

*National Academies' Review of the*

**NIOSH**

# Construction Research Program



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WORKPLACE SAFETY AND HEALTH



# NIOSH Construction Research Program

- ◆ Why Construction?
- ◆ Program Organization
- ◆ Inputs
- ◆ Outputs and Outcomes
- ◆ Future Directions

# Construction Sector

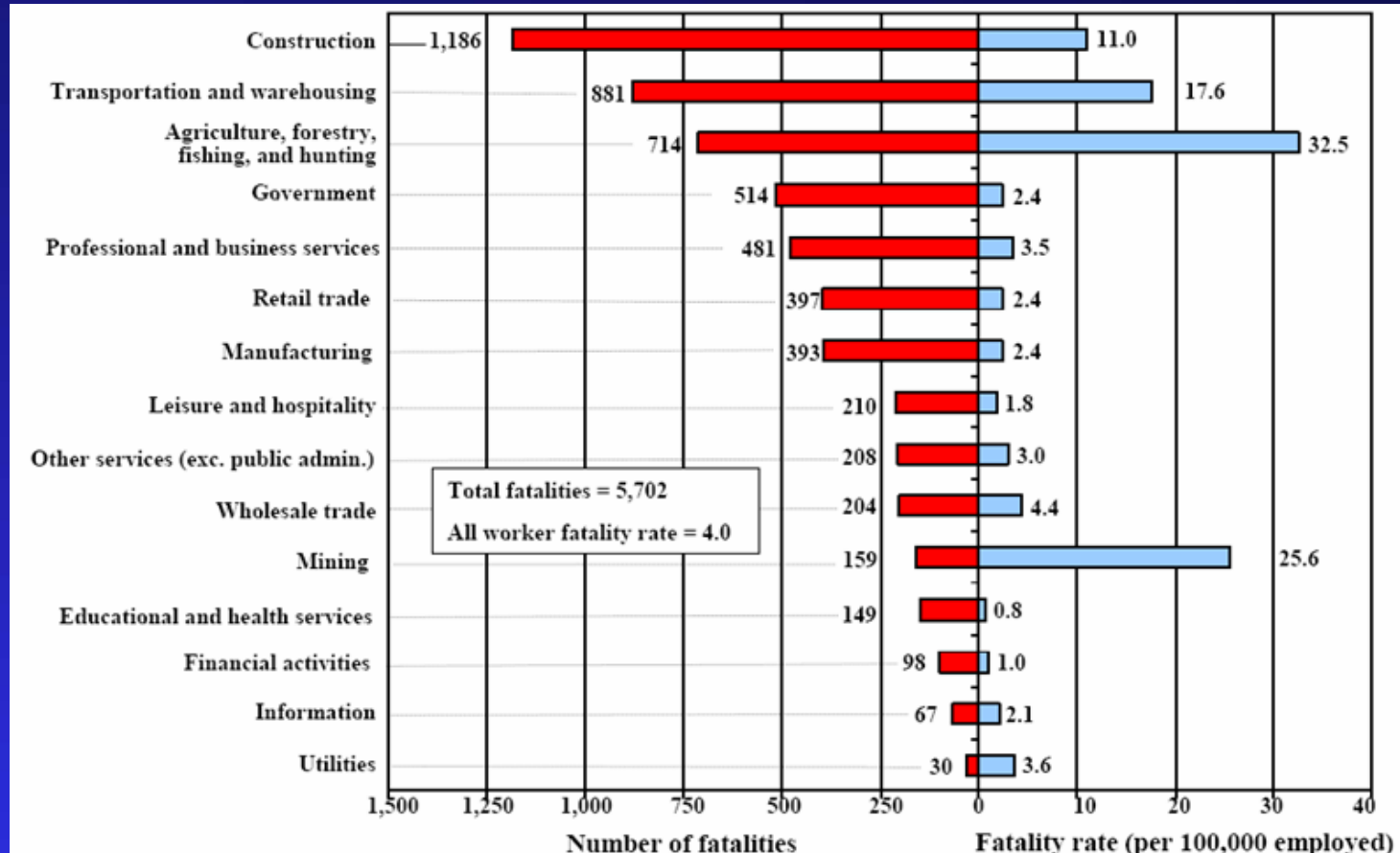
Code	Sub-sector	# Employed
<b>23</b>	<b>Construction Sector</b>	<b>7,416,000</b>
236	Buildings	1,727,200
237	Heavy Construction	974,800
238	Specialty Trade Contractors	4,714,000

Plus 2.5 million self-employed one-person businesses.

