

IDEA

**Innovations Deserving
Exploratory Analysis Programs**

RAIL SAFETY

HIGHWAY

TRANSIT

Program Announcement

2019

The National Academies of
SCIENCES • ENGINEERING • MEDICINE



TRANSPORTATION RESEARCH BOARD

TRANSPORTATION RESEARCH BOARD

2018 EXECUTIVE COMMITTEE*

TRANSPORTATION RESEARCH BOARD 2018 EXECUTIVE COMMITTEE*

OFFICERS

CHAIR: **Katherine F. Turnbull**, *Executive Associate Director and Research Scientist, Texas A&M Transportation Institute, College Station*
VICE CHAIR: **Victoria A. Arroyo**, *Executive Director, Georgetown Climate Center; Assistant Dean, Centers and Institutes; and Professor and Director, Environmental Law Program, Georgetown University Law Center, Washington, D.C.*
EXECUTIVE DIRECTOR: **Neil J. Pedersen**, *Transportation Research Board*

MEMBERS

Scott E. Bennett, *Director, Arkansas Department of Transportation, Little Rock*
Carlos Braceras, *Executive Director, Utah Department of Transportation, Salt Lake City*
Ginger Evans, *President, Tower Consulting, LLC, Arlington, VA*
Nathaniel P. Ford Sr., *Executive Director—CEO, Jacksonville Transportation Authority, Jacksonville, FL*
A. Stewart Fotheringham, *Professor, School of Geographical Sciences and Urban Planning, Arizona State University, Tempe*
Susan Hanson, *Distinguished University Professor Emerita, Graduate School of Geography, Clark University, Worcester, MA*
Steve Heminger, *Executive Director, Metropolitan Transportation Commission, San Francisco, CA*
Chris T. Hendrickson, *Hammerschlag University Professor of Engineering, Carnegie Mellon University, Pittsburgh, PA*
Jeffrey D. Holt, *Managing Director, BMO Capital Markets, NY*
S. Jack Hu, *Vice President for Research and J. Reid and Polly Anderson Professor of Manufacturing, University of Michigan, Ann Arbor*
Roger B. Huff, *President, HGLC, LLC, Farmington Hills, MI*
Geraldine Knatz, *Professor, Sol Price School of Public Policy, Viterbi School of Engineering, University of Southern California, Los Angeles*
Melinda McGrath, *Executive Director, Mississippi Department of Transportation, Jackson*
Patrick K. McKenna, *Director, Missouri Department of Transportation, Jefferson City*
Brian Ness, *Director, Idaho Transportation Department, Boise*
James P. Redeker, *Commissioner, Connecticut Department of Transportation, Newington*
Leslie Richards, *Secretary, Pennsylvania Department of Transportation, Harrisburg*
Mark L. Rosenberg, *Executive Director, The Task Force for Global Health, Inc., Decatur, GA*
Gary C. Thomas, *President and Executive Director, Dallas Area Rapid Transit, Dallas, TX*
Pat Thomas, *Senior Vice President of State Government Affairs, United Parcel Service, Washington, D.C. (Retired)*
James M. Tien, *Distinguished Professor and Dean Emeritus, College of Engineering, University of Miami, Coral Gables, FL*
Dean H. Wise, *Consultant, Dean Wise LLC, Winchester, MA*
Charles A. Zelle, *Commissioner, Minnesota Department of Transportation, Saint Paul*

EX OFFICIO MEMBERS

Ronald Batory, *Administrator, Federal Railroad Administration, U.S. Department of Transportation*
Mary R. Brooks, *Professor Emerita, Dalhousie University, Halifax, Nova Scotia, Canada, and Chair, TRB Marine Board*
Mark H. Buzby (Rear Admiral, U.S. Navy), *Administrator, Maritime Administration, U.S. Department of Transportation*
Steven Chalk, *Deputy Assistant Secretary for Transportation, U.S. Department of Energy*
Steven Cliff, *Deputy Executive Officer, California Air Resources Board, Sacramento*
Howard R. Elliott, *Administrator, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation*
Daniel K. Ellwell, *Acting Administrator, Federal Aviation Administration, U.S. Department of Transportation*
Audrey Farley, *Associate Administrator for Administration, Pipeline and Hazardous Materials Safety Administration, Washington, D.C.*
LeRoy Gishi, *Chief, Division of Transportation, Bureau of Indian Affairs, U.S. Department of the Interior, Washington, D.C.*
John T. Gray II, *Senior Vice President, Policy and Economics, Association of American Railroads, Washington, D.C.*
Brandye Hendrickson, *Acting Administrator, Federal Highway Administration, U.S. Department of Transportation*
Nikola Ivanov, *Director of Operations, Center for Advanced Transportation Technology Laboratory, University of Maryland, College Park, and Chair, TRB Young Members Council*
Donald Jackson (Major General, U.S. Army), *Deputy Commanding General for Civil and Emergency Operations, U.S. Army Corps of Engineers, Washington, D.C.*
Heidi King, *Deputy Administrator and Acting Administrator, National Highway Traffic Safety Administration, U.S. Department of Transportation*
Raymond Martinez, *Administrator, Federal Motor Carrier Safety Administration, Washington, D.C.*
Keith Nelson, *Senior Advisor to the Secretary, Office of the Assistant Secretary for Research and Technology, U.S. Department of Transportation*
Craig A. Rutland, *U.S. Air Force Pavement Engineer, U.S. Air Force Civil Engineer Center, Tyndall Air Force Base, FL*
Karl Schultz (Admiral, U.S. Coast Guard), *Commandant, U.S. Coast Guard*
Karl Simon, *Director, Transportation and Climate Division, U.S. Environmental Protection Agency*
Paul Skoutelas, *President and CEO, American Public Transportation Association, Washington, D.C.*
Daniel Sperling, *Professor of Civil Engineering and Environmental Science and Policy; Director, Institute of Transportation Studies, University of California, Davis*
K. Jane Williams, *Acting Administrator, Federal Transit Administration, U.S. Department of Transportation*
Frederick G. (Bud) Wright, *Executive Director, American Association of State Highway and Transportation Officials, Washington, D.C.*

* Membership as of October 2018.

Publications of the IDEA Programs are available on the internet at trb.org/IDEA.

Transportation Research Board publications may be ordered directly from the TRB Business Office (202-334-3213), through the internet at trb.org, or by annual subscription through organization or individual affiliation with TRB. Affiliates and library subscribers are eligible for substantial discounts.

For further information, contact the Transportation Research Board Business Office, 500 Fifth St., NW, Washington, DC 20001, (telephone 202-334-3213; fax 202-334-2519; or email TRBsales@nas.edu).

