

# Driver Distraction:

Understanding the Problem,  
Identifying Solutions

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# What is Driver Distraction?



**Then**

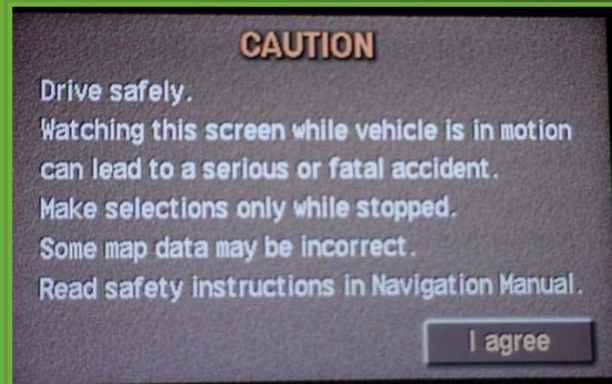
**Now**

**Future**

# High Technology vs Low Technology Distractions

- **May engage attention longer and more frequently**
- **May place more cognitive and manual demands on drivers**
- **May interrupt drivers at unsafe times**

# The Safety Problem of Electronic Distractors



**Recognized by many  
manufacturers**



**Crash data not  
complete regarding  
existing sources of  
distraction**

# Distraction and Crash Risk: NHTSA Research Focus



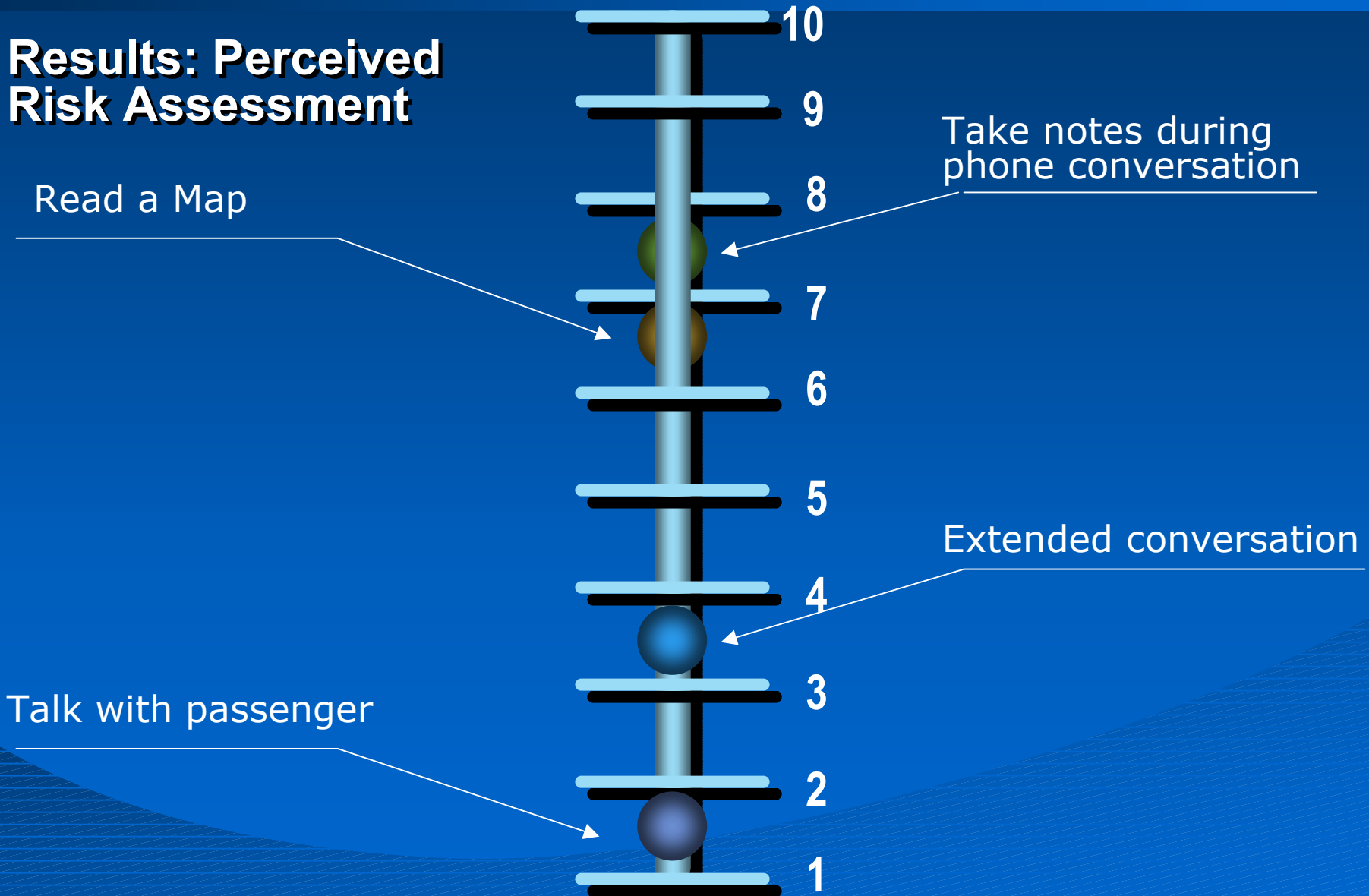