*Ref: Census Bureau, 2005*

**8% of all workers**

## Numbers and Rates of Fatal Work Injuries by Industry, United States, 2005



**8% of all workers**

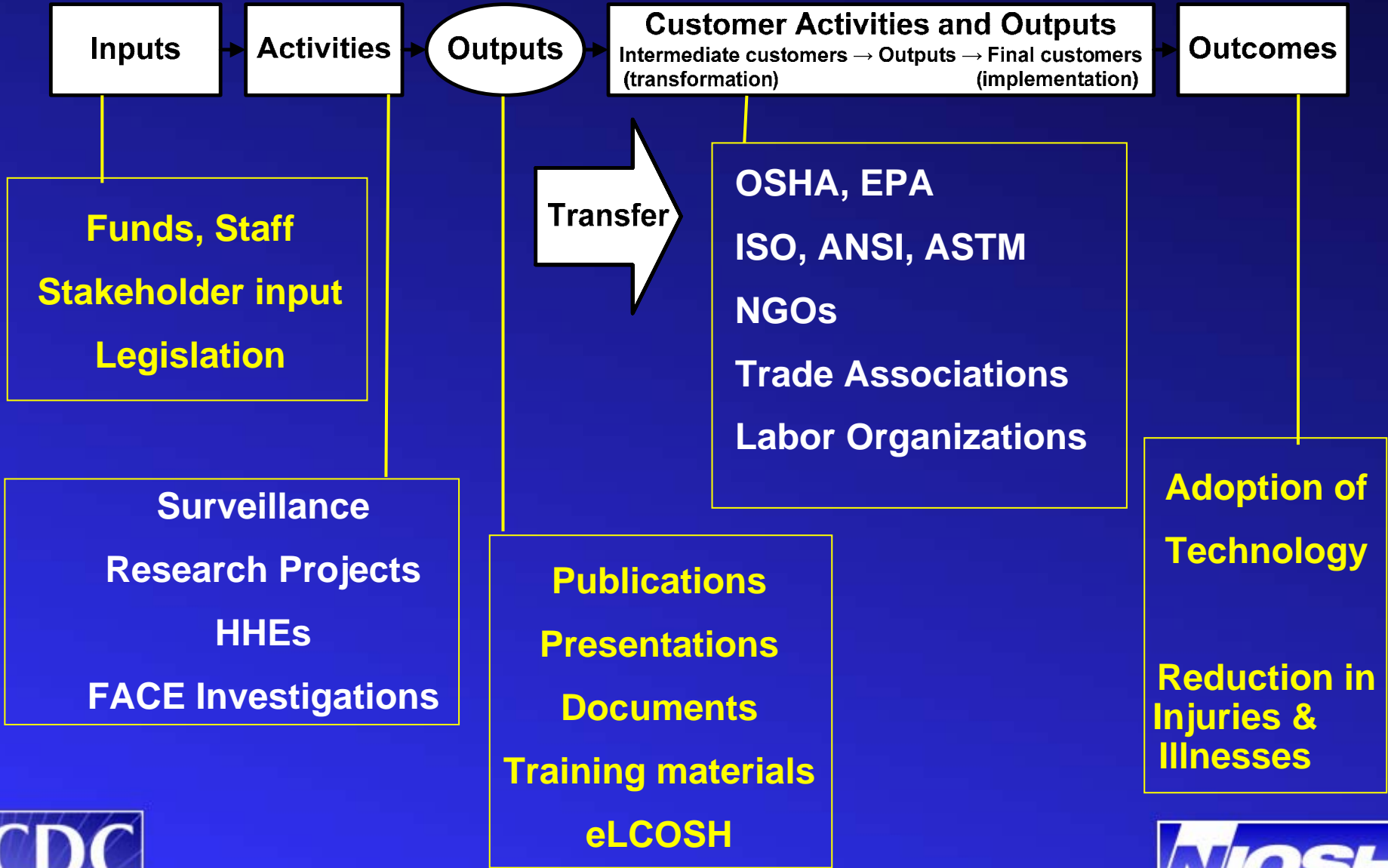
**22% of all fatalities**

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# Logic Model

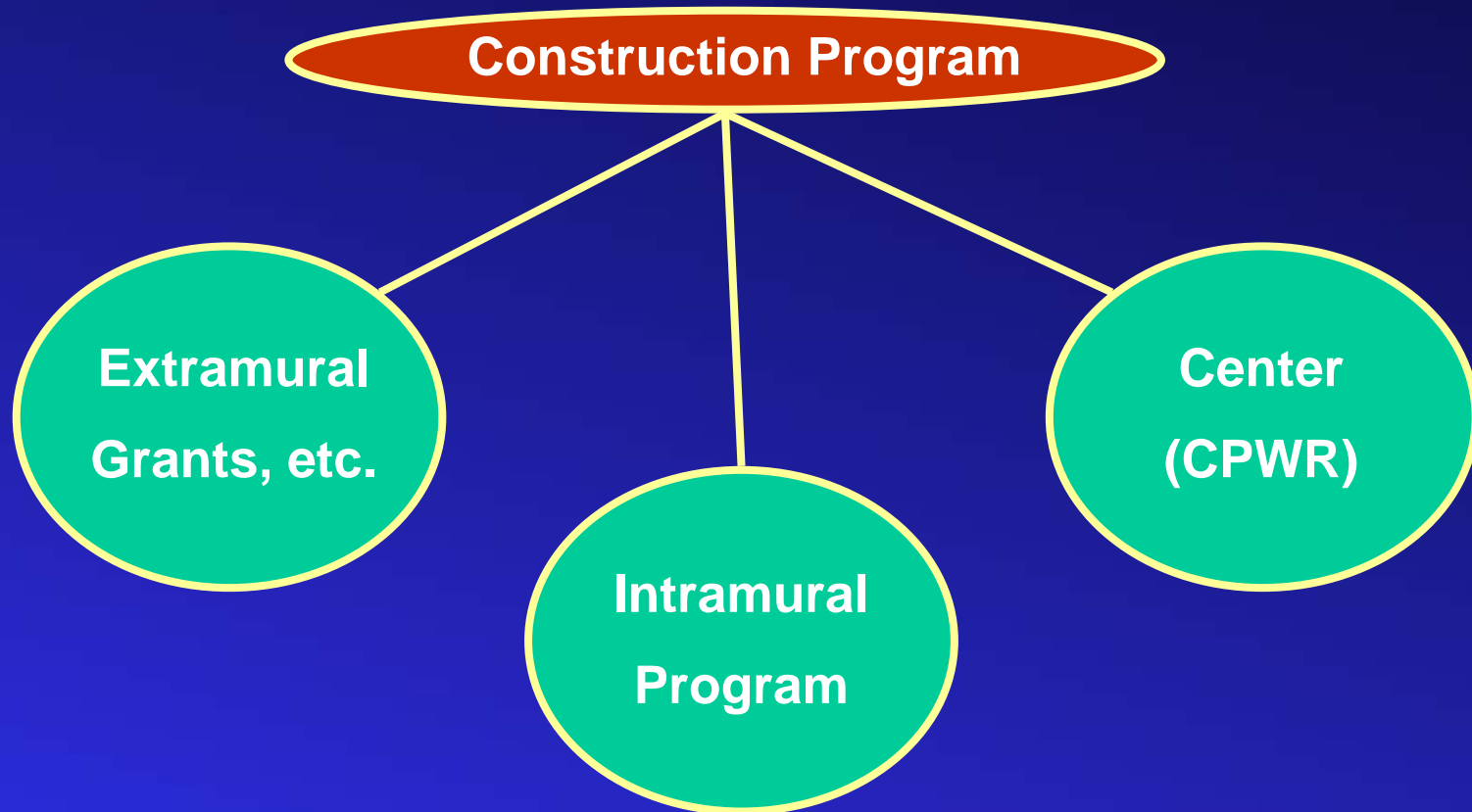
*Evidence Package – Page 35*



# External Factors

- Constantly changing work environment
- Many small employers
- Multi-contractor work sites (responsibilities)
- Industry culture – acceptance of risk
- Transient employment
- Cost of technology
- Immigrant and non-English speaking
- Standards and regulation process is slow
- Liability concerns of equipment manufacturers
- Limited, incomplete or missing surveillance data

