

October 2005

Innovative Pavement Research Foundation

PROGRAM FORMULATION AND MANAGEMENT

IPRF/FAA COOPERATIVE AGREEMENT 2001-G-002

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**Innovative Pavement Research Foundation
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PROGRAM FORMULATION AND MANAGEMENT

INTRODUCTION

The Innovative Pavement Research Foundation (IPRF) is a nonprofit 501(c)(3) organization founded to create a new generation of portland cement concrete (PCC) pavements. Principal activities of IPRF include applied research, field tests and evaluation, development of user-friendly materials, and training and education to facilitate adoption of innovative practices. The IPRF takes advantage of the professional staff and membership of three national organizations to achieve technical standing. Those organizations include the Portland Cement Association (PCA) and the American Concrete Pavement Association (ACPA).

PROGRAM FORMULATION

Blueprint

Program formulation began in 1997 with the development of a *Blueprint for Portland Cement Concrete Pavements*. This blueprint established five goals as the focus for concrete pavement research and innovation.

1. To discern the best of current practice
2. To reduce initial costs, without compromising PCC pavement performance
3. To reduce user delays and public inconvenience associated with PCC pavement construction and maintenance
4. To develop cost-competitive PCC options for all paving applications
5. To increase the certainty that PCC pavement will achieve design expectations

The blueprint was developed through a special task force of Federal and state officials, academics, contractors, material suppliers, equipment manufacturers, and industry association representatives.

Blueprint Action Plan

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To meet the defined goals, a Blueprint Action Plan was created. This plan describes a multi-year program of nearly 70 activities with an estimated cost of \$50 million. The plan serves as a starting point, and a reference point, in defining the concrete pavement research needs and priorities. However, the world of research and innovation is a dynamic arena with continually emerging issues and technologies. It is also an arena in which synergy created through public-private partnerships is essential for successful development and application of new procedures, processes, and materials.

Federal Aviation Administration Cooperative Agreement

The FAA signed Cooperative Agreement 01-G-002 on January 8, 2001 and therein specified that the research effort would follow the guidelines included in the IPRF application for a research grant dated November 7, 2000. The guidelines provide that an oversight committee, or the Program Coordination Group (PCG), functions as the watchdog for the work to be performed under the FAA agreement. Project technical panels will oversee specific projects and provide recommendations to the PCG relative to the administration of those projects.

PROGRAM MANAGEMENT for COOPERATIVE AGREEMENT 01-G-002

The program guidance comes from the PCG. The PCG represents the aviation community and the members include:

Ms. Carol Comer, National Association of State Aviation Officials (NASAO)
Ms. Jo Lary, Airport Consultants Council (ACC)
Dr. Paul Foxworthy, American Society of Civil Engineers, Transportation (ASCE)
Mr. Tyler Setchell, American Association of Airport Executives (AAAE)
Mr. Jim Greene, Department of Defense – US Air Force (DoD)
Mr. Daniel Molloy, Airports Council International – North America (ACI-NA)
Mr. John Powers, American Concrete Pavement Association (ACPA)
Mr. Ed Gervais, The Boeing Company
Mr. Jack Scott, Federal Aviation Administration, Northwest Region (FAA – Northwest)

The responsibilities of the PCG include:

1. Identify airport concrete pavement issues that could be eligible for the Airport Concrete Pavement Technology Program (ACPTP).
2. Recommend priorities for the research projects to be undertaken.
 - a. Review findings of the ACPTP and recommend avenues for additional research and/or define the technology transfer mechanism that will accelerate the implementation of findings.
 - b. Direct course corrections as research evolves when promising opportunities are

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revealed as a result of research. Course corrections could include dismissal of a research party when non-performance is concluded.