Innovations Deserving Exploratory Analysis

IDEA

Program Announcement

2019

The National Academies of
SCIENCES • ENGINEERING • MEDICINE



TRANSPORTATION RESEARCH BOARD

CONTENTS

IDEA PROGRAM SPONSORS	1
PROGRAM ADMINISTRATION	1
Program Funding	1
Proposal Submitting Deadlines	2
Protections	3
EVALUATION CRITERIA	3
INFORMATION RESOURCES	4
SUGGESTED FOCUS AREAS	4
Highway IDEA Topics for Investigation	4
Transit IDEA Topics for Investigation	6
Rail Safety IDEA Topics for Investigation	7
INSTRUCTIONS FOR PREPARING IDEA PROPOSALS	8
Contract and Budget Instructions	11
Intellectual Property Rights	12
Project Negotiations	12
Liability Requirements	12
REQUIRED FORMATTING FOR PROPOSALS	13
SUBMITTING PROPOSALS	14
REPORTS AND BRIEFINGS	14
ANSWERS TO FREQUENTLY ASKED QUESTIONS	14

Attachment 1 Proposal Cover Sheets

Attachment 2 IDEA Budget Summary

Attachment 3 Liability Statement

Attachment 4 Proposal Evaluation/Ballots

This Program Announcement describes the IDEA programs and how they are administered, provides instructions and documents for submitting proposals for funding, and lists general research topics derived from program goals.

IDEA PROGRAM SPONSORS

On behalf of sponsors, the Transportation Research Board (TRB) administers three programs that invest in the potential of innovations: Innovations Deserving of Exploratory Analysis (IDEA).

- Through the National Cooperative Highway Research Program (NCHRP), state departments of transportation fund the Highway IDEA program in search of advances in design, construction, safety, maintenance, operations, and management of highway systems.
- The Federal Railroad Administration (FRA) funds the Rail Safety IDEA program, which looks for innovative approaches to improve railroad safety or performance.
- Through the Transit Cooperative Research Program (TCRP), the Federal Transit Administration (FTA) funds the Transit IDEA program to support innovations to improve the efficiency, safety, security, and ridership of transit systems.

IDEA programs differ from traditional research programs: IDEA projects are initiated by researchers rather than by a request for proposals, and funding can support initial testing of unproven concepts. Each of the sponsoring agencies supports programmed, fundamental research through other means. Their investment in the IDEA programs is meant to capture the unexpected concept that challenges conventional thinking.

IDEA programs are open to all, including foreign nationals living and working outside the United States. However, federal policies may not allow the IDEA programs to fund research at a federal agency. Researchers from federal agencies or national laboratories that are managed by non-federal organizations should check with their contracting and legal authorities on whether they may receive funding from IDEA programs.

PROGRAM ADMINISTRATION

TRB administers the IDEA programs on behalf of their sponsoring agencies. A senior staff officer supports the work of panels of unpaid experts who volunteer their time to review proposals, select projects for funding, and offer guidance on the conduct of investigations.

There are two project types: Type 1 projects are concept explorations that demonstrate the validity of unproven concepts, and Type 2 projects develop and test prototypes of proven concepts. Funding varies by program and by project type, as described below.

Program Funding

The Transit IDEA program and the Rail Safety IDEA program can consider Type 1 and Type 2 proposals for up to \$100,000 in IDEA costs, not including any cost sharing.

*THE IDEA WEB SITE LISTS
UPDATED INFORMATION ON:*

■ *Current and
completed projects*

■ *Panel members*

■ *Proposal submission
deadlines*

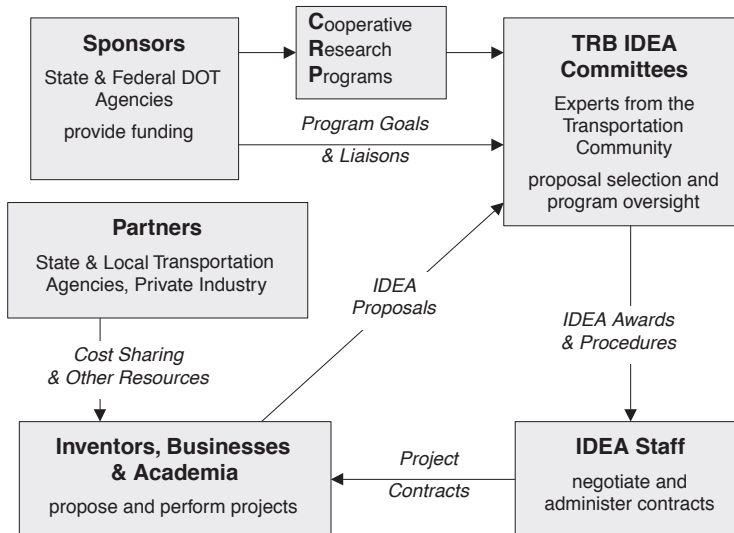
■ *Contact information*

www.TRB.org/IDEA

Contact the IDEA office:

E-mail: ideaprogram@nas.edu

How TRB Manages IDEA Programs



Type 2 proposals for the Transit IDEA and Rail Safety IDEA programs require cost sharing of at least 20% in addition to IDEA costs.

Funding for a Type 1 Highway IDEA project will be in the \$125,000 - \$150,000 range, depending on the amount of funds available and the number of proposals selected for the particular review cycle under consideration. Cost sharing is encouraged but not mandatory for a Type 1 project. Funding for a Type 2 project is limited to a maximum of \$100,000 and requires at least 25% match to the proposed Highway IDEA budget.

The duration of an Highway IDEA project is generally one to two years. This can be adjusted if warranted by the specific situation and is mutually agreed. Please note that the IDEA contracts are fixed-price contracts and so if the work is completed and final deliverables received earlier than scheduled, the contractor will still be paid the full contracted amount.

Proposal Submitting Deadlines

The Highway IDEA program conducts two review cycles each year with due dates of March 1 and September 1. The Transit IDEA and the Rail-Safety IDEA programs will have one review cycle each in 2019. Transit IDEA proposals will be due May 1 and Rail-Safety IDEA September 15. Please keep checking the IDEA website (www.TRB.org/IDEA) for the most updated information.

The cut-off time for receiving proposals is 12:00 midnight Pacific Standard Time of the due date.

CONTACT THE IDEA STAFF:

—*Transit IDEA*
Velvet Basemera-Fitzpatrick
vfitzpatrick@nas.edu
202-334-2324

—*Rail Safety IDEA*
Velvet Basemera-Fitzpatrick
vfitzpatrick@nas.edu
202-334-2324

—*Highway IDEA*
Inam Jawed
ijawed@nas.edu
202-334-1461

Fax: 202-334-3471

If the proposal submission due date for any IDEA program falls over a weekend or on a federal holiday, the due date automatically moves to the next business day.

Protections

Proposals received by the IDEA programs are held in confidence. The information they contain is used only for evaluation during the review process by panel members who are instructed not to disclose it. Proposal reviews by panel members are also confidential.

Investigators selected for IDEA funding retain intellectual property rights to their ideas and are encouraged to obtain patents or in other ways secure their rights.

EVALUATION CRITERIA

Proposals are reviewed by technical experts in the program area who are selected from industry, academia, and state and federal transportation agencies to serve on IDEA panels. In evaluating proposals, panel members require that proposals present clear, concise information and be written in a way that will be understandable to a transportation generalist. Reviewers will, as a minimum, expect responses to the following general questions:

Quality of Innovation—Is this a credible technical concept, and would it produce a significant advance for the state of the art or the practice?

Potential Payoff—Is this an important problem that the IDEA program should investigate, and would the product have potential for implementation or commercialization?

Research Approach—Would the proposed investigative approach rigorously assess the concept and the application?

