BROAD AGENCY ANNOUNCEMENT 2003-1

FUNDS AVAILABILITY
FOR RESEARCH PROJECTS AND TECHNOLOGY ADVANCEMENTS
UNDER THE NEXT GENERATION HIGH-SPEED RAIL PROGRAM

BAA 2003-1 Proposal Preparation Package

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PART I - INTRODUCTION

BACKGROUND: The Next Generation High-Speed Rail Program (Program) is a key element in the Department of Transportation's overall program to promote high-speed rail in the United States. There is substantial interest in implementing high-speed rail service in selected congested corridors to achieve a more balanced intermodal transportation system. The program supports the advancement of high-speed rail, particularly on existing infrastructure, by improving, adapting, and demonstrating potentially more cost-effective technologies, which have wide application in U.S. corridors.

The Next Generation High-Speed Rail Program began in 1994, and since then several investigations and demonstrations have been funded in all areas covered by previous broad agency announcements or notices of funds availability. An overview of the Next Generation High-Speed Rail Program is included in **Appendix C**.

OBJECTIVE: The FRA intends to solicit and support projects that will bring about advancements in high-speed rail technology, promote continued development and implementation of high-speed rail, and advance the state-of-the-art of U.S. high-speed rail technology. To assure that the results of projects supported under this Broad Agency Announcement (BAA) are utilized to maximize public benefit, FRA intends to make the results of the work and projects awarded under the BAA available to all interested parties within the public domain.

PURPOSE: This BAA is being made to solicit various research projects, technology advancements and/or demonstrations, which can enhance the deployment of high-speed rail service in the United States. Technologies most likely to help facilitate the deployment of high-speed rail service are those which will

- Enhance the revenue-generating capability of high-speed operations by attracting greater ridership by reducing trip times, upgrading customer service quality, increasing reliability, or improving on time performance;
- Bring about capital cost reductions and economy in producing equipment and facilities;
- Reduce operating costs of high-speed rail service by providing more efficient operations;
- Improve the reliability of equipment and infrastructure components by reducing failures and/or reducing false failure detections;
- Improve safety by reducing human and technology failures; and/or
- Enhance the social benefits and/or environmental aspects of high-speed rail.

PART II - ADMINISTRATIVE GUIDELINES

ELIGIBLE PARTICIPANTS: This is an unrestricted solicitation. Any responsible source may submit a proposal concept paper for consideration, including, but not limited to, states or local governments, or organizations of state or local governments, universities or institutions of higher education, hospitals, non-profit organizations, private individuals, corporations, businesses or commercial organizations, except that any business owned in whole or in part by the Federal Government is not eligible. Although businesses owned in whole or in part by the Federal Government are not eligible for funding under the Program, they may contract with eligible participants. Cooperative arrangements (e.g., joint ventures, limited partnerships, teaming arrangements, or collaboration and consortium arrangements) are permitted and encouraged.

Small, Small Disadvantaged (SD), and Service-Disabled Veteran-Owned Business Concerns, and Veteran-Owned (VO) and Woman-Owned (WO), and Historically Underutilized Business Zone (HUBZone) Small Business Concerns, and Historically Black Colleges and Universities (HBCU) and Minority Institutions (MIs) are encouraged to submit proposal concept papers on their own and/or in collaboration with others. However, no portion of this BAA will be set aside or reserved exclusively for Small, SD, or Service-Disabled Veteran-Owned Business Concerns, or for VO, WO, or HUBZone Small Business Concerns, or for HBCU and MIs.

EXCHANGES: Exchanges of information between interested parties and the Government, prior to submission of proposal concept papers, are strongly encouraged. Such informal exchanges may provide potential offerors with preliminary information on the Government's level of interest in prospective works or projects and possibly forestall costly effort on the part of interested parties whose proposed work may not be of interest to the FRA under this BAA. Any exchanges of information must be consistent with procurement integrity requirements of section 27 of the Office of Federal Procurement Policy Act (41 U.S.C. 423, as amended) (see Federal Acquisition Regulation (FAR) 3.104).

For pre-submission technical inquires, interested parties may contact the BAA primary technical point of contact, Mr. Robert McCown (Tel: 202/493-6350, Fax: 202/493-6333), or one of the other, secondary technical points of contact identified in **Appendix A**. Offerors are advised that an indication of interest, in the affirmative, is not meant to imply nor in any way imparts an obligation on the part of the Government that an award will be forthcoming for the offered work or project. All non-technical inquiries should be directed to the Grants/Contracting Officers, Mr. Robert Carpenter (Tel: 202/493-6153, Fax: 202/493-6171, Email: robert.carpenter@fra.dot.gov) or Ms. Illona Williams (Tel: 202/493-6130, Fax: 202/493-6171, Email: illona.williams@fra.dot.gov). After submission of proposals, all exchanges (both technical and non-technical) will be conducted through the Grants/Contracting Officers in accordance with FAR 15.306.

BAA TIME LINE: BAA 2003-1 will be open from the date of posting of the BAA 2003-1 Package on FedBizOpps, formerly known as the Electronic Posting System (EPS), through June 30, 2004. Prospective offerors may submit and the FRA will accept proposal concept papers as of the date the BAA 2003-1 Package is posted on the FedBizOpps website and/or the Federal Register. Unless BAA 2003-1 is superseded or canceled, FRA will continue to accept concept submissions and inquiries through June 30, 2004. Although the BAA is open for an extended period, interested parties would be well advised to submit proposals as early as possible. Once

posted, the BAA 2003-1 Package may be download or printed from the following Internet address: http://www.fedbizopps.gov/ . The FRA does not intend to make the BAA 2003-1 Package available in hard copy. Reviews will begin and will be conducted continuously on receipt of concept papers. Offerors will be notified as soon as initial reviews are completed. FRA's target for initial review results is 120 days after submission.

FUNDING AUTHORITY AND RELATED INFORMATION: Funds for this program are authorized in the Consolidated Appropriations Resolution, 2003, Public Law 108-7 (February 20, 2003). FRA will make available up to $6.5 million under the BAA during fiscal year 2003 (FY 03) and fiscal year 2004 (FY 04), through the BAA 2003-1 open period, for awards of proposal concept papers evaluated favorably and determined by the FRA to be consistent with the objectives of this BAA and of interest to the Government, and for which adequate funding exists. FY 03 awards are subject to the availability of FY 03 appropriations or the continued availability of unobligated FY 02 or other prior no-year funds. No funding provision or commitment can be made at the time of award for phased or expanded work or projects beyond the initial or base phase funded at time of award that the applicant may propose in its submissions. In the event future appropriated funds are authorized for the Program, FRA may, at its discretion, provide additional funding for phased or expended effort under existing awards.