**Driver Willingness  
to Use**



**Distraction Demands  
of Driver/Vehicle  
Interface**

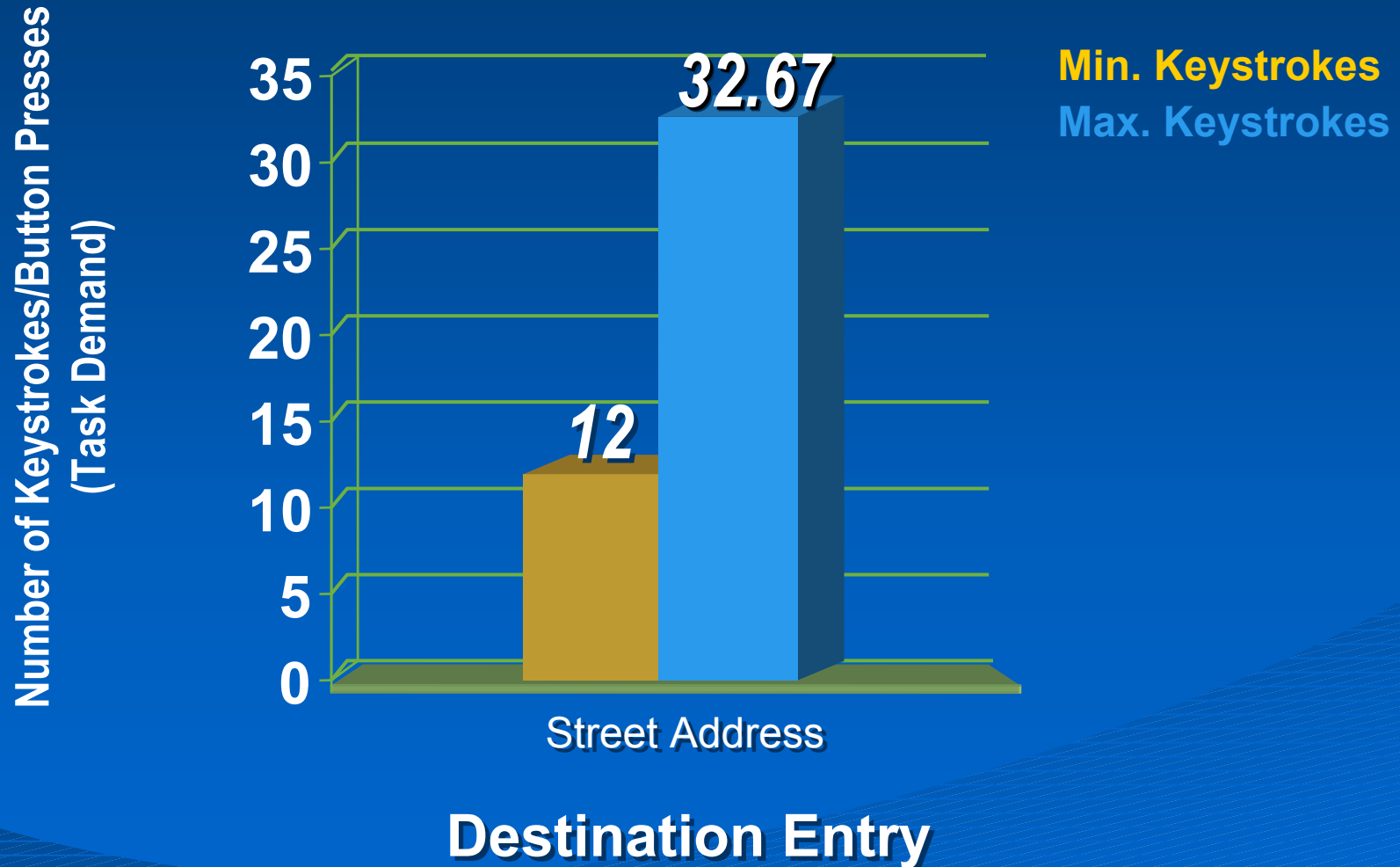
# Willingness to Engage While Driving

## Results: Perceived Risk Assessment



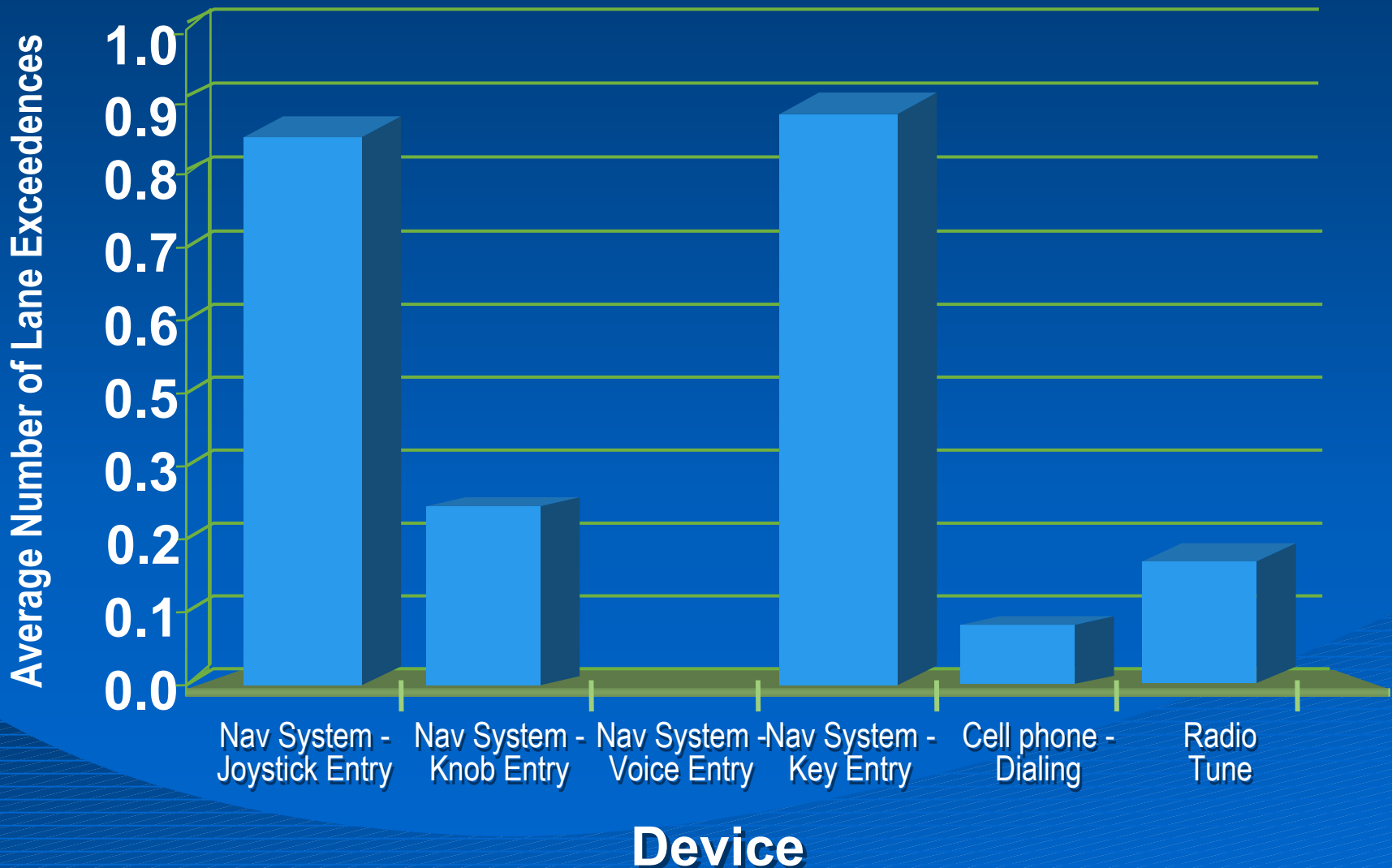
# Inventory of Navigation Interface Designs: Task Demand

