



**Structure and Bridge Division**

**Follow up Questions to Status of the Commonwealth's Structures  
For the Joint Commission on Administrative Rules**

**Kendal R. Walus, PE**

**State Structure and Bridge Engineer**

**December 12, 2007**

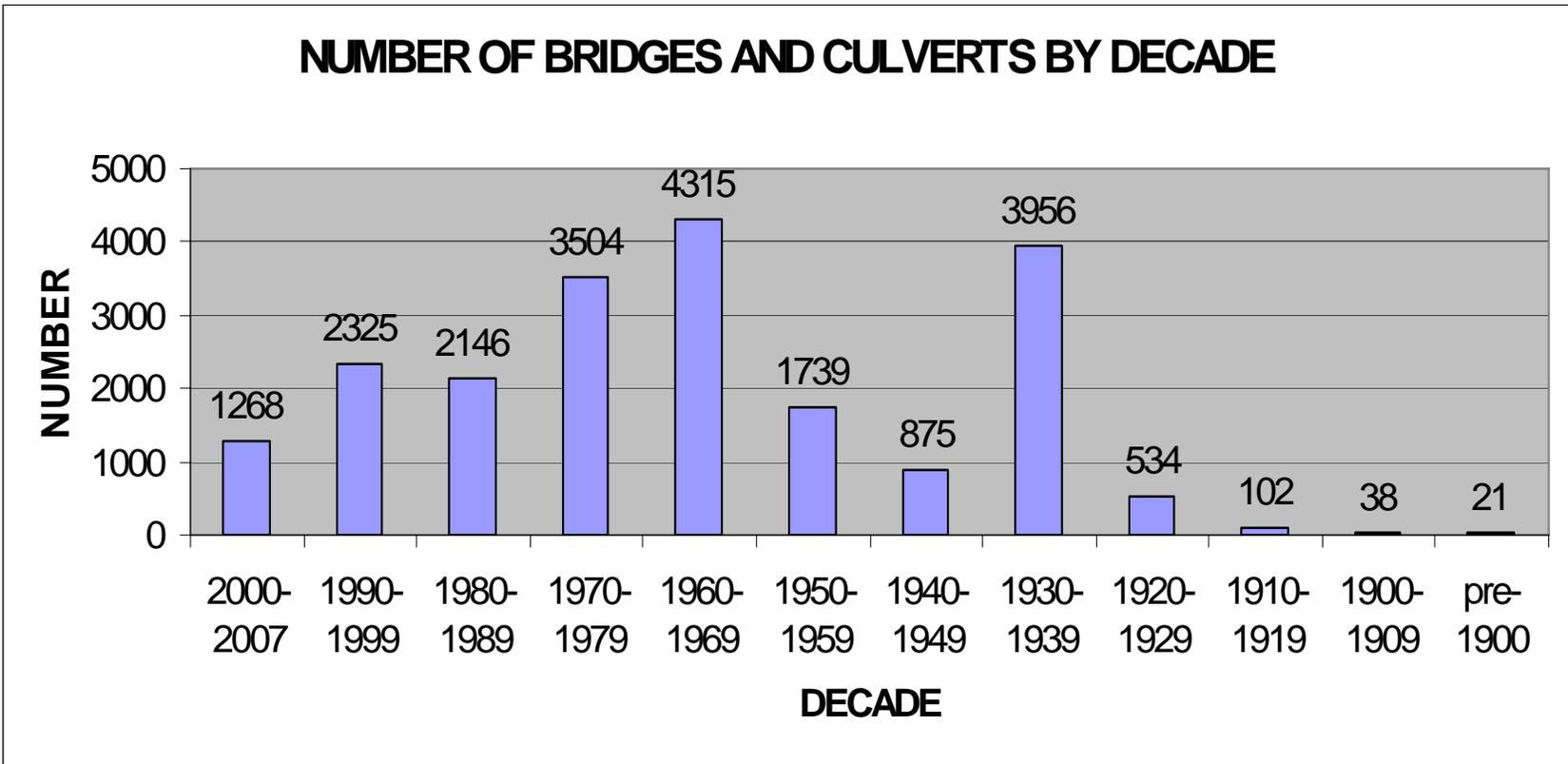
## Presentation Outline

- **General Bridge Inventory Information**
- **Tunnel Inspection Information**
- **Historical, Current and Projected Bridge Maintenance Expenditures**
- **Cumulative Change in Producer Price Index for Construction Types**