The FAA and the IPRF have non-voting representation on the PCG. The mission for the non-voting representatives is providing information transfer to their respective agency. The non-voting representatives include:

Dr. Satish Agrawal, Manager, Airport Technology Research and Development Branch
Dr. Gordon Hayhoe, Research Project Manager, Airport Pavement Research
Dr. David Brill, Research Project Manager, Airport Pavement Research
Mr. Rodney Joel, Engineering and Specifications Division, Office of Airport Safety and Standards
Mr. Jeff Rapol, Civil Engineer, Engineering and Specifications Division, Office of Airport Safety and Standards
Mr. James L. Lafrenz, Principal Investigator, American Concrete Pavement Association

PROJECT MANAGEMENT UNDER THE COOPERATIVE AGREEMENT

Role of the IPRF

The IPRF is responsible for project delivery. Specifically, the IPRF administers the cooperative agreement using a process that involves three levels of oversight. All three levels will have avenues through which to receive input from the FAA, the IPRF and other aviation industry representatives. The procedures are herein documented to ensure the smooth operation of the oversight groups. The oversight will include standard agreements and forms for reporting travel reimbursement, contract administration, bias elimination and administrative functions.

The IPRF will administer the Airport Concrete Pavement Technology Program (ACPTP). This includes as a minimum of providing:

1. Procedures:
 - a) Request for Proposals format criteria.
 - b) Request for Proposals preparation criteria.
 - c) Request for Proposals announcement/advertisement criteria.
 - d) Request for Proposals selection criteria.
 - e) Bias avoidance.
 - f) Agreement format.
 - g) Agreement language.
 - h) Agreement administration.
 - i) Agreement negotiation.

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- j) Agreement termination.
 - k) Agreement legal review.
 - l) Invoicing and accounting.
2. General Administration
 - a) Supervision and oversight of administrative functions.
 - b) Modifying the cooperative agreement, as needed.
 - c) Managing expenditures associated with travel and other expenses of the Program Coordination Group and the Project Technical Panels.
 - d) Preparing any reports required by the Federal Aviation Administration on the concrete pavement technical program.
3. Communications
 - a) Program communications and associated costs (travel, web site, presentation materials).
 - b) Printing, mailing, and communications of general cooperative agreement program information.

Role of Federal Aviation Administration

The FAA is the partner for the development of the overall Airport Concrete Pavement Technology Program (ACPTP). The FAA has a voting representative on the Program Coordination Group (PCG). The FAA appoints a representative to sit on each of the Project Technical Panels. Specifically, the FAA is responsible for general program oversight, monitoring and evaluation to help ensure appropriate IPRF performance during the administration of the projects funded under the Cooperative Agreement. The FAA Agreement Officer's Technical Representative (AOTR) will participate in the planning and management of the ACPTP, and will coordinate activities between the IPRF and the government. The FAA will specifically:

1. Work with the IPRF in the definition of research activities and adoption of new and improved methods and technology relating to the design, construction, rehabilitation and repair of portland cement concrete pavements,
2. Assist in identifying research activities which may receive funding under the Cooperative Agreement,
3. Assist, as necessary, in the preparation of project plans, and
4. Review and approve project plans.

Project Directors

Each research project has a Project Director. The Project Director is the chairperson of a Technical Panel. The Technical Panel is responsible for preparing the scope of work for each research effort and for recommending a research team based upon a review of proposals. The

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Project Director retains coordination with the PCG through the Principal Investigator during the process to assure that the intent of the PCG is retained for each research effort. The Technical Panel monitors the progress of the work and recommends actions to be taken to the PCG as the work progresses. The Technical Panel(s) may include representatives of the academic community, State Aviation Officials, airport owners and operators, consultants, and paving contractors. The FAA provides a technical representative for each project.

Project Directors are responsible for:

1. Preparing the cost estimate and work plan for projects included in the Cooperative Agreement.
2. Recommending technically qualified persons to serve on project technical panels.
3. Handling logistics, coordination, facilitation, and reporting.
4. Providing technical management and guidance of the project.
5. Providing quarterly reports to the PCG through the IPRF on the progress (or lack thereof) of the respective project.