Awards may be of any dollar value (so long as those amounts do not exceed the total amount available under the BAA), but it is anticipated that most, if not all, individual awards (or that part of the Government's portion in a cost sharing arrangement) will have dollar values ranging between $25,000 and $500,000 each. Prospective offerors are advised that contract awards greater than $500,000 will generally require the awardee (except a small business concern) to already have in place or prepare, at or before the time of award, an acceptable plan to maximize the participation of small business enterprises to include separate goals for using small and SD businesses, and WO, VO, and HUBZone small businesses as subcontractors. Prospective offerors are advised that contract awards greater than $500,000 may require the submission and certification of cost and pricing data.

Although cost sharing by awardees is not mandatory under this BAA, because of the potential for long-term benefits to those firms or institutions involved in these research development and demonstration activities, it is FRA's policy to obtain cost participation, whenever possible. This is preferred when FRA supports research, development, or demonstration efforts, where the principal purpose is ultimate commercialization and utilization of the technologies by the private sector, and when there are reasonable expectations that the offeror will receive present or future economic benefits beyond the instant contract/agreement as a result of performance of the effort.

For the purposes of this BAA, cost participation is a generic term denoting any situation where the Government does not fully reimburse the offeror for all allowable costs necessary to accomplish the project or effort under the contract or other award instrument. The term encompasses cost sharing, cost matching, participation in-kind or other investment of resources as a means of venture sharing in lieu of a formal cost sharing arrangement, third-party in-kind contributions, cost limitations (direct or indirect) and similar concepts. Generally, many forms of cost participation, by their very nature and definition, minimize or negate the opportunity for profit or fee.

Prospective offerors are cautioned that only the cognizant Grants/Contracting Officers can legally

commit the Government to the expenditure of public funds under this BAA.

PART III - TECHNOLOGY APPLICATION AND AREAS OF INTEREST

TECHNOLOGY APPLICATION: Any technology forming the basis for a proposal must be capable of application to improve intercity passenger railroad operations. This may include improvements to railroad capital equipment or infrastructure, such as track, rolling stock, wayside equipment; traffic control centers; interfaces among these, or as an improvement to railroad operating methods. The technology presented must also possess the potential for performance improvement in one or more qualities, such as cost effectiveness, reliability, safety, availability, or maintainability. This may include adaptation, implementation, testing or demonstration of candidate technologies, which have been successfully applied in other industries, such as defense industries, and/or are near ready for direct application in the railroad industry. FRA also invites proposals for the integration and subsequent evaluation of multiple independent (commercial or non-commercial) technologies, where the integrated product may offer substantial advantage beyond that offered by the components. FRA expects to select research or demonstration proposals directed toward generally mature technologies, but it will give fair consideration to less mature, but highly promising or unique technologies or innovations. Please note that in general, research studies or analyses which result only in research reports will not, for the purposes of this BAA, be of as great of interest to FRA as those that involve actual testing, demonstration or application of the proposed concept or technology.

AREAS OF TECHNOLOGY INTEREST: Technologies that are high priority research candidates for evaluation pursuant to this announcement include:

- **Grade crossing hazard mitigation systems.**
- **Innovative, low cost technologies to improve track and structures.**
- **Advanced train control systems.**
- **Non-electric locomotives and passenger equipment systems.**
- **Other scientific study, technology adaptation, or demonstration directed toward advancing the state-of-the-art or increasing the knowledge or understanding of high-speed passenger rail service in the U.S.**

(1) Grade crossing hazard mitigation systems

Highway rail grade crossings are a major safety and investment issue in achieving increased train speeds. One of FRA's specific objectives is to reduce the number of injuries and deaths resulting from crashes at highway-rail crossings. This becomes especially important as more modern passenger train consists allow speed regimes to increase toward and above 110 mph. FRA is already pursuing several research, development and demonstration projects in this area, but continues to be interested in all feasible technologies that will advance grade crossing safety. An objective for all of these technologies is to provide nearly the same security as grade separations but at much lower cost.

New technologies are needed which will protect both the rail and highway users without incurring the disruption of grade crossing closure or the cost of grade separation by bridge or tunnel. Specific issues include the design of highway warning and protection devices, train detection and communication, and grade crossing obstruction detection sensing and communication. Candidate technologies, some of which are already in place in other countries, include: inductive loops,

ultrasonic, microwave or laser beams, and video surveillance. Numerous sensor and command-and-control technologies that have been developed for other usages could find ready application in the grade-crossing protection area. Many crossings on potential high-speed corridors are equipped only with passive crossbuck warning devices. Traffic density on many of these crossings may not warrant even conventional gates and lights, and alternative systems that can reliably warn highway users while protecting train operations are sought. Other areas of particular interest are train detection, intrusion alerts, constant-warning-time logic, train control interface, driver warning, and crossing malfunction response facilitation.

(2) Innovative, low cost technologies to improve track and structures

A major cost element in the introduction of high-speed passenger service is the upgrading and then the maintenance of track and track structures. Improved infrastructure technologies and maintenance equipment could yield large payoffs beneficial to high-speed rail service in the areas of construction materials or methods, equipment precision and reliability, and sensors to detect potentially dangerous situations and improved failure detection systems to reduce false alarms to improve the reliability of reduced trip times. Of particular interest would be rail break detection systems capable of operating when a train is occupying or closely approaching a section of track, unlike present systems that are defeated by trains shunting the rails of a track section. Methodologies for improving track quality sufficiently for high-speed operations while minimizing initial costs are the highest priority. Also of interest are automated inspection techniques of particular importance for high-speed operations, such as wheel and rail profile conditions, turn-out and diamond (track crossing) geometry, longitudinal force measurement in continuous welded rail, and forces in bridge structures. The results of projects must show potential significant savings in initial facility construction costs and/or capital or maintenance costs of upgrading freight quality mainline track for high-speed passenger operations.