# Program Organization





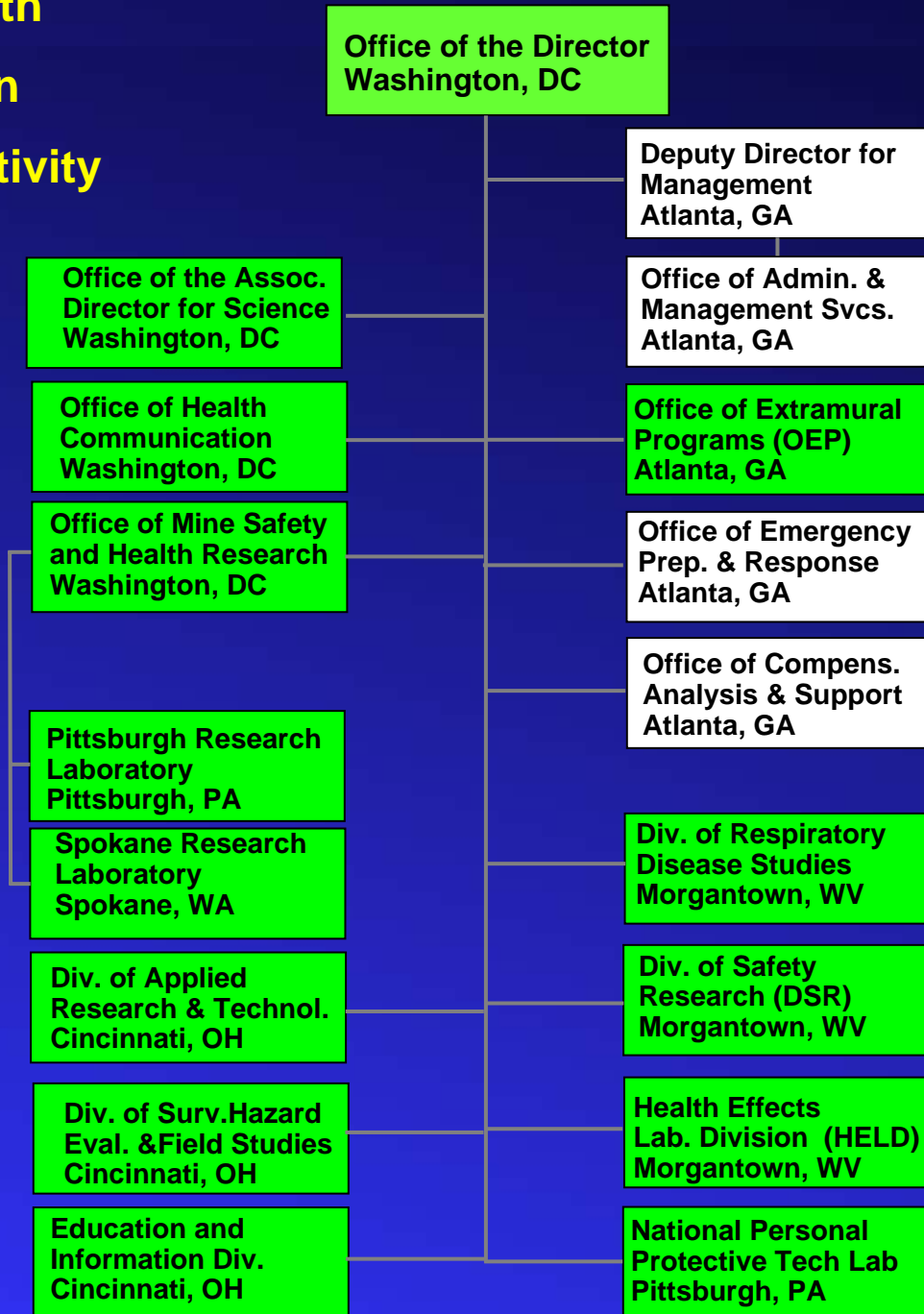
# NIOSH

## Organization



# Divisions with Construction

## Program Activity



Personnel Input

2007:

**56 FTE**



# Matrix Management Components of NIOSH Program Portfolio

Sector Programs	Cross-Sector Programs	Coordinated Emphasis Areas
Agriculture, Forestry and Fishing	Authoritative Recommendations	Economics
<b>Construction</b>	Cancer, Repro and Cardiovascular	Exposure Assessment
Healthcare and Social Assistance	Communications and Information Dissemination	Engineering Controls
Manufacturing	Emergency Preparedness/Response	WorkLife Initiative
Mining	Global Collaborations	Occupational Health Disparities
Services	Health Hazard Evaluation (HHE)	Small Business Assistance and Outreach
Wholesale and Retail Trade	Hearing Loss Prevention	Surveillance
Transportation, Warehousing and Utilities	Immune and Dermal	
	Musculoskeletal Disorders	
	Personal Protective Technology	
	Radiation Dose Reconstruction	
	Respiratory Diseases	
	Training Grants	
	Traumatic Injury	
	Work Organization and Stress-Related Disorders	

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# NIOSH Construction Research Program

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# Program Formally Established 1990

- Funding of **\$1 million** provided by Congress (1990)
- Purpose:
  - ◆ “...develop a comprehensive prevention **program** directed at health problems affecting construction workers and expanding existing NIOSH activities in areas of surveillance, research and intervention.”