Complete proposals that follow the Instructions for Preparing IDEA Proposals (see pp. 8-11) will be further evaluated according to their strength in the following areas:

1. Expected benefits to transportation agencies.
2. Scientific and technical merit of the concept.
3. Sound research plan and realistic scope.
4. Qualifications of the investigating team and adequacy of the facilities available to them.
5. Practical, clearly explained plans for implementation or commercialization of a completed product, including discussion of estimated development and production costs, and potential market size.
6. Participation in the project of potential users of the ultimate product.

Cost-sharing can leverage an agency's investment in research as well as spread the risk inherent in early-stage concept development. For those reasons, all other things being equal, proposals that include cost-sharing from the proposing organization and other sources may be given some preference in the evaluations.

TRB may recommend technical or budget modifications to the project after a proposal has been selected for funding but before a contract is awarded. For example, investi-

gators may be asked to clarify project details, revise the work plan, or reestimate the cost to perform the project. Note that evaluation scoring information for Highway, Transit, and Rail Safety IDEA proposals is shown in Attachment 4.

INFORMATION RESOURCES

The Transportation Research Information Database (TRID), which provides free abstracts of thousands of reports on transportation topics in virtually every area, is accessible online through the Bureau of Transportation Statistics at <http://trisonline.bts.gov/search.cfm> and through the TRB Web site (www.TRB.org). A TRID search will help avoid duplicating earlier efforts.

The IDEA Web site (www.TRB.org/IDEA) provides links to annual progress reports for each program. These reports describe projects that have been funded and may be useful in evaluating whether a proposed project is an appropriate fit with the IDEA programs and in developing the scope of a project. Look for these links under the section labeled “IDEA Publications.”

Transportation agencies, most likely the ultimate users of the proposed product, are also valuable resources. Input from agencies can clarify implementation issues and sometimes results in agreements for testing facilities or trial implementation. Letters of participation from partnering organizations strengthen proposals.

Investigators are encouraged to ask questions early in the process of developing proposals. Both technical and procedural questions can be directed to the IDEA program office by e-mail or telephone call to the appropriate staff officer. Contact information is listed on page 14.

SUGGESTED FOCUS AREAS

IDEA projects are initiated by investigators whose innovative concepts have potential to advance the general goals of improving the safety and efficiency of the nation’s surface transportation network. While specific research problems are not defined by the sponsoring transportation agencies, the following topics are illustrative of areas in which proposals may be submitted.

Highway IDEA Topics for Investigation

The Highway IDEA program is managed by the NCHRP and is sponsored by the state departments of transportation. The program seeks advances in the construction, safety, maintenance, and management of highway systems. Suggested topics warranting investigation in areas of interest to the program are listed below. Projects addressing safety on the roadway are particularly encouraged.

Highway Operations

- Deployment of improved or advanced technologies for systems operations;
- Incorporation of reliability estimation into planning and operations modeling tools;

-
- Means for reducing inappropriate driver response to adverse weather, roadside distractions, traffic incident scenes, and queues;
 - Driver behavior and informed drivers (including ITS solutions);
 - Data gathering and processing technologies;
 - Real-time data fusion to support traveler information systems; and
 - Advanced queue and incident scene management techniques.

Highway and Worker Safety

- New concepts for automated identification and warning of hazardous conditions;
- Advanced technology to reduce highway workers' exposure to hazardous conditions and to warn them of impending hazards;
- New concepts for highway infrastructure systems and vehicles, including ITS advances to improve highway safety; and
- Worker safety in night construction.

Security of Highway Facilities and Services

- New technologies and concepts for security warnings and assessments,
- Advanced materials and techniques for hardening the infrastructure, and
- New information technology for crisis response and evacuation procedures.

Highway Design, Construction, and Quality Control

- Innovative concepts for incorporating initial and life-cycle design features, constructability, durability, and maintainability;
- Low-cost design concepts for enhancing the dynamic damage resistance of bridges, pavements, and structures to natural hazards such as earthquakes, wind, and floods;
- Design concepts using advanced composites, steel, and hybrid materials in pavement and bridge constructions;
- Automated systems for monitoring and controlling construction quality of highway pavements, earthworks, and structures; and
- Accelerated construction methods and techniques.

Maintenance and Renewal of Service Life

- Advanced diagnostic technologies to enhance early detection of deterioration and repair technologies that reduce the time between repair and resumption of service;
- Modern materials and composites to improve the service life of pavements and bridges with reduced maintenance; and
- Advanced coating materials and corrosion protection processes to increase the service life of highway structures, including steel and reinforced concrete structures.

Pavement and Bridge Performance and Management

- Innovative systems for pavement and bridge management, including advanced application of remote sensing, communication, and information processing technologies to enhance collection, analysis, and data management processes; and
- Innovative methods to manage and analyze data from long-term pavement performance studies.

Environment and Resource Conservation

- Advanced monitoring methods to rapidly measure the environmental impacts of highway construction and operation,
- Advanced technologies for recycling and reusing materials and waste products, and
- Advanced and alternative methods for conformance with environmental requirements in highway construction.

Transit IDEA Topics for Investigation

The Transit IDEA program, which is funded by the FTA as part of the Transit Cooperative Research Program, seeks innovations to improve the efficiency, safety, security, maintenance, and ridership of transit systems. Proposers are encouraged to work with transit agencies in developing IDEA proposals and to include participation by transit agencies in proposals, such as in testing innovative methods. Evidence from transit agencies that they would want to use the proposed concepts and products and to participate in testing prototypes strengthens proposals. Any letters from transit agencies confirming their participation in Transit IDEA proposals should be addressed to the proposer and should briefly describe what that participation would be. Possible areas of investigation are described on the next pages.

High-Priority Innovation Areas

The panel that reviews Transit IDEA proposals is encouraging proposals for innovative methods that address one of the following four high-priority focus areas. The panel developed these focus areas in cooperation with FTA and the American Public Transportation Association (APTA):

1. Improving transit relevance in the context of mobility management;
2. Satisfying current and anticipated customer needs;
3. Improving transit safety, security, and viability; and
4. Delivering equitable, accessible, and environmentally responsible services.

Other Possible Areas of Investigation

Transit IDEA proposals may also be submitted in other areas with application to transit practice, including, examples identified below.

Capital Assets*

- Cost-effective concepts for design, construction, maintenance, and restoration of physical infrastructure, such as terminals, transfer facilities, maintenance facilities, and stations to improve operations of transit systems;
- Design implementation;
- Maintenance, restoration and replacement;
- Big data, cloud computing, data interfaces, communications, data gathering, data processing, data dissemination, information technologies;
- Track stations; and
- Train control.

*Capital assets refers to the following: fixed facilities, operating infrastructure, vehicles, and systems.



Mobility

- Methods for creating less friction for riders on transit system and developing creative plans;
- Methods for helping the industry transform and adapt mobility as a service models;
- Methods to improve transportation agency ability to satisfy transportation demand; and
- Mode integrations, managing multiple modes.

Service Configuration

- Innovative concepts for advancement in planning, marketing, and service delivery, and
- Methods and concepts that integrate urban development and travel patterns, level of travel abilities and disabilities, neighborhood demographics, and inter-modal systems connections.

