzes, and exchanges vehicular data to and from a base station.

*On-Time:* The comparison of the actual and scheduled time leaving or passing a time-point. Generally, any time between zero minutes early and five minutes late is considered to be on-time.

*On-Time Performance:* A measure of the quality of service, developed by sampling a finite number of trips and a number of time-points for a given length of time. It is then calculated by dividing the number of trips observed to be on-time by the total number of trips in the sample, and generally expressed as a percentage.

*Data network:* An interconnected system of telecommunications gear owned and operated by a service-provider for the purpose of leasing portion of its facilities to clients. Through this lease arrangement, the client(s) avoid capital expenditure in developing a private data network, and the provider benefits from the economy of scale.

*Proposal:* Refers to a written document submitted by a vendor specifying all services and costs, as requisitioned through this RFP.

*RF - Radio Frequency:* A subset of an electromagnetic spectrum set aside and regulated by the FCC (Federal Communications Commission) for the use by the private entities in transition of voice or data; including: AM radio, Television (VHF, UHF), Cell Phones, GPS, RADAR, Microwave, etc...

Service Provider: Refers to a vendor or its subcontractor, which has been selected by the Town to provide the Products and Services required by this RFP.

SLA - Service Level Agreement: A guarantee by the service provider to the recipient of service (the client) governing the minimum parameters of service and delineating responsibilities of both the service provider and the client in enforcement of the agreement. The SLA often involves a schedule of service-provider self-imposed penalties (often in form of rebates for said service to be rendered in the future) for failure to meet the current minimum parameters of service delivery.

Specifications and Requirements: Refers to the specifications and requirements for the System as outlined in this RFP.

VAN - Vehicle (Local) Area Network: A wireless network deployed onboard of the vehicle utilizing WiFi principles (see below) in order to provide unrestricted localized access to the vehicle's computing/controlling resources.

VCS - Vehicle Covert Surveillance: A mechanism allowing audio and/or video surveillance of the vehicles' interior (or its occupants) triggered/operated by vehicles operator, dispatcher, or the emergency/law-enforcement personnel.

Vendor: Refers to each firm that submits a Proposal for consideration by the Town in compliance with the requirements stated in this RFP.

VLU - Vehicle Logic Unit: A device used to integrate and control all in-vehicle sub-systems (i.e.: AVL, APC, VMS, LAN, and W-WAN).

W-WAN - Wireless Wide-Area-Network: A component that sets up and manages bi-directional pathways between all the Vehicles Logic Unit (VLU) and Fixed-End-Computer (FEC) for the purpose of data exchange.

WiFi: Short for "wireless fidelity" is the popular term for a high-frequency wireless Local-Area-Network (WLAN). WiFi is specified in the 802.11.b specification from the Institute of Electrical and Electronics Engineers (IEEE) using the Ethernet protocol and CSMA/CA (carrier sense multiple access with collision avoidance) for path sharing.

"WiMAX (IEEE 802.16) is a standards-based wireless technology that provides high-throughput broadband connections over long distances."