

Driver Distraction:

Understanding the Problem,
Identifying Solutions

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What is Driver Distraction?



Then

Now

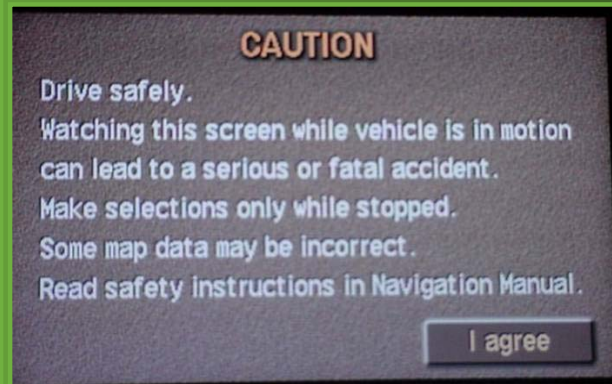
Future



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



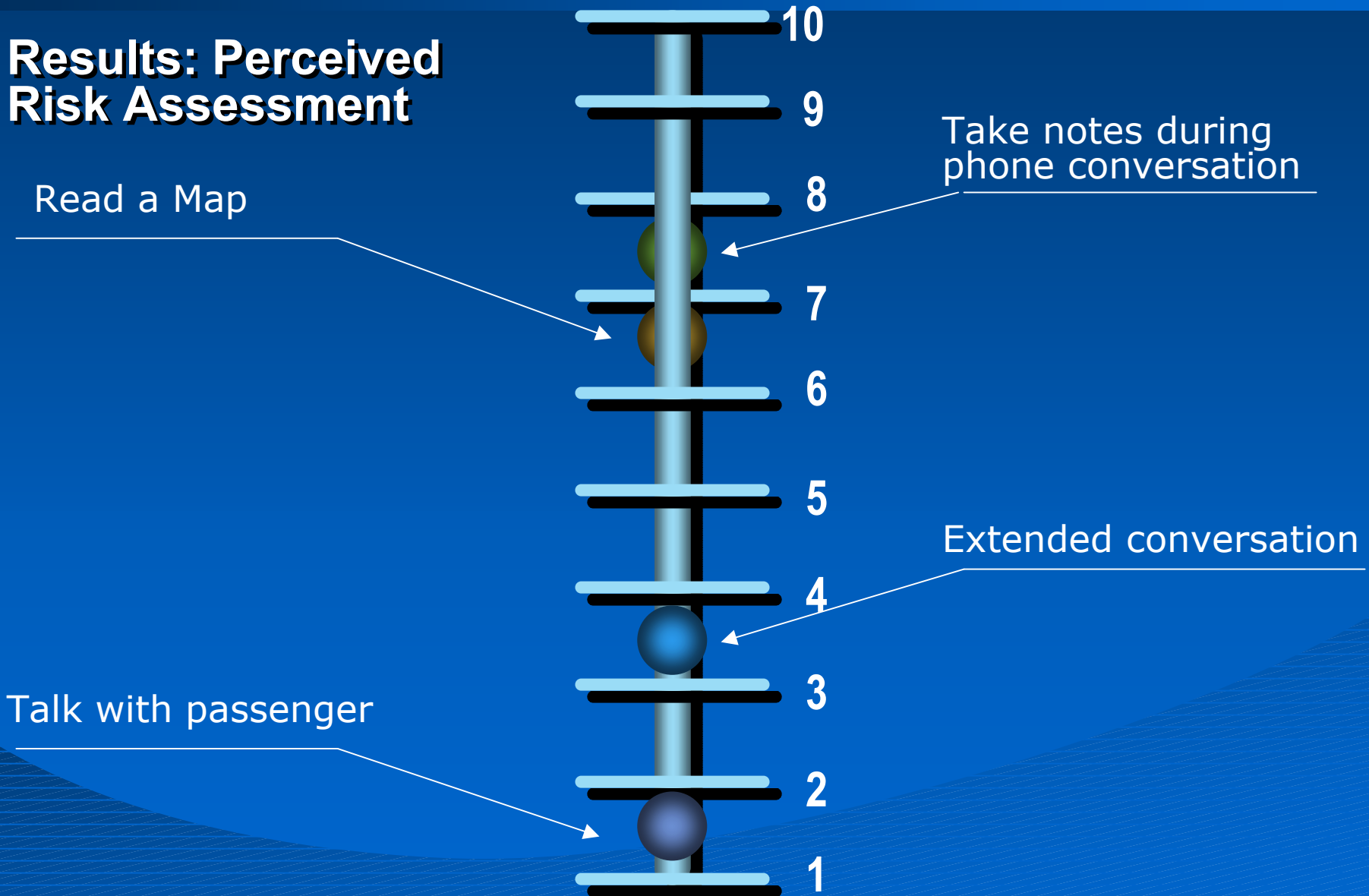
**Driver Willingness
to Use**



**Distraction Demands
of Driver/Vehicle
Interface**