Project Technical Panels

The technical panels provide the technical experience for IPRF. Panel members are chosen for their technical expertise as well as their demonstrated ability to enhance the technology transfer and implementation of the results of the research. They are appointed for the duration of individual projects and are looked to for technical guidance and counsel throughout the research and reporting stages.

IPRF technical panel members serve voluntarily without compensation. Panel members do not act as individual consultants or advisors to the researchers; any panel guidance to the PCG or to the party performing the research must come from a consensus within the technical panel membership and through the Project Director. A condition for accepting appointment to a panel is that members are prohibited from submitting proposals on research activities under their panel's jurisdiction.

Panels may include individuals from local, state, and Federal government agencies; universities; national associations; institutions with related interests; and industry. Each panel must include at least two individuals who represent the intended user community for the expected research or technology product.

The panel is an essential element in the direction and conduct of the research work of the IPRF. Each panel has the responsibility for key elements of the research process including:

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1. The development of the research objectives and scope,
2. Making a recommendation for the selection of the party to do the research,
3. The monitoring of progress of the research,
4. The recommendation for acceptance of the final report or product, and,
5. The recommendation for the form of technology transfer.

The PCG through the IPRF confirms appointments to technical panels. An important concern to the IPRF in the selection and approval of panel members is the avoidance of conflicts of interest and technical biases. Where technical biases are known to exist, careful attention will be given to the need to maintain a balance of such biases on the panel.

Developing Project Statements and Requests for Proposals

The project technical panel is responsible for the development of the project statement into a fully detailed request for proposal (RFP). Or, the project statement may be used when a potential source to perform the necessary work is already identified and the technical panel makes a conclusive finding that the expertise necessary to execute the project rests with only one source. Sole source may include laboratories operated in conjunction with IPRF sponsors, state DOT's, or universities with specific centers of excellence for concrete pavement technology. Project statements will be specific in identifying the research methodology, data collection requirement, tests to be performed, and the analysis procedure.

An RFP will be used to solicit project proposals from the research community at large. The RFP will include:

1. A statement of the general problem and associated needs,
2. A statement of the research desired to satisfy the needs, including a clear and specific statement of the objectives that are expected to be met,
3. Statements of the funds available for the agreement, the agreement performance period, and the deadline for proposal submission.

The task panel evaluates proposals on the basis of technical merit and estimates of probable success based upon the merits of the proposal. Although cost will be considered, it will not be the determining factor when making a recommendation for award of a research contract. Unlike a project statement that specifically describes the research or test methodology, an RFP welcomes the creativity of the research community as a whole.

Project and task panels will meet at a convenient location to prepare project statements or RFP's. The panels will specifically consider completed or ongoing research in the subject area to ensure that new work does not duplicate other research and that research builds upon the existing body of knowledge. Technical panels also specify the key elements of the proposal including the

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proposal evaluation criteria and the weights to be assigned to each element. The specific criteria and the respective weight of criteria in terms of proposal evaluation is not communicated to persons other than the Technical Panel members and the IPRF Principal Investigator.

The IPRF will post the RFP on its web site. Special efforts will be made to ensure that opportunities for participation are well known to all potential researchers. The IPRF web site will also contain information and instructions for preparing proposals. Project Directors will respond to written questions from those that represent themselves to be preparing proposals. If answers to specific questions could influence the nature of the RFP, the question and the answer will be posted on the IPRF web site for dissemination.

The IPRF will not schedule pre-proposal briefing meetings. However, if such pre-proposal briefings are held, they will be announced in advance as a part of the RFP and open to all that request attendance. If the need for a pre-proposal conference becomes apparent after release of an RFP, the IPRF will extend the deadline for submission of proposals and post the information on the IPRF web site.

Approximately 60 days are allowed between the time of first announcement of the RFP and the required submittal date. It is the responsibility of those interested in submitting proposals to obtain and comply with the instructions and time lines. The proposal must be self-contained because it may constitute the only opportunity to communicate with the Technical Panel. The proposal must be in the IPRF office by close of business on the specified date.