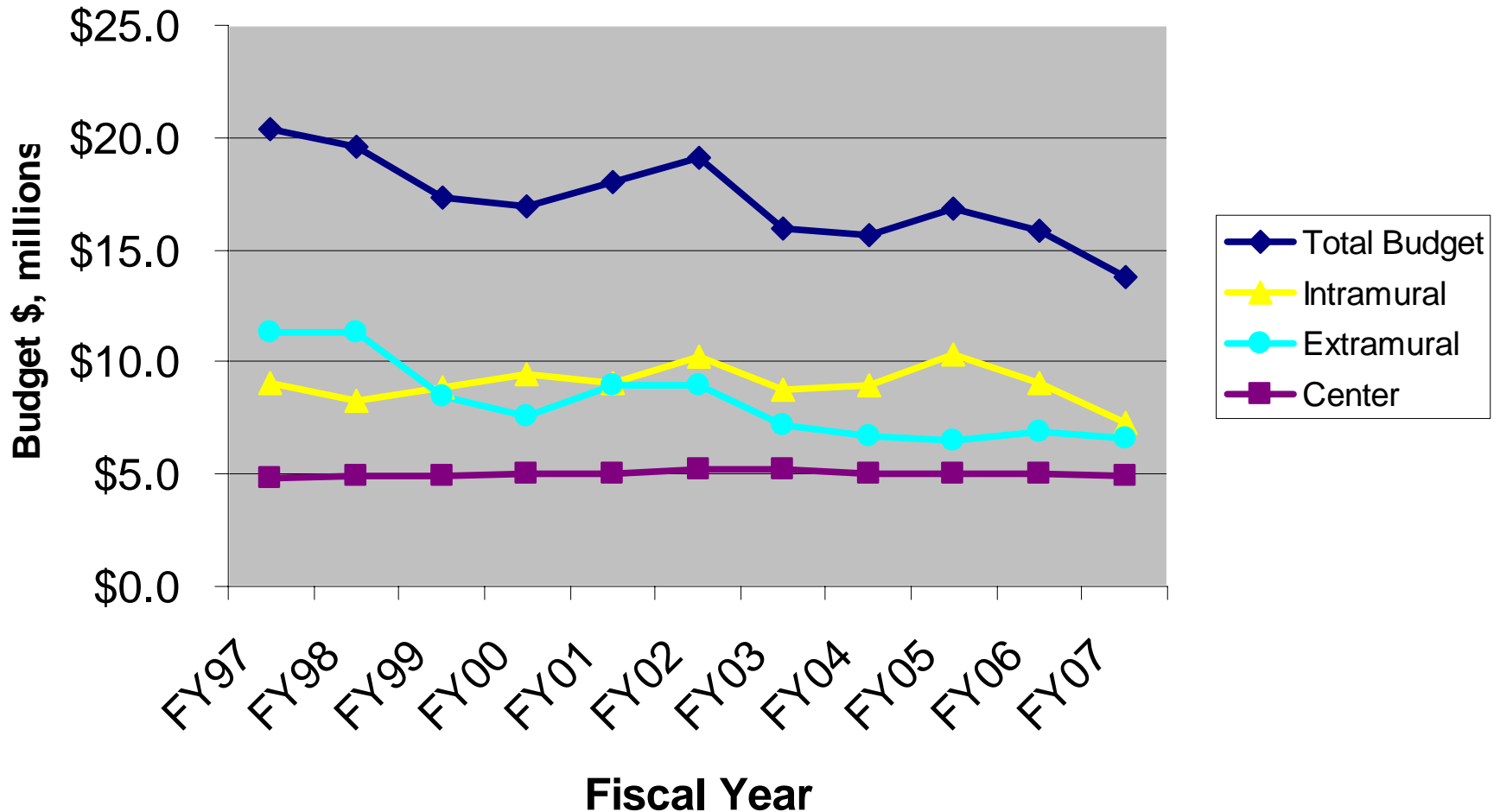
# 1990-1995

## Congressional Appropriations

- 1990: \$ 1 million
- 1991: \$ 2.9 million
- 1992: \$ 5.5 million
- 1993: \$ 9.4 million
- 1994: \$12.1 million
- 1995: \$12.1 million