Other areas in which improvements are needed include trespasser safety issues; the control of track features causing poor ride quality; mechanisms for reducing or mitigating wheel/rail noise; and new techniques for managing rail maintenance not yet introduced in railroads, which could decrease costs and enhance both passenger and freight operations. Also important in this area is the identification of important track characteristics that, when coupled with advanced train control systems, can increase track corridor capacity and improve high-speed service reliability and performance, such as the optimum mix of high-speed crossovers and passing tracks.

(3) Advanced train control systems

Advanced train control systems are essential for high-speed passenger operations, and their cost is often cited as a major impediment to the introduction of service over 79 mph. FRA regulations currently require that the controlling locomotive of all trains on an equipped line be equipped to utilize the train control system, so applying a system to permit high-speed rail necessarily impacts freight equipment and operations on the routes to be equipped.

The FRA's goal is to maximize the capacity of railroads to carry a mix of high-speed passenger, commuter, and freight trains with minimal risk of collision and at considerably lower installation cost than for conventional railroad signal and control systems. Briefly, major elements of communications-based train control systems are

- position determination subsystems that automatically determine the location of a train on the rail network;

- a computer on-board the locomotive that receives and processes information from the dispatch center, wayside devices, and other sources and enforces operating rules;

- digital or technologically advanced communication links between the train and central dispatching centers or other wayside facilities;

- software that aids dispatchers in planning the meeting and passing of opposing or faster trains while assuring the safety of authorized train movements; and

- capabilities that aid in the strategic planning of the rail network on a system scale.

FRA is already sponsoring or participating in several major demonstration projects in the area of advanced communications-based train control (See **Appendix C**). The Incremental Train Control System (ITCS), which is now in revenue service operation on Amtrak-owned track in Michigan, taps into the existing signal system for status information, and then radios the status information to each train where an onboard computer combines the status, automatic location, and database information to inform the engineer of safe operating conditions. The onboard computer limits the speed and/or stops the train if unsafe operation is attempted. The Illinois DOT Positive Train Control (IDOT PTC) Project now being implemented by the North American Joint Positive Train Control (NAJPTC) committee of the Association of American Railroads (AAR), Illinois Department of Transportation (IDOT), Union Pacific Railroad (UPRR) and FRA is being installed on a 123-mile segment of the Chicago to St. Louis corridor in Illinois. The IDOT PTC system will use movement authority commands radioed to each train from Union Pacific's central dispatch center. In the Pacific Northwest, FRA is cooperating with Union Pacific Railroad and Burlington Northern Santa Fe Railroad to demonstrate advanced digital radio transmission techniques. In view of the demonstration activities already underway, it is <u>not</u> anticipated that the scope of projects under this BAA will permit development or demonstration of complete new PTC systems. However, FRA remains interested in additional new concepts, components and innovations that can reduce the cost of implementing these systems.

Train control systems when coupled with management information systems may be able to reduce congestion and increase track capacity, as well as facilitate a number of maintenance and operational activities. Major elements of the systems that increase the overall cost of train control are the individual cost of small elements, such as the onboard computer required on most of the locomotives operating in a corridor or the cost of wayside units that determine track, switch position or the state of some other feature and communicate this information to trains and central or regional centers. Also critical is the amount and timeliness of information and how this governs the communications requirements.

(4) Non-electric locomotives and passenger equipment systems

This project area is to facilitate the introduction of technologies that will significantly improve the performance, lower the initial cost or reduce the cost of on-going maintenance of high-speed passenger equipment including non-electric locomotives. The term "non-electric," as used here, refers to a self contained locomotive or trainset that generates its own propulsion power on board without continuously connecting to electric transmission wire or third rail. The term "non-electric" is not intended to preclude use of electrical transmission methods to transfer onboard-generated power to traction motors. The desired goal for non-electric locomotives is that they be capable of sustained speeds of at least 125 mph, and that they be fuel efficient, meet noise and air pollution requirements, and be reliable, with low maintenance costs, and to achieve the speed and acceleration capability of electric trains without the expensive infrastructure of railroad electrification.

To avoid duplication of efforts, prospective offerors are advised that the FRA has the following three major activities underway in the category of non-electric locomotives:

(1) FRA awarded a cooperative agreement to the New York State Department of Transportation (NYSDOT) to demonstrate and evaluate upgraded Rohr Turboliner (RTL) trainsets utilizing gas turbine engines and hydraulic transmissions. The first of these upgraded trainsets has been in extended revenue service, and the second and third trainsets are expected to enter service in 2003. (2) FRA and Bombardier Transportation have jointly sponsored construction of a 5,000 horsepower Turbine Electric Locomotive (TEL) capable of 150 mph and meeting all current FRA safety standards. The TEL has undergone extensive high-speed testing at the Transportation Technology Center in Pueblo in early 2003 and is now beginning testing on revenue service track. The TEL project is coordinated with the already-established Advanced Locomotive Propulsion System (ALPS) team, led by the University of Texas, which will produce a flywheel energy storage system and a high-speed generator system capable of generating traction power when directly driven at gas turbine engine rotation speeds of approximately 15,000 rpm.

(3) The conference report accompanying the appropriations act providing FRA with fiscal year 2003 funding has a specific provision directing FRA to conduct a revenue-service demonstration of Diesel Multiple Unit (DMU) vehicles, which fully comply with all current FRA safety standards. A total of $4,000,000 in Federal funds is provided for the DMU demonstration. Activities related to the DMU demonstration will be the subject of a separate public announcement from FRA and are not a direct part of this Broad Agency Announcement.

Technology concepts eligible under this BAA could include fuel usage efficiency enhancements or automated diagnostic methods that can be integrated with train communications networks to reduce the cost of maintaining rolling stock and equipment. Of particular interest are systems capable of monitoring critical systems, such as the brakes, wheels, trucks and doors. Also of interest are proposal concepts in the area of non-electric locomotive propulsion systems that are complementary to the effort underway in the three major activities in this area described above.

(5) Other scientific study, technology adaptation, or demonstration directed toward advancing the state-of-the-art or increasing the knowledge or understanding of high-speed passenger rail service in the U.S.

The purpose of this area is to facilitate the award of worthy technology adaptation and demonstration projects that are not focused in the first four areas but can still advance high-speed rail service. Some topics could be in areas such as lightweight, crashworthy structures or components, noise mitigation and other environmental issues, variable platform height access, and low cost wheel, truck, and brake assemblies and inspection procedures.