Selecting the Entity to do Research

The process for selecting a research entity provides for all potential research groups or individuals to compete on the basis of technical merit. The process is intended to assure that all proposals are considered equally and without bias. The Technical Panel has instructions to consider all the avenues available to explore the talents and ideas that are available in the research community but not going beyond that community.

The Technical Panel and the Project Director evaluate proposals for projects. The evaluation includes using a pre-determined weighted evaluation scale based upon the elements of the proposal. The elements (divisions) are identified in the Instructions for Proposal Preparation. The divisions or elements may be different for each project.

Cost is not a deciding factor in the evaluation since funds are specified in not to exceed amounts in the RFP. Cost proposal line items will be examined to determine if the proposals are reasonable and staffing is consistent with the fund amounts of the proposal. The unit costs of the research proposed and such elements as compensation for key personnel, distribution of effort

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for key subtasks, overhead rate, size of any fixed fee, and those expenditures included in direct costs are subject to evaluation.

Proposals will be logged-in and reviewed by IPRF staff for completeness and conformity to required standards. The IPRF will not accept proposals after the submission deadline; late proposals will be rejected without review. Conforming proposals will be given to each member of the technical panel for their individual evaluation. Proposals rejected for format will be returned to the submitting group or individual along with a letter stating the nature for rejection. The Project Director accomplishes letters of rejection using criteria agreed to by the technical panel.

The technical panel will be instructed to (1) evaluate and rate each proposal in accordance with the weights decided at the first meeting and (2) be present at a second meeting prepared to discuss the pros and cons of each proposal. The Project Director is responsible for collecting pro's and con's for each proposal and preparing a summary that is given to each group that submits a proposal but was not selected to do the work. The first and second choice for recommendation for award will be documented and that documentation will include specific reasons for selection.

Notification of Selection

The IRPF will notify the group or individual that is recommended for selection for the award of the research contract. Negotiations begin when the first-choice proposer receives notification of the panel's decision. The group or individual selected for the award must:

1. Complete any necessary certifications required by the terms of the Cooperative Agreement (i.e., drug-free workplace, lobbying certification, fund control and accountability, etc). Specifically, the certifications will include the conditions identified under Chapter 8, Section 1., Anti-discrimination Statues and Chapter 8, Section 3, Information Handling of FAA Order 9550.7A, "Research Grants Program," April 19, 1996.
2. Provide Certification that the recipient has a copy of FAA document "Research Grants Program," dated April 19, 1996, FAA Order number 9550.7A.
3. Provide documentation required to support cost and audit requirements.
4. Provide documentation that travel policy and salary and wage schedules conform to Government requirements.

The second choice group or individual for recommendation for award of the research contract will be asked certify that the proposal submitted and found to be second choice will remain in full force and effect until a contract award is made to the first choice. In the event that a contract cannot be agreed to with the first choice for award, negotiations will commence with the second

choice. When negotiations fail with both the first and second choice for award, a new RFP will be issued subject to the continued availability of funds.

Monitoring Research

Once research begins the IPRF, the Project Director, and the technical panel will monitor the administrative and technical progress of the work. Drawing on the contents of the approved proposal and work plan, the Project Director will maintain a dialogue with the research team to ensure conformance with agreement obligations. The Project Director in the exercise of project management, guidance, and cost accounting will maintain a balance.

The technical panel will maintain oversight and communication during the progress of the work through the Project Director. The technical panel will receive copies of milestone reports directly from the researchers. The comments of the technical panel will be returned to the research group or individual through the Project Director. The person(s) doing the research are required to respond in writing to the comments and specific correspondence provided by the Project Director. Approval of the technical panel is required for any substantive changes in the conduct of the research plan, any change in principal investigators, and any interim reports required by the accepted work plan.

