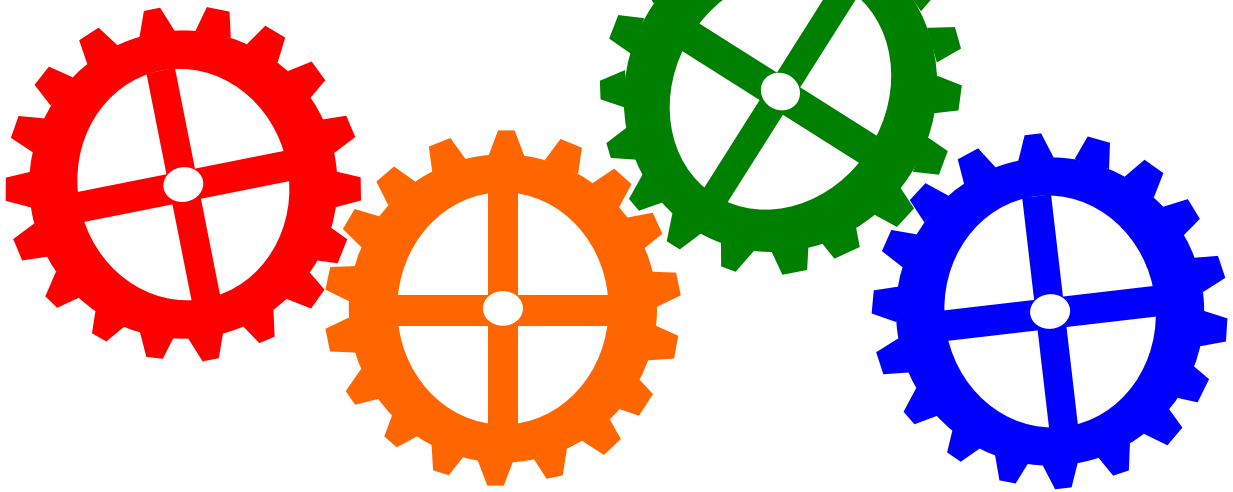
Communicating your Research Plan:

Building a narrative that describes a set of goals and how you will reach them

Sky Brubaker, PhD

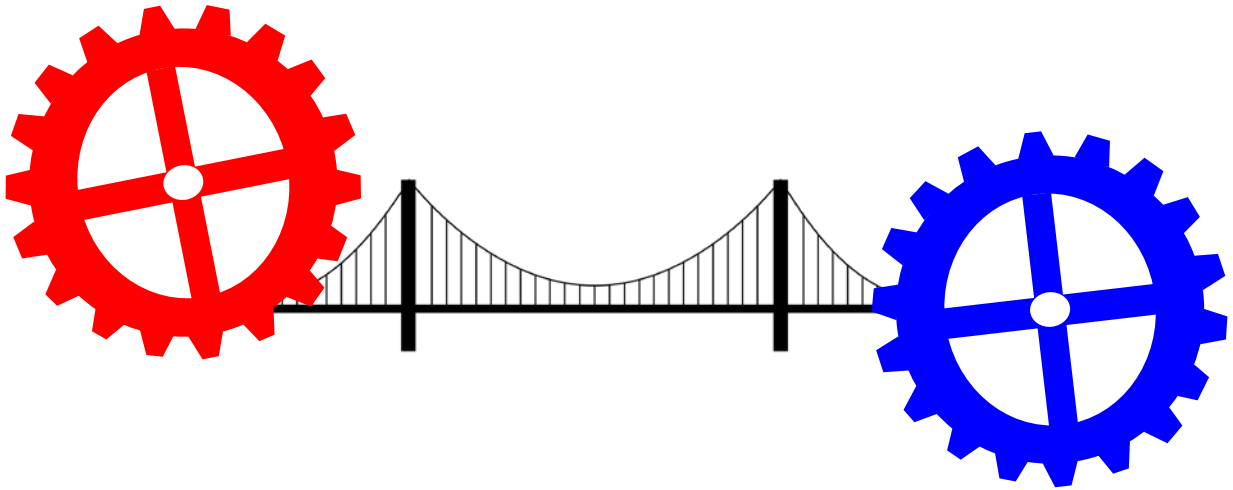
https://pixabay.com/en/board-game-challenge-checkmate-1846400/

The bulk of a Research Plan consists of the overall goal and what will be done



The Research Plan will “bridge” the gap between the need and the payoff.