PART IV - PROPOSAL CONCEPT PAPERS AND PREPARATION INSTRUCTIONS

FUNCTION: For the purposes of this BAA, proposal concept papers are considered offers and should contain the offeror's best terms from both a cost or price and a technical standpoint. Successful proposal concept papers may be used, in whole or in part, as the basis for award in any ensuing contract or other award instrument as the scope of work, statement of objectives, or work statement, or they may be used as the basis for negotiations and subsequent award pending the submission of any additional or supplemental information or clarification, as requested.

CONTENT AND FORMAT: Proposal concept papers should be **twenty (20)** pages or less (except as otherwise noted), in letter print no less than 10 point type, on letter-size paper, numbered, and fully legible in all required copies.

Each concept should be submitted only once. An offeror's submission of substantially the same concept (under different topical Areas of Interest) will only be evaluated once. FRA will consider each proposal concept paper in the topical Area of Interest identified in the BAA that is most relevant and provides for the greatest opportunity or chance for award.

Proposal concept paper submissions should not include promotional brochures, advertisements, taped recordings, or other extraneous material.

Proposal concept paper submissions must contain a Technical Concept Section and a separate Cost or Pricing Section. A separate Past Performance Information Section is also required from all offerors other than states or local governments, or organizations of state or local governments, or universities or institutions of higher education where the total estimated project cost is $100,000 or greater. A separate *Optional* Phased or Follow-on Section is required for concepts involving phased or follow-on research projects. Offers (i.e., proposal concept papers) being pursued as (or which are subsequently determined by FRA as) Federal financial assistance awards (e.g., grants or cooperative agreements) should be accompanied by the appropriate application forms or related submission materials. Successful offers that are to be awarded as Federal financial assistance must have the appropriate application forms in place prior to award.

Submissions that are incomplete or materially lacking, pursuant to the instructions in the BAA 2003-1 Package, may be returned unevaluated, or evaluated as is, without further opportunity for revision, at the discretion of the Source Selection Authority.

To facilitate evaluation, proposal concept papers should fully address the content requirements described in this subpart and be formatted as follows:

Section A - Technical Concept

1. Title - Provide a working title descriptive of the research or technology advancement project being proposed.

2. Applicant/Offeror - Provide the name, address and telephone number, and ownership characteristics of the individual, company, state or local government, educational institution or non-profit organization submitting the proposal concept paper. In a proposed cooperative arrangement, one entity, by agreement, must be designated as the lead applicant/offeror (and prospective awardee, if selected). (Note: Letters or statements formally attesting to a cooperative arrangement need only be provided upon request.) The applicant/offeror should also identify (a) the principal investigator and/or key persons; (b) one or more authorized negotiators for the applicant/offeror, (c) the official(s) with authority to legally bind the applicant/offeror to the terms of any award instrument; and (d) the participating entities in any proposed cooperative arrangement, subcontractors, or consultants. Identification for secondary organizations should include name and address. Identification for individuals should include name, title or functional role, telephone number, fax number and email address.

3. Capabilities - Describe the applicant's/offeror's relevant technological and scientific, railroad or other industrial or defense capabilities, experience, and resources (or those of its team members) that will serve to demonstrate its ability to successfully conduct the proposed research or technology advancement project. List or chart team members/partner's primary functions or areas of responsibility. Describe the applicant's/offeror's (or relevant team members/partners') familiarity with or position in the railroad community and access to necessary equipment or facilities. Describe the management processes that will be put in place for monitoring and controlling project implementation and ensuring that the triple constraints of performance/quality, cost/budget, and timeliness/delivery are fulfilled. For the principal investigator or key personnel (not to exceed four persons per proposal concept paper), the applicant/offeror should also submit a one to two page resume or curriculum vitae. (Note: The resume or C.V. will not count as part of the recommended 20-page limit.)

4. Objective - Describe the key objective(s) and scope of the proposed research or technology advancement project.

5. Potential Application- Outline how the proposed research or technology could be incorporated into existing railroad equipment, infrastructure, or operations (to include how major barriers, impediments or obstacles could be overcome or mitigated), and the interface modifications required to accomplish a demonstration. Also explain how its application to railroad operations will bring about an improvement to capital equipment or infrastructure, or operating methods, safety and/or performance improvements. Describe how and in what respects, the proposed research activity or technology can contribute to improving the safety, reliability, quality, and cost-effectiveness of high-speed passenger rail service. Correlative benefits to general railroad operations, if any, should also be cited, since they also enhance the feasibility of passenger service added to freight routes. Quantitative support should be provided for assertions made.

6. Maturity and Adaptation - Outline the current level of maturity of the proposed research or technology and the amount or type of development or modifications needed for high-speed rail adaptation and demonstration. Include necessary background information and how they are used in their current applications, and identify the area(s) of high-speed rail application, in both hardware and performance venues. Describe how the proposed research or technology is technically or scientifically innovative, either in itself or in its application to high-speed rail.

7. Test Bed - Outline the test requirements, environments and methods needed to assess or demonstrate the suitability of the technology in the railroad environment and the success of the proposed project. It is important to cite railroad companies or other rail-related organizations, such as railroad industry suppliers, that have expressed their willingness to permit and/or support such testing or demonstrations. (Note: Letters or statements attesting to an outside organization's interest or commitment to permit and/or support testing or demonstrations should be furnished with the proposal concept paper. Such letters or statements will not count as part of the recommended 20-page limit. Such letters or statements, if not furnished with the initial submission, may be requested and shall be furnished to assist in the evaluation and selection process.)

8. Project Description - Describe the specific research and technologies being proposed. The effort should be broken down into logical elements of work tasks and subtasks that support the approach or plan of action to achieve key milestones or interim objectives, and end objectives. Describe the steps/tasks/activities necessary to achieve the desired end result or successful project completion. Identify deliverables, presentations, and demonstrations.