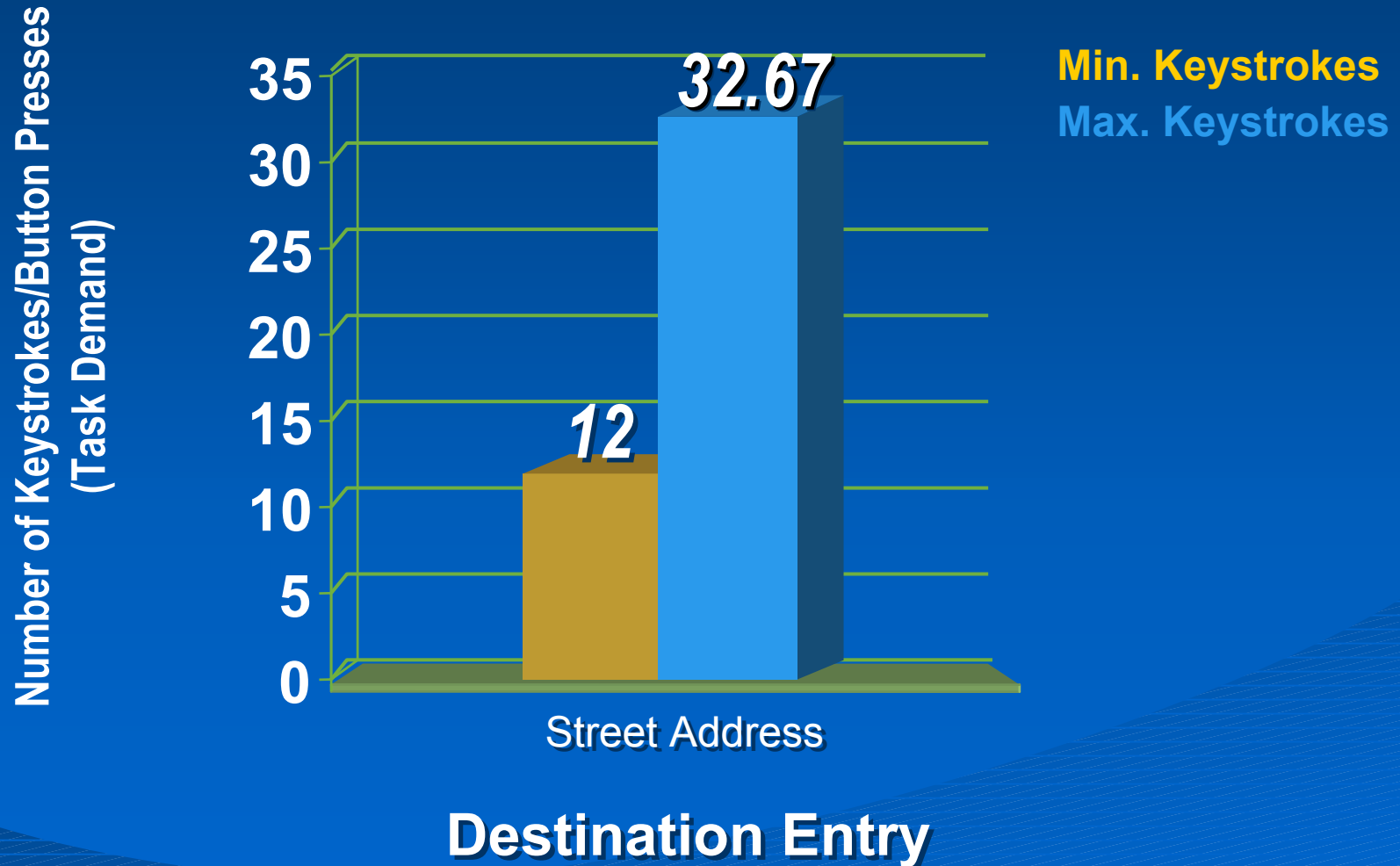
Willingness to Engage While Driving

Results: Perceived Risk Assessment



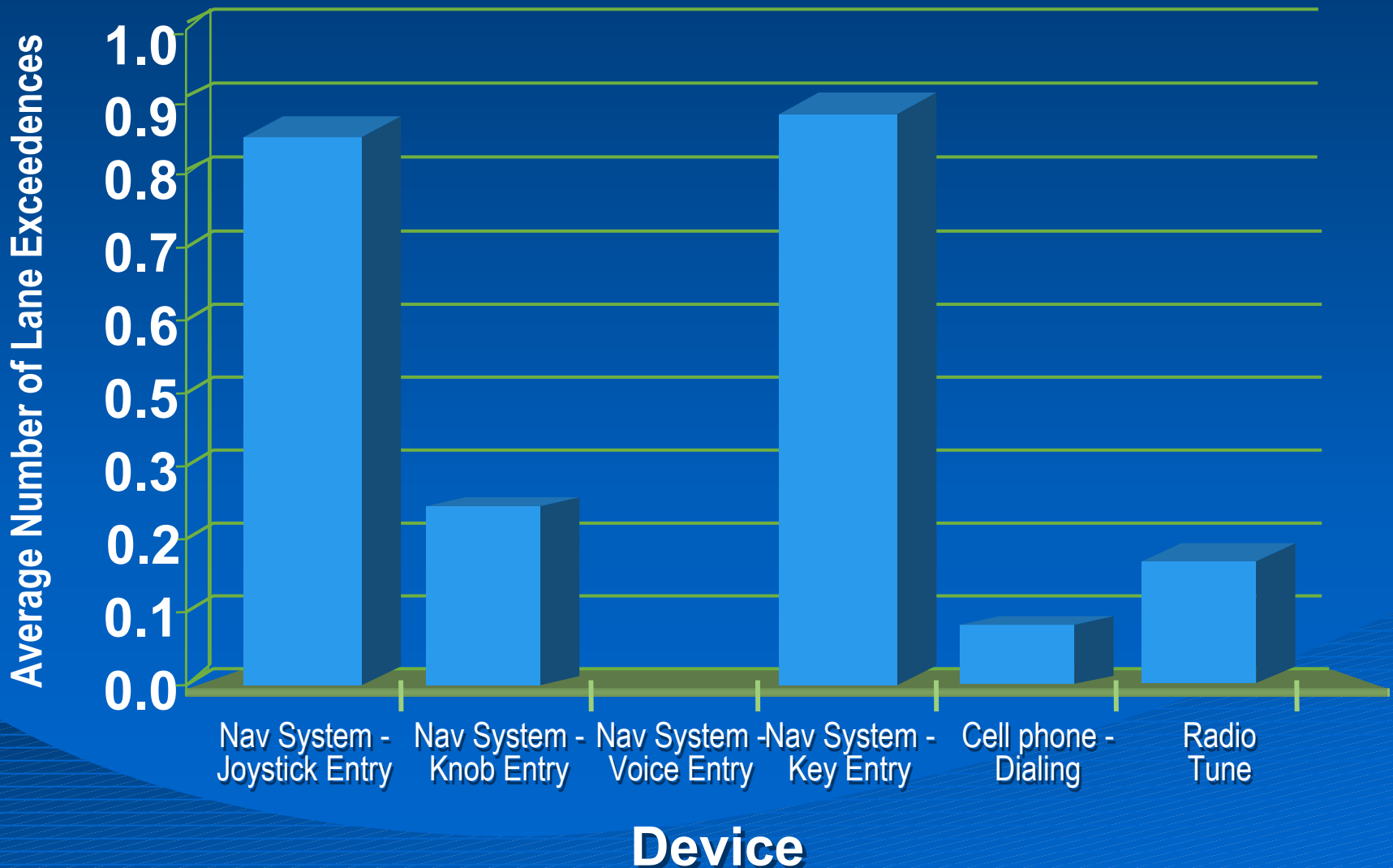
Inventory of Navigation Interface Designs: Task Demand

