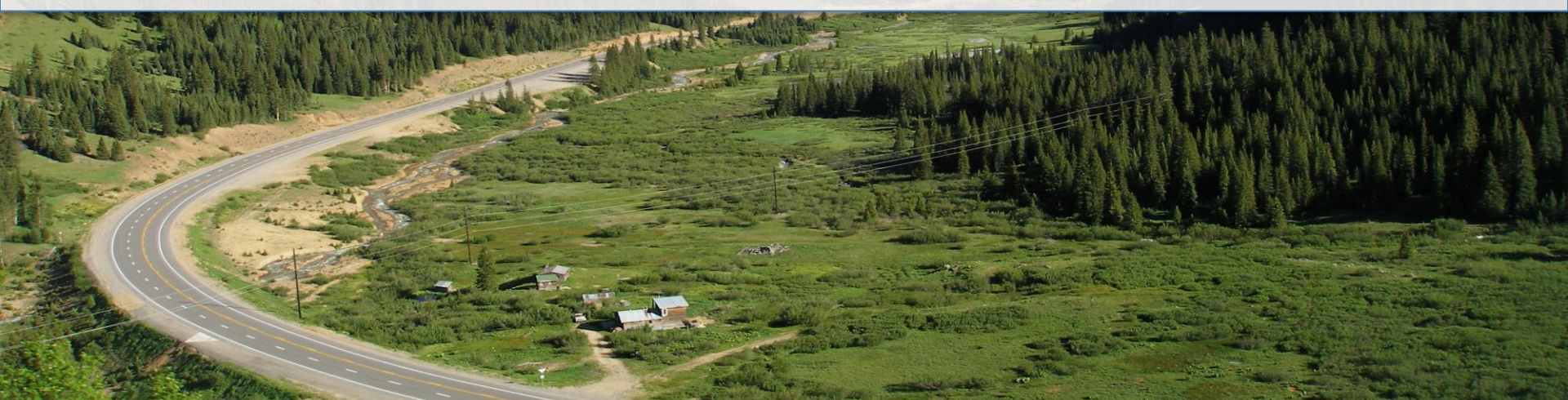




**COLORADO**

Department of  
Transportation



**How to Use TAM Information to Grab the Attention of Executives**

**...and why we need to care about feelings.**

**July 2018**



# Roadmap

---

1. National Performance Metric Target Setting
2. Neural, and Cognitive Behavior
3. Developing an alternative, Using Old Tricks