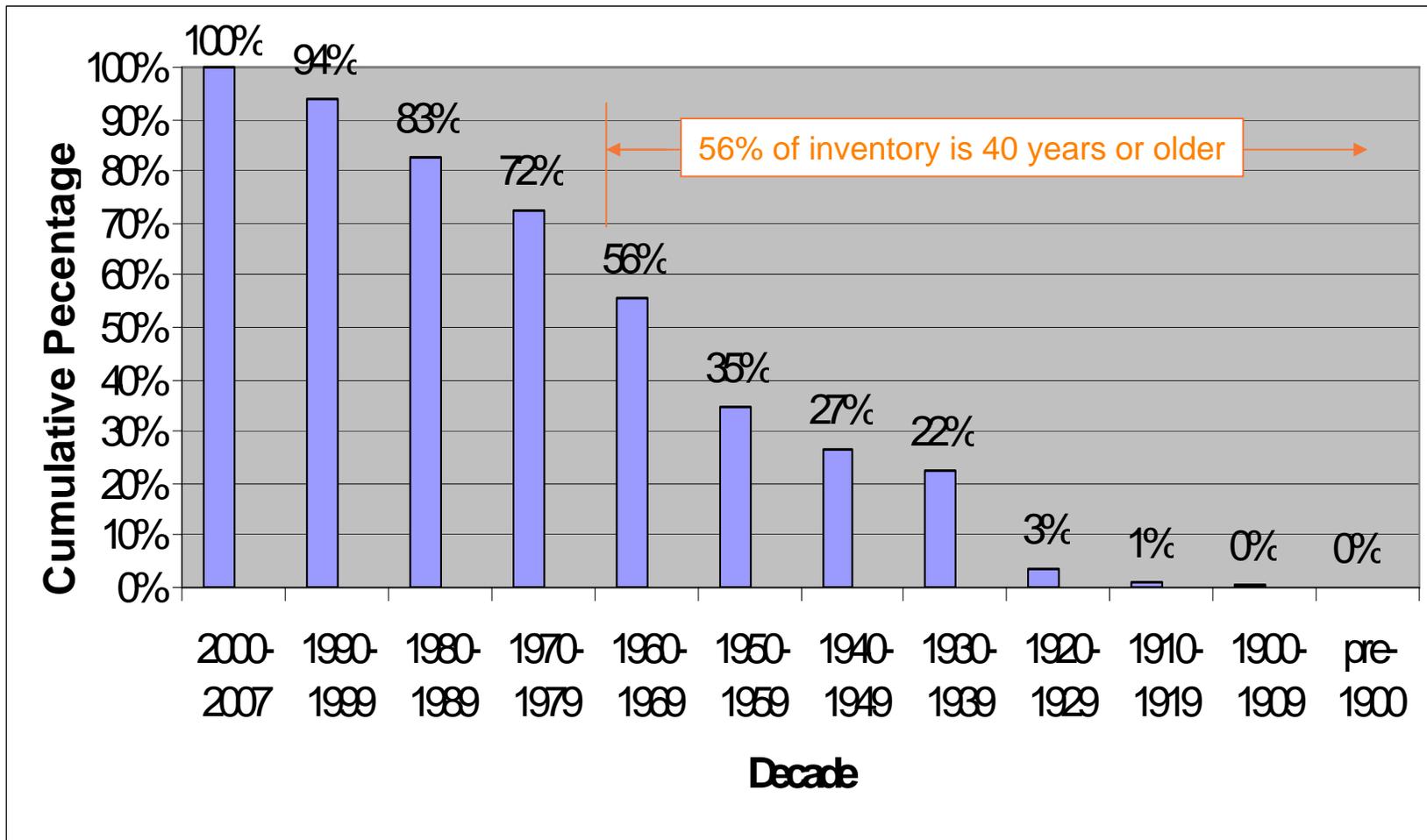
## General Bridge Inventory Information

- **Web link for general condition rating on all 20,823 structures is:**
  - <http://www.virginiadot.org/info/bridge.asp>
- **Total Number of Structures (Bridges and Culverts) = 20,823**
- **Number of Structurally Deficient (SD) structures = 1,739 (8.4%)**
- **Estimated Cost to replace all SD Structures is approximately \$3.5 billion**
- **Estimated Cost for addressing the entire backlog of bridge preservation (maintenance and rehabilitation) needs is approximately \$1.2 billion**
- **Estimated maintenance cost for maintaining bridges and culverts at current condition is approximately \$100 million.**