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



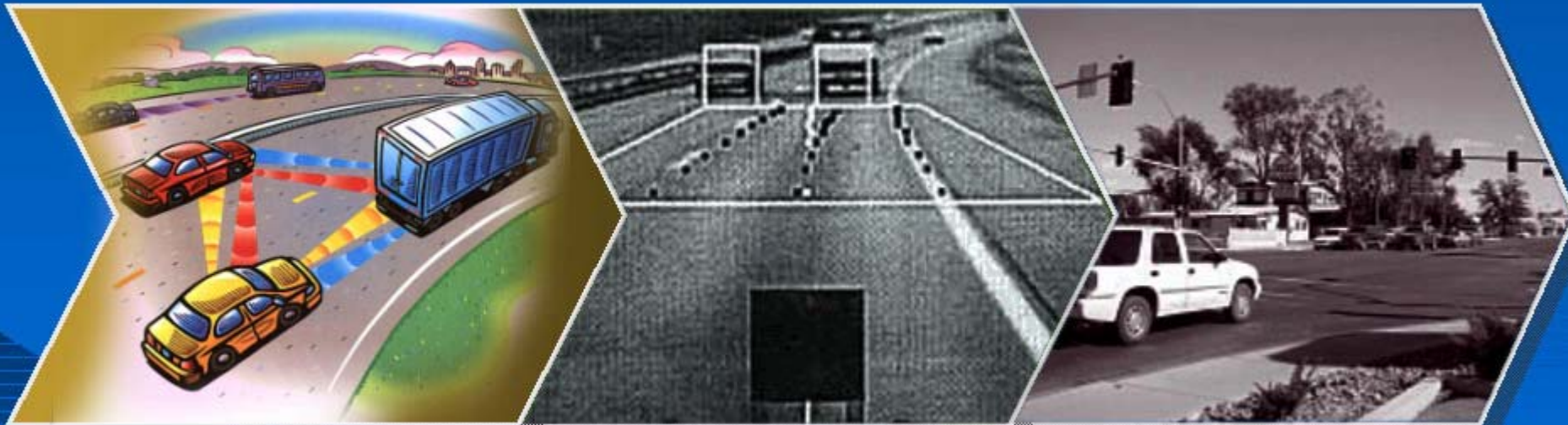
IVI Light Vehicle Enabling Research Program

Driver Assistance Systems To Alert Distracted Drivers

Forward Collision
Warning System

Road Departure
Warning System

Intersection Collision
Warning System



Adaptive Interface Workload Management

SAfety **VE**hicle Using Adaptive **I**nterface **T**echnology



In conclusion...