9. Project Duration - Estimate the time required to advance the proposed technology from its present level of development through analysis, test and/or demonstration, as applicable, to final development. This should include an explanation of the relevant assumptions required for the stated schedule through completion, whether or not the specific, subject proposal encompasses completing all of the phases necessary for final development. If this period differs from the time needed to undertake and complete the immediate proposal concept, specify the time requirement for the subject project or phase. For the purposes of this BAA, projects or phases of projects should generally be one to two years. For the specific project or project phase being proposed (and to be funded initially when follow-on or phased portions are proposed), include a chart or schedule of key milestones for completion. (See Part IV, Section D - Phased or Follow-on Research Projects, below.) Provide a realistic schedule that identifies and charts or tracks the target completion dates or time parameters to accomplish key milestones or interim objectives, and end objectives and the performance of demonstrations or presentation, or delivery of reports, data, models or other deliverables.

Section B - Cost or Pricing

The cost or pricing portion of the proposal concept paper should contain a cost estimate for the proposed effort to allow for meaningful evaluation and determination of price reasonableness and cost realism. Unless and until advised otherwise, cost information submitted with the concept paper will be considered "information other than cost or pricing data." The cost estimate may be prepared using the applicant's own format or as indicated in Table 15-2 of FAR 15.408. The cost estimate shall account for the entire cost of the project, inclusive of that portion of cost the applicant or other participants would bear in any proposed cost sharing arrangement or other investment of resources as a means of venture sharing in lieu of a formal cost sharing arrangement. The cost estimate shall be broken down for each year of the proposed work, and by all years combined. At a minimum, the cost estimate shall include the following information:

1. Labor - A breakdown of direct labor, by major tasks or milestones, identifying the labor categories or individuals and projected hours, and their associated subtotals.

2. Overhead and/or Fringe - Labor overhead and/or Fringe rate(s) and base(s), and cost outcome.

3. Materials, supplies, and equipment - Description and cost of materials, supplies, and equipment, to include the basis of the cost estimate (e.g., historical data, competitive market quotes, in house transfers, etc.). Specific mention should be made of any highly specialized or costly test equipment or supplies needed to accomplish the project.

4. Travel and transportation - Breakdown of travel and transportation costs.

5. Subcontracts - Breakdown of individual subcontracts. State the amounts of time of subcontractor/consulting services to be devoted to the project, including the cost to be charged to the proposed contract/agreement.

6. ODC - Breakdown of other direct costs (reproduction, computer time, consultants, etc.)

7. Misc. - Identification of any other direct or indirect cost elements not identified elsewhere. For each indirect rate (identified here or elsewhere), indicate if the proposed indirect rate and allocation base have been approved by a Government audit or cognizant agency for use in proposals and when the rate(s) was approved and the name of and telephone number of the cognizant auditor or approving official.

8. General and Administrative - G&A rate and base, and cost outcome.

9. Profit or fee - Generally, the FRA does not anticipate providing profit or fee under contracts awarded under the BAA, because of the potential for long-term benefits to those firms or institutions involved in these research development and demonstration activities, the advanced stage of development and reduced level of risk associated with such projects, and the reasonable expectation that the performer will receive present or future economic benefits beyond the instant contract/agreement as a result of performance of the effort. However, profit or fee may be proposed, and if proposed, subject to final negotiations, may be allowed when the prospective offeror demonstrates to the satisfaction of the Grants/Contracting Officer that it has no commercial, production, educational, or service

activities on which to use the results of the research and no means of recovering any cost participation (including relinquished profit or fee) from such projects for its financial gain. Under these circumstances, the Grants/Contracting Office may determine (on a case-by-case basis) that cost sharing or other cost participation does not apply, and further that fee may be applicable. The applicant/offeror should also specifically note if profit or fee is not sought/proposed.

10. Cost Sharing/Cost Participation - Identify extent of cost sharing/cost participation, if any (exclusive of the applicant's/offeror's prior investment), to include the actual dollars or the percentage of the cost share of the proposed research or technology project, to be provided by the applicant, or third party contributors or other Federal funding sources, if allowable; the type and extent of cost limitations (direct or indirect); or the specifics for and extent of similar concepts indicative of cost participation. (Note: The applicant may be required to certify that it has secured the appropriate cost share funding levels, and identify the source of funding. Letters or statements attesting to an outside organization's intent to furnish funding or third-party in-kind contributions or the like should be furnished with the proposal concept paper. Such letters or statements will not count as part of the recommended 20-page limit. Such letters or statements, if not furnished with the initial submission, may be requested and shall be furnished to assist in the evaluation and selection process.) The value of any proposed cost participation in the form of participation in-kind or other investment of resources as a means of venture sharing in lieu of a formal cost sharing arrangement, or third-party in-kind contributions, must be assessed by the Government. (Note: These latter forms of cost participation are best suited for and may only be applicable as the applicant's cost share/match in a grant or cooperative agreement award.)

Section C - Past Performance Information

As a separately bound part of its proposal concept submission, the offeror (excepting states or local governments or organizations of state or local governments, or universities or institutions of higher education) is to provide past performance information in the form of a contract reference list and preliminary survey data for projects valued at $100,000 or more. (Note: The past performance information will not count as part of the recommended 20-page limit.)

Past performance information is relevant information, for source selection purposes, regarding a contractor's actions under previously awarded contracts. Past experience reflects ***whether*** the contractor has performed similar work before. Past performance, on the other hand, describes ***how well*** the contractor performed the work. Past performance information can be one important indicator of the offeror's ability to successfully perform a proposed contract. It includes for example, the contractor's record of conforming to contract requirements and to standards of good workmanship; its record of forecasting and containing costs; its adherence to contract schedules, including the administrative aspects of performance; its history of reasonable and cooperative behavior and commitment to customer satisfaction; and its business-like concern for the interest of the customer. It also includes the contractor's resourcefulness in overcoming challenges that arise in the context of contract performance.

1. Contract Reference List - The past performance information contract reference list shall include the identification of three (3) government (Federal, state or local) or commercial contracts/orders (each of which has/had an aggregate value of at least $25,000) that the offeror* has performed and asserts are relevant to the subject proposal concept and demonstrative of its capabilities to successfully perform substantially similar work. The greater the similarity in scope and complexity and technical nature of the referenced contracts/orders to the research project, technology advancement and/or demonstration being proposed under the subject BAA, the greater the perceived relevancy. The burden of proving acceptability of past performance is the responsibility of the offeror.

   Contracts/orders advanced by the offeror should be either-

   (a) on-going contracts/orders awarded within the last 3 years and in which the offeror has performed for at least six months, or
   (b) contracts/orders that ended within the last 3 years, but in which some part or all of the performance occurred within the last 3 years from the date of proposal submission.