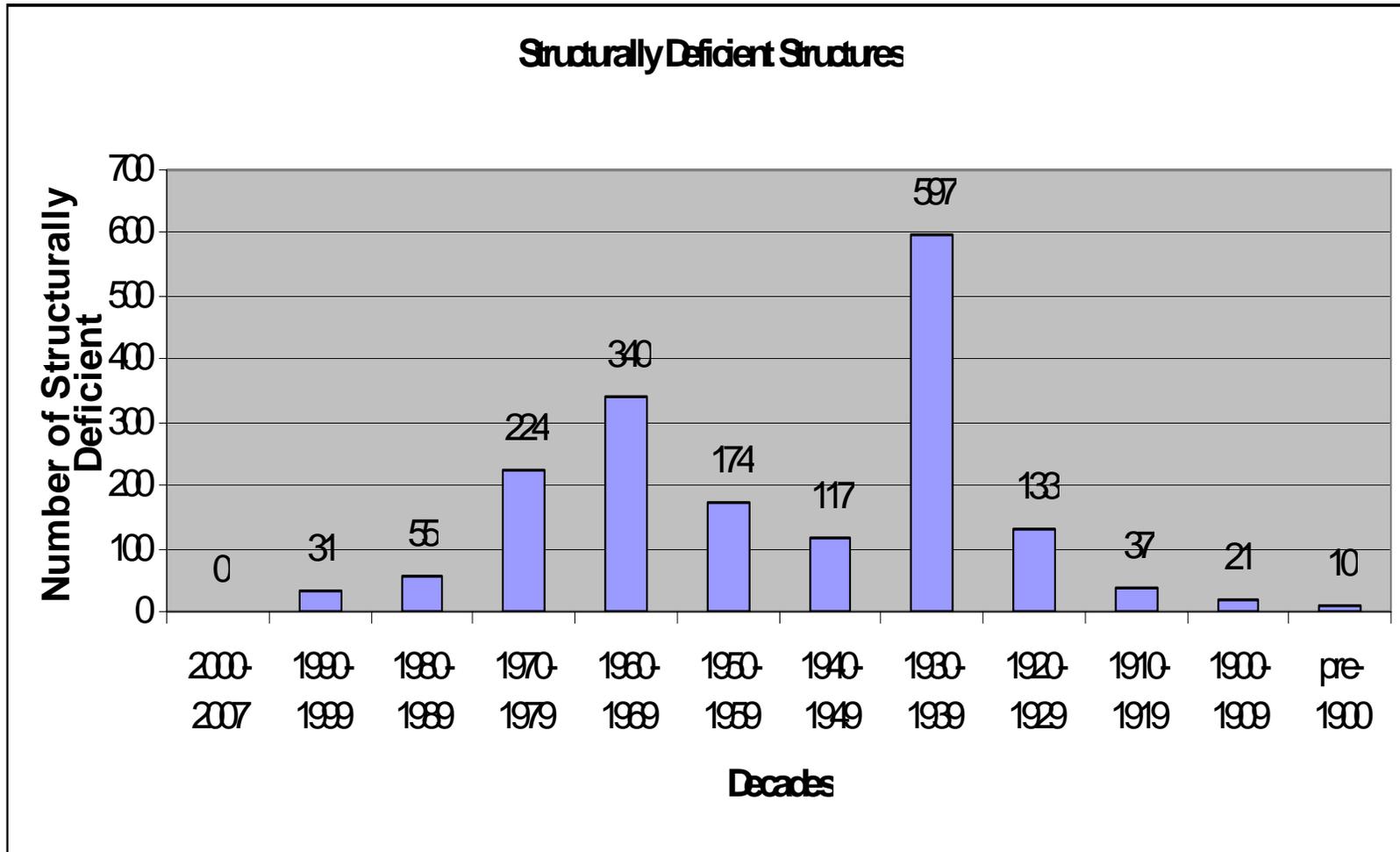
## Age of Structure Inventory



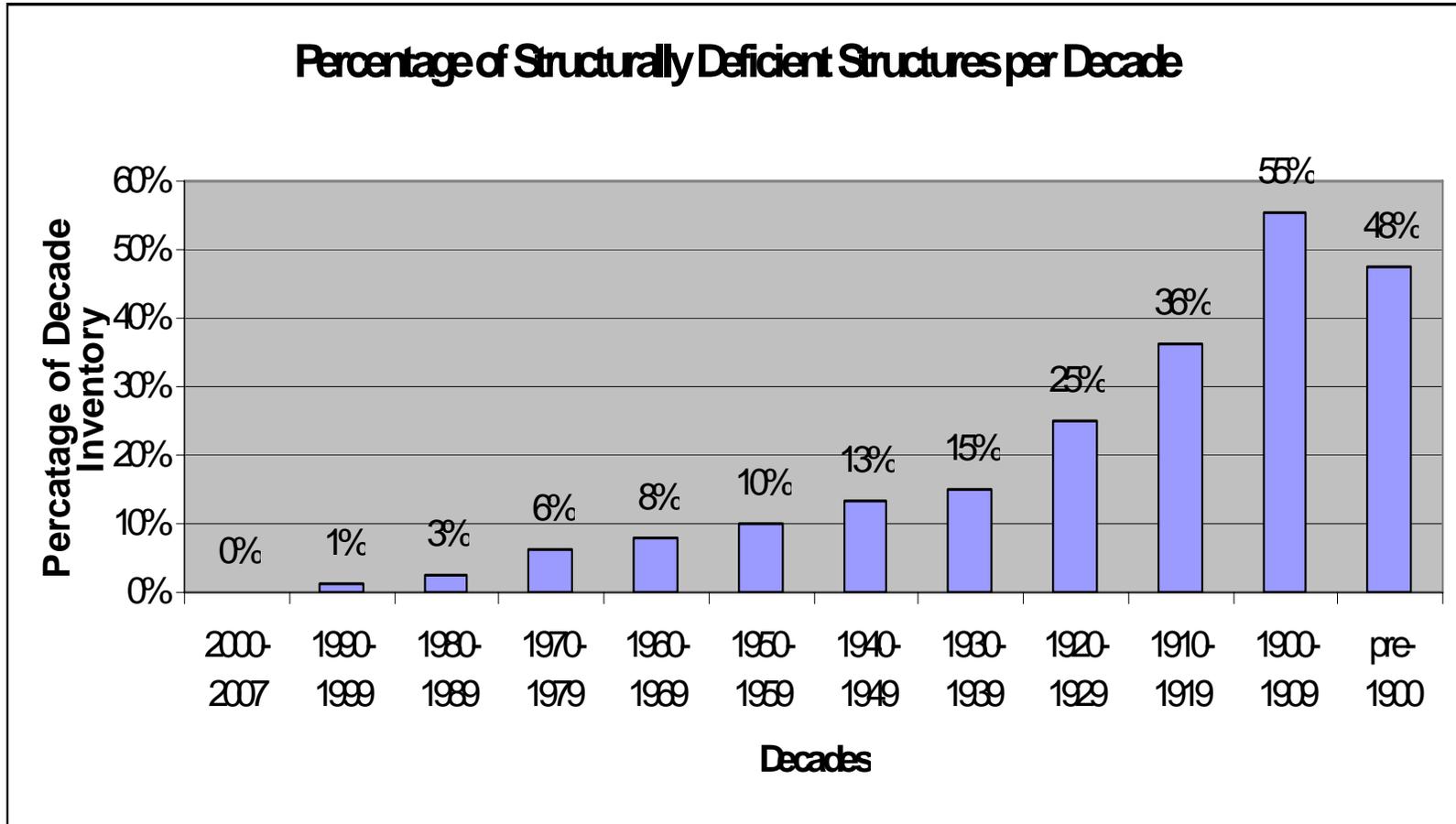
# Cumulative Percentage of Structures



## Number of Structurally Deficient Structures per Decade Inventory



## Percentage of Structurally Deficient Structures per Decade Inventory



## Hampton Roads District

<b>County/City</b>	<b>Bridges &lt; 18 feet</b>	<b>Functionally Obsolete</b>	<b>Structurally Deficient</b>
<b>Accomack</b>	<b>7</b>	<b>2</b>	<b>3</b>
<b>Chesapeake</b>	<b>1</b>	<b>1</b>	<b>0</b>
<b>Greensville</b>	<b>5</b>	<b>3</b>	<b>0</b>
<b>James City</b>	<b>4</b>	<b>4</b>	<b>0</b>
<b>Isle of Wight</b>	<b>8</b>	<b>8</b>	<b>0</b>
<b>Southampton</b>	<b>7</b>	<b>3</b>	<b>2</b>
<b>Suffolk</b>	<b>1</b>	<b>1</b>	<b>0</b>
<b>Sussex</b>	<b>4</b>	<b>2</b>	<b>0</b>
<b>Virginia Beach</b>	<b>1</b>	<b>1</b>	<b>0</b>
<b>Williamsburg</b>	<b>1</b>	<b>1</b>	<b>0</b>
<b>York</b>	<b>1</b>	<b>0</b>	<b>0</b>
<b>Total =</b>	<b>40</b>	<b>25</b>	<b>5</b>