# Rational Models to Inform Decisions

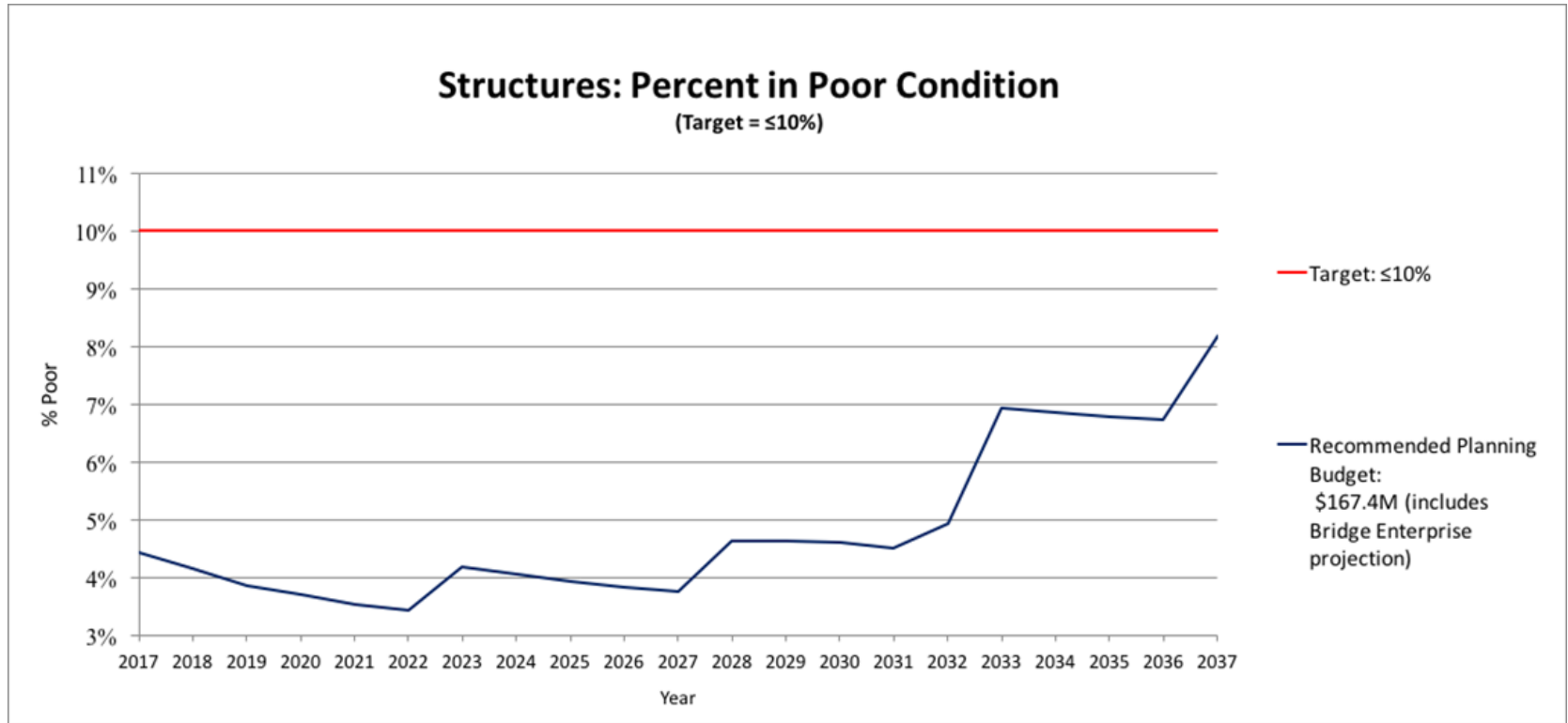
---

## General Steps

- Define the situation/decision to be made
- Identify the important criteria for the process and the result
- Consider all possible solutions
- Calculate the consequences of these solutions versus the likelihood of satisfying the criteria
- Choose the best option