Is the question important?



What is the expected payoff?

https://commons.wikimedia.org/wiki/File:Suspension_bridge_icon.svg

Key Questions for your Research Plan

1. Is there a need?

2. How will the project be accomplished?
   - What methods and analyses will be used?
   - What are the expected outcomes?
   - What might go wrong and how will it be managed?
   - What are the alternative approaches?

Key Questions for your Research Plan

1. Is there a need?
2. How will the project be accomplished?
3. How long will the project take?
4. What is the payoff and what is next?

An Outline for your Research Plan

1. Background/Significance
2. Aims
3. Timeline
4. Conclusion and Future Directions

Background/Significance

- Importance of the problem
- Premise for the proposed project, including strengths/ weaknesses of published research or preliminary data
- Outline the knowledge gap or technical deficiency that the project will overcome

Bridge Analogy – Will provide a new avenue for exploration/commerce and advance the field of bridge building.

*note concerning innovation

Innovation
- approaches
- methodology

Describe how your proposal improves upon previous research or technology.

Bridge Analogy – Developing new material for bridge building that will revolutionize the way that we build bridges.

An Outline for your Research Plan

1. Background/Significance
2. Aims
3. Timeline
4. Conclusion and Future Directions

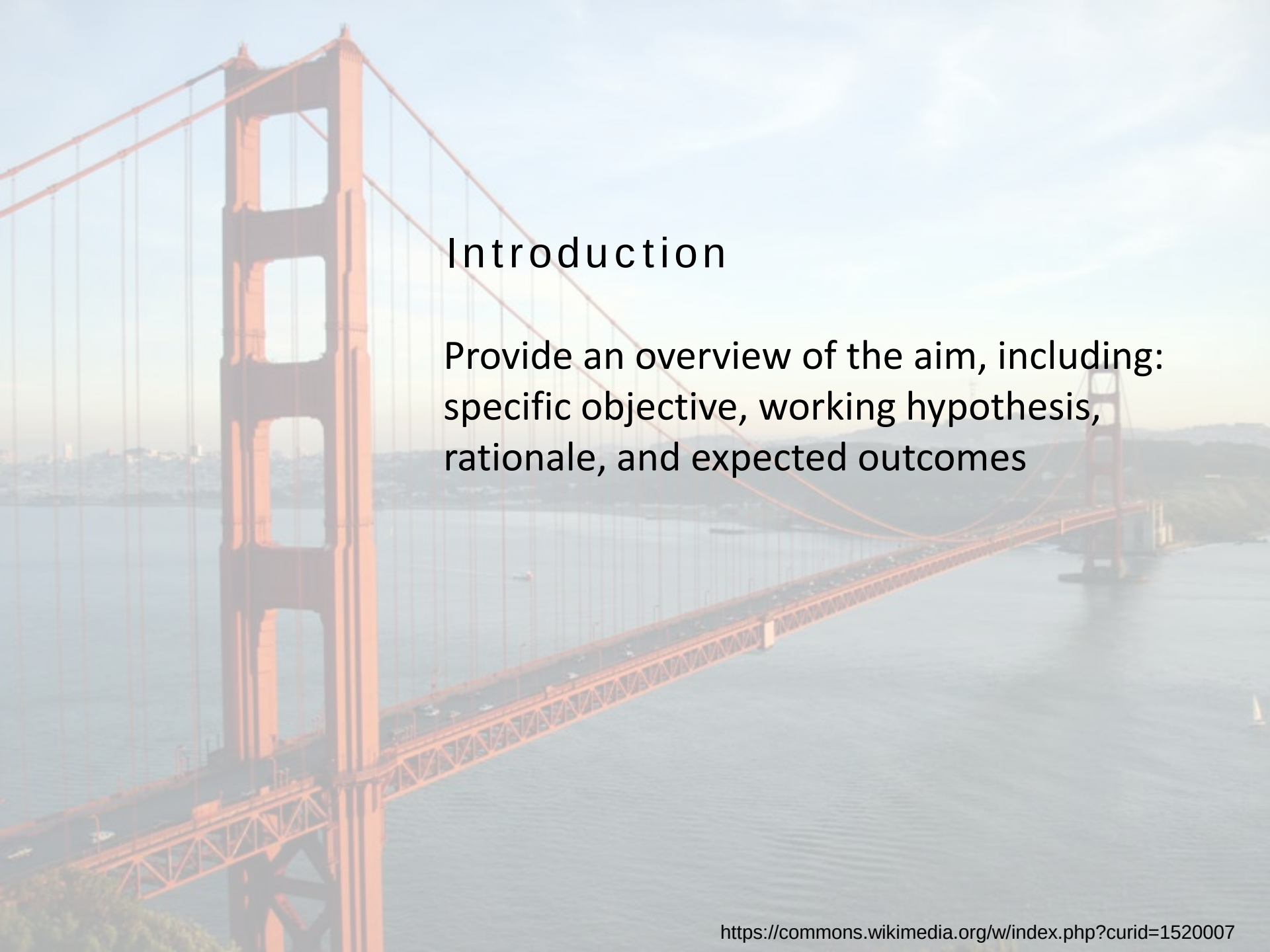
Aims

- A hypothesis
- Specific aims and objectives used to examine the hypothesis
- Description of methods/ approaches/ techniques to be used
- Discussion of possible problems and how they will be managed
- Alternative approaches that might be tried

-NIH Application Form Instructions

Organizing each Aim

- Introduction
- Preliminary Data
- Methods
- Expected Outcomes
- Alternative Approaches



Introduction

Provide an overview of the aim, including: specific objective, working hypothesis, rationale, and expected outcomes