Transit Operations

- Cybersecurity;
- Improved safety and security;
- Innovative methods for collecting and analyzing operations data, including methods that are currently unavailable or inaccessible;
- More reliable service;
- New tools to educate and train transit personnel to enhance productivity and performance;
- Quick delivery of timely information; and
- Safety management systems and crew resource management.

Transit Vehicle Maintenance

- Improved methods for repairing and maintaining transit vehicles and equipment;
- Innovative concepts to address critical problem areas such as vehicle maintenance, inspection, equipment failure diagnostics, and maintenance management; and
- Innovative methods for repairing and maintaining transit vehicles and equipment.

Transit IDEA proposals with a potential path to early implementation of results are particularly encouraged.

Rail Safety IDEA Topics for Investigation

The Rail Safety IDEA program is funded by the Federal Railroad Administration (FRA). This program accepts new proposals for innovative approaches to improve railroad safety or performance.

Rail Safety IDEA proposals can be considered for promising but unproven innovations to advance railroad practice. Such proposals can apply to any type of railroad, including high-speed railroads, intercity passenger rail, or freight railroads.



Proposers are encouraged to get participation of railroads in Rail Safety IDEA proposals, such as participation in testing of innovative methods or prototypes in appropriate proposals. Letters to proposers from railroads confirming their participation strengthen proposals. Any letters from railroads confirming their participation in Rail Safety IDEA proposals should be addressed to the proposer and should briefly describe what that participation would be.

Rail Safety IDEA proposals with a potential path to early implementation of results are also particularly encouraged.

The Federal Railroad Administration is interested in proposals that will improve safety and performance in railroad systems, including in the following areas: security; environmental impact; human factors; rolling stock and components; track and structures; track/train interaction; grade crossings; hazardous materials transportation; train occupant protection; trespass prevention; signaling and train control systems; and employee safety.

INSTRUCTIONS FOR PREPARING IDEA PROPOSALS

The following sections provide instructions on how to prepare a proposal for funding consideration from the IDEA programs. The most valuable advice, however, may be this: make it easy for reviewers to quickly grasp the intended benefits of the project. **Develop a clear statement of what can potentially change as a result of the project, include it on the cover sheet, except for the Highway IDEA program, and begin the proposal with it.**

This program announcement contains three attachments that must accompany all proposals. Attachments 1 (cover sheet), 2 (budget summary), and 3 (liability statement) are Microsoft Word documents that can be downloaded and printed from the IDEA website (www.TRB.org/IDEA) by clicking on Submit a Proposal and then on Proposal Submission Forms. Attachments 2 and 3 **must be signed** by the authorized representative and should appear at the end of the proposal.

A complete IDEA proposal will contain the following sections.

1. Pitch Deck slides (for Highway and Transit IDEA Proposals only)

Each Highway or Transit IDEA proposal will also incorporate a pitch deck or a set of slides providing a quick overview of the proposal. The following link provides a sample pitch deck illustrating how it is to be prepared:

<http://onlinepubs.trb.org/onlinepubs/IDEA/IDEASamplePitchDeck.pptx>

The pitch deck must follow the example of the sample pitch deck. It must contain the same number of slides (11) and use the same captions or headings as the sample pitch deck. Proposals with pitch decks exceeding this slide limit will not be accepted. No changes shall be made to the slides' captions or headings. Following the example of the sample pitch deck, each slide will describe a

particular item in the proposal, which will not be carried over to the next slide. The proposers may find the notes below the sample slides helpful in preparing their pitch decks. The pitch deck will not count against the proposal page limit (10 pages for the Highway IDEA and 15 pages for the Transit IDEA) for proposals.

Pitch deck slides should be prepared as a PowerPoint presentation. The slides should not be congested or crowded with too much text. Use bullets to show your points in two or three sentences. Do not write paragraphs under each bullet. The font size should be large enough so that if it were a PowerPoint presentation, the slide should be easily readable by the audience in the last row in the room.

Both the pitch deck and the proposal will be submitted as one PDF file in which the pitch deck will be followed by the full proposal. The pitch deck, prepared as a PowerPoint presentation, and the proposal, prepared using MS Word, should be converted into a PDF and combined as a single document. Separate files, one for the pitch deck and the other for the proposal, will not be accepted.

The pitch deck will be followed by the regular proposal prepared strictly in the format described below.

2. Cover Sheet

Attachment 1 should be page 1 of the proposal. In the summary section for Rail Safety IDEA and Transit IDEA programs, clearly state the intended benefits of the innovation, along with the problem it addresses. Summarize the research approach, indicate any cost-sharing arrangements, and briefly address potential impact on practice. For Highway IDEA proposals, this summary section is not required. Instead, answers to the three specific questions listed on the cover page should be provided on a page following the cover page.

3. Concept and Application for Practice

Starting on page 2 of the proposal (page 3 for Highway IDEA proposals), provide a clear explanation of the following:

(a) Concept and Application: Define the problem the concept addresses and describe the innovative approach to the problem.

(b) Potential Payoff for Practice: Describe the potential benefits of implementing the innovation.

(c) Transfer to Practice: Describe the approach to implementation, considering partnerships and customer base.

(d) Investigative Approach:

Describe the planned investigative approach. Provide a proposed work plan that describes the work required for each numbered task. Divide the plan into two or three stages and include a specific plan for evaluating research results at the completion of each stage. Include a summary of the results of a literature search to show that the concept is not similar to or duplicative of other investigations. (See Information Resources on Page 4.) Literature search/reviews or surveys should not be a task in the IDEA research plan. This may be fine for a traditional NCHRP or TCRP research project, but not for an IDEA research project. The

proposers should do these things before writing their IDEA proposals to find out what has not been done on their particular topic/issue and to have a clear idea of what specifically they will do to address the problem.

(e) Key Personnel and Facilities:

Identify the key investigators and include summary information on their background and technical expertise. Describe resources of the research facility that are available for performing the project. Indicate liaison or cooperative work arrangements, if any, with states, other research organizations, producers, or potential product users.

(f) Other Related Proposals:

Provide information on other proposals in the same or related technical areas that have been submitted by the investigator(s) to other agencies or programs, are planned to be submitted in the current year, or have been funded previously. Indicate “not applicable” if no such proposals have been submitted or awards received. Provide a brief synopsis of other ongoing or completed work related to the proposal.

4. Budget and Cost Sharing

Complete the Budget Summary in Attachment 2 and provide information showing how the requested funds will be used. Follow the instructions under Budget and Contract Guidelines. Leave blank any items that are not applicable. At least half of the research must be performed directly by the proposing firm, individuals, or institution. Only critically needed hardware and equipment specifically required for the project will be considered for funding. The appropriate disposition of capital equipment purchased with project funds will be determined on completion of the project. Proposed purchase of such equipment with IDEA funds is discouraged. Any travel budget items must be directly related to the performance of the project work. Include potential travel for at least one project briefing to the IDEA committee. The budget should reflect the proposer’s best terms from a cost and technical standpoint. In case of a joint proposal by two or more institutions, only one budget sheet needs to be provided, prepared by one of the partnering institutions (acting as the prime contractor) with the other partners shown as subcontractors.