## Construction Program Funding History



NOTE: Extramural total includes Center funding

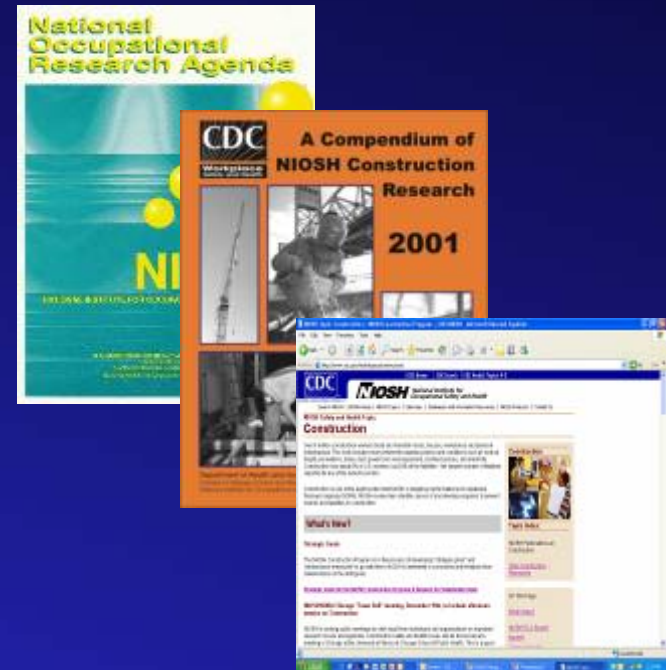




# Planning Inputs 1996 – 2006

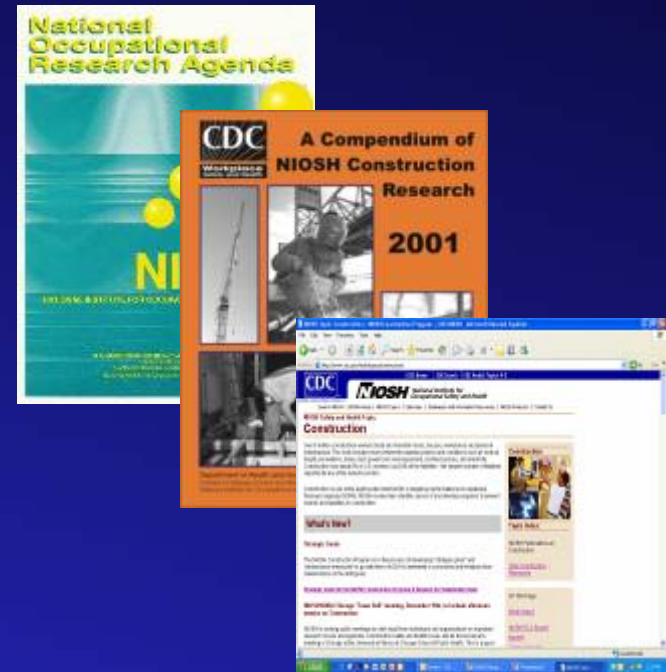
## Major Strategic Inputs

- **NORA 1 Priorities (21 in 3 categories)**
  - ◆ Disease and Injury
  - ◆ Work Environment and Workforce
  - ◆ Research Tools and Approaches
- **1996 External Review**
- **2002 “High Priority Construction Topics”**
  - ◆ Health and Injury outcomes
  - ◆ Chemical and Physical Exposure topics
  - ◆ Approach and sector topics
- **2005 “Draft Strategic Goals”**
  - ◆ 7 outcome goals and 1 surveillance goal



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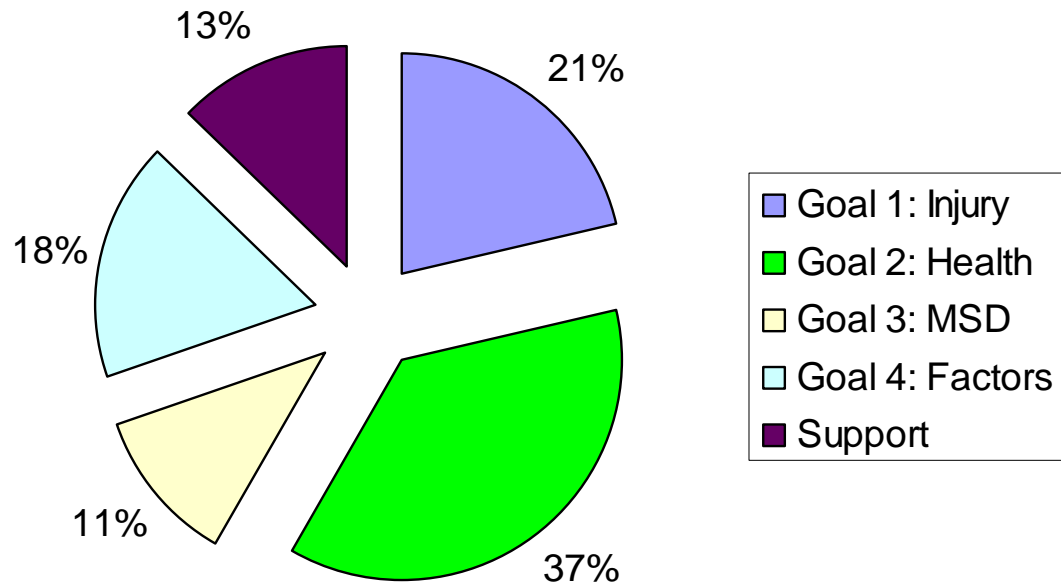
Goals in the Evidence Package are a composite of these

## 2007 Construction Research Program Four Key Goals

- Goal #1: Reduce injuries and fatalities
- Goal #2: Reduce overexposure to health hazards
- Goal #3: Reduce musculoskeletal disorders
- Goal #4: Increase understanding of factors for improving outcomes