## Tunnel Inspection Information

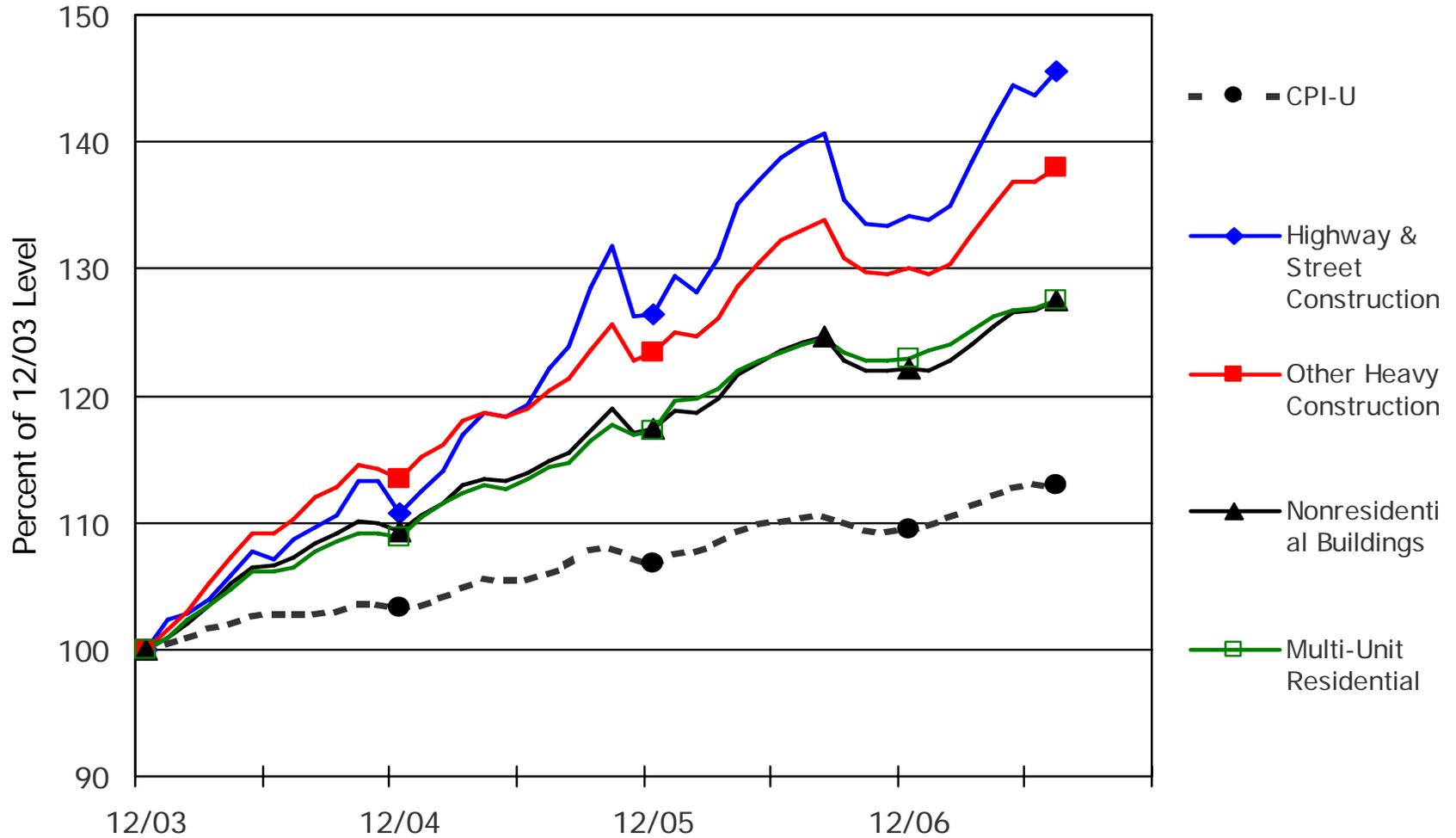
- Tunnel inspections are not mandated by Code of Federal Regulations
- VDOT performs annual fire safety inspections and performs routine maintenance on regular basis
- VDOT perform in-depth inspection on each tunnel once every 7 years
  - This type of inspection takes months to complete
- Last In-depth inspection for the Hampton Roads Bridge Tunnel was in 2003
  - As a result of the in-depth inspection, VDOT has dedicated approximately \$60 million over the next six years to upgrade the mechanical, electrical and other components
- VDOT dedicates specialized staff to work full time on the inspections, maintenance and operations of all tunnels

## Historical, Current and Projected Bridge Maintenance Expenditures

Fiscal Year	Expenditures (million)		
	Bridge Inspection	Bridge Maintenance	Total
2002	\$9.2	\$73.1	\$82.3
2003	\$8.7	\$51.4	\$60.1
2004	\$9.6	\$64.2	\$73.8
2005	\$12.4	\$66.3	\$78.7
2006	\$13.2	\$76.0	\$89.2
2007	\$13.5	\$78.2	\$91.7
2008	\$15.7	\$131.4	\$147.1
2009	\$14.5	\$126.9	\$141.4
2010	\$14.9	\$128.0	\$142.9

Bridge maintenance expenditures include operating movable bridges

## CUMULATIVE CHANGE IN PRODUCER PRICE INDEX FOR CONSTRUCTION TYPES (All PPIs = 100 in 12/03)





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