Cost sharing includes direct cash contributions and/or indirect contributions and payment in kind. However, time should not be the major form of the proposed cost sharing. University professors who offer their time as cost share should attach an official letter from their university’s financial authority, who signed the budget sheet in their proposal, stating that the university will pay for their cost shared time.

Cost sharing is encouraged for all proposals but is a prerequisite for Type 2 proposals and is taken as an indication that the proposers and/or their partners also have put some faith in the proposed innovation and are willing to risk their own money on it. Cost sharing can come from the proposers, users, industry participants, state agencies, and other sources available to the proposers. Any cost sharing should be discussed in the proposal. Specific arrangements, if proposed, must be completed before an award is made.

5. Liability

The proposal must include the liability statement (see Attachment 3) duly signed by an authorized official. Under no circumstances will a proposal without this liability statement be accepted. Also, there shall be no alteration or modification of the liability statement. (Proposals with altered liability statements will not be accepted.)

Contract and Budget Instructions

IDEA awards are firm fixed-price contracts. Payments will be made at specified stages contingent on approved progress toward contract completion. The Budget Summary (Attachment 2) should provide the estimated costs for the project with information on each cost element, consistent with the proposer's cost accounting system.

1. Personnel

List individually all personnel and include for each the requested person-hours to be funded and respective rates of pay.

2. Materials and Equipment

Itemize materials required and include costs for each (indicate only materials and supplies required for the performance of the investigation). Equipment purchase, other than the parts or components for the test set-up or the prototype, is discouraged. Any equipment, if purchased, will need to be returned to the federal government upon the completion of the project. The proposers are expected to have their own computers and phones for use on the project. If they want to buy computers or phones for the project, they should do so from the cost-sharing portion of their project budget.

3. Other Direct Costs

List all direct costs that are not included in other categories. For travel, address the type and the duration of travel and its relation to the project.

4. Consultants and Subcontractors

List the names of consultants and/or subcontractors and describe the activities to be performed, the duration of the service, the compensation involved, and the total cost of all subcontracts, which should be below 50 percent of total project cost, excluding any costs for specialized equipment or services. The IDEA programs deal only with the prime contractor on contractual matters and are not involved in the subcontract between the partner institutions. The National Academy of Sciences (NAS) Office of Contracts and Grants (OCG), however, will need to review the subcontract if it is \$25,000 or more.

5. Overhead Costs

Specify current rate(s) and base(s). Use current rate(s) negotiated with the cognizant government agency, if available. If no rate(s) has (have) been negotiated, a reasonable indirect cost (overhead) rate may be requested, in accordance with the existing accounting systems.

6. General and Administrative Costs

Specify current rate and base. Use current rate negotiated with the cognizant federal negotiating agency, if available. If no rate has been negotiated, a reasonable and justifiable indirect cost rate may be requested.

Note: A cost analysis will be made to determine the reasonableness of the proposed itemized budget. A pre-award audit for financial accountability may also be made by the NAS. Institutions of higher education and other nonprofit organizations receiving IDEA awards are subject to the Office of Management and Budget audit requirements (refer to OMB Uniform Guidance 2CFR 200 – Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards).

Intellectual Property Rights

Individuals or institutions retain copyright to written materials, data, and software derived from the IDEA projects and are encouraged to obtain patents on any resulting inventions. The U.S. Government holds a nonexclusive license to use the results of research for certain purposes. The NAS retains the right to print and distribute material from project reports submitted to IDEA programs.

Project Negotiations

The project scope, work plans, and budget may be revised based on evaluation of the proposal. Guidelines for preparing project revisions for an IDEA project will be provided for proposals selected for IDEA awards before a contract is awarded.

Liability Requirements

A completed, signed original Liability Statement (Attachment 3) must be submitted with the proposal. Proposals submitted without this statement will not be considered for award. Also, no alteration or modification of the liability statement is permitted.

Important:

The NAS will transmit a contract to the proposer. This must be either (1) signed and returned to the NAS Office of Contracts and Grants (OCG) within two weeks of transmittal or (2) within two weeks of transmittal, the proposer must return to the NAS OCG in writing any questions or exceptions to the contract terms. If #2, the NAS will respond in writing and the proposer will have one week to sign and return the contract to the OCG with only such revisions as are explicitly approved by the NAS. Failure to respond to either the first or second option will result in the contract offer being withdrawn.

A copy of the IDEA contract is available at: <http://onlinepubs.trb.org/Onlinepubs/IDEA/IDEACContract.pdf>

REQUIRED FORMATTING FOR PROPOSALS

The proposal should be organized in the order described below. Proposals that deviate from this order or use a different format will not be accepted.

- Pitch Deck slides (for Highway and Transit IDEA programs only)
- Cover Page
- Page with answers to the three specific questions (for Highway IDEA proposals only)
- Summary of Concept and Application for Practice
- Investigative Approach
- Key Personnel and Facilities
- Other Related Proposals (if any)
- Budget Sheet (It is suggested that this not include budgetary or investment explanations, as this will be counted toward page limits.)
- Liability Statement
- Letters of Support/Endorsement

For all programs, minimum font size is 12 points and margins are 1 inch on each side. Type is left-justified and page numbers are centered at the bottom. Digital images must be a minimum of 300 dpi.

Proposals for the Transit and Raily Safety IDEA programs **will not exceed 15 single spaced pages** (inckuding all enclosures). Proposals for the Highway IDEA program **will not exceed 10 pages** (including all enclosures) typed single-spaced. Proposals exceeding the allowed page limit will not be accepted. The IDEA program's committees and panels are very strict about the page limit.

Resubmitted IDEA proposals must include a response to review comments on the previous submission, which should be included in the resubmitted proposal following the cover sheet. The response pages are not counted in the page limit.

Please note that the following are also counted toward the page limit for all programs:

- Cover, budget, and liability statement sheets
- Bibliography
- Resumes of researchers
- Brochures, description of facility/company, appendices, etc.

The following are not counted toward the page limit for the three IDEA proposals:

- Letters of support/endorsement, regardless of the number of such letters. (The letters worth attaching are those that make some meaningful commitment rather than mere expression of interest.)
- Response to committee's comments on the previously submitted proposal (about 5–6 pages should be adequate for the response). This should be attached at the beginning of the proposal, following the pitch deck.
- For Highway IDEA prospoals, the page with answers to three specific questions immediately following the cover sheet. For resubmitted proposals, this page should be placed after the response to the comments on the previous submission.

SUBMITTING PROPOSALS

The IDEA programs accept proposals only electronically (no paper copies). The proposal and all attachments (budget summary and liability statement sheets, letters of support, etc.) should be compiled into one single package in PDF format and e-mailed to the mailboxes listed below. Please do not send any material relevant to the proposal (such as support letters) later or separately. These cannot be added to the proposal.

Highway IDEA	nchrp-idea-proposals@nas.edu
Transit IDEA	Transit IDEA Proposal Portal
Rail Safety IDEA	safety-idea-proposals@nas.edu

Please note that the above e-mail addresses are only for submitting proposals to the respective IDEA programs. They are not to be used for sending any other material or asking questions about the IDEA programs or the proposal. There is a separate e-mail address for this purpose: ideaprogram@nas.edu.