# Program Activities

## Construction Program Funding Total Funds for FY96 - FY06



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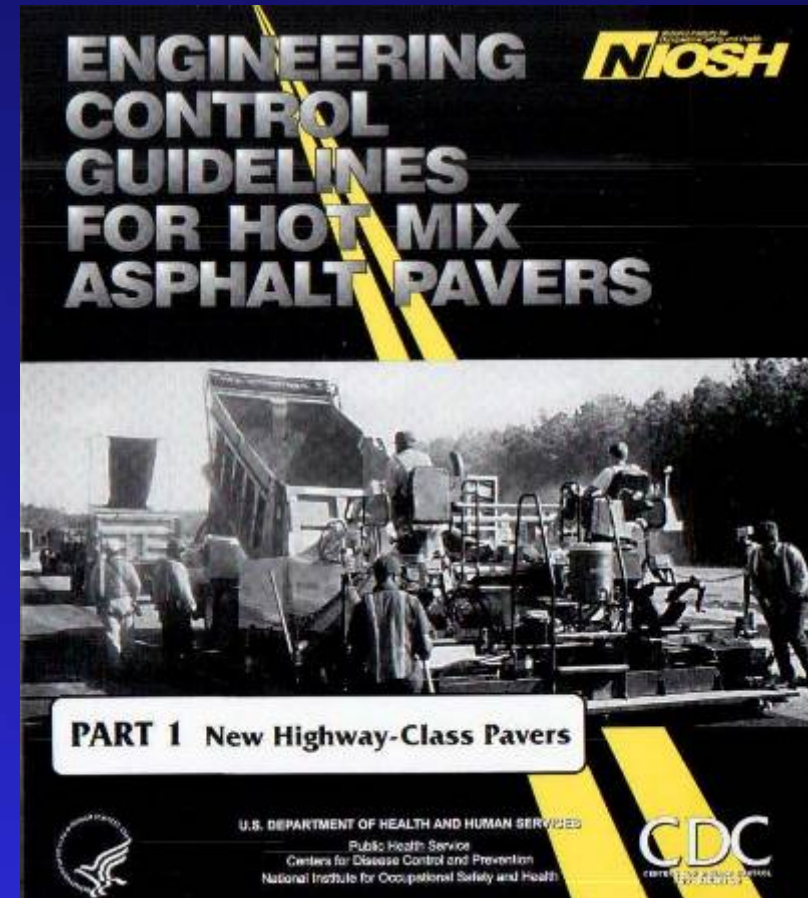
# Outputs

- 1996-2006
  - ◆ > 600 peer-reviewed publications
  - ◆ > 500 presentations
  - ◆ > 500,000 NIOSH Numbered publications distributed
  - ◆ > 1 million pocket cards
  - ◆ Electronic Library (eLCOSH) - > 2 million hits/yr
  - ◆ Cosponsored National Conferences on Construction Safety and Health

# Transfer Activities: Research to Practice



- Asphalt Pavers Partnership
- Partnered with OSHA to distribute Trenching Safety CD-ROM  
(over 7,000 distributed)

