

# How to Write an Effective Research Statement

Adapted from TRB's Conduct of Research Committee Publication: *Funding Sources for Transportation Research: Competitive Programs; Appendix A: How to Write an Effective Research Statement* (<http://144.171.11.107/ResearchFunding/Public/AppendixAWritingaResearchStatement.aspx>)

Writing an effective research statement is not a simple matter, even to transportation practitioners who face serious problems and challenges on a daily basis. The research needed might be obvious to them but difficult to describe to non-specialists. They may not have thought about how to quantify it or how to justify the needed research with respect to other agency or national priorities. A serious problem to them might not even be on a decision maker's radar screen.

## TITLE

The research statement title should briefly and immediately convey to the reader what the proposed study is about. It does not have to capture every element, nuance, and expected task of the research problem. It is like the title of a book—it should attract your attention, quickly convey the subject, draw you in, and make you want to read what's inside.

Here's a general rule: the more deeply you are involved in a particular subject, the harder it is for you to step back and see the big picture. You may be tempted to title your research statement something like this...

- Collection, analysis, and compilation of current best practices for the design of roundabouts for U.S. roadways and how those design elements will impact safety, capacity, and contribute to effective traffic management objectives.

*...rather than this*

- Design guide for roundabouts.

The first alternative might be a good title for a PhD thesis; the second title is a far better choice for a research statement.

How will the title reflect on the research statement? Can it really have an impact on whether or not it is funded? The answer is yes, for at least three reasons:

- Branding is important – a good title will help the reviewer establish a connection with your proposal;
- A negative first impression is likely to linger as the reviewer reads the rest of the research statement; and
- If the title is confusing, chances are the rest of the research statement will be just as hard to understand.

A good title is like a good sound bite – people will remember it.

*Hint: Look at every word in your title and ask yourself if it's necessary.*

## **PROBLEM**

The problem section provides you with the opportunity to convince the reviewer that the research statement addresses a serious issue and merits funding. It should set the context and relate the particular issue to state or regional goals and objectives. If the research statement is about some new technology that can reduce the severity of vehicle crashes, begin with statements about the overall importance of road safety. Talk about the economic and societal costs of crashes. Talk about state goals to improve road safety. Then describe how the particular subject of your research statement relates to agency needs.

Similarly, if you are proposing a study that will reduce congestion on urban streets, describe the extent of the problem. How much time is lost due to congestion in the area? How much does it impact air quality? How does your particular problem contribute to the solution? If your research statement describes a method or practice that will improve efficiencies in your agency procedures, how much time is wasted by current methods?

Do your homework. As best you can, estimate how much time, money, or lives are lost as a result of this specific problem you want to address.

*Hint: When writing the problem section, keep thinking “Why should my CEO care about this problem?”*

Also, describe in very brief terms the goal/objective of the research (what the expected product of this research will be). The objective should be short, concise, and accurate. Don’t put details in the objective related to how the study will be done. The details will be in the research plan and reflected in the final product.

*Hint: Go back and read the advice above on titling your research statement. A very reasonable objective statement is “...to develop (insert your title).”*

## **PROPOSED RESEARCH, DEVELOPMENT OR TECHNOLOGY TRANSFER ACTIVITY**

The first time a reviewer reads your research statement, it will probably remind them of other projects they’ve heard about on the same or similar topics. They may believe that your research is duplicative of work that has already been done. You need to anticipate this and explain how your project is different—how it builds on the existing body of research, how your proposed study takes a different approach, how it uses new methodologies or expanded data sets, or how it pulls together all the existing work into an implementable product. Describe any shortcomings or deficiencies in the current body of research and show how your project will address them.

Base your comments on a thorough review of the relevant literature and ongoing research. The places to start in the transportation sector are TRIS (Transportation Research Information Services) Online and the Research in Progress (RIP) databases. If you need help, contact your research office or librarian. If your research statement fails to find or identify a high profile project on the same or similar topic, your credibility will be suspect.

*Hint: Be specific in describing the research statement's relationship to the existing body of knowledge. Reference the most significant related studies by name and discuss how your project will advance the state of knowledge and yield new or additional practical benefits.*

In this section, you may identify the type of tasks to be performed, but do not need to be specific. Focus your attention on providing a full and accurate description of the final product.

*Hint: The more detail you include in the task statements, the less opportunity a researcher has to show initiative and innovation, and the more every proposal will come in looking the same. Don't be prescriptive.*

## **POTENTIAL BENEFITS**

This is where you need to justify the funding of your research statement. If the program can only fund 20 projects from a pool of 50 good research statements, why should yours be picked? You need to be specific and provide as much detail as you can on the potential benefits of your project. What are the consequences of *not* doing this work? How will it affect productivity, budget, and customers' quality of life? Here are some examples of compelling statements, *if* they are justifiable:

“Streamlining the review process could cut 6 months off average project delivery times.”

“Sixty-five percent of road users indicate that this is a major problem. Resolving this issue could result in a significant increase in customer satisfaction.”

“If this project is brought to a successful conclusion with the results implemented, and can produce only a two percent increase in pavement life, the savings to highway agencies and road users could be in excess of \$5 million a year.”

“This project is a necessary step in the development of an overall safety plan that could save thousands of lives every year.”

*Hint: Be positive but honest. Use real numbers if you can measure or estimate them.*

## **IMPLEMENTATION**

Good research advances the state of knowledge in transportation. For long-term, strategic research, several phases of research may be needed to achieve an implementable solution. Address follow-on research as well as implementation in your research statement to demonstrate that you are aware of the scale and scope of the research, the potential barriers and impediments to implementation, and the activities and champions needed to support the end work. This increases the comfort level of the funding agency in believing that the results of the research project have a good chance of finding their way into practice and hence yield the benefits to their fullest potential. If you are developing a product that will require ongoing maintenance (like software or a website clearinghouse), make sure you identify who will take responsibility for it.

*Hint: If you are aware of a specific agency, division, section, or unit that will need to take ownership of the project results, identify them in your research statement. Make sure this group is aware and supportive of your research statement.*

## **CONCLUDING COMMENTS AND TIPS**

For the most part, research projects will be selected for funding by “educated generalists”—managers and executives who are not subject experts (or at least not experts in *every* subject). That is the audience for whom you need to write. Ask someone you know and trust from outside your own field of expertise to review your research statement. If he or she doesn’t understand something in it, chances are many of the reviewers will have the same reaction.

Get as much support as possible for your research statement before you submit it. Show it to your colleagues, other experts, and managers in your organization to get their advice. Modify the statement is necessary to address their ideas. Don’t forget to review the research statement for correct spelling and grammar.

If at first you don’t succeed, don’t give up. If your research statement is not selected, find out why. If possible, get the reviewers’ comments. Did the reviewers understand the research statement? If not, what could you have done to make it more understandable? Was it considered a good statement but not a top priority or not a high potential payoff? If so, did you do a sufficient job estimating and describing the potential benefits?

*Hint: Don’t be discouraged or embarrassed by constructive reviews; they are the best guidance you will ever get for writing better research statements.*