   **For the purposes of this contracting action, relevant past performance under these contracts/orders may be that of the offeror itself (as a prime contractor or a subcontractor under the referenced action) and its key personnel, or that of a subcontractor, consultant or party to a cooperative arrangement who will be directly involved under the proposed research project, technology advancement and/or demonstration, provided that (1) the entity or individual will be performing the substantially same type of effort/requirement and in the substantially same capacity as that upon which the relevant past performance assertion is made, and (2) the entity or individual will be performing 50% or more of the effort involved, in terms of the estimated total contract cost.*

   The contract reference list should recap, for each reference, the name of the awarding agency/firm, contract/order title, contract number, point of contact and telephone number, and email address, if available. The offeror must ensure that points of contact, telephone numbers, etc. for its listed contract/order references are current, complete and accurate. Significant problems encountered in checking references provided by the offeror will generally be considered a lack of due diligence on the part of the offeror and may be considered in the selection process.

   If the offeror has received fewer than 3 contract awards within the last 3 years having an aggregate value of a least $25,000, the offeror should provide information on the number of contract awards available for referencing. If the offeror has not received any contract awards within the last 3 years having an aggregate value of a least $25,000, the offeror should state that fact.

2. Preliminary Survey Data - Preliminary survey data shall be comprised of the following- For each contract reference, the offeror shall complete and submit Part I - Administration and Part II - Relevancy/Perspective of the Contractor Past Performance Survey **(Appendix B)**. This Appendix is available for downloading from the FedBizOpps.gov website in the Solicitation BAA-2003-1 under DOT/FRA or from the FRA website at http://www.fra.dot.gov/acq_and_grnt_svc/BAA-2003-

Appendix%20B%20Past%20Perf%20Survey.pdf. For **Part I** of the survey, the offeror will complete the identifying and administrative information sought for the specific contract in question. For **Part II**, the offeror will complete and insert a single page that addresses the following three areas of inquiry (as described in the survey): Description of Prior Contract Services, Relevancy, and Problem Resolution and Quality Honors. The text of the offeror's responses for all three inquiries combined shall not exceed one page.

3. As early as possible in the proposal preparation phase, offerors should send each of their references a copy of the Contractor Past Performance Survey (or advise them of its location on the FedBizOpps and FRA websites) and a letter that, in effect, authorizes its private sector reference to provide past performance information, when and if requested by FRA, and alerts its government references that information may be requested from another government agency. Offerors should advise references that in addition to completing **Part III** of the survey (when and if requested), they may be contacted, at the Government's discretion, and asked to consent to a telephone interview, using the survey as the starting or focal point of the interview.

4. Offerors are advised that any relevant contractor performance/customer evaluations previously prepared within the last three years by the agency/firm (the reference), and subsequent responses or rebuttals from the offeror/contractor, may be requested of the reference to augment or furnished in lieu of the survey or interview.

5. References should be advised that when and if they are requested to complete a survey by FRA, they are to send the completed survey directly to the FRA at the address(es) identified in the Survey and not to the offeror seeking a reference, nor are they return a duplicate to the offeror. This does not preclude the reference from advising the offeror that a survey was completed and submitted, or an interview conducted, if it so chooses.

6. To ensure frank and open evaluations and expressions of opinions by evaluators or others, all parties are advised that the identity of respondents completing the survey will be held in confidence and will not be released or disclosed to the offeror outside the Government. However, as specified under FAR 15.306, conditions may exist in which the offeror may be provided an opportunity to discuss adverse past performance information on which the offeror has not had a previous opportunity to comment.

7. Technically acceptable proposal concept papers that are considered realistic and reasonable, in terms of proposed cost, and fee, if applicable, will be subject to a review of past performance information provided by the offeror or obtained from sources other than those identified by the offeror, and used in assessing performance risk, making a responsibility determination, and making a best value decision. References provided by the offeror or sources other than those identified by the offeror may be contacted at this stage and advised of a specific date that completed surveys should be submitted to FRA. References will generally be allowed a minimum of 3 working days to respond by facsimile (with original to be provided upon request). Offerors are advised that time is of the essence, and that if Surveys are not received by the time specified or references otherwise do not avail themselves for an interview, the offeror may be assessed as an unknown performance risk and assigned a neutral performance rating.

8. Offerors are reminded that a past performance rating is not a precise mechanical process and will usually include some subjective judgment. It is a comparative evaluative process that seeks to identify the level of risk associated with contracting with each offeror. The resulting evaluation is a reflection of the degree of confidence the Government has in the offeror's likelihood of success.

9. Upon request, past performance information may be made available to other Federal procurement activities. However, past performance information about an offeror shall not be provided, without the offeror's consent, to any private party, except where the agency determines such information must be released pursuant to the Freedom of Information Act.

10. On the rare occasion that there is no information on past contract performance, or no relevant past performance information, the offeror's lack of past performance will be treated as an unknown performance risk. In such cases, past performance will be treated as "neutral," that is to say the offeror will not be evaluated favorably or unfavorably on the factor of past contract performance. This will be accomplished by assigning the offeror(s) without a [relevant] performance record, the mid-range score available for any numerical or quantitative rating used, or an equivalent value in any adjectival or qualitative rating used.

Section D - Phased or Follow-on Projects *(Optional - For Informational Purposes Only)*

When a follow-on research or project phase(s) is proposed which is beyond that in the specific project being advanced in the proposal concept submission (for initial funding), the applicant may include a separate, supplemental section outlining the follow-on research or phased project activities the applicant maintains would be necessary or beneficial to bring the research project to final completion. A realistic cost estimate for each additional phase or follow-on research project should also be provided. Supplemental section submissions generally should not exceed 3 - 5 pages. (Note: This 3 - 5 page summary supplement will not be counted as a part of the recommended 20-page limit.) Applicants whose projects would not require additional phases or follow-on project activities beyond the activity in the specific project being advanced in the proposal concept submission (for initial funding), may disregard this section.