Reviewing Research Reports

All IPRF projects will conclude with a final report. It is fully understood that research, by its nature, involves risks, and not all investigations will be successful. However, it is important to document the methodology and all results so that future research is fully informed of past efforts.

The final report review will be in two phases. All organizations are required to include the review process in their proposed schedule. IPRF agreements will require submission of a draft report in the standard FAA format. This format is designed to provide straightforward, upfront information for the practitioner or administrator as well as documentation for the research and technical community. Draft reports will be treated as privileged documents (available only to the sponsors and participants in IPRF) and will be reviewed by the technical panels for fulfillment of the technical obligations under the agreements.

Project Directors will receive the draft final reports from the researchers, acknowledge their receipt, and distribute them to panel members. Technical panel members will review the drafts and return their comments to the Project Director for consolidation. The Project Director, in association with the IPRF Principal Investigator, is responsible for the resolution of agreement among the panel members. Panels will base final acceptance on the following criteria:

1. Fulfillment of objectives as defined in the agreement,

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2. Adequacy of documentation, and
3. Clarity of presentation

Technical panel members will recommend the appropriate audience for the report findings and suggest the appropriate medium to reach that audience. The medium may include publication of a full or summary report. Of paramount concern is the ability to reach those who need the findings and the need to present information in a readily understood and usable form.

The names of individual panel members will not be associated with the comments returned to the researchers. Project Directors will review the revisions to determine compliance with panel recommendations. A copy of the revised report will be sent by IPRF to the PCG (and the FAA) with a request to accept.

Researchers must give careful thought during proposal preparation as to the level of funds that will be required to ensure satisfactory compliance with agreement commitments regarding preparation; editing, submission, and revision of draft reports; and completion of the final report. Revised final reports will be due on or before the agreement's expiration date and within the funding limits set in the organization's proposal. When technical panel comments disagree with the findings of the research or the conclusions of the research group or individual, the disagreement will be documented in the final report.

Interim reports required by the agreement must be submitted according to the schedule that is specified in the working plan that is a part of the contract agreement. Such reports will be reviewed for acceptance under the same criteria as specified for final reports.

Intellectual Property Rights and Intellectual Property

The parties to any agreement with the IPRF to do research shall be subject to the provisions of Cooperative Agreement 2001-G-02 as if a party to the agreement. Specifically the parties agree to the stipulations regarding Intellectual Property and Property Rights.

1. **Ownership Rights in Developed Technology.** All intellectual property created or developed in the performance of the research, whether in the form of patentable subject matter, copyright, trade secret information, "*know-how*," or other intellectual property shall, as between the FAA and the recipient, become and remain the property of the recipient, either directly or by assignment from the FAA, subject only to the FAA rights described below.
2. **US Government Rights in Developed Technology.** The FAA shall retain, reserve, and be granted by the recipient as applicable a non-exclusive, non-transferable, irrevocable,

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paid-up license to use for U.S. Government purposes only, and to permit other U.S. Government agencies (and the IPRF) to use for U.S. Government purposes only, any or all of the developed technology resulting from this Agreement throughout the world. Neither the FAA nor any other U.S. Government Agency shall permit any person or entity other than the recipient to use the developed technology in whole or in part for commercial purposes without the express prior written consent of the recipient. U.S. Government agencies may permit U.S. Government contractors to use the recipient developed technology only under procurement contracts, grants, cooperative agreements, and other transactions awarded or entered into for U.S. Government purposes, with the written provision prohibiting the disclosure of developed technology and prohibiting its use for any commercial or non-U.S. Government purpose.

3. Marking of Intellectual Property. The recipient shall make reasonable efforts to ensure that any developed technology resulting from this Agreement is appropriately marked with legends indicating patent, copyright, or other form of ownership as may be required by law. To the extent provided by law, the U.S. Government and its employees shall be excused from liability for innocent infringement of the recipients rights in any developed technology produced under this Agreement without statutorily required markings.