Results: Mean Minimum, Maximum Keystrokes for Entering a Street Address for Navigation Systems



# How Interface Design Can Influence Driver Performance

Results: Average Number of Lane Exceedences per Trial by Device





# 100-car Naturalistic Driving Study

- **Goals:**
  - Understand the preceding factors associated with crashes, near crashes, critical events
  - Develop relationship between task completion time, eyes-off-road time and critical incident likelihood
  - Provide baseline relating performance to safety-related risk
- **Overview: 1 year, 43K hours, 1.37M miles**
  - Approx. 76 crashes recorded, with about 38% related to driver distraction
  - Will also be looking at near crashes
- **Research questions include:**
  - Assessment of willingness to engage in and associated risk of distracting activities
  - Types of critical events related to distraction
  - Potential role of crash warning systems in preventing distraction related crashes

# 100-Car Naturalistic Driving Study



**Data Collection Capabilities**

# CAMP - Driver Workload Metrics Project

Measuring workload in lab



Measuring workload on road



## CAMP

Driver Workload Metrics Consortium



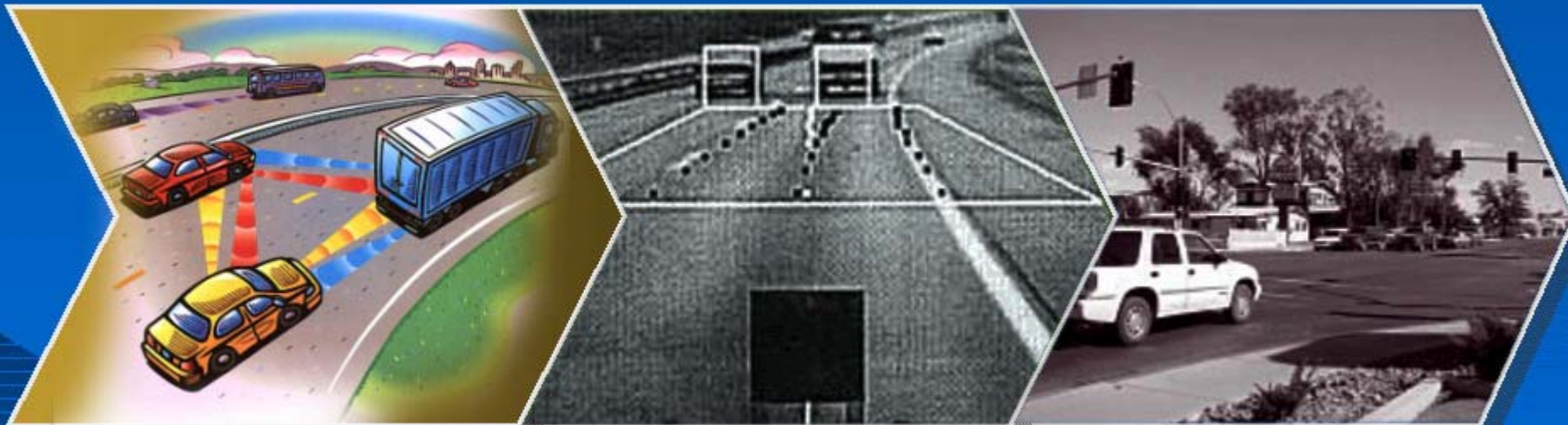
IVI Light Vehicle Enabling Research Program

# Driver Assistance Systems To Alert Distracted Drivers

Forward Collision  
Warning System

Road Departure  
Warning System

Intersection Collision  
Warning System



# Adaptive Interface Workload Management

**SA**fety **VE**hicle Using Adaptive **I**nterface **T**echnology



# In conclusion...