PART V - EVALUATION CRITERIA/EVALUATION PROCESS/AWARDS

EVALUATION CRITERIA

Proposal concept papers (and other submissions, if and when requested) will be evaluated using the following criteria, which are listed in descending order of relative importance:

A. Technical Factor:

1. The relationship of the proposed research project, technology advancement and/or demonstration to the FRA's mission and its potential to advance U.S. high-speed rail technology, and the extent to which its application to railroad operations would improve intercity passenger operations through improved railroad capital equipment or infrastructure, traffic control centers, interfaces among these, or operating methods, and/or its potential for performance improvement in one or more qualities such as, cost effectiveness, reliability, safety, availability, or maintainability.

2. The overall scientific and/or technical merit of the proposal.

3. The technical qualifications and demonstrated experience of key personnel proposed to perform the technical efforts.

4. The administrative qualifications and demonstrated experience of the proposing organization to support the project.

B. Cost/Price Factor:

1. The reasonableness and realism of the proposed costs and fee (if any).

2. The extent of any proposed cost sharing/cost participation under the proposed effort (exclusive of the offeror's prior investment).

C. Past Performance Factor:

The extent or level of relevant corporate past performance, or relevant past performance by key personnel or by subcontractors or parties to cooperative arrangements. (Note: Assessments of past performance will not be applicable to offers/applications from states or local governments or organizations of state or local governments, or universities or institutions of higher education.)

EVALUATION PROCESS:

All materially complete proposal concept papers submitted under this BAA will be subject to technical review in accordance with the established evaluation criteria.

Proposal concept papers which are evaluated favorably from a technical perspective and determined by the FRA to be consistent with the objectives of the BAA and of interest to the Government, and in which there are no significant or outstanding issues or areas for clarification, will be subject to a cost review.

Technically acceptable proposal concept papers that are considered realistic and reasonable, in terms of proposed cost, and fee, if applicable, will be subject to a review of past performance information provided by the offeror or obtained from sources other than those identified by the offeror (excepting those offerors previously identified as not being required to submit past performance information).

Proposal concept papers which are evaluated favorably from a technical perspective and determined by the FRA to be consistent with the objectives of the BAA and of interest to the Government, but in which there are outstanding issues or areas for clarification, from a technical, cost, or past performance perspective, must be resolved favorably before they can be advanced to each subsequent stage of consideration. In such cases, the Grants/Contracting Officer may contact the offeror and request additional or supplemental information or clarification to augment the initial submissions and assist in determining if the offer will receive further consideration.

In the case of proposal concept papers that are not evaluated favorably, contain material deficiencies or significant weaknesses, or are otherwise deemed unacceptable from a technical perspective, or that are not consistent with the objectives of the BAA or not of interest to the Government, proposers will not be afforded further opportunity to submit proposal information or revisions, will not be subject to cost or past performance review, and will be rejected/declined.

AWARDS:

An offer must be found acceptable under all applicable evaluation factors and subfactors to be considered eligible for award.

All evaluation factors other than cost or price, when combined, are significantly more important than cost or price alone. Technical evaluation is appreciably more important than cost or price and, as such, greater consideration shall be given to technical excellence rather than cost or price alone. Cost or price is somewhat more important than past performance and, as such, greater consideration shall be given to cost or price rather than past performance alone. Tradeoffs, as described in FAR Part 15, are also allowed.

Awards will be made to those responsible offerors whose offers provide the best value to the Government, in terms of technical excellence, cost or price, and performance risk (as applicable), and other factors – to include consistency and accord with the objectives of the BAA and the FRA's mission and its interest in pursuing the proposed research project, technology advancement and/or demonstration.

Awards may take the form of contracts, grants or cooperative agreements.

Contracts will be used when the principal purpose is the acquisition of supplies or services (including research and development) for the direct benefit or use of the Federal Government.

- It is anticipated that most contracts resulting from this BAA will be cost-reimbursement type contracts (i.e., cost, cost-sharing, or cost-plus-fixed-fee). These types of contracts permit reimbursement of the actual cost of performing the contracted work, and may or may not allow for profit or fee. Cost-reimbursement contracts are suitable for use only when uncertainties in contract performance do not permit costs to be estimated with sufficient accuracy to use any type of fixed-price contract. Some contracts resulting from this BAA may be awarded on a fixed-price basis (e.g., firm-fixed price completion, or firm-fixed-price level-of-effort term contracts). Fixed-price contracts are used when the research/work effort can be estimated accurately and the services to be rendered are reasonably definite. Other contract types, as described in FAR Part 16, may also be used.

- To the maximum extent practicable, the Government will structure contracts awarded under the BAA using "Performance-based contracting" methods. As described in FAR Part 37.6, performance-based contracting methods are intended to ensure that required performance quality levels are achieved and that total payment is related to the degree that services performed meet contract standards. Performance-based contracts –

  a) Describe the requirements in terms of results required rather than the methods of performance of the work;
  b) Use measurable performance standards (i.e., terms of quality, timeliness, quantity, etc.) and quality assurance surveillance plans;
  c) Specify procedures for reductions of fee or for reductions to the price of a fixed-price contract when services are not performed or do not meet contract requirements; and
  d) Include performance incentives where appropriate.

- Because of the broad range and diversity of activities that may be proposed under the BAA, it does not lend itself to the use of a common work statement. As such, no single North American Industry Classification System (NAICS) code (formerly Standard Industrial Classification (SIC) codes), will be issued for the BAA. NAICS codes will be specific to each individual contract award, as determined by the type of activity in which the actual offeror will be engaged, and as a function of the ownership characteristics of the prospective offeror.

  Grants or cooperative agreements will be used when the principal purpose of the transaction is to stimulate or support research and development for public purposes

- When awarding federal financial assistance through a grant or a cooperative agreement, the most appreciable difference in choosing between the two forms will be the level of involvement between the FRA and the recipient when carrying out the activity

contemplated in the agreement. Substantial FRA involvement is permitted in cooperative agreements.

- Offers (i.e., proposal concept papers) being pursued as (or which are subsequently determined by FRA as) Federal financial assistance (e.g., grants or cooperative agreements), must be accompanied by the appropriate application forms.

Applicants may include in their submissions for consideration an opinion on the type of award instrument they consider would be the most suitable or appropriate venue for their proposed research projects, technology advancements or demonstrations. This will normally also be reflected in the structure of the cost/price portion of the applicants' proposals.

All awards will be subject to the availability of funds. Prospective offerors are cautioned that only the Grants/Contracting Officer can legally commit the Government to the expenditure of public funds under this BAA.