Contact Information

Contact the IDEA office by e-mail at ideaprogram@nas.edu if there are any questions. The IDEA program staff officers are as follows:

Transit IDEA: Velvet Basemera-Fitzpatrick, vfitzpatrick@nas.edu, 202-334-2324

Highway IDEA: Inam Jawed, ijawed@nas.edu, 202-334-1461

Rail Safety IDEA: Velvet Basemera-Fitzpatrick, vfitzpatrick@nas.edu, 202-334-2324

REPORTS AND BRIEFINGS

The contractor must submit quarterly stage reports and a final report as specified in the contract document. Guidelines for preparing the various reports will be provided. Following these guidelines may prevent delays in contract completion. Also, during the contract period, the contractor may be required to present updates on the progress and results of the investigation to TRB IDEA committees, panels, or staff.

ANSWERS TO FREQUENTLY ASKED QUESTIONS

Q: Are IDEA programs open only to researchers in the U.S.? Can researchers from other countries also submit proposals?

A: IDEA programs are open to all, including foreign nationals living and working outside the U.S.

Q: Can someone from a state DOT submit an IDEA proposal?

A: Yes.

Q: Will IDEA programs accept a proposal from someone from a federal agency or national laboratory?

A: IDEA programs are open to all, including foreign nationals living and working outside the United States. However, federal policies may not allow the IDEA programs to fund research at a federal agency. Researchers from federal agencies or national

laboratories that are managed by non-federal organizations should check with their contracting and legal authorities on whether they may receive funding from IDEA programs.

Q: Are the IDEA programs essentially to support junior faculty members?

A: IDEA programs are open to all faculty and non-faculty members at an educational institution as well as those outside academia and in private business, regardless of the qualifications, experience, and seniority. The only requirement is a breakthrough innovative idea.

Q: What is the duration of an IDEA project? Is there any flexibility in this time?

A: The duration of an IDEA project is generally one to two years. This may be adjusted if specific circumstances warrant.

Q: What is the cut-off time for receiving proposal?

A: The proposals are submitted electronically and are accepted until 12:00 midnight Pacific Standard Time of the deadline date.

Q: What do you mean by 'indirect cost?' Is it the same thing as overhead cost?

A: Indirect costs include overhead, leave, fringe, general administrative costs, etc. Indirect costs are costs that are not directly associated with a single activity, event, or other cost object. Such costs are frequently aggregated into an overhead cost pool and allocated to various activities, based on an allocation method that has a perceived or actual linkage between the indirect cost and the activity.

Q: We are cost sharing salary and tuition for a student, and the unrecovered indirects associated with the student's salary. From our previous experiences, different sponsors have had different interpretations as to whether these are direct or in-kind contributions. Would this fall under direct or in-kind, or both at the IDEA program?

A: The IDEA Program Announcement states that "cost sharing includes direct cash contributions or indirect contributions and payment in kind." Other than this statement from the Program Announcement, we leave it to the recipients to determine the cost sharing.

Q: Are F&A costs indirect costs? Can they be cost shared?

A: Yes, F&A costs are indirect costs and can be cost shared.

Q: We are a new small start-up company and we do not have enough information to compute "Overhead Costs" and "General and Administrative cost". Is there a "safe rate" that we could use for our IDEA proposal?

A: Whatever rate is acceptable to the federal government for small businesses will be acceptable to the IDEA programs. Also, please note that the IDEA budget would include all indirect costs as well as general administrative costs.

Q: The maximum funding for an IDEA project (except for a Type 1 Highway IDEA project) is \$100,000. Does this amount include the cost sharing? In other words, if I provide \$25,000 cost sharing, would the IDEA program provide only \$75,000?

A: The IDEA funds have nothing to do with, and are not impacted by, cost sharing amounts. In other words IDEA funds are not reduced if you show cost sharing.

Q: For joint proposals, the primary contractor should have at least 50% of what – is it the amount of work or the budget? The Program Announcement says that “at least half of the research must be performed directly by the proposing firm, individual or institution.” Does this mean half in terms of personnel costs or personnel work hours, or something else?

A: The budget share should be at least 50% for the primary contractor. The amount of work and budget generally go together.

Q: The budget guidelines state that a subcontract’s cost must be below 50% of the total project cost. Am I correct in assuming that this total project cost includes any cost sharing? Does the form of cost sharing (cash contribution vs in-kind contribution) affect this?

A: This 50% condition applies to the IDEA amount. It does not apply to the cost sharing amount. The form of cost sharing does not affect this, although cash contribution is considered more credible.

Q: The proposal guidelines state that subcontracts of \$25,000 or more are required to be reviewed by the National Academies. Are such contracts submitted after a grant has been awarded?

A: Yes subcontracts of \$25,000 or more must be reviewed and approved by the National Academies. You can submit them after the IDEA award has been made.

Q: My proposed project requires a subcontract with a software developer. Do I have to have this subcontract in place when the proposal is submitted, or can it be finalized after the grant is made?

A: The subcontract can be finalized after the IDEA award is made. Please note that the award will be a contract, not a grant.

Q: Are the funds for the IDEA programs federal-based or state-based? If they are federal-based, then it would allow states to cost share but if they are state-based, then states generally cannot cost share.

A: IDEA funds are essentially federal-based. Funds for the Rail Safety IDEA program come directly from the Federal Railroad Administration. Funds for the Highway IDEA program come from the Federal Highway Administration through the state departments of transportation. Funds for the Transit IDEA program come from the Federal Transit Administration.

Q: While discussing intellectual property rights, the Program Announcement says that the U.S. government holds a non-exclusive license to use the results of research for certain purposes. What are those ‘certain purposes?’

A: Those certain purposes would be defined by the U.S. government if and when it determines it wants to exercise its rights.

Q: Does an IDEA contract compromise my ability to get a patent?

A: No. IDEA does not retain any rights on your invention. Researchers should independently secure their intellectual property rights.

Q: Does IDEA ensure the confidentiality of my proposal?

A: We treat proposals as confidential material and do not release them in whole or part. Our review process involves committee members who are instructed not to disclose information from proposals.

Q: What do reviewers consider the most important part of a proposal?

A: The innovation. Effective proposals clearly identify what is being done differently.

Q: What can I do to make my proposal better?

A: Research. A proposal that shows an awareness of what has been done in the past makes a positive impression on reviewers. Similarity to existing or past work is one of the reasons proposals are not selected.

Q: What else can I do to improve my chances for selection?

A: Talk to potential users of your concept. Ask them if they might be able to help you develop or test the concept as part of the work plan. Sometimes a letter of commitment from a potential user to participate in your project can add strength to your proposal. Also, follow the guidelines for preparing a proposal. Reviewers do not want to miss a good idea because they couldn't understand it in a poorly prepared proposal.

Q: Is there any outline to prepare the proposal? How many pages? How to prepare budgets?

A: Proposal preparation information can be found at <http://www.trb.org/IDEAProgram/IDEASubmitProposal.aspx>.

Q: For a proposal being submitted jointly by two or more institutions, should there be a separate budget sheet and a separate liability statement for each institution?

A: The proposal should contain only one budget sheet and one signed liability statement from one of the partner institutions acting as the prime contractor. The IDEA programs deal only with the prime contractor on all contractual matters. The prime contractor deals with the subcontractors.