# Explaining Bridge Condition and Targets

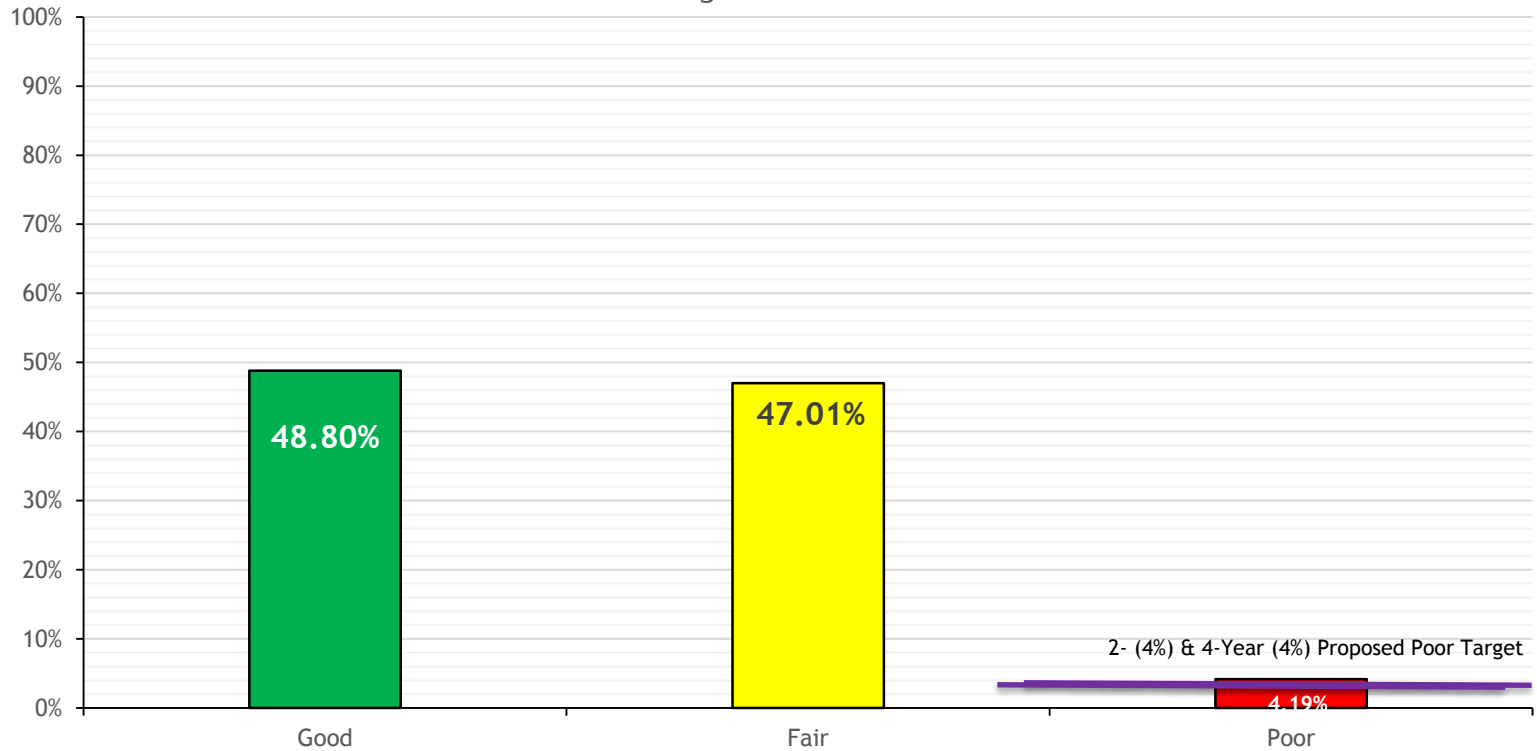




# Explaining National Bridge Condition and Targets

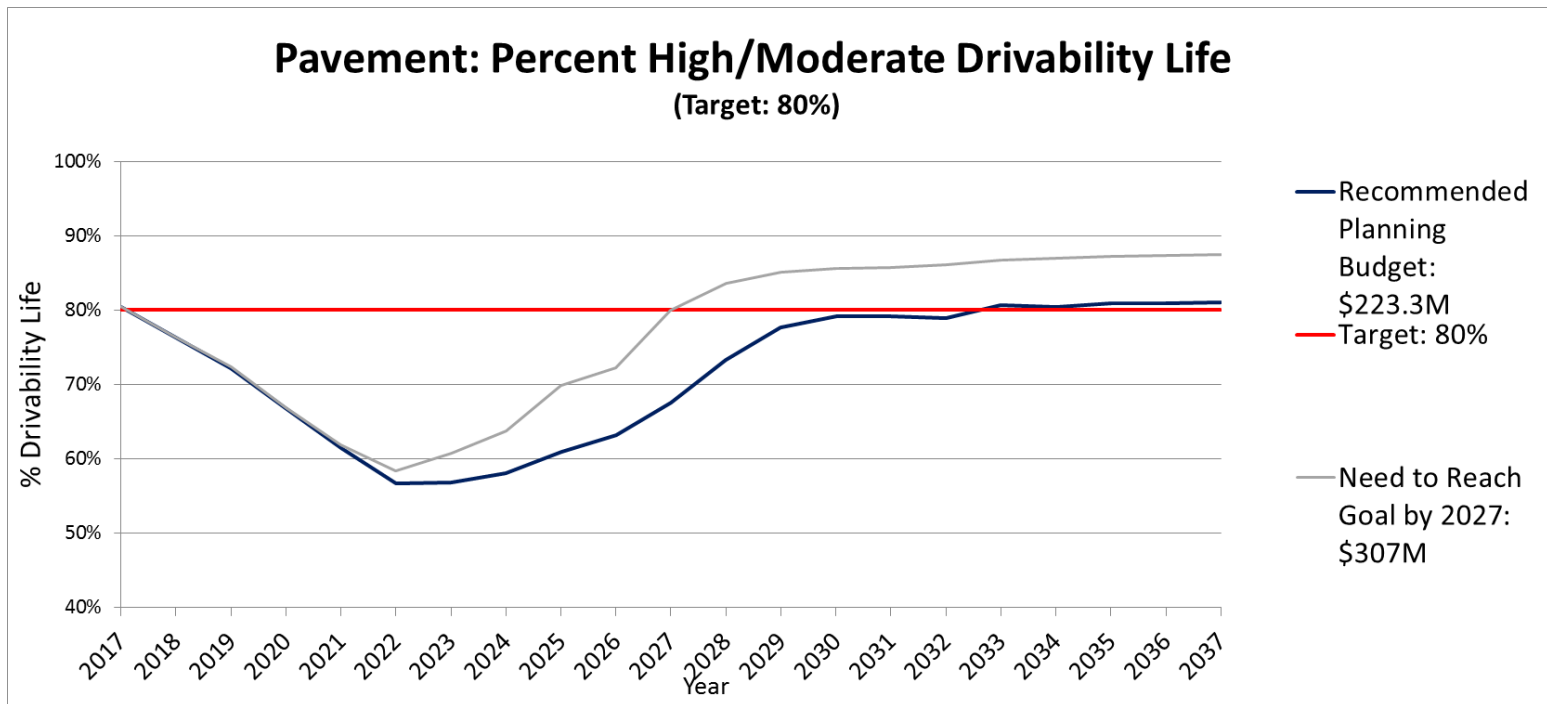