Preliminary Data

Critical review of the relevant literature

Preliminary studies

- establish feasibility of project
- clear and able to stand alone

Lead reviewer to conclude that you and the project are capable of success

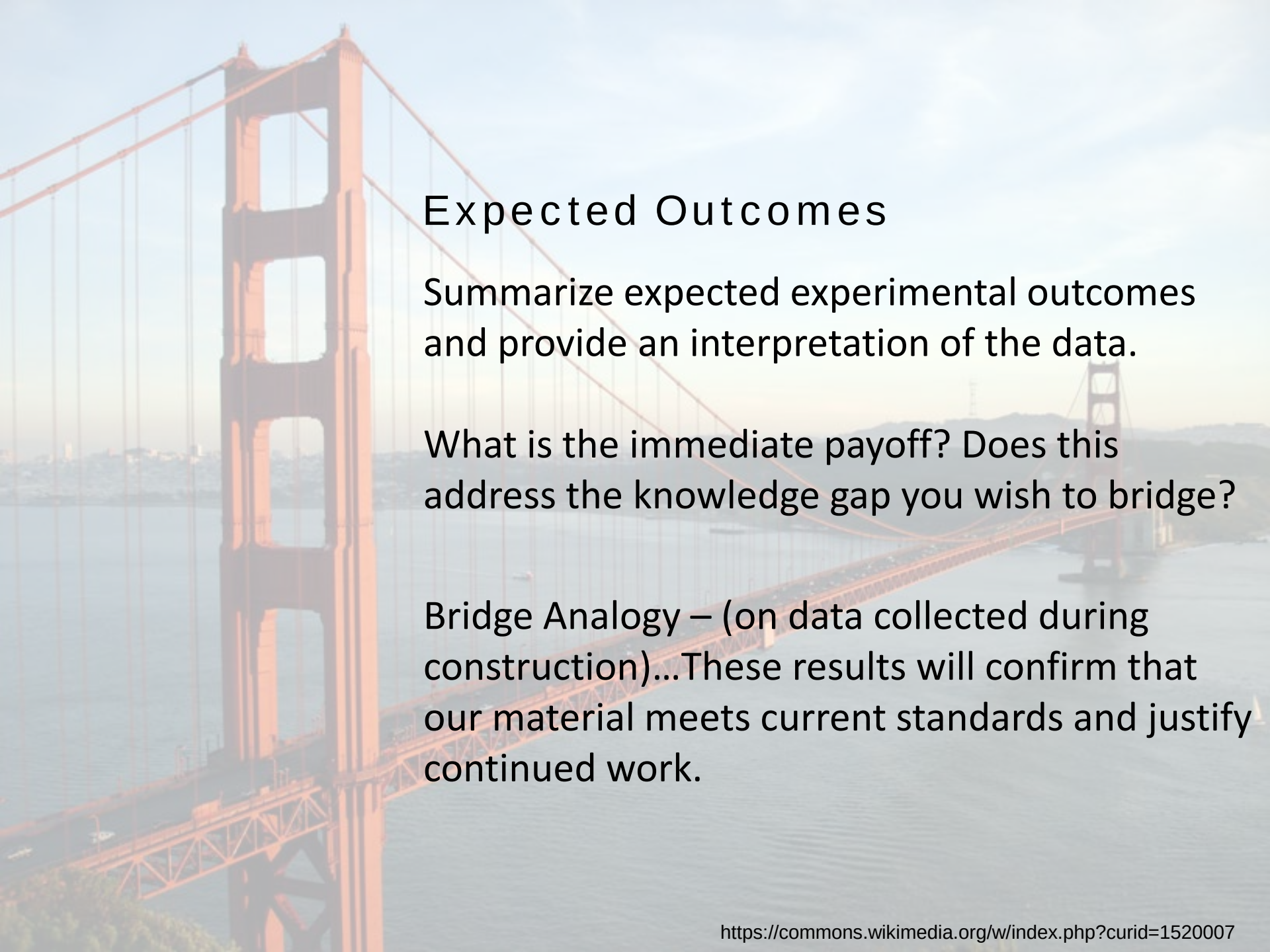
Bridge Analogy – Our new material has been tested for strength demonstrating that it will be suitable for our proposed bridge.

Methods

Provide a detailed description of the experimental design including:

- validation of essential reagents/approaches
- description of controls and their significance
- statistical analysis and interpretation

Bridge Analogy – Our proposed material will be regularly tested throughout construction we **expect** that it's strength capacity will be validated.