PART VI - MISCELLANEOUS

Cautionary Note! - Prospective offerors are cautioned that the proposal concept paper may contain data the offeror does not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes. If the offeror wishes to restrict such data, the title page must be marked with the following legend (and relevant sheets marked as instructed):

> This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed – in whole or in part – for any purpose other than to evaluate this proposal. However, if a contract is awarded to this offeror as a result of – or in connection with – the submission of these data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in these data if they are obtained from another source without restriction. The data subject to this restriction are contained in Sheets *[insert numbers or other identification of sheets]*.

To the extent that such restrictions on proprietary data or information would not interfere with the intent of the Government to make the results of the work and projects awarded under the BAA available to all interested parties, and if in conformance with the Freedom of Information Act (5 U.S.C. 552, as amended), the Government will honor those desires.

Terms and Conditions - Awards will generally contain, where appropriate, detailed provisions concerning patent rights, rights in technical data and computer software, data reporting requirements, and other terms and conditions which will be negotiated as part of the award process.

Deliverables, Presentations and Demonstrations - Any specific deliverables (e.g., hardware, models, data, etc.), presentations, and/or demonstrations to be provided or conducted during the course of, or at the conclusion of an awarded contract, will largely be a function of that presented in the offeror's proposal concept submission or as negotiated at time of award and specified in the resulting contract.

Reporting Requirements - The number and types of reports will be specified in individual award documents. Progress, and interim, draft and/or final reports will be prepared and submitted in accordance with FRA reporting requirements, which will be provided with the award documents.

Internet Sites of Interest for Contracting with the Department of Transportation and the Federal Railroad Administration

U.S. Department of Transportation
Acquisition and Grants Home Page
http://www.dot.gov/ost/m60/

Contracting with DOT
http://osdbuweb.dot.gov/business/mp/miphtml1.html

DOT Office of Small and Disadvantaged Business Utilization
http://osdbuweb.dot.gov/

DOT OSDBU
Marketing Information Packet
http://osdbuweb.dot.gov/business/mp/mip.html

DOT Contracting Opportunities
http://osdbuweb.dot.gov/business/procurement/index.html

DOT Procurement Forecast for FY 2003
http://osdbuweb.dot.gov/business/procurement/forecast.html

Performance-Based Service Contracting
http://www.dot.gov/ost/m60/pbsc/

Federal Railroad Administration
Office of Acquisition & Grants Services
http://www.fra.dot.gov/acq_and_grnt_svc/index.htm

Federal Acquisition Regulation (FAR)
http://www.arnet.gov/far

Office of Management and Budget Grants Management (Circulars/Forms)
http://www.whitehouse.gov/OMB/grants/

Federal Business Opportunities (FedBizOpps) (formerlyEPS)
http://www.fedbizopps.gov/

PROPOSAL CONCEPT PAPER

Content Summary Recap

(The BAA 2003-1 Package must be read in its entirety. The following is for illustration purposes only.)

Section A - Technical Concept*

Title; Applicant/Offeror; Capabilities; Objective; Potential Application; Maturity and Adaptation; Test Bed; Project Description; and Project Duration.

Section B - Cost or Price*

Labor; Overhead/Fringe; Materials, Supplies and Equipment; Travel and Transportation; Subcontracts; Other Direct Cost (ODC); Miscellaneous; G&A, Profit or Fee (if any); and Cost Sharing/Cost Participation.

Section C - Past Performance Information (N/A to State or Local Govt. or Univ.)

For projects $100K or more, the Offeror completes Appendix B Survey Part 1 & Part 2 for each of 3 relevant contract references. Does not count in 20-page limit.

Section D - Phased or Follow-on Work

Optional Section not to exceed 3 - 5 pages. Do not furnish if project does not entail phased or follow-on work. Does not count in 20-page limit.

Resumes/C.V.s

1 to 2 pages per Key Person. Not to exceed 3 persons per concept paper.
Does not count in 20-page limit.

Outside Support

Statements or letters of commitment from 3rd parties to support activities or share in project costs should be furnished or made available upon request. Does not count in 20-page limit.

Application for Federal Financial Assistance

Offerors seeking to enter into a grant or cooperative agreement (usually States) must submit appropriate application forms. Otherwise disregard. Does not count in 20-page limit.

***Section A + Section B ≤ 20 pages**

PART VII - SUBMISSION

In preparing proposal concept paper for submission to the FRA, offerors are reminded to carefully read this entire BAA and to comply with all content and format requirements.

For identification purposes, submissions should reference the BAA number and title (BAA 2003-1 - Funds Availability for Research Projects and Technology Advancements under the Next Generation High-Speed Rail Program) on the outer packaging and on the submission itself.

Offerors shall submit

- An original and four (i.e., a total of five) paper copies of each proposal concept paper and related materials; and

- One electronic version of Section A - Technical Concept of their proposal concept papers on a virus-free, formatted, double- or high-density 3.5" diskette.

  (Note: For successful offers, the FRA anticipates incorporating the final agreed to SOW/Project Description into the body of the contract, or financial assistance award instrument in full text. To facilitate this process, offerors are requested to provide an electronic version of Section A - Technical Concept of their proposal concept papers. The FRA currently operates primarily in a Corel® Office word processing environment and it is preferred that the offeror's electronic version be prepared (or converted before transmission) in Corel® WordPerfect® (version 6/7/8/9). Microsoft® Word® (version'97 or higher) may also be used. Materials outside of the Section A of the proposal concept paper itself (i.e., Sections B and C), and information that normally is not part of the recommended 20-page proposal limitation (e.g., resumes or C.V.s, financial assistance application forms, etc.) should not be included on the diskette.

Offerors shall submit proposal concept paper and related materials (in paper copy and on diskette, as described above) – via regular U.S. mail or express delivery to the following address:

Federal Railroad Administration
Office of Acquisition and Grants Services, Mail Stop 50
Attention: Robert Carpenter
1120 Vermont Avenue, N.W.
Washington, D.C. 20590

Note: Neither facsimile nor other electronic submissions/applications/offers are authorized (except for Section A described above).

Submissions that are incomplete or materially lacking, pursuant to the instructions in the BAA 2003-1 Package, may be returned unevaluated, or evaluated as is, without further opportunity for revision, at the discretion of the Source Selection Authority.