Q: What deliverables are expected in a Type 1 or Type 2 project?

A: For IDEA projects, a report is not a product but rather a means to describe the developed product. For Type 1 projects, the deliverable may be a prototype of a new device, a new testing, inspection or detection method, a new material, or a new software program to address a transportation problem. The final report should provide all this information as applicable. Type 2 projects are expected to provide a refined/improved prototype or product along with all the results on testing, evaluation as well as implementation efforts.

Q: Is there a listserv or distribution list to receive IDEA Program Announcements? If so, how does one get on this listserv or distribution list?

A: Yes, there is a listserv at TRB's Cooperative Research Programs (CRP) Division for communicating announcement for proposals to those interested. To get your name on the list, please contact Joseph Snell (202-334-3502; jsnell@nas.edu) at TRB. The IDEA Program Announcement is also publicized through the TRB e-newsletter.

Q: How can proposers receive feedback on whether a project was funded or not and any comments related to why it wasn't funded?

A: Proposers are informed after the IDEA committee meeting whether or not their proposals were selected for funding. Those whose proposals were not selected can request review comments on their proposals. The comments can be provided verbally or in writing.

Q: How can one keep in touch with project progress?

A: The Highway and Transit IDEA programs provide quarterly progress report to TRB's CRP Division that contains an updated paragraph on each active project. For completed projects, the final reports are posted on the IDEA website. Also, every year each IDEA program publishes its annual progress report that provides annual updates on active projects as well as a one-page summary for each of the completed projects. These reports are also posted on the IDEA website. Another way to learn about IDEA projects is to attend the TRB Annual Meeting where selected active or recently completed IDEA projects are displayed at the IDEA poster session.

Q: What happens after IDEA research is completed?

A: It is essentially up to the researchers what they want to do with their developed products. They are encouraged by the IDEA program to find collaborators and partners among state DOTs and in private industry to carry their work forward toward implementation and commercialization. The project final reports are also provided to relevant TRB technical committees as well as AASHTO committees and councils to see if they have any interest in the developed products. Some projects generate sufficient interest among states to start a pooled fund study for further evaluation and implementation of the IDEA product. FHWA's Highway for LIFE program (now integrated into the Center for Accelerating Innovation) has also further pursued some of the IDEA projects to help with implementation and commercialization.

Q: Will cost sharing increase chances of my proposal being funded? Is in-kind cost sharing acceptable?

A: Cost sharing is desirable but not mandatory for Type 1 projects. Cost sharing makes no difference if the concept is not innovative. Innovativeness of the concept and its practicality are the most important factors for selecting Type 1 projects.

Q: How important are the support letters for an IDEA proposal? Is support from a state DOT more important than private industry?

A: Support letters show that the researchers have discussed their concepts with the state DOTs and that DOTs like their ideas to the extent that they are willing to make some commitments. There is no preference regarding support letters from a DOT or private industry. The important thing is how meaningful the support is.

Q: Will submitting proposal in program's focus area increase my chances of being funded?

A: Only if the concept is really innovative and addresses high priority need of state or local transportation agencies.

Q: Can I submit more than one proposal? If yes, will the program still fund only one of those proposals even though they are all rated high?

A: Yes, you can.

Q: My concept is proprietary. How can I be sure that it will remain confidential during and after review of my proposal?

A: The IDEA proposal review process is strictly confidential. We continue to stress upon our reviewers to observe this confidentiality all the time. You can also write on every page 'confidential and proprietary information' to serve as a reminder.

Q: I already have a patent on my invention. Can I still submit a proposal based on my invention?

A: Yes, you can as long as you can show that your patented product offers a new solution to a highway-related problem.

Q: Will you be willing to review and provide feedback on my proposal before I submit it to the IDEA program?

A: No. It will not be fair to other proposers. The IDEA staff can tell you if your proposal is suitable for the IDEA program but should not advise you on what areas or sections of your proposals need to be strengthened or what questions your proposal has not answered or not answered adequately.

Q: Will you allow me to come to your review committee meeting to explain my concept before selection is made?

A: No. For fairness to all, we will have to ask all other proposers to do the same. Considering the large number of proposals we receive, this is not feasible.

Q: Can I resubmit a proposal if it is rejected the first time? Do you provide review comments on rejected proposals?

A: Yes, you can resubmit a revised proposal. Review comments on declined proposals are provided if requested. The revised proposal must contain your responses to the review comments on your previous proposal.

PROPOSAL COVER SHEET - NCHRP IDEA PROGRAM

***(Note Proposals for the NCHRP IDEA program should not exceed 10 pages. This page limit includes the cover, budget summary, and liability statement sheets, but not the letters of support/endorsement and the additional page following the cover sheet providing answers to the three questions below)

For Use by TRB	Date Received	Proposal Number
Title of Project	<input type="checkbox"/> Concept Exploration (Type 1) <input type="checkbox"/> Product Application (Type 2) Project Duration _____ months	
Submission Date: Resubmission Yes <input type="checkbox"/> No <input type="checkbox"/>	Signed, unaltered, NRC liability certification enclosed with the proposal <input type="checkbox"/> Yes <input type="checkbox"/> No	
Name/Address of Organization and Name of Official to be Contacted	Telephone and Fax Nos.	E-mail
	IDEA Budget \$ _____ + Cost Sharing \$ _____ = Total Project Cost \$ _____	
Business Type <input type="checkbox"/> Academic <input type="checkbox"/> Profit <input type="checkbox"/> Non-Profit	Size (Number of Employees) <input type="checkbox"/> <10 <input type="checkbox"/> <100 <input type="checkbox"/> <200 <input type="checkbox"/> >200	
Name/Address of Principal Investigator	Telephone and Fax Nos.	E-mail
Names of other Key Investigators		
<p>NCHRP IDEA Proposers:</p> <p>Please do not delete or write in this box. On a page following this cover page, please provide separate answers to each of the following three questions. Please do not rephrase or combine the questions and be clear and concise in your answers (one page maximum):</p> <ol style="list-style-type: none"> 1. What is the specific innovation? Does it address a high priority need of state highway agencies? 2. How could this innovation affect the current state of practice? What will it do that the current practice cannot do? 3. Compared with current practice, is the proposed innovative solution economically feasible and easy to use? <p><i>Note: The page with answers to the above questions will not be counted in the 10-page limit for the full proposal.</i></p>		

IDEA BUDGET SUMMARY

Project Title: _____
 Principal Investigator: _____
 Organization: _____
 Phone: _____ Project Duration (Months): _____

FUNDING REQUESTED FROM IDEA PROGRAM

PERSONNEL:	# hours x \$/hour	IDEA Costs	Cost Sharing
Principal Investigator:	_____ x \$ _____	= \$ _____	\$ _____
_____:	_____ x \$ _____	= \$ _____	\$ _____
Other staff _____:	_____ x \$ _____	= \$ _____	\$ _____
	Subtotal.....	\$ _____	\$ _____
CONSULTANTS AND SUBCONTRACTORS: (specify)			
	Subtotal.....	\$ _____	\$ _____
MATERIALS & EQUIPMENT: (indicate items exceeding \$1,000)			
	Subtotal.....	\$ _____	\$ _____
OTHER DIRECT COSTS: (specify)			
	Subtotal.....	\$ _____	\$ _____
OVERHEAD COSTS: (%)			
	Subtotal.....	\$ _____	\$ _____
GENERAL AND ADMINISTRATIVE: (%)			
	Subtotal.....	\$ _____	\$ _____