Patents and Inventions:

1. Policy
 - a. The disposition of rights to inventions made by small business firms and non-profit organizations, including universities and other institutions of higher education, under FAA assisted programs is governed by Chapter 18 of Title 35 of the United States Code, commonly called the Bayh-Dole Act, 35 U.S.C. §200, *et seq.* In accordance with the Presidential Memorandum entitled *Government Patent Policy* issued on February 18, 1983 and Executive Order 12591, FAA may apply the policies of that Act to all participants in cooperative agreements. The Department of Commerce (DOC) is the lead agency for implementing the Bayh-Dole Act and has published guidance to Federal agencies at Part 401 of Title 37 of the Code of Federal Regulations, 37 CFR §401.
 - b. FAA's standard Patent Rights clause is identical to that prescribed in 37 CFR §401(a) with certain exceptions. Those exceptions will be provided upon request.
 - c. FAA patent policy with respect to procurement contracts is found in the Acquisition Management System (AMS). For patent policy relating to research grants, see Chapter 8, Section 5 (as amended) of FAA Order 9550.7A, Research Grants Program.
2. Standard Patent Rights Clause – The Standard Patent Rights Clause found at 37 CFR 401.14 is hereby incorporated into the agreement with the following modifications.

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- a. In an international organization or foreign government, research institute or inventor will own or share patent rights, FAA will acquire such patent rights as are necessary to comply with the applicable treaty or agreement.
 - b. If a recipient elects not to retain rights to an invention, FAA will allow the inventor to retain the principal patent rights unless the recipient, or the inventor's employer if other than the recipient, shows that it would be harmed by that action.
 - c. FAA will normally allow any patent rights not wanted by the recipient, or inventor to be dedicated to the public through publication in scientific journals or as a statutory invention registration. However, if another Federal agency is known to be interested in the relevant technology, FAA may give it an opportunity to review and patent the invention so long as that does not inhibit the dissemination of the research results to the scientific community.
3. Copyright – Clause-Copyrightable Material.
- a. “Subject writing” means any material that: (1) is or may be copyrightable under Title 17 of the United States Code; and, (2) is produced by the recipient, or it's employees in the performance of work under this grant, cooperative agreement, or other transaction. Subject writings include, but are not limited to, such items as reports, books, journal articles, sound recordings, videotapes, videodiscs, computer software, and related documentation.
 - b. Copyright Ownership, Government License. Except as otherwise specified in the grant, cooperative agreement, or other transaction, or by this paragraph, the recipient may own or permit others to own copyright in all subject writings. The recipient agrees that if it or anyone else does own the copyright in a subject writing, the Federal Government will have a non-exclusive, nontransferable, irrevocable, paid-up license to exercise or have exercised for or on behalf of the U.S. Government through out the world all the exclusive rights provided by copyright. Such license, however, will not include the right to sell copies or photo-records of the copyrighted works to the public.
 - c. Recipient Action to Protect Government Interests. The recipient agrees to acquire, through written agreement or an employee relationship, the ability to comply with the requirements of the preceding paragraphs and, in particular, to acquire the ability to convey rights in a subject writing to a foreign participant if directed by FAA under the previous paragraph. The recipient further agrees that any transfer of copyright or any other rights to a subject writing, by it or anyone whom it has allowed to own such rights, will be made subject to the requirements of this article.

Closing Out Agreements

When a final report is submitted, steps leading to the final closeout of the agreement for that project will begin. The IPRF will be provided the inventory of data and equipment that was

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acquired under the project scope. Research data will be retained for three years. The IPRF will provide disposition instructions for capital equipment purchased or fabricated with IPRF funds.

The Project Director will initiate a request for the data inventory and equipment inventory when the final report is received. Final vouchers and reconciliation statements must be received by the IPRF not later than thirty working days after final report acceptance.

Upon receipt of the final voucher, the IPRF will verify costs and final overhead rates. Payment of final funds due will not be made until the final report is accepted and all documentation necessary for project closeout is complete.

End of Program Management Document