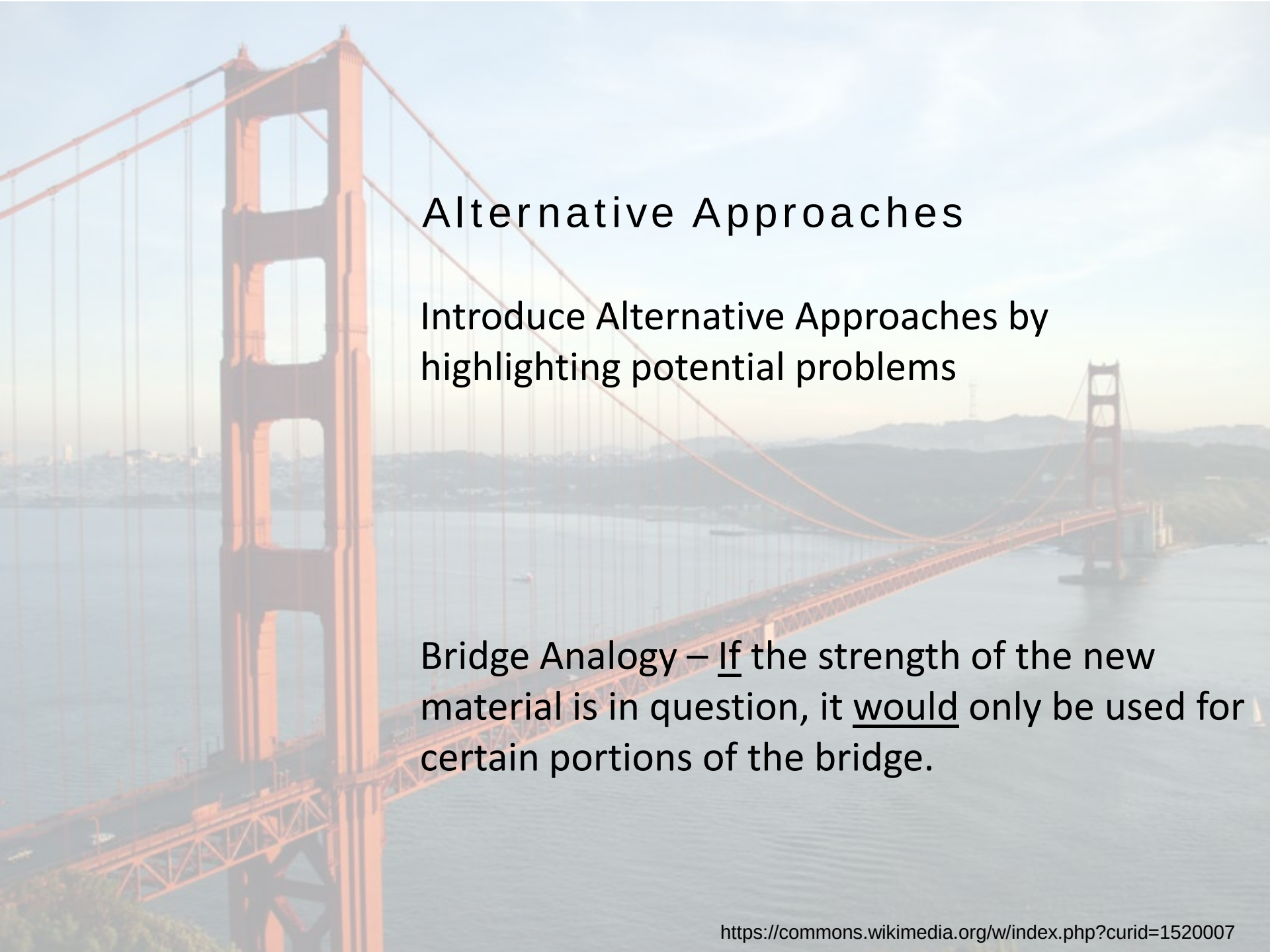


Expected Outcomes

Summarize expected experimental outcomes and provide an interpretation of the data.

What is the immediate payoff? Does this address the knowledge gap you wish to bridge?

Bridge Analogy – (on data collected during construction)…These results will confirm that our material meets current standards and justify continued work.



Alternative Approaches

Introduce Alternative Approaches by highlighting potential problems

Bridge Analogy – If the strength of the new material is in question, it would only be used for certain portions of the bridge.