Total Cost:	\$ _____	\$ _____
--------------------	-----------------	-----------------

PROPOSED COST SHARING (if any)

Direct (cash) contribution from proposing organization:	\$ _____
In-kind contribution from proposing organization:	\$ _____
Direct funding from other sources (specify):	\$ _____
Value of staff, etc., contributed by other sources:	\$ _____

Total Project Budget:	\$ _____
------------------------------	-----------------

Signature: _____ Date: _____

TRB IDEA PROGRAMS LIABILITY STATEMENT

Proposal Title: _____

This signature of an authorized representative of the proposing agency is required on the following unaltered statement in order for the IDEA Program to accept the agency's proposal for consideration. **Proposals submitted without this executed and unaltered statement by the proposal deadline will be summarily rejected.** An executed, unaltered statement indicates the agency's intent and ability to execute a contract that includes the provisions below.

Proposing Agency: _____

Name	Title
Signature	Date

CONTRACTOR LIABILITY

(a) The parties agree that the contractor and its employees and agents ("Contractor") will be primarily responsible for performing the work required under the contract, and shall therefore be legally responsible for, and shall indemnify and hold the Academy harmless for all claims asserted against the Academy, its committee members, officers, employees, and agents, by any third parties, whether or not represented by a final judgment, if such claims arise out of or result from Contractor's negligent or wrongful acts in performing such work, including all claims for bodily injury (including death), personal injury, property damage, and other losses, liabilities, costs, and expenses (including but not limited to attorneys fees).

(b) With respect to entities of State government that are subject to State law restrictions on their ability to indemnify and hold harmless third parties ("Restricted State Entities"), the obligation to indemnify and hold harmless the Academy in Paragraph (a) shall apply to the full extent permitted by applicable State law. In addition, each Restricted State Entity executing this contract represents and warrants that no part of any research product or other material delivered by such Restricted State Entity to the Academy ("Work Product") shall include anything of an obscene, libelous, defamatory, disparaging, or injurious nature; that neither the Work Product nor the title to the Work Product will infringe upon any copyright, patent, property right, personal right, or other right; and that all statements in the Contractor's proposal to the Academy and in the Work Product are true to the Contractor's actual knowledge and belief, or based upon reasonable research for accuracy.

(c) The term "wrongful act" as used herein shall include any tortious act or omission, willful misconduct, failure to comply with Federal or state governmental requirements, copyright or patent infringement, libel, slander or other defamatory or disparaging statement in any written deliverable required under the contract, or any false or negligent statement or omission made by Contractor in its proposal to the Academy.

(d) The obligations in paragraph (a) of this clause to indemnify and hold harmless the Academy shall not extend to claims, damages, losses, liabilities, costs, and expenses to the extent they arise out of the negligent or wrongful acts or omissions of the Academy, its committee members, officers, employees, and agents.

(e) Both the Academy and Contractor shall give prompt notice to each other upon learning of the assertion of any claim, or the commencement of any action or proceeding, in respect of which a claim under this paragraph may be sought, specifying, if known, the facts pertaining thereto and an estimate of the amount of the liability arising therefrom, but no failure to give such notice shall relieve the Academy or Contractor of any liability hereunder except to the extent actual prejudice is suffered thereby.

(f) The Academy and Contractor agree to cooperate with each other in the defense of any claim, action, or legal proceeding arising out of or resulting from Contractor's performance of the work required under this contract, but each party shall control its own defense. The Academy shall also have the option in its sole discretion to permit Contractor or its insurance carrier to assume the defense of any such claims against the Academy.

(g) The obligations under this clause survive the termination, expiration, or completion of performance under this contract.

NCRHP-IDEA PROPOSAL EVALUATION

Rev. 2016-12-01

The reviewer's identity will be kept confidential and will not be released outside of the IDEA program. However, the IDEA program may provide the proposal's principal investigator with a summary of these comments. The reviewer agrees not to disclose any proprietary information contained in this proposal.

Proposal No.	Proposal Type	Principal Investigator	Institution
Proposal Title			

Duplication
<p>Does this research duplicate any similar research or development that you are aware of? If yes, please explain:</p> <p style="margin-left: 20px;">:</p>

Evaluation	Score
<p>Innovation: Is the concept new and innovative? Is there scientific/technical merit? Is there a potential to produce a breakthrough or a major advancement? (For Type 2: Is the product or prototype based on an innovative concept? Does it represent a major advance over current technology?) (Maximum points: 50)</p>	<input style="width: 100%; height: 100%;" type="text"/>
<p>Research Approach: Is the approach reasonable and sound? Is the approach informed by knowledge of related work? Are technical issues to be addressed clearly identified? (Maximum points: 15)</p>	<input style="width: 100%; height: 100%;" type="text"/>
<p>Potential Benefits: Does the concept solve an important problem? If successful, could the product be effectively put into practice? Could it significantly improve or potentially replace current practice? (Maximum points: 20)</p>	<input style="width: 100%; height: 100%;" type="text"/>
<p>Implementation/commercialization: Does the implementation plan appear practical and effective? Is the product economically feasible? Is there meaningful support from industry and/or transportation agencies? (For Type 2: Does the proposal describe specific steps for product implementation/commercialization? Is there a commitment from state DOTs and/or private manufacturers for the developed product?) (Maximum points: 15)</p>	<input style="width: 100%; height: 100%;" type="text"/>
TOTAL SCORE Max 100; Select field and press F9 to calculate →	<input style="width: 100%; height: 100%;" type="text"/>

Comments
<p>Note to the Reviewer: If you decide not to review this proposal, then you need to state your reasons. If you make statements such as "nothing new" or "not innovative enough", then you need to support them with specific evidence or examples (such as similar specific products, similar applications, similar previous research, etc.).</p> <p>Reviewer's Name:</p>

RAIL SAFETY IDEA COMMITTEE BALLOT

Please rate each proposal using a scale of 3 = high, 2 = medium, 1 = low, 0 = poor or unacceptable, for each of the 3 criteria.
 E-mail an electronic copy of your completed ballot to dewilliams@nas.edu with a cc: to vftispatrik@nas.edu.

Proposal	Proposal Title Institution – Principal Investigator	Quality of Innovation	Potential Payoff	Research Approach	Total	Comments

SELECTION CRITERIA FOR RAIL SAFETY IDEA PROPOSALS

QUALITY OF INNOVATION: Is there a potential to produce a railroad innovation or advance in the state of the art or practice?
POTENTIAL PAYOFF: Is this a relevant problem for the IDEA program to investigate to benefit railroad practice, and would the result be potentially practical for railroad applications?
RESEARCH APPROACH: Is the proposed approach reasonable and sound?

Reviewer Name: _____ Date: _____

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

The nation turns to the National Academies of Sciences, Engineering, and Medicine for independent, objective advice on issues that affect people's lives worldwide.

www.national-academies.org