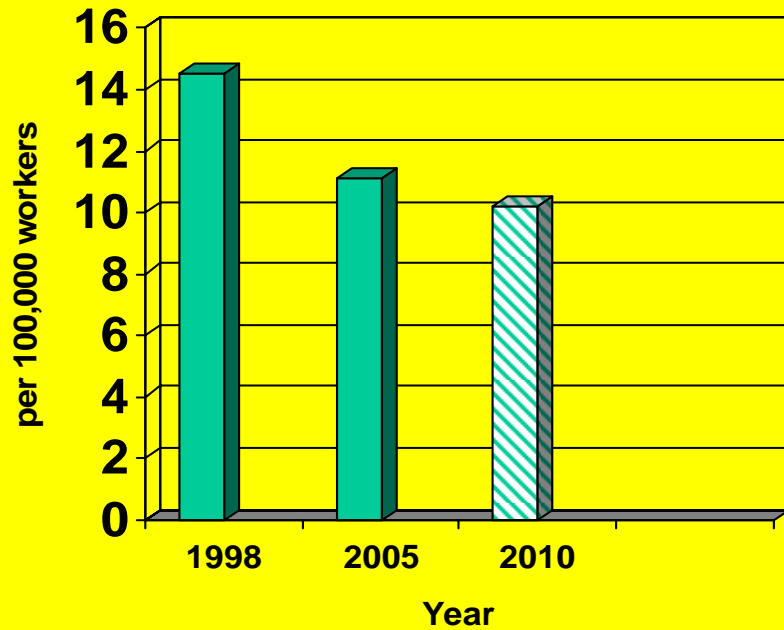




# End Outcomes

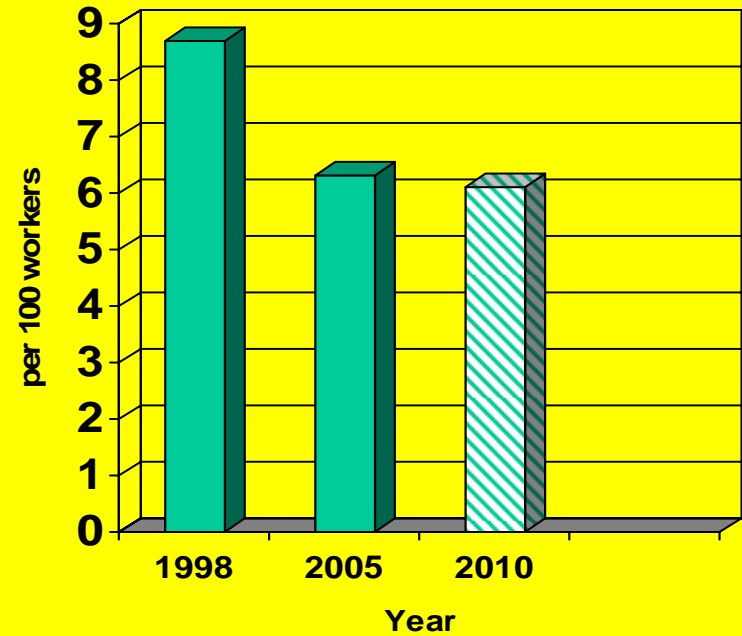
## Fatal Injury Rate

with Healty People 2010 Goal



## Non-Fatal Injury Rate

with Healthy People 2010 Goal



# Future Directions

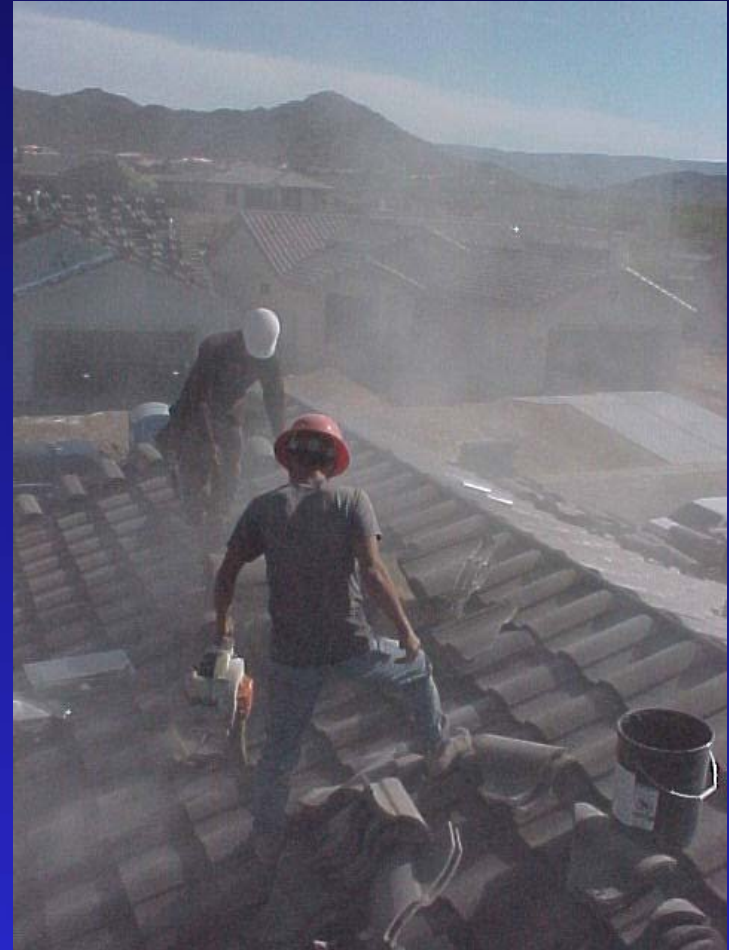


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Photo Credit: NASA

# Future Directions

- Demographics in the construction industry:
  - ◆ Multi-lingual
  - ◆ Immigrant - cultural
- New construction technologies & materials:
  - ◆ Green buildings
  - ◆ Nanomaterials
- New technologies for Exposure Assessment



# New Technologies for Exposure Assessment

## Potential Synergy with *Mining Sector*



**Exposure readout  
window visible to worker**



**Personal Dust Monitor  
(PDM)**

# What's Next?

- Briefing from National Construction Center (CPWR)
- Goals, Accomplishments, Impact
  - ◆ Reducing injuries and fatalities
  - ◆ Reducing disease
  - ◆ Musculoskeletal disorders
  - ◆ Factors for improving outcomes
- Future Directions