https://commons.wikimedia.org/w/index.php?curid=1520007

An Outline for your Research Plan

1. Background/Significance
2. Aims
3. Timeline
4. Conclusion and Future Directions

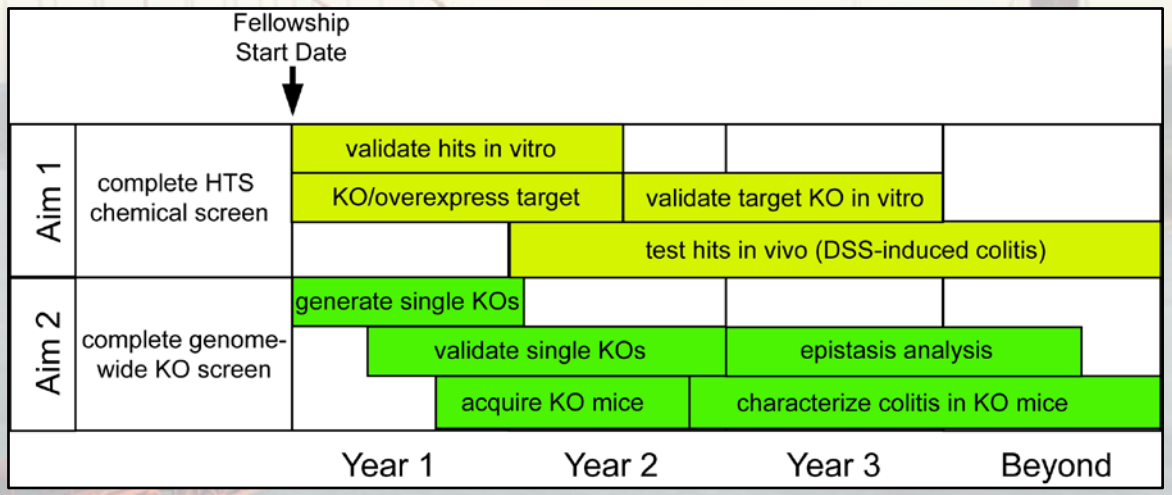
Timeline

Demonstrates feasibility

Bridge Analogy – Year 1 – support structure complete, Year 2 – surface structures complete.

Timeline

Demonstrates feasibility



https://commons.wikimedia.org/w/index.php?curid=1520007

Conclusion and Future Directions

- Summarize expected outcomes, how they will bridge a current knowledge gap, and how the proposed project will lead to progress in the field
- Discuss future experiments or approaches

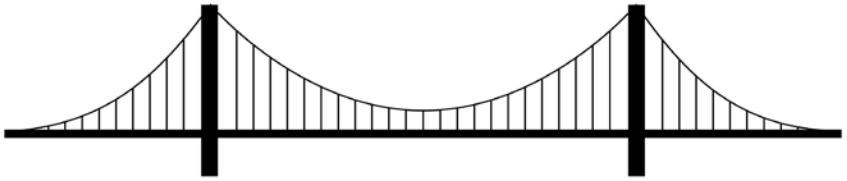
Bridge Analogy – A critical barrier was eliminated, we can now explore Marin! Also with the advent of our new bridge technology we can build a bridge to Hawaii!!!

An Outline for your Research Plan

1. Background/Significance
2. Aims
3. Timeline
4. Conclusion and Future Directions

The Research Plan “bridges the gap” between need and expected payoff

Is there a need?



What is the payoff and what is next?

How will the project be accomplished?
How long will the project take?

https://commons.wikimedia.org/wiki/File:Suspension_bridge_icon.svg

Resources for building your Research Plan

Hollenbach, Andrew. *A Practical Guide to Writing a Ruth L. Kirschstein NRSA Grant*. Amsterdam: Academic Press, 2014. [ISBN 978-0-12-420187-3]

Russell, Stephen W. and David C. Morrison. *The Grant Application Writer's Workbook: National Institutes of Health Version*. Los Olivos, CA: Grant Writers' Seminars and Workshops, LLC, 2016. <www.grantcentral.com>

Yang, Otto O. *Guide to Effective Grant Writing: How to Write an Effective NIH Grant Application*. New York: Springer US, 2012. [eBook ISBN 978-1-4614-1581-7]

Sample NIH applications and summary statements are available here: https://www.niaid.nih.gov/grants-contracts/sample-applications