2017 Statewide Bridge Deck Condition





# Explaining Pavement Condition

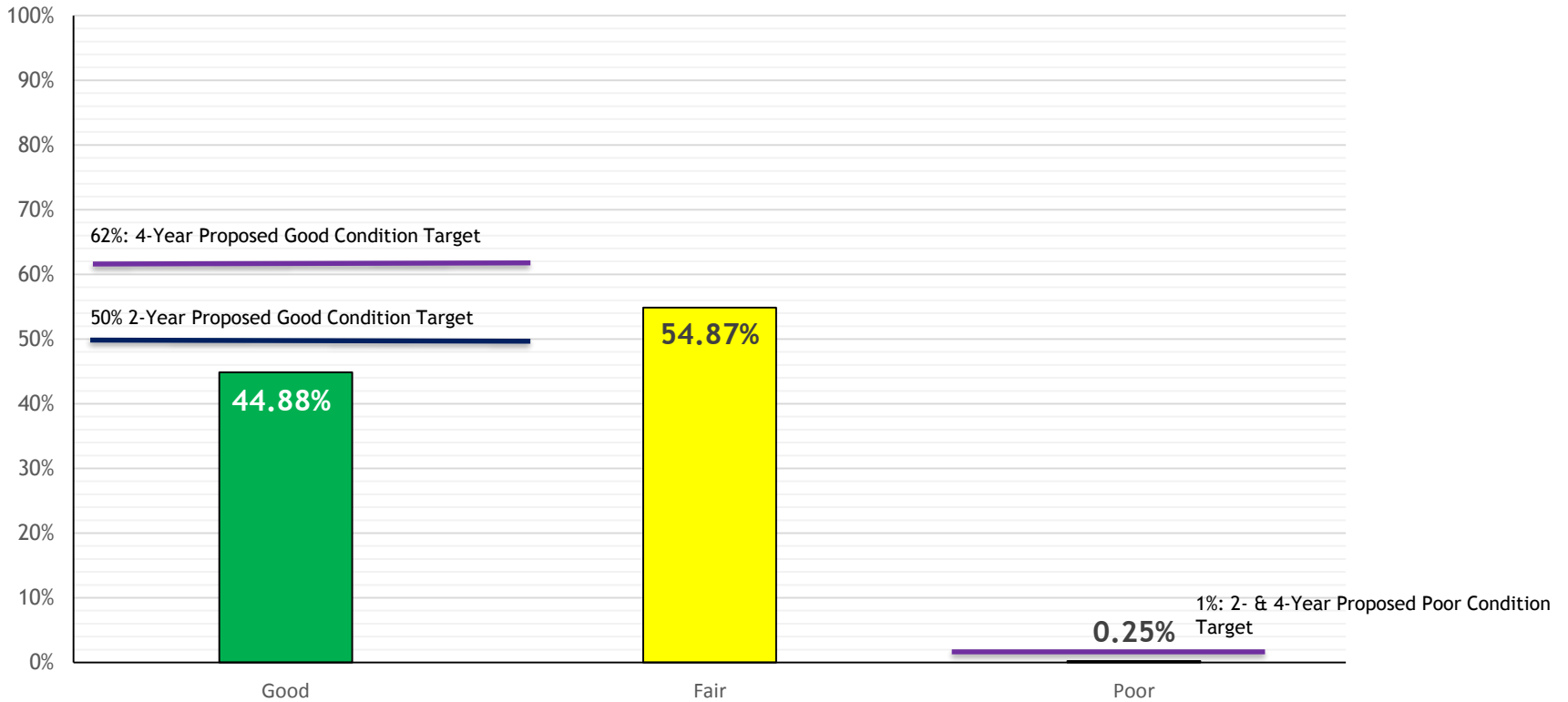


Internal Performance Metric = Drivability Life (DL)



# Explaining National Pavement Condition and Targets

Interstate System Pavement Condition Summary - 2017



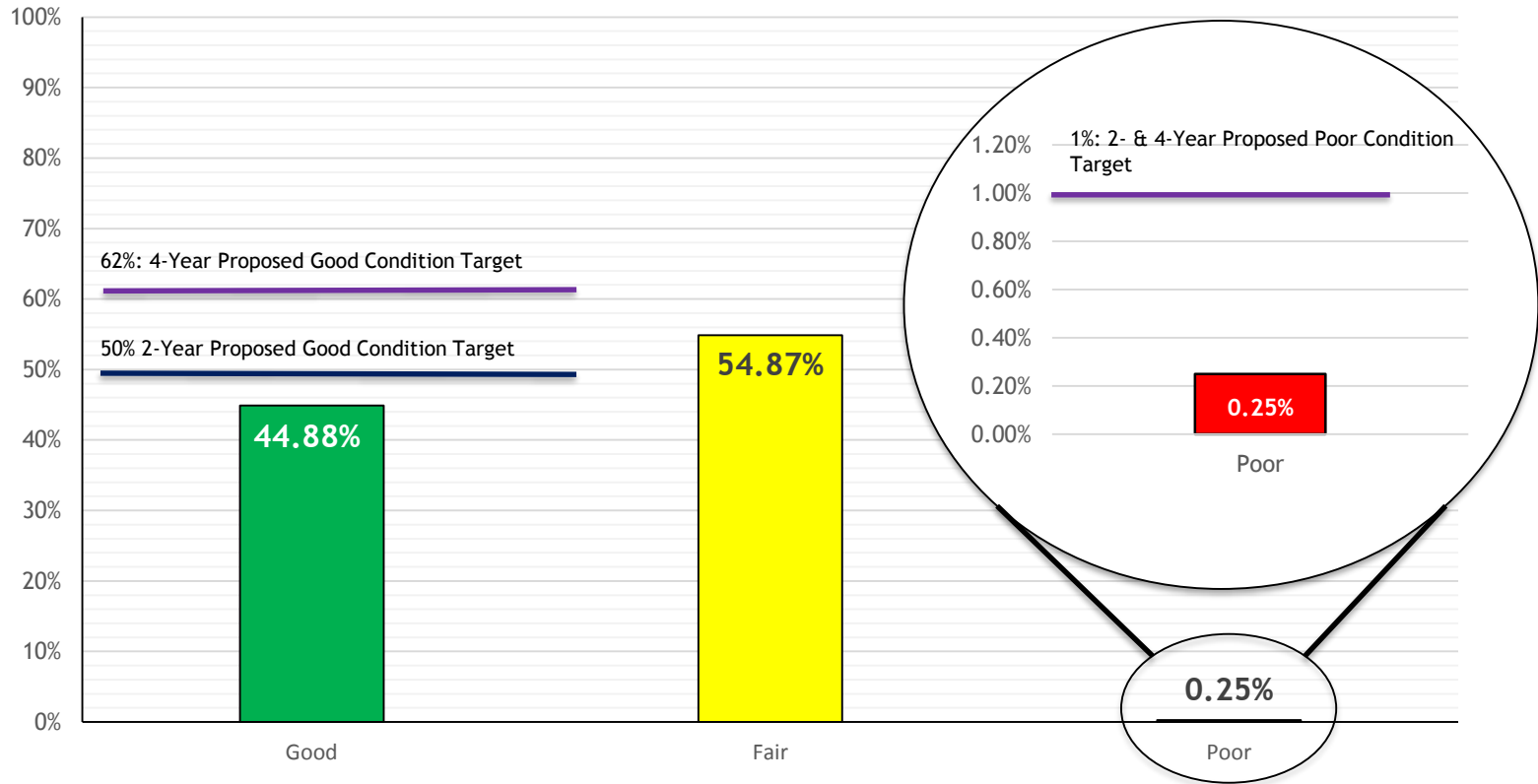
National Performance Metric = Good, Fair, Poor (GFP)



# Explaining National Pavement Condition and Targets



Interstate System Pavement Condition Summary - 2017



National Performance Metric = Good, Fair, Poor (GFP)



## Case of the Stop Sign

---

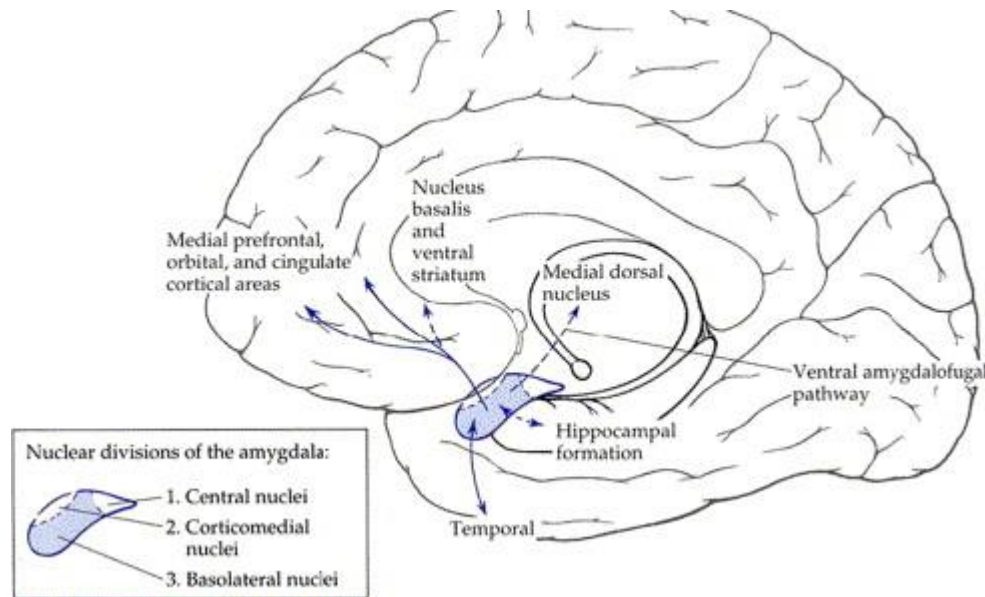


Some behavioral research findings that might point to the inherent power of the color red to command our obedience

# Neural, and Cognitive Behavior 101

---

- Cognitive Science studies focus on brain function and behavior
  - Neural = of, relating to, or affecting a nerve or the nervous system
  - Cognitive = of, relating to, being, or involving conscious intellectual activity (such as thinking, reasoning, or remembering)
  - Behavior = the way in which someone conducts oneself or behaves





## The Challenge

---

- Why do people who are presented with the same options make different choices?
- What is it about the cognitive and neurological processes that lead people to different outcomes?
- Why do rational models such as those used in economics and the classical decision-making theory not always accurately predict an individual's behavior?



# The Challenge in Transportation

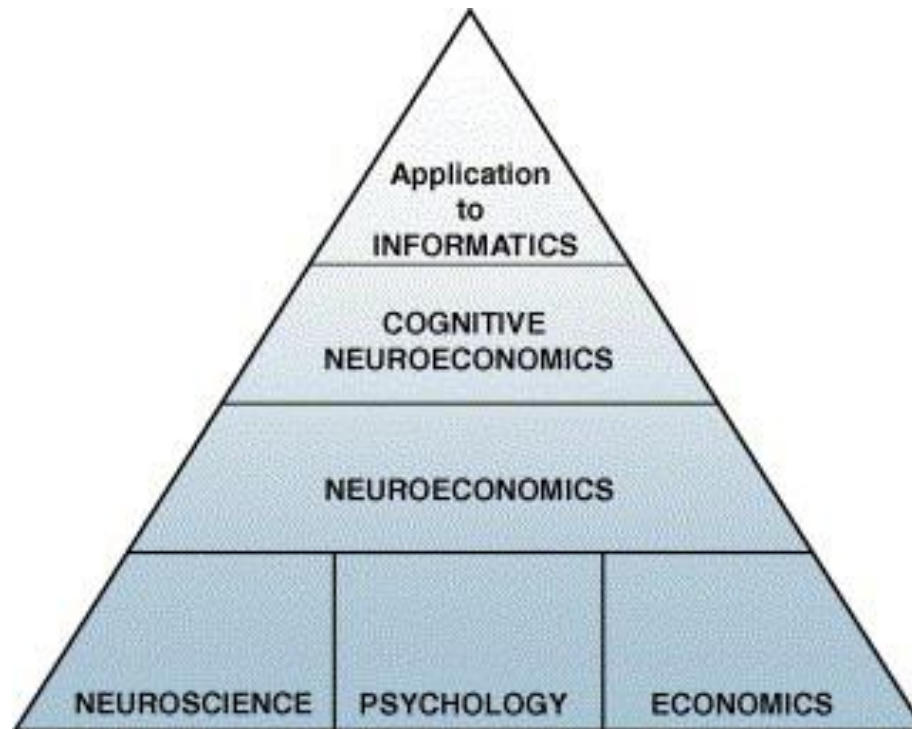
---

- Models of decision-making usually focus on cognitive, situational, and socio-cultural variables in accounting for human performance.
- However, the emotional component is rarely addressed within these models.



# Framework for Neural, and Cognitive Behavior and Logical Models

---





## Pavement – Examples of Good Pavement

---



**160A - MP 248.2**

GFP = **Good**

DL = **Moderate**



## Pavement – Examples of Good Pavement

---



**025A - MP 81.2**

GFP = **Good**

DL = **Low**



## Pavement – Examples of Good Pavement

---



**040A - MP 40.2**

GFP = **Good**

DL = **Moderate**





## Pavement – Examples of Good Pavement

---



**040A - MP 146.3**

GFP = **Good**

DL = **Moderate**



## Pavement – Examples of Good Pavement

---



**034A - MP 106.1**

GFP = **Good**

DL = **High**



## Pavement – Examples of Fair Pavement

---



**013A - MP 59.3**

**GFP = Fair**

**DL = Moderate**



## Pavement – Example of Poor Pavement

---



070A - MP 193.9

GFP = **Poor**

DL = **Low**



## Key Take Aways:

- Listen to the emotions of your decision makers.
- Leverage data and other methods that speak to how you would like them to feel.

William Johnson  
Performance and Asset Management Branch Manager  
[Will.Johnson@state.co.us](mailto:Will.Johnson